₹75

www.voicendata.com

VOL 30 ISSUE 03 MARCH 2023

VOICE & DATA

Connecting the Digital World

CyberMedia

SORRY, SHAKESPEARE! LABELS DO MATTER

Even as Made-in-India equipment is making its way into the world market, the country has to catch up a lot and gain market trust before it becomes a global player

TECHNOLOGY

Unleash the QE power to harness AI
Sheju Khan

INDUSTRY SPEAK

Shaping the new businesses world
Khalid Wani

COMMENTARY

Solution for the industry of tomorrow
Suprakash Chaudhuri

THE MOST EPYC YET

New 4th Gen AMD EPYC™ Server Processors

AMD
together we advance_

Apeejay School

NOIDA (Established in 1981)

Your Child's Journey to a Promising Future Starts Here

ADMISSIONS OPEN 2023

NURSERY TO IX & XI

HIGHLIGHTS

- Excellent Board Results Every Year
- Pristine 16-acre Campus, Condusive for a Healthy all-round Development
- Value-based Holistic Education of Global Standards to Nurture Responsible and Responsive Citizens
- Research-based Thematic Curriculum, upto Primary Level. Focus on Experiential Learning in Higher Classes
- NEP 2020 Aligned Curriculum with focus on Critical Thinking, Problem Solving Skills
- Innovative Pedagogy for Enjoyable and Engaging Learning
- Stress free, Congenial, Safe & Secure Environment with 24/7 CCTV Surveillance

AWARDS & RANKINGS

Ranked No.1
(Leaders Category)
in Noida

by the Times School Survey 2022

Awarded for
Experiential Learning Pedagogy in Education

at Scoonews Experiential Learning Awards 2022

For admission enquiry, please contact:

Apeejay School Sector -16A, Film City, Noida - 201301

Email: **skool.ms.nvd@apj.edu** | *Admission Helpline No:* **+91-8527-570-570**

Website: **www.apeejay.edu/noida**

VOICE&DATA
CONNECTING THE DIGITAL WORLD

Website: www.voicendata.com

OUR OFFICES
GURGAON (CORPORATE OFFICE)
Cyber House
B-35 Sector-32, Gurgaon, Haryana – 122 001
Tel: 0124 - 4822222 Fax: 0124 - 2380694

BENGALURU
205-207, Sree Complex (Opposite RBANMS Ground)
73, St John's Road, Bangalore – 560 042
Tel: +91 (80) 4341 2000, Fax: +91 (80) 2350 7971

MUMBAI
404 Trade Square, Mehra Industries, Compound Safed Pool,
Sakinaka, Andheri East, Mumbai – 400072
Mobile: 9969424024

INTERNATIONAL
Huson International Media
President, 1999, South Bascom Avenue, Suit 1000,
Campbell, CA95008, USA
Tel: +1-408-879 6666, Fax: +1-408-879 6669

Voice&Data is printed and published by Pradeep Gupta on behalf of Cyber Media (India) Ltd, D-74, Panchsheel Enclave, New Delhi - 110 017, and printed by him at M/s Archna Printers, D-127, Okhla Industrial Area, Phase-1, New Delhi 110020. Editor: Gajendra Upadhyay

For Subscription queries contact rsevoicendata@cybermedia.co.in

All Payments Favoring: CYBER MEDIA (INDIA) LTD

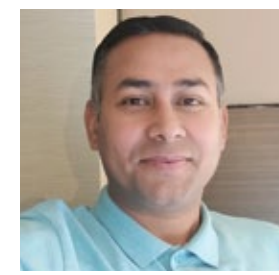
Corporate Website: www.cybermedia.co.in
www.ciol.com (India's #1 IT Portal)

March 2023

[CONTENTS]

SORRY, SHAKESPEARE! LABELS DO MATTER

Even as Made-in-India equipment is making its way into the world market, the country has to catch up a lot and gain market trust before it becomes a global player



INDUSTRY SPEAK

REPORT

TELECOM TALK

BROADBAND BYTES

TECHNOLOGY

COMMENTARY

INTERVIEW

TRENDS

[NEXT ISSUE]

FEBRUARY 2023

Subscribe

SEND YOUR FEEDBACK FOR US TO SERVE YOU BETTER...

For **subscription** related issues, contact us at
rsevoicendata@cybermedia.co.in

You can also write to
Reader Service Executive, **VOICE&DATA**,
Cyber House, B-35 Sector 32,
Gurgaon-122 001, Haryana
Tel: 98104 99208

For any query: rajivp@cybermedia.co.in

FORM IV (See Rule)

Statement of ownership and other particulars about the newspaper VOICE&DATA to be published in the first issue every year after the last day of February.

1.	Place of Publication	:	New Delhi
2.	Periodicity of Publication	:	Monthly
3.	Printer's Name Whether Citizen of India Address	: : :	Pradeep Gupta Yes D-74, Panchsheel Enclave, New Delhi – 110 017
4.	Publisher's Name Whether Citizen of India Address	: : :	Pradeep Gupta Yes D-74, Panchsheel Enclave, New Delhi – 110 017
5.	Editor's Name Whether Citizen of India Address	: : :	Shubhendu Parth Yes 203, Ashirwad Apartments, 74, I P Extension, Narwana Road, Delhi 110092
6.	Names & addresses of individuals who own the newspaper, and partners or shareholders holding more than one percent of the total paid-up capital	:	Cyber Media (India) Limited D-74, Panchsheel Enclave, New Delhi – 110 017

List of shareholders holding more than 1% of the paid up capital of the company as on 15th February 2023: Pradeep Gupta, Dhaval Gupta, Sumana Paruchuri, Sanjay Dutt, Mahendra Girdharilal, Ravinder Kumar Agarwal, Venkata Narayana Konanki, Kriti Gupta, Shital Sukhraj Nahar.

I, Pradeep Gupta, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Sd/-
Publisher

SHUBHENDU
PARTH

[OPENING NOTE]

Why safe harbour if you play by the rule?

Imagine for a moment that you have received a notice under Section 133 of the Motor Vehicle Act, 1988, alerting you that the driver of your vehicle has committed an offence by violating the stop line on a specific date and time, at a particular location. As you scrutinise the details, you discover that your cousin, who had borrowed your car, is the one at fault. Now, what do you do?

You could confront your cousin and insist that they pay the compounding amount. Alternatively, you could pay the fine yourself. Either way, since the authorities have brought to your attention that an offence has been committed by the person behind the wheel of the vehicle registered under your name, it is your responsibility to deal with it.

The same is true for any digital intermediary, including social media and e-commerce platforms, telecom and web-hosting service providers, and search engines. These intermediaries often try to hide behind the 'safe harbour' provision under Section 79 of the Information Technology Act, 2000, which absolves them of the liability for any third-party content or user posts.

Similar to the vehicle owner who may not be at fault but is accountable for the car, digital intermediaries are also responsible for what occurs on their platforms. And just like the vehicle owner, the intermediary has conditional immunity, which is valid only if it acts to rectify and, if necessary, remove the content from the platform upon receiving a notification from the appropriate government official or agency.

To bolster the regulatory mechanism, the Government of India under the Information Technology Rules of 2021 and subsequent amendments, mandated additional due diligence by appointing India-based employees to liaise with the government and address users' queries. It also formed three government-appointed appellate committees to adjudicate unresolved user grievances.

However, these measures are insufficient to cope with the disruption of the new digital era. Union IT Minister Rajeev Chandrasekhar is spot on when he asserts that the platforms for which the safe harbour concept was applied back in the 2000s have now evolved into several types of participants and platforms that are functionally very distinct from one another and necessitate different types of guardrails and regulatory requirements.

In discussing the upcoming Digital India Bill, the Minister emphasised the need to review the 'safe harbour' concept because intermediaries have become more complex over the years, making it essential to classify them based on their function and form pertinent regulations for each of them. The proposed bill also seeks to regulate the 'weaponisation of misinformation' under the guise of free speech and other cybercrimes like cyberbullying, doxxing, and identity theft.

It is imperative to recognise that intermediaries, like the owners of the vehicles, have an unequivocal responsibility to ensure that their platforms are not utilised to spread misinformation, hate, or other forms of illegal content. The Indian Government's efforts to implement stricter regulations and guidelines must be welcomed, and we should all do our part in ensuring that our digital ecosystem remains safe and secure.

shubhendup@cybermedia.co.in

Riding the wave of the future

Sensor-based technologies are becoming more sophisticated by the day and IoT will be used in different ways to generate, share, and utilise the data

BY DR RISHI BHATNAGAR

The Internet of Things (IoT) is the wave of the future, reshaping all industries and making the world system more efficient. A global assessment predicts that by 2025, the Indian IoT industry is likely to generate USD 9.28 billion. In 2023, it's predicted that with shifting market dynamics and continuous innovation, there will be more than 43 billion devices connected to the Internet. They will generate, share, collect, and assist us to make use of data in different ways. Here is an overview of some of the key trends that will affect how we use and interact with these devices across sectors.

#1
ARTIFICIALLY INTELLIGENT THINGS

Artificial Intelligence (AI) and IoT are two technologies that complement each other effectively. As AI continues to shine currently, its convergence with IoT makes it capable of solving a range of problems across industry verticals. IoT devices produce a huge amount of data, and AI, a technology that is driven by data, performs best when given a lot of data.

It is expected that AI will exploit the data that IoT devices send in real-time to hone its machine-learning capabilities and calibrate more efficient algorithms. Deeper artificially intelligent things (AIoT) corporate integration will result in beneficial solutions. Utilising analytics-enabled decision-making processes, this technology will optimise system and network operations and extract worthwhile insights from industrial data. Reports indicate that by 2028 the global market for AIoT will be worth USD 144.07 billion, expanding at a CAGR of 38.1%.

#2
IOT IN HEALTHCARE

The digital healthcare market in India was estimated to be worth Rs 116.61 billion in 2018 and is projected to

> There is a huge potential for cutting-edge AI-based security solutions to guard against breaches of enormous data created by IoT devices.

reach Rs 485.43 billion in 2024, growing at a CAGR of 27.41%. The telehealth sector will be further enhanced, and the market growth will be improved in 2023 due to advancements in communication technology and the introduction of 5G networks.

The adoption of automated medicine dosage, intelligent wearables, monitoring devices and IoT-connected diagnostic supplies will continue to skyrocket. One of the technological shifts will be the ability of healthcare practitioners to keep a check on patients' health away from the hospital or doctor's office. This will ensure round-the-clock treatment and enable resources for patients who require emergency assistance.

The introduction and gradual upgradation of wearable technology will assist everyone to understand their health better and relieve the burden on the current healthcare system. Going ahead, one can expect to witness a lot of wearable skin patches with several other smartwatches well equipped with heart rate and oxygen level monitoring sensors.

#3
GOVERNANCE IN THE IOT SPACE

Security and IoT have a complex relationship. IoT gadgets expose us to numerous types of cyberattacks while also making our regular tasks more convenient. The risk of cybersecurity assaults will rise along with the quantity of IoT devices in 2023. These complexities stem from the diverse and distributed nature of the technology and will drive a renewed interest in security in the IoT technology sector as more complex safety problems develop.

The connected system's security still has to be strengthened. There is a huge market potential for IT and cybersecurity firms to create cutting-edge AI-based security solutions to guard against data breaches due to the enormous amounts of data created by IoT devices.

#4
IOT IN MANUFACTURING

In an industrial setting, IoT delivers higher performance, efficiency, a safe working environment, and cheaper expenses. The technology will continue to assist profitable automated sectors in the future. Autonomous machines will take the place of manual processes in the industry due to enterprise software built on IoT. Error prevention, sophisticated analytics, and effective monitoring, as well as the stages of product creation and testing, are further uses of IoT devices in industrial settings.

A NASSCOM report estimates that more than two-thirds of Indian manufacturers would embrace digital transformation by 2025 to grow India's manufacturing GDP to 25%. As IoT and wearables link management to industrial floors and mobile devices can link to wearables, there will be a possibility to receive feedback, improve time management and increase safety.

#5
FURTHER DEVELOPMENT OF SMART CITIES

Smart cities will further develop as a result of IoT adoption. Smart cities don't just prioritise improving people's quality of life, but the social, environmental, and financial facets of urban living are all improved by these cities. It will also play a significant role in enhancing sustainability and quality of life as urban populations rise.

IoT devices like connected sensors, lights, and meters to collect and analyse data will improve infrastructure, public utilities, and services. The administration and supervision of traffic have always been a challenge, even in the majority of industrialised nations. To better manage and optimise traffic, IoT sensors will track and analyse traffic across crossings.

In the upcoming years, IoT will be used in more sophisticated ways as the invention grows and more people begin to compete, making it essential to our society and the technology of the future. Service providers will enter the IT and web-level sectors making new sources of revenues as IoT platforms will develop with enhanced bandwidth and AI. With businesses and government bodies developing Digital India Program to transform India into a digitally empowered society and boost the IoT industry, the data-based productivity and value will only strengthen in 2023.

Dr Rishi is the President of Aeris Communications
feedbackvnd@cybermedia.co.in

Shaping the new businesses world

5G will usher in new uses cases in India, much different from the rest of the world, powering a very different storage need for the data-intensive era

BY KHALID WANI

Connectivity is one of the key enablers of technological advancements. The past couple of decades has exhibited how cellular technology has shaped the Internet of things (IoT). During the 2000s, 2G and 3G brought Machine-to-Machine (M2M) communication which, although revolutionary at the time, was comparatively simple in terms of what it enabled. Then came 4G, which enabled far more sophisticated applications in the IoT. Empowered with robust cloud connectivity it allowed efficient data transfer and better device management and control.

THE POWER OF 5G

India is moving ahead ushering in the much-awaited 5G era. According to numerous reports, India, with its current data prices, which are significantly lower than the

> Vehicle-to-Everything communication will allow cars to interact with the different parts of the traffic system that may affect the vehicle and vice versa.

> Layered with AI, 5G will enable the Intelligent Internet of Everything (IoE), where anything powered can compute, and anything that computes can be connected.

global average, will continue to set rate benchmarks as new services are rolled out. 5G, will create unprecedented opportunities for businesses and people. While the dominating discussion in the media about the benefits of 5G was initially focused on how we will be able to download an HD movie in a few seconds, it has now shifted towards a broader set of benefits. 5G, which is up to 100 times faster than 4G, will create unprecedented opportunities for businesses and people.

Layered with Artificial Intelligence (AI), 5G will enable the Intelligent Internet of Everything (IoE), where anything powered can compute, and anything that computes can be connected. 5G, IoT, and AI will be fundamental to the next phase of technological development. It will transform industries, including healthcare, gaming, agriculture, traffic systems, and automotive safety. In short, it has the potential to unlock a new world of possibilities. For example, let's look at automotive safety. Maps will evolve to absorb and deliver more information in real time rather than simply updating us on live traffic conditions.

The vehicles will amass abundant sensors and cameras and survey the roads and surroundings constantly. This information will be shared almost in real time with other vehicles and road networks. In other words, Vehicle-to-Everything, V2X communication will allow cars to interact with the different parts of the traffic system that may

> Low latency and high reliability are of critical importance for applications such as autonomous driving, wireless industrial automation, and robotic surgery.

affect the vehicle and vice versa, improving automotive safety. 5G brings incredible improvements across network transmission speeds, capacity, and latency.

Enhanced Mobile Broadband (eMBB): First, one must understand how phenomenally fast it is, after all, it is one of the most touted benefits of 5G. Peak data rates will be in the tens of Gbps. However, eMBB will also deliver three other distinct and extremely important attributes. Firstly, it enables higher capacity in densely populated, indoor, and outdoor areas. In a world where the number of devices is increasing every day, a higher capacity becomes imperative for the newer generation of connectivity. Second, enhanced connectivity – availability everywhere, and third, it is designed to overcome the connectivity challenges caused by high mobility for example, in high-speed trains, cars, planes, etc. Typical IoT use cases include devices that require higher capacity and lower latency for video and data streaming, as well as industrial applications for Augmented Reality, AR- and Virtual Reality or VR-based digital twins.

Massive Machine Type Communications (mMTC): With its ability to intelligently transmit to each device with high precision, 5G can handle as many as one million devices per square kilometre without congestion issues. It enables massive network capacity to connect thousands of IoT endpoints and edge devices reliably. Typical endpoints would be low-cost, battery-powered devices periodically transmitting small amounts of stored data either to the core or other devices locally via mMTC IoT gateways.

Ultra-reliable and Low-latency Communications (URLLC): It may not impact smartphone users significantly, but low latency and high reliability are of paramount importance for mission-critical applications such as autonomous driving, wireless control of industrial automation, and robotic surgery.

These different features will enable variegated use cases and benefit consumers and enterprises alike. For example, on the road, vehicles will use eMBB to access multimedia content for passengers, while autonomous driving will be made safer through URLLC by lowering reaction times. Applications related to robotics, supply chain management, and operational control that would have strict reliability and latency requirements will rely on mMTC and URLLC.

Different Storage Requirements: Before 5G and AI, endpoints and edge devices had smaller storage footprints due to the minimal data and bandwidth requirements. With the advancing capabilities of AI and 5G, storage needs will rise exponentially. Storage must also be more reliable and high-speed for enabling optimal performance. Furthermore, as more data will be processed at the edge, it will also increase demand for flash-based storage. At the edge, it is harder to perform a hardware refresh or maintenance due to the location of the device. As a result, storage solutions with higher capacities, newer interfaces, more random read/write performance, longer data retention, and increased endurance and reliability are needed.

From a storage interface perspective, the older storage interface for SSDs, SATA, can be a bottleneck for 5G edge processing. Systems designers will need to consider the switch from SATA SSDs to NVMe as it offers faster speeds, lower latencies, and higher capacities than SATA SSDs. 5G will need more local storage at the edge and endpoints.

The intersection of 5G, AI, and IoT will bring a seismic change to the world around us. It will also mean more data to be captured, processed, analyzed, and actioned at the network edge. This new era of the Intelligent Internet of Everything will bring with it a need for advanced networking, computing, and storage, in edge devices and endpoints.

With India entering the new era of 5G, one can expect diverse and probably different use cases than what are or will be prevalent in the rest of the world. It is because India is vastly different in terms of its geography and demographics. But one thing is sure, with 5G India is entering an even more data-intensive era where storage will play a critical role in.

Khalid is a Senior Director – Sales (India) with Western Digital
feedbackvnd@cybermedia.co.in

VOICE&DATA

CyberMedia

TELECOM LEADERSHIP FORUM

22nd ANNUAL MEETING OF THE TELECOM ECOSYSTEM

EMPOWERING LEADERS IN TELECOMMUNICATIONS

Future of the Mobile Economy

17 March 2023, New Delhi

Partners

Gold	Gold	Telecom	Digital	Academia	Research	Media
Juniper Networks	Sangoma	Vi	nixi	Apeejay Education	CMR	Dataquest

@voicendata_

#tlfindia | #tlfawards23

Driven by the emergence of new digital technologies and the 5G standards, the world is going through a major transformation in how businesses and individuals communicate, connect, and use digital infrastructure. Meet the industry leaders, domain experts, policymakers, technologists, influencers, and academia. 22nd edition Voice&Data telecom Leadership Forum will felicitate the winners of the Voice&Data Jury awards and Voice&Data Excellence Awards.

KEY HIGHLIGHTS

- 1 day forum & awards
- Keynotes & panel discussions
- Voice&Data Jury Awards
- Voice&Data Excellence Awards
- Networking Lounge
- Live social feeds, feedback, live polls and many more

KEY DISCUSSION POINTS

- Policy
- Open innovation
- 5G, Cloud, Metaverse
- Mobile Economy
- Infrastructure
- Private 5G Networks
- Opportunities in 5G
- 5G for industry 4.0 & Society 5.0
- ESG & Sustainable telecom

and many more...

HALL OF FAME
TELECOM PERSON OF THE YEAR

Join us to felicitate the winners at the Voice&Data Telecom Leadership Forum.

For further information, write to

Rajiv Pathak | Sr. Manager, Marketing | rajivp@cybermedia.co.in I +91 80107 57100

Securing the modern enterprise cloud

As cloud technology becomes more complex, SASE can help organisations secure their cloud workloads and meet compliance requirements

BY RAJAT GOEL & NAGENDRA DHAGARRA

Cloud security refers to the measures and technologies that are used to protect cloud-based data, applications, and infrastructure from threats, such as cyberattacks, data breaches, and unauthorised access. Cloud security is critical for organisations that use cloud computing to store, process, and manage sensitive data, applications, and systems. It involves safeguarding data, infrastructure, applications, networks, and access control. It also includes measures to prevent unauthorised access, data breaches, and cyber-attacks, and manages who has access to cloud resources and data.

> Gartner introduced the concept of SASE to address the evolving needs of modern networks and the growing trend towards cloud-based services and remote work.

> CSPM or Cloud Security Posture Management is crucial for organisations to ensure the security and compliance of their cloud-based infrastructure.

Cloud security requires a multi-layered approach, incorporating a range of security measures and technologies, such as encryption, firewalls, intrusion detection and prevention, and identity and access management. Cloud security also requires ongoing monitoring and management, regular risk assessments, and security audits to ensure that cloud-based environments remain secure and compliant.

THE NEED FOR A NEW APPROACH

Gartner introduced the concept of SASE or Secure Access Service Edge to address the evolving needs of modern networks and the growing trend towards cloud-based services and remote work. SASE is a cloud-based security solution that integrates multiple security functions to provide secure access to cloud-based resources and applications from any device, anywhere in the world. It addresses the evolving needs of modern networks and remote work by enabling organisations to connect securely and reducing the risk of security breaches.

Traditional security solutions like VPNs and firewalls are inadequate, and SASE provides a cost-effective solution that simplifies security, reduces costs, and improves security effectiveness. ZTNA or Zero Trust Network Access can be used with SASE to secure access to cloud-based resources and create a secure, compliant cloud environment that protects against modern threats.

ZTNA is a security model designed to protect digital assets and users by assuming that every access request to a network, application, or resource is potentially harmful and must be verified and authenticated before granting access. The ZTNA model aims to provide secure access to resources from any device, location, or network without granting unnecessary privileges or exposing the network to cyber threats. It achieves this by implementing a multi-layered security approach that includes identity and access management, encryption, and network segmentation.

SECURING THE CLOUD ENVIRONMENT

SASE is a critical component of a comprehensive Cloud Workload Protection Plan (CWPP) that outlines steps to secure cloud-based workloads. It provides secure access to workloads, centralised identity and access management, cloud threat protection, and visibility and control over cloud-based workloads to help meet compliance requirements for data protection, user access, security, auditing, and risk management. By implementing SASE, organisations can secure their cloud workloads effectively and meet compliance requirements while benefiting from the flexibility and scalability of cloud-based services.

CSPM or Cloud Security Posture Management is crucial for organisations to ensure the security and compliance of their cloud-based infrastructure. SASE or secure access service edge can be a key component of a comprehensive CSPM solution, providing capabilities such as threat detection and response, centralised identity and access management, data protection, compliance management, and visibility and control over cloud-based environments. SASE's end-to-end encryption, data protection, and visibility and control features enable organisations to meet compliance requirements such as PCI DSS, HIPAA, SOC 2, and ISO 27001.

STEPS TO IMPLEMENTING A SASE APPROACH

SASE is a modern security framework that combines multiple security functions into a cloud-based service, providing a more flexible, scalable, and cost-effective approach to securing networks. Here are the key steps to implementing SASE for your business.

- Evaluate your current network architecture and identify potential gaps in your security infrastructure.
- Assess the various SASE solutions available in the market and compare them with your business requirements.

> The future of cloud security may include the increased use of Artificial Intelligence and Machine Learning to detect and respond to threats in real-time.

IN SUMMARY

- Cloud security protects cloud-based data, applications, and infrastructure from threats such as cyberattacks and unauthorised access.
- It requires a multi-layered approach, including encryption, firewalls, intrusion detection and prevention, and identity and access management, as well as ongoing monitoring and management.
- SASE is a cloud-based security solution that integrates multiple security functions to provide secure access to cloud-based resources and applications from any device, anywhere in the world.
- ZTNA is a security model designed to protect digital assets and users by verifying and authenticating every access request before granting access.
- SASE and ZTNA can be used to secure cloud-based workloads effectively, meet compliance requirements, and provide visibility and control over cloud-based environments.
- The future of cloud security is likely to involve advancements in technology such as AI and machine learning, and the continued adoption of zero-trust security models.

- Choose a SASE provider that offers the necessary features required by your organisation.
- Plan the deployment of the SASE solution, including the migration process from your current security infrastructure to the new solution.
- Ensure proper configuration and optimisation of the solution for your organisation's needs, such as bandwidth requirements, application access control, and security policies.
- Train your staff and provide them with the necessary documentation and resources to fully utilise the SASE solution.
- Continuously monitor the solution for any issues, such as performance degradation or security breaches.
- Periodically evaluate the SASE solution and ensure that it continues to meet your business requirements.

It is important to note that the adoption of SASE is a continuous process that requires ongoing evaluation and optimisation to ensure that it meets the evolving needs of your organisation.

The future of cloud security is likely to involve continued advancements in technology to better protect cloud-based systems and data from evolving threats. This may include the increased use of Artificial Intelligence and Machine Learning to detect and respond to threats in real-time, as well as the continued adoption of zero-trust security models that prioritise access controls and identity management. Additionally, as cloud technology becomes more complex and more widely adopted, compliance and regulatory requirements will also continue to evolve, driving the need for more robust and flexible cloud security solutions.

Rajat is the Head and Vice president of Product – Cloud and Information Security, and Nagendra is a Senior Technical Architect with 3i Infotechl

feedbackvnd@cybermedia.co.in

PCQUEST CONFERENCE ON CYBERSECURITY

CyberMedia

CYBERSECURITY CRITICAL FOR GROWTH

Coming Soon

@pcquest

#pcqcybersecurity

The CISO & CXO community has tremendous visibility into all aspects of cybersecurity, ranging from attacker activity to technological developments.

PCQuest Cybersecurity conference brings together cybersecurity and critical infrastructure stakeholders across verticals and provides a forum for meaningful conversations and collaboration about how we can protect our physical and cyber infrastructure.

KEY DISCUSSION POINTS

• C-suite attacks • Zero Trust • Securing the Digital Revolution • Cloud Security • Digital innovation
• Security & Compliance • Talent & Skill gap in Cybersecurity • Cybersecurity best practices
• Trends & Predictions in Ransomware

KEY HIGHLIGHTS

• Multi-city evening conference • Leadership Keynote & Panel Discussion • 30+ Cybersecurity experts
• Policy makers • Networking lounge • Meeting lounge • Live Demo Zone for product showcase
• Live Social feeds, polls & feedback • Focussed communications

WHO SHOULD ATTEND?

• Policy Makers/Cybersecurity from central & state government departments. • CXO from large enterprises
• Owners, Key decision makers from SMB's • CISO, CISA from large & medium enterprises
• IT& Security Heads, IT Influencers, Opinion makers • Developers, Security experts
• Academia's • Start-ups & Consultants

CONNECT WITH OVER LEADING SECURITY PROFESSIONALS & TECH DECISION MAKERS AT THE MULTI CITY CONFERENCE, WRITE TO US:

Partnership & Alliances
Rajiv Pathak | Sr. Manager, Marketing
rajivp@cybermedia.co.in | **+91 8010757100**

Registrations & RSVP
Ravi Kant | Sr. Manager, Operations
ravik@cybermedia.co.in

LT GEN DR S P KOCHHAR

5G ERA WILL PLACE SKILLING ON THE FAST LANE

The next-generation telecom network will drive growth across sectors, creating new opportunities and better job options in India

India successfully launched 5G in the country last year, becoming one of the 95 nations to achieve this feat. With ultra-low latency and high data speed, 5G is on its way to becoming an extremely reliable communication system, connecting every corner of rural and urban India and seamlessly transferring real-time information.

The launch of 5G has also amplified the demand for a wide array of skilled manpower to meet the nation's deployment needs. Estimates by staffing firms indicate that 5G services in India will likely create a demand for up to 45,000 jobs by the end of this financial year. The mere anticipation of the 5G rollout has already resulted in 80,000 5G-related hirings in the calendar year 2022.

As per TSSC, India may require an estimated 22 million skilled workers possessing 5G-related competencies by 2025. It is also likely to generate direct and indirect job opportunities significantly, thereby opening new avenues for people and businesses with the potential to change

> Unlike the pre-covid era, 5G will ensure greater access and a superior experience in the corporate world.

> There will be a 20% rise in the hiring of networking engineers, AI/ML experts, UX designers, cybersecurity specialists, data scientists, and data analysts.

the economic landscape of India. The hike in demand for 5G-related skills is not just limited to the telecom sector.

Various applications of 5G will also necessitate skill development and specialisation across diverse functional areas, including resources for sectors like education, healthcare, agriculture, manufacturing, energy and utilities, retail, financial services, logistics and transportation, mining, automobile, media and entertainment, etc. In effect, 5G is expected to trigger societal transformation in India by strengthening the use of ICT across sectors and thereby propelling Industry 4.0 and value creation to the next level. As a result, India will witness a thrust in the economy, access to the international markets, and most importantly, new tech-focused job opportunities.

NEW JOBS, NEWER OPPORTUNITIES

Hiring for job roles like networking engineers, Artificial Intelligence and Machine Learning (AI/ML) experts, UX designers, cyber security specialists, cloud computing experts, and data science and data analytics experts are expected to see a 20% rise quarter-on-quarter, as per experts. Sensor-based crop monitoring, remote equipment control, energy management, surveillance and smart transportation are some other applications that might prove to be a game-changer with increased coverage and technology in India.

Major demand for these experts will come from Industry 4.0 and smart city use cases for the Internet of Things (IoT), Augmented Reality, Virtual Reality (AR/VR), and AI that will be enabled by 5G. Currently, around 44% of 5G applications worldwide are found in the above segments. These 5G-induced job opportunities are likely to sustain over the next few quarters, with companies focusing on skilling and upgrading their workforce.

From the perspective of enhancing digital prowess, skills in areas such as secure network architecture design, AI/ML, Big Data analytics, programming, cloud computing, IoT, DevOps, automation and orchestration, open-source software, and electrical engineering fundamentals would be crucial to achieving a globally competitive position for India. A key resource requirement to emerge in 5G is also that of data science professionals.

Besides the technical aspects of network planning, deployments and operations, a radical increase in the use of coders, data analytics, data management, etc. will be needed for the next generation of networks. This will become vital as the AI and software would need real-time, rapid interpretation and use of data to translate into meaningful applications and interventions in the operational sphere. This will also open up the gates for a new breed of skilled professionals for assuming important roles and responsibilities at different levels, generating both employment opportunities as well as skill development initiatives.

> The Department of Telecommunications will train over one lakh youth in 5G and allied technologies over the next three years with the support of industry bodies.

The rapid advancement in technology is also leading to an increase in demand for efficient and qualified Cybersecurity professionals, to safeguard the networks and applications of the future. Rising methods and incidences of cybercrimes and frauds make it imperative to build robust, scalable and continuously upgrading defence systems and mechanisms to curb this global menace. Cybersecurity and resilience would be crucial areas for skill development as well as rising employment opportunities in the coming year, not just for telecom, but the entire digital ecosystem in the country.

FACILITATING MULTI-SECTOR GROWTH

The Department of Telecommunications exhorted the telecom industry to make all-out efforts to enhance and deepen the skilling initiatives that will meet the evolving needs of the sector. The government recently announced setting up a task force to develop highly skilled workers and designers in the telecom sector. A skilled workforce and their empowerment in the sector will surely serve as an effective and efficient facilitator for all other segments, given the use cases of 5G across industries. With the advent of new technology, skilled workers will be capable of accomplishing complex tasks and facilitating the longevity of the systems.

Unlike the pre-covid era, 5G will ensure greater access and a superior experience in the corporate world; be it entry-level candidates looking to equip themselves with technical skills or experienced ones aiming to upskill or reskill to remain relevant, there is a widespread reliance on digital learning. Smarter training rooms and classrooms at professional training institutions will enjoy increased bandwidth, reduced latency, and more robust support for the security framework. Using digital training and skill assessment, platforms will be able to deliver a highly immersive, convenient, and memorable experience for corporate trainees.

Since last year (2022), employee training evolved to a greater extent as the workplace has become digitally complex. With 5G, companies will have significant leverage as the technology will help build possible remote workplaces. Similarly, it can improve employees' training experiences and allow them to learn new skill sets. The industry also needs to develop a pool of skilled labourers to accommodate 5G.

One of the best ways to do this is through internal education programmes. With optimum technical and managerial training, companies can update their employees to understand the new technology and give them the essential skills required to install it on a large-scale while being sensitive to the needs of each carrier.

The Union Budget 2023 also introduced some provisions which are expected to indirectly have a positive impact on the telecom sector. The budget emphasised on innovation, job creation and skilling, with a continued push towards Digital India. The announcement on setting up of three centres of excellence for AI and 100 labs in engineering colleges for the development of 5G applications will help in fueling the proliferation of the technology and its ecosystem in the country while augmenting the need and nurturing of skilled resources with expertise in these advanced technologies.

As has been evident in recent years, the telecom industry, which is the lifeline of the country, does not sit passively in the back seat of reforms but is rather progressing with zeal and intent, especially on the front of new technologies. The government has been highly progressive in its approach towards enabling the creation of a robust digital infrastructure and manufacturing ecosystem in the country, to expedite deployments and roll-out of pan-India services by the next year. Furthermore, the DoT will train over one lakh youth in 5G and allied technologies over the next three years with the support of industry bodies. With such initiatives, the industry will positively see India emerge as a digitally leading and economically inclusive nation shortly.

Lt Gen Dr Kochhar is the Director General of COAI
feedbackvnd@cybermedia.co.in

Unlocking the next phase in retail transformation

The wireless standard for Electronic Shelf Label can help retailers automate pricing, establish more efficient in-store operations, and higher shopper satisfaction

BY V&D BUREAU

The Bluetooth Special Interest Group (SIG) has released a new wireless standard for the Electronic Shelf Label (ESL) market. Until now, ESL systems have relied on proprietary protocols for wireless communication, presenting a potential barrier to global adoption. To address this challenge, leaders from the ESL industry teamed with the Bluetooth SIG to create a scalable, ultra-low power, highly secure ESL wireless standard based on Bluetooth technology.

Retail shelf pricing traditionally relies on error-prone, labour-intensive paper price tags and manual processes that sometimes had to be performed several times in a typical day. Electronic shelf labels are small, battery-powered e-paper displays that replace paper labels to present product and pricing information at the shelf edge and use wireless technology to communicate with a central hub to create a dynamic pricing automation network. ESL systems offer retailers the ability to automate pricing, establish more efficient in-store operations, and increase shopper satisfaction.

Automated Pricing: Historically, retail shelf pricing has relied on error-prone, labour-intensive paper price tags and manual processes that sometimes had to be performed several times in a typical day. ESL solutions help brick-and-mortar stores fully automate pricing strategies to display the right price at the right moment and enable seamless omnichannel retailing.

Better in-store operations: Manual inventory management slows operations, and undetected stockouts bite away at profits. ESLs can ease and expedite picking and fulfilment for click-and-collect shoppers while accelerating shelf stocking and replenishment to optimise product availability on shelves and avoid missed sales opportunities.

Improved customer satisfaction: A shopper's experience at the shelf edge is one of the most critical influences on a purchase decision. ESLs can provide always-accurate pricing, increased access to real-time promotions and product information, and a more gratifying omnichannel experience for customers.

"Retailers are increasingly looking towards Internet of Things (IoT) technologies to help them deliver operational

efficiencies, increase conversion, and to encourage customers to return to stores," said Andrew Zignani, Research Director, ABI Research. "However, some retailers have been hesitant to adopt ESL technologies due to concerns over vendor lock-in, interoperability, scalability, and the ability to extend this to other smart retail initiatives. The introduction of the Bluetooth ESL standard will help reduce potential obstacles for retailers looking to invest in IoT technologies and accelerate adoption and innovation."

Establishing a true, global ESL standard gives retailers the freedom and confidence to source ESL components from multiple vendors knowing each will work with the others. Besides, the standardisation at the shelf edge using Bluetooth technology will also benefit ESL developers, including economies of scale and better allocation of development resources. Bluetooth ESL products will leverage new features released as part of the Bluetooth Core Specification Version 5.4 as well as an upcoming ESL Profile Specification that defines how to use these new features to create interoperable ESL systems.

With over five billion products shipping each year, Bluetooth technology is the global standard for simple, secure wireless device communications and positioning. Since its formation in 1998, the Bluetooth SIG community has continued to expand the capabilities of Bluetooth technology by powering innovation, creating new markets, and redefining communication worldwide. It has already emerged ad the wireless technology of choice for developers in solution areas like audio streaming, data transfer, location services, and large-scale device networks.

feedbackvnd@cybermedia.co.in

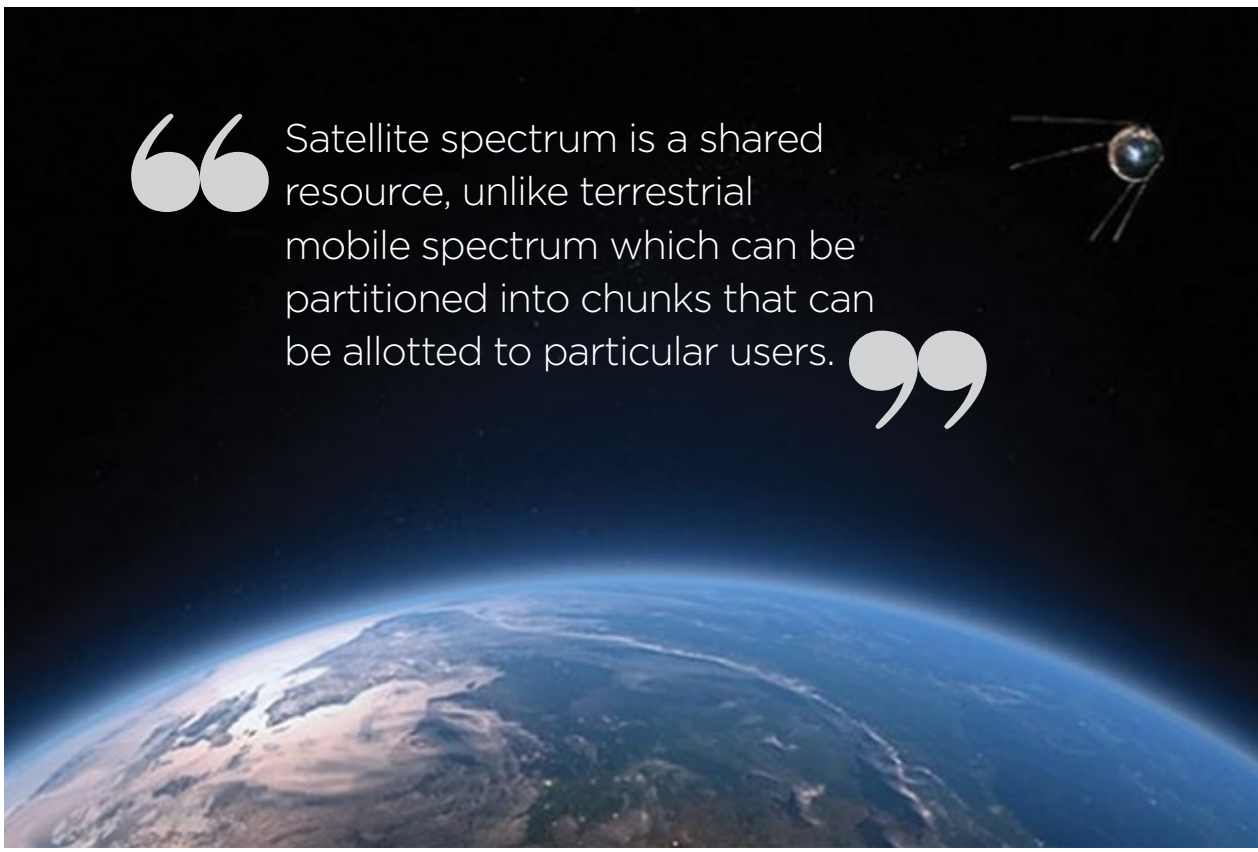
TV RAMACHANDRAN

PRIORITISE PUBLIC GOOD OVER EARNING REVENUE

Auctioning of satellite spectrum may not be the right choice for India. Here are a dozen good reasons for the country to reject the idea

Auctions are an effective, open and transparent method of allocating scarce resources in many, but not all, circumstances. One cannot for example think of auctioning a shared resource like air, water or roads. Similar is the case of the satellite spectrum. There are over a dozen strong reasons for India to shun the idea of putting satellite spectrum to any form of auction. Space activities are an area of high strategic thrust for India and it is therefore important to have a clear appreciation of the various facts about the issue of satellite spectrum auction.

Mobile spectrum and satellite spectrum are different and the latter is not an auctionable resource. Firstly, satellite spectrum is a shared resource unlike terrestrial mobile spectrum which can be partitioned into small or large chunks that can be exclusively allotted to particular users and therefore the latter can be auctioned. The



> Spectrum for satellite services is authorised for 'right-to-use' by all nations and is allocated at charges that essentially cover the cost of administration.

satellite spectrum is more akin to shared common resources like air, water, roads, etc. and it is unfeasible and impractical to consider auctioning it.

Mobile spectrum is auctioned by putting different chunks of frequency bands as separate auctionable quantities, which can be allocated to different winners. Satellite communication is completely different and follows different international norms and principles. Unlike terrestrial communications, where spectrum is allocated exclusively to the operator for a given area, satellite spectrum is shared amongst multiple operators in different orbital slots and hence does not even meet the fundamental prerequisite for auction. The sharing of satellite frequencies between operators is what results in large capacities being available over a given geography.

THE PERILS OF AUCTION

Auctioning will reduce efficiency and destroy the value of the satellite spectrum since it will result in the fragmentation of the satellite spectrum. This in turn will decrease throughput and data speeds in proportion to the fragmentation. In effect, this means a significant reduction in the efficiency of spectrum usage which goes against the most basic objective of any spectrum policy of enhancing the efficiency of usage and increased economic value.

It is important to understand that spectrum management is very different since the satellite spectrum has no national territorial limits and is coordinated and managed by the UN agency-International Telecommunications Union (ITU), and is subject to their Radio Regulations for satellite networks to operate without harmful interference. ITU define sharing conditions/criteria for satellite spectrum in their Radio Regulations (Article 9 of RR).

Spectrum for satellite services is authorised for 'right-to-use' by all nations across the world and is allocated only by administrative process, at charges that essentially cover the cost of administration.

Unworkable and complex rules: Satellite spectrum, if auctioned, would require a very complex and complicated set of rules for the coordinated operation of different satellites in the same spectrum band. This would be a veritable nightmare for spectrum administrators and as a result, no administration world over has ever auctioned this satellite spectrum.

International Learning: No administration has auctioned shared satellite spectrum; there have been a few cases of the auction of orbital slots but almost all of these proved unsatisfactory and were discontinued. For example, the US auctioned orbital resources for domestic DBS usage but discontinued the practice and enacted the Orbit Act in 2000 to prohibit auctions. Brazil too discontinued auctions and enacted a law to administratively assign spectrum in the year 2019 via Article 172 of Law No. 13,789 of 3 October 2019 as it put domestic satellite operators at a disadvantage. Similarly, the auction in Mexico failed and was discontinued in 2014, while Thailand scrapped the auction in 2021 since it got only a single bidder. UAE auctioned exclusive usage in L and S bands for mobile satellites.

Anti-competitive situation: Satellite spectrum, if auctioned, could create gatekeepers with chunks of spectrum. It should be noted that such gatekeepers could block the entry, both of additional terrestrial or satellite operators and create a serious anti-competitive environment. This goes against the spirit of enhanced competition and powerful and big players could effectively use this to block new entrants and fair competition. This is a serious concern.

Higher cost of services: Being mainly for rural, remote, and less affluent areas and for situations like disaster management, the pricing of satellite services has to be especially affordable. Auctions would inevitably result in exorbitant spectrum prices and significantly increase the cost of satellite services which the end consumer has to bear and this is in contradiction to the vision of the Prime Minister and the Government of India. Satellite services are like social welfare services and need to be nurtured in the public interest.

Investment risk, uncertainty: Any enterprise wanting to plan and establish a constellation of satellites for

> Auctions would result in exorbitant spectrum prices and significantly increase the cost of satellite services which the end consumer will have to bear.

providing broadband services in India cannot predict the cost of advancing these services unless there is prior participation and assignment of spectrum in an auctioning process. Hence, building and launching satellites can only be done after an auctioning process. This also means that the outcome of the auction may make it unfavourable for establishing Indian space assets to invest in a constellation for providing services, given the economics of spectrum and NGSO space assets. No investment can be sought for establishing space assets to provide broadband services due to the increased risk and uncertainty.

Impact on development: Satellite broadband is being deployed to serve the unserved and underserved areas of the country. For example, the government's decision to connect far-flung islands and border areas of the North-East through satellite broadband would be jeopardised if the spectrum bands for the satellite to deliver broadband were to be auctioned to service providers, who would like to use it for either terrestrial purposes or any other application. Such a move would be counter-productive to the digital dreams of the country and run contrary to the objectives of inclusivity and Sabka Saath, Sabka Vikas.

Impact on space startups: India presently holds barely 2% of the global revenues of the satellite sector. To meet the goal of achieving 10% of the sectoral revenues globally by 2030 and emerge as a leading digital economy, the role of budding startups is extremely important. This sector, comprising 104 startups, including 200 proposals under scrutiny, has started growing aggressively thanks to initiatives of IN-SPACe, ISRO, NSIL and DoT. If satellite spectrum is auctioned, it would inevitably stifle the growth of the sector as well as the existing satcom players who would not be able to bear the exorbitant prices of the spectrum that will be driven by deep-pocket entrenched companies.

A common misunderstanding is that the Supreme Court has mandated spectrum auctions in all situations. Instead, the apex court said in its advisory jurisdiction in the Presidential Reference in the 2G case that, "Auction, as a method of disposal of natural resources, cannot be declared to be a Constitutional mandate under Article 14 of the Constitution of India." The Supreme Court of India further stated that "Auction may be the best way of maximising revenue, but revenue maximisation may not always be the best way to serve the public good." The Minister for Communications and Electronics and IT has also stated unambiguously that the public good is, without a doubt, enabling ubiquitous digital connectivity to empower the citizens and facilitate digital inclusion.

LEVEL PLAYING FIELD ARGUMENT NOT APPLICABLE

Vested interests push for satellite spectrum auction on the ground of a level playing field with terrestrial mobile operators. However, the latter aspect arises clearly from Article 14 of the Constitution which provides that equal treatment is guaranteed but only for entities placed in similar circumstances. Mobile operators and satellite operators are unequal in many ways.

Mobile operators have several rights like the Right to Interconnection, Right of Way, Right to Numbering Resources, etc. which gives them unique market powers. They serve the rich urban and other affluent sections and operate in a completely different layer of high revenue realisation. Satellite operators do not have these and are in a very weak commercial position serving the public interest of connectivity in remote and far-flung places where terrestrial connectivity cannot reach. They also help in disaster management. As per abundantly available case law, unequal cannot and should not be treated as equals. It would be grossly wrong and unjust if satellite operators were subjected to auction for spectrum just as the mobile operators.

India should, like other governments, use satellite broadband as a potent tool to bridge the digital divide and prioritise public good over earning revenue by using the administrative method and cost recovery principle instead of auctions for allocating and pricing satellite spectrum.

TVR is the President of the Broadband India Forum
(The views expressed are personal)
feedbackvnd@cybermedia.co.in

DATAQUEST 40 YEARS SINCE 1982
THE BUSINESS OF INFOTECH

CyberMedia

INDIA 2047

Insights from the visionaries and Leaders for the Next 25 Years of Indian ICT Industry and the Future of Emerging Technologies

CLICK HERE FOR UPDATES
https://bit.ly/3Y6fmnI

#DQ40Years #DQLeadership

Follow us: @dataquestindia

CyberMedia launched its first magazine in December 1982. Dataquest, India's oldest and leading technology magazine in India is celebrating 40 years of its journey.

Every month, check out for **[40 Listicles], [Cartoons], [40 years covers], [Yesteryears key market insights], [CXO's insights in next 25 Years]** of ICT landscape in India.

DATAQUEST CHRONICLED THE INDIAN ICT JOURNEY FOR 40 YEARS

- **1982** — CyberMedia launches Dataquest
- **1984** — The New Electronics Policy (NEP) unveiled in January 1984.
- **1986** — National Software Policy came to India
- **1991** — Liberalisation, National Telecom Policy, Internet came to India
- **2000** — India's exports of software services were just less than US $ 3 billion
- **2010** — Rise of Start-ups, Smartphones & Digital India
- **2017** — India exports around $100 billion in software services
- **2020** — New Education Policy, Covid came with UPI and e commerce Boom
- **2022** — India's technology industry expected to reach $227 Bn in revenue

JOIN DQ 40 YEARS CAMPAIGN, SHARE YOUR ICT JOURNEY WITH THE INDUSTRY

Be a part of Dataquest 40 Years Celebration!
Write to us : Rajiv Pathak I Sr. Manager, Marketing I rajivp@cybermedia.co.in
Get your special DQ 40 years subscription offer: *https://bit.ly/3Z0AiON*

Exotel offers Ameyo XTRM contact centre solution

Full-stack customer engagement platform Exotel has launched Ameyo XTRM, a cloud-based omnichannel contact centre solution for 99.5% uptime. The new solution is a pure cloud-based enterprise product running on top of the company's scalable Communications Platform as a Service (CPaaS) that supports up to 35 million calls per day and billions of calls in a year.

Ameyo XTRM can support large volumes of voice communications for up to 20,000 agents and supervisors per enterprise at a time, the company stated in a press release. It is equipped with AI-powered bots acting as the first line of customer engagement before agents need to intervene, reducing the dependence on agent intervention and improving their productivity. This will enable agents to focus more on complex queries. In situations where the bot finds a query challenging to handle after a particular point, it is supported by a seamless bot-to-agent transfer.

Ameyo XTRM is also equipped with a pan-India Unified License Virtual Network Operator (UL-VNO) and offers fully compliant bundled telephony services as per telecommunications regulations. Besides, it is quick to deploy and does not require implementing or updating legacy infrastructure to begin incorporating it into CX practices. It can help enterprises move their software

and telecom infrastructure completely to the cloud in a compliant way enabling agents to work from anywhere. This will help enterprises consolidate communication management processes into a single platform. Companies will now be able to stay cost-effective while scaling up their customer engagement rapidly and reliably.

The cloud contact centre market is undergoing significant transformation, with Gartner predicting that by 2024, 85% of customer support operations will be driven by cloud-based infrastructure, up from less than 20% in 2019. The growth is influenced by increasing migration from on-premise to cloud models in emerging markets, as well as a proclivity towards AI-based interactive tools for quick customer resolution.

TCS to help Telefónica Germany build future-ready OSS

Tata Consultancy Services has bagged a project from Telefónica Germany to help the integrated telecommunications provider transform its end-to-end service assurance applications and processes within its Operations Support Systems (OSS) stack and enhance customer experience. The telecom operator selected TCS as its transformation partner to build a future-ready OSS that will help it offer customers a reliable, resilient, and secure network experience.

TCS will leverage best-in-class methodologies including Agile, DevOps, and Continuous Integration, Deployment, and Testing (CI/CD/CT) framework and its deep cloud expertise to modernise the OSS service assurance application estate using cloud-native technologies. It will also use Artificial Intelligence and Machine Learning to predict and pre-empt network faults. This will enable Telefónica Germany to implement zero-touch cloud-based operations and provide consumers with a more resilient network service. The

reimagined service assurance processes will result in faster turnaround times and a transformed customer experience.

Additionally, the new future-ready, simplified service assurance systems within Telefónica Germany's OSS landscape will help accelerate the launch of newer products, including new 5G-based growth areas, with near-zero downtime.

Siemens launches industry-ready 5G routers in India

Siemens has launched private industrial 5G user equipment, a critical component for the manufacturing industry in its digital transformation journey. The applications on industrial 5G offer long-term benefits to a wide range of customer segments that depend on a strong communication backbone such as intralogistics, autonomous machines, industrial edge, remote diagnostics, augmented reality, assisted work, wireless backhaul, edge computing and mobile equipment.

The industrial 5G routers Scalance MUM856-1 and MUM853-1 are the first industrial 5G routers from Siemens for enhancing mobile broadband transmission, massive machine-type communication, and ultra-reliable low latencies. The routers connect local industrial applications to public 5G, 4G (LTE) and 3G (UMTS) mobile wireless networks. The router can be used to remotely monitor and service plants, machines, control elements, and other industrial devices via a public 5G network offering more flexibility and higher data rates.

To ensure the connection of Ethernet-based subnetworks and automation devices, Scalance MUM856-1 supports Release 15 of the 5G standard. The device offers high bandwidths of up to 1000 Mbps for the downlink and up to 500 Mbps for the uplink – providing high data rates for data-intensive applications such as the remote implementation of firmware updates. Thanks to IPv6 support, the devices can also be implemented in modern communication networks.

Private industrial 5G will provide the connectivity backbone to enable digital transformation in the manufacturing sector and the equipment includes various security functions to monitor data traffic and protect against unauthorised access. For example, it includes an integrated firewall as well as authentication of communication devices and encryption of data transmission via VPN. If there is no available 5G network, the device switches automatically to 4G or 3G networks.

LEADS CONNECT LAUNCHES AGRANI AGRI PLATFORM

Agritech data, risk management, and financial services company Leads Connect Services introduced Agrani, an end-to-end SaaS-based platform developed for all stakeholders of Agriculture and Disaster Management. It aims to connect all dots spanning from farm to table in the agricultural spectrum for providing farmer-centric solutions using space tech analytics and Artificial Intelligence. The platform will provide advisories on weather, biophysical, and crop management practices, besides farm lending and insurance.

HCLT ACHIEVES APP SPECIALISATION IN GOOGLE CLOUD

HCL Tech has earned the Application Development Specialisation from Google Cloud for its success in building and managing applications using the best of Google Cloud technologies in both web and mobile environments. The recognition, which is a key milestone for HCL Tech's Google Cloud Ecosystem business unit, is given to partners for proven customer successes in Google Cloud service practices, leveraging demonstrated proficiencies in a specific industry, solution or product.

SOPHOS EXPANDS NEXT-GEN FIREWALL PORTFOLIO

Sophos has announced the expansion of its next-generation firewall portfolio with two new high-end, enterprise-grade XGS Series appliances. The new XGS 7500 and 8500 models provide performance and protection for large enterprise and campus deployments, broadening market opportunities for the channel partners that serve them. Sophos Firewall provides a more simplified, scalable and secure solution over traditional remote access VPN, and integrates with Sophos ZTNA under one unified management plane.

With 5G, India takes a big leap in mobile speeds: Ookla

India has jumped 49 places on the Speedtest Global Index, from 118th position in September 2022 to 69th in January 2023. According to a recently released report by network intelligence and connectivity insights provider Ookla, the median download speeds across India increased by 115% from 13.87 Mbps median download speed in September 2022 to 29.85 Mbps in January 2023. This puts India ahead of some of the G20 countries, such as Argentina, Mexico, and Russia, and its neighbours Bangladesh, Indonesia, Pakistan, and Sri Lanka.

The country is also catching up with the likes of Turkey with a 30.98 Mbps median download speed and ranks #65 on the Index. Similarly, South Africa with 34.71 Mbps and Brazil with 35.85 Mbps rank at #58 and #57, respectively.

The 5G investment made by the operators has also propelled an increase in 4G LTE speeds due to the modernisation of the underlying infrastructure. The report indicates that the median 5G download speed is 25 times that of 4G LTE (338.12 Mbps vs. 13.30 Mbps) while the median 5G upload speed is 4.5 times 4G LTE (19.65 Mbps vs 3.55 Mbps). It also points out improvement in LTE speeds for both Airtel and Jio in multiple cities as

they offload 4G traffic onto their 5G network, therefore reducing 4G network congestion.

Comparing the performance of Jio and Airtel, the Ookla insight report shows that in January 2023, the early adopters of Jio's 5G experienced speeds ranging from 246.49 Mbps median download speed in Himachal Pradesh to 506.25 Mbps in Kolkata while the Airtel's 5G early adopters experienced speeds ranging from a 78.13 Mbps median download speed in Kolkata to 268.89 Mbps in Delhi.

HDFC, Lulu Exchange sign MoU for remittance through mobile banking

HDFC Bank has announced that it has signed a memorandum of understanding with the UAE-based financial services company Lulu Exchange to enable remittances to India through the bank's online and mobile banking platform. The initiative will strengthen cross-border payments between India and the Gulf Cooperation Council region, HDFC stated in a press release. The bank said they will launch the RemitNow2India service for quick money transfers from UAE.

In the first phase, the partnership will draw on the Lulu Exchange's expertise and regulatory framework to launch RemitNow2India, a digital inward remittance service, which will allow individuals in the UAE to send money to any bank account in India via IMPS and NEFT through HDFC Bank's digital banking channels.

Commenting on the initiative, Adeeb Ahamed, Managing Director of LuLu Financial Group said that the partnership with HDFC Bank will enable Lulu's

remittance-as-a-service platform on their digital banking solutions. He further highlighted, "The UAE-India payments corridor is one of the largest in the world, and this partnership will build upon existing capabilities to ease money transfer for Indian expats living in the UAE while setting the foundation for the eventual integration of this service in other parts of GCC where we have a presence."

Snowflake launches data cloud for telcos

Snowflake has announced the launch of Telecom Data Cloud, an industry-specific version of its platform tailored for telecommunications companies. The Telecom Data Cloud is Snowflake's fifth industry-specific tool after a similar solution for financial services, healthcare and life sciences, retail and consumer goods, advertising, media and entertainment. The new offering unites the company's data platform, Snowflake- and partner-delivered solutions, and industry-specific datasets.

The Telecom Data Cloud helps telecommunications service providers break down data silos within companies and across the ecosystem, allowing organisations to easily and securely access data in near real-time, enrich it with Machine Learning (ML) models, and then share and analyse it to drive better decisions. With the Telecom Data Cloud, Snowflake and its ecosystem of partners can help telecommunications service providers accelerate digital transformation, enable superior customer experiences, and monetise new data services.

The new offering also helps maximise operational efficiency. With one unified platform, teams across IT, network engineering, data science, network operations, and product management can collaborate using data to improve planning, make faster business decisions, rapidly respond to customer needs, better manage network resources, and reduce the time to market for new services.

Mobile devices and broadband connectivity are now part of every aspect of day-to-day life, with the telcos driving growth, innovation, and disruption for all global businesses, especially in rapidly growing industries such as video streaming, the Internet of Things, and virtual and augmented reality. The revenue shift from traditional products to innovative cross-industry collaboration solutions requires an evolution of the telecommunications business model. To stay ahead, telecommunications companies must transition away from complex legacy technologies to modernise their networks and deliver value to partners across industries.

INFOSYS ROLLS OUT PRIVATE 5G-AS-A-SERVICE

Infosys has rolled out a Private 5G-as-a-Service to offer a pay-as-you-go solution for enterprises looking for high bandwidth, low latency, and reliable wireless connectivity. It incorporates Multi-access Edge Computing to reduce network lag by minimising the time required for data processing. This enables a much more reliable network operation for high-bandwidth use cases such as autonomous vehicles, drone-based real-time analytics, high-definition media, video analytics, and metaverse solutions.

STL ADOPTS SCIENCE-BASED TARGET INITIATIVE

Optical and digital solutions company, STL, has announced the adoption of the Science-based Targets initiative (SBTi) for transparent and granular carbon monitoring, control, and disclosure. The initiative underscores the company's ambition to become Net-Zero by 2030 and drive towards UN SDG. SBTi is a global body enabling businesses to assess the complexity of ICT and quantify its impact on the environment. STL is now among the 0.01% of the Indian companies that have committed to SBTi.

APRECOMM BAGS MAURITIUS TELCO PROJECT

Network intelligence company, Aprecomm, has signed an agreement with Mauritius Telecom to deploy its AI-enabled network intelligence solutions to enhance visibility and optimise its residential Wi-Fi connections. The deal is expected to impact Internet users from over 3,00,000 households as it enables Mauritius Telecom to bring proactive network intelligence transformation to improve customer experience and drastically reduce the time for resolution of customer–end issues across their broadband network.

SORRY, SHAKESPEARE! LABELS DO MATTER

Even as Made-in-India equipment is making its way into the world market, the country has to catch up a lot and gain market trust before it becomes a global player

BY PRATIMA HARIGUNANI

Twenty years back a child could be left with a gadget for hours altogether. The engineer inside would break the grown-up toy apart, piece by piece, component by component while enjoying every bit of this exercise. Today, perhaps, it would not be so much fun. Most components come from the same side of the atlas. Most components are hard to distinguish or separate. And most devices refuse to even open in the first place.

Maybe, this game could change ten years from now and the child in India would revel in the excitement of counting how many components are labelled Made in India. While India is focusing on becoming the global hub of manufacturing, especially high-tech hardware and equipment, providing tax incentives and drafting new policies, the 'maybe' still seems years away.

Reports indicate that between April and December 2022, Apple exported more than USD 2.5 billion worth of iPhone handsets from the country, almost double its shipments in the previous fiscal year. If we look at the company's main manufacturers, Foxconn Technology Group and Wistron Corp, the export figure crossed over USD 1 billion worth of iPhone handsets each from India. This corroborates the country's hardware assertiveness on a global scale.

Interestingly, the top 10 global original equipment manufacturers (OEMs) decreased their chip spending by 7.6% and accounted for 37.2% of the total market in 2022, according to Gartner. There were signs of a weakened demand for smartphones and PCs in 2022 due to global inflation and recession pressures. Analysts noted how the zero-COVID policy in China led to serious material shortages and short-term disruptions to the electronics supply chain. There was a lingering semiconductor shortage in the automotive, networking and industrial electronics markets, which raised chip average selling prices (ASPs) in these markets. There are ample pockets of opportunity in these market changes if India can latch on to the right seat.

> One of the key changes required is the development of manufacturing hubs in tier-2, tier-3, and rural areas of the country. This will create economic and business hubs in these regions, reducing the burden on urban areas where the infrastructure is already overburdened.

THE INDIA TELECOM STACK

4G and 5G Core

- Complete 4G and 5G Non-Stand Alone and IP Multimedia Subsystem (IMS) solutions.
- 5G Stand Alone is expected to be ready for deployment by the end of the year 2023.
- 4G and 5G Core is a cloud-based converged, 3GPP compliant, scalable core with a virtualised and modular architecture.
- It is interoperable with existing 2G/3G/IMS/ fixed-line nodes.
- The 4G and 5G core stack can be deployed in any commercially available datacentre as a network in a box, a private network, or in a full telecom network.
- The 4G and 5G solution has the needed Service Capability Exposure Function (SCEF) and the Network Exposure Function (NEF) for integration with IoT devices and applications.

4G and 5G Radio Access Network (RAN)

- Indian companies have built 4G Radio Access Network (RAN) equipment in various bands that meet the requirements of operators, railways, defence and other segments.
- The RANs are carrier-grade and 3GPP compliant.
- The radios are likely to be deployed in the BSNL network.
- India has also developed various flavours of 5G RAN in lower, mid and high bands.
- Made in India 5G RANs are based on open RAN architecture and offer an open interface.

Rajeev Khushu, Chairperson of the India Electronics and Semiconductor Association (IESA) applauds that iPhone manufacturing is moving in the right direction. He feels that the country is about to see more devices from this company, and who knows from Google, coming out of India soon. The dip that was seen in some smartphone sales is not a dampener for the India story; it is just another aspect of the signs of a recession. Overall, the India story is on the right track.

"Many electronic products are becoming part of the Production Linked Incentive (PLI) scheme. I am optimistic that the China+1 trend will be a global wave and that India will emerge as a strong answer and opportunity. It's a big positive flip and a strong tailwind for India. The 9% dip in overall semiconductor consumption compared to the previous year is in light of global consumption patterns and not India-centric. This is a temporary blip and I see a strong solid India story ahead," he says.

THE POLICY PUSH AND MARKET DEMAND

Rodney King, Vice President, Network Cable and Connectivity for APAC at CommScope highlights that during the last several years, India has seen drastic developments across industries, including communication and connectivity. "India is the world's second-largest telecommunications market, and according to Frost & Sullivan, the Internet of Things market in the country is projected to reach USD 9.28 billion by 2025. This growth and the country's push for self-reliance are rooted in several government programmes like Digital India and Make in India."

He further explains that fast digitalisation across industries has become the primary element to fuel the expansion of the telecom equipment industry. "With the launch of 5G in India, the government has launched a programme to develop indigenous 5G technologies and standards. These initiatives have led to establishing new manufacturing facilities and expanding existing ones," he says.

"The National Broadband Mission aiming to improve the quality of services for mobile and Internet, providing equitable access to broadband services across the country, including in rural areas may help to expedite the fibreisation of 70% of India's base transceiver stations or BTS by 2025, which will support an efficient 5G rollout," he says. As a result of these efforts, India has seen significant growth in the production of communications and connectivity equipment and devices.

According to the provisional data reported by the Department of Telecom, the country has manufactured telecom equipment worth more than Rs 9,000 crore with an investment of nearly Rs 420 crore. Besides, the quality of the make-in-India RFID tags, readers and other hardware used in asset management has also been recognised as impressive.

Peeyush Kaushik, VP and Head of Healthcare Innovation Centre (HIC), Philips points out that the Make in India initiative is impacting the medical devices sector as well. The company started manufacturing Radio Frequency (RF) coils used in Magnetic Resonance Imaging or MRI systems at its Healthcare Innovation Centre in Pune. "India has become the hub for manufacturing these MR coils for Philips globally and these products are also being supplied to other OEMs across the world," he says.

"Overall, India's efforts towards self-reliance are promising and will continue to propel the sector. Government policies and programmes are helping to lay a solid foundation for a more self-reliant telecommunication sector," King highlights.

THE IMPACT OF PLI AND DLI INITIATIVES

Until a few years back, India was heavily dependent on imports to meet its demand for hardware equipment and devices, especially in the communications and digital technologies space. However, it has come a long way in the last couple of years, thanks to the several initiatives and measures taken up by the government to reduce the dependency on foreign-made equipment and boost local manufacturing. "Atmanirbhar Bharat, the flagship programme of the Government of India, has resulted in the building of a strong 4G and 5G ecosystem in the country," says Amit Marwah, Head of Marketing and Corporate Affairs (CMO) at Nokia India.

He further highlights that the government has set out mega plans to establish India as one of the global manufacturing hubs for telecom equipment. "The Production Linked Incentive (PLI) scheme has been one of the most significant measures taken by India to enable and support local manufacturing for telecom and networking products. It has been instrumental in transforming the domestic telecom manufacturing sector and is also playing a crucial role in boosting India's export of telecom gear as well," he says adding that Nokia is one of the major investors and producers under the PLI scheme and has already exceeded its target under the PLI scheme for the first year of the programme.

"From a software standpoint, the Make-in-India policy gives the Indian government greater control in protecting its digital infrastructure from foreign threats."

Ramakrishna Murthy
General Manager (India) and VP - Technology Services (APJ & ME), Securonix

"There is a need to focus on building a skilled workforce and providing training programmes to enhance the skills of the existing workforce."

Tanmay Batabyal
Head - Marketing, Niral Networks

"I am optimistic that the China+1 trend will be a global wave and that India will emerge as a strong answer and opportunity."

Rajeev Khushu
Chairperson, India Electronics and Semiconductor Association

MILES TO GO BEFORE IT BEEPS

- Lack of skilled workforce in telecommunications
- Need for strong cybersecurity
- Inadequate and outdated power, transportation, and logistics infrastructure
- Lack of investment in technology and innovation, and manufacturing processes
- Tough competition from well-established strongholds in Southeast Asia
- Scalability and high-level engineering design work
- High import duties on essential silicon components
- Lack of regulatory framework for data protection and security

Adds Rajesh Kaushal, Business Head - Communication and Information Solutions, Delta Electronics India: "India currently imports all chips, and the market is expected to reach USD 100 billion by 2025, up from USD 24 billion today. However, India has recently launched several initiatives to increase domestic semiconductor chip manufacturing. The Union Cabinet has allocated an amount of Rs 76,000 crore for supporting the development of a semiconductor and display manufacturing ecosystem. As a result, significant incentives would be provided to firms to design chips."

He further points out that the country has launched the Scheme for Promoting Manufacturing of Electronic Components and Semiconductors (SPECS) to encourage the production of electronic components and semiconductors. Besides, it has also unveiled the Design Linked Incentive (DLI) Scheme that will help at least 20 domestic semiconductor design companies achieve a turnover of more than Rs 1,500 crore in the next five years. India's semiconductor consumption is expected to exceed USD 80 billion by 2026 and USD 110 billion by 2030.

"The design-led production-linked incentive (DLI) scheme, also referred to as PLI 2.0, aims to promote design lead manufacturing and offers additional incentives for products designed in India. The initiative is primarily aimed to support the local designing of telecom products and encourage R&D-driven manufacturing in India. It is poised to play a pivotal role in creating the entire Made in India value chain, from designing to manufacturing," Marwah adds.

Amit Chadha, CEO and Managing Director of L&T Technology Services concurs with others and adds that one of the most significant policy changes driving India's manufacturing growth is the National Digital Communications Policy 2018. "The NDCP 2018 aims to establish a vibrant and competitive telecom sector in India, with a focus on domestic manufacturing and reducing dependence on imports. The policy sets a target of achieving 100% domestic manufacturing of telecom equipment and aims to attract investments of USD 100 billion in the sector," he explains.

WHY DOES IT MATTER?

It is a huge market, period. According to figures from Invest India, the country adds up as the second largest in the world with a subscriber base of 1.17 billion as of August 2022, including wireless and wireline subscribers. With a rural teledensity of just 58.44%, India has a massive

untapped market with a lot of room to grow; particularly with the country aiming to become a USD 1-trillion digital economy by 2025.

Note that while the number of mobile towers shot up from 4,00,000 in 2014 to 6,60,000 in 2021 and the number of Mobile Base Transceiver Stations exploded by 187%, from 8,00,000 in 2014 to 2.3 million in 2021, the export of mobile handsets also doubled YoY in April-Oct racing past USD 5-billion mark within seven months. This is more than double of USD 2.2 billion that India clocked in during the same period last year. As per GSMA, India is on its way to becoming the second-largest smartphone market globally by 2025 with around 1 billion installed devices and is expected to have 920 million unique mobile subscribers, including 88 million 5G connections. The country added over 500 million new smartphone users in the last decade and is well on its way to crossing the 850-million smartphone users mark by 2026.

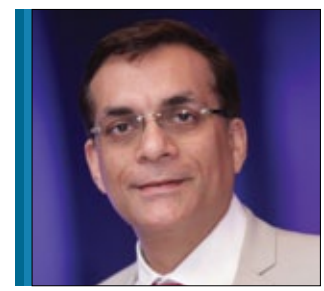
John Strand, CEO of Strand Consult minces no words in calling a spade a spade and a processor as a processor. "We all agree that there is a risk associated with using Chinese telecommunications infrastructure and putting your data in a Chinese Cloud. The risk is a combination of China having the opportunity to shut down mobile networks and thus the digital infrastructure that is the foundation of modern society. In countries like India, there is a desire for the country to become self-sufficient in infrastructure," he says.

Kaushik observes how, for Philips, the manufacturing of these products under the 'Make in India' initiative reflects the positive impact of the programme on the medical devices sector. "The production of state-of-the-art medical devices locally ensures that the customers in India can benefit from standardised delivery timelines and affordability, without compromising on global quality standards. Apart from this, the R&D centre at HIC in Pune also supports global businesses for multiple product lines, including Precision Diagnostics and Connected Care."

Ramakrishna Murthy, General Manager (India) and VP - Technology Services (APJ & ME), Securonix highlights how from a software standpoint, the Make-in-India policy gives the Indian government greater control in protecting its digital infrastructure from foreign threats. "However, this also makes it important that the Indian government update its cybersecurity regulatory landscape with safeguards by passing the Digital Personal Data Protection Bill and amending the IT Act."

"India has become the hub for manufacturing Radio Frequency coils used in MRI for Philips globally and these products are being supplied to other OEMs across the world."

Peeyush Kaushik
VP and Head - Healthcare Innovation Centre, Philips

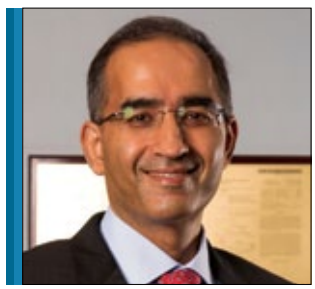


"Atmanirbhar Bharat, the flagship programme of the Government of India, has resulted in the building of a strong 4G and 5G ecosystem in the country."

Amit Marwah
Head, Marketing and Corporate Affairs (CMO), Nokia India

"The DLI will help at least 20 domestic semiconductor design companies achieve a turnover of more than Rs 1,500 crore in the next five years."

Rajesh Kaushal
Business Head - Communication and Information Solutions, Delta Electronics India



"The NDCP 2018 aims to establish a vibrant and competitive telecom sector in India, with a focus on domestic manufacturing and reducing dependence on imports."

Amit Chadha
CEO and Managing Director,
L&T Technology Services

In many recent events, the Telecom Minister has underlined the usefulness of initiatives like the comprehensive semiconductor programme, the creation of a pool of 85,000 semiconductor engineers, and the indigenous development of the 4G core network and radio network. Electronics manufacturing in the country is estimated at USD 75 billion and growing at a 20% CAGR. In November 2022, mobile phone handset exports were seen getting more than double YoY in April-Oct crossing the USD 5-billion mark within seven months. This was almost double of USD 2.2 billion that India clocked in the same period last year.

All of these are good signs.

But Strand also argues that the view especially politicians have on telecommunications infrastructure and especially on hardware shows limited insight. "The market for hardware, including infrastructure and end-user hardware, is not growing. It is not a very attractive market if you measure revenue and earnings. If it was so attractive, stocks like Nokia, Cisco and Ericsson would be extremely attractive. But they are not."

"If you want to be successful in the hardware market, you have to have volume (scale). Although the Indian market is large, it is not big enough to create alternatives to the big players that are created through a consolidation driven by the big telecommunications companies," he points out.

IS INDIA ALREADY THERE?

Overall, Make-in-India has helped India to improve its economy and attract investment from major international networking companies across the globe, but experts and industry veterans believe that the country needs to do much more and run more miles before it can become a formidable player in the global electronics manufacturing space and catch up with China and Southeast Asia.

"It will require significant time and bold changes in India's approach to the sector," says Tanmay Batabyal, Head of Marketing, Niral Networks. "One of the key changes required is the development of manufacturing hubs in tier-2, tier-3, and rural areas of the country. This will create economic and business hubs in these regions, reducing the burden on urban areas where the infrastructure is already overburdened. By developing manufacturing hubs in these regions, the government can also promote regional development and reduce regional disparities," he explains.

Another critical aspect is the modernisation of urban infrastructure. Indian cities currently struggle with inadequate and outdated infrastructure, which is a significant challenge for the electronics manufacturing sector. The government needs to invest in modernising infrastructure such as power, transportation, logistics, and communication systems to create a conducive environment for electronics manufacturing.

Additionally, there is a need for significant investment in technology and innovation to develop new products and manufacturing processes. The government can encourage this by providing incentives for research and development activities, promoting collaborations between industry and academia, and supporting technology incubators and startups. "The government needs to focus on building a skilled workforce and providing training programmes to enhance the skills of the existing workforce. This will ensure that the country has a steady supply of skilled workers to meet the growing demand in the electronics manufacturing sector," Batabyal says.

He further points out that there are several adjacent areas that India needs to bolster to support the growth of the digital infrastructure industry, including supply chain, factory automation, and consumer perception. "To bolster the growth of the digital infrastructure industry, India needs to focus on developing a robust supply chain infrastructure, investing in factory automation technologies, improving consumer perception, and developing a skilled workforce. These efforts would support the growth of the digital infrastructure industry and help India become a leading manufacturer of digital infrastructure products."

Adds Marwah: "India also needs to take additional measures such as providing greater market access to global manufacturers and OEMs. Reducing import duties on silicon components where there is minimal local production at present, enabling semiconductor ecosystem development, increasing ease-of-business in telecom product certification and approvals for faster time-to-market, etc. would help to further accelerate the entire process."

Ultimately, as Murthy ruminates, in a globalised world with shared Internet infrastructure and cloud computing, questions of cybersecurity will be determined more by technical concerns like the update on security protocols, data analysis tools, responsiveness capabilities and the extent of backdoor access. Strand also leaves a lingering thought: "The growth and value of the telecommunications world lie in software and services. India has many talented people and companies that have great international success. I am sure these are with me when I say that it will be bad business if they move into the hardware market, infrastructure, phones, etc."

Well, the idea of Made-in-India labels is not too far-fetched anymore. However, the child in a not-so-distant future may ask something difficult for the parent to answer: Is it Made-in-India or Made-by-India or Made-for-India? That answer is more than just prepositions. It would tell everything we need to know about India's self-reliance as well as its strength as a market and a brand in itself.

THE POSITIVE STRIDES

- Favorable regulatory conditions
- Impetus to indigenous companies
- Increased investment in the sector
- Employment opportunities for the masses
- Uplifting the production of electronic goods and equipment
- Reduction in import cost; saving the cost of the local companies
- Global quality standards at lower cost and better timeliness
- Geo-political security

With inputs from the Voice&Data team
pratimah@cybermedia.co.in

"PLI HAS TRANSFORMED INDIA'S DOMESTIC TELECOM MANUFACTURING"

AMIT MARWAH
Head, Marketing and Corporate Affairs (CMO),
Nokia India

How do you describe India's efforts toward becoming self-reliant in communications and connectivity equipment and devices?

The Government of India has set out mega plans to establish the country as one of the global manufacturing hubs for telecom equipment. Until a few years back, India was heavily dependent on foreign-made equipment to address the local\ demand for equipment and devices in the absence of a robust ecosystem. However, it has come a long way in the last few years, thanks to the several schemes and measures by the government to reduce the dependency on foreign-made equipment and boost local manufacturing. Atmanirbhar Bharat, the flagship program of the government, has resulted in the building of a strong 4G and 5G ecosystem in the country.

Today, the majority of the equipment for the ongoing nationwide 5G rollout, talking about Nokia in particular, is being manufactured locally. Not just that, we are also exporting 5G equipment to some of the most advanced markets in the world, from our Chennai factory. The structural, procedural and policy reforms are, for sure, playing a very significant role in creating a conducive environment to promote manufacturing and generate growth opportunities for the manufacturers.

What has been the impact of PLI and DLI initiatives by the government on the manufacturing of communications and connectivity equipment and devices in India?

The Production Linked Incentive (PLI) scheme has been one of the most significant measures taken by the government to enable and support local manufacturing for telecom and networking products. The scheme has been instrumental in transforming the domestic telecom manufacturing sector and is also playing a crucial role in boosting

> Nearly all 4G radios for the domestic market are manufactured locally at our Chennai factory and we aim to follow the same trend for 5G radios.

> Having a strong domestic manufacturing base enables Nokia to address the local demand, like 5G equipment for ongoing rollouts, much faster.

India's export of telecom gear as well. Nokia is a major investor and producer under the PLI scheme and has already exceeded its target for the first year of the programme.

The design-led production-linked incentive (DLI) scheme, sometimes referred to as PLI 2.0, aims to promote design lead manufacturing and offers an additional incentive, for products designed in India. The scheme is primarily aimed to support the local designing of telecom products and encourage R&D-driven manufacturing in the country. It is posed to play a pivotal role in creating the entire value chain, from designing to manufacturing, and Nokia is proud to be part of PLI 2.0 as well.

What initiatives has Nokia taken up towards meeting the Make-in-India goals and what are the products that it is manufacturing in the country?

Nokia's facility in Chennai, set up in 2008, is one of the largest Nokia-owned manufacturing facilities in the world. The facility is spread across 140,000 square meters and Nokia has made capital investments of over Rs 600 crore. The facility manufactures a wide range of telecom products and exports over 50% of manufactured equipment to global markets. The site has to date delivered close to 7 million units for global telecom needs. The factory was the first to deploy India's first 'real-world' application of Industry 4.0 including AR, VR, automation, and analytics, to enhance operational efficiency and productivity.

In February 2023, the company announced the extension of fibre broadband equipment manufacturing in India. The decision comes in response to increasing demand from local customers in India, as well as international markets. This further adds to our efforts in strengthening India's manufacturing capabilities and establishing it as a global manufacturing hub.

How has India's push for local manufacturing and indigenisation of communication hardware impacted Nokia's business?

From being the first to manufacture 5G NR in India to producing 5G massive MIMO products, Nokia has always relied on India's skill and talent to produce the best-in-class equipment. Nearly all 4G radios for the domestic market are manufactured locally at our Chennai factory and we aim to follow the same trend for 5G radios too. The fibre broadband equipment manufacturing, that we added recently, has further widened our portfolio. We are now able to better address the demand for radio and fibre broadband equipment in the region and worldwide.

We are the biggest equipment supplier in India, with a presence across all four communication service providers. Having a strong domestic manufacturing base provides us with a distinct edge as we can address the local demand, for instance, 5G equipment for ongoing rollouts, much faster.

What are Nokia's mid- and long-term plans for manufacturing in India and exports from the country?

We continue to seek opportunities to expand our manufacturing portfolio in India in line with the demand from various markets. We would continue to leverage our Chennai facility as a global hub to expand the company's production base and geographic reach as part of our mid- and long-term plans.

What additional policy supports does the industry need to make India a manufacturing hub for the world?

Nokia fully supports various government initiatives, including the PLI and DLI schemes that aim to establish India as the future global manufacturing hub. Additional measures such as providing greater market access to global manufacturers and OEMs, reducing import duties on silicon components where there is minimal local production at present, enabling semiconductor ecosystem development, increasing ease-of-business in telecom product certification and approvals for faster time-to-market etc. would help to further accelerate the entire process.

Shubhendu Parth
shubhendup@cybermedia.co.in

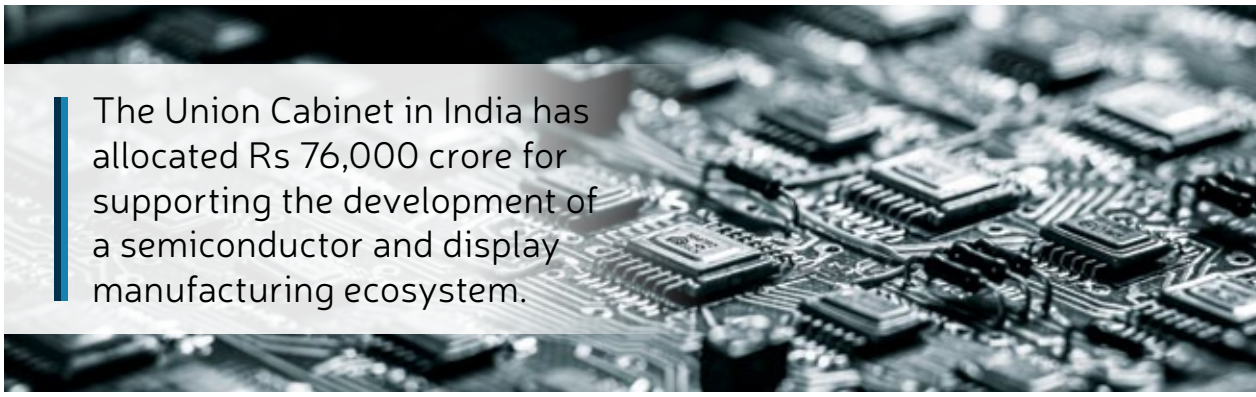
"DLI WILL HELP 20+ DOMESTIC SEMICONDUCTOR DESIGN COMPANIES"

RAJESH KAUSHAL
Business Head- Communication and Information Solutions, Delta Electronics India

The Made in India telecom equipment is slowly making inroads in the global market. How will you describe the change?

In the last five years, India has undergone a major technological transformation and emerged as the second fastest-growing digital economy, with Indian companies developing expertise in high-quality manufacturing across the value chain, from smartphone manufacturing to network equipment and optical fibres. According to the latest data for 2022, India holds a 21% share of global mobile data traffic and is second only to China.

The continuous increase in data demand is boosting smartphone sales. The Indian smartphone market was valued at USD 139 billion in 2021 and is expected to grow at a CAGR of 10.5% to USD 281 billion by 2028. The local optical fibre and accessories market is also expected to reach USD 1.66 billion by 2026, growing at a CAGR of 17.2% between 2019 and 2026. This provides an opportunity for the industry to emerge as the champion of the government's Make in India initiative, catering not only to the domestic market but also to export markets as the government negotiates trade agreements with major export destinations.



The Union Cabinet in India has allocated Rs 76,000 crore for supporting the development of a semiconductor and display manufacturing ecosystem.

> Delta Electronics has been producing the flagship DPR4000W rectifier for telecom applications locally in India for the last three years.

What has been the impact of various government initiatives on the telecom equipment manufacturing sector?

In terms of subscribers and Internet users, India is the world's second-largest telecommunications market. The Government of India intends to further strengthen the telecom sector by increasing domestic manufacturing, investment, and exports of telecom and networking products. India currently imports all chips, and the market is expected to reach USD 100 billion by 2025, up from USD 24 billion today. However, India has recently launched several initiatives to increase domestic semiconductor chip manufacturing.

The Union Cabinet has allocated an amount of Rs 76,000 crore for supporting the development of a semiconductor and display manufacturing ecosystem. As a result, significant incentives would be provided to firms to design chips. The country has also launched the Scheme for Promoting Manufacturing of Electronic Components and Semiconductors (SPECS) to encourage the production of electronic components and semiconductors. Besides, it has also unveiled the Design Linked Incentive (DLI) Scheme that will help at least 20 domestic semiconductor design companies achieve a turnover of more than Rs 1,500 crore in the next five years. India's semiconductor consumption is expected to exceed USD 80 billion by 2026 and USD 110 billion by 2030.

Please share details of the Make-in-India initiatives taken up by the company and the products that it manufactures in India.

Delta has a wide portfolio of products in the telecom domain including high-efficiency power conversion, power management and conditioning, power storage like lithium-ion batteries, and cooling solutions for outdoor applications like renewable and hybrid energy solutions. With a nationwide service network, Delta is powering telecom sites across India. We have been a partner in the journey of all Indian operators and tower companies for years, enabling them to build reliable and stable infrastructure.

The company is also a pioneer in providing power solutions to the majority of the telecom infrastructure players in India. Our solutions are 5G-ready to support India's 5G growth. The 5G network topology also requires a large number of small cells and in-building solutions. Delta has a power-efficient portfolio and large capacities to meet roll-out targets, including one of the largest service networks in India with 800 engineers for after-sales support. We manufacture several core components at the Krishnagiri Factory in Tamil Nadu while the final fabrication of power systems and solutions happens at the Rudrapur factory in Uttarakhand.

Delta Electronics India has been producing the flagship DPR4000W rectifier for telecom applications locally for the last three years. Besides, we are continuously qualifying new products for localisation requirements and have targets of producing all core components like rectifiers, inverters, lithium-ion batteries, and controllers in the country.

And what are the company's plans for the future, both in terms of manufacturing in India and exports from the country?

We are currently implementing a USD 500-million investment in Krishnagiri for a new manufacturing facility. The new facility will provide us with cutting-edge technology to meet domestic and global demand. Our investments in Tamil Nadu are consistent with the company's goal of supporting the Make in India initiative. In addition, we are investing in a new R&D building and headquarters in Bengaluru. In the short term, we want to accelerate our top-line growth by focusing on key segments such as electric vehicles, datacentres, and industrial automation, all of which have significant potential in India. We are already pioneers in telecom power solutions and display solutions. Furthermore, we wish to enter new segments and businesses in India because we have a strong inheritance of cutting-edge technology and power electronics from Delta worldwide.

Shubhendu Parth
shubhendup@cybermedia.co.in

"INDIA REQUIRES BOLD CHANGES TO CATCH UP WITH CHINA"

TANMAY BATABYAL
Head - Marketing, Niral Networks

How does India compare to other countries in terms of the indigenisation of products and driving local manufacturing in the digital infrastructure space?

India's efforts toward indigenisation and local manufacturing in the digital infrastructure space have been significant in recent years. The government's Make in India initiative aims to boost domestic manufacturing and reduce dependence on imports in various sectors, including digital infrastructure. However, India still has a long way to go in terms of indigenisation and local manufacturing in the digital infrastructure space. Countries like China and South Korea have established themselves as leading manufacturers in the sector, and their companies dominate the global market.

What about the country's recent push towards becoming self-reliant in hardware manufacturing, especially in the telecom sector?

India's efforts toward becoming self-reliant in communications and connectivity equipment and devices are aimed at reducing the country's dependence on imports, creating local employment opportunities, and boosting the growth of the manufacturing sector. The government has introduced various policies and initiatives to promote domestic manufacturing. The Production-linked Incentive or PLI scheme for the telecom and networking equipment sector was introduced in 2020 to incentivise domestic production of telecom and networking products.

It has also implemented policies to promote local manufacturing of electronics, such as reducing import duties on components used in manufacturing electronic products and providing subsidies for setting up electronics manufacturing facilities in the country. These efforts have started yielding results, with several global technology companies setting up manufacturing facilities in India and increasing their local production capabilities. There has also been the emergence of several domestic players in the sector, such as Tejas Networks and Sterlite Technologies.

But is the country ignoring upstream products while focusing on downstream and last-mile products due to marketing spotlight and margins?

There could be a tendency to focus more on downstream and last-mile products, such as smartphones and

> India must focus on improving the quality standards and certification processes for domestically manufactured components.

routers, due to the marketing spotlight and margins associated with these products. However, it is important not to ignore upstream products, such as semiconductors and components, as they are the building blocks of downstream products. Any disruption in the supply chain of upstream products can significantly impact the production of downstream products. For example, the global shortage of semiconductors has affected the production of various electronic products, including smartphones and laptops.

India has recognised the importance of upstream products and has implemented various policies and initiatives to promote local manufacturing of components and semiconductors. For example, the government's National Policy on Electronics aims to develop a strong ecosystem for electronics manufacturing in the country, including the development of a semiconductor fabrication industry.

So, can India catch up with China and SE Asia in this space?

Becoming a major player in the global electronics manufacturing space and catching up with China and Southeast Asia will require significant time and bold changes in India's approach to the sector. One of the key changes required is the development of manufacturing hubs in tier-2, tier-3, and rural areas of the country. This will create economic and business hubs in these regions, reducing the burden on urban areas where the infrastructure is already overburdened. By developing manufacturing hubs in these regions, the government can also promote regional development and reduce regional disparities.

Another critical aspect is the modernisation of urban infrastructure. Indian cities currently struggle with inadequate and outdated infrastructure, which is a significant challenge for the electronics manufacturing sector. The government needs to invest in modernising infrastructure such as power, transportation, logistics, and communication systems to create a conducive environment for electronics manufacturing.

Additionally, there is a need for significant investment in technology and innovation to develop new products and manufacturing processes. The government can encourage this by providing incentives for research and development, promoting collaborations between industry and academia, and supporting technology incubators and startups. The government also needs to focus on building a skilled workforce and providing training programs to enhance the skills of the existing workforce.

Has the country missed out on anything in its approach to improving the component side of manufacturing?

India has made significant progress in improving the component side of manufacturing, but there are still some areas that could be improved further. One area where India could focus on improving is the availability of raw materials and critical components required for manufacturing. Currently, India is heavily dependent on imports for critical components, such as semiconductors and display panels, which can be a bottleneck in the manufacturing process. To address this issue, it could focus on developing a domestic supplier base for these critical components, including investments in research and development activities to improve the quality of domestically manufactured components.

Moreover, India could also focus on improving the quality standards and certification processes for domestically manufactured components. This would help build confidence among manufacturers and consumers regarding the quality and reliability of domestic products, leading to increased demand and market share for domestically manufactured components. Additionally, the country could focus on creating a favourable policy environment that encourages investments in the component manufacturing sector, including tax incentives and subsidies for companies that invest in research and development activities or set up manufacturing facilities in India.

Shubhendu Parth
shubhendup@cybermedia.co.in

[TECHNOLOGY]
ARTIFICIAL INTELLIGENCE

Unleash the QE power to harness AI

Telcos and broadcasting companies must take up a continuous, incremental approach while adopting AI for driving operational efficiency and quality of service

BY SHEJU KHAN

AI was introduced in 1956 by John McCarthy who first coined the term Artificial Intelligence (AI) at the Dartmouth Conference in the US. AI has evolved over these years to its current form, where machines find the right solution for solving complex problems in a human-like way by perceiving, synthesising and inferring information.

Businesses across industries are experiencing significant investments in digital transformation to streamline their operations and provide superior customer experience. The digital transformation in turn led to faster adoption of emerging technologies like AI, Machine Learning (ML), Blockchain, the Internet of Things (IoT), and 5G among global enterprises and consumers to stay significant and differentiate their offerings.

Telecom is one of the most impacted industries due to the ongoing digital transformation. The global 5G technology market is projected to grow at a high CAGR of over 100% for the next 3-5 years. Applications of IoT, including Industry 4.0 facilitated through 5G generates massive volumes of unstructured data. Telecom operators face difficulties with this massive data produced by connected devices, customer behaviours, call data records, social media networks, etc.

AI for IT Operations (AIOps) is an emerging field that focuses on enhancing and optimising IT operations using AI.

Telecom operators deploy Big Data analytics and AI to extract insights that help in monitoring and diagnosing network behaviour for traffic and resource management and congestion control. Telcos also utilise it for preventive maintenance like AI-enabled closed-loop automation for fault management, for improving operational efficiency and quality of service (QoS/QoE management), and improving sales by combining customer demographic and past transaction data with social media monitoring, and providing a superior customer experience.

AI for IT Operations (AIOps) is an emerging field that focuses on enhancing and optimising IT operations using AI. Network security and sanctity are maintained through specialised AI by enabling AI at the edge as well as on the cloud. AI-equipped robotic systems are leveraged to provide personalised recommendations based on buyers' habits and preferences and improve pricing and restocking decisions. It also helps in reaching underserved or untouched markets and launching entirely new services to existing or new customers.

AI coupled with speech recognition has become a valuable tool in customer service management. To maintain revenue, it is essential to retain customers, where AI is used to predict customer churn.

> The operationalisation of AI systems comprises training and inference; QE must ensure that the training, as well as inference, is validated.

Many of the telecom AI use cases hold good for broadcasting as well, including personalised product placement and targeted campaigns and advertisements, other business insights, AIOps, personalised customer experiences, predicting customer churn, etc. AI has been successfully used for broadcasting-specific use cases to improve production efficiency like workflow optimisation, automated content creation, subtitling, translation, etc.

It is also used for improving customer stickiness since they have a limited attention span for the large volume of data and content, offering personalised and higher value (targeted) content distribution based on customer demographics, enhancing the audio and video quality, conversion of legacy content into modern featured content like old black and white movies being remastered, and optimising broadcast content quality at low bandwidth.

CHALLENGES IN AI ADOPTION

One of the key challenges for AI adoption is limitations in integration with legacy systems due to workflows, data management, and change control being out of sync with the requirements of AI systems. There may also be a conflict with management on the outcome and benefits, especially due to the disconnect between proof of concept and execution.

The quality of unsupervised input data – real-time, streaming data wherever required – from the enterprise's data infrastructure determines the efficacy of implementation. Finally, the suitability of the AI model to suit the production performance and scalability has to be well planned out.

QUALITY ENGINEERING OF AI SYSTEMS

Like any software application, Quality Engineering (QE) is crucial for the success of AI systems as well. However, QE for AI is not the same as traditional QE where there is one-time validation and deployment and forget until the next code change. AI systems on the other hand continuously evolve as it learns and hence must be continuously managed. The operationalisation of AI systems comprises training and inference; QE must ensure that both training and inference are validated.

The validation of AI systems includes validating the quality of training data for accuracy, bias, and variety. It also includes validation of the AI model and the algorithm for outcome, learnability, and efficiency, as well as testing of the interactions (source of data) such as sensors and testing integration of AI with the rest of the systems. It also includes the final validation of inference – every other validation and testing may be good; however, it may not pass the inference phase when the model is operationalised. Lastly, there is a need for key validation of performance and security or non-functional testing.

QE of AI systems come with certain challenges. Training data may be inaccurate and inadequate; AI systems are non-deterministic as they tend to show different behaviours for the same input. Training data must be routinely monitored and bias should be eliminated. Large training data may also make it difficult to extract specific attributes for inference. Continuous and sustained testing can also be challenging as new sets of training data are added to the AI systems and testing must therefore catch up to any new use cases that arise.

Overall, AI has covered substantial ground in the telecom, IT operations, and broadcasting areas. Since AI is evolving, there are specific challenges in the implementation of AI and the validation of the systems that use AI. Companies must take up a continuous, incremental approach to adopt AI systems that provide reliable output and user experience across their enterprise's technology landscape.

Sheju is SVP at Qualitest Group
feedbackvnd@cybermedia.co.in

DATAQUEST 40 YEARS

CyberMedia

DATAQUEST DIGITAL LEADERSHIP CONCLAVE

INDIA STEADY & TRANSFORMING THE WORLD

Coming Soon

Nominations open for the Dataquest Digital Leader Awards

Nominate Now: *dqconclave.com*

Follow us: @dataquestindia

#ictawards | #DQConclave2023

Dataquest is coming up with 30th edition DQ Digital Leadership Conclave & Awards. The aim of the conference is to focus on the government policy framework, enterprises focus, ICT market focus and the technology adoption with-respect-to the current market scenarios and their strategies towards the consumer market, B2B and B2C.

The discussion will also focus on the India's cybersecurity market, e-Commerce and digital payments, Health-tech, especially cloud-based solutions and remote diagnostics and telemedicine solutions, Emerging technologies like AI, Blockchain, Industrial automation including IoT and Industry 4.0.

KEY HIGHLIGHTS

- FULL DAY CONFERENCE & AWARDS
- 7+ SESSIONS [3 KEYNOTES + 4 PANEL DISCUSSIONS]
- 30+ SPEAKERS
- EXCLUSIVE CXO ROUNDTABLES
- SPEAKER'S LOUNGE
- NETWORKING ZONE
- EXPERIENCE ZONE/ DEMO ZONE
- LIVE SOCIAL FEEDS
- OPINION POLLS
- LIVE FEEDBACK & SURVEY
- 150+ ATTENDEES

For further information, write to
Rajiv Pathak I Sr. Manager, Marketing I rajivp@cybermedia.co.in I +91 8010757100

[COMMENTARY]
INDUSTRIAL 5G

Solution for the industry of tomorrow

The flexibility of 5G makes it the most versatile mobile communications solution for achieving the true potential of Industry 4.0

BY SUPRAKASH CHAUDHURI

Manufacturing companies around the world are under extreme competitive pressure due to shorter business and product lifecycles. To compete globally, industries must constantly improve their processes and find innovative ways to respond quickly to changing market requirements. New applications like Industrial Edge (IE), remote diagnostics and maintenance, autonomous machines, intralogistics, and Augmented Reality (AR) applications for service technicians promise major potential in this area.

Leveraging cyber-physical systems and striving towards more automation and autonomous decisions in environments such as smart factories, autonomous

> Industrial 5G is the response to a need for end-to-end wireless networking of production, maintenance, and logistics for improvement in efficiency.

> 5G is a milestone on the path to Industry 4.0, allowing smart factories to become more flexible and productive driven by end-to-end digitalisation and IoT.

vehicles, smart buildings, smart cities, and connected industrial applications, requires substantial resources to deal with the resulting amount of data that needs to be gathered, analysed, and transferred. The success of these applications depends on extremely reliable wireless broadband communication with the lowest possible latencies.

Thanks to reliable, powerful broadband transmission with massive machine connectivity and ultra-low latencies, Industrial 5G is the response to a need for end-to-end wireless networking of production, maintenance, and logistics, ensuring a significant improvement in efficiency and greater flexibility in industrial added value.

WHAT MAKES 5G INDUSTRIAL?

For most of us, the attraction of 5G or the fifth-generation technology for broadband networks for smartphone users is obvious. For example, it allows us to watch 4K videos wherever we want. But it is far more important for industry. It is a milestone on the path to Industry 4.0, allowing smart factories to become more flexible and productive driven by end-to-end digitalisation and the Internet of Things (IoT). Industrial 5G is 10 to 20 times faster than today's broadband technologies such as LTE or Long-Term Evolution 4G wireless standard and consumes a much lesser amount of energy per bit transferred.

Reliability and ultra-low latency are the most important factors for industrial applications. This makes it imperative for industrial customers to choose a different focus when setting up their 5G networks. These two different focuses lead to two different demand profiles: the public and the industrial.

Industrial 5G, as the name suggests, needs to meet the demands of industrial applications. It is based on the enhanced Release 16 or later of the wireless standard that supports the Ultra-Reliable Low Latency Communications (URLLC) scenario offering 99.999% reliability with a latency of a few milliseconds. Also, it runs on hardware designed for industrial environments that differ from consumer-based applications. Industrial 5G is run in a local private network and supports industrial protocols OPC Unified Architecture or OPC UA and a machine-to-machine communication protocol used for industrial automation, PROFINET, which is an open Industrial Ethernet solution based on international standards and safety norms.

Depending on the application, not all four of these aspects may be satisfied. For remote access via mobile wireless 5G networks, for example, Release 16 or a local private network are not essential. However, to operate a mobile robot, all four aspects must be covered.

NEED BOTH PUBLIC AND PRIVATE SPECTRUM

Unlike many consumer applications where the focus mostly is on high data rates, industrial networks tend to focus more on low latency and high availability. This is where private 5G networks step in since they can be configured to suit these requirements. Private 5G networks also offer data security; in a self-managed network, the data stays within the company, and the owner can decide where to process which data. In a private 5G, to achieve the URLLC the 5G core must remain in the OT environment. In turn, this also ensures privacy and data integrity for critical applications.

Hence it is also important that the private spectrum for local applications be established on the path to industrial 5G because only then can 5G-based technologies be successfully used in industry worldwide.

The benefits of private networks are obvious. Companies can track, store, analyse, control, and flexibly configure data traffic at their discretion. This allows them to guarantee the speed and reliability that their processes, including all their logistics and production sequences, require.

In addition to the need for local wireless connectivity, there is increasing demand for remote access to machines and plants. In these cases, communication is usually over long distances. Public mobile networks can be used to access devices that are located at a considerable distance, for example in other countries. In addition, service technicians can connect to the machines they

> Over the next few years, private 5G wireless networks will be set up at industrial sites where companies need robust, ultrafast networks with high bandwidth.

need to service via the mobile network while on the go. Hence Public 5G networks are also an essential element of remote access and remote servicing solutions. They can be used, for example, to provide users with very high bandwidths in urban areas with small radio cells and high frequencies. In rural areas, radio cells have to cover a large area, which is why lower frequencies are used.

At the edges of radio cells, like in the case of LTE or Universal Mobile Telecommunications System (UMTS), there are often significant losses in terms of both the bandwidth and stability of the communication connection. And it is exactly in these remote areas where stable bandwidth transmission is required for remote servicing or video transmission, for example for water stations. With innovative 5G communications technologies, considerably more bandwidth with greater reliability is available at the edges of radio cells and the average data rate for users within a radio cell increases.

THE STATUS OF 5G DEPLOYMENT

German companies like Siemens, Audi, Mercedes-Benz, and BASF, are already investing in 5G. The foundations for industrial 5G networks are also being laid elsewhere. Over the next few years, private 5G wireless networks will be set up at industrial sites wherever companies need robust, ultrafast networks with high bandwidth. From automated racking systems and production lines to augmented reality and robots, the new mobile communication standard will control millions of devices per square kilometre in real-time.

It is only a matter of time before 5G will establish itself in the industry. The flexibility of 5G with its different implementation approaches, private and public, makes this standard the most versatile mobile communications solution for achieving the true potential of Industry 4.0. Solutions previously not feasible are now within reach, and applications no one dared to think about can be realised soon.

Suprakash is the Head – Digital Industries at Siemens Limited
feedbackvnd@cybermedia.co.in

Focused Digital Campaigns...

PCQUEST

VOICE&DATA

DATAQUEST

DQ Channels

CIOL

"IN THE MIDDLE OF DIFFICULTY LIES OPPORTUNITY"

Enable your business in this challenging time with CyberMedia digital offering...

We ENGAGE with your AUDIENCE

Large Enterprise / Medium Enterprise / Small And Medium / Channel Eco-System / Start-up / Developer / End Cosumers / Gaming Community

HOW TO BETTER A DIGITAL BRAND STRATEGY

Branding

Response Generation

Webinar

Virtual Round Table

Custom Program

Virtual Event

Create a successful brand focused campaigns with :

Harminder Singh, Associate Vice President - Online Expert, harminders@cybermedia.co.in

"Quantum Internet can alter the way the Internet operates"

Sudhir Kunder, Country Director of DE-CIX India, *an Internet Exchange Point that claims to be India's first legally-compliant exchange shares his insights on the developments in the space, which is the backbone of every technology leap that the digital world is taking. In an interaction with* ***Pratima Harigunani,*** *he connects the lines across many industry circuits, from the Internet during the pandemic to emergence of IXPs in a space dominated by ISPs, evolution of peering, and the arrival of IoT and Edge. He also addresses debates like IPv6, OTT Internet payments, decentralised Internet and Net Neutrality.*

How do IXPs, edge computing, co-location centres, and the Internet of Things (IoT) affect the Internet landscape?

Internet Exchange Points (IXPs) increase Internet speed and reliability by enabling network operators to exchange traffic directly with one another, decreasing reliance on third-party transit providers. Instead of depending on centralised datacentres, edge computing pushes computation and data storage closer to the source of the data, resulting in quicker processing speeds and lower latency.

Colocation centres offer physical space for businesses to host their servers and other computer equipment, enabling them to connect securely and directly to different networks and service providers. With backups available at multiple colocated datacentres, resilience is increased and dependency on a single PoP is reduced. Technology has changed the Internet environment by making it more widespread, faster, and better connected.

What role do Peering and IXPs play vis a vis existing Internet Service Provider (ISP) infrastructure?

The current infrastructure of an ISP uses Full Duplex Internet bandwidth with no dedicated connections to the Content Delivery Networks, CDNs. Peering saves bandwidth, reduces cost, and makes the connection robust, resilient, reliable, redundant, and secure as there is no external interference. Also, since the data skips the public Internet traffic and travels directly to the peered CDN, the chances of a data breach are minimalised. Peering and IXPs usually make the Internet work better because they give ISPs a more direct and efficient way to exchange traffic than what they already have.

We at DE-CIX India have made sure that all of our Points of Presence (PoPs) are located inside datacentres that are present at strategic locations to make our Internet Exchange Services secure while offering the best latency.

So where does DE-CIX fit in this and what has been the impact of the market on the company's business?

From our modest beginning with only 74 connected customers in December 2019 until February 2023,

> Peering and IXPs make the Internet work better because they give ISPs a more direct and efficient way to exchange traffic than what they already have.

Sudhir Kunder
Country Director, DE-CIX India

we have come a long way, becoming India's Largest Interconnection Platform with 600 connected networks. Also, DE-CIX Mumbai is now the largest IXP in the Asia Pacific region, among 153 exchanges in 29 countries, and we have maintained this leadership in the industry for 17 months in a row.

Even during the pandemic, we were able to ensure that our services reached customers across all corners of not only India but also Nepal, Bangladesh, Bhutan, and Sri Lanka. We have been India's first legally-compliant exchange for a very long time. This became the reason for SMEs, SMBs, and telcos to trust us when we introduced DirectCLOUD in January 2021 while the world was transitioning from 'work at the office' to 'work from home'.

DE-CIX Global has set a new record with 48 Exabytes of data flowing across all our platforms, and the India operations has contributed significantly to this number. This has helped us uncover the true potential of fulfilling the latency and security demands of BFSI, agrotech, fintech, edtech, automation, manufacturing and distribution, pharmaceuticals, gaming, and OTT sectors.

What about the implications of IPv6 in the Internet market?

The adoption of IPv6, the most recent version of the Internet protocol, which resolves the issue of IPv4 address exhaustion and offers a much larger pool of address space, is anticipated to have significant effects on the Internet market. It will also accelerate development of the IoT and other technologies like Artificial Intelligence, Machine Learning, and Augmented and Virtual Reality.

And what will change with 5G and Metaverse?

The introduction of 5G is anticipated to spur the development of new services and applications, such as augmented and virtual reality, self-driving cars, and smart cities. A significant market could emerge for the shared virtual space of the metaverse as physical and virtual reality converge. The demand for new and more effective technologies and services, such as virtual and augmented reality, cloud gaming, and secure online identity solutions, is probably going to increase as the metaverse expands. Peering and cloud exchange services are examples of interconnection services that have been successfully used to accomplish this.

How much, and how soon, would Quantum Internet change the existing space?

By providing capabilities beyond what is possible with conventional information processing, the quantum Internet, which applies the concepts of quantum mechanics to transmit and process information, has the potential to completely transform the way the Internet currently operates. However, the creation of a full-

> The demand for technologies such as virtual and augmented reality, cloud gaming, and secure online identity solutions will increase as the metaverse expands.

fledged, global quantum Internet is still in its infancy and won't likely be fully developed for several decades. Many technical and practical issues still need to be resolved, such as creating a quantum memory with enough storage space and enhancing the effectiveness of quantum communication systems.

In summary, while the quantum Internet has the potential to fundamentally alter the way the Internet operates today, its full effects are likely to be felt only in the long run and will require decades of research and development to fully realise.

Would decentralisation of the Internet be a good move? Would it be practical?

Decentralisation is believed to result in a safer, more dependable, and more accessible Internet where users would have more control over their data and privacy. However, there are also real-world obstacles to the decentralisation of the Internet, such as the need for a sizable investment in technical know-how and infrastructure, the difficulty of guaranteeing a constant level of service quality, and the potential for a rise in management and administrative complexity.

Decentralisation of the Internet may be advantageous or detrimental, depending on the situation and the objectives being pursued. The specific implementation and the willingness of the various actors involved to cooperate and invest in it will ultimately determine whether or not it is practical. Until these arguments churn out a feasible result, DE-CIX has proven that it is the most trustworthy and reliable option available, with 40 Internet Exchanges, over 3,000 customers and 500+ datacentres with customers connected across 100 countries.

How well is the industry addressing issues like fragmentation, Big Tech dominance, data privacy, and security?

By creating cross-platform technologies and inter-connection agreements between ISPs and datacentres, for instance, the industry has made some progress in resolving the problem of fragmentation. To address this problem of Big Tech Dominance, the interconnection industry has been pushing for regulatory measures that safeguard consumer choice and privacy while also encouraging competition and innovation. Additionally, important concerns for the interconnection industry are data security and privacy. To protect customer data, businesses are investing in security measures like encryption and authentication. To ensure a safe and sustainable Internet for everyone, the industry must continue to cooperate and invest in solutions to these problems.

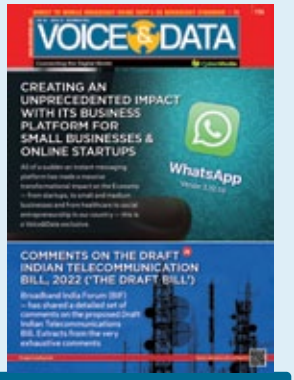
What are you excited about next, for your company and the industry?

To better serve our valued and expanding customer base, we at DE-CIX India are constantly looking for new ways to connect with the genuine problems facing the market and offer solutions. We have taken into account the needs and reliance on Microsoft services of SMEs, SMBs, and even ISPs that serve small businesses as they connect to us. For our connected clients to avoid public Internet traffic and maintain a secure connection to Microsoft 365 services with the least amount of latency, we will shortly launch maps or Microsoft assured peering services in India. We are coming up with new pops in Chennai, Bangalore, and Hyderabad.

We are delighted to inform you that DE-IX Global became the first to introduce 400GE access technology in Frankfurt, and they recently added 800GE access technology as well. This legacy of being one step ahead of our time and requirements is what we bring to India as well. As a result, we were able to provide services even during the pandemic, when even telcos could not fulfil the bandwidth requirements for domestic and commercial needs. Thus. we will continue to take leaps and strides towards fulfilling our dream of making interconnection available to everyone, everywhere.

pratimah@cybermedia.co.in

Yes! I want to subscribe to Voice&Data



Subscribe to Digital Edition @ ₹700/-

	Period	Issues	Print Subscription Rate		Digital Subscription Rate
			New	Renewal	
☐	1 year	12	₹900/-	₹810/-	₹700/-
☐	2 years	24	₹1,800/-	₹1,620/-	₹1260/- save 10%
☐	3 years	36	₹2,700/-	₹2,430/-	₹1680/- save 20%

or Subscribe online: subscriptions.cybermedia.co.in/voicendata

Please tick your subscription choice above, fill the form below in CAPITAL LETTERS and mail it to us at rse@cybermedia.co.in

☐ I want to avail premium service of receiving your copy by courier. Tick which ever is applicable.

☐ ₹ 500/- 1 year ☐ ₹ 950/- 2 years ☐ ₹1400/- 3 years

Name [•]: Mr/ Ms _____ **Date of Birth:** M M Y Y Y Y

Organisation: _____ **Designation:** _____

Delivery Addess: _____

_____

City: _____ **State:** _____ **Postal Code:** _____

Mob [•]: _____ **Tel:** _____ **Email [•]:** _____

GST No. [•]: _____ **PAN No. [•]:** _____

☐ **I am paying ₹** _____ **by DD/Cheque No.:** _____ **Dated:** M M Y Y Y Y

Payable at (specify bank and city) _____

OR

☐ **Please Remit for ₹** _____ **Through RTGS/NEFT to our A/C details given below:**

Bank Name: ICICI Bank Limited, A/c no. 017705000132, Branch & IFS Code: Gurgaon, ICIC0000177

[•] Essential fields

Signature _____ **Date:** M M Y Y Y Y **Subscription No. (for renewal)** _____

Order form can be mailed with payment (cheque/DD) to:

Sarita Shridhar, Cyber Media (India) Ltd, Cyber House, B-35, Sector 32, Gurgaon - 122001 Tel: 0124 - 4822222, 91+9810499208

Terms & Conditions:

• This offer is valid for a limited period. • Rates and offer valid only in India. • Please allow 4-6 weeks for delivery of your first copy of the magazine by post. • Send crossed Cheques in favour of Cyber Media (India) Ltd. • Please write your name and address on the reverse side of the cheque or DD. All outstation cheques should be payable at par. • Cyber Media (India) Ltd. will not be responsible for postal delays, transit losses or mutilation of subscription form. • Cyber Media (India) Ltd. reserves the right to terminate or extend this offer or any part thereof. The decision to accept or reject any or all forms received is at the absolute discretion of the publishing company without assigning any reason. • Please include pin code for prompt delivery of your copy. • In case payment is through credit card, date of birth must be mentioned. • All disputes shall be subjected to Delhi jurisdiction only.

Disrupting the automotive value chain

The Internet of Things, Car to Everything, Artificial Intelligence, and Augmented and Virtual Reality are shaping the automotive industry of the future

BY JOHN MARTIN

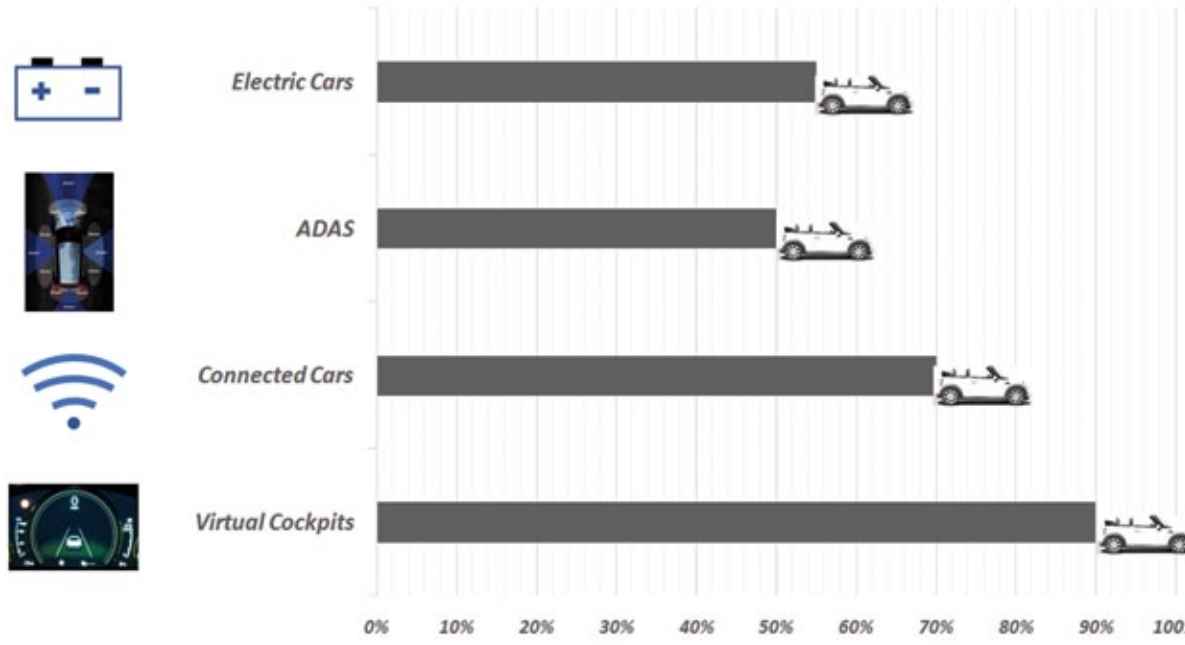
The auto industry is focused on driving innovations toward zero emissions. The rise of technologies, such as software-defined vehicles and architectures, Artificial Intelligence (AI), Augmented and Virtual Reality (AR/VR), cloud-connected mobility like the Internet of Things (IoT) and Car to Everything (C2X), green-alternative energy sources, and mobility infrastructure transformation are reshaping the future of the automotive industry.

CyberMedia Research (CMR) insight points to a gradual shift that is beginning to disrupt the whole automotive value chain through the improvisation of new technologies, cross-collaborations between tech companies of various verticals, and the rise of new mobility start-ups. It has also brought a new paradigm change at the demand level, where consumers, especially the early adopters, are now using these advanced technologies.

> C2X is the AI-driven vehicle-connected platform which has led to disruption at the digital level in the automobile industry.

IoT has made vehicles smart and efficient by communicating with others through in-vehicle smart computers and telematics systems like eSIM.

Market share of technologies used in passenger vehicles



Source: CMR India Auto-Market Review Report

With mobility being redefined, there is a need to highlight five technology trends disrupting the automotive industry. These holistic trends are bound to interconnect and support each other to deliver the best of the automobile experience.

TREND #1

Autonomy: With a purposeful vision, Autonomous Driving (AD) technology has been prioritised for safer driving. AD features will help minimise human errors with vehicle advancements to drive assistance and autonomy.

This innovative technology has evolved in such a vast spectrum, giving breakthroughs to cross-industry leaders and optimising automotive techs. This change has penetrated great ideas to develop AD feasible in vehicles using UV sensors, Hi-def cams, radars, operating systems (OS), and System on Chips (SOCs) hardware.

SAE or Society of Automotive Engineer International has pre-defined six levels of vehicle autonomy based on standardising safety features, called ADAS or Automotive Driving Assistance System, where Levels 4 and 5 define fully autonomous driving.

TREND #2

Connectivity: C2X is the AI-driven vehicle-connected platform which has led to disruption at the digital level in

> Virtual cockpits connect passengers to features like mobile connectivity, navigation, safety driving aids, surround camera display, and voice assistance.

the automobile industry. The IoT concept has made vehicles more smart, versatile, and efficient by communicating with others in the environment through in-vehicle smart computers and telematics systems like eSIM to provide continuous and real-time data information.

This seamless technology has been quickly adopted by automakers that helps fleet owners check and understand their vehicle and driving behaviour better through informed data that can track distance, estimate transportation time, and suggest convenient routes. It also allows personal vehicle owners to remotely connect their vehicles through mobile and smart-watch and command their vehicles. These include locking and unlocking, turning-on headlights, emergency calls, tracking of vehicles, geo-fencing, navigation, OTA, and service updates.

TREND #3

Electrification: The technology is considered a prime shift towards the future of automobiles. The industry has initiated the shift from Internal Combustion Engines (ICE) to Mild and Strong Hybrid Vehicles (M/S-HEV) and full electrification Battery Electric Vehicles (BEVs), keeping in mind a clean environment for future generations by reducing carbon footprints, emitting zero exhaust waste gas. EVs also benefit from ICE with low noise, high and linear torque, and better stability with a lower centre of gravity.

With government policy support through Faster Adoption and Manufacturing of Electric Vehicles (FAME) and tech optimisation, we can see technology disrupting with zero carbon footprint by powering renewable energy resources like hydrogen fuel cells, solar, wind, and hydro energy, and not relying on fossil fuel imports anymore.

TREND #4

Continuous tech innovation: Automotive Original Equipment Manufacturers (OEMs) are introducing new technology-driven mobility models with hardware and software innovations introduced through On-board Diagnosis or Over-the-Air updates.

These trends keep evolving. A few industry examples include software-defined vehicle architecture including zonal and central setup, EV battery techs from lead acid to lithium-ion, an in-vehicle experience like dual screens, larger screens, and augmented reality. It also includes Advanced Driving Assistance System Levels 0 to 2 and cloud-connectivity features from 2G to 5G.

CMR is bullish about these evolving automotive trends and technologies and expects them to be adopted at a very rapid pace. With the government's subsidies and policy support, one can expect a transformation in the auto industry with a 55% market share of EVs, 50% vehicles with ADAS, 70% with cloud connectivity, and 90% with virtual cockpits by 2028.

TREND #5

In-vehicle experience: Inside a vehicle, we can now witness a whole new level of advanced tech upgrades. These advancements allow the driver and passengers to fully connect with the vehicle through AI and use features with better convenience and a richer experience. This intelligent technology has replaced the old and traditional conventional instrument cluster with a dashboard filled with physical buttons.

The virtual cockpits are sections of screens like cluster and infotainment screens, depending on OEM dash design and rear infotainment setup. They are touch-sensitive and multifunctional and connect passengers to all vehicle features – from mobile connectivity, navigation, safety driving aids, surround camera display, voice assistance, entertainment apps and much more.

The technology has been developing at such a quick pace that in the coming years we can see the whole vehicle with a body designed – screens everywhere that will cover even basic functions – opening and closing of the door with fingerprint sensors, and gesture-based functions.

John is a Senior Analyst – Smart Mobility Practice at CyberMedia Research
feedbackvnd@cybermedia.co.in

VOICE & DATA

CyberMedia

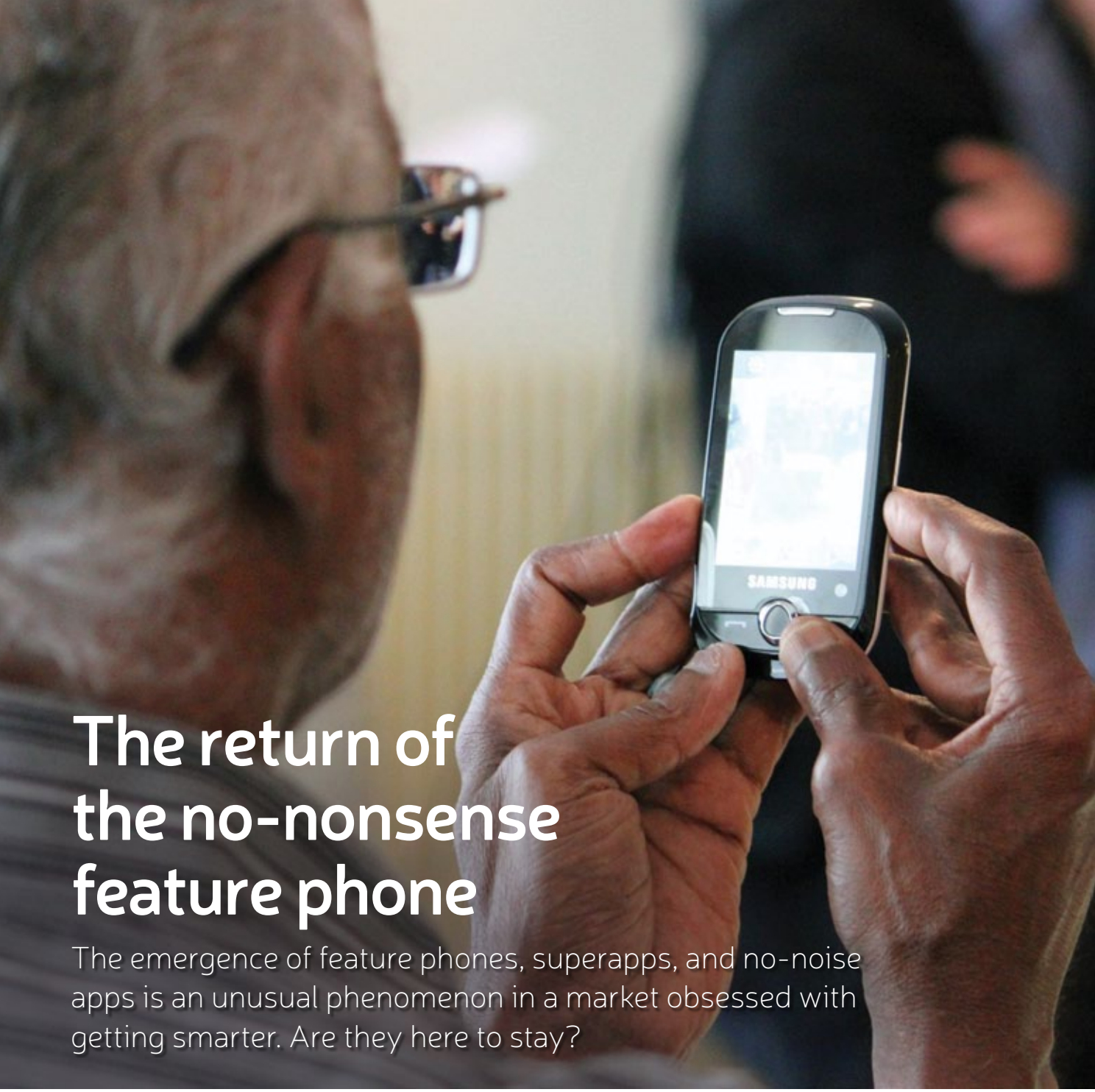
When it comes to higher recall, TRUST PRINT.

That's the power of print. In addition to 70% higher recall, according to neuroscience research it's proven that print content is 21% easier to understand and more memorable than digital media. That is why, print content connects with our brain more efficiently and effectively. So, choose to read newspapers.

INS

THE INDIAN NEWSPAPER SOCIETY

Source: Study by TrueImpact (A Canadian neuromarketing firm)



The return of the no-nonsense feature phone

The emergence of feature phones, superapps, and no-noise apps is an unusual phenomenon in a market obsessed with getting smarter. Are they here to stay?

BY PRATIMA HARIGUNANI

Packing Party! Have you ever had one? That's a big minimalism hack, which is all about packing all your stuff in cardboard boxes with your friends. From then on, you pick out things that you 'need' over a course of three weeks. That way you realise what is important for your life and practical existence, and what is just excess. This is a project that helps you clean up and de-clutter your mental, and physical space, alike.

When we look at dumbphones and minimal apps blossoming around in a world full of smartphones and huge social media apps, it's refreshing and intriguing to see that there are both makers and buyers for something so staple, so simple, so barebones. Is it because some people are waking up to fears of climate change, reckless consumerism, and over-stuffed lifestyles? Is it an attempt to reclaim mental peace and space from the forces of constant notifications?

> The benefits of feature phones and simple apps are beyond psychological and go way past a user's aspirations for simplicity.

Is it about minimalism, purpose, mindfulness, or conscious living?

FROM CONCEPT TO CARDBOARD

Remember the 2017 re-launch of Nokia's 3310 handset that was first released in 2000? It was not a one-off splash. If you have seen anyone carrying a Nokia-branded feature phone, including those throwback models from the 1990s, or a Jio Phone that has a chipset and an operating system in a traditional feature phone form factor, then you are already witnessing this cult trend gaining mainstream attention.

Your global counterparts are, similarly, enjoying the choice of having a 'nothing' or BoringPhone, or a Punkt or an Easyfone, or a Doro. They can also opt for a basic phone from French firm MobiWire with no smartphone functionality or something from the stable of New York Company Light Phone.

Let's face it, a lot of urban smartphone users are tired of unnecessary notifications and pings from different apps installed on their phones, points out Himanshu Jagdish Sheth, a tech blogger and an engineer who has previously had a good stint at a smartphone company in India. "Though there is a provision to mute app notifications, we cannot do away completely with smartphones. The harsh reality is that apps for online shopping, banking, entertainment, etc. are majorly available for smartphones. Digital fatigue, and the continuous pressure to stay connected with the online world, are surely having an impact on our cognitive abilities."

No wonder then that feature phones from prominent OEMs like Nokia and Samsung are surely back with a bang. "Someone (like me) who has witnessed the mobile phone evolution is sure to embrace the feature-phone comeback, solely to witness the feature-phone nostalgia trip. The excitement around the revival and launch of Nokia 3310 in MWC 2017 is a testimony that the feature phones are here to stay," Sheth underlines.

A good example of a simplephone from India is Easyfone, which has been designed especially for a specific age and purpose. MP Deepu, Co-founder and Chief Operation Officer of SeniorWorld (eNovus Enterprises) walk us through this idea: "It is important to redefine the retired person stereotype and enable them to live their life to the fullest. The vision is to enable India's seniors to lead more active, engaged, independent, and fulfilling lives. However, India's current ecosystem of products and solutions for seniors is completely unprepared for their burgeoning needs."

He further adds that there is a need to introduce and bring back the simplified formats of mobile devices for seniors as technology gets very overwhelming for them. To help the seniors overcome the challenge, his company introduced the product Easyfone in 2015. "Positioned as India's most senior-friendly phone that enhances their independence and safety, the brand has received good reviews as a mobile phone that they can operate easily; operating here means reading, dialing, typing, hearing, and calling for help, and having conversations with their families," he says.

> Out of USD 2.8 billion in revenue from the feature phone segment in 2022, a significant chunk, ~ USD 2.7 billion, is generated from India.

Ranjit Atwal, Senior Director Analyst at Gartner highlights that the trend towards feature phones is about efforts to reduce the cognitive load on people and change to notifications based on importance and real-time context rather than volume. There is also a sense of general awareness about de-cluttering life and work. It is about limiting time on devices, dependency on devices, and reducing the redundancy time spent on devices.

IN SHORT

- Feature phones, superapps, and simple apps are emerging as an alternative for different segments of customers.
- Minimalism, simplicity, and efforts for a digital detox from the use of devices and apps are driving the psychological need for the adoption of simple phones.
- Factors like ruggedness, long battery life, safety and security, specific field usage, and the need for a companion phone are the other drivers.
- The market is witnessing a lot of interest from major players like Nokia as well as from entrants like Punkt, Senior World, Easy Phone, Nothing, and Light Phone.
- Although they have a small slice of the smartphone market, simple phones can achieve a significant level if the right options and customer adoption support this market.

Muzammil Hassan, head of IP licensing and commercialisation at technology research firm GreyB avers that some customers are waking up to the need for simplicity. "Notifications at times can be clumsy. Data indicates that 0.5%-15% of users usually opt-in for notifications. At the same time, push notification increases the retention rate among users by 3 to 10 times depending on the industry," he adds.

Hassan also points out innovations that may help users better manage notifications, like the concept of superapp. "Nearly 72% of consumers want to use a superapp that can act as a one-stop shop for all user needs. This also means lesser notifications because usually apps adopt a few notifications each day or per week strategy. There are apps which help block non-critical notifications at the most productive time of the day. Freedom App is one such example."

Indeed, superapps are redefining application design and development. It's a way where users can pick one app to do most things that they would, otherwise, do with multiple apps and with a fragmented experience. According to Gartner, over 50% of the global population will be daily active users of superapps.

Sheth also explains why adjacent developments in the ecosystem are helping this new market. "Since Unified Payments Interface, UPI is so prevalent in India, first-time mobile (read feature phone) users can witness digital payments through the UPI123Pay service launched by NPCI. The best part about UPI123Pay is that users can perform digital payments without being connected to the Internet. As aptly mentioned on the website, UPI123Pay is a great step in strengthening the digital environment while also increasing financial inclusion."

"There is a close correlation between feature phones and nostalgia, hence it is more likely that users, particularly of the 1990s, who have witnessed the mobile-phone paradigm shift would embrace feature phones with open arms," he adds.

And is this nostalgia or pursuit of minimalism reflected in the market charts?

LAUNCHED IN 1994,

VOICE&DATA

IS THE LEADING TELECOM MAGAZINE IN INDIA.

FIRST CHOICE FOR MOVERS AND SHAKERS OF INDIAN TELECOM ECOSYSTEM

POLICY MAKERS, MDS/CEOS/CTOS/ CIOS/CDO'S OF SERVICE PROVIDERS AND ENTERPRISE USERS.

FOCUS AREAS

5G, BROADBAND & RURAL CONNECTIVITY, SMART CITY, INDUSTRY 4.0, OTT PLATFORMS, PRIVATE AND PUBLIC NETWORKS, TELECOM INFRASTRUCTURE, SPACETECH, METAVERSE, INDIGENOUS TECHNLOGY, MAKE IN INDIA AND ATMANIRBHAR TELECOM, PUBLIC WIFI, TELECOM STARTUPS AND MORE

TELECOM LEADERSHIP FORUM Analysis & Meeting of Telecom ecosystem under one roof

BROADBAND INDIA & CONNECTIVITY Analyses the changing paradigm in the Network and Telecom Infrastructure

GOLD BOOK Resource Guide for Telecom Infrastructure & Services

V&D 100 Annual Survey of Indian Communication Service Providers and Technology Providers

www voicendata.com

Follow us: voicendatadotcom, @Voice&Data, @VnDIndia, CyberMedia Webinar Series

Write to: Rajiv Pathak I Sr. Manager, Marketing, rajivp@cybermedia.co.in I +91 8010757100

The benefits of feature phones and simple apps go beyond the user's aspirations for simplicity; longer battery life, strong affordability, and high UI ease.

BREAKING THE WALL

At a glance, there seems to be a distinct segment that exists with a firm foothold in a market that has, so far, been defined by the latest processors, the meanest software, the sharpest cameras and the thinnest form factor. This is about getting lean and not thin. This is about simplicity. This is new. But beyond a quarter.

As per numbers from Million Insights, the global feature phone market size was valued at USD 7.3 billion in 2020 and USD 6.7 billion in 2021. It is expected to expand at a compound annual growth rate, a CAGR of 10.6% between 2021 and 2028. With the COVID-19 pandemic, the demand for feature phones had been steady. What pops loudly here is how Asia Pacific dominated the feature phone market and held the major chunk of revenue share, with more than 35% in 2020. There is a pattern of rising demand for feature phones from developing countries such as India and Bangladesh.

WHAT RINGS WELL FOR SIMPLE DEVICES?

- Ruggedness
- Ease of use
- Simplicity
- Digital Detox
- Companion phone usage
- De-cluttering goals
- Battery lifew
- Environmental-friendliness
- Security in a fraud-prone smartphone world

Take a look at the latest Omdia smartphone preliminary shipment report for the third quarter of 2022 and one can note that the global smartphone shipments of 301.2 million units signal a dip of 7.6% compared to the same period last year. Companies like Xiaomi, Oppo, Vivo, Transsion, and Realme registered a double-digit fall in shipments and reinforced the overall decline in global shipments. Maybe a smartphone's fall is a dumbphone's flight. Maybe not.

But this is a wave that is visible across the atlas. Google searches for dumbphones went up by 89% between 2018 and 2021, as per a report by software firm SEMrush. Also, a study by Deloitte in 2021 highlighted that one in 10 mobile phone users in the UK had a dumbphone. According to Counterpoint Research, feature phones eked out an average share of 2% in the US handset market. And their shipments have displayed consistency.

As per Statista, out of USD 2.8 billion revenue from the feature phone segment in 2022, a significant chunk, ~ USD 2.7 billion, is generated from India itself, cites Sheth. He further adds: "Considering its economical price point, featuresphones can be the first choice for users who are yet to experience the potential of mobile technology and the Internet."

As per IDC, the feature phone market was USD 1 billion in Q1 2022. Even if unit sales declined 28.5% YoY to 58.9 million units, the category still represents 16% of the total worldwide mobile phone sales. While Nokia remained the most-sold feature phone globally for recent quarters, in India other brands have been gaining a stronghold too. Like iTel, a phone brand under Transsion Holdings or Samsung, HMD Global, and Tecno Mobile.

There is a need to introduce and bring back the simplified formats of mobile devices for seniors as technology gets very overwhelming for them.

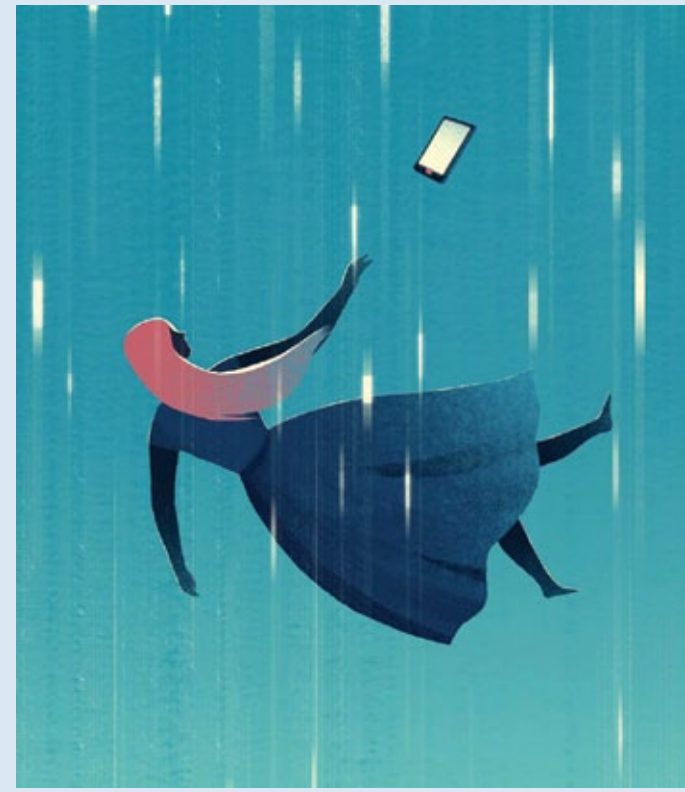
MP Deepu
Co-founder and Chief Operation Officer, SeniorWorld

As reckoned by Million Insights, the segment has drivers like rising economic uncertainty and unemployment rates due to the COVID-19 pandemic that affect customer buying patterns towards feature-rich and affordable products. This is where feature phones chime in.

IDC has identified that the top feature phone vendor for Q1 2022 was Itel Mobile. An IDC report says that the feature phone market grossed more than USD 1 billion. Nokia emerged as the most-sold feature phone globally in Q1 2022. There was however a dip in the number of units sold; it was 58.9 million. The decline from Q1 2021 was 28.5% but feature phones picked up 16% of the total mobile phone sales in Q1 2022.

SIMPLE OVER SMART

The benefits of feature phones and simple apps are beyond psychological and go way past a user's aspirations for simplicity, like longer battery life, strong affordability, and high UI ease. These devices have a lot of buyers in top-tier urban users and developed markets. Notably enough, they are also used as companion phones in the field or on travel as simpler communication devices; more so, with their extensive battery life. Million Insights augured that increasing investment by key players in the latest technologies to launch innovative and affordable products could fuel the industry sales, albeit, there are factors like the rising adoption of smartphones hampering the market. A growing middle-class working population in this region helps expand this market, especially with the presence of major feature phones manufacturers, such as Samsung Electronics, ZTE Corporation, and Micromax in the region.



IT IS TIME FOR A DETOX

- The growth of smartphone use and an increase in social isolation point to a fall in the mental health of young adults aged 18-24.
- Data shows that people have begun to spend 7-10 hours online.
- Over the pandemic, the mental well-being of each younger age group of adults fell much more dramatically than before.
- Young adults had the highest levels of psychological well-being before 2010. Studies indicate an opposite trend since the launch of mobile phones.

Source: Sapien Labs report

"Nearly 72% of consumers want to use a superapp. This also means lesser notifications because apps adopt a few notifications per day or per week strategy.

Muzammil Hassan
Head of IP Licensing and Commercialisation, GreyB

Their application is ready and simple in specific fields farming, mining, construction, etc.- the ones that require a tough phone in case of damage. Of course, some criminal usage, for anti-tracking use, with burner phones is also a form of usage.

The gutsy comeback of feature phones from prominent smartphone manufacturers is generating a lot of buzz in the industry, Sheth distils the buzz and chatter around this segment. "For the time being, feature phones would act as the best companions of smartphones as it helps in addressing digital detox. Music feature phones like the Nokia 5710 can act as music players for users who like listening to music while on the go. Expect to see more such feature phones that go beyond calling in the future."

Hassan also talks about how devices have come up with opt-in and opt-out features for notifications. "Almost every Android or Apple device now comes with subscription models which let users take control of notifications they want to see and at what time of the day," Sheth adds.

Even if the slice of these simple devices and apps in the overall pie is small, they are stirring the pot and making even the big incumbents sit up. Brands like Apple have started noticing the need for digital disassociation. There are now coming up with offerings like software updates and features to make it possible for even smartphone users to disconnect from apps and notifications and take a break.

Also, a rise in demand for mobile phones in a classical sense from Africa, Bangladesh, and other developing nations could expand the segment by 2028. Counterpoint Research indicates that although there will not be a significant spike for feature phones in the market, one cannot ignore the presence of consistent needs that create a steady demand for them in a smartphone-dominated market. Prepaid channels are expected to continue to sell these devices as they try to accommodate an affordable and durable option for people who only need a simple device.

IS IT A FLASH IN THE PAN?

Atwal argues that feature phones have a very small share of the market since 95% of all phones sold are smartphones. Entrepreneurs like Deepu, however, are not switching off their fervour. "We offer a range of mobiles that have been built with an inclusive design thinking process; big buttons, loud sound, effortless cradle charging, photo dial, external torch feature, etc. We also have a special model called Easyfone Star, India's first kids' phone-cum safety device. It has no Internet connection but allows GPS tracking as well as a discreet listening option which can help parents track their children remotely and keep them safe."

Sheth expects more urban smartphone users to use feature phones as a backup, with a secondary SIM in it, for the smartphones, since the battery lasts significantly longer. "Think of it as a phone for digital explorers who want to stay connected over phone calls with their loved ones. In totality, there is no way feature phones would overthrow smartphones but they will coexist. A price point like sub 5K or under 5K is the sweet pricing spot that would grab the attention of urban mobile users constantly on the lookout to break free from the digital loop," he argues.

From an urban smartphone user's standpoint, there is scope for increased feature phone adoption and it will be interesting to see if the need to go simple can translate into more market shake-ups. Perhaps, one day this trend would get big enough for someone to make an 'unboxing' video out of it. It would be something to see someone gasp and light up when what's inside the box is something you actually 'need', not just 'want'.

pratimah@cybermedia.co.in

CyberMedia

DATAQUEST

LAUNCHED IN 1982, THE FIRST IT MAGAZINE IN INDIA, DATAQUEST KNOWN AS **"BIBLE OF INDIAN IT"**

FOCUS AREAS

DIGITAL ENTERPRISE Transforming Enterprises through Digital Innovation.

SMART INDIA Catalysing Digital India through People, Technology and Policies.

TALENT & LEADERSHIP Creating Leadership Competencies through Skill Talent & Inclusion.

INTELLIGENT COMPUTING Leveraging the cutting-edge of Cognitive Technologies for Innovation.

DQ TOP 20 Analysing Market Segments & Company Performance.

It is the first choice for content & updates by **MDs, CEOs, CIOs, CTOs, top management of the top IT & IT follower companies, CIOs & CXOs of Large & Mid-size Enterprises, IT professionals of South Asia.**

Leverage Dataquest platform & network: Targeted Annual Engagements

Content Marketing | Focussed Roundtables | Focussed Newsletters | Conferences & Awards | Market research | Survey & Opinion Polls | Webinars | Digital Marketing | Video Case Studies | Lead Generation

www dqindia.com

Follow us: dqindiadotcom, Dataquest, Dataquest_India, CyberMedia Webinar Series

Write to: Rajiv Pathak I Sr. Manager, Marketing, rajivp@cybermedia.co.in I +91 8010757100

Intelsat completes multi-orbit inflight Wi-Fi tests

Intelsat has announced that it has completed inflight testing of the new Electronically Steered Array (ESA) antenna. This antenna enables global streaming-fast Wi-Fi service and is available to airlines around the world. Announced in June 2022, the antenna can operate between Low-Earth Orbit (LEO) and Geostationary Orbit (GEO) satellites. It uses Ball Aerospace ESA technology with a modular design and integration from Stellar Blu Solutions.

The company stated in a press release that it has successfully demonstrated the new system to global airlines on its Bombardier CRJ-700 regional jet fitted with the new antenna and inflight Wi-Fi system. The antenna weighs over 40 kg and stands 3.5 inches tall on top of the aircraft, with no moving parts. The company further stated that the peak in-flight download speeds exceeded 275 Mbps and airline customers were able to participate in live virtual meetings, stream media, and stay connected without interruptions.

By using the Intelsat and OneWeb satellite networks together, Intelsat can offer the benefits of LEO's low latency along with the redundancy GEO provides to address network hotspots that LEO networks cannot address on their own. The company further stated that irrespective of whether the aircraft is flying in polar regions or over the most populated cities in the world, the ESA antenna will be able to offer seamless coverage from takeoff to touchdown.

Globalstar, Qualcomm to jointly work on 5G private networks

Globalstar has announced signing a strategic agreement with Qualcomm Technologies enabling the two companies to collaborate on 5G private network technologies. The agreement involves Qualcomm's FSM 5G RAN platforms for small cells and Snapdragon modem, the RF systems that will utilise the Band n53 of Globalstar terrestrial spectrum around the world. Globalstar is a satellite communications company that provides mobile voice and data communication services through a constellation of Low-Earth Orbit or LEO satellites.

Qualcomm plans to make select FSM Platforms commercially available enabling it to work with Globalstar's Band n53 terrestrial spectrum for private networks. Globalstar will license its Band n53 spectrum to system integrators supporting the deployment of 5G private network solutions utilising small cell radios and devices running on Qualcomm FSM Platforms. Also, the Qualcomm Edgewise Suite is likely to play a key role in helping system integrators manage these new 5G private network solution deployments, the company said in a press release.

Globalstar Vice President Kyle Pickens said the collaboration with Qualcomm is a critical step to developing the terrestrial ecosystem for Band n53. The 3GPP group approved the 5G variant of Globalstar's Band 53 in March 2020, and the company had previously announced a collaboration with Qualcomm to include the band in its X65 modem.

"Through the use of the Qualcomm FSM 5G RAN Platform and Qualcomm Edgewise Suite, Globalstar, and our many selected system integrators around the globe can provide customers with premium performance while meeting challenging power, cost, size and multi-vendor interoperability requirements for 5G private network infrastructure," said Gerardo Giaretta, Vice President of Product Management for Qualcomm Technologies.

Nokia, Docomo and NTT make key 6G advances

Nokia, NTT Docomo and NTT have announced two breakthroughs in the development of 6G technology. The companies have jointly implemented Artificial Intelligence (AI) and Machine Learning (ML) into the radio air interface, effectively giving 6G radios the ability to learn. They also utilised a new sub-terahertz (sub-THz) spectrum to dramatically boost network capacity.

The AI-native air interface and sub-THz spectrum are both critical research topics that Nokia, Docomo and NTT are exploring for future 6G networks. These technologies could pave the way for new immersive metaverse and extended reality (XR) experiences and a new generation of mobile applications. The companies have implemented both technologies as proofs of concept at Nokia Bell Labs in Stuttgart, Germany.

By pairing an AI-based learned waveform in a transmitter with a deep-learning receiver, the researchers were able to design and implement a learning air interface that transmits data efficiently under many different scenarios. This AI- and ML-based implementation significantly reduces signalling overhead, producing up to a 30% improvement in throughput, Nokia said in a press release. In addition, the AI-native air interface will grant 6G networks the flexibility to adapt to the type of connection demanded by an application, device or user.

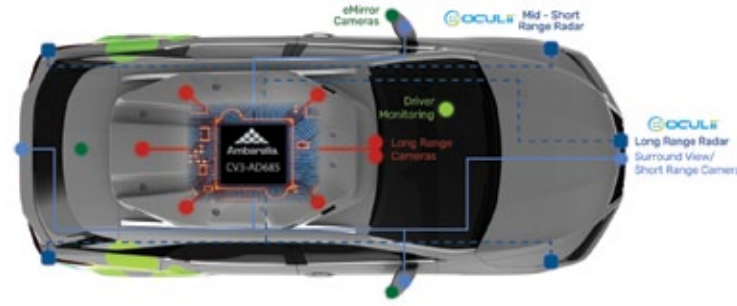
The sub-THz bands (100GHz and above) have never been designated for cellular use because of their propagation characteristics, but new techniques such as beamforming could open up those frequencies to future 6G networks. These higher frequencies are well-suited for high-accuracy radio sensing, which will likely be another key feature of 6G.

In their proof-of-concept, the researchers were able to demonstrate a 25 Gbps connection on a single 256QAM stream over a carrier frequency of 144 GHz using beamforming. Accessing the sub-THz bands would inject enormous capacity into 6G networks. The sub-THz bands won't just improve overall capacity, they will allow 6G networks to support the most bandwidth-intensive future use cases requiring multi-gigabit average connections.

Ambarella hooks onto Samsung's 5nm process technology

Samsung Electronics has announced that its foundry business is providing the 5-nanometer (nm) process technology to Ambarella, an edge AI semiconductor company, for its newly announced CV3-AD685 automotive AI central domain controller. This collaboration will help transform the next generation of autonomous driving vehicle safety systems by bringing new levels of AI processing performance, power and reliability.

The CV3-AD685 is the first production version of Ambarella's CV3-AD family of automotive AI central domain controllers with Tier-1 automotive suppliers announcing they will offer solutions using the CV3-AD system-on-chip product family. Samsung's 5nm process technology is optimised for automotive-grade semiconductors with extremely tight process controls and advanced IP for exceptional reliability and outstanding traceability.



The CV3-AD685 integrates Ambarella's next-generation CVflow AI engine, which includes neural network processing that is 20 times faster than the previous generation of Ambarella's CV2 SoCs. It also provides general-vector and neural-vector processing capabilities to deliver the overall performance required for autonomous driving (AD) stack processing, including computer vision, 4D imaging radar, deep sensor fusion and path planning.

Cisco to connect St. Louis City SC Stadium

Cisco has announced that it is partnering with St. Louis City SC to create one of the most connected and fan-centric environments in Major League Soccer. Cisco will leverage its solutions across networking, security, Wi-Fi, and digital signage to ensure that fans of the American professional men's soccer club can have one of the most immersive matchday experiences in sports.

The company stated that it will be implementing a state-of-the-art, fully converged network across Citypark's 31-acre stadium district that also includes the club's stadium, training centre, team headquarters and two-story team store. The stadium aims to use Wi-Fi 6 to deliver faster speeds for immersive experiences, more bandwidth, and higher reliability. Citypark is one of the few MLS-specific stadiums to deploy Cisco's Wi-Fi 6 technology, which has been delivering record-setting results in leading venues around the world including SoFi Stadium in Los Angeles and State Farm Stadium in Glendale, Arizona – sites of Super Bowl LVI and LVII, respectively.

In addition, Cisco will also deploy its cybersecurity solutions throughout the Citypark district providing the visibility and resiliency to ensure that the club and its fans are always connected and protected. Cisco will also be implementing its IPTV technology which combines high-definition video delivery with state-of-the-art digital signage. The 4K deployment will power screens across the stadium district, all entirely customisable and centrally managed via one point of control.

"Citypark is designed to be a one-of-a-kind sporting campus, with a world-class infrastructure that will allow it to serve as a platform for innovation for years to come," said Ken Martin, Managing Director, Global Sales – Sports, Media and Entertainment, Cisco.

PDG plans USD 1 Bn investment for datacentre in Batam

Princeton Digital Group (PDG) has announced the setting up of a 96 MW datacentre campus in Batam, an island in Indonesia's Riau Islands province, 20 km south of Singapore. Located within Nongsa Digital Park, an integrated digital park in Nongsa on the North-Eastern tip of Batam, the new datacentre campus is the company's first investment under its Singapore+ strategy. The strategy aims to enable customers to seamlessly expand their infrastructure from Singapore to highly scalable campuses in Batam and Johor.

The announcement of PDG's datacentre campus in Batam is the first part of this concerted strategy, where PDG is developing datacentre sites in Batam and Johor in extension to the company's operations in Singapore. With an initial investment plan of over USD 1 billion, the campus will be built on 15 acres of land in Batam and will comprise four buildings of up to 24 MW capacity each. Power is fully secured for the entire 96 MW capacity.

Headquartered in Singapore, PDG is a leader in the Asian hyperscaler market. The company launched its 48 MW datacentre in Mumbai in December 2022 and is expanding rapidly in Asia with a total capacity of 600 MW across a portfolio of 20 datacentres in five key markets. Its 100 MW datacentre in Saitama, Tokyo, is scheduled for completion in 2024.

PCQUEST
TECH TODAY & TOMORROW

CyberMedia

MARCH 2023, PCQUEST HIGHLIGHTS ON NAVIGATING CLOUD SECURITY RISKS: STAYING AHEAD OF THE CURVE.

ALSO READ MORE ABOUT

- Protecting healthcare data in the cloud
- Why does Cybersecurity need to be a strategy in the corporate space
- Top 40 Cybersecurity solutions for comprehensive protection
- Impact of AI in the Metaverse
- Rise of conversational AI in healthcare
- Assistive Technology: Not just a humanitarian decision

GRAB YOUR COPY TODAY

Form Link
https://bit.ly/3uiRvoS

PCQUEST IS OFFERING SPECIAL DISCOUNTS FOR NEW SUBSCRIBERS AND ITS READERS. AVAIL THE OFFER NOW

Link: https://bit.ly/3QvNQh8

FOLLOW PCQUEST FOR THE REGULAR UPDATES ON TECH AND TRENDS

@pcquest @pcquest @pcquest

Leverage PCQuest platform & network. Write to:
Rajiv Pathak | rajivp@cybermedia.co.in | +91 8010757100

Vodafone builds a 5G network prototype using Raspberry Pi

The new system combines a Raspberry Pi 4 with a small 5G embeddable SDR circuit board turning it into a miniature 5G base station

BY V&D BUREAU

Vodafone has unveiled a prototype 5G network built on a credit card-sized Raspberry Pi personal computer and an equally small, advanced silicon chipset. By combining the power of Vodafone's extensive pan-European 5G network with the simplicity and versatility of a Raspberry Pi, Vodafone aims to make 5G-based mobile private networks (MPNs) more accessible to the 22 million small-and-medium-sized enterprises (SMEs) across Europe.

An MPN offers businesses an alternative to the public mobile network by providing them with their own private, fast, reliable and ultra-secure slice of coverage. MPNs are predominantly used by large businesses or organisations with premises that need to connect a variety of devices, machines and autonomous vehicles and robots, such as a major manufacturing plant.

The new system combines a Raspberry Pi 4 with a small 5G compatible embeddable software-defined radio (SDR) circuit board, made by UK-based specialist, Lime Microsystems. This SDR board can turn any computing platform into a miniature 5G base station. The resulting system can then be used either as part of a dedicated private network, an extension of a larger MPN or connected to Vodafone's public network like any other base station. The board design is compliant with Open Radio Access Network (RAN) standards and can be used with any computing machine capable of running Open RAN-compatible software.

The concept was developed at Vodafone's new European R&D Centre in Málaga, which has a team of engineers dedicated to the advancement of silicon chips to power new Open RAN innovations.

Vodafone is also exploring ways to democratise MPNs and extend their benefits to micro and small business owners whilst lowering the entry cost and reducing the resources needed to experience new digital services, the company said in a press release. The 5G network on a

Raspberry Pi is also portable, the size of a home Wi-Fi router. This also means that users can instantly set up their own, private network in a public place such as a coffee shop, or extend the coverage of the public network to a remote location like a basement.

Santiago Tenorio, Vodafone's Director of Network Architecture, said: "We looked at what Raspberry Pi did for computing, in terms of making it more accessible to people of all ages, and we wanted to do the same with 5G." The concept will enable small businesses and households to extend 5G coverage and increase capacity according to their needs and to have their own, affordable, and portable private 5G mobile network. Vodafone could also offer households extended coverage providing an additional fast broadband link at times when many residents are online simultaneously.

"While this is just a prototype, it has the potential to bring new cloud, AI and big data technologies within reach of many of the small businesses we support across Europe. The next step is to take ideas like this to a place where they can be developed and eventually produced. Our door is open to interested vendors," Tenorio said.

feedbackvnd@cybermedia.co.in

UGC Recognised
12(B) Status from UGC

Apeejay Stya University

SOHNA, GURUGRAM — Estd. 2010

India's 1st Industry-Centric Technology & Liberal Arts University focused on Research & Innovation™

PROGRAMMES OFFERED

Engineering & Technology | Journalism & Mass Communication | Design & Visual Arts | Biosciences
Education | Management Sciences | Pharmaceutical Sciences | Legal Studies | Behavioural Sciences

ASU – KEY HIGHLIGHTS

- NEP 2020 Aligned Curriculum
- Merit-cum-means and several other Scholarships
- Excellent placements*
- MoUs with several International Institutions

RECENT AWARDS & ACCOLADES

Apeejay Stya University has been awarded as Leading Liberal Arts University providing Excellence in Employability Programs

at Dainik Jagran Inext Impact Award 2022

Since its inception in 2010, Apeejay Stya University has received a gamut of awards & premium rankings.

TOP-NOTCH PLACEMENTS

zomato | Infosys | NDTV | TCS TATA CONSULTANCY SERVICES | accenture | HCL | paytm | fabindia | RBS

.. and many more

** We offer only placement assistance. Placement may vary with industry requirements, market sentiment and student merit.*

For admissions, please contact us:

Apeejay Stya University, Sohna - Palwal Road, Sohna - 122103, Gurugram
Email: **admissions@asu.apeejay.edu** | *Website:* **university.apeejay.edu** |
Admission Helpline No: **1800-103-7888**

Follow us on:

RNI No. 59233/94. Published on 1st of every month. DL(s)17/3114/2021-23. Licensed to Post WPP. U(SE)62/2020
Posting Date: 13&14 of every month. Posted at Lodi Road HPO.
Advance Payment Facility Customer ID # 3000052248. Voice&Data Magazine Post DL (DS)-58/MP/2023-24-25