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7 rules of the New Normal

In terms of lifestyle and technological changes, the Covid-19 crisis-lockdown represents the greatest fundamental shift since World War 2. Indeed the 2020s and beyond are already being dubbed the post-Covid era. Here are what appear to be some rules of the New Normal...

1. What can be WFHed will be WFHed: Previously there were Work From Home apprehensions from companies and bosses demanding the physical presence of their teams. This prevented the WFH culture from fully taking off. Those shackles have finally been removed even as collaboration and bandwidth players have upped their game.

2. Put it all on the cloud: It doesn't matter whether it's public, private or hybrid. You need to put your data on the cloud. You need to work on the cloud and facilitate your WFH employees to work on the cloud.

3. No touch is the way forward: No touch is not just a pandemic technology—It can work during other natural disasters like floods and earthquakes. (Why not during normal times too?) Drones.Robots.Automation.Collaboration.AR-VR-MR. There are many such technologies that can facilitate it. This will ensure Business Continuity Planning no matter what.

4. Surveillance is here to stay: Contact tracing has been embraced by governments all over the world. Facial recognition is spreading far and wide. Remote workers have to be monitored. Your mobile is your I-card and locator whether you like it or not. We have already entered the surveillance era. If 9/11 paved the way for the same, then Covid has only cemented it.

5. You can learn it all virtually: Training can be done online. Colleges can be conducted online. The tools were always there to do so, but only now have we realized them. An Indian hospital even conducted a surgery session online for the benefit of the entire world. (This doesn't apply to schools though. Because it probably is inhuman to expect a small child to stare at a screen all day and not develop physical, extra-curricular, sporting and social skills that outdoor schools provide).

6. Skills over degrees: Degrees from reputed colleges now look hyped and outdated. Companies will be more interested in knowing what skills employees have. The more skills you have and the more you are willing to pick up along the way, the more relevant you will be in the post-Covid world. We may have many more relevant and popular online skill universities.

7. The only constant is change: This is a cliché but more so now. Technological change always had the velocity but now there is real acceleration. Whether you are an industry, company, division or individual, if you don't change, upgrade and transform, you will end up being a fossil.

Sunil Rajguru

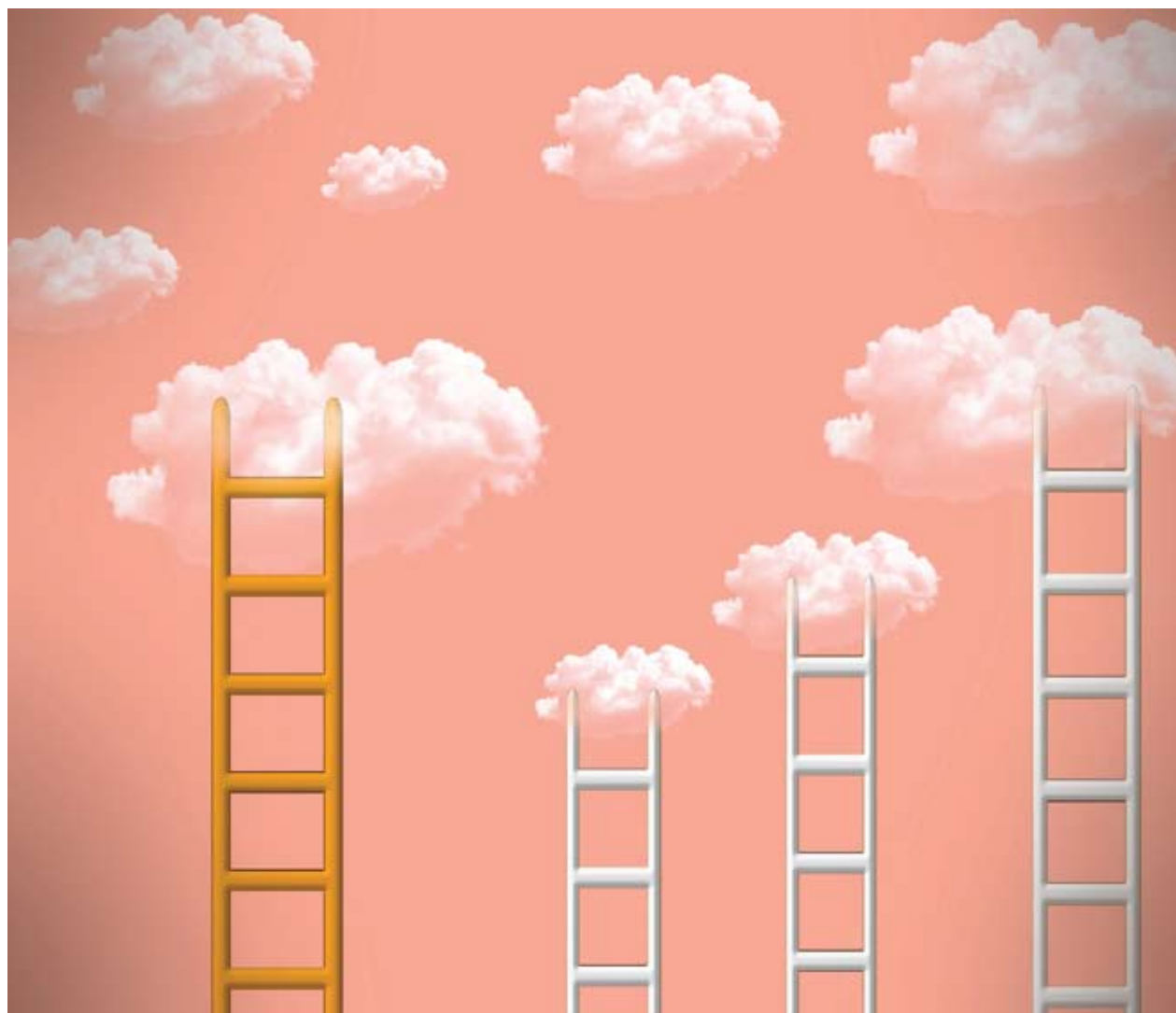
“
Tech acceleration
still the theme

”

A SILVER LINING FOR BUSINESSES AMIDST PANDEMIC

Indian businesses have started leveraging Cloud technologies to a great extent as they attempted to cope with these uncertain times, ensure business continuity, and power innovation—making way for greater adoption of Cloud across various industries

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VIKAS ARORA

VP - IBM Cloud & Cognitive Software & Services, IBM India & South Asia

“With only 20% of mission-critical workloads having moved to the cloud, it is making it difficult for organizations to maintain business continuity while transforming IT operations specifically in times like these. Hybrid cloud is swiftly becoming the dominant force

driving change in the industry. Enterprises can fully optimize their hybrid cloud and accelerate transformation by leveraging internal and external resources to solve current challenges. Today, 80% of workloads are yet to move into a hybrid cloud environment. Also, most clients manage between 6-15 different clouds. This has made Hybrid multi-cloud as the new normal for enterprises investing in IT modernization. It is estimated that 50% of enterprises will have moved to ‘write once, run anywhere’ hybrid and multi-cloud environments by 2023.”



TRIDEEB ROY

Director - Sales, Data Center, Cisco India & SAARC

“Now, having realized the criticality of making their businesses agile and resilient in the event of a crisis, organizations are increasingly focusing on building a robust cloud infrastructure for elasticity at scale. As the home becomes a base for working,

learning, shopping, etc., hybrid cloud architectures, powered by AI/ML, are seeing increased adoption as well. These architectures must be coupled with automated cloud-based management systems to ensure a seamless user experience. In the emerging low-touch economy, as companies strive to leverage new business models and revenue streams, the demand for cloud-delivered, scalable, secure, and simplified management will continue to gain tremendous traction.”



Embracing the New Normal of Work

The unprecedented global crisis caused by COVID-19 pandemic has not only rendered states, and people helpless and homebound, but made it equally challenging for businesses to operate as usual. With Remote Work becoming the new normal, organizations had no option apart from adopting cloud infra and cloud services for business continuity.

The need to work remotely caused a huge spike in demand for cloud-based collaboration, security, and productivity tools to ensure business continuity. Video conferencing tools and Virtual Private Network (VPN) became more important than ever. Organizations are also using cloud-based Desktop-as-a-Service (DaaS) solutions to onboard new remote workers.

Due to stringent lockdown and social distancing measures, industries like media, retail, education, and healthcare also have embraced cloud-based tools for new demands online entertainment, gaming, shopping, virtual classrooms, and e-consultations, etc.

The empty offices and full homes, however, posed other challenges. As per data shared by ComScore, India saw a 36 percent increase in Internet use between February and March 2020, and the average time spent on the Internet increased by 23 percent creating immense pressure on the network infrastructure. But edge solutions providers, regulators, and carriers all came forward and took steps to reduce load during peak traffic times and helped businesses avert any online gridlock.



PRASAD RAI

VP - Applications, Oracle India

“The current crisis has forced us to rethink our daily lives from work to school to entertainment. In response to lockdown and social distancing norms, most of us had to resort to digital tools to keep some impression of normalcy. We do not have any choice

but to digitally transform work and education so that we can operate effectively. Businesses that will use technology well to keep going and rethink their business model for the future by fast-tracking their digital transformation journey will be ones ahead of their competition. The success will depend on how businesses are going to leverage technologies like ERP, HCM so that your people can work, collaborate, and be productive remotely and safely.”



LIONEL LEGROS

General Manager, Asia Pacific, OVHcloud

“We believe that a multi-cloud approach provides the most comprehensive mix of public and private clouds, and they don’t necessarily need to be integrated, unlike the hybrid cloud. Moreover, businesses today don’t have to be locked into one provider. Combining on-

premises and cloud infrastructure with a multi-cloud strategy has allowed our customers to connect to networks in a totally isolated and secure way, via numerous points of presence around the world. It has also allowed organisations to shift to the cloud at their own pace and take a flexible approach – all while responding to their strategic objectives. Businesses can control and run an application, workload, or data on any cloud (public, private, and hybrid) based on their individual technical requirements.”





ASHWIN KUMAR
Director - Data Center & Cloud Operations, Linode India
 “Today digital transformation and cloud planning are at the heart of all business strategies. We’ve seen a sharp spike in demand as a result of companies rapidly moving workloads to the cloud, especially from companies in the IT & ITES,

pharmaceutical, banking, and e-commerce sectors. SMEs, too are rethinking their business models and rapidly embracing the cloud to enable collaboration and remote working, minimize infrastructure ownership expenses, and manage fluctuating demand. We suspect this increased demand will continue as companies turn to alternative providers like us to better manage their cloud computing costs and strengthen their multi-cloud and business continuity implementations.”



BALAKRISHNAN ANANTHARAMAN
VP & MD - Sales, India and SAARC, Nutanix
 “Until now, the flexibility to Work-from-Anywhere was a ‘nice to have’ and not a necessity. This pandemic has changed that and made remote working mainstream almost overnight. Enterprises are looking to cloud technology to help them operate with

a remote workforce. Additionally, more companies are looking to maximize resources and move from Capex and hardware-based systems to Opex and ‘as a Service’ solutions. However, as cloud becomes crucial for survivability, the businesses that fail to choose cloud environments with interoperability in mind, are at risk of simply replacing their hardware data silos with data silos in the cloud – reducing the value of their investments.”



Powering Contactless Solutions

COVID-19 crisis had shoved us all into a no-touch world, leaving a large piece of the jigsaw puzzle for the businesses to solve- figuring out the ways they can create new customer experiences, and no-touch interfaces that align with a contactless world.

Providing quality experience with minimum physical contact was one of the most challenging tasks at their hands as retails, travel, hospitality, and airline industries started reopening across the country. The same is true for the banking industry as well. But building contactless and branchless banking requires web-scale applications. Hence going forward we will see organizations focusing more on building cloud-native applications as they are better at responding to change and uncertainty. Enterprise kubernetes platforms also allow businesses to take their ideas to market faster by providing developers with a consistent, secure, and zero-configuration development environment.

A vast majority of people will continue to prefer touchless interactions post – covid pandemic also, reveals a recently conducted survey by Capgemini survey. Besides speeding up adoption for touchless interfaces, this pandemic has created a unique opportunity to accelerate the use of voice-based interfaces in physical settings, and facial recognition technologies, mobile-based contactless transactions also. Cloud will be a major enabler for these contactless technologies and solutions.



HITESH SAHIJWALA
Director - Sales at Red Hat India & South Asia
 “The pandemic has underlined the importance of being resilient, flexible and agile for organizations across the globe. As a result, businesses will continue to focus on strengthening their digital capabilities using hybrid clouds. Hybrid cloud allows seamless

interoperability of applications, workloads and data across IT environments (i.e. on-premises, private, or public clouds) as necessary. Organizations will also focus more on building cloud-native applications as they are better at responding to change and uncertainty and helps them to take their ideas to market faster. For example, the demand for services has increased in the telco industry, and they need to significantly scale up their infrastructure and dynamically prioritise their services as more people work from home. They are prioritising projects such as universal cloud across IT and network functions to achieve flexibility and cost optimization.”



GAURAV AGARWAL
Senior Director – Enterprise Sales, VMware India
 “With an increasing number of businesses embracing Remote Work, workloads also will be moved to the cloud increasingly. But there’s a lot of pressure on businesses to cut costs these days due to the ongoing crisis. Businesses for their existing contracts

with cloud vendors are spending a lot of energy on making sure that their money gets well spent. Hence, every business is re-evaluating its cost as a whole- for example, the utilization of the cloud, re-examining the workload that they have already moved to the cloud, whether they justify the costs or not, whether they can be run in a comparatively cheaper cloud, so on and so forth.”



**ARUN BALASUBRAMANIAN***MD- India & SAARC, ServiceNow*

“India has witnessed rapid digital adoption, people are adjusting to new ways of working and we’ve reached a new era in 2020, where organisations are adopting a cloud-first or a cloud-only strategy to meet business imperatives. In traditional industries, we have seen complete makeovers,

putting digital workflows at the centre of their entire operations. For digital businesses, innovation has been rife as companies use automation to free up people from admin to focus on delivering the best digital products and services to meet changing consumer demands. India also has many shared services centres for global multinationals, run directly or outsourced to technology partners, looking for digital workflows at scale.”

**NIKUNJ VORA***Regional VP, APAC, Qubole*

“Businesses across verticals, barring a few, have been adversely impacted by the COVID-19 situation. This has shone a very bright light on the need to Innovate on Total Cost of Growth. Our customers are pegging the cost of technology against growth targets. There is pressure on improving unit

economics. For a few verticals such as EduTech, HealthTech, and Gaming, the challenge has been to scale rapidly without degrading customer experience. Cloud as an infrastructure choice provides an elastic building place that fast-paced innovation needs and the end-user experience for daily services using Cloud is far superior than the services using legacy technology.”

**NARENDRA BHANDARI***SVP, Persistent Systems in the Chief Strategy Office*

“With the disruptions from COVID-19 and the potential uncertainty for future disruptions, there is more urgency to move to the cloud. Cloud usage is accelerating and many companies are expecting cloud usage to exceed their prior plans. The evolving world-

wide financial conditions due to COVID-19 and the increasing adoption of cloud usage have accelerated the need for continuous cloud cost optimization. On-demand cloud spend provides nearly immediate savings once idle resources are eliminated or over-provisioned resources are downsized. A focused plan for cloud cost optimization can provide significant cost savings. Companies are likely to see flat cloud costs or even price cuts as well for the foreseeable future from cloud service providers.”

**GAUTAM REGE***Co-founder & Director, Josh Software*

“We have seen a great surge in digital-first services over the last few months, and much of this growth can be attributed to the cloud. It’s almost become a way of life for workplaces to function now! The biggest example shows how efficient cloud can be, is that of telemedicine. Three months

ago, people would patiently (pun intended) wait in line for doctor appointments. Now, no one wants to visit clinics till absolutely necessary! Telemedicine has blown up and how! It’s a similar case for education. Collaboration tools have seen a massive surge in usage in the education sector, and almost every other school that can afford it is using it without raising the child!”

Fast-Tracking Business’ Cloud Journey

India has witnessed rapid digital adoption, as people and businesses adjusted themselves with the new ways of working.

Although Digital Transformation itself also has been a broader requirement that continues to drive the demand for cloud solutions for the past few years, COVID-19 crisis made it an absolute necessity for many businesses to prioritize their digital transformation agenda.

The pandemic has brought everything to a standstill. Inability to woo customers, declining sales, and stalled production, piled up inventories made businesses recognize the value of new-age technologies like Cloud, and embrace digital tools.

A substantial increase in usage of cloud infrastructure is also being observed in the sectors such as BFSI, Healthcare, Education, and Events, etc. With social distancing becoming a part of day-to-day life, educational institutions adopted remote learning, patients opted for an e-consultation with their doctors, and events turned completely virtual.

Bharat Akkinipalli, Lead Consultant, ThoughtWorks said, “COVID-19 has made financial enterprises, for the first time, to leverage cloud computing and open up firewalls for people to securely work from home. The highly regulated sector benefits from having its core banking services managed as part of the private cloud and its customer facing services hosted on public clouds (closer to customers)”



ADAM PALMER

Chief Cybersecurity Strategist, Tenable

“Even before the health crisis, the adoption of cloud services afforded organizations enormous speed and agility advantages and has driven the emergence of DevOps practices. Yet for all of their advantages, cloud computing and DevOps introduce new complexities

for security teams, as serverless assets can create security blind spots. This combined with the recent transition to remote work, where personal devices are introduced to the corporate network, only further expand the attack surface. We’ve seen several phishing scams, misinformation and fraudulent work-from-home opportunities making their way around the internet. These could potentially put the wider corporate network at risk if accessed.”



DHANANJAY GANJOO

MD -India & SAARC, F5 Networks

“According to the IDC’s Covid-19 Impact on IT spending Survey, 64% of firms in India will increase demand for cloud computing as it enables businesses to scale at speed, at a predictable cost. But no matter where you are on the cloud journey, security remains a major concern. In a hybrid

cloud environment, security challenges include the lack of visibility across application portfolios, tool sprawl from multiple application architectures, and the shortage of skilled security professionals to adequately support the complexity of security requirements in the cloud. With cities lockdowns and a remote workforce, where millions of people migrate to online applications so quickly, security challenges grow commensurately. We have seen many cases where bad actors have worked to exploit the new stay-home economy.”



MILIND BORATE

Co-founder & CTO, Druva

“In response to the pandemic and remote work, organizations are adopting Data-as-a-Service to manage small data sprawl. As data centres no longer meet their needs, they are adopting data management solutions that provide a cloud “metadata centre”. Data is moving out of the data centre to locations all over the world. While real-time processing happens at the edge, the data must be centralized for analysis, protection, and compliance. Meanwhile, an increasingly remote workforce is expanding the use of endpoint devices, SaaS, and cloud-native applications to do their jobs, and that data must be secured and protected.”



Pay-per-Use models see an increased demand

More companies are looking to maximize resources and move from Capex and hardware-based systems, to Opex and ‘as a Service’ solutions.

The India cloud market will witness an increased adoption with public cloud leading the forefront of all infra-related investments. IDC’s Covid-19 Impact on IT spending Survey found that 64 percent of the organizations in India are expected to increase demand for cloud computing while 56 percent for cloud software to support the new normal, as it enables businesses to scale at speed, at a predictable cost.

Keeping the crisis in mind, many Cloud solutions providers have also been extending free access to their tools for small and medium business usage.



RAJESH MAURYA

Regional VP, India & SAARC, Fortinet

“CISOs who were methodically planning their cloud security strategies suddenly didn’t have the luxury of time in their “to cloud or not to cloud” deliberations. With the prevalence towards multi-cloud, security teams needed experts who could handle different cloud

architectures, security tools and integrations needed to secure multiple clouds can become a complex burden on security teams that are already stretched thin during the crisis. Businesses were turning to service providers for help and guidance, but opening the environment to integrations from multiple third-parties may solve temporary challenges, and may even become part of the long-term business strategy. Hence it is more important than ever to thoroughly vet and evaluate these partnerships to ensure their security standards meet or exceed that of the business requirement.”



BRIJESH MIGLANI

Lead – Security Consultant, Forcepoint

“Many organisations have begun migrating to the cloud and they are using different types of cloud services to ensure their employees can work remotely and collaborate. Now that people are working from home, the organizational data is also spread

across multiple clouds, cloud apps, personal devices and data centers. Organisations must secure their data and their people wherever they are. CISOs can no longer work within templated security programs. By understanding the behavior of identities on the network, IT security would have visibility into user actions and be able to differentiate between legitimate and risk behaviors. By Combining it with automated threat detection, companies can keep critical data from getting out.”



**RAJESH AWASTHI***Associate VP, Managed Hosting & Cloud Services, Tata Communications*

“Moving forward, as we continue further into this new normal, IT budgets will naturally take a hit. CIOs will face a crunch as they need to ensure their projects are executed, but with lower budgets. Opex models will continue to

be preferred in these circumstances as opposed to large or long term Capex investments. The pay per use flexibility that cloud solutions offer is preferred and likely to continue as a trend. However, the value of the cloud has gone beyond simple cost savings. Its ability to improve productivity, agility, resilience has been proven and tested during COVID times. Going forth, more and more organisations will look at digital means for doing business and will explore options on the Cloud especially retail, travel, manufacturing, etc.”

**KISHORE P. DURG***Senior MD, Lead – Intelligent Cloud & Infrastructure, Accenture Technology*

“Organizations are looking to tap the cloud to manage the immediate challenges of business continuity, demand fluctuation, security threats and workforce productivity, to build a resilient business. The pandemic also continues to present global business

with cybersecurity threats, including opportunistic phishing campaigns, discontinuity of information security operations and long-term financial constraints. While adopting cloud, companies across industries should plan for these challenges to persist for months and to have long-term effects. They must ensure control over the security of their data when hosted on the cloud with the right security protocols and solutions to mitigate these risks.”

**PHANIKISHORE BURRE***SVP & Delivery Head – Network, Cloud, Infrastructure & Security Services, CSS Corp*

“We have been witnessing a mixed trend in cloud adoption depending on the health of different sectors. While telecom and healthcare companies have significantly increased cloud solutions adoption, the IT & ITES

and the BFSI segments have maintained their spend. However, we have witnessed a slight decline in cloud spends by the retail and manufacturing industries, who were heavily affected by the pandemic. As forecast by IDC, as a result of the pandemic, 64% of the organizations in India are expected to increase demand for cloud computing and 56% for cloud software. We witnessed an increased market demand in hybrid cloud migration models, especially in the healthcare sector.”

**RAHUL AMBEGAOKER***Senior Director & Region Head, West, NTT Ltd. (India)*

“In the rush to move to the cloud, workloads were shifted irrespective of whether they are cloud-ready and viable. Transparency of managing the infrastructure in cloud lends itself to sprawl and the eventual dissonance on the corresponding ROI. There are talks

of repatriation of workloads that clients are not seeing adequate benefit from the ad hoc movement. CIOs can find it hard to get a single view of performance and compliance information. A robust cloud management platform (CMP) with a managed services partner can go a long way in giving them the ability to handle a complex and fast-changing cloud-based environment.”

**Rise of Distributed cloud computing**

The COVID-19 crisis has proved the value of public cloud services in supporting businesses and workers even in the Distributed Workforce scenario.

Public cloud providers have now begun to distribute their public cloud services to different geographical locations. The operation, governance, updates and evolution of the services are the responsibility of the originating public cloud provider. In this way, the cloud is broken up into multiple smaller datacenters in different locations. The benefits it provides include reduced latency, lowered overhead costs, and improved compliance with data-location related regulations.

Speaking on the new trends in Cloud Computing, Sid Nag, Research VP at Gartner said, “We are seeing increased availability of distributed cloud from the hyperscale cloud providers such as AWS, Microsoft Azure and Google Cloud with offerings such as Outpost, Stack and Anthos respectively. Distributed cloud computing is a style of cloud computing where the location of the cloud services is a critical component of the model. Distributed cloud supports the tethered and untethered operation of like-for-like cloud services from the public cloud ‘distributed’ out to specific and varied physical locations.”

The lines between IaaS and PaaS are also blurring, pointed out Sid. Gartner defined this as CIPS (Cloud Infrastructure and Platform Services). The degree of integration may vary but it includes the use of a single self-service portal and catalog, shared identity and access management, a single integrated low-latency network context, unified security, unified monitoring and unified billing. Most customers that use a hyperscale CIPS provider, such as Amazon Web Services or Microsoft Azure, have adopted a blend of the provider’s IaaS and PaaS capabilities. IaaS resources are typically supplemented with cloud software infrastructure services, such as dbPaaS, aPaaS and iPaaS, explained Sid.

**SANDEEP BHAMBURE**

VP & MD, India & SAARC, Veeam Software

“Projects requiring new hardware deployments are stalled due to the operational challenges on the ground. There are not enough staff on the ground to install them also. Hence businesses have been looking at Cloud very seriously to move certain

workloads to the cloud. Cloud service providers have built enough capacity, which customers could use easily. To help customers adopt hybrid cloud easily, cloud service providers have been leveraging solutions that can instantly migrate multiple virtual machines or workloads from the customer environment to the cloud of their preference. Businesses are also increasingly turning to cloud data management solutions to protect the mission-critical workloads in the cloud and a faster recovery of them.”

**SANDEEP SONI**

GM & VP - Engineering, Clumio India

“With work from home and remote learning scenarios being rapidly deployed, the attack surface for these organizations has been greatly increased. Organizations can quickly plan for these new realities by leveraging enterprise SaaS applications. Data protection is also a

challenge that companies face during this crisis. As organizations learn that the availability of needed hardware may be interrupted and that people may be locked down and unable to physically access data centers to do hardware installs, a touchless cloud application delivered as a service becomes very attractive to them. In the case of data protection, choosing the right solution can give users instant access to data protection capabilities to ensure SLAs can be achieved even when capacity runs low on existing systems.”

**Security continues to remain on Slippery Slope**

Security remains a major concern, no matter where you are in terms of the cloud journey. The sudden transition to Remote Work has made it more difficult to manage. Also now that people are working from home, the organizational data is spread across multiple clouds, cloud apps, personal devices and data centers. It is critical for organisations to secure their data and their people wherever they are.

As this was the first time many of these individuals were working away from a secure corporate environment, they were vulnerable to malicious attacks from hackers who were eager to exploit people's fear and anxiety over their personal health.

A cloud security research conducted by Trend Micro highlights misconfiguration as the primary cause of cloud security issues. Hence, it recommends some best practices which can help secure cloud deployments:

Employ least privilege controls: restricting access to only those who need it.

Understand the Shared Responsibility Model: Although cloud providers have built-in security, customers are responsible for securing their own data.

Monitor for misconfigured and exposed systems: Use tools that can quickly and easily identify misconfigurations in your cloud environments.

Integrate security into DevOps culture: Security should be built into the DevOps process from the start.

**MITESH JAIN**

Country Sales Manager – Media & Carriers Division, Akamai Technologies

“Since the pandemic hit, we have been working with our customers and carrier partners to maintain continuity for their businesses and helping them mitigate and minimize network congestion. Since our infrastructure

is deployed deep into carrier networks, we can help them avoid overload by diverting traffic away from areas experiencing high levels of congestion. Despite the major network congestion caused by the COVID 19 pandemic, Akamai's customers were able to enjoy enhanced web and mobile app experiences along with improved website performance. Our platform also protected various applications from the largest DDoS threats by responding to application-layer attacks within seconds.”

**NILESH JAIN**

VP, Southeast Asia & India, Trend Micro

“Threats and security weaknesses in several key areas of cloud-based computing can put credentials and company secrets at risk. The findings from our cloud security research highlight misconfiguration as the primary cause of cloud

security issues. Cloud-based operations have become the rule rather than the exception, and cybercriminals have adapted to capitalize on misconfigured or mismanaged cloud environments, costing businesses large sums of money and even their reputations. As the number of components for various cloud architectures increase, we expect to see a rise in the number of misconfigurations. We identify 230 million misconfigurations on average each day, which proves that this risk is widespread.”



HOW A CLOUD EPM BECAME THE PANACEA FOR WIPRO'S PLANNING WOES

Gaurav Kedia, Vice President-Finance, Wipro explains how Cloud-based EPM came in handy when the organization tried to break away from the traditional offline planning processes

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Any kind of business or corporate planning exercise for a large organization which has got 7 business units across almost 10 geographies, and 7-8 service lines, and so on can be a mammoth task in itself. So when IT services major, Wipro thought of a digital makeover for their entire planning process, the move was fairly self-explanatory.

Wipro's planning process had largely been manual for a very long time, done mostly on spreadsheets

and PPT, and consolidated manually, until they switched their planning and reporting processes to a cloud-based Enterprise Performance Management (EPM) platform. So what made them think of the shift?

Gaurav Kedia, Vice President-Finance, Wipro gives a peek into the challenges with traditional offline planning processes, and how an EPM platform took away the planning-related woes of Wipro and helped them streamline planning, forecasting, and

reporting across the organization.

Planning is not an easy task after all

Before the planning which generally happens at the beginning of every year, people used to send inputs on a spreadsheet and presentation slides – which used to be consolidated manually into one sheet before the final presentation to the management. It was not the desired model for a company of our size and was not also scalable for making plans at a wider level, said Kedia. Also, the real struggle was making any changes to the plan on a real-time basis.

Wipro opted for Oracle's cloud EPM, customized by Huron Consulting keeping the specific requirements of the organization in mind. EPM turned out to be a great collaborative planning platform for Wipro, as it brought the entire organization planning processes together into one place by incorporating all the respective units and the users in it.

How a cloud-based EPM took away the woes

Kedia took us through the benefits one by one:

First, it helped us to consolidate the overall plan, and get an output at a company level. So, the planning process, which was very much centralized and function-driven, has now been decentralized across the organization.

Second, we had been able to broad base our planning process. We are not restricted to a few parameters now; we have been able to expand to as many as we want.

Third, we don't have to worry about the version control issues anymore. The planning as a process undergoes various iterations and it was very difficult to keep track of all the versions.

Making changes to the plan was another gruelling task because the plan used to reside in the systems of certain individuals. Any system crash or data loss incidence would make the planning data inaccessible. Besides that, a lot of changes also needed to be done due to the structural change or people movements in the organization as well. With a cloud-based EPM platform, the process is not people-dependent anymore.

Solving the data puzzle

After the implementation, it took Wipro a couple of months to migrate the data residing on various systems to the EPM. The EPM data repository helped the organization plan things at a more granular level. Also, the data became available at the click of a button and could be viewed in different ways.



GAURAV KEDIA, Vice President-Finance,
Wipro

Wipro also integrated its EPM with the CRM systems to reduce the time and effort which used to go in duplication of the CRM data and feed those data to the EPM later.

Wipro has also started taking all the functional planning (HR, finance, etc.) to EPM. It has also been working to enhance the reporting capabilities and make it available across the organization. In the first year, the output was only available for the management, but now that we have built in a lot of historic data into the EPM, the users can also view the data on a real-time basis.

Handling rejets in the business units, measuring the performance of each unit, and individuals against set parameters, and calculating the variable compensations have also become easier.

Making the changeover

"All we needed to do was train people to use the tool efficiently. Although the EPM platform was quite user-friendly, the change-management, however, was not so easy. Because no matter how much we complained about the drill of manual planning exercises, people were still reluctant to give up their beloved spreadsheets. But a lot of manpower and man-hours which used to go into the planning exercises earlier can now be done at a never-before speed and most importantly can be achieved with minimum efforts put in," said Kedia.

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THE SALT-TO-TASTE MODEL OF CLOUD

On-premise enterprises with low-latency workloads need not compromise on the advantages that only a Cloud environment can enable. It's both a unique and unusual model for pushing the Cloud to the edge as far as one can – and now AWS is in the fray too

Pratima H



It does not matter if you prefer a small kitchen garden or a supermarket cart or a big farm of your own. It does not matter whether you lean towards on-premise IT or public cloud or prefer to whip up a hybrid format. The idea of 'elasticity' has been stretched to a new level with on-premise hardware boxes that some key cloud players have started coming out with. Slap on some of these appliances on your on-premise environment and you can use cloud services for the workloads that need that special level of speed, latency-fix and flexibility. Let's find out exactly how AWS Outposts can do that, and what questions or on-ground issues might flank this big idea.

And before we ask AWS, it is interesting to throw these questions to the people in the trenches. Partners and cloud integration players would know it best if such a model would work or not. Manish Mangal, CTO, Network Services, Tech Mahindra is totally upbeat about this concept. His enthusiasm has its roots in a particular pain-point that he has seen customers struggling with. "We have been partners to enterprises in their digital transformation journeys and have seen a strong direction towards models that are increasingly software-defined, flexible and cost-optimised. Infrastructure modernization has been a big trend, specially after the recent pandemic hit the industry. Outposts is a solution that has those capabilities that jump in at the right time then. CIOs can now handle applications that need real-time support, have high-bandwidth intensity and have low-latency needs. That is why they are localised. But that should not mean they cannot use the power of Cloud. Outposts unlocks the opportunity for us to talk to CIOs about modernisation even if they have the constraints like data localisation or performance. It will also allow factories or other such remote environments to work on application-level innovations."

Another feet-on-the-street observation comes from Sridhar Pinnapureddy, Founder and CEO, Cloud4C. In his reckoning, the biggest pain point that Outposts would solve is the compliance-implication for Cloud investments. He feels that Outposts is a long-awaited offering for lots of customers who wanted to use Cloud but could not due to localisation or regulatory factors. "Now we can bundle our applications with Disaster Recovery (DR), Software as a Service (SaaS) etc. here. We can offer SAP with AWS or DR with AWS. So much is possible now."

He reminds how the trend—worldwide and in India—is towards hybrid Cloud and multi-cloud. So



It also works best for.

- Media & entertainment—delivering live event streaming, real-time gaming, rendering, and VFX
- Financial services—developing low latency trading platforms in a secure environment
- Retail—delivering real-time interactive retail services and unifying apps across environments

—**Santanu Dutt**, Head of Technology, South-east Asia, AWS

banks or manufacturing enterprises that could not try Public Cloud solutions for various reasons like compliance, latency or tele-link speed stability—now they have a way to do that.

Who will use it? Stock brokers, factories, any one that had some reason to stick to on-premise set-up but wanted to grasp the Cloud wave too. As Sridhar illustrates, "So far stock brokers could not use Cloud, but now they can keep Outposts in a stock exchange. Manufacturing plants in remote locations can also gain from it in a massive way. It can address mission-critical workloads too." He expects the first batch of customers to be slow but interesting. "Clients will take

a while to see the benefits out of this. We are working on some Proof of Concepts (POCs) and demonstrating this model to customers. Bundled solutions will see lot of new customers now.”

As to the skills, upgrades and extra costs one need to be prepared for, existing in-house cloud administrators should be enough. “It is a managed service so would be handled well by AWS,” Sridhar explains.

Now let us turn to **Santanu Dutt, Head of Technology, Southeast Asia, AWS** and find out how all these hopes and possibilities will play out with Outposts.

How excited are you with this launch?

This is, as we say often at AWS, Day 1. Despite all the achievements we have made in the last few years with innovations and Cloud technology, we are, still, in the early days. AWS is the deepest and broadest platform for today’s builders with 24 geographic regions, 76 availability zones (3 in India), 216 points of presence globally. Now with AWS Outposts, the same AWS infrastructure would be available seamlessly as if it were in an AWS region. It is the same managed console, same APIs and tools. Only the rack is being shipped to a customer’s premises.

So the customer would need to be prepared with something—infrastructure or skills?

They just need some redundant power supply and space for the rack. No up-skilling is required. It is fully assembled and has to be simply plugged into the power and network set-up on a premise.

How will this help enterprises? Which ones in particular?

Customers have a wide variety of workloads which need to be on the premise for now. They range from single-digit low-latency applications to applications dependent on legacy IT. They can be about SCADA, mainframes, VFX rendering or real-time intensive processes but because the hardware was not Cloud-native they were not able to use the advantages of Cloud. This will be fixed now – and for anyone- like Genomics. 3D Modelling, e-commerce, patient imaging etc.

What kind of workloads would fit better? Does this work well for an enterprise looking for flexibility, container-environments and 5G deployments?

Think of Manufacturing automation or Health care. Or any vertical where latency is crucial.

AWS Outposts is designed for several different uses cases where workloads need to run on premises due to latency requirements. Like—in Telecommunications—customers can use cloud services and tools to orchestrate, update, scale, and manage the lifecycle of Virtual Network Functions (VNFs) across cloud, on premises, and edge. They can use the service to build new network services and deploy virtual network functionality at any network operations center.

Customers can use AWS Outposts to support applications that have low latency or local data processing requirements. These applications may need to make near real time responses to end user applications or need to communicate with other on-premises systems or control on-site equipment).

So the accountability will stay with on-premise solution or would it swing to AWS—like in cases of outages, security incidents, maintenance or downtime?

The shared services model still works – the same hypervisor layer and OS layer format is in play. The physical security of the AWS hardware, which is quite tamper-proof to begin with, would be a customer’s responsibility. Maintenance and software updates can happen in a remote services model. For hardware updates, our representatives can meet the customer and ensure a smooth journey.

How would the workloads switch between on-premise to cloud and vice-versa? Any complexity issues that one needs to be ready for?

The workloads on the premise would be monitored and maintained by the customer. All the meta data and surrounding infrastructure parts would be taken care of. Images of data and transfer of data on a connected service can ensure that everything is seamless and frictionless.

How does it add up with your LocalZones offering? Is it a push further and deeper into the Edge Computing market?

Yes, we announced LocalZones at Re:Invent but Outposts is specially for data-intensive applications that were working in on-premise set-ups. Local Zones is for high-density population regions where we do not have an availability zone but can offer something in a multi-tenant model. It helps us to give customers the ability to run applications on AWS that require single-digit millisecond latencies to their end-users or on-premise installations. We are also partnering with Telcos for specific needs and solutions.

Customers should run AWS Local Zones when they need to run their applications with single-digit millisecond latencies close to end users, but they don't want to build and operate a datacenter or co-location facility. They can run the parts of their application in the Local Zone that requires ultra-low latency and connect back to the rest of their application and the full range of services running in AWS. Customers should run AWS Wavelength when they want to build and applications that require single digit millisecond latency to mobile and connected devices over the 5G network.

Would enterprises be able to handle compatibility, storage throughput, local storage array integration, performance issues, application complexity and cloud latency well?

AWS Outposts offers customers the same AWS hardware infrastructure, services, APIs, and tools to build and run their applications on premises and is a fully managed service by AWS.

When a customer orders an Outpost, we verify with the customer on their site meeting certain Facility, Networking and Power requirements before we ship and install the Outpost at the customer location. AWS Outposts relies on connectivity to the parent AWS Region and is not designed for disconnected operations. Hence customers will need to have AWS Direct Connect from their site to the AWS Region and we provide the options from choosing speeds of 1, 10, 40 or 100Gbps.

Will they have to expend any extra effort or skills to manage this deployment beyond the physical infrastructure?

A customer's AWS Outposts infrastructure and AWS services are managed, monitored, and updated by AWS just like in the cloud. Since AWS customers would continue using familiar AWS services and tools, there is no additional effort or technical skills required to manage services running on AWS Outposts.

Can you tell us more about the India offering—is it going to be native or VMware plane or S3?

The AWS native variant of Outposts is available to customers at launch. It allows customers to use the same APIs and control plane you use in the AWS Cloud to build and run applications, but do it on premises. Customers will be able to run Amazon Elastic Compute Cloud (Amazon EC2) instances and Amazon Elastic Block Store (Amazon EBS) volumes on AWS Outposts but we will have additional AWS services such as Amazon RDS, Amazon ECS, Amazon

Customers have a wide variety of workloads which need to be on the premise for now. They range from single-digit low-latency applications to applications dependent on legacy IT

EKS, Amazon SageMaker and Amazon EMR available soon available on the AWS native variant of AWS Outposts.

We have a lot of customers who've made investments in VMware software to manage their on-premises infrastructure and want to use those same tools to manage their infrastructure on AWS. In addition to the AWS variant of AWS Outposts, we are also working with VMware on a VMware Cloud on AWS Outposts variant for customers who want to use the same VMware control plane and APIs they've been using to run their infrastructure.

Is there anything new that you have learnt and applied for the Asia market launch of Outposts, especially India?

We announced the General Availability of AWS Outposts in early December 2019 and since then have added more regions and countries where AWS Outposts is available for shipping to customers. As has always been our top priority, we continue to work backwards from customer feedback to prioritise what's on our roadmap. For example in India before the launch, we worked with some of our APN (Amazon Partner Network) Advanced and Premier Consulting Partners in India to be ready to partner with us at launch to give our customers in India the flexibility and choice.

Customers in India can directly order AWS Outposts from the AWS console and in addition can also work with our APN partners like Cloud4C, Powerupcloud Technologies and Tech Mahindra to leverage their deep experience helping businesses move applications to AWS Cloud through all aspects of complex migration projects and run workloads on AWS Outposts to achieve a truly consistent and seamless hybrid cloud experience.



WILL COVID-19 ACCELERATE ADOPTION OF AUTOMATION IN INDIA?

As the world moves towards an uncertain future, enterprises know they must move nimbly in order to stay relevant and in the game. Embracing new technologies is no longer a choice but a must in most scenarios if companies are to survive and be future ready. It is a given that emerging technologies will play a larger role in almost every industry

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The coronavirus outbreak has changed our lives and businesses. After months of extreme uncertainty and isolation, we are unlocking. The post COVID era might accelerate the transition to automation in different sectors. According to a research by Forrester, businesses

will invest more in cognitive capabilities and Artificial Intelligence (AI), Robots and Robotic Process Automation (RPA). In the past 4 to 5 years, automation adoption across BPM (business process management) sector has been the highest both for customers and internal efficiency initiatives.

Automation might be the key to survival for several enterprises across India. Every industry is dealing with a shortage of man-power and struggling with lesser man-hours at the workplace to enable social distancing. Some places even need an infrastructure overhaul to provide a safe work environment.

But what about Indian industry? Will we see higher adoption of cognitive capabilities and automation? We bring you voices from across the industry:



Kunal Kislay, CEO, Integration Wizards Solutions

Post COVID era might accelerate the transition to automation in different sectors. Even in the most automated segment like automotive manufacturing, there is a lot of manual dependency.

Operation of large manufacturing plants, warehouses is unviable with the current level of automation in this crisis. Being personally involved in helping a lot of such organisations restart operations, I have realized that some of the key areas that will quickly adopt automation are security, safety and productivity.

Security : Migrants make a sizeable chunk of private security teams, the pandemic made the deployment of right number of people in remote areas like solar farms, shipyards, remote warehouses almost impossible. Use of Camera Vision technologies powered by Artificial Intelligence for intruder detection and drones for capturing closer shot of intruder helps keep the unmanned premises secure.

***Safety:** Majority of industrial accidents are related to inadequate enforcement of safety related procedures. Social distancing, face mask compliance are just 2 new procedures apart from several others related PPE, working at heights, fire etc. Using Deep Learning algorithms, live feed from CCTV camera is analysed and raises alarms in case of violations.*

***Productivity:** With the demand dwindling and bottom lines hit, organizations will look to identify methods of increasing productivity and cutting costs. Creating virtual shifts where only essential people are present in office and the rest work from home, while being connected online. Designating different times for canteen breaks and rotational shifts are some of the things that automation is being used for.*

There has been an increased adoption of RPA, IoT and Cobots (Collaborative Robots) in almost every field. Hospitals are using Cobots for disinfection of the area and also for mundane and repetitive tasks like taking details of each patient upon entry.

Covid-19 has certainly accelerated the adoption of technology. AI spending is expected to grow from US\$ 21.46 to US\$ 190.61 at CAGR 36.62%.



John Kujur, Founder & CEO, GenElek Technologies

Automation is no longer a necessity just for the developed countries, this is increasingly being felt across India Inc. Since the massive upheaval due to Covid-19, when the migrant population had to trudge back hundreds

of kilometres, industries are still finding it hard to get back on their feet, either due to lack of man-power, both skilled and unskilled or uncertainty regarding employing when the future is bleak at best. Automation as a way to complement rather than a replacement for workers is the way ahead.

Cobots are the need of the hour especially for the MSME sector which is now armed with an expansive stimulus package by the government. Such Automation will allow reduced dependency on people while also making the workflow efficient with leaner teams.



Prasad Godbole, Director, Deloitte India

Agenda for cost efficiency, process agility and turnaround time was always relevant during pre-Covid. It's understandable that Covid-19 disruption has put more emphasis on the basic agenda and provided a new perspective of why we should

look for automation.

Covid-19 has created all sorts of odds and we believe it will change a number of rules by the time the dust settles. While on one hand, Covid disruption has pushed large organizations to re-assess their confidence on the process outsourcing, on the other hand automation has sown the seeds for insourcing of processes. A number of organizations realized their outsourcing and vendor programs perhaps would need consolidation as well. Automation would take the center seat there.



George Mundassery, Global Head, Automation and Artificial Intelligence, Tech Mahindra

COVID-19 has pushed businesses to accelerate their Digital transformation journey and enhance business agility. With

companies adjusting to new normal of hybrid working, we expect a rise in human-bot collaboration, AI powered operations, virtual contact centres and cloud migrations thus leading to an increased emphasis on the digital technologies and services around Artificial Intelligence (AI), Robotic Process Automation (RPA), Virtual Reality (VR), Internet of Things (IoT) amongst others.



Anandh Venkatraman, Global Transformation & Consulting COE Lead, Dell Technologies

The current environment will certainly drive enhancement of technologies such as automation, digitization and

Artificial Intelligence (AI), to help preempt and improve resilience for similar situations in the future. In situations like these, automation and robotics could help reduce dependence on human labor and increase productivity, preventing the chances of shutting down plants in the future.



Sanghamitra Barman, Deputy General Manager-RPA, JK Technosoft

This global crisis has created a need to deploy cutting-edge technologies and accelerate the digital journey. The businesses that were slow to adopt digital technologies, have

already leveraged them to revamp their operations, and successfully transit to a new, post-pandemic normal.

The digital technologies such as RPA, IoT, and AI have left its significant remark in most of the industries like healthcare, manufacturing, retail, etc.

If we talk about healthcare, it is at the forefront in all aspects amid the ongoing Covid-19 crisis, leveraging digital technologies has helped a lot in medical advancements and automating the clinical testing of

data, as organizations race to create a vaccine, and more.

In addition, chatbots have come as an ultimate saviour for effectively managing the customers' queries. Thus, this Pandemic situation has made people adopt the digital transition.



Piyush Jha, Vice President, Engineering, GlobalLogic

In today's time, automation is not just about how we code but also how we work. There have been sectors which have stayed farther away from technology—like banking that has relied more on paper. These will get

more contactless, paperless, online, and automated. Carrying a check book and creating a paper draft will quickly reduce when there will be more of online and automated technology.

Then there are sectors like retail, which have embraced automation and online behaviours but have been puzzled whether to push the BnM channels more or the mobile ones. This experience will quickly get more omni-channel and behaviours will get more enmeshed, immersive, and automated.

This will drive a lot more automation in downstream and smaller functions since the mega systems at the top of the food chain will demand and drive more data oriented, faster and touch-less behaviour.



Milan Sheth, EVP-IMEA, Automation Anywhere

In these unprecedented times, global economies are experiencing an economic downturn. Their priorities are shifting towards building business resilience and maintaining employee

morale. Covid-19 has created the perfect storm for organizations to accelerate digital transformation and to embrace Intelligent Automation (IA), by combining Robotic Process Automation (RPA,) Artificial Intelligence (AI), Machine Learning (ML) and Analytics.

Every organization is looking for new ways to transform their engagement with customers, suppliers, employees, and stakeholders. The advantage of Intelligent Automation is that organizations can deploy 'Software Bots' to handle many repetitive, mundane tasks, freeing up human workers to focus on innovation,

thereby maintaining business-as-usual operations without any continuity break.

Satya Nadella, Chief Executive Officer of Microsoft had said, “We have achieved 2 years’ worth of digital transformation in 2 months.”

So, whether research or industry experts, all are saying that automation is going to be the way ahead. Still, there are some challenges which need attention. Most of the small businesses are in huge economical struggle nowadays, thus will they be able to invest money to adopt technologies like AI, ML, RPA, etc.

We spoke to Pertisth Mankotia, Chief Information Officer, Sheela Foam LTD (Sleepwell). He has quite different opinion in this regard. According to Pertisth, “Automation comes at very expensive price, but I don’t think this is the only challenge. It’s all about convenience, labor is not very expensive in India, and that’s also one area. When you compare cost of labor with other countries, the workmanship is not expensive, so, the ROI.

Another challenge, which I see, any of the automation project should be very structured and it should be on ground first. People can go for the automation process, actually implemented on the ground very well, but bringing the automation is very difficult. I think that standardization needs to be done, because if you see organization to organization, everyone has their unique process.

I think now automation has picked up, we are doing it in a hybrid manner. It is a critical process, yet we have to find economical way of doing it. We have to find out the inexpensive methods of the automation to get better ROI.”

Business challenges are there, yet automation is the way ahead. When most of the industries have slowed down as a result of economic instability caused by the

“Firms will invest more in cognitive and other capabilities like Artificial Intelligence, robots and Robotic Process Automation (RPA) as businesses will have to recover and come out even stronger post Covid-19. The pandemic has made automation an imperative, as organizations will expand their business continuity plans and take larger and newer risks to ensure that they have their ground covered from all directions.”



—Vikas Bhonsle, CEO, Crayon India

“Cognitive capabilities will gain traction and attract greater investment as firms look at optimizing business processes by reducing operating costs, better utilizing their skilled resources, and enhancing customer engagement.”

—Tulika Saxena, Sector Lead (Technology, Media & Telecom), Business Research and Advisory, Aranca



unprecedented situation, unsung heroes like Robotics Process Automation (RPA) can offer recession-proof operations to keep the businesses going.

RPA’s successful implementation across various sectors during this period, has undeniably embarked on the upsurge in its future demands. It gained traction by taking software robots and pointing them towards existing applications to mimic human/ keyboard interactions and automate repeatable and well-understood processes.

Many industries who have seen the impact are looking for ways to adopt to digital transformation either through ways of big data, AI or cloud technologies.

Companies have been functioning in a more hybrid approach—a mixture of both online and offline but as we start to evolve from this hybrid stage to a complete digitised one. There is going to be inroads for engaging with technologies like Robotic Process Automation (RPA) and Machine Learning (ML). Digitisation is the prologue to automation.

Organisations will also look for ways to reduce expenditures and streamline their Enterprise Operations and yes there will be adoption of RPA. AI has become a very significant driver, at least with the biggest technology companies in the world.

Adoption in automation equips businesses to deliver better outcomes in terms of higher customer satisfaction, lower churn, and increased revenues. This leverages the companies with the new opportunities to optimistically approach the challenges and further come up with strategies to discover new ways to boost the efficiency of their business practices with minimal errors.

Since organizations are moving away from a physical location and considering the new normal of working from home, firms will indeed look to automation as a solution to mitigate the risks that future crises pose to the supply and production of

human workers. The enterprises have already started to invest in the cognitive capabilities, industrial robotics, service robots, and RPA to ensure business continuity and deal with the pandemic blues.

As the world emerges from the grip of the pandemic, it is essential for the business leaders to move towards a smart workflow that enables better resiliency and stability in the time of crisis.

According to data gathered by market researchers:

- The global AI software market value will jump from US\$22.6B in 2020 to US\$126B by 2025, as per data gathered by Learn Bonds
- RPA Market is estimated to reach US\$ 2,467.0 million by 2022, at a CAGR of 30.14% between 2017 and 2022. (Source: MarketsandMarkets Research)
- The global impact of Covid-19 on the Internet of Things (IoT) market size is expected to grow from US\$ 150 billion in 2019 to US\$ 243 billion by 2021, at a Compound Annual Growth Rate (CAGR) of 13.7% during the forecast period. (Source: MarketsandMarkets Research)
- The global collaborative robot (Cobots) market is projected to grow from USD 981 million in 2020 to USD 7,972 billion by 2026; it is expected to grow at a Compound Annual Growth Rate (CAGR) of 41.8% during 2020–2026. (Source: MarketsandMarkets Research)
- The Cognitive Computing Market is expected to grow from US\$ 20.5 billion in 2020 to US\$ 77.5 billion by 2025, at a Compound Annual Growth Rate (CAGR) of 30.5% during the forecast period. (Source: MarketsandMarkets Research)

Business uncertainty resulting from the unprecedented COVID-19 pandemic is expected to hit global IT spending; India would not be an exception. A silver lining in this situation is that the pandemic is turning out to be an inflection point that highlights the importance of cognitive capabilities such as AI, IoT, RPA, and collaborative robots (Cobots).

During, and in the post-Covid-19 era, firms will focus on leveraging AI, IoT, cobots, and RPA capabilities to build/use solutions that can do the following:

1. Facilitating safe, seamless, efficient interactions among remote stakeholders
2. Enabling autonomous processing of complex, but repetitive tasks
3. Monitoring customer interaction, resolving concerns across various digital touchpoints
4. Streamlining finance, accounting tasks to optimize cash flow, liquidity
5. Retrieving, collating, analyzing real-time data to

“In the current scenario, the fastest growing sectors are E-commerce, Fintech & Edtech. While the Technology landscape has changed in the last 2 to 4 years, the adoption has been rather low. The pandemic situation has forced many businesses to adopt technology at a much faster pace to catch up with business losses. Areas that are of high interest currently are Cognitive RPA + AI resulting in non-rule-based automation, thereby bringing cognitive decision making capabilities.”

—Ramesh Krish, CTO, Indium Software



forecast market demand, assist in planning
6. Facilitating flexible work-floor operations (in manufacturing and logistics)

As firms seek to conserve cash, these solutions would need to be subscription-based and hosted on the cloud. Thus, while Indian IT spending declines in 2020, the recovery in this space would be faster, smoother than in the broader economy.

Several public-sector and private-sector initiatives are laying down a strong foundation for the deployment of such cognitive solutions. In its FY2021 budget, the Government of India allocated INR3,000 crore to bridge the skills gap in the technology domain; it allocated INR8,000 crore to the National Mission on Quantum Computing and Technology. In July 2020, Google announced a USD10 billion, India-specific fund for investing in digital solutions and infrastructure, thus empowering businesses and promoting AI in India's healthcare, education, and agriculture domains.

Going ahead, Indian companies will need to carefully plan investment in cognitive capabilities as the “one size fits all” approach would not work. They would need to define objectives and identify and prioritize relevant use cases. They would need a roadmap to ensure timely achievement of all milestones and also monitor KPIs. Also, as certain skill sets and roles become obsolete, companies will have to set up a suitable reskilling program to assess and regularly impart new, relevant skills.

Automation is going to drive most of the growth. That said, IoT & AI penetration & adoption is on the high growth path. According to an IDC report, the number of IoT connections are expected to grow at

a CAGR of 28.7% year on year, from 2020 to 2025. By 2025 it is estimated that there will be 41.6 billion connected IoT devices.

All of the above is going to drive a big rush in developing capabilities around RPA, IoT and AI. Companies have already started investing heavily in building these capabilities which is resulting in the rapid growth we see in the above mentioned.

Automation benefits

Business process automation is a strategy whereby businesses use technology to organize their personnel and processes. Processes here can mean a set of activities that move the business towards a particular goal. In simpler terms, Business Automation or Business Process Automation allows a computer or a computerized machine to do heavy manual tasks, resulting in the following benefits:

- Better control of your business
- Enhancement of HR services
- Improved Customer Service
- Reduced Labor Costs
- Time-saving

Some examples of how automation can help various sectors:

- Kirana shops can embrace e-commerce platforms for help with delivery and logistics, and ultimately take on the big players in the market
- Automotive vendors are going completely digital in their processes—right from enabling customers to choose their vehicles, avail the loans offered and getting the vehicles delivered to their doorstep
- With the integration of healthcare services online, there are now online consultations with prescriptions being delivered to the patient. The concept of home-hospital care has evolved to a point where some medical devices such as the oximeter can be brought home to take care of the patient and connected to the hospital online—providing doctors with the ability to monitor the patient's health remotely
- In the hospitality and food industry, we see zero-touch check-ins and dine-in-isolation options becoming viable. The hospitality industry can help bring people together for physical team meetings in hotels, offering one-day team event packages and more.

The Role of AI and IoT technologies in the post-Covid-19 era

The current pandemic is a lesson for all, we never

"According to Gartner, by 2025, the business value added by blockchain will grow to slightly more than \$176 billion, then surge to exceed \$3.1 trillion by 2030. Against the backdrop of a global pandemic, digital transformation initiatives must move beyond their experimental phases into implementation. Blockchain—having proven its ability to deliver real impact in a multitude of sectors within the APAC region—is a key part of the technology stack as companies look to stay limber in times of turbulence and uncertainty. Hence, we believe that firms will be investing time, money, and resources dedicated to enhancing their technology from top to bottom."

—Amit Ghosh, Head of Asia Pacific, R3



know what the future holds for us, so it's crucial to be prepared beforehand. The uncertainty and a tense atmosphere that was created among the businesses were proof that somewhere our business operations were not agile and flexible enough to deal with the challenges.

The enterprises that were using legacy and traditional methods to run business operations found it hard to tackle the situations, while the ones with digital technologies in use found it less difficult to adapt to the situation. Hence, embracing automation provides us with the ways to redefine the new normal in a post-Covidworld and using it as a force for good to fight the uncertain times.

IoT and AI are the two major tools that businesses will adopt, as it provides with the proficient ways to mimic human intelligence and connect devices. IoT enables remote readings of data from areas where human presence might be considered dangerous. The connected devices make control and communication easy. On the other hand, AI enables us to work on a pile of IoT-collected data, process it, and offer recommendations to be used by human decision-makers.

AI and IoT have offered a huge helping hand in the fight against the pandemic. There are many cutting-edge IoT products that play a vital role in limiting the spread of the virus as well as helping in the treatment of an infected individual. The best thing about these technologies was that prior to putting into service for Covidfight these have already evolved to a level

where many useful tools & devices already existed, and we just had to adopt it. Today, many enterprises are teaming up with the government in order to develop solutions and provide relief to people and businesses.

Some of the major implementation of IoT and AI-based technologies are:

Optimizing remote operations: Social distancing and work-from-home norms will significantly reduce onsite employee presence. To ensure round-the-clock availability of critical assets—onsite as well as those at client facilities—companies would increasingly turn to AI and IoT solutions such as digital twins that can facilitate predictive maintenance of a range of capital equipment and help avert unplanned downtime.

Optimizing operations: Streamlining the processes as well as eliminating unnecessary costs will help companies survive the demand upsurge they will face post Covid-19. IoT chips embedded in products will enable businesses to track and monitor shipments of a diverse range of products. Multiple solutions such as chatbots have already proven to reduce man power costs by 25% and cobots have shown to cut time to market by 50%.

Facilitating contactless operations: AI and IoT solutions can facilitate contactless operations that not only minimize the spread of infection, but also boost operational and cost efficiencies. For example, smart lights and HVAC solutions can switch on/off automatically by detecting human presence. An added benefit is their ability to save energy and reduce operating costs. Contactless payment is another example of a solution that can be easily implemented on a large scale and one that helps control crowds, thus minimizing the spread of infection and facilitating faster checkouts.

Keeping a track of Coronavirus Pandemic: According to a study by Massachusetts Institute of Technology (MIT), by superimposing geographic information systems (GIS) on IoT mobile data, it can assist epidemiologists in identifying people who have encountered the infected patients. This would also help in providing useful data to healthcare organizations.

Managing assets and facilities: Automated solutions such as drones can play a vital role in monitoring critical assets such as pipelines, boilers, water treatment plants, and generators. They can also help with sanitizing operations, thus minimizing employees' exposure to health hazards.

Enhancing customer experience: These solutions enable companies across verticals to access structured and unstructured, historic and real-time customer data

“Automation is becoming an imperative requirement for any and every business. One of the ways that companies are implementing automation to restart operations is with the use of AI and ML assisted Chatbots to manage customer support.



Apart from chatbots, for internal users of IT, Operations and HR support organizations are also adding Self-Help and Self-Heal solutions that can resolve most of the regular issues. Digital signatures are used more than ever for document processing. These changes will be well accepted and will be good for both company and employee as everyone wants to look at things differently now.”

*—Kunal Bhat, Practice Head – Automation,
CMS IT Services*

from multiple sources, such as online browsing and purchase history, and point-of-sale data. The data can then be processed into actionable insights and used to tailor experiences and offerings as per customers' preferences.

Monitoring employee health: Devices such as thermal scanners, wearables, and smart locks can be deployed to not only monitor employee health, but also implement social distancing norms at workplaces. The output from these devices can be processed in real time to detect and control crowds, monitor employees' vital parameters, and limit access to sensitive locations.

We see these days how the thermal scanners are being used at hospitals, stores, airports, and many other such locations to check the temperature of the visitors. Since, Fever is one of the symptoms of Covid the IoT technology allows millions of devices to feed data into a national database which further projects a real-time map showing at a glance where fevers might be spiking.

Coming to AI, as of today it has demonstrated its capability in assisting medical advancement. In addition, AI-powered solutions such as camera-embedded facial scanners are capable of analysing facial attributes and thermal scans to determine a visitor's fever conditions. These solutions have been extensively used in order to deliver care for thousands of infected patients. So, to state in simple words, IoT and AI have been used as major weapons to track, trace and, predict the Covidcases with minimal or no human contact.

ROBOTICS & AUTOMATION IN THE TIME OF PANDEMIC AND BEYOND

Covid-19 crisis has made businesses embrace robotics and automation in an accelerated mode

Dr Jyoti Prakash Naidu



The world is going through unprecedented circumstances, and all countries are facing challenges never seen before. After repeated lockdowns, the nation is in the process of lockdown exits, going through what our PM calls “Jaan Bhi Aur Jahan Bhi”. The calibrated reopening of economic activity is underway and many sectors of the economy are showing the first green shoots of revival. Not surprisingly, there are mentions of

prioritization for technology-based industries like Robotics and Automation in the process of opening up the economy. The fast-growing digitally savvy population of the country holds great promise for the growth of sectors like Robotics and Automation.

Covid-19 will accelerate businesses' automation plans

It is generally well known that corporations

take up projects keeping in view the best value for investments. Businesses don't run to create employment, they run for maximizing profits. Given this context, it is inevitable that all jobs that are easy to automate will be taken over by automated processes; only the jobs that are difficult to automate will ultimately remain present. It is important to understand and accept that while technology may look like a job snatcher in one era, it may ultimately become an indispensable friend of the same working-class at a different time. An example is the application of computers in banks. I still remember the 80s when there used to be massive all India strikes by employees of nationalized banks against the introduction of computers in banks. They used to look upon computers as their enemies who may replace them. Fast forward 30 years, can a bank employee even in a public sector bank imagine to work without a computer? Covid-19 is going to bring the same change, albeit probably much faster in many industrial sectors, particularly when society will see the opening up of higher automation operations before conventional labour-intensive operations. The social distancing requirements, general awareness about hygiene, and the need to distance humans from hazards are bound to accelerate the application of Robotics and Automation.

Tackling Covid-19 Crisis

Let us consider some examples. Garbage collection, segregation, and waste management are highly hazardous operations dependent on manual labour who are often exploited and put at high risk. Can they not be given at least basic automation devices that avoid direct contact with hazards? In some areas, agencies combating Covid-19 are already deploying automation technologies. The government too is promoting tracking of Covid-19 positive cases through Bluetooth, GPS, and Apps. This is a good example of automation in identifying and monitoring potential risks. Post Covid-19, such technologies and other applications will also get extended to other non-health-related applications such as monitoring known offenders, or even goods and services. The scope and sphere of the word 'Robotics' are also rapidly expanding. Software-based robotics has a diverse range of meanings - it covers automated face recognition, voice recognition, gait recognition, or even barcode or chip reading technology and linked enablers of several actions such as opening gates, allowing vehicle movements (the recently mandated FASTag being an example), and several such actions.

Transforming Farming

India has one of the lowest productivities in terms of income generation for farmers. While developed countries, e.g. the United States have farmers who are far wealthier, Indian farmers often struggle to cope with loan waivers. The shocking news of farmer suicides as well keep recurring. A key reason for this is the lack of automation coupled with the shortage of labour for farming operations. Hopefully, this situation may improve a bit if the migrant laborers who have walked hundreds, in some cases thousands of kilometers back home continue to remain in their villages. But Santosh Mehrotra, Economics Professor, Centre for Informal Sector and Labour Studies, School of Social Sciences, Jawaharlal Nehru University has shared that poverty alleviation will need moving people out from the rural farming sector to urban or semi-urban labour sector. What Mehrotra says is probably the bitter pragmatic reality. But we have to go deeper into the reasons for this unfortunate situation. In my opinion, the situation needs to be changed by the development of affordable customized semi-automated robotic technologies in the rural sector. This will help in competing using the principle of the economics of scale, achieved by massive mechanization in the farming sector deployed in the developed world. While fragmented land holding of less than one hectare does not allow high-cost mass production equipment, we need automation solutions suitable for small land holding.

Transforming Supply Chain

Supply chain solutions including real-time logistics and data analytics is another area where massive automation will take shape, starting with the current pandemic situation as well as during post-recovery. While the current break-down in the supply chain is due to miscommunication and lack of preparedness, a well automated robust supply chain could have operated without interruptions even during the pandemic. It is well known that agricultural products have a wastage rate of up to 40 per cent. There is a great opportunity for the Government and businesses to learn lessons from the current losses and come together to design and build a robust system for essential commodities. India is poised to adopt robotics and automation in an accelerated mode.

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AUTOMATING NETWORK PROCESSES CAN SAVE YOU TIME AND MONEY

Network operations are slow and largely manual, and the results rarely justify the cost and effort go into it

Anand Purusothaman



C OVID-19 is a classic example of The Butterfly Effect. The novel coronavirus, measuring hardly a few nanometers, set off a series of events bringing the global economy to a grinding halt. The fear of contracting the virus has pinned people to their homes, businesses have suspended their operations, stock markets have nose-dived leaving gaping holes in the economy.

With enterprises everywhere are staring at a sharp slump in revenue, the natural response is to start downsizing. To stay afloat, businesses are

stripping their expenses down to the bare minimum. Budgetary cuts become inevitable. Cutbacks in all forms of spending – from supplies to technologies, and sometimes even the workforce, are becoming the norm. In spite of the shutdown, certain sectors are continuing to function, albeit remotely. The new normal of remote working has put the focus on technology – the reliance on which has increased manifold times.

From a technological standpoint, how do CIOs decide what to invest in, what to keep, and what to

let go? By evaluating what the solution brings to the table; that is, its ROI (return on investment).

In the current scenario, the emphasis is on enterprises to function with minimum resources – i.e., to continue providing services while cutting back on capital and operating expenditures. For most enterprises that have a digital presence, ‘services’ translate to transactions that are conducted over the internet through customer-facing applications. For such an enterprise, a huge chunk of the expenses is incurred in running the network infrastructure that underpins these applications.

Costs of Managing Network Infrastructure

Setting up a network is a costly affair. The network is made up of a myriad of devices across many layers, and most of these devices are provided by many different vendors. Acquiring and maintaining them in proper working conditions takes up a lot of money. These devices come with EOLs (End-of-Life), on reaching which they need to be replaced with new devices, which is again expensive.

Owing to its span and complexity, the network is one of the most difficult entities to manage. It requires an army of dedicated engineers, administrators, and architects working round the clock to perform the hundreds of configuration changes that arise out of DevOps activities on a daily basis. Network operations are slow and chiefly manual, and the results are seldom commensurate with cost and effort. Also, the vendors’ device management platforms come with their own price tags, and an enterprise needs to use several of them to manage their heterogeneous network infrastructures.

The best approach to manage costs effectively

From the above, it’s evident that CIOs should invest in technology that can drastically cut down the expenditures incurred in managing the network infrastructure, while also keeping applications and services up and running.

The dependence on Cloud platforms comes as a cost-effective option in keeping service continuity up and running. But cloud computing comes with its own baggage – cyber attacks, phishing leading to data losses, financial and reputation losses, and loss of customer confidence.

The best approach to take, at this time and for the long run too, is automating the network infrastructure management. A data-driven network automation solution helps in so many ways to reduce



ANAND PURUSOTHAMAN, Founder & CTO, AppViewX

both operating and capital expenses, and some of them are enumerated below:

Automation removes the need for much human intervention in network processes by taking care of the manual busywork, thereby freeing up resources. These resources can then be assigned tasks that bring more value to the enterprise, helping CIOs optimize the workforce and trim the edges.

Processes that are automated can be accomplished in one-tenth of the time it takes to do them manually and are error-free, too, resulting in savings of more than 1000 hours a month. In a scenario where time is money, this saves an enterprise almost USD 2 Million a year.

Automating network processes makes sure SLAs (service level agreements) with clients are met, and business continuity is kept up, however tight resources are. Intuitive network orchestration platforms perform context-aware automation, closed-loop troubleshooting, and auto-remediation, keeping applications and services always on and available.

Some network automation platforms are also vendor-agnostic, which means you need to invest in only one such platform to manage your entire network, how many ever different vendors it may comprise. You can also manage hybrid and multi-cloud network infrastructures– leading to significant cost-savings.

Automation helps in bringing down capital expenditure too. Some automation platforms also provide real-time, data-driven monitoring of the network devices, so you can optimize resource utilization, make informed purchase decisions by analyzing performance, and cut down redundancy.

The author is Founder and CTO of AppViewX

DIGITAL PAYMENTS EVOLVE FROM “NICE TO HAVE” TO “ESSENTIAL” SERVICE

COVID-19 has certainly triggered a shift in consumer behavior which has resulted in people unlearning old methods to acclimatize and adjust to the new world, says V. Chandramouliswaran, Sr. Director, Global Financial Crimes and Customer Protection & Chennai Centre Head, PayPal India

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Can you tell us something about the PayPal India Development Centers and the technologies that they are involved with?

PayPal has three world-class Global Technology Centers in Chennai, Bangalore and Hyderabad which employ over 4000 highly skilled engineers. These are PayPal's largest centers outside of the U.S. and focus on a wide range of technology from AI to Blockchain, thus leading the tech revolution when it comes to money management.

The technology centers house a best-in-class team of software developers, architects, user experience engineers, web developers, data scientists, analysts, program managers, and operations agents, among others. They work across Risk, Payments, Consumer,

Merchant, Operations, Data, Data Science, reporting etc. to provide cutting-edge digital payments solutions to our customers worldwide, and are integral to driving our transformation.

We are committed to making a positive difference in the world. Our ability to deliver on our mission of democratizing financial services and capabilities starts from the inside; by building a global team of employees that reflects the communities where we work and live, and the diversity of the customers we serve.

One of our biggest success stories is our commitment towards ensuring consumers a safe and secure payments experience. In our initial days we approached fraud detection much like any other bank

would and that meant using traditional technologies, such as logistic regressions. Over the last decade we upped our fraud-fighting game by using more advanced technologies, such as neural networks and Gradient Boosted Trees (GBTs), which one could argue was the second phase of the company's journey which led to significantly higher levels of accuracy.

Most recently we looked advanced AI which included technologies and techniques like deep learning, active learning, and transfer learning. This is where we are in our Risk AI journey. Our accuracy levels have continued to improve, and advanced AI approaches have delivered an accuracy boost of about 10% to 20% over the traditional ML approach to detecting fraud in real time. We continue to invest in our research and data capabilities as this is an evolving space and we need to challenge our scientists to stay ahead of the fraudsters.

What are the changes you are seeing as a result of the COVID-19 crisis-lockdown? Is there a surge in online payments and online payment habits? How is PayPal changing because of that?

COVID-19 has certainly triggered a shift in consumer behavior which has resulted in people unlearning old methods to acclimatize and adjust to the new world. Due to this shift, the country has witnessed a surge in digital payments, as there is a legitimate need as an outcome of stringent social distancing norms. We expect this trend to continue for the foreseeable future as both consumers and merchants have experienced the convenience of transacting digitally.

Given the current scenario, our services have never been more needed and more relevant. We have witnessed an unprecedented demand for our products and services over the past few months with transactions up 20% year-over-year, and branded transactions up over 43%, more than double pre-COVID levels in January and February. On May 1, we had our largest single day of transactions in our history, larger than last year's transactions on Black Friday or Cyber Monday. We also had a record Q1, adding 10 million net new accounts. But that will pale in comparison to the 15 million to 20 million net new accounts we anticipate adding in Q2. And last, but certainly not least, in April, our revenues grew by 20%.

What were the trends in payments before the crisis happened and what are the new long-term trends that we are likely to see?

Digital payments have seen increased accep-



V. CHANDRAMOULISWARAN, Sr. Director, Global Financial Crimes and Customer Protection & Chennai Centre Head, PayPal India

tance especially during demonetization, but the pandemic has evolved digital from a nice to have to an essential service. Unlike what was experienced during demonetization when cash came back, this growth is expected to continue. According to a recent survey conducted by Capgemini on financial services consumer behavior, the usage of digital payments in the post COVID-19 period is set to be highest among Indians at 75% followed by China at 63% and Italy at 19%. A noticeable trend is the use of digital by new demographics. At PayPal we call them the silver tech generation and have seen high demand of our services from them.

As people adapt to new modes of life, businesses that enable us to work, study, shop, and interact virtually have skyrocketed to mainstream adoption. Such technologies have been growing and gaining traction slowly for years. They have become essential in the new normal. Technologies like AI and ML will see a lot of demand as they are helping transform everything from data collection and processing in the marketing department to hiring and on-boarding in the HR department. The bouquet of AI, pushed by Machine

Learning, computer vision and Internet of Things (IoT), are fast evolving as significant game changing technologies worldwide. Besides technology companies, it is currently being pursued across sectors ranging from manufacturing, agriculture, healthcare, retail, financial services, banking, national defense and security to public utilities. They hold huge potential for business transformation in these sectors.

We hear a lot about online financial fraud and cybersecurity related issues. How safe is PayPal and at the backend what are the steps you take to ensure its safety?

Over the past few months, technology has been the mainstay for first responders, governments, and companies of all sizes to ensure a strong ecosystem that allows for business continuity. While we have witnessed the multifold benefits of technology during this time, the spike in remote working has made the security profile of customers even more critical. Since most people are working from home and spending more time on mobile phones and other personal devices, the incidences of fraud are also rising as many of these devices are unprotected. A report released by cybersecurity firm Fortinet reported a 131% increase in viruses targeted towards remote workers (as compared to the same period in 2019).

At PayPal, we believe that more than being in the business of payments, we are in the business of trust and hence it is extremely important for us to educate our customers on the safety aspect while transacting digitally. We protect our customers by the depth and layered security, which means protections that apply on your devices, within the app, on network edge, the right kind of cryptographic infrastructure. A combination of human and machine is the strongest. You want the machine to learn as much as it can on its own accord and we used this model in security, assessing risks, and we are now beginning to use it in infrastructure and customer support. PayPal employs the power of ML algorithms to process transactions and a lot of cutting-edge work is done out of our India Development Centers in Bangalore, Chennai and Hyderabad.

With hackers also evolving rapidly how are your risk and security measures also evolving to manage such changes?

Given that digital is the new normal, the focus on security will be extremely critical going forward. Sustainable growth in the sector and for innovations to work will depend on the ability to manage risk for

every transaction. This is where emerging technologies like AI and ML will play a key role.

At PayPal, we're constantly encouraging our engineers to constantly push the boundaries of AI and Machine Learning, with applications from risk, marketing, customer service to autonomous infrastructure. We employ a story-driven risk management approach, combined with our expertise in data analytics, to build feasible risk solutions.

We constantly monitor for suspicious account activity to thwart fraudulent transactions, compromised accounts, illegal activity, and violations of our Acceptable Use Policy (AUP).

- o Within three-tenths of a second, we assess a transaction based on all of the data we have and in doing so, we have one of the industry's lowest fraud rates of any payments platform.
- o Merchants use PayPal's end-to-end risk solutions to manage everything from customer onboarding to payment authorization to backend risk management.
- o Merchants have also taken advantage of our machine learning and device intelligence technology powered by Simility, a PayPal service. This allows us to put more control in the hands of our merchant customers to fight fraud while helping make commerce experiences fast and secure.

We also protect our customers by using layered security

- o PayPal's Cyber Defense Centers in the US and Singapore provide 24/7 proactive security monitoring.
- o We use automation to help address security incidents faster. More than 80% of our incidents are handled through automation.
- o Through our "defense in depth" approach, multiple layers of technical controls are deployed to ensure that systems are kept secure and threats detected and mitigated. We continuously evaluate new tools and technologies to stay ahead of the threats.
- o Confidential customer data is encrypted both at-rest and in-transit using strong encryption standards and secure connections. Secure development practices and scanning tools are built into the software development and release process
- o Our more than 5000 developers are trained in secure coding practices and we host capture the flag (CTF) and internal bug bounty challenges to further cement their training.

CONCERNS OF AUTONOMOUS AI IN MEDICAL IMAGING

As AI systems are developed and approved in the wider medical imaging space, challenges including but not limited to regulatory, privacy and ethical concerns will start to surface

Inderpreet Kambo & Jaskarn Singh



Intelligent and autonomous algorithms are making long strides to make clinical and workflow improvements in medicine. And when we look deep within healthcare, one of the most promising areas of innovation is in the application of Artificial Intelligence (AI) in radiology and medical imaging. Over the past few years, there has been a rapid surge in the AI adoption and automated algorithms within healthcare and life science realm. While AI is on the path of maturing into a reliable, robust and stable technology, many opponents caution against it, claiming society is far from using it as a part of the mainstream healthcare for providing and delivering care to the patients.

Radiology and medical imaging like other branches of medicine requires comprehensive medical context before the patients' medical state could be accurately evaluated. AI and advanced computer aided diagnosis have always been welcomed in the field of medicine as it has supported the physicians in clinical support, smart review of the medical literature, more discrete real world outcome data points- ultimately leading physicians and care delivery team to dedicate more time to the actual treatment and delivery of care. However, lately there has been a rather steep uptake in autonomous detection with minimal to no physician intervention, making the nascent technology come under the spotlight.

Back in 2018, FDA approved the first AI enabled medical imaging device- IDX-DR that could detect retinopathy using retinal images and without any physician involvement. With that led to a foray of AI-enabled medical devices and technology that could be used by the technicians and auxiliary support without a thorough and labor-intensive training, something that we typically assumed with physicians and specialists working in the field. Similar to IDX-DR, echocardiogram—a San Francisco-based Caption Health's Artificial Intelligence box was approved by FDA to capture ultrasound images of the heart. Heart is a highly complex organ pumping blood through millions of small and inaccessible capillaries throughout the body. It requires cardiologists to undergo many years of rigorous training to correctly image and diagnose abnormalities, leave treatment for these abnormalities. However with echocardiogram, what was typically a highly specialized job requiring niche expertise and many years, if not decades of experience was replaced by an AI algorithm operated by nurses with just a few days of training.



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The FDA approved these products through its newly introduced “de novo” pathway after research showed that the technologies yielded similar or better results, despite lack of sufficient longitudinal clinical studies. In the case of echocardiogram, FDA approved the AI algorithm by stating that the images of the heart produced were of highest level of precision and quality, even when operated auxiliary staff. However, the bigger question is that how will FDA regulate the use and implementation of such AI-enabled medical diagnostics outside its initially approved settings. Their reliability, safety and accuracy will be compromised when the original algorithms or intended use is modified beyond their initial approval.

As AI systems are developed and approved in the wider medical imaging space, challenges including but not limited to regulatory, privacy and ethical concerns will start to surface. Below is a snapshot of some key questions that will define how answers to these questions will shape technology and AI adoption in healthcare imaging.

1. What are the various risks associated with false

positive and false negative tests associated with AI implementation in medical imaging and radiology? What are the current protocols to mitigate these risks?

2. How is the data kept secured, especially in light of plethora of data breaches that occurred just within the last decade?
3. What are FDA guidelines on how and when to implement AI guided medical diagnosis and imaging, and more importantly what situations recommend not implementing these AI systems?
4. What are the minimal and necessary skills, expertise required to implement, monitor and test AI guided medical diagnostics? What level of human oversight is considered critical and necessary for these implementations?
5. How do physicians and caregivers plan to continuously monitor AI driven care?

Another aspect of AI implementation is around the legal challenges created by its inadvertent use in medicine. AI algorithms, as a part of the application are not subjected to same scrutiny as those faced by medical devices. The 'Product Liability Directive' as those institutionalized in some of the European countries may further complicate medico-legal cases where failure to use such AI enabled applications may confound the already complex medical negligence lawsuits.

Although there are different algorithms for diagnosis from those applied to treatment, all these underlying algorithms still need quality checks, validation and approval. And in order to thoroughly test the veracity of claims and validate the algorithms, large amount of data is paramount. And hence

As AI systems are developed and approved in the wider medical imaging space, challenges including but not limited to regulatory, privacy and ethical concerns will start to surface. There are many key questions to be addressed



JASKARN SINGH, researcher, inventor, innovator, consultant, leader, coach and academician

rigorous evaluation and well-thought out regulatory guidelines are needed to establish automated AI and automated technology as legit.

Conclusion

Technological challenges in AI, its application for medical diagnosis, adoption of technology by healthcare consumers and more than anything our response to ethical challenges posed by AI, are evolving at an unprecedented speed. With these early stages of AI adoption, its ramifications are not only difficult to comprehend but also will be complex to manage when those happens. As we understand and comprehend some of these ethical challenges, it is pivotal to not only share them with the broader audience but also open a dialogue for a fair representation from the different strata of the society.

Inderpreet Kambo is a Boston based professional with experience and professional expertise in healthcare data and life science landscape

Jaskarn Singh is a researcher, inventor, innovator, consultant, leader, coach and academician

UNLOCK THE POWER OF PATIENTS' VOICE

Five ways voice recognition technology and analytics can help make healthcare work better for everyone

Rajesh Sabapathy & Vikas Chaudhary



Recent advances achieved through the use of Deep Neural Networks (DNNs), a form of Machine Learning (ML), have made Artificial Intelligence (AI) a household term. One of the goals of AI is to recognize and understand human speech across all languages. To this end, DNN based models built by the internet technology giants continue to break records on some of the well-known speech recognition benchmarks, such as the LibriSpeech Automatic Speech Recognition benchmark. This has led to an explosion of activity in building voice-based applications, with CB Insights estimating the market size for voice recognition to hit USD 49 billion in a couple of years, and VC funding tripling in a year from USD 0.5 Billion in 2018 to around USD 1.5 Billion in 2019.

In this article, we look at five areas in healthcare, where voice recognition technology and analytics can unlock value to help people live healthier lives and help make the health system work better for everyone.

Diagnosis, detection and tracking of diseases

An emerging application of voice technology is the use of vocal biomarkers to detect and diagnose diseases ahead of time. A patient's voice, speech patterns and breathing rhythm hold clues to underlying conditions. For example, there is research underway on early detection of Alzheimer's and Dementia by using a patient's speech patterns. Another example is how lung auscultation, the

process of listening to lung sounds, can be performed using a digital stethoscope.

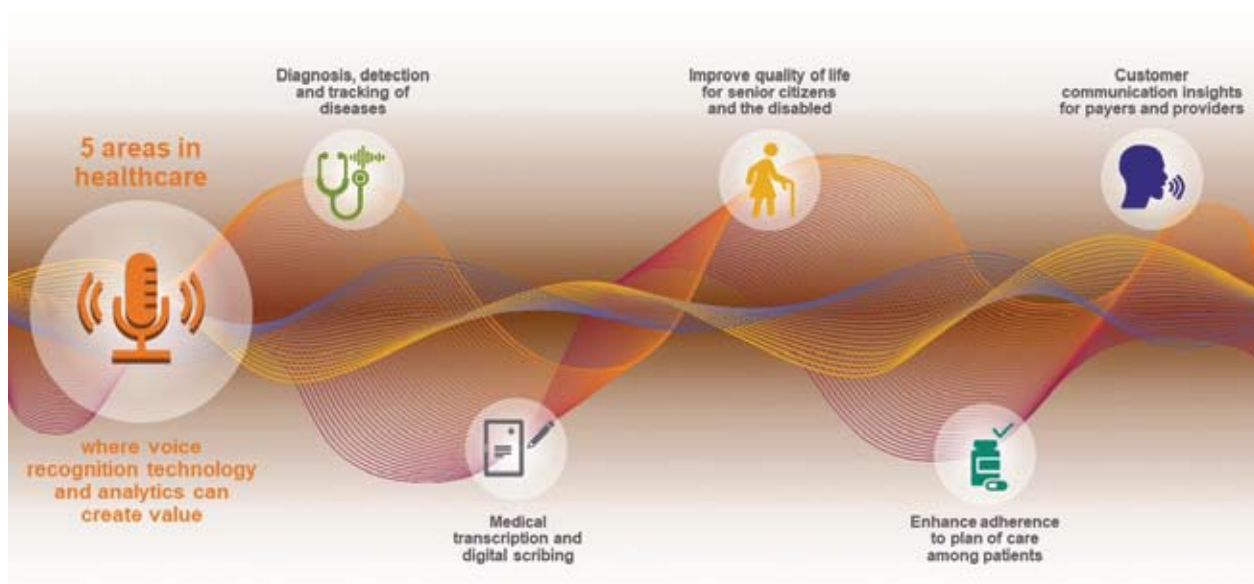
The solution comprises of: (a) an edge computing device, such as Arduino; (b) a convolutional recurrent neural network trained to recognize various lung sounds, such as rhonchi, wheezes, coarse and fine crackles; and (c) a framework for deploying deep learning models on the edge, such as Tensorflow.js.

In 2018, it was also reported that a patent was filed for being able to recognize if a user has a cold or flu through a smart speaker based on subtle changes in voice. The area of using vocal biomarkers for diagnosis is thus poised for growth – research reports expect close to 15 per cent CAGR, with the overall market reaching a size of USD 2.5 billion in the next 2-3 years.

Medical transcription and digital scribing

As per certain surveys, more than 50 per cent of physicians in the US report burnout, with a major contributor being the time spent in documenting patient visits into the Electronic Health Record (EHR) systems. Dictation software, specifically tailored for healthcare and medical applications, has been able to make rapid strides in this space, not just reducing physician burnout, but also reducing overall costs by eliminating the need for human assistants to take notes.

Automatic Speech Recognition (ASR) software in today's world usually comprise of three components:



(a) A lexicon, which is a list that has two entries in each row: a word and its pronunciation; (b) An acoustic model, which takes a small frame of audio and predicts which phoneme was spoken; and (c) A language model that can accurately predict the next word in a sentence, trained specifically for medical scenarios and vocabulary.

Last year, OrthoAtlanta, a 14-office group practice with 37 physicians, reported saving an hour a day per physician using AI-powered dictation software, with the average time taken to complete a note reportedly dropping from 4.8 minutes to 1.6 minutes.

Improving quality of life for senior citizens and disabled

Elderly patients are often confined to their homes, unable to use technologies that require good vision and nimble fingers. Voice technology, through smart speakers and AI-based voice assistants, can help these senior citizens with scheduling and keeping appointments, staying connected with family members and other daily tasks.

Similarly, the quality of life of patients with speech or hearing difficulties can be improved by converting speech to text or vice versa. For example, roughly a quarter of patients with Amyotrophic Lateral Sclerosis (ALS) suffer from slurred speech. Voice technology solutions help these patients by converting non-standard speech to standard, helping summon caregivers, creating live subtitles during a group conversation, showing who says what and so on. ASR solutions in this space must overcome the twin challenges of variations in patterns among patients with the same type of atypical speech, as well as collecting sufficient amounts of non-standard speech training data from a patient, as opposed to volunteers contributing training data for standard speech.

Help improve adherence among patients

Around 50 per cent of patients with chronic conditions, such as diabetes, hypertension or asthma, often find it difficult to adhere to their plan of care. To this end, quite a few startups have built applications to focus on aspects such as: routinely asking questions regarding a patient's condition and offering reminders; AI assistants that can provide clinically approved advice and recommendations at home etc.

The solution approach here involves: (a) Analytics to identify members who are likely to not adhere to their plan of care, based on historical treatment and pill reordering data; (b) Designing the right interventions and identifying the right time to

deliver those interventions; and (c) Engineering the technology ecosystem centered around smart speakers and mobile apps to deliver the intervention.

Customer communication insights for payers and providers

Large healthcare organizations use some form of customer satisfaction metric, such as Net Promoter Score or NPS, assessed through a post call survey when digital penetration is low. The feedback from such surveys helps an organization design a program for improving customer satisfaction.

Voice analytics helps provide inputs to such programs by: (a) Making highly accurate call transcripts available by using appropriate speech-to-text technologies through established commercial vendors, cloud service providers or home-grown transcription solutions; and (b) Applying text mining (keyword spotting etc.) and natural language processing methods or NLP (sentiment analysis, entity extraction, summarization etc.) to provide intelligence and insights.

Additionally, voice analytics helps healthcare organizations with large call centers with their quality audits that examine the behavior of an agent during a call i.e. whether the agent greeted the caller appropriately, whether the agent was courteous throughout the call, whether certain standard steps required as per compliance norms were carried out etc. Quite a few of these steps can be automated by applying NLP techniques on top of a call transcript. Such auto-audit programs can bring about significant savings in terms of operational cost.

Adoption and usage

As with all things related to voice recognition, privacy concerns will continue to dominate and determine eventual adoption and usage, especially in the patient space. Additionally, one of the key challenges organizations will face is the dismantling of existing technology systems and workflows to integrate voice recognition applications. However, given the explosive growth in smart speakers, advances in natural language processing research, and the kinds of problems that voice technology and analytics can solve, exciting opportunities abound not just for organizations but also for talented technologists, data scientists, and research engineers, enabling them to do their life's best work.

Rajesh Sabapathy is the Director-Data Science & Vikas Chaudhry is the Director-Reporting & Analytics at Optum Global Solutions, India

DIGITAL: THE CORE OF INTELLIGENT ENTERPRISE

Enterprises are now transforming themselves to become 'intelligent' by implementing digital technologies such as AI, ML, IoT, AR and Cloud Computing etc

Advait Waghmare



Ever since human existence, 'Intelligence' – or the ability to acquire and apply knowledge and skills, has been key to our incessant growth and evolution. Today, in the age of the digital transformation, we have arrived at a juncture where we can build on the intelligence in our machines, products and operations to amalgamate knowledge and deliver insights like never seen earlier. Based on this construct of the digital age, enterprises are now transforming themselves to become 'intelligent' by implementing digital technologies such as Artificial Intelligence (AI), Machine Learning, Internet of Things (IoT), Augmented Reality & Cloud Computing etc.

What truly differentiates an intelligent enterprise from traditional businesses is that the 'intelligence' they carry around their products and operations. This capability of an enterprise helps them be more proactive and deliver a differentiating experience to their customers. For example, building 'smart' products can enable identification and resolution of any product failures much before the actual breakdown happens, thereby, improving the experience of their consumer.

This transformation is a journey and needs careful planning and execution. The pace of the journey can change based on many internal and external factors apart from the organization's business strategy. However, in

today's highly complex market scenario, not moving in this direction brings in risk of survival and growth.

Digital Transformation – Embarking towards the Era of Intelligence

Through Platform

The only constant aspect about consumer demand over the years has been its rapidly changing nature. Therefore, trying to bridge the gap between their products / service offerings and the market requirements, organizations are striving to imbibe agility into their business. Being agile refers to the flexibility of an organization to adapt to changes in industry trends, demand pattern, consumer behavior or regulatory compliance. Investing & adopting the right technology, tools and digital platforms, organizations can leverage the data, gain insights, which empowers them to better understand & predict the market movement to stay ahead of the game. Having a robust digital foundation will not only streamline their processes but also impact their overall objectives to drive growth. This can additionally help them be more operationally efficient, drive innovation in their offerings and differentiate themselves with respect to their competition.

Through Products

Traditionally, businesses could measure and assess the efficiency of any of their products through reported performance information, complaints of failure or faults, customer feedback and reviews. Today, intelligent enterprises have started embedding 'smartness' into their products and operational infrastructures using smart sensors. Integrated with capabilities of digital technologies such as IoT and AI, smart, connected products can capture and share data on their current state and usage patterns in real-time. The insights so collected can be used to monitor performance and read contributing factors in case of failures. This in turn can help in introducing innovation in product design to deliver better quality, hence instantly enhancing the business opportunity manifolds. So, their smartness makes such products much more valuable than their predecessors which is why organizations are moving towards 'smart' and 'connected' products.

Through Processes (Operations)

The benefits of smartness apply to an enterprises' operational infrastructures as much as they do to its products. In the case of manufacturing processes for example, operational equipment infused with smart sensors can derive intelligence on product defects or mechanical faults, allowing reduced wastage, enhanced efficiency and improved equipment accuracy. One of the biggest changes happening in enterprises which are moving towards intelligent operations is the convergence of OT (Operations Technology), dealing with aspects of operations and manufacturing and IT (Information Technology), concerned with customer related processes such as billing, procurement and invoicing. While having worked in isolation earlier, these segments facilitated highly disconnected and often incomplete knowledge on operations to enterprises. In the digital age, both these worlds are merging together to enhance the enterprise's ability to make better decisions, target newer business opportunities & get a better insight on market demands. This intelligence has helped organizations to not only understand their customers' consumption patterns but also take proactive steps

Through People

The digital transformation journey of any enterprise should include tenets like platforms, products and processes but the most critical element for such transformation is its people. As iterated and reiterated by management experts, people are an organization's



ADVAIT WAGHMARE, Global Practice Head, Digital Transformation, Birlasoft

most valued asset and thus the most critical aspect of the any change. The transformational changes that digital journey brings along, is most likely to impact the work culture of a company. These changes need often face challenges of acceptance among its people and if these challenges are not addressed appropriately and immediately, the entire journey towards an intelligent enterprise is at risk. In many organizations for instance, employees may lack the digital skills required to keep up with the digital transformation. In such a situation, a clear digital mindset needs to be developed among the workforce, along with their re-skilling, up-skilling and continuous learning in order to adapt to and accept the emerging tools and technologies. An enterprise's investment in its own people is a critical factor in its long term and sustainable success.

Consumer-centric Mindset Vital for an Intelligent Enterprise

An intelligent enterprise is always focused on their consumer. In this competitive economy, markets and organizations quickly align to the expectations and feedback of their customers. Hence, it is vital for enterprises to have a real-time insight on how their consumers use their products and what can be improved to deliver better value.

Once an organization builds this ability to connect their products and processes, derive relevant insights, build a digital foundation and invest in skilling their workforce; they become more intelligent in meeting customer expectations, delivering more value to their experience and augmenting capabilities of their existing offerings. Transforming and differentiating themselves amongst their competitors of critical importance to increase their market share and truly transform into an intelligent enterprise.

The author is Global Practice Head, Digital Transformation, Birlasoft

HOW AI CAN IMPROVE RECRUITING AND BUSINESS PRODUCTIVITY

Emerging technologies like AI can help to tackle hiring challenges, especially when job roles are merging into each other and becoming more cross-departmental

Sandesh Goel

Hiring is a tricky business especially these days, when job roles are merging into each other and becoming more cross-departmental. Businesses are also adapting to new technologies, and finding the right fit for positions and retaining the right people in the organization has been challenging.

Here are some of the most common challenges that people face while managing their talent pool or in creating a new one.

1. Attracting the Right Talent:

Most organizations never meet the right talent that they expect to recruit. In its place they only choose the best person they can find at the time. With limited time, and urgency to fill the position, most recruiters either go by “who they know,” or their own biased-judgment in selecting the candidate. Many times, the organizations do not have the right understanding of the skill and talent that they actually need for a particular job.

2. Time Consuming: Talent acquisition through traditional methods is highly time-consuming and it does not ensure the right candidate is found. Going through the data in each resume is highly inefficient, and unscientific; critical information can be missed or wrongly interpreted by executives while analyzing the talent. The right candidate either never reaches the employer, or the data is never analyzed to its full potential.

3. Scope of internal-mobility undiscovered:

Often, employees decide to quit for better opportunities. Rarely do they see how their skills and experience can fit internally, in the same organization.



The employer loses someone who already knows the business. Getting someone to refill the vacancy costs the organization anew. This process of looking outside for untrained talent to fit the role consumes many hours and resources of the organization.

4. Hurting Brand Reputation: Employer brands are something that can either attract people to come and work, or the opposite. A good reputation of the employer helps attract the best talent. Few employers consider how their talent-management activities are shaping their employer-brand image. Not only do disgruntled ex-employees go to social media platforms to share negative experiences, but job applicants who fall through the cracks can damage the brand. Many organizations reject applicants by just ignoring them, creating a bad image for the employer.

The challenges mentioned above however are ironic, because access to data today is exponentially so much higher than ever. Accessing data about the

right person or the right job does not take much effort. A lot of job-related information resides on career websites, social media profiles, professional profiles, etc. Also, organizations themselves have a pool of data on talent accumulated over time. The challenges we talked about should be smaller today than ever. But more data is not necessarily better. It just means there are more places to find different information and try to cobble together a more holistic view of a candidate.

It is not humanly possible to take in all this data and identify if candidates fit, or have the potential to excel in a role, particularly for thousands of candidates across hundreds of jobs. Also, hiring managers have specific visions as to the skills and experiences that they are building on their team.

This is where AI can come in for rescue.

AI Helping to Thwart Recruiting Challenges

AI algorithms are gaining traction among hiring leaders. More organizations are exploring the technological expertise of AI in choosing new workforces. AI-based software aggregates available internal data like in the Applicant Tracking System with a plethora of sourcing and recruiting tools that are used by the organization, with externally available information, to create an enriched talent repository.

AI algorithms calibrate each open role according to the specific needs of the organization. This improves recruiters' and hiring managers' intake experience, provides an instant pipeline of qualified candidates, improves the overall candidate experience, the employee referral experience, and drives retention because of improved internal mobility. Once the AI platform has ingested robust data from legacy and public profiles for each person, it creates a rich profile of each candidate. The algorithm takes a look at the profile of all employees. The moment a new job acquisition is raised, the algorithm matches the employee database. Those employees who are the best fit will get notified by the algorithm.

Enhanced AI algorithms can also anonymize the profile, CV, photograph, mail ID, LinkedIn ID, etc. to produce unbiased listings from the data. The hiring managers can then shortlist based on the merits, skills, and experiences of the profile that they see, without getting biased by the gender or racial identities of the candidates.

AI Makes Everyone Happy

Thanks to the progress happening with



SANDESH GOEL, Managing Director, Eightfold.ai

machine-learning technology, AI is getting a much better reception among businesses, especially in recruitment. AI recruiting is a strong response to the competition in the market. AI-based platforms can bring the maximum ROI for an organization, especially if rival organizations are becoming competitive for talent, and are attracting key staff from other firms.

Hiring managers will interview better-fit candidates and, on average, fill their job openings faster. Even if they never interact directly with any AI recruiting technology, hiring managers benefit from it.

Human resources will benefit because they can coach employees based on real data regarding skills, career progressions, and opportunities. Internal mobility is enabled in a fundamentally new way. AI is still considered a threat to human employability. But, in talent management, AI doesn't replace human recruiters—it makes them better. Recruiters can source full pipelines of qualified people much faster, and spend more of their time engaging, and advancing great candidates, rather than scrolling through endless lists of resumes, or clicking through tedious workflows.

Not least of all, candidates benefit when companies use AI recruiting. The technology enables these companies to communicate faster and more usefully with candidates. If AI is deployed directly on a career site, candidates can match themselves to their best-fit jobs without frustrating searches or applying to dozens of jobs at once. Candidates from diversity categories can especially benefit from AI recruiting, because this technology removes sources of unconscious bias that impact these candidates negatively.

The author is Managing Director, Eightfold.ai

FACIAL RECOGNITION FOR SMART BANKING, SMART OFFICE AND SMART RETAIL

Covid era offices will undergo drastic changes, touchless entry, face based biometric attendance system, social distancing etc. Artificial Intelligence based video analytic systems along with face recognitions systems are the answer to all such needs

Bikas Jha



In this era of convergence wherein many utilities have converged into our smartphones. We can say that smartphone is the intelligent tool we have which is solving many of our day to day needs. Banking segments has also adopted the mobile ecosystem to serve people better. The new smart banking apps

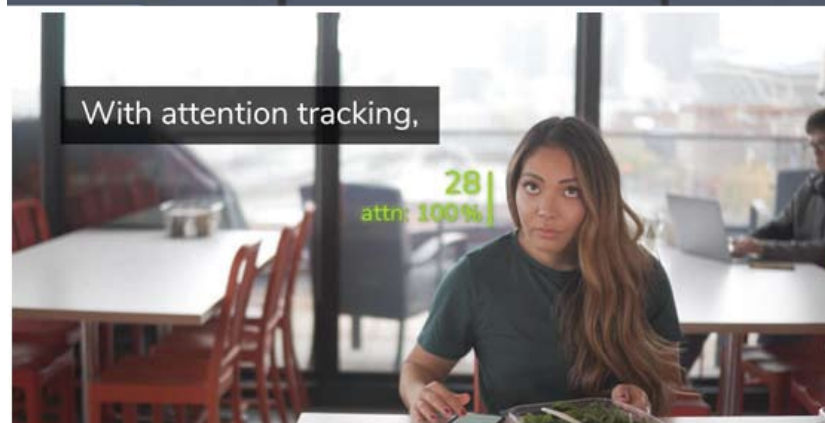
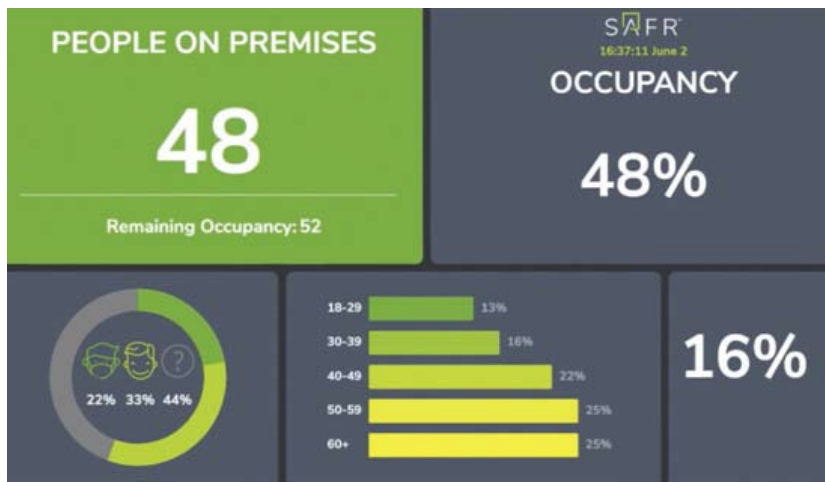
fulfilling most of the banking needs in few clicks. The convenience of mobile banking has associated security risks and threat of misuse. Facial Recognition based authentication system have been making in road in some of the advance countries to reduce such threats. Recently, challenger bank Knab has tapped

face verification firm iProov to roll out its biometric authentication technology to the bank's 500,000 customers. Knab aims to use iProov's technology to meet Strong Customer Authentication (SCA) requirements. In China also, face based authentication is used for payments in big way.

In retail banking, use of face recognition can help managers to authenticate locker users. Infact the entire journey of access of lockers can be automated with face recognition based access control systems. Now days, many facial recognition companies are providing liveliness detection as part of their software. This makes the authentication process more robust and fool proof. Face Recognition software also tracks the aging and sentiments apart from gender recognitions. Banks can use the technology of demographic study of visitors, foot fall counting in the branches or at Kiosk and promote personalized or advertise their services as per demography.

Offices post Covid era will undergo drastic changes. Touchless entry, face based biometric attendance system, social distancing etc. some of the new normal needs in the offices. Artificial intelligence based video analytic systems along with face recognitions systems are the answer to all such needs. Many offices have already started integrating their existing CCTV network with new Facial recognition-based attendance system, that can integrate with their HRMS. Need of social distancing in offices are a must requirement. Facial recognition based video analytic system can monitor the distances between staff and generate alerts when proximity reduces between them. Such systems can also count the number staff moving in and out as also recognize if staff are wearing mask or not.

Again, in retail all above use cases are relevant for



Real-time attention metrics show who's actually seeing your ad.

their staff or shoppers. In addition, the demographic analytics can help retailers to place and plan their inventory inside the retail shop. Some face recognition software also tracks the gaze of person looking towards the camera. This is an excellent feature that can be used to play personalized ads on billboards and announce discount schemes based on attention of onlookers. The ads can also play based on demography and footfall.

The author is Country Head, RealNetworks Pvt. Ltd

HOW FAR IS TOO FAR? FOR FACTORIES AND FOREMEN

Why are suddenly remote plants and operations coming closer, becoming proactive and getting light-weight?

Pratima H



We have been hearing a lot about digital twins, fog computing, remote ops and all-stream digitization, but the current crisis may have proved to be the last nudge that enterprises needed to make all that iron lose chains and gain proximity. So how does an intelligent and just-a-button-away factory look like? We let **Jason Urso, CTO, Honeywell Process Solutions** walk us through one in this interview. He also gives a peek into some latest quantum computing strides and the plans for strengthening pharma vertical during this crisis.

What is a factory going to look like two years from now? How different would it be from what we had till 2019 and how much would have been spurred by the crisis that enterprises just went through?

Two years, generally, is not a very long time in

the world of industrial process control. However, the current environment has inspired rapid adoption of digital technologies that have driven substantial change in just two months. Most of the advancements occurred out of necessity to assist with business continuity. But, in deploying the new digital methods, it's clear that technologies in remote operations, remote service and remote project execution will have a long-lasting benefit beyond today's current challenges. We see rapid adoption of digital technology in these three areas.

Can you share something about what Remote Operations will entail?

It is about enabling operations staff to perform their responsibilities from anywhere in the world and creating an environment where local operations staff

collaborate with remote experts to deliver better results. The technology is no longer limited to the physical boundaries of a plant. Through the power of digital technology, distance no longer inhibits collaboration. Operations staff or field engineers can work on a process control issue from a regional operation center the same way they would work on the issue if they were standing in the local operations center.

Are remote applications showing a different shift during the pandemic?

Some industries like pipelines and mining are inherently remote. Augmented remote applications are growing with the Covid crisis. ARO can enable secure, quick and simple continuity for remote processes.

So Remote Services will also emerge an area worth reckoning?

By continually monitoring our customers' control systems and operations we can more proactively serve them. Traditional service is often very reactive – an issue occurs, a phone call is made to the supplier and a service technician is dispatched. Remote service flips the model upside down to be a proactive engagement by continually monitoring customers' equipment. Data from the customer site is analyzed using algorithms that represent the knowledge of our best experts. In essence, this means that remote service assures equipment is continually monitored by our experts around the world. Through the analysis, we can proactively respond to looming issues and to correct them before they become an issue.

Can remote services also handle serious firefighting scenarios like accidents or breakdowns? How do the cloud and virtualization parts here avoid sprawl and complexity—especially for far-off on-site systems?

We see remote operations as a way to augment local staff – not to replace it. Remote technology allows corporations to share issues in an instant with their best experts wherever they are in the world allowing them to have a first-hand view into issues at a site. Doing so, it can help diagnose and resolve issues faster through collaboration.

How soon and strong can we expect fog computing in industrial environments?

Most computing happens at the client's location or



JASON URSO, CTO, Honeywell Process Solutions

site. But on the other end of the spectrum there is cloud where we have an opportunity. This will give potential for more remote service capabilities, anywhere in the set-up. Fog computing is more hybrid—it is about how to get the best out of the Edge. Technologies like real-time control systems help supervisors to monitor and take actions for activities which move further away. We see fog adoption as some hybrid of on-premise and on-edge coupled with cloud—that's the future. Also, remote computing does not have to be miles away, it can be at a short distance.

Any new industries that have shown appetite during the crisis?

Both Upstream and Down stream customers are showing adoption now. Chemical, petrochemical and refinery enterprises are interesting. The crisis has stimulated a lot of thinking around remote collaboration.

Are you confronting any legacy conflict with these digital transformation deployments?

Yes, at some places. Fortunately, this is where IT has evolved to retain legacy IP and melts seamlessly into new systems, so that enterprises can benefit from new technologies and remote services. Legacy does not have to be removed. Only the software has to be updated.

Can you tell us how your HMI offerings are embracing the shifts that are happening with Cobots, etc.? Any lessons that you are picking?

We see several substantial trends with HMI associated with process control operations. The first is oriented around remote operations. For decades, industrial process control sites generally have operations staff perform their role entirely from a local operations center. With the recent advancements in technology and cybersecurity, we have the option to more safely and reliably offer a bird's eye view to the process from any location. For example, at a large industrial complex, we can have process control HMI stations and personnel at the local operations center. But, those location stations can also be augmented by consoles that are located at a regional operations center where additional skilled resources might oversee multiple plant locations. Honeywell calls this technology Augmented Remote Operations (ARO). In doing so; we can provide flexibility and efficiency for an organization – especially in an environment where we are continuing to enforce social distancing during the pandemic.

How- and where- can your feats in Quantum Computing intersect with automation?

Quantum computing has great potential to advance industrial process control by harnessing its massive computing power. Initially, Quantum computing will play a substantial role in modeling and design of chemical processes – performing simulations that are extremely compute-intensive. With the ability to more quickly simulate a design, Quantum Computing will afford us with the opportunity to design processes that are safer and more efficient. As we expand the use of Quantum computing, we see opportunities to analyze the massive amount of data that is produced at industrial control sites. By leveraging new machine learning methods, we see an opportunity to more precisely fine-tune equipment or control to achieve the best in the industry performance. In essence, the computing power will be available to provide a massive depth of the process, equipment and control analysis such that we can assure every day is our customers' best day of production and every person is a world-leading expert.

What makes Remote Project Execution radical and new from what industries were doing so far?

Traditional approaches to design an automation system for an industrial process involved people traveling from around the world and working on physical equipment. The personnel would sometimes

perform this work for one to two years at a remote location designing controls, displays, procedures and safety logic. When complete, the system went through a formal factory acceptance test to inspect all the work. This model is dramatically changed in the digital world. Today, through Honeywell's Lean Execution of Automation Projects (LEAP), we create a digital twin of the entire system and the whole process, meaning that we can execute the entire project in digital form.

Does this help engineering and collaboration?

Our project engineers can work on the project wherever they are in the world by connecting to our cloud data center with the digital rendition of the project. When the project is complete, because we have a digital twin of the process, we can also fully carry out a remote factory acceptance test by validating all the controls, displays and procedures in the cloud data center. Project engineers, engineering contract companies and customers can all digitally collaborate to complete the testing while being physically located anywhere in the world. By eliminating the need to work on physical equipment, we can project that projects are started faster, executed more efficiently and staffed with our experts wherever they are in the world.

Are you planning more offerings like the Fast-Track Automation that was brought in for Life-Science vertical?

Honeywell has provided the pharmaceutical/ life sciences industry with consistently innovative advancements in automation and digital software technologies, systems and services for over 30 years, and Fast Track Automation offering is one of our most valuable and latest offerings to date.

Honeywell's focus has always been to develop products and solutions that help to make our customer's facilities safer and more secure, reliable and productive. For the pharmaceuticals industry, Honeywell has a wide spectrum of automation and digital solutions covering the pharmaceutical value chain from research and development facilities, API/ bulk manufacturing plants, formulation/fill finish facilities, packaging and distribution. Pharmaceuticals businesses face unique challenges. Massive research and development (R&D) spending, the world's most stringent regulations and intense competition mean compliance, efficiency and speed to market are critical to success. Honeywell helps pharma businesses increase efficiency, reduce risk and bring products to market faster.

TIPS TO GET BOOYAH IN EVERY GARENA FREE FIRE MATCH

Sushant Singh

Ever played Garena Free Fire and lost the match in 5 minutes of playing the game. Chances are you're doing something that many players call "noob moves". These are mistakes that many new and casual players make in the match that PRO players go out of their way to avoid. Garena Free Fire is a battle royal game and in like any battle royal game on mobile, this game too depends on its unique mechanics while having some elements that are similar across the battle royal genre. Now the thing is that most new players or players who are just playing the game casually in their free time and not pushing rank are always at a disadvantage when they encounter a PRO player.



Pushing rank in the game is the one thing you will see every seasoned player do in Free Fire. Pro players will always have an advantage over casual players since they spend a lot more time in the game. So to help casual and new players in the game, we have compiled a list of tips and tricks that can make a huge difference in your gameplay. This list of tips and tricks is only for Free Fire and not for any other game.

Tips for New Players of Garena Free Fire:

Looting: Looting is essential in Garena Free Fire. It may very well be the deciding factor of the game. Look at any Free Fire streamer and you will see how much time they spend in getting the right weapon and looting airdrops. Here is something that you should know about looting. Never ever loot in the open. Always use some sort of cover or gloo wall when you are looting in Free Fire. If you are just standing in the open and looting a dead player then you will be just a target for other players in the area. Use movement and cover to protect yourself.

Claw Controls: This is something that almost every pro player or seasoned player uses in Garena Free Fire. Claw control is where you use your hands in

a claw-like fashion to play the game. There are tons and tons of videos on how to do three or four finger claw in Free Fire. Using claw control lets you use more fingers than just your two-thumbs. You will be surprised at the amount of difference just using one more finger can make.

Aiming: Now here is the most important part of Garena Free Fire settings for new and casual players. Go in the settings of the game and then go to controls. There is an aim precision option given in it. Set that to default. By setting it to default it will act as an aim assist. You will be able to land more shots on opponents easily and even headshots will become easier with this setting. This is a must for new players until they fully grasp the aiming in the game.

Sensitivity Settings: A lot has been said about it but settings are an important part of Garena Free Fire. Each phone is different and so is the playing style of each player. So if you have a smartphone with only 2GB or 3GB of RAM then set the sensitivity setting to the max. Otherwise, set your sensitivity settings according to your play style. This will need some practice and time but if you do it successfully then your gameplay will improve by a huge margin.

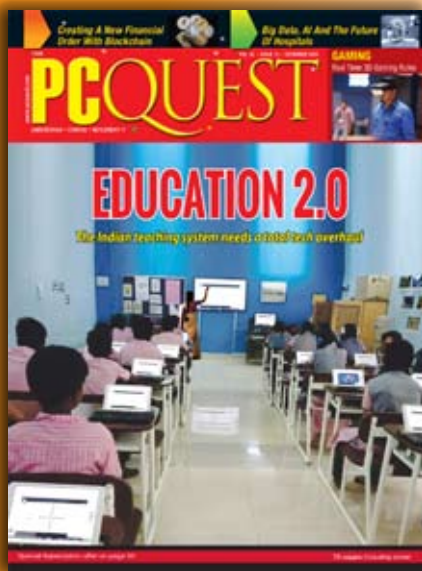
Avoid Unnecessary Moves: Many players make the mistake of doing moves like drag headshots and jump shots too many times even after they miss it the first time. If you keep doing the same move then your opponent will get wise to it and start predicting your moves in the game. So when you miss the first time then try some other move or change positions immediately in the game to throw your opponents off their game.

These are some tips that can help you in your next match of Garena Free Fire. There are other guides and tips that are also available in our other posts that you can go through. These tips are to only give players an idea of how they can implement new moves to improve their skills in the game.

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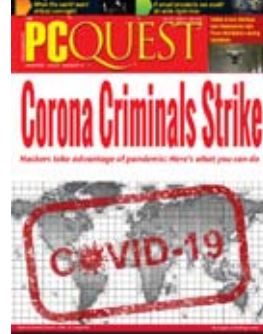
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FIND A COMPLETE GUIDE FOR NOOBS IN FORTNITE

Sushant Singh

Fortnite is the most popular game on the planet right now. As of today, the game has been ported to almost every device known to man. From PC to Consoles to Smartphones everyone of those support Fortnite. From its initial launch to now Fortnite has continued to dominate the charts on Twitch and Youtube. Players of the game come from all over the world and so do the Esports teams. Even though Fortnite has been lagging behind in India when it comes to gaming but almost all users who have devices that can run the game have tried it at some point or other. If you are someone who has just started playing Fortnite and is losing a lot then this post is for you. Fortnite is a game that defined the "Free to Play" genre. For the new players of Fortnite, here is a guide that can help you in improving your gameplay. Each of the steps given here are applicable to all platforms.



Fortnite Guide For Noobs:

- Get the device that is right for you. Many players who use Playstation 4 controllers or basically console controllers get wrecked in Fortnite cause they are not able to control their aim or movement properly. So choose your control device based on your gaming style. Many players just use the keyboard and mouse to play Fortnite on their consoles. If you are someone who uses mobile devices or iPad to play games then use that to play Fortnite. If the game developers are happy to provide you with options then why not take advantage of them.
- Get your sensitivity settings right in Fortnite. If you just do a google search on any big player of Fortnite then you'll get millions of search results that will tell you all of the settings that particular player is using in Fortnite. Sensitivity settings are of the highest importance in games like Fortnite or Apex since the game depends on your movements and aiming.
- Lowering the sensitivity settings will always help in getting a more stable aim in the game.
- One thing to keep in mind if you are a new player in Fortnite is to choose your drop spots carefully. Avoid going to locations that are hot drops and wait in the bus for some time. Always jump at the end of the map. Since most players will drop out by that time and you will get more time to loot around and collect materials. It may also give you some kills in the game since you will have a lot more time to loot and gather enough building materials.
- Get yourself a good pair of headphones or earphones. Games like Fortnite give a lot of emphases to sound and where the sound is coming from. Footsteps and shot sounds can help you identify where the rest of the players are and then you can decide if you want to take the fight to them. All of the pro players of Fortnite have some type of gaming or studio headsets. So definitely get yourself a good pair of headphones.
- Always watch the streams of Pro players and streamers. See how they approach each situation in the game. They just might surprise you how they handle the same situation that you were in before. Even by just watching them you will start to get a better idea of the map in the game and how to drop in the game.

DISRUPTION IN THE SECURITY AND SURVEILLANCE INDUSTRY

During the COVID-19 crisis, CCTVs have proven to be a most trusted solution in all sectors. In terms of verticals, it continues to see a boom in the education, manufacturing, critical infrastructure segments, data centre, healthcare and IT/ITES industries, says Sudhindra Holla - Director, India & SAARC, Axis Communication

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What is the CCTV market like in both India and abroad and what are all the areas it has been implemented? Specifically, how has it helped in traffic management?

As per IHS report, globally, CCTV camera market is at 1% which is an expectation of growth in network camera at an average of 5.3% for next years between 2017-22. Industries are increasingly looking at merging and integrating technologies like AI/ML/IoT, etc. On the other hand, India being a price sensitive market and security being the defacto premium component of our society, CCTV and surveillance will reign high with or without COVID. Going back to 1940s, when Siemens AG installed

the first CCTV system in Peenemunde, Germany in 1942 during WWII to observe the launch of V2 rockets, which was primarily a military activity. Since then CCTVs have come a long way to be one of the most trusted technology that touches upon all works of life providing security to sanitation across globe.

Even during these unprecedented times, it has proven to be the most trusted solution in all sectors. Although, we had seen a little slowdown during the first phase of 2020, due to lockdown, in sectors such as retail, aviation, travel and tourism, we are beginning to see the demand going higher as the country is starting to begin economic activities especially for technologies such

as People Counting, Occupancy Estimator, and Social Distancing solutions, Touch Free solutions, Body Temperature monitoring solutions, Mask Detection Solutions, Touch Free Attendance systems with Facial Recognition Capabilities, and Thermal cameras, etc. to offer a safe experience to the employees and to the customers.

The increasing awareness towards the importance of CCTVs has also led to the growing demand of its implementation. Although the traditional CCTV cameras might take a back seat, but the amalgamation of a complete video management solution might see a rise in demand—a mix of People Counting, Occupancy Estimator to monitor premises, facial recognition, radar technologies that detects or triggers false alarms, explosion protected cameras, thermal cameras, and audio solutions. We also see an increasing demand of technologies like WDR that offers clear footages even in pitch dark scenarios, helping in better monitoring of the crime scene and city management. Subsequently, we are also noticing an interest in our audio solution for security and public announcement requirements.

Hence, most of the analog solutions in most of the buildings which is otherwise very difficult to manage due to poor audio quality and unreliability can now be controlled with IP speakers. Additionally, cameras with inbuilt immersive technologies like AI & ML would also see an uptake with its real-time analytics to better city, traffic, road, sewage management and women safety.

In terms of verticals, we continue to see a boom in the education, manufacturing, critical infrastructure segments, data centre, healthcare, IT/ITES. The need for cameras for constant monitoring of the ebody temperature and to prevent crowding has taken precedence. Similarly, in a critical infrastructure segment, like that of thermal power plant, solar power plant, oil & gas, steal plant, etc. the demand for a reliable security solution has increased that helps in business continuity and also helps in achieving business objectives. While CCTVs are widely used for perimeter and workforce security in this segment, we have seen a surge in demand for solutions that helps them in monitoring processes and breakdowns, and solving compliance related issues, etc.

We have also seen surge in government and city surveillance projects where the demand for advanced technological solutions in CCTV have seen an exponential growth for supporting the city authorities in doing the herculean task of managing the city and traffic while maintaining social distancing guidelines. Citizen safety is a priority for the city and municipal authorities. Thus, the demand for solutions like video analytics and audio/



SUDHINDRA HOLLA, Director, India & SAARC, Axis Communication

public announcement have increased to help its human counterpart with analytical insights.

Has there been any spurt in CCTV implementation/usage and ways it is being used during the COVID-19 crisis?

The security and surveillance industry has undergone several disruptions over the last few years. Striving to make business while making employee-safety-first companies, organizations are going beyond business and heavily investing on technologies to up their game. Especially in the retail segment, providing a seamless customer experience encapsulates the various stages including the study and comprehension of the buying behavior of the customers to influence them in going forward with the purchase. We see retailers investing heavily on IoT based surveillance to enhance the security of employees and customers, gain customer insights, and track inventory more efficiently. We see increase in demand for Edge analytics that provides visitor headcount and other aggregated insights across the store which could be later used for important business decisions.

For instance, heat mapping can aid the retailers

in understanding the functionality of the store and customer behaviour using real time imaging to analyze and track movements. Intelligent technologies like interactive displays to address customer queries, single out staff performance and preventing crime can also prove to be highly beneficial for a modern retailer to seamlessly fulfil his business goals. Additionally, good image quality is a fundamental requisite for monitoring money transactions. Video analytics can provide store occupancy rates, which will help store owners plan staffing levels through the day. The data collected can help determine the best timings for running marketing campaigns to drive consumers to the store. The real time data could also be integrated with the IP audio system to extend a dynamic in-store experience.

Smart city, city surveillance and critical infrastructure are a few other segments that have seen a bolstered demand in CCTV. Where citizen safety became primary, the surge in CCTVs with social distancing solutions, touch free solutions, body temperature monitoring solutions, mask detection solutions and touch free attendance systems with facial recognition capabilities have increased at an exponential level.

How are CCTVs helping governments in monitoring the situation in the New Normal as a result of the pandemic?

CCTV cameras have been a long-standing technology that are used in public and commercial settings. It has proven to be one of the technological partners that is constantly supporting the government authorities in doing the herculean task of managing the city and traffic while maintaining social distancing guidelines. In the past few months, we have seen many state governments increasingly investing on CCTVs with high technological solutions to help safeguard citizens.

Today, CCTV with wireless technology, CCTV with cloud-based storage, thermal cameras and other high-end technology infused CCTV has the ability to, not just prevent crime, but an efficient weapon for the government authorities to fight the battle of COVID and ensure that the guidelines of mask compliance, crowding checks are well maintained. We are working with different city authorities like Hyderabad, Kolkata Police, Karnal, Junagadh, Nanded, Kolhapur, etc. to help them with solutions to ensure those out on the streets are adhering to social distancing and other norms.

What about data privacy and security issues related to CCTVs? What about things like facial recognition? How are they being addressed?

Cyber security is another aspect where we are

seeing a surge in demand for our solutions as there had been a significant increase in cyberattacks due to the pandemic – organizations are opting for more reliable and robust surveillance solutions that secure the data as well. With increase in data centres, more so the private data centres, organizations are looking at more robust and unified solutions that secure both premises and people as well as the data. Being a Swedish company, we respect the GDPR compliance. And hence we have always kept a No Backdoor Policy in all their products. In the current market situation, we believe that CCTV with no back-door policy has a strong competitive advantage and as one of the few manufacturers, we have our own system-on-chip – ARTPEC Chip, that directly complies with the India's data privacy policy. This means that we have complete control over each and every transistor in our products. This brings in trust and a higher level of cybersecurity for our clients. Axis' no backdoor policy makes it the only network surveillance company in the world that is un-hackable. So, using customer's sensitive data recorded by the camera cannot be utilized by any 3rd party for exploitation. Further it helps in implementing these cameras for national security as Axis solutions guarantees that other countries and foreign law enforcement (FBI, CIA, KIG) cannot surveil Indian citizens by hacking into the systems.

However, having said that, we do see applications like facial recognition capability solutions gaining importance and increase in surge. Our touchfree attendance systems with in-built facial recognition capabilities are gaining prominence among the corporates. They use the camera to recognize the person's face instead of somebody using an access card or punching in a number to avoid contact. The second are the airports where facial recognition has gained the maximum prominence starting from the passenger's entry to the gate to show the boarding pass to minimize physical contact during verification by the security personnel and improve business efficiency by screening things automatically and eliminating multiple verification. The airport authorities capture the face of the passengers and tag it with the boarding card on the passenger, to avoid multiple checks. This solution can also monitor whether a person is wearing a mask.

What about the volumes of data that go through CCTVs? How are they processed and analyzed in real-time? What are the tools?

Firstly, the amount of data stored in a CCTV is massive. It takes up to 30–120 days to process data for most organizations and applications. And secondly, server-based analytics and Edge analytics gaining prominence

have made the process move way beyond. The View Monitor Record is moving past the earlier version of being a deterrent and significantly moving towards application and becoming more proactive now. The other element is the advent of smart phone technologies, etc because of the alerts and the notifications, the way it was done in the past has changed drastically and automated to whom it has to be alerted when it has to be alerted how it has to be alerted in a very different view. Similarly, monitoring of the incidents has changed as well from a desktop terminal in the past to tablets, smartphones or alike. Thus, these are the three trends that we see in terms of processing and analyzing data.

Another most significant trend is how video analytics have changed the way of solving crimes. Today's video surveillance storage is strenuous and the amount of data being stored is humungous. We are currently seeing a huge demand in state government, municipal corporations, airports and police departments with modern video surveillance infrastructure to fuel powerful video analytics insights and to solve business problems in innovative ways. A crime which took place probably 5-10 years ago could be solved with the amount of data that is being stored. Together with our system integrators we offer storage solutions to offer an ideal infrastructure towards building a robust video surveillance system

What about the integration of IoT devices with CCTVs?

Earlier cameras were just a sensor. Now the surveillance cameras are getting proactive in terms of all elements and equipment converging together on a singular IP network, all talking to each other, to form a unified robust solution. For example, a camera system can integrate with audio, with radar with different sensors in terms of it could be a light system, it could be a Bollard security used for perimeter surveillance like parking spaces, Commercial buildings, or could be magnetic field sensor, all integrated together to form a standalone solutions. When these integration are done with IoT sensors it gives a very coordinated response to the customer and that's a trend that we are seeing among organizations and people to go for a more standalone systems.

What are some of the use cases and successful implementations you have come across with regard to this technology?

Recently we have announced implementations in – City Surveillance, Healthcare, and commercial settings. One is our partnership with Kolkata Police

to secure the city by deploying 800+ fixed and PTZ cameras across the city. These installed cameras help them in tracking vehicles, check for loopholes in the traffic management system on a real time basis round the clock. It has been used for crowd control and management and identifying miscreants in public rallies and demonstrations. Additionally, Axis Zip Stream Technology has helped them optimize bandwidth and overall storage requirements of the mass video produced throughout the day, 24*7. This, in return, will help them track, monitor, and analyze the video feed for detecting criminal activities, violations, and road congestion.

We also announced the installation at Kalinga Institute of Medical Sciences, Bhubaneswar, a medical college under KIIT University, which is a super speciality hospital with 2000 beds, has partnered with Axis Communications for monitoring and securing their premises and optimizing better healthcare management. The deployment is using Zipstream technology to optimize bandwidth and installed on an open platform using third party VMS. In addition, it uses Axis Lightfinder technology that delivers high-resolution, full color video with a minimum of motion blur even in near darkness. Axis Lightfinder makes dark areas in a scene visible and captures great detail in very low light. The result is excellent image quality without the need for external light sources proved to be the largest surveillance system deployment in any healthcare facility in India.

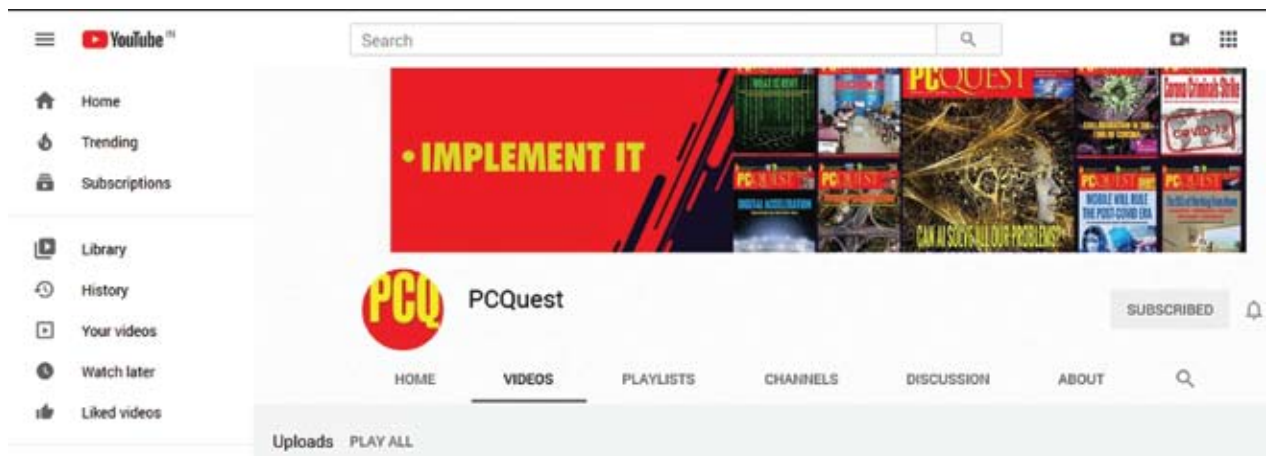
We have also partnered with Emami Group in Kolkata and installed about 200 + Fixed and Dome cameras for ensuring the safety of the staff and facility and premises of the manufacturing unit to protect their products, employees and to check the safety of the processes.

Another one in a commercial setting where we have implemented these technologies are the Salt Lake Stadium, also known as Vivekananda Yuba Bharati Krirangan, in Kolkata, where we have used Fixed and PTZ 4K cameras. These cameras are equipped to see image in variable light conditions, incident detection like filter mischievous elements in the crowd and help in monitoring the perimeter and in the gallery. System uptime was another requirement from the customer and with the help of Axis Lightfinder and Forensic WDR, that helps in capturing image in any light condition, has helped in supplementing the installation. The brief was to offer global standard surveillance for FIFA matches being played. Providing solutions that can be visible in low light condition with crisp images from both entry and exit and deployed our 4k-8k high resolution cameras.

CATCH TECH LEADERS ON OUR YOUTUBE CHANNELS

Using the latest video collaboration tools, CyberMedia is talking to leaders in the ICT and startup space for detailed discussions on the latest trends in technology and the industry. You can check out these informed chats on our PCQuest (Hyperlink: <https://www.youtube.com/channel/UCgdOsyTFZxHzYJ2agFioUfg/> videos) and CIOL (Hyperlink: <https://www.youtube.com/channel/UCmFbShVqo7IlgGvNpLTv6Kw>) channels for the same

PCQ Bureau



Yulu bikes and the future of micromobility
(Hyperlink: <https://www.youtube.com/watch?v=IVhe0LwrrEc&t>)



Amit Gupta, Co-Founder & CEO, Yulu bikes talks about their operations, what they've been up to during the COVID-19 crisis-lockdown and what role micromobility could play in the future of transportation...

He said, "We have two missions: Traffic congestion. Air quality. Mobility contributes to almost one-third of air pollution, so if we do something, we can impact the environment. We have limited road space and many times you will see one car one person. We thought that what if we give a solution where someone who is moving in and around the city can use a smaller vehicle."

He added that they suspended their operations when the lockdown started but still managed to help: "There were Corona warriors who were working in hospitals, banks etc who started

reaching out to us for help. So we created a new pack called Corona Warriors under which we were able to send the fully sanitized vehicle to that person's place with a dedicated charger."

(Catch the complete interview on the CIOL News YouTube Channel.)

Importance of having an ethical AI system(Hyperlink:<https://www.youtube.com/watch?v=0jTt2wJMPNU&t>)



Suman Reddy, Managing Director, Pegasystems India, and talked about a wide-range of issues including the COVID-19 crisis, automation, Artificial Intelligence and the ethics surrounding it.

He said, "We are seeing trends that automation is accelerating. We see investments increasing for Business Process Automation whenever there is a contraction in the economy. We have taken a position on Intelligent Automation that encompasses the broad Business Process Automation and Robotic Process Automation."

He added, "When it comes to digital transformation, we always talked about achieving end to end automation. It not only has to be on the customer engagement channels. The need for automation has emerged where you need to ensure your employees who are servicing your end customers also should have a lot of digital automation in place."

(Catch the complete interview on the PCQ YouTube Channel.)

SmartE: Developing India's electric vehicle ecosystem(Hyperlink:<https://www.youtube.com/watch?v=bxflhnCxAYo>)

Goldie Srivastava, Co-founder and CEO of electric mobility service SmartE, discussed their goal to address last mile connectivity, with zero emission vehicles and India's largest network of electric vehicle



charging stations.

He said, "SmartE is India's first and till date the largest shared electric mobility platform using a fleet of 1200 vehicles and we've delivered more than 16 million rides in the last five plus years. We've also built India's largest network of electric vehicle charging stations, which can concurrently charge more than 1600 vehicles."

He added, "Way back in 2014, India barely had any electric vehicle ecosystem. In that sense not only were we the first movers but a category creator. The problem with that is that you have to do all the heavy lifting. We had to create an entire service model. We had to literally own and build that service business."

(Catch the complete interview on the CIOL News YouTube Channel.)

Virtualization, cloud and the COVID-19 crisis(Hyperlink:<https://www.youtube.com/watch?v=d45IAB2QNmk&t>)



Demystifying blockchain, Bitcoin and cryptocurrency exchanges

Founders of Giottus Cryptocurrency Exchange, Vikram Subburaj and Arjun Vijay explain the basics of blockchain, how cryptocurrency works, regulation around it and whether it is legal in India or not.



Part 1: How to understand blockchain with use cases(Hyperlink:<https://www.youtube.com/watch?v=d-mlvKuLe3w>)

“Any technology we understand with the use cases, not the technology. Unfortunately for blockchain, use cases are just emerging. When these use cases become more mainstream; blockchain will be a very easy technology to understand.”

–Vikram Subburaj.

Part 2: Gold is Open Source and so is Bitcoin(Hyperlink:<https://www.youtube.com/watch?v=HrvqCA8hy8Y>)

“We had an open source which is called gold. No-one had a particular control over gold. You mine gold, it is yours. It was not controlled by any country. Once Bitcoin came into picture, people thought if money can be made open source, why can't everything be made open source?”

–Arjun Vijay.

Part 3: Cryptocurrency as a natural successor to the current order?(Hyperlink:<https://www.youtube.com/watch?v=fJdmgHWCDwI>)

“Inefficient current systems should die. Something math related should come which you can easily prove. This is a nascent technology where the principles are looking very strong; the concepts are looking very strong. This technology requires a lot of support.”

–Vikram Subburaj.

Part 4: Let's not miss the cryptocurrency bus!(Hyperlink:<https://www.youtube.com/watch?v=eh8nnzRvajw>)

“India cannot stay in a small room and say we are not going to touch it. That innovation is going to affect us at one point or another. Till 1990 we were a closed economy. We missed on a lot of opportunities. We cannot let that happen again.”

–Arjun Vijay.

Part 5: What is a cryptocurrency exchange?(Hyperlink:<https://www.youtube.com/watch?v=yXuUgV1igRg>)

“Similarly like how an NSE or a BSE is... basically you can buy and you can sell. Here instead of having stocks listed, we are having some coins listed. You can buy and sell those. A lot of the customers that we have are first time investors or buyers. It is simple.”

–Vikram Subburaj.

(Catch the complete series on the PCQuest YouTube channel)

Global CIO of Evalueserve, Sachin Jain, and Anuj Joshi, Vice President Information Technology, talked about how they deal with various crises; their virtualization and data journey along with tips for enterprises during COVID-19.

According to Jain, "One of the key requirements in our business is to continue delivering our services to the client. Most of the contracts carry this clause around business continuity, security, and that's very very important for our business and all our investments in the technology and some of the innovations we have worked on in the past had to have a component of delivering services which are always available and secure. VDI (Virtual Desktop Infrastructure) is something which has worked very well for us in various situations. VDI is something which people can access anytime anywhere on any device. All our data centres globally are virtualized."

He added, "When we talk of digital transformation, any application or any new product we develop, we try to have that in the cloud first. Whenever there is any demand for any additional compute or any infrastructure, we look at the cloud first. The cloud is going to stay here for long and it has become a sort of necessity for many organizations. It gives you speed it gives you performance, it gives you scalability. You can scale up and scale down as you want. You don't have to worry about obsolescence of any software or hardware."

(Catch the complete interview on the PCQ YouTube Channel.)

Gaming Industry: The exponential growth and future innovation(Hyperlink: https://www.youtube.com/watch?v=xUlg3_Ppfe4)



Anku Jain, Managing Director, MediaTek India, discussed the growth in the gaming industry, new developments, the role of Artificial Intelligence and future aspects.

He said, "In the last two years we have seen the gaming has gone quite well. And the current lockdown has been a very huge catalyst. Gaming is becoming more and more graphic industry; one has to have great graphics on the device and very good connectivity."

He added, "I think we're moving into the direction where you can actually use a phone as a computing machine. There are two aspects, one is the hardware capability and another is software capability. I think the hardware has evolved but OS will evolve over the time."

(Catch the complete interview on the PCQuest YouTube Channel.)

Data still remains at the core of it all(Hyperlink:<https://www.youtube.com/watch?v=lozDHK0ekiE&t>)



Ravi Chhabria, Managing Director, NetApp India, gave his views on a variety of topics, including the changing technology paradigms of the COVID-19 crisis and the fact that data still remains at the core of it all.

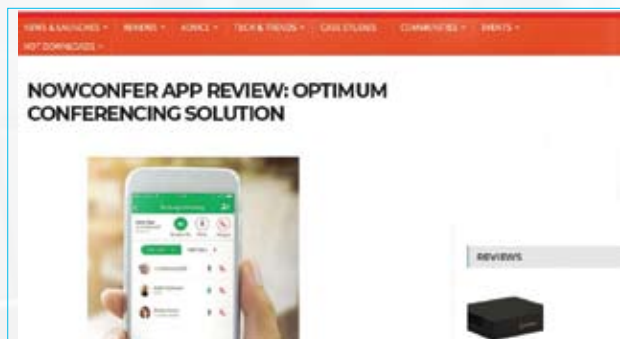
He said, "Any investment we made in technology has paid off. For two decades if we've been running the world's IT, we are pretty much IT experts now." He talked of how we will be able to handle the COVID-19 crisis from a technology point of view. He also talked about a wide range of issues like the problem of migration of data, how to handle exponential growth, democratization of the whole process in IT and why security shouldn't be an afterthought.

(Catch the complete interview on the PCQ YouTube Channel.)

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SOFTWARE

MICROSOFT TEAMS REVIEW

— Ashok Pandey
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Microsoft Teams is trying to increase its presence in the video conferencing market. After Google Meet and many other free video conferencing platforms, Microsoft is also available for free to collaborate with your colleagues with some limitations. Microsoft Teams is trying to increase its presence in the video conferencing market.

After Google Meet and many other free video conferencing platforms, Microsoft is also available for free to collaborate with your colleagues with some limitations.

If you are not using Microsoft 365 already then, it's an expensive video conferencing option, but for existing users, it's a cost-effective alternative.

Platform supported

You can use Microsoft Teams on all major environments including Android, iOS, Windows, Linux, and macOS. The application works exactly on all the platforms, so whether you use on Windows or Mac, Android or iOS, your experience will be the same.

User interface

The UI is clean and simple to understand. Admins can initiate an online meeting immediately or can schedule as per the requirement.

Set-up a meeting

As I mentioned earlier, it is available for all the major platforms including Android, iOS, Windows, Linux and macOS, you can download the app directly from the app store or Microsoft website. Download and install the app on your device, use your email account to log in. Microsoft Teams can also be accessed via a web browser.

For organizations using Microsoft Teams Rooms devices, it might take little longer to set up as each of these devices needs to be connected to the organization's Microsoft Teams Account.

When you log in to the Teams, on the left you get all the options to schedule a meeting or call directly to your teammates.

When you click on 'Meetings' you get two options – Meet Now and Schedule a meeting. If you want to initiate a meeting right away click on the first option, then choose your audio/video settings to



Price: ₹Freemium, starts at 125 per user/month

Overall: **9/10**

SCORE

PRICE: **9/10**

PERFORMANCE: **9/10**

FEATURES: **10/10**

KEY SPECS: Host online meetings—1:1, teams, live events; Shar context and content; Leverage AI for assistance; Secure meetings

PROS: Host online meetings—1:1, teams, live events; Shar context and content; Leverage AI for assistance; Secure meetings

CONS: Limited to only 250 people for online meetings

begin the call. Else, schedule your meeting by adding title, date and time details.

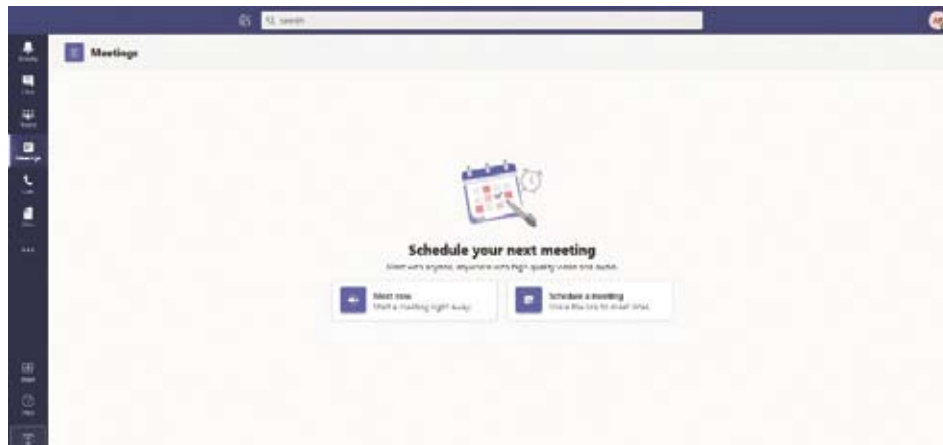
Once you are done with scheduling you can share a link with your team to join the call.

Join a meeting

The host or admin can invite or share a join link with you. Click on the link and you can join the call immediately.

The Mobile App

Microsoft kept clean UI of the mobile app. Log in to the app to join or schedule a meeting. The UI of the app is similar to the web and PC.



Features

Single window to schedule video/audio meetings with one person or a team. Using the Teams, one can organize a webinar or meeting with up to 10,000 participants.

The app is fully integrated with Microsoft 365 enabling you to schedule a meeting among the organization. In case you have a few guests to join, they can use a browser without downloading the application.

As like competitors, Microsoft



Teams also has features including screen sharing and call recording, background blur and chat.

Teams' UI is intuitive, filled with loads of features which enable admins to perform various functions easily. At the same time, this might be a bit overwhelming at first, for admins with plenty of features, integrated applications, and third-party options.

Performance

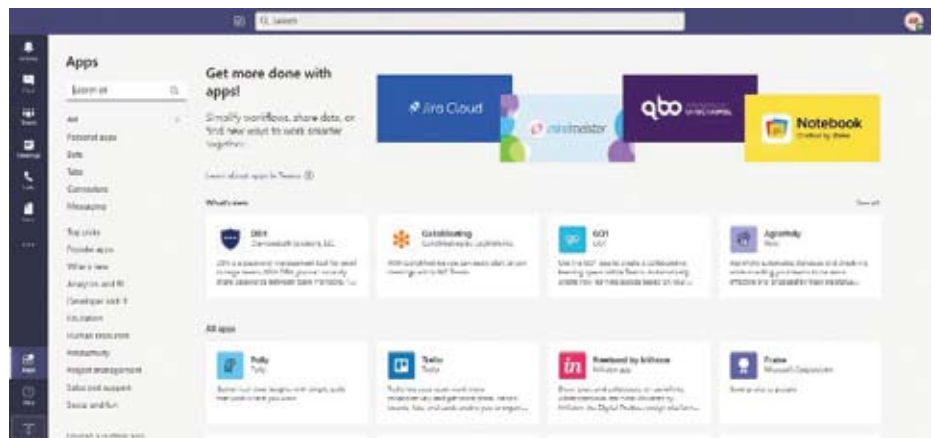
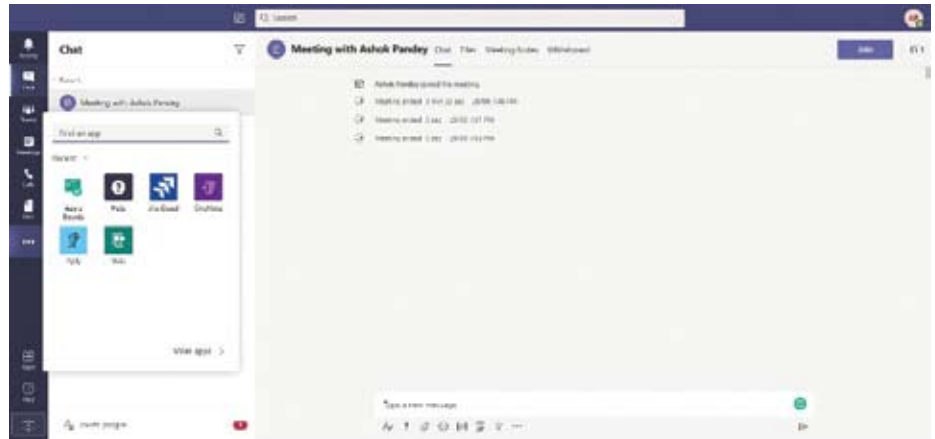
Microsoft Teams enables you to make one-on-one calls or group calls with audio-only or video. It is quite simple to connect with anyone in your Microsoft Teams account, just click on the name then click the video icon, and call. In case the other person is unable to answer, you can leave a voicemail-like message.

There are multiple options to call and few look similar to Skype. For instance, some features from Skype for Business are being rolled into Teams. Teams does support VoIP calling features, in that you can call anyone with a phone using Microsoft's cloud-based PBX.

Microsoft Teams has some of the good tools and integrations with Outlook. With Teams, you can schedule a video call in advance and you get an alert before it begins. When integrated with Outlook calendar, you can check the availability of the other person to find a good time for a meeting.

Teams is available for free, that offers you unlimited chat and search meaning you can communicate with your team and always stay up to date with free chat and search capabilities. The free account offers 10 GB of team file storage and 2 GB of personal file storage per person. Teams let you collaborate in real-time with MS Office including Word, Excel, PowerPoint, and OneNote. Let your teammates access, share, and edit Word docs, PowerPoint, and Excel files in real-time.

Whether you are a small or large business, it lets you communicate and collaborate with teams up to 500K users. Share your entire screen or choose a specific app, a presentation, or a file. It let you integrate over 250 apps and services meaning plenty of functions can be enabled as per your requirements.



Microsoft keeps your data secure, it uses Secure Real-time Transport Protocol (SRTP) technology for video and audio data encryption. However, Microsoft itself can access all data stored on its servers. The admin and video conference host gets whole of control over who can join calls and meetings and what data can be accessed and shared. The platform also requires the use of multi-factor authentication (MFA) to protect users and businesses from unauthorized account access.

Bottomline: Microsoft Teams is ideal for businesses who already use Microsoft 365, for others it could be an expensive option. You will, however, get a perfect solution to collaborate with your team with plenty of features and third-party app integration options, which is not available with competitors.

SOFTWARE

JIO MEET REVIEW

— Ashok Pandey
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Reliance Jio announced its web conferencing platform Meet and disrupted the market with its free 24 hours video calling feature. Relatively, Jio is a new operator where Zoom, Google Meet and Microsoft Teams are already there with loads of features. Still, JioMeet catches the eyeballs of almost every person looking for a video conferencing solution at low cost.

Platform supported

JioMeet is available for all the major platforms including Windows, macOS, Android and iOS. Download and install the app on your device, and you are ready to go. If you don't want to install the app on your device, you can use any browser, Chrome, Firefox, etc., to schedule or join a meeting.

User interface

JioMeet shares UI with Zoom, if you have used Zoom earlier you can easily spot the similarities. Whether you use the web version, mobile or app, the UI is simple to understand and has a minimal design. All the major functions are available at the front including host a meeting and join a meeting, etc.

Set-up a meeting

Simply create your account on JioMeet with your email ID or mobile no. When you log in, on the dashboard you get a few options including planning a meeting, join a meeting, host a meeting on the top right. And on the left sidebar, you can check your profile, meetings, and PMI settings.

To set up, a meeting, click on "Plan a New Meeting" and add required details, such as time, date, topic and audio/video etc. While setting-up the call, you can enable a few setting for participants including –

- Enable join before host
- Enable waiting room



Price: ₹Free

SCORE

Overall: **9/10**

PRICE: **10/10**

PERFORMANCE: **9/10**

FEATURES: **9/10**

KEY SPECS: 720 HD video calls, up to 100 participants, unlimited calls, 24 hours free video meetings

PROS: Free, 24 hours call, UI, supports all major platforms

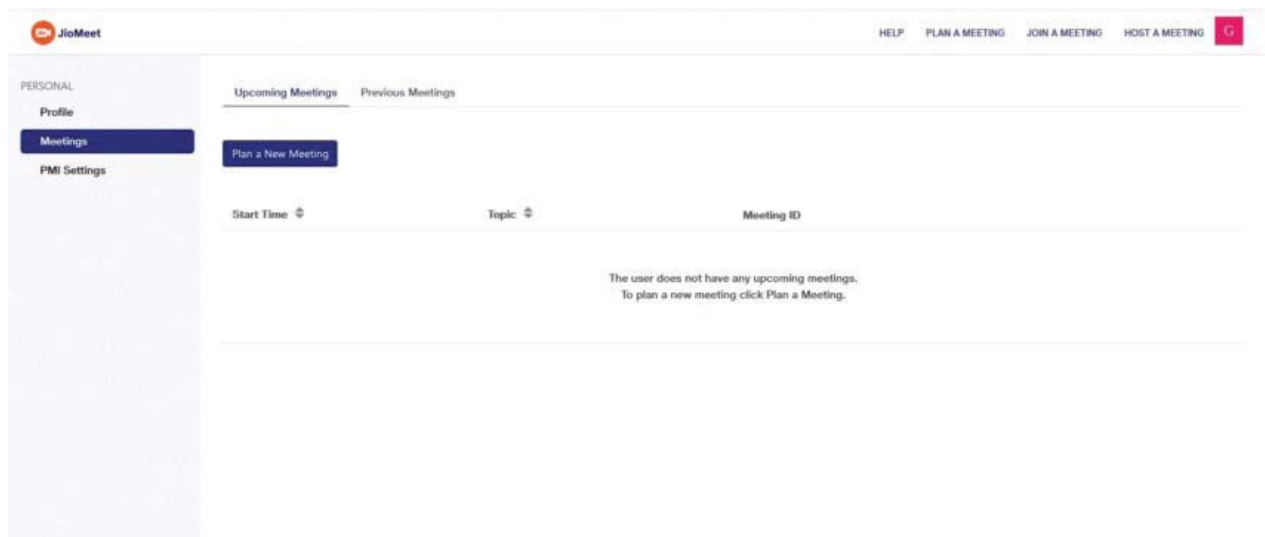
CONS: Limited to only 100 participants

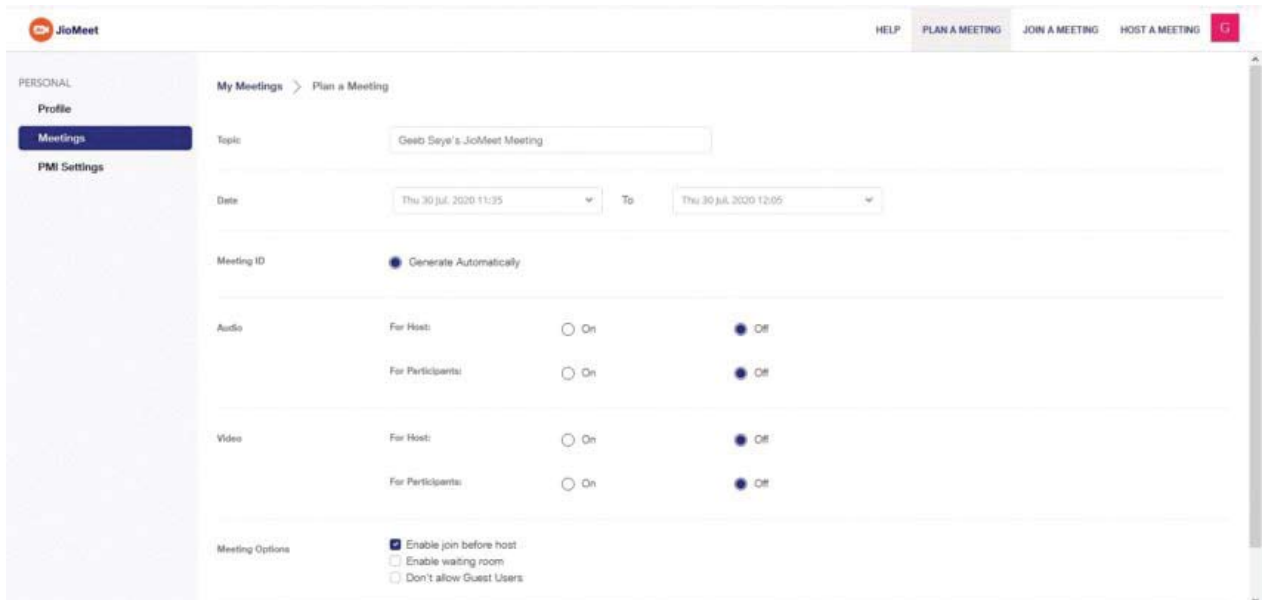
Don't allow Guest Users

You can schedule a meeting and share the join link with intended participants or can quickly start your meeting in your room.

Join a meeting

When you get an invite to join a meeting, simply click on the

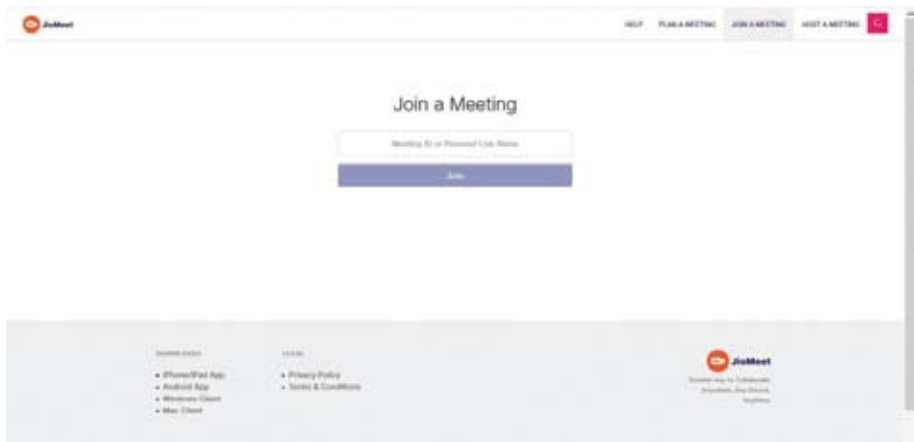




link and you can join the meeting. In case you don't have a meeting URL then you can use meeting ID or personal link name to join a call.

The Mobile App

The mobile app is similar to the PC version, all the main functions are available on the top – Start New Meeting, Join a Meeting, Plan a Meeting and share screen. At the bottom, you can check your Contact, Meetings, Home, Settings, and Help options.



Features

JioMeet is free, there is no premium or pro version available till date. But has all the features that you can expect from a pro version, for example, you can host a meeting for 24 hours.

Up to 100 participants can join the call simultaneously using JioMeet. It allows admin to secure the meeting with password protection to keep your conferencing secure from prying eyes. The waiting area is also there for the host to control the participant, who can enter, and who needs to wait.

JioMeet is similar to many other video conferencing apps out there, in terms of features including scheduling a web meeting and screen sharing, etc. Admins can easily manage the meeting and can decide whether participants will be on mute, can share video or not, etc. It offers full high-definition 720p video quality which we would call adequate for most meeting scenarios.

Performance

JioMeet is free, meaning no burden on your pocket, besides you get secure connectivity, 24 hours of the call and many other features. You can schedule a one-on-one call or group calls with audio-only or video.

You can simply share the meeting link or ID and pass to your colleagues or friends to join the call. Anyone can join a meeting,

using the app from any device or can use their browser.

JioMeet is available for free, enabling you to have unlimited chats and video meetings. No need to spend a single rupee to interact and collaborate with your team of size up to 100. You can collaborate in real-time and can share your screen or doc.

JioMeet supports 720p resolution, you can hardly notice any video lag while interacting with the team. Call quality is quite clear; however, it all depends on your connectivity. You can share a particular application, doc, PPT, etc. or the entire screen.

You can make unlimited calls with up to 100 participants for 24 hours. But the free version doesn't support call recording option, however with most of the competitors, the recording isn't options is not available in the free version, but with a pro. Overall you can enjoy pro features for free expect meeting recording.

Bottomline: The JioMeet is a perfect choice for any small to large business looking for a platform having no time barrier for meetings and costs nothing. It has simple UI and offers unlimited calling but has a limitation of up to 100 participants per meeting.

SOFTWARE

GOOGLE MEET REVIEW

— Ashok Pandey
ashokpa@cybermedia.co.in

Video conferencing has become new normal nowadays, most of the employees are working from home and meeting online to collaborate. Google made its web conferencing platform 'Google Meet', free during the pandemic, so small to large, every business can get benefit out of it.

Platform supported

Google Meet is available for Android, iOS, and as a Chrome extension. If you don't want to download, it supports the web as well. It comes inbuilt with your Gmail as like Hangout. Just click on the Start or Join the meeting to set up a virtual conference or to join a call using the platform.

User interface

As I mentioned above, it comes inbuilt to your Gmail account, so let's begin with that and later on, we will discover its app. When you are logged in to your Gmail, you can see a small window called 'Meet' just below the Inbox, Sent, etc. options.

Set-up a meeting

Click on 'Start a meeting' if you want to host or 'Join a meeting' when you are joining a meeting hosted by others. When you will click on any one of them, a new window will appear with desired options.

You can see all the controls on the bottom pane, from left, Meeting Details, mic, end call, camera, turn on captions, present now and three dots where you can see multiple other options and setting. On the top right corner, it has three options – show everyone, Chat with everyone, and You.

Join a meeting

If you have a link to join the meeting, you can directly join the conference by clicking on it. Or click on 'Join a meeting' and provide meeting code.

You can also join or host a meeting by visiting <https://apps.google.com/meet/>.

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All the controls are added on the top and bottom with three dots that take you to other settings.

Overall, Google Meet has an intuitive interface, anyone can use the app without any help. It has clean, and minimal UI, and equipped with clearly labelled commands.

Features

Google Meet lets you set up a video conference with up to 250 participants in just a few clicks. The platform is optimized for Android and iOS. The platform boasts a range of useful video chat features including text-based chat, and file and image-sharing



Price: ₹Freemium, Starts at \$10 USD per active user/month starting Oct. 1, 2020

SCORE

Overall: **9/10**

PRICE: **9/10**

PERFORMANCE: **9/10**

FEATURES: **8/10**

KEY SPECS: up to 250 participants, unlimited calls, up to 24 hours video meetings

PROS: Robust security features, Frictionless video conferencing, Intuitive interface

CONS: Limited to only 250 participants with pro and 100 with a free subscription

capabilities.

The platform seamlessly synchronizes with G Suite for enhanced connectivity and collaboration. The platform also enables you to integrate Google Meet with select external platforms via Google's Pexip Infinity Platform.

Performance

With a clean and minimal interface, Google Meet can easily handle conferences with a large number of participants. Call quality is quite clear, however, all depends on your connectivity. You can share a particular application, doc, PPT, etc. or the entire screen.

The mobile app offers in-call features with a simple tap or swipe, it works smoothly, however, takes a little more time to send files or text-based information.

The platform is equipped with a robust mix of security features, including counter-abuse initiatives and secure video encryption. Google also added a brute force attack avoidance feature to the platform to prevent malicious entities or hackers from compromising a meeting or conference call.

Bottomline: Google Meet is perfect if you are already using G-Suite. For others, Microsoft Teams is a better choice as the cost of both is similar but with Teams, you get plenty of features and third-party app integration options.

HOT LAUNCHES OF THE MONTH

PCQ Bureau

LAPTOP

HP OMEN Gaming Laptops



HP unveiled new OMEN Laptops and accessories, updates to OMEN Command Center, and introduced the first 16" Pavilion Gaming laptop.

The latest OMEN 15, featuring a redesigned chassis with a smallest 15" gaming laptop footprint in the industry. The laptop comes in both Mica Silver and Shadow Black with optional full RGB per-key lighting.

Witness amazing graphics with up to NVIDIA GeForce RTX 2070 Super with MAX-Q Design. Power through games with desktop caliber performance up to 10th Gen Intel Core i7 H-series processors or experience AMD's CPU debut on an OMEN laptop with up to AMD Ryzen 7 H-series processors⁷, as well as up to 32 GB DDR4 RAM⁸ to make multi-tasking a breeze.

The laptop comes with a wide variety of storage options, including up to 1 TB PCIe SSD supporting RAID 010 for blazing load speeds.

Action explodes off with smallest 15" gaming laptop supported by a new 180-degree flat hinge design for increased stability during those hectic gaming sessions, with options up to OLED, or FHD 300 Hz¹¹ and NVIDIA G-SYNC technology on select configurations. Boost your multi-stream HD & 4K video experiences with Thunderbolt 3 on select configurations.

HP delivers the industry's first implemented IR thermopile sensor within a gaming laptop to optimize thermal efficiencies, maintain steady yet quiet fan acoustic control, and maximize performance from the Dynamic Power feature within OMEN Command Center.

Pricing and Availability

- OMEN 15 (Intel) is available at a starting price of INR 79,999
- OMEN 15 (AMD) is available at a starting price of 75,999

ASUS Zenbooks & Vivobooks

ASUS announced 4 new additions to its innovative and stylish ZenBook and VivoBook family: the ZenBook 13/14 (UX325/UX425), the VivoBookS S14 (S433) and the VivoBook Ultra K14 (K413).

ZenBook 13/14 (UX325/UX425):

The thin 13.3" and 14" laptops designed for ultimate portability thanks to the 4-sided NanoEdge display with 90% screen-to-body ratio and a compact all-metal 13.9 mm chassis.

At 1.07 and 1.13 kg, ZenBook 13 and 14, the laptops feature versatile connectivity with an unrivaled set of I/O ports including the DualThunderbolt 3 USB-C, USB Type A, MicroSD card reader, and HDMI.

The new ZenBook laptops are powered by latest up to 10th Gen Intel Core i7 processor with up to 16 GB RAM.

VivoBookS S14/ Vivobook Ultra K14 (S433/K413)

The VivoBookS S14 and Vivobook Ultra K14 and are designed with a three-sided NanoEdge display



with ultra-narrow bezels that make for 85/84% screen-to-body ratio.

The new VivoBookS S14 is powered by 10th Gen Intel Core i7 processors and up to NVIDIA GeForce MX250 discrete graphics, with up to 8 GB RAM, and a 512GB PCIe SSD. This is bolstered by a long-lasting battery that goes to 60% in just 49 minutes. The Vivobook Ultra K14, on the other hand, is equipped with a 10th Gen Intel i5 CPU with up to 8 GB RAM and 512 GB M.2 PCIe SSD.

VivoBookS S14 comes with a set of unique stickers to add your signature style to your device.

Pricing and Availability

Availability from 30th July onwards
Zenbook 13 UX325 starting at 79,990
Zenbook 14 UX425 starting at 79,990
VivobookS S14 S433 starting at 67,990
Vivobook Ultra K14 K413 starting at 39,990

HONOR MagicBook 15

HONOR announced its foray into the Laptop category in India. As part of its 1+8+N IoT strategy, the company has introduced the brand's first laptop for the market – HONOR MagicBook 15 powered with AMD and runs on Microsoft.



HONOR MagicBook 15 is India's first laptop with three breakthrough innovations – a discreetly hidden pop-up Webcam, 2-in-1 Fingerprint Power Button and the compact 65W Type-C Multi-device fast charger, capable to charge the laptop by 53% in just 30 minutes.

The HONOR MagicBook 15 is stylishly chic device that comes with a lightweight aluminum chassis and Azure Blue Chamfer around to give the device, a truly unique identity. It weighs just 1.53 kg, and is only 16.9 mm thick at its thickest point, and a 15.6 inches full view display featuring 87% screen-to-body ratio. A Full HD IPS Display with a viewing angle of 178 degrees, an anti-glare screen and a TÜV Rheinland certification to reduce blue light effect, further adds on to a comfortable viewing experience.

The laptop is equipped with the powerful AMD Ryzen 5 3500U Mobile Processor with Radeon Vega 8

Graphics, and 8GB DDR4 dual-channel RAM, offering smooth and seamless performance for even the most complex of tasks. It also comes with a 256 GB ultra-fast PCIe NVMe SSD storage drive.

The HONOR MagicBook 15 will be available in Mystic Silver colour variant in India. The laptop will be sold on Flipkart starting 6th August, 2020 00:00 hours onwards and for Flipkart early access members, the sale will start from 5th August, 2020 8.00 PM onwards.

Launched at INR 42,990, the HONOR MagicBook 15 will be available at INR 39,990 after INR 3000 discount for the first sale. Customers will also get a No Cost EMI upto 12 months and a product exchange offer of upto INR 13,000.

MOBILE

OnePlus Nord

OnePlus launched Nord, the first product under its new, more affordable smartphone line. OnePlus Nord features a diverse camera system, a smooth user experience, and the trusted OnePlus quality. Powered by the Qualcomm Snapdragon 765G 5G mobile platform, OnePlus Nord also continues to help usher in the 5G era by allowing more users to enjoy the unprecedented speeds of 5G technology.



OnePlus Nord features the same 48 MP Sony IMX586 sensor, in addition, Nord comes with an 8 MP ultra-wide angle camera, a macro camera, and a depth sensor to provide a versatile and diverse photography experience.

Nord is the first OnePlus device to come with a dual front camera setup, featuring a 32 MP main camera. The main front camera also supports high-quality video capture at 4K up to 60 fps. The 8 MP ultra-wide angle front camera offers a 105-degree field of view, allowing users to take great group selfies with ease.

OnePlus Nord's 6.44" Fluid AMOLED Display with a 90 Hz refresh rate and comes pre-installed with OxygenOS 10.5. OnePlus Nord supports OnePlus'

signature Warp Charge 30T, will take Nord's 4,115 mAh battery from empty to 70% in just half an hour.

Pricing and Availability

OnePlus Nord is available in two beautiful colors – Blue Marble and Gray Onyx.

vivo X50 Series

vivo unveiled the X50 and X50 Pro, featuring professional photography capabilities, premium sleek design, and smooth performance.



The X50 series

aims to push the camera and design capabilities of high-end flagship smartphones.

The X50 has a ground-breaking Gimbal Camera System, enabling users to capture professional-quality photos and videos while in motion.

The X50 Pro will be available in Alpha Grey colour whereas X50 will be available in two stunning colour options— Glaze Black and Frost Blue. Priced at INR 49,990 (X50 Pro 8+256GB), INR 34,990 (X50 8+128GB) and INR 37,990 (X50 8+256GB).

Powered by the Qualcomm Snapdragon 765G processor, X50 Pro provides fast computing speed and smooth multitasking capabilities. The series features a high screen refresh rate of 90Hz, displaying crisp images, movies, and games without smears or blurs.

The X50 is super sleek at 7.49mm. HDR 10+ technology delivers a bright and vivid display. AG Frosting on the rear glass surface creates a soft and delicate touch.

OPPO Reno4 Pro

OPPO launched the Reno4 Pro, the young trendsetters with its 90Hz 3D Borderless Sense Screen and 65W SuperVOOC 2.0.

Paired with a single punch hole design that boasts a screen-to-body ratio up to 92.01%, and a 6.5-inch E3 Super AMOLED screen. Reno4 Pro also meets the world-class eye care standards with its TÜV Rheinland Full Care Display Certification.



Reno4 Pro is powered by 48MP rear quadcam and 32MP front camera. It comes with 960fps Smart Slow-Motion, enabling users to see every detail in every motion. The phone is equipped with the Qualcomm Snapdragon 720G SoC with an 8nm process and Low Power DDR4X Semiconductor. Reno4 Pro comes with 8GB of RAM and 128GB ROM.

Supporting up to 10V/6.5A, 65W Flash Charging, Reno4 Pro's 4000mAh battery can be fully charged in 36 minutes. Reno4 Pro weighs 161g and is 7.7mm thin.

Pricing and Availability

The Reno4 Pro will be available starting August 05th, 2020 on Amazon, Flipkart, and retail stores across India at INR 34,990.

HONOR 9A and HONOR 9S

HONOR announced its affordable smartphone portfolio –

HONOR 9A and HONOR 9S in under ₹10K segment. Both devices come pre-installed with company's official and world's third largest app distribution platform, AppGallery.

HONOR 9A

HONOR 9A offers an exceptional and functional photography experience and has a giant 5000mAh



battery. The triple camera set up comprises of a 13MP with f/1.8 aperture main sensor, 5MP ultra-wide plus a 2MP depth assistant. The 8MP front camera delivers perfect selfies, every time and anywhere.

The smartphone features 16.0cm (6.3 inch) dewdrop Full view Display with TÜV Rheinland certified eye care mode. The smartphone is powered by Mediatek MT6762R (4xCortexA53 2.0GHz+4xCortexA53 1.5GHz) and runs on Android 10 supported by the latest flagship Magic UI 3.1. It features 64GB of storage expandable up to 512GB with dedicated memory card slot, and superior 88db loudspeaker along with 3.5mm jack enabled with better volume control and lower levels of distortion with Huawei Histen 6.0 and Party Mode feature, for an enhanced audio experience.

HONOR 9S

HONOR 9S features slim 8.35mm form factor with just 144g, 13.8cm (5.45 inch) Full View HD + Display (1440 x 720-pixel resolution). The smartphone is powered by Mediatek MT6762R (4xCortexA53 2.0GHz+4xCortexA53 1.5GHz) which gives amazing performance to entry level HONOR 9S. It runs on Android 10 and sports a powerful 3020 mAh battery that lasts up to 21 hours of phone calls and 17 hours of video playback.

Equipped with latest Magic UI 3.1, HONOR 9S comes with TÜV Rheinland certification that makes HONOR 9S more comfortable for eyes and enhances viewing experience.

HONOR 9S features an 8MP main camera along with a 5MP selfie camera for photography enthusiasts. The smartphone features 32GB of internal storage, expandable up to 512GB.

Pricing and Availability

HONOR 9A will be available on Amazon, starting 6th August, 2020 at INR 9,999.

HONOR 9S will be available on Flipkart, starting 6th August, 2020 at INR 6,499.

CAMERA

Canon EOS R5 & EOS R6 full-frame mirrorless cameras

Canon India unveiled its full-frame mirrorless cameras- the EOS R5 and EOS R6. The EOS R5 features 8K movie recording, new 45.0 megapixels full frame CMOS sensor while the EOS R6 features 4K movie recording, advanced 20.1 megapixels full frame CMOS sensor. Both the new cameras come equipped with Canon's advanced DIGIC X imaging processor and new in-body image



stabilizer.

With the addition of the EOS R5 & EOS R6 to its line-up, Canon will continue to strengthen its EOS R System and provide its users with an imaging system that delivers higher image quality and greater ease-of-use.

Alongside the EOS R5 & R6 cameras, Canon has also launched a series a lens including the RF85mm F2 Macro IS STM, RF 600mm F11 IS STM, RF 800mm F11 IS STM, RF 100-500mm F4.5-7.1L IS USM, Extender RF1.4X & RF2X along with other accessories to provide its consumers with a complete ecosystem.

Priced at an MRP of Rs. 339 995.00/U (inclusive of all taxes) and Rs. 215 995.00/U (inclusive of all taxes) respectively, the EOS R5 and EOS R6 will be available from August at Canon Image Squares and authorized retailers.



PERIPHERALS

Huawei FreeBuds 3i-Best in class TWS

Huawei Consumer Business Group, India announces its much awaited HUAWEI FreeBuds 3i TWS earbuds with Active Noise Cancellation (ANC) and a unique in-ear design that comes with a Triple Mic Setup for best in class 'Active Noise Cancellation'.

The Huawei Freebuds 3i comes fitted with a polymer composite diaphragm that offers professional tuning to deliver balanced audio. With its 10 mm large dynamic drivers it delivers powerful bass, giving audiences a 'True Noise Cancellation, True Wireless Stereo' listening experience.



Pricing and Availability

HUAWEI FreeBuds 3i will be available in two classic colours: Carbon Black and Ceramic White and is priced at INR 9990

Samsung UHD Business TVs



Samsung has launched a new range of ultra high definition Business Televisions in India for consumer facing businesses such as restaurants, retail stores, shopping complexes, salons, among others.

Samsung Business TVs are engineered to operate for 16 hours a day and come with an on/off timer to automatically operate during set business hours.

Backed by intuitive software, attractive content and no hidden costs, Samsung Business TVs come preloaded with over 100 free templates that allow business owners to create their own content. Some of the unique templates includes vertical orientation, promotions that display content alongside TV programs, motion-embedded, seasonal sale and other pre-designed layouts providing business perfect visuals for different occasions.

The Ultra High Definition display can showcase high quality content, helping small and medium businesses attract more consumers.

The Samsung Business TV app allows remote management of content. This app also aids easy DIY installation of the TV.

Samsung Business TV app, available for Android and iOS devices.

Samsung Business TV series is available in 43-inch, 50-inch, 55-inch and 70-inch variants, with prices ranging from INR 75,000 to INR 175,000. The versatile Business TV comes with three-year warranty, offering long term support to business owners.

Sony HT-G700 Soundbar line-up

Sony introduced the latest addition to the soundbar range, the HT-G700. The new model offers powerful and immersive sound so that customers can stay entertained while staying safe at home. The new HT-G700 is a 3.1ch Dolby Atmos and DTS:X soundbar



that brings a new level of impressive cinematic-audio environment to any home entertainment set up.

The HT-G700 comes with a powerful, wireless subwoofer with a larger cabinet size that delivers a deeper, richer bass sound. Finally, set-up with a TV is quick and easy via Bluetooth or HDMI eARC/ARC.

HT-G700 soundbar is available from 29th July 2020 onwards at Rs. 39,990/-

Logitech MX Master 3

Logitech announced the Logitech MX Master 3, mouse enables powerful and reliable performance that transform the way you work.

Engineered and crafted in Switzerland, the MX Master 3 offers ultrafast and ultraprecise scrolling with the all-new MagSpeed Scroll Wheel. Driven by electromagnets, MX Master 3 allows you to silently scroll through thousands of lines in seconds.

Profiles for popular software applications are ready out-of-the box, in addition to customization options offered via Logitech Options™. The mouse features Logitech MX signature Darkfield™ 4,000 DPI High Precision sensor that tracks on all surfaces including glass. It also has a rechargeable battery that lasts up to 70 days with a full charge, and a three-minute quick charge gives you a full day of use.



Pricing and Availability

Logitech MX Master 3 is available at Logitech.com and Amazon.com at Rs 9,495

Jabra Elite Active 75t

Jabra announces Jabra Elite Active 75t in new

colours and a wireless charging variant.

The Elite Active 75t and Elite 75t now include MySound, a feature that enables automated hearing tests for users to calibrate their earbuds to their own unique hearing profile. MyControls is now also available, which gives users the option to personalize the button use of the earbuds. This means the 'Next Track' and 'Previous Track', or Mute on/off functions can be moved from the left to right earbud or fitted to personal taste.

Pricing and Availability

Jabra Elite Active 75t wireless charging variant is available in Navy colour at MRP of INR17,999

Jabra Elite Active 75t in Mint and Sienna colours (non-wireless charging) will be available at MRP of INR16,999

Sennheiser HD 458 BT Wireless Noise Cancellation Headphones

Sennheiser has announced its new Noise cancellation HD 458 BT special edition. Sennheiser has given its HD 450BT over-ear wireless Noise Cancellation headphones a new look, with bold red accents that lift the minimalist design to stylish new heights. Their winning combination of brilliant customizable Sennheiser sound, Active Noise Cancellation and 30-hour battery life make the headphones the ideal choice for audio lovers seeking to step up their everyday listening experience.

Thanks to Sennheiser's Smart Control App, the HD 458BT can be tailored to offer a truly personal



experience. Its intuitive equalizer makes it effortless to enjoy more bass or select the perfect balance for one's choice of music or entertainment.

It comes with fast USB-C charging and compact folding design. The HD 458BT has Bluetooth 5.0 support and a dedicated Voice Assistant button for at-a-touch voice interaction with Siri or Google Assistant.

OPPO Watch powered with Wear OS by Google



The snazzy OPPO Watch has been crafted to encourage a smart, dynamic, and convenient lifestyle. OPPO Watch comes in 46mm, sculpted with a 6,000-series aluminum alloy frame, with stunning Black or Glossy Gold finishes.

The OPPO watch can intelligently do fitness tracking, heart rate monitoring, sleep quality, get-up reminders and breathing, and more.

OPPO Watch incorporates OPPO's own Dual-Chip Endurance System and Watch's VOOC Flash Charging technology, the OPPO watch gets fully charged in 75 minutes.

Designed to keep up and stay connected, OPPO's dual-chip Endurance System switches between a Snapdragon chip-driven Smart mode and an Apollo3 chip-driven Power Saver mode, balancing high performance and energy efficiency.

The Watch comes with a curved 1.91-inch AMOLED screen which is empowered with 3D flexible dual-curved display. Exquisite detail can be seen even in bright sunshine, with the 500 nits, 326 PPI pixel density on the 402x476 resolution display.

Pricing and Availability

The OPPO Watch will be available for purchase from August 10th, 2020 at the price of INR 19,990 for OPPO Watch 46mm and INR 14,990 for OPPO Watch 41mm.

To felicitate Dataquest Lifetime Achievement Award 2019,
Dataquest invites you to this power packed panel

40 Years of ICT Industry & the Next 10 Years

Tuesday, 18 August 2020
5:30 PM - 7:00 PM

LIVE BROADCAST ON

 &  LIVE

Leaders' share their views on next decade of
ICT Industry & its transformation in India.

Who to Attend

- CXO's of IT Industry
- Business Leaders of IT Industry
- IT Decision Makers and IT Influencers of Enterprise Users
- Policy Makers & Senior Government Officials
- HR, Talent Development and L&D Leaders
- IT Professionals and Budding IT Professionals
- Edu-Tech Leaders, Academicians Educationists
- Digital and Technology Evangelists



Rajendra S Pawar

Padma Bhushan Awardee 2011
Chairman NIIT Ltd &
Founder NIIT University

Dataquest
Lifetime Achievement
Award Winner



Arjun Malhotra

Co-Founder, HCL &
Chairman
Magic Software Inc.



C P Gurnani

CEO & MD
Tech Mahindra



Pradeep Gupta

Chairman
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8 cores at your fingertips

Upgrade to the
world's highest
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for ultrathin laptops.
Built for professionals.

AMD
RYZEN