

THE CCA VOICE

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Spring/Summer 2023



**FOR
COMPETITIVE
CARRIERS**

The 5G Reality

PLUS

5G Networks in the Cloud

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Edge Solutions in a Cross Platform Design

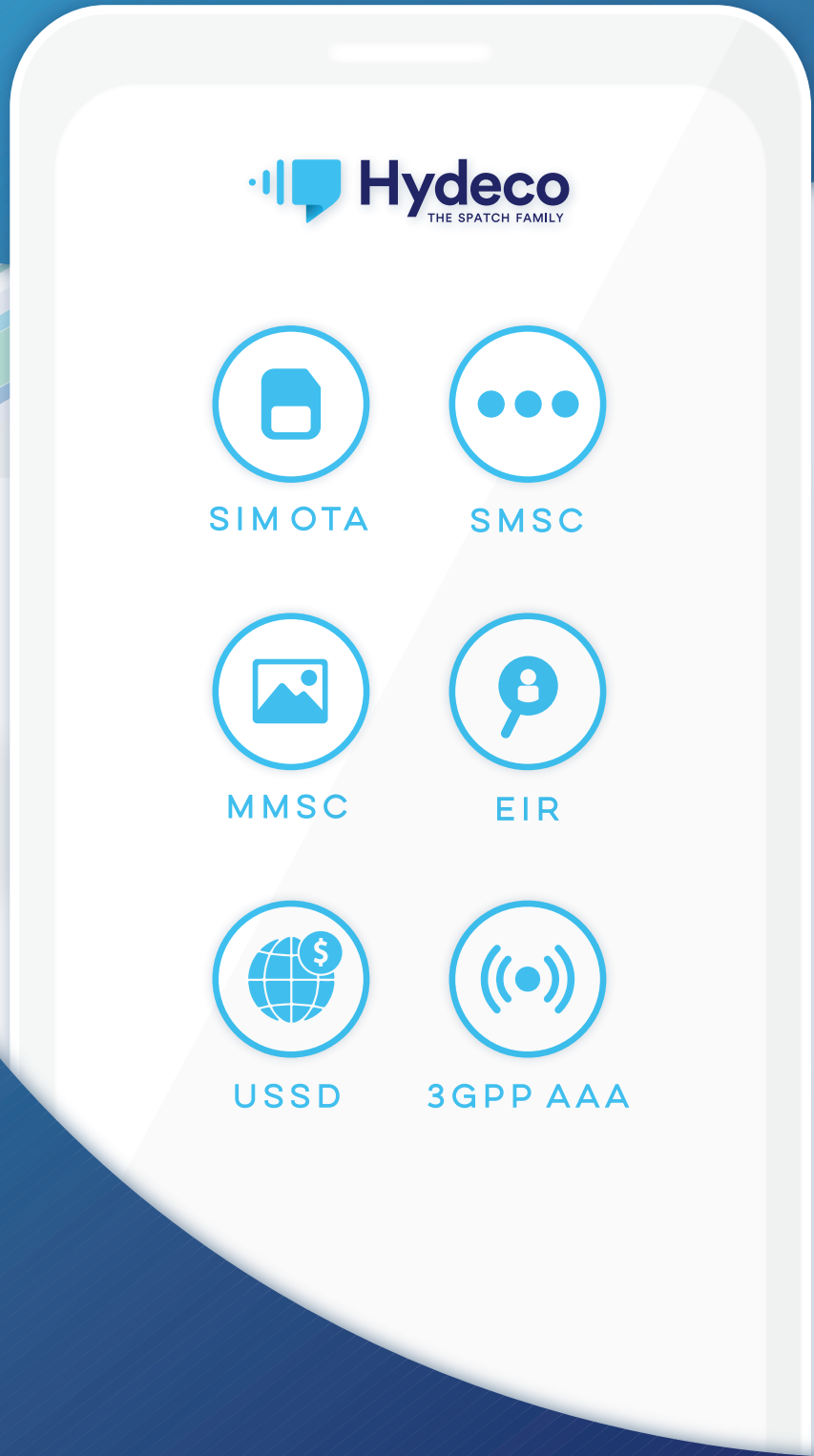
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Ensuring a Smooth Transition to 5G by
Bridging Network Technologies

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CCA is committed to being the premier advocacy organization for competitive wireless carriers and stakeholders. CCA will use advocacy leadership, education, and networking opportunities to help rural, regional, and nationwide carriers grow and thrive in the wireless industry.

CCA Vision

CCA will be the leading organization for competitive wireless carriers and stakeholders, joining together to improve the lives of Americans through delivery of wireless communications.

cca rural.
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A Focus on Membership



By: Mark Nazé
Strategic Projects Officer, Cellcom



CCA looked a little different internally at the start of 2023, but the association's commitment to advocacy, education, and networking remains as strong as ever.

Our long-time President & CEO Steven K. Berry retired on December 31, 2022, and Tim Donovan, previously CCA's SVP of Legislative Affairs, transitioned into the lead role at CCA. I am very pleased that the Board of Directors unanimously voted to promote Tim to the President & CEO position, and I have no doubt CCA will accomplish great things under his leadership.

I also thank the Board of Directors for their steadfast support and dedication to this important association and for their determination to ensure CCA remains the premier association for competitive wireless carriers and industry stakeholders. Special thanks to Tom Cullen, Vice Chairman; Jonathan Foxman, Treasurer; and, Tami Barron, Secretary, for their work and support over the past year plus.

A sincere thanks also goes to the entire CCA membership. The commitment and support by active and involved members is what makes our association strong. The Board understands the importance of an engaged membership and therefore directed an enhanced focus on

membership for 2023. This directive not only includes identifying and recruiting new members to join, but it also means engaging current members and reminding them about the many ways that CCA can benefit their organizations.

There are so many ways to get involved at CCA, and one of the most important (and popular) is through joining a committee. The Events Committee, the Associate Member Committee, the Washington Reps Group, and the Business Innovation Group (BIG) provide real value to those who take part. They also are wonderful networking opportunities and a great way to get to know your fellow members.


The stronger our membership, the louder our message will be heard by policymakers, and I cannot emphasize enough the importance of getting involved and staying engaged.

CCA's priority is advocacy, and all members are invited and encouraged to participate in the Washington Representatives Group (Wash Reps) weekly meetings. CCA has respected, full-time, in-house executive and legislative branch experts focused on telecommunications policy and advocacy, and the weekly call is a benefit for all members. CCA's policy team not only provides timely and important updates on activities at the FCC, on Capitol Hill, and in the Administration, but it is also a chance for members to share our thoughts and/or concerns. Importantly, the Wash Reps Group produces the yearly advocacy agenda that outlines CCA's priorities for the upcoming year, and this draft agenda is then reviewed and approved by the Board

of Directors. Participation in Wash Reps is just one example of how much an impact an active membership can have on the association. The stronger our membership, the louder our message will be heard by policymakers, and I cannot emphasize enough the importance of getting involved and staying engaged.

In addition to policy, CCA's annual events are key to membership engagement. The Mobile Carriers Show and the Annual Convention are instrumental in bringing the membership together for networking, education, and collaboration. CCA events are unlike any other in the industry, and they are the perfect size for making real connections with other attendees and conducting business meetings. For the past several years, member CTOs, CMOs, and CFOs have held respective meetings to share challenges and solutions and to brainstorm ideas, and these meetings are a highlight and incredibly valuable for many attendees. It is meetings like these and more that make CCA events stand out amongst the rest, and I look forward to seeing many of you in Pittsburgh and Atlanta this year.

CCA's Industry Development Programs continue to be a value-add for the members as well. The programs are designed to provide solutions to the top challenges identified by CCA carrier members and let associate members know of carriers' priorities. Introductions and partnerships made through the programs benefit everyone involved, and all CCA members are encouraged to check them out.

If you know someone that is not yet a CCA member, please tell them about CCA and contact Tim and the team who are happy to reach out. It is an exciting time for CCA, and I look forward to continued work with current — and future — members to achieve our policy goals and more. 

Renewed Commitment to CCA



By: Tim Donovan
 President & CEO, CCA



It is an honor and pleasure to serve as your new president & CEO, and I commit to you continued focus, perseverance, and leadership on the policies in Washington that are most important to CCA members.

I thank CCA's former president & CEO, Steven K. Berry, for his guidance, vision, and friendship over the past 13-plus years. In this first issue of *The CCA Voice* since Steve's retirement, I would like to recognize a few of the many successes CCA enjoyed under his leadership.

Steve quite literally changed the face of the association from day one. He moved CCA's office from Virginia to downtown Washington, D.C., and then to Capitol Hill — steps away from the U.S. Capitol. He enhanced the advocacy, media, and events capabilities within the association, changed the association's name from Rural Cellular Association to Competitive Carriers Association, and had numerous advocacy wins that benefited CCA members. A few of these advocacy accomplishments include:

- Ending device exclusivity
- Creating data roaming rules
- Interoperability in the 700 MHz band

- Device unlocking
- Defeating the takeover of T-Mobile by AT&T
- And more.

Advocacy accomplishments aside, Steve is an upstanding individual who is passionate about CCA members and their issues. His hard work, vision, and "never take no for an answer" mentality, helped transform CCA into the well-respected advocacy organization it is today. There was no better advocate for competitive wireless carriers than Steve, and we are grateful for his dedication and enthusiasm for CCA over the years.

2023 has already been a busy year, and CCA will continue to press forward and educate new members of Congress and policymakers on our priority issues.

2023 has already been a busy year, and CCA will continue to press forward and educate new members of Congress and policymakers on our priority issues.


The Washington Representatives Group met for its annual Advocacy Agenda Meeting at the end of January and discussed priority issues for the year ahead. Building on billions of dollars in new infrastructure funding opportunities, the **Universal Service Fund** continues to be a top focus for CCA members, and CCA will work to ensure sufficient 5G Fund resources, guided by reliable mapping data to accomplish nationwide 5G. Wireless is a key part of the equation, and the

FCC must modernize the 5G Fund to finally close the digital divide.

Support for **infrastructure** projects can be the difference between building and not building for CCA members, and it can also determine whether or not customers have sufficient connectivity. CCA has worked to seek additional infrastructure reform and will continue work to expand opportunities for CCA members in non-FCC federal infrastructure programs going forward.

Spectrum access is a vitally important issue for all carriers, especially smaller carriers with limited resources. CCA has been a leading advocate to ensure equitable access to spectrum, and policymakers must prioritize mid-band spectrum for commercial wireless use in the coming years with clear interagency processes.

Network security and cybersecurity issues remain a significant focus for carriers, and CCA worked tirelessly in 2022 in pursuit of full funding for the FCC's Secure and Trusted Communications Networks Reimbursement Program. At the time of this article's publication, this remains a top issue for CCA and the affected carriers, and we will continue to engage with industry and policymakers on issues related to ensuring secure, resilient communications networks.

These are just a few of the many issues CCA is focused on for the upcoming year. I am hopeful that with the Board's directed focus on membership, we will have an even stronger voice than ever before here in Washington, D.C. Together we can achieve great success, and I look forward to our continued work together. 

2022 Annual Achievement Awards

Outstanding Achievement Award



Joe Varghese,
UScellular



Joe significantly enhanced UScellular's involvement in CCA's events, especially regarding recruiting speakers. Joe is knowledgeable and dedicated, he has a positive attitude, and his volunteer work on the Events Committee is greatly appreciated by all.

Neko Hamlett Associate Member of the Year Award



Husam Shukhaidem,
Nokia



Husam has been a CCA member for several years and is a very active member of the Events Committee. He has more than once gone above and beyond to help find speakers for the educational sessions — not only from his own company, but from carriers and other industry stakeholders as well.

Outstanding Service Award (carrier) GTA



GTA offers several programs through its "GTA Gives" philanthropic initiatives. The "Empowered by GTA" program is centered around using leading-edge technology and resources to transform the island community by providing in-kind vital telecommunications support to essential groups and local non-profit organizations. GTA also supports a long list of organizations including the USO Guam, Special Olympics, and more.

Outstanding Service Award (two winners) IDI Billing Solutions



For over 25 years, IDI has been committed to being good citizens in their communities and has provided support, whenever possible. In 2022, IDI provided a \$162,000 dollar gift to The Rochester Institute of Technology to help fund a series of important diversity initiatives.

Volodymyr "V" Chornodolsky



V was nominated by his colleagues for his tireless work in support of Ukraine. He and his neighbors provided hundreds of pounds of baby food, medicine, and other supplies. He and his wife helped organize a fundraiser and silent auction that raised over \$25,000 dollars for United Help Ukraine, and they helped two local families that relocated from Ukraine with various donations.

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The 5G Reality Is What You Make of It



By: Chris Dwyer
 VP Sales Regional US-CALA, Interop
 Technologies



The simple reality is that 5G technology is a much-needed advancement for mobile operators and consumers alike. As the fifth generation of wireless network technology, 5G provides up to 20 times the speeds of 4G networks and is designed to enable lower latency and greater capacity for multiple devices to connect to the same network. The 5G network also can provide higher throughput and near-instantaneous communication, which makes it ideal for applications such as the Internet of Things (IoT) and artificial intelligence (AI).

The world of technology is evolving quickly, and regional operators need to be swift in deploying these new technologies to satisfy the increasing demands of today's consumers. As 5G technology continues to expand and

become more accessible, businesses are increasingly turning to mobile technology for their next big idea, and they're looking for networks and partners to help make their 5G goals a reality. We're already experiencing how 5G has enabled companies in a wide range of industries like health care, manufacturing, retail, and automotive to revolutionize how they operate. And this is just the beginning!

Acknowledging the Challenges

While 5G networks have been deployed by several large operators worldwide, the availability and speed of the service may vary depending on location and the network provider's buildout roadmap. As a relatively new technology that is still being developed and implemented, there are definitely challenges that need to be addressed. For many regional operators, these challenges could be the cost of deployment (which slows buildout), a lack of expertise (which affects QoS), and a lack of standardization across some markets (which affects QoE).

However, there is nothing that will stop companies from working to capitalize on 5G. Take messaging for example; rich messaging apps now have surpassed social networks in size and have become the preferred way for consumers to engage with brands globally. Have you adequately made plans for launching 5G-enabled messages on your network? Are there congruent steps in place to maximize revenue opportunities that come with this new era of mobile connectivity? Clearly, regional operators should be making sure that all aspects are fully taken into account as part of a "5G reality check" because it's just the beginning — more mobile services enabled by 5G will surely come up soon.

Utilizing the Cloud

Cloud technology provides the perfect mix of efficiency and cost-effectiveness. Outdated infrastructure

is no longer a limitation; instead, resources and equipment are dynamically reallocated to power innovation. Additionally, with a managed service agreement, regional operators can free themselves from tedious operational tasks and utilize cloud-based analytics and management tools. These cutting-edge solutions take network performance monitoring and optimization to the next level, ensuring existing services remain effective for the foreseeable future.

By integrating cloud technology into the 5G framework, mobile operators around the world are rapidly breaking through previous limits to connectivity. This forward-thinking approach is paving a more instantaneous path toward truly unlocking the potential of next generation networks!

In Conclusion

The reality is that 5G is officially here, and regional operators need a solid strategy on how they can best utilize this revolutionizing technology in their local markets, as well as through other business verticals. We know from experience that with each network technology advancement comes even faster speeds and superior connectivity — but that's only half the battle. To truly benefit from 5G, it's essential for regional operators to look beyond their traditional customers (subscribers) and explore new ways to deploy advanced technology and gain new revenue streams. 

At Interop Technologies, we believe there is a better way to build and manage solutions for mobile operators. We are passionate about this, and it's our mission to help all operators innovate and move their business forward with the highest level of service flexibility.



5G Roaming: Making 5G Revenues a Reality



By: Lennon Powder
 Sr. Product Manager-Carrier Services,
 Syniverse



It's clear that the 5G mobile platform is finally taking root with many of the world's mobile network operators. The growth of devices and applications that demand extended connectivity, bandwidth capacity, and speed continues to drive the initial implementations of 5G non-standalone (NSA), setting the stage for the full roll-out of 5G stand-alone (SA) soon after.

As with all mobile platforms prior to 5G, the need to plan for roaming both domestically and globally remains a critical issue. This is exaggerated further by the expansion of the Internet of Things pushing the need to support massive numbers of devices as they travel beyond network borders. Installing a powerful yet cost effective 5G roaming solution designed to help operators quickly transition to full 5G while developing new revenue channels is vital.

Building Off Current Infrastructure and Investment

For many operators, the transition from 4G to 5G non-standalone and then to 5G standalone will likely leverage existing infrastructure, such as IPX and Diameter Signaling. Since both mobile network technologies will be around for

some time, it is essential that they interwork with each other. Having a Diameter Edge Agent (DEA) for 4G/LTE roaming minimizes the complexities in supporting 5G NSA, requiring less upfront CAPEX investment, and creating a more seamless transition to a full 5G SA solution.

5G Will Drive the Need for VoLTE

The focus on VoLTE has started to rise as its role in 5G SA becomes increasingly apparent to operators preparing to deploy 5G standalone networks. Unlike 4G networks, circuit-switched fallback (CSFB) is not available for voice services, leaving VoLTE, and eventually VoNR, to fill this gap. Operators looking to offer 5G SA will need to address this transition in voice to maintain quality roaming services for their subscribers. Utilizing a service like Syniverse's Evolved Mobility will bridge the gap from 3G to 4G and 5G services.

A Next Generation of Security

Whether an operator is connecting to another operator or they're connecting to a private wireless network, they need to ensure they're maintaining the highest level of security. 5G introduces a new entity called SEPP, or the Security Edge Protection Proxy, to ensure security for interconnection and roaming between networks. It is one of the key enablers for connectivity and security in 5G. It is a distinct part of any 5G roaming solution.

Solid Policies Controlling Massive Data


5G will support a wide variety of services with different characteristics and needs,

such that specific policies may need to be applied for these services. A policy framework must therefore adapt to accommodate the changes that come with 5G such that one policy platform works across your networks to apply to both 4G and 5G. Detailed rules are needed to create and manage flexible data roaming plans and policies, helping to manage and monetize both home and roaming data traffic.

Resolve the Complexities of 5G Monetization

As operators adopt 5G SA, they will need to continue data clearing, but with a more evolved solution called BCE (Billing and Charging Evolution). Legacy charging protocols like TAP are not flexible enough to meet the needs of the wide variety of 5G use cases. Until 5G is more prevalent, there will be a need to identify when the wireless device is accessing 4G network assets versus 5G assets to know when you need to produce TAP vs. BCE.

The Benefits of a Complete End-to-End 5G Solution

Complete solutions can be highly advantageous when implementing new technologies. For over 30 years, Syniverse has been a trusted partner of global mobile industry. By delivering products and services that address the current and emerging needs of customers, operators can offer high quality, revenue generating solutions that utilize minimal resources while executing full service, cloud-based results. Syniverse is uniquely positioned to ensure existing mobile network operator product portfolios can efficiently and quickly evolve to support the 5G migration. 

Installing a powerful yet cost effective 5G roaming solution designed to help operators quickly transition to full 5G while developing new revenue channels is vital.

Telecom CIO Explains Why Trusted Payments Partners Are Pivotal to Success



By: Elaine Cheng
CIO, Shentel



As the CIO of a fiber connectivity and broadband company, I am tasked with ensuring that we provide our customers with the best broadband service possible and stay one step ahead of our competitors. The ideal consumer experience goes beyond reliable and speedy communications services. It's my job to ensure our customers can do everything quickly and efficiently, including

paying their bills. To do that, Shentel had to find a trusted payments partner.

Our due diligence process compared the products and services offered by leaders within the space, with Paymentus standing above the rest. Beyond the fact their services provided us with the most "bang for our buck," the implementation of their payment tools was also a seamless process. This was essential for Shentel, as we cannot risk any downtime for our bill payment platform.

Once implemented, we immediately noticed the positive benefits of partnering with Paymentus. Through payment automation adoption, we saw a 6x increase in automated payments. We also saw a 45% reduction in call volume.

This reduction in volume has allowed our call center staff to focus on providing in-depth and personalized customer service. Particularly popular with our customers is the option to pay their bills with exciting new methods such as PayPal, Venmo, and Walmart Pay. These payment



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methods account for 9% of our fiber connect service payments, and we know that those numbers will only grow in the coming years.

Perhaps the most impressive metric by which we have been able to measure the success of our Paymentus partnership is a dramatic increase in our Net Promoter Score (NPS). Our NPS went from a negative 3.2% to a positive 39.7% after transitioning to the Paymentus Instant Payment Network®. This not only has helped us grow our customer base, it has also provided our customers with an industry-leading experience.

When people ask what one of the greatest benefits of integrating with the Paymentus Instant Payments Network is, it's the fact that we have experienced 100% stability in our payment processing over the past three years of partnering with Paymentus.

No downtime and no outages means that our customers can be confident that their payments are being processed as safely and efficiently as possible. And with a payment volume of over 70,000 processed payments each month, having no technical speed bumps or roadblocks is essential to our company's growth.

When it comes to running a vibrant and ever-evolving fiber technology business, a powerful and versatile payment processing partnership is critical. That's why Shentel is proud to call ourselves a Paymentus partner. **cca**

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The Path to and Within 5G



By: Robert Backhouse
CTO Americas, Nokia



Mobile broadband coverage and user experience continue to define network operators' competitiveness. 5G can be made widely available by using 5G NR on at least one low band. Users expect 5G when they have a 5G smartphone. In combination with an LTE anchor carrier this enables wide 5G service availability and ensures that 5G user experience will be above 4G levels. In the urban centers, network coverage and capacity build on multiple frequency carriers on FDD ("low-") and TDD ("mid-") bands.

In terms of user data rates, 5G Carrier Aggregation continues to be key to competitiveness — as in LTE. In 5G NSA, Carrier Aggregation can be used across LTE carriers and across two 5G carriers, and the aggregated LTE and 5G bandwidth are combined through EN-DC. Depending on the deployed frequency carriers, this approach can double user data rates in the transition from 4G to 5G.

The big speed boost is in the mid-band. As rule of thumb, 100 MHz of mid-band 5G provides for peak data rates of 1.5 Gbps. For maximizing the capacity of mid-bands, especially in areas with high user density and usage intensity, massive MIMO antennas and advanced beamforming software are used. 5G Carrier Aggregation of low- and mid-band

extends the effective mid-band coverage range by 30%.

Of course, smartphone users continue to expect flawless voice service. On initial 5G NSA networks so-called EPS Fallback is used for voice: the phone falls back from 5G to LTE during voice call set-up. Voice and data traffic is carried over LTE for the duration of the call.

Expanding the 5G Carrier Aggregation scheme to three or more low- and mid-band component carriers requires 5G SA and the introduction of a 5G core network. 5G SA enables 5G peak data rates exceeding 3 Gbps and does so in an efficient way thanks to mid-band coverage extended by 30%.

With 5G SA the use of Voice over New Radio (VoNR) makes sense. VoNR doesn't depend on LTE for voice. Voice is natively handled over the 5G radio, allowing simultaneous voice and high-speed 5G data. VoNR is considered a key enabler for large scale 5G SA deployments, alongside multi-carrier Carrier Aggregation.

Carrier Aggregation increases user data rates from cell center to cell edge. While many users might not need record peak data rates, most users appreciate consistently high data rates regardless of where they are in the radio cell. For high data rates at cell edge, one needs to compensate lower signal strength and lower MIMO ranks with more physical resource blocks in the spectrum domain. And this is where multi-carrier 5G Carrier Aggregation makes a big difference.

5G SA also enables 5G Uplink Carrier Aggregation. Higher uplink data rates across multiple carriers are important for 5G downlink and uplink data rates to stay in balance when the downlink data rates grow.

In 2024, commercial smartphones will support up to five component carriers for 5G Carrier Aggregation, providing for flexibility in band combinations to deliver Multi-Gigabit 5G data rates.




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5G SA can deliver data rates on low- and mid-bands, which were associated with 5G on high-band (millimeter wave) a couple of years ago. With that, 5G SA not only brings mobile access to the Multi-Gigabit level, but it also increases the competitiveness of FWA (Fixed Wireless Access).

Looking beyond smartphones for mobile users and customer premises equipment for FWA, 5G SA will also open new business opportunities. In 3GPP Rel.17, 5G RedCap is introduced. 5G RedCap reduces complexity on the user equipment side while delivering data rates similar to those of early LTE on 5G SA. RedCap promises to make 5G wearables, like smart watches, and other user devices more affordable and thus further facilitate the transition of frequency resources to 5G, which in the long term allows to simplify the network.

A solid 5G SA foundation will enable the further evolution to upcoming XR use-cases, which will be a key area of 5G-Advanced, the evolution of 5G starting with 3GPP Rel.18.

The path to and within 5G can be complex or smooth, depending on fundamental choices. At Nokia we are committed to make this journey as smooth as possible, wherever your network is today. 

5G Networks in the Cloud



By: Reade Barber
Director Telco Business Development,
Amazon Web Services



Traditionally, telecommunications software providers have utilized custom hardware and software to deliver real-time processes for 2G, 3G, and 4G networks. This resulted in prolonged development cycles for digital service providers (DSPs) as they were required to conduct extensive integration testing and production deployment to maintain stability for mission-critical telecom services.

With the advent of 5G mobile networks standardized by 3rd Generation Partnership Project (3GPP), the industry has shifted toward a cloud-native architecture enabled by virtualization and containerization. The 5G network technology utilizes a microservice-based, stateless architecture that is programmable through network APIs and network slicing, representing a departure from traditional custom hardware and software solutions.

CSP's Network Design Guiding Principles

To realize their target for a successful 5G deployment, the Communications Service Provider's (CSP) architecture team must design a scalable and automated platform to run 5G functions. To fully leverage the benefits of a cloud deployment, the following guidelines are suggested for designing the platform:

1. Utilize cloud infrastructure and services to the fullest extent.
2. Implement 5G components for services across multiple target environments (development, testing, production, enterprise) with full automation capabilities.
3. Maximize the use of native automation constructs provided by Amazon Web Services (AWS), instead of developing custom automation solutions.
4. Retain the flexibility to utilize a combination of cloud-native APIs and existing telecom protocols.

5G Network Architecture

The 5G network architecture is designed to allow different network functions to operate as loosely coupled, independent services that communicate with each other through well-defined interfaces and APIs. This architecture allows for more agility and operational efficiency, as network functions can be updated independently and more frequently.

AWS offers DSPs the ability to adopt a cloud-native approach, abstracting away many layers of infrastructure, including networks, servers, operating systems, etc. This environment enables DSPs to define their requirements in code and use the AWS development environment for rapid ideation, building, and deployment, reducing overhead. Independent software vendors can concentrate on their specific application requirements, rather than being concerned with infrastructure setup and maintenance. AWS provides the necessary infrastructure and a comprehensive set of existing services that can be configured as needed. With the support of our partners and professional services team, we can provide efficient automation, orchestration, and monetization of the network in a short amount of time, often reducing deployment time by up to four to six times.

Reinventing Cloud 5G Networks

Building a cloud-native network with AWS offers five key value drivers:

1. Increased speed of buildout and deployment using AWS's existing infrastructure and security, reducing TCO and CAPEX.
2. Improved operating efficiency with the ability to adapt and scale on demand.
3. Streamlined automation through intent-based network orchestration and cloud programming.
4. Faster monetization through the MEC application ecosystem enabled by AWS's edge services portfolio and unique business models.
5. Access to a thriving ecosystem of partners to accelerate business and operational support system transformations.

The benefits of cloud-native 5G networks can be seen in four main areas:

1. Network orchestration in the cloud, ensuring security and scalability.
2. Simplified operations, enabling transformation and automation for a future-ready business.
3. Reimagined customer experience, using AI to anticipate usage patterns and uncover new use cases and offerings.
4. Unlocking growth opportunities to drive innovation and monetize 5G, Edge, and enterprise transformation.

More and more CSPs are moving their 5G core and RAN to the cloud to take advantage of operational efficiency and automation. Telcos planning to launch their 5G network can achieve similar benefits, reducing TCO and CAPEX requirements. It is recommended to compare the benefits of cloud deployment with traditional on-prem infrastructure before making a final decision. The independent software vendor partner ecosystem for cloud solutions continues to grow, providing economic and operational advantages. 

Fixed Wireless is the 5G Killer App — Change My Mind!



By: Mark Harms
Director — Client Technical Solutions,
Award Solutions



5G use cases like autonomous vehicles, virtual or augmented reality, remote surgery, network slicing, and smart factories get all the love. But let's not miss the killer app that already exists — fixed wireless access (FWA).

Many of these shiny use cases require advanced implementations of 5G leveraging features available in Release 16 (lower latency, higher reliability) and Release 17. However, first-generation 5G networks using mid-band spectrum like C-Band and millimeter wave (mmWave) provide increased capacity, making 5G an attractive network for FWA.

Fixed Wireless Access and Decaf Coffee

Is fixed wireless an oxymoron? We developed wireless to provide mobility. It reminds me of decaf coffee. Coffee is for caffeine, right? Is decaf coffee an oxymoron? No, people enjoy it with dessert or for something warm on a cold day. The same is true for fixed wireless. There are more benefits to wireless than just mobility. Please keep reading despite your emotions toward decaf coffee.

Drivers for Fixed Wireless Access

Fiber and coax provide a solid home broadband experience with high capacity

and peak speeds. So why would fixed wireless access even be considered?

The three key drivers of fixed wireless access:

1. **Cost:** The first and most obvious is the cost to run fiber or cable past the homes. With an average price of \$40k-\$60k per mile to install, fiber requires a hefty upfront investment.
2. **Speed to Market:** With an existing wireless network, you can immediately begin to offer fixed wireless access to a subset of users and gauge the level of interest with very little investment. If the opportunity grows, you can invest more into the solution to reach a larger market.
3. **Ease of deployment:** You can ship the equipment to the home, and they can plug it in, turn it on, and get service in minutes. Some solutions may still require a truck roll, but those requirements are decreasing.

These drivers and more make fixed wireless access the killer app of 5G. The rural opportunity is enormous, and government funding is available.

The Need for Speed

I am surprised by the speeds available from fiber and coax, not because they are awesome but because they are over the top. For example, if you have four 4K TVs running simultaneously, four full high definition (FHD) cameras taking live video, and other IoT solutions, you only need 100 Mbps.

See the Netflix recommendations at <https://help.netflix.com/en/node/306> and the math below:

- Four 4K TVs * 15Mbps = 60Mbps.
- Four FHD cameras at 5 Mbps = 20 Mbps
- 20 Mbps for other IoT solutions

5G, with 100 Mbps speeds, will handle over 99% of the consumer market.

Market


USCC has partnered with Ericsson to push the limits of mmWave coverage to over 5 km.

Learn more about how at www.ericsson.com/en/cases/2022/bridging-the-digital-divide-with-fwa-uscc. They launched FWA using mmWave in the second quarter of 2022, and although they have a relatively small base, it is rapidly growing.

In a recent FierceWireless article, Hans Vestberg, Verizon CEO, said, "It took us 22 years to pass 17 million households with fiber. Twenty-two years. That's how hard it is," Vestberg said. "We basically had 30 million households covered with fixed wireless access in less than one year." Verizon's net adds in FWA also are increasing rapidly.

T-Mobile has added 2 million high-speed Internet customers in their first full year since their commercial launch, and CEO Michael Sievert has some things to say about it.

Conclusion

Even though a fixed wireless access service is relatively dull, to date, it is undoubtedly the killer use case for 5G. FWA benefits from the increased capacity of the mid-band and millimeter wave spectrum. It may taper off and give way to other killer apps appearing late this year. For now, FWA is 5G's killer use case. Do you agree? Let's drink a cup of decaf coffee (caffeinated, if you prefer) and talk about it. 

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Why Network Optimization and Automation Are Key to Realizing the Promise of 5G Evolution



By: John English
Director of Marketing and Business Development, NETSCOUT



During the transition phase from 4G to 5G, many communications service providers (CSPs) are leveraging 4G LTE cores to offer select

5G capabilities and gradually expanding their 5G standalone coverage. Notably, carriers must troubleshoot issues created during the deployment process — including adding new network capacity and mmWave infrastructure — plus adopt new standards like Open RAN, roll out new services like Mobile Edge Computing (MEC) and network slicing, all while maintaining existing 4G services. To borrow an analogy, carriers are building the airplane while they fly it.

Complexities Abound When Implementing 5G Standalone and Cloudified Networks

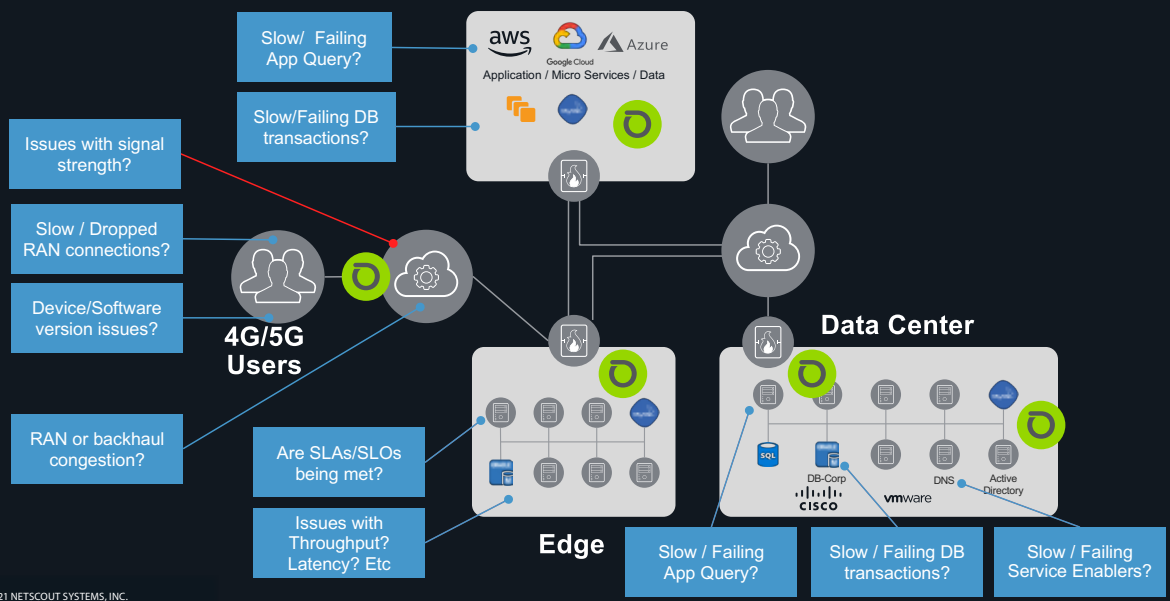
As carriers are realizing, the migration to a cloudified 5G core will likely not be as fast as initially assumed for myriad

reasons. For starters, a true cloud-native approach requires the disaggregation of traditional network elements into virtual functions using container technology. These types of environments are more difficult to monitor and verify that certain virtualized functions are performing as required. Additionally, as Transport Layer Security (TLS) encryption technology is deployed throughout the new 5G standalone (SA) architecture, engineers no longer have sufficient visibility to the control plane and user plane packets, which also are separated to allow for elasticity.

A further challenge relates to MEC. As carriers work to embed part of their 5G cores with hyperscalers like Amazon AWS and Microsoft, engineers must make

The Complexity Explosion

Visibility required to secure and assure across infrastructure and applications



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Automated Intelligence with AI/ML

Business Impact

Number of Unique
Subscribers Impacted

Outlier Detection

Applying ML
to Smart Data

End through End

Hybrid Network
Analysis



Analytics Chains

Domain
Knowledge Packaged

Deep Analysis

Comprehensive AI
Diagnostic Checklist

Smart Outcomes

Actionable Business
Intelligence

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2



sure that any latency introduced through these connections is minimized. Likewise, carriers are turning to multiple hardware and software vendors to support new 5G functions, and though this approach may have the benefit of lowering costs and enabling new, innovative network functions, it also creates a much more complex architecture and vendor relationships to manage and assure.

As a result, deep visibility is needed from the 5G radio access network (RAN) to the edge to the access layer and into the core network infrastructure. The visibility into the “East-West” packet level data will no longer be as simple as placing a physical tap or packet broker in place and sending the control plane and user plane traffic to a service assurance solution. Instead, CSPs require a deeper level of visibility into the RAN with virtualized instrumentation that includes packets collected, processed, and filtered at the source to produce contextual metadata in real-time. This type of smart data is key to gaining insight into the issues above, as well as fielding actionable intelligence for the policy engines that drive network automation and orchestration.

Smart Data and Automation


In CSP war rooms, experienced network operations teams understand

that knowing where and how to focus their attention is key, and automation of routine network monitoring and flagging of more serious issues helps deal with the increased complexity that 5G demands.

Intelligent automation sequences blend AI/ML techniques, combining ML libraries for classification and outlier detection, and knowledge base and inference engines to conduct deep correlation and case-based reasoning. Machine learning helps the system better recognize the difference between challenges that can cause real business impact and minor transitory issues. By automating the gathering of information and running analytics to glean the most pertinent information, organizations can clearly see where a service issue is and what its effects are, ensuring the correct team is dispatched to resolve it, with less finger pointing and organizational ping-pong.

As CSPs move to cloudify networks to deliver on the promise of true 5G SA, they will need to overcome a host of challenges, particularly as it relates to end-through-end visibility. Mobile operators will need tools that provide holistic visibility to these cloud and container environments for real-time monitoring and to inform

In CSP war rooms, experienced network operations teams understand that knowing where and how to focus their attention is key, and automation of routine network monitoring and flagging of more serious issues helps deal with the increased complexity that 5G demands.

the orchestration layer to manage these extremely complex networks, automate heretofore manual routines, determine the root cause of issues for more detailed investigation, and effectively triage response teams. 

NETSCOUT SYSTEMS, INC. (NASDAQ: NTCT) protects the connected world from cyberattacks and performance and availability disruptions through the company's unique visibility platform and solutions powered by its pioneering deep packet inspection at scale technology. NETSCOUT serves the world's largest enterprises, service providers, and public sector organizations. Learn more at www.netscout.com/solutions/5G.

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- Seamlessly scale as your business grows

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Transitioning to 5G: Thought Starters for Initial Success



By: Ron Whaley
 Chief Revenue Office, IDI Billing Solutions



While we've been hearing about it for years, many rural wireless carriers are still in the early stages of building out their 5G networks. And knowing where to focus efforts early on can be a daunting task. At IDI, we're working with a large number of customers, all at various stages of their migration. While there are distinct challenges for each, when it comes to achieving initial success, we consistently hear some common themes.

Focus Early on Spectrum

Deploying the necessary spectrum is a critical step in adding 5G services. It's typically sold at a premium and the competition is fierce. "Being able to go out and win these auctions to get spectrum to deploy your network on top of — it truly is the lifeblood of any cellular system," said Sam Keathley, technical operations manager at Appalachian Wireless.

Alicia Tripler, director of sales & customer development at Nex-Tech Wireless agrees. "Our initial focus was on deploying the necessary spectrum in the areas that we planned to add 5G services. Once deployed, it's just a matter of adding the new radios and antennas that need to

go up and turning that on for subscribers." She adds that this approach helped Nex-Tech become one of the first regional carriers to launch. "Because our team was forward thinking and attacked spectrum front in advance, we were able to bring 5G to customers in core areas of our network over a year ago."

Choose the Right Deployment Strategy

When it comes to upgrading, 5G offers two main network deployment strategies: Non-StandAlone (NSA) — which allows for a faster rollout and lower initial investment as it leverages 4G network assets, and StandAlone (SA) — which calls for a much higher initial investment but unlocks full 5G capabilities and new features, right away.

Many of the carriers we work with are taking the NSA approach and incrementally launching 5G to reduce costs and simplify deployment. They're initially deploying low-band spectrum to give subscribers the best coverage, then layering in strategically placed mid- and high-band cells in population centers where capacity needs are greater.

Maintain Focus on the Customer Experience

As wireless users around the country have been hearing about 5G for quite some time now, it's crucial to keep them informed to ensure a seamless transition. "At Nex-Tech Wireless, we're very conscious of the customer experience," said Tripler. "We strive to maintain transparency about timelines for targeted areas, as well as communicating clear processes for getting customers into 5G capable handsets and plans."


Ensure Your B/OSS Is 5G Ready

5G is more than an evolution of previous technology; it is a whole set of new networks for different applications.

As this technology increasingly becomes the fabric of connectivity that shapes our collective future, it requires much more than just upgrading existing networks. In this evolving space, new technologies continue to create more complex operations that need advanced solutions — which makes it all the more important to think of your B/OSS from the lens of the future rather than the past.

That's why it's pivotal to employ a system that is adaptive and flexible for meeting the demands of the 5G-enabled space. IDI's world-class, cloud-based platform is specifically designed to enable carriers making the leap to 5G to meet the demands of their subscribers today — while delivering the power to:

- Automate operations and maximize efficiency
- Expand services and quickly grow revenue
- Enhance the digital customer experience
- Seamlessly scale as their business grows

Bottom line — it's an exciting time to be a mobile carrier as the benefits of 5G are innumerable. While many organizations are working hard to wrestle their blueprints to the ground, having the right strategy, coupled with a strong B/OSS partner with the expertise to help you navigate the complexities of migration, will put you on the path to unlocking the true potential of 5G. 

About IDI

IDI Billing Solutions has been a leading provider of billing, automation, and workflow solutions for the communications industry since 1996. Servicing a diverse client base with an award-winning application, IDI's comprehensive, highly secure, cloud-based solution enables providers with the ability to streamline operational efficiency, monetize services, automate operations, and seamlessly scale as their business demands.

What Do Consumers Really Want from 5G?

An Ericsson ConsumerLab & IndustryLab Study Uncovers Consumer Expectations



ERICSSON

ConsumerLab – the
voice of the consumer

As this year's *The CCA Voice* declares, 5G is real and not only for Tier 1 carriers. Regional carriers are beginning to dip their toes into 5G; some are diving in wholeheartedly. That's because 5G adoption has gone beyond early adopters to more mainstream consumers. New 5G users don't just want more speed; they want to do more with their devices. The most successful service providers will be the ones who understand the emerging expectations of 5G early adopters and enhance their 5G network experience.

So, what motivates new 5G users? And how can you use that knowledge to reap 5G revenue opportunities?

To answer those questions, Ericsson ConsumerLab & IndustryLab conducted the largest ever 5G global consumer study to date. Looking at the key trends the study revealed, we discerned five important steps that regional carriers can take to meet consumer expectations now and in the future.

Five Ways to Improve the 5G Consumer Experience

1. Educate and better market the value of 5G to consumers

While consumer awareness is strong, heavy tech jargon used in marketing often muddles understanding of 5G's value, device capabilities, and offerings.

The Ericsson ConsumerLab & IndustryLab study suggests that had the value of 5G

technology been better marketed and made more relevant to consumers' needs, 22% more consumers who owned 5G-ready phones would have upgraded to a 5G plan. Regional service providers have a great opportunity to better educate consumers on 5G devices, plans, and benefits and help drive broader awareness and enthusiasm.

2. Ensure the quality of indoor and outdoor 5G coverage is consistent

Consumers expect consistent quality of indoor and outdoor coverage. With increased working-from-home, better indoor 5G is a high priority. Our analysis suggests that 5G indoor coverage at home and in public places like malls and stores is relatively more important than 5G speeds and even battery life in driving overall consumer satisfaction.

3. Adapt to the new network requirements for new services enabled by 5G

5G is triggering usage of new digital services, creating new network requirements. Wi-Fi usage is being displaced both at home and in other locations, with a quarter saying they either decreased Wi-Fi use or stopped using it altogether after upgrading. Service providers need to go beyond existing bundled services, such as music and video streaming, that are already available on 4G and move toward services that could differentiate a 5G experience and promote a sense of novelty and exclusivity.

4. Focus on jobs-to-be-done with 5G

To envision new use cases, look at what consumers want. Consumers hope 5G will help them be more productive and efficient and creative, connect and socialize in new ways, have novel experiences, and enjoy rewarding me-time.

Identifying and understanding the "jobs" consumers want 5G to perform is the first step in envisioning and offering use cases that consumers want, especially ones they are likely to pay for. While early adopters recommend 5G, they expect more innovation. Service providers need to look carefully at what consumers want to achieve with 5G.


5. Be innovative and accelerate the availability of use cases via ecosystem partnerships

Services providers should go beyond showcases, by accelerating and bringing to life use cases via ecosystem partnerships. They need to offer exclusive content and services that can differentiate a 5G experience from 4G and promote a sense of novelty and exclusivity.

Maximize your 5G opportunity

5G broadband, enabled by 5G fixed wireless access (FWA) services, is a strong rural opportunity. The greatest revenue boost will come from bundling digital services with 5G tariffs in order to convince consumers of the value of a 5G network platform.

Regional carriers, working with other ecosystem players, should move to accelerate the commercialization of digital services that are currently being used as showcases of the new technology. If they do, they will meet consumer needs and successfully unlock the full revenue potential of 5G.

You can learn more about what consumers expect from 5G and how a regional carrier can monetize these findings in the full Ericsson ConsumerLab report (www.ericsson.com/en/reports-and-papers/consumerlab/reports/five-ways-to-a-better-5g). 

About Ericsson

Ericsson is one of the leading providers of Information and Communication Technology (ICT) to service providers. We enable the full value of connectivity by creating game-changing technology and services that are easy to use, adopt, and scale, making our customers successful in a fully connected world.

Edge Solutions in a Cross Platform Design



By: Curt Stalhood
Distinguished Solutions Architect, World Wide Technology



Edge computing continues to be a top priority where digital transformation and 5G are creating a need for distributed platforms capable of running in multiple clouds to deliver experiences closer to the end user devices.

Edge computing is designed to solve key areas in network performance, data localization, and security. As applications become more demanding of resources, a distributed platform creates a path to low latency and high bandwidth to keep

up with today's demands. Businesses investing in 5G technology are focused on cloud computing, gaming, media, smart mobility, and AR/VR, which all have use cases solved with an edge computing platform. There isn't one single application out there to push a business into edge computing, but there are many reasons in both 4G and 5G demand that makes it applicable to everyone. To better understand the need for edge, let's focus on computer vision technology.

Computer vision uses artificial intelligence (AI) analytics of digital images and videos to provide real-time notifications and actions for various detection models created by the consumer. The computer vision application connects to IoT devices like cameras and sensors to detect objects in the AI model and then sends notifications of the object being detected. Depending on the application, some are fully capable of executing additional actions like calling authorities, shutting down a factory line floor, opening service tickets, and more. These "smart" businesses are

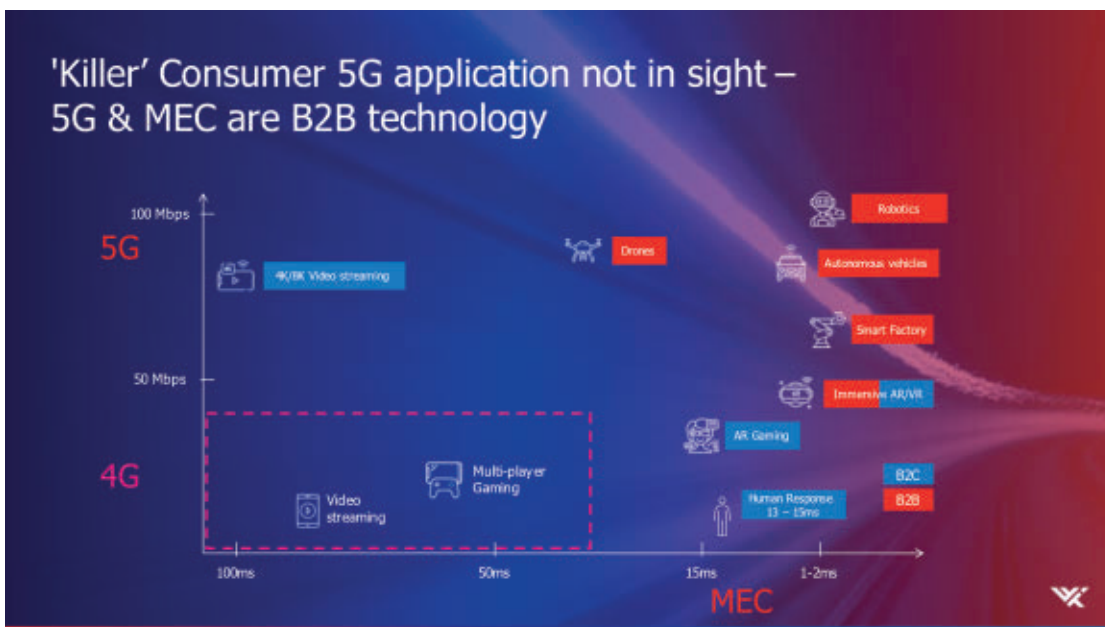
factories, health care facilities, retail locations, entertainment venues, and more. No one industry is excluded from the possibilities of use cases with AI analytics, but there must be low latency between the compute and IoT devices to provide immediate remediation.

5G technology is allowing edge sites to create private wireless networks and private mobile networks at the edge to close the latency gap on edge devices needed to function with computer vision technology. Software companies like Athonet and Mavenir are accomplishing this by teaming up with cloud providers and system integrators to deliver mobile packet core solutions that work both on-premise or in a public cloud. AWS Cloud and AWS Outpost not only allow Athonet to create solutions for the edge but also evaluate solutions with the WWT Converged Edge Platform (CEP).

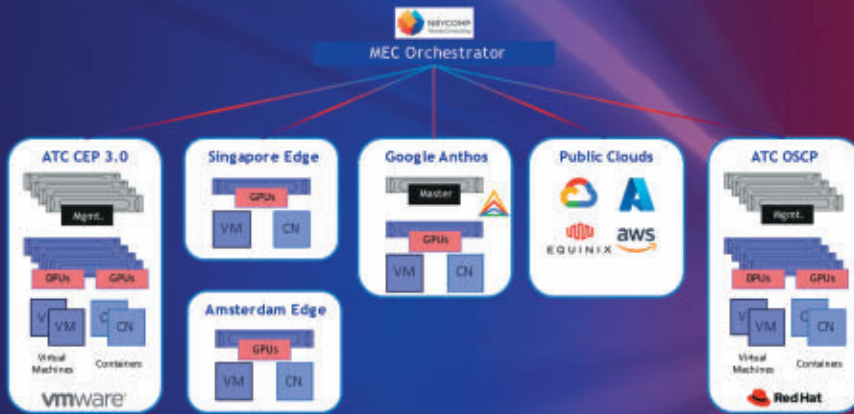
WWT's Converged Edge Platform 3.0 is a complete multi-purpose platform designed for digital transformation at the edge. The hardware/software infrastructure built on vendor-specific reference architectures and an ATC

validated design provides the ability to deliver 5G-enabled services and applications from as little as one site to thousands. Version 3.0 of the CEP includes new multi-access edge computing (MEC) orchestration tools, virtual infrastructure additions, and updated cloud connectivity. We've also added support for our new single Edge-In-A-Box solution as part of the new version.

Using the new MEC orchestration tools, our Advanced Technology Center (ATC) edge demo labs have expanded to



CEP Multi-Cloud Architecture



when provisioning virtual machines onto VMware vSphere with NearbyOne, crossplane and the HashiCorp Terraform provider for vSphere are utilized.

Nearby Computing is just one of many new software vendors that we've validated through the WWT Converged Edge Platform lab in the ATC. Mobile network vendors like Athonet and AirSpan have joined the WWT validated list of use cases for LTE/5G on CEP. In addition, securing the edge has become simplified

support multiple WWT on-premise edge site locations, and includes public cloud integration using the open source Crossplane framework and Rancher for multi-cloud container management. Both of these open source solutions are part of the MEC orchestration tool called NearbyOne from Nearby Computing.

NearbyOne is a multi-cluster platform designed to manage a multi-cloud, multi-tenant, multi-site scenario under a single pane of glass. Using Nearby's orchestration, the CEP provides a fully orchestrated solution from data center to cloud to edge using the latest tools for day-to-day operations. For example,

using the array of products from Palo Alto Networks (Next-Gen Firewall, Panorama, PAN-OS) in the same environment.

Get more details on the Converged Edge Platform, case studies, and independent software vendor (ISV) ecosystems (www.wwt.com/converged-edge-platform). **cca**

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An aerial photograph of a rural town at sunset. The sky is a mix of orange, yellow, and grey. The trees are in various shades of autumn colors. Several houses are visible, some with glowing blue lines representing fiber optic connections. A large white arrow graphic points from the top right towards the bottom left, following the path of the glowing lines.

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www.nokia.com/networks/rural-broadband

Innovative Low Energy FWA Technology for 5G Speed Rural Wireless Access



By: Dharminder Chanana
 CEO, Conklin-Intracom/Intracom Telecom



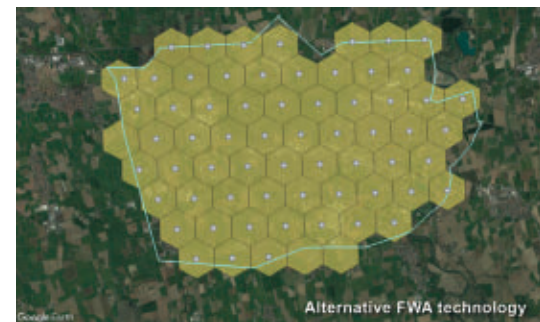
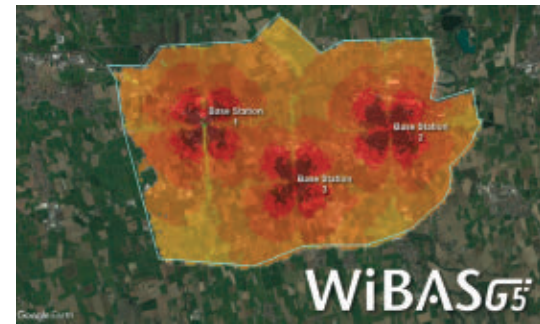
The exponential increase in demand for fixed ultra-high speed connections worldwide has created major challenges for telecommunications providers, who must offer this capability both within the urban fabric and in remote rural areas. Optical fiber networks that can offer ultra-high speeds of the order of hundreds of Mbps or even Gbps to the end user are not suitable for access to semi-urban or rural areas because it is economically unprofitable for providers to extend fiber to the regions. Fixed wireless access networks with a similar architecture to mobile telephony, wirelessly cover remote areas.

According to connectivity providers and governmental objectives, all subscribers should have access to a 1 gigabit per second connection quite soon; some say this can be achieved by 2030. But the growing demand, especially in wireless services, has its toll — increasing energy consumption and thus the carbon footprint of the specific sector. It has been estimated that the entire telecommunications sector represents approximately 1.5-2% of energy consumption in developed economies. Of this percentage, approximately 50-60% corresponds to the base stations of the networks in question.


The reduction of energy consumption, the use of renewable energy sources, and the strategy to reduce CO₂ emissions are the three main pillars that must coexist for a network to be labeled “GREEN.” In addition to minimizing the overall energy footprint of wireless telecommunications, there is also a strong economic component, which mainly concerns carriers. More specifically, the high requirements for connection speeds with the end subscribers that we mentioned above leads to denser and wider networks with an increase in the number of base stations. Coupled with steadily increasing energy prices, it is becoming apparent that energy consumption is a critical factor in the operating expenses (OPEX) of telecommunications fixed wireless access (FWA) network providers.

Intracom Telecom has developed the WiBAS FWA product family which now encompasses the G5 technology, which achieves ultra-high connection speeds and up to 11 kilometers in range from the hub. In addition, the system supports up to 960 users per base station. These two features alone drastically reduce the need for dense wireless networks. Therefore, there is a significant reduction in overall energy needs for providers who choose this solution for their subscribers.

The WiBAS solution G5 adequately responds to the aforementioned challenges for sustainable development of green networks by implementing innovative techniques and using inherent features that can lead to the reduction of the energy footprint. This is proven in practice by a radio coverage study, implemented in Italy in the province of Cremona. We chose this area with low population coverage (1,000 inhabitants per square kilometer) because it perfectly matches the areas targeted FWA networks. The coverage area is 40 square kilometers in size. Two wireless access technologies were compared, the G5 and an alternative,



which also uses millimeter frequency band (mmW). The WiBAS G5 solution achieves the coverage of the entire area with three base stations. End users can access speeds in the order of Gigabit(s) even at a distance of 3.9 kilometers from the center of the cell.

The fixed access alternative, to ensure full coverage in the same area and at same speeds, should limit the radius of cells to 500 meters. This translates into a need to deploy 64 base stations, a number that is about 20 times larger. This significant difference translates into a huge environmental burden, multiple energy consumption, and increased total cost of ownership. 

About Intracom Telecom

Intracom Telecom is a global telecommunication systems and solutions vendor operating for 45 years in the market. The company is developing and supplying Point-to-Multipoint (WiBAS™) technology, among other solutions, that is becoming the preferred alternative to fiber and copper access solutions for deploying FWA. The WiBAS™ G5, is the new Point-to-Multipoint ultra-broadband FWA solution, operating in the 24.250-29.500 licensed frequency bands delivering 1 Gbps speed per end user with the most compact, lightweight radio in the market. For more information, visit www.intracom-telecom.com.

Ensuring a Smooth Transition to 5G by Bridging Network Technologies



By: Javier Martin
 Chief Executive Officer, Summa Networks



SummaNetworks

Although the benefits of 5G technology have been long praised by our industry, the path to be able to offer them to consumers is a long one. 5G requires radical and expensive changes in infrastructure and cloud-native expertise in-house to manage and maintain the network. So, for most operators, especially smaller rural carriers, the costs and efforts of acquiring 5G technology are far too high.

Besides, many carriers may still have enough bandwidth with their 4G and even 3G/2G networks to support customer needs for the foreseeable future. The situation where telecom networks worldwide are just 5G standalone will only happen in many years' time (where, by the way, they might co-exist or be surpassed by newest 6G deployments). In the meantime, networks will be a mix of 5G SA, 5G NSA-4G, 3G, and 2G for different geographical areas, including complex roaming scenarios that are still under development. And the first service that will suffer the situation will be the first one of all: voice. So, interworking is the point that summarizes the real challenge around the 5G transition.

While bigger carriers are switching off 3G networks to repurpose spectrum for future 5G services, users are left with no possibility of placing traditional voice calls on 4G. This is the situation for many travelers coming to the U.S. because they don't have VoLTE in their country of origin or ... there's no VoLTE roaming in our region yet.

VoLTE and VoWiFi, which are based on IMS, are therefore needed to guarantee voice transmission over 4G. Besides, voice in 5G Standalone (VoNR), will work over IMS as well so that evolution is needed for the 5G transition too.

However, implementing VoLTE and VoWiFi also can have severe challenges. Selecting, engineering, and implementing the network components needed to make it work can be long and difficult. Luckily, some vendors now provide a VoLTE-in-a-Box offering that bundles all the various network elements needed for a successful 'plug & play' deployment. A software-only solution, a VoLTE-in-a-Box offering should include an IMS core, ePDG and full policy, and identity management protocols that are necessary to allow access to the network.

A compelling VoLTE solution also should have multiple deployment options to satisfy various deployment models, including hardware, fully virtualized in various containers, and through any public cloud or private cloud. The system software should be carrier-grade to ensure maximum uptime and should comply with industry standards like SIP and 3GPP. This point is critical; it assures integration with all legacy providers, allowing customers to maintain seamless use of voice services



ISTOCK.COM/KAR-TR

Is 5G coming? Absolutely, but what is less clear is when it will actually arrive or how long the transition will be.

across a hybrid infrastructure. In addition, providers should choose a solution that can easily scale, supporting new users with no disruption.

Is 5G coming? Absolutely, but what is less clear is when it will actually arrive or how long the transition will be. In the interim, the disruption in the marketplace is real and troubling. In many countries and especially in rural areas of North America, smaller operators that relied on 3G networks must quickly find alternatives to maintain service levels — especially with regard to voice communication.

VoLTE and VoWiFi are the way to go for carriers on the road to 5G, especially some of the new 'software-only' solutions that have entered the market. To overcome the challenge of such a complex deployment with an uncertain ROI, carriers need to look at options where these technologies can be quickly and economically deployed — in a wide range of environments — to deliver the seamless and reliable services that subscribers depend on. **cca**

SMB Revenue Generating Opportunities



By: Michelle Nowak
 Head of Product Management, AwareX



Small and Medium Businesses (SMBs) are the backbone of the global economy, accounting for a sizable portion of the world's GDP. With the rise of technology, Communication Service Providers (CSPs) have a unique opportunity to tap into this market, provide their business customers with a hallmark digital engagement solution, and generate additional revenue.

The top five ways CSPs can generate additional revenue from SMBs:

1. Offer business-specific plans: CSPs can create plans tailored to the specific needs of SMBs. These plans can include features such as increased data allowances, unlimited calling and texting, and shared data plans. By offering these plans, carriers can increase the value they provide to SMBs and justify higher monthly fees.
2. Partner with other business solution providers: CSPs can partner with other companies to provide digital marketplace business-specific services, such as cloud storage, virtual conferencing, or business-oriented cloud-based solutions such as Microsoft Office 365. By offering these services as a bundle, CSPs can increase the perceived value of their offerings and generate additional revenue.
3. Sell digital and non-digital goods: CSPs can sell devices and accessories to SMBs at a markup, such as smartphones, tablets, and hotspots. Additionally,



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CSPs can offer premium security apps, device protection, and repair services to further increase revenue.

4. Digital employee onboarding: CSPs can offer non-HR onboarding to an employee for communications-related products and services to help the SMB quickly and efficiently set up new employees with their devices and services. This can include setting up email accounts, installing software, and configuring security settings. By offering these services, CSPs can increase the perceived value of their offerings and generate additional revenue.
5. Personalize the SMB experience to drive differentiation: To increase SMB satisfaction and willingness to spend while fostering brand loyalty, the CSP needs to offer products or services relevant to the business customer, sending real-time communications to the customer through a digital engagement solution and serve-up timely and relevant campaigns that make it easy for the customer to learn more and purchase.

CSPs must stand out in an overcrowded marketplace of fierce competitors for the

SMB customer. The CSP must start with a consistent engagement across all digital touchpoints such as web, social media, digital assistants, chat, and mobile apps.

AwareX believes that most CSPs would like to offer advanced digital services to their SMB customers. However, there are perceived barriers to offering these capabilities — development costs for websites and apps, building a stack above the OSS/BSS, implementing capabilities for marketing campaigns, etc.

Our industry has a rich history of over-promising and under-delivering, with massive IT project overruns. However, AwareX is now offering a technology suite that takes weeks to implement, avoids all the major development costs, simplifies the BSS, enables marketing agility, and brings a functionally rich website and device app that are configured in real-time. We are enabling advanced SMB Digital Experiences that CSPs are providing to their SMB customers and will be happy to provide references!

AwareX is disrupting established IT norms in Telco with an advanced, SaaS-based engagement solution that avoids all the usual headaches. Contact us for more information. www.awarex.com 

Congressional Spotlight: Congresswoman Lizzie Fletcher (D-TX)



Congresswoman Lizzie Fletcher (D), elected in 2018, represents the 7th District of Texas. She is a member of the Energy and Commerce Committee and serves on its Subcommittee on Communications and Technology.

CCA: As a member of the House Committee on Energy and Commerce, what are some important issues facing the Committee when it comes to wireless connectivity?

Rep. Fletcher: When it comes to wireless communications, some of the Committee's top priorities include reauthorizing the Federal Communications Commission's (FCC) auction authority and making more spectrum available for commercial use. Last Congress, I supported the bipartisan *Spectrum Innovation Act*, which would have extended the FCC's auction authority for 18 months and used auction proceeds to fund important

priorities like the FCC's Rip-and-Replace program and Next Generation 9-1-1. These programs are critical for our country's national security and public safety. We also need to prioritize refilling the spectrum pipeline to make more bands available for auction, particularly mid-band spectrum that is essential to a strong wireless ecosystem.

CCA: In the 117th Congress, you introduced the Broadband Incentives for Communities Act. How would this legislation improve cumbersome siting and permitting processes often experienced by wireless carriers?

Rep. Fletcher: Over the past few years, the federal government (and state governments too!) has made a significant amount of investment to make sure everyone has access to modern communications networks. Congress has a unique opportunity to capitalize

on these investments by providing cities and local governments with resources to process the expected increase in permitting applications necessary to build out broadband infrastructure. Local governments play a critical and direct role facilitating these upgrades and new deployments and share the goal of industry and others to make sure everyone is connected. The *Broadband Incentives for Communities Act*, which I recently reintroduced, provides grants to local governments to streamline siting and permitting processes. These grants can then be used to hire and train employees, purchase software, and upgrade internal capabilities. It also establishes a Local Broadband Advisory Council at NTIA for infrastructure providers and local governments to continue their collaboration and develop solutions to ongoing challenges to deployment.


CCA: As the 118th Congress begins, where do you see opportunities for bipartisanship with your colleagues on Energy and Commerce issues?

Rep. Fletcher: I see many opportunities for bipartisanship in the Communications and Technology Subcommittee this Congress. In the immediate term, reauthorization of the FCC's spectrum auction authority and funding the roughly \$3 billion shortfall in the Rip-and-Replace program are urgent priorities that have broad support of Energy and Commerce Committee members. Additionally, NTIA will begin disbursing more than \$42 billion for broadband deployment this year that Congress passed in the *Infrastructure Investment and Jobs Act*. These funds will help spur additional investment in and development of our broadband infrastructure, yet we must do more to close the digital divide across the country. I am committed to working with my colleagues on both sides of the aisle and in both chambers to oversee implementation of these programs and ensure they are achieving their purpose to reach unserved

and underserved communities. I am also looking forward to working with my colleagues on reauthorizing FirstNet in advance of its sunset in 2027.

CCA: How important is it for you and your Congressional colleagues to hear from CCA and CCA members?

Rep: Fletcher: Last Congress, I was glad to work closely with CCA member companies in Texas' 7th Congressional District to address broadband expansion issues. Their perspective on the challenges facing smaller and more rural providers as they make investments

to connect and serve all kinds of communities is valuable. And their reflections on the success of the City of Houston in streamlining processes for broadband deployment and issuing permits have provided a guide on how to create effective partnerships between providers to achieve the shared goal of high-speed affordable broadband available to everyone. CCA and its members play a critical role in providing real-world expertise on the implementation of these transformational programs. 

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