

RCR Wireless News

INTELLIGENCE ON ALL THINGS WIRELESS

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HOW TO SELL 5G:

Will an ecosystem approach open up enterprise opportunities?

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Introduction

Because 4G's shining feature was faster connectivity, the average consumer was generally the key to monetization. But, as VoltDB's Chief Product Officer Dheeraj Remella put it, 5G delivers both an increase in speed and a "new belle of the ball" in the form of lower latency. This, he continued, opens up new monetization opportunities for communications services providers (CSPs), particularly for enterprises, as long as they carefully pair technology investments to desired business outcomes.

"There is an orchestrated effort behind this to address enterprise, industry 4.0 and autonomous vehicles' needs," Remella said. "3GPP specs [Release] 15 through [Release] 17 are specifically developed to improve the ability to monetize at a finer-grained level by introducing a variety of new charging triggers. 5G's path to monetization with industrial applications and enterprise applications will allow the CSPs to step away from the dog fight with the OTT applications."

That said, there are new revenue opportunities waiting to be unlocked in the consumer segment. Particularly in the U.S., operators

are standing up fixed wireless access home internet service and going head to head with cable companies. There are also emerging device types, cellular-connected PCs and AR/VR products, that could push ratepayers into new plans with more lines. Gaming is also a nascent area for operators with the logic being that mobile gaming is a growing space, and it could certainly benefit from 5G, so is there an opportunity for a premium-priced gaming tier?

Operators globally have invested hundreds of billions of dollars into deploying 5G networks with more to come as upgrades, densification, deployment of new spectrum, and the transition to a cloud-native, standalone architecture are all imminent. The need to work towards ROI is pressing. Operators are working to capture new revenue which, particularly on the enterprise side, requires them to gain a deeper understanding of the needs of specific verticals—if you agree with the premise that businesses want to buy outcomes rather than technology, it follows that operators need to sell business outcomes rather than technology.

Tami Erwin, Verizon Business Group CEO, hit the nail on the head

while speaking last year at a virtual conference hosted by Ericsson: "We've recognized that we have to partner with others to accelerate some of this work. I think our role has become far more consultative in terms of being able to sit down with customers. It's less transactional, it's more strategic. It's transforming my workforce to really be able to understand, and partner, and work with customers and other partners to say, 'What is the customer's North Star?'"

The partner-based ecosystem angle is key. To fully address the needs of different industries, operators have to partner with experts in those industries. From a technical perspective, operators need hyperscalers and they need to meet customers where they are, which means being cloud-agnostic and working with Microsoft Azure, Amazon Web Services and Google Cloud, instead of picking one. While this change means new models for engagement, governance and go-to-market, this is where 5G ROI will come from, so it has to be pursued.

This is the transitory moment where communications service providers can evolve into digital services providers. "Given the

enterprise focus for monetization of 5G,” Remella said, “CSPs can now partner with an ecosystem of industry-specific solutions, cloud hyperscalers and technology vendors to create solutions for their enterprise customers that leverage the trusted connectivity that is at the core of their services. CSPs can also play the role of system integrator or partner with established leaders in the systems integration field to deliver end-to-end, turnkey solutions to their enterprise customers.”

Verizon takes on FWA, MEC, IoT in 5G monetization push

As it continues to deploy its 5G network, with the latest boost from C-Band spectrum deployment increasing covered PoPs by 90 million, Verizon is following a “network-as-a-service” strategy that will open up new consumer and enterprise opportunities.

FWA for consumers and enterprises

For consumers, Verizon offers a 5G Home internet service that variably uses mmWave or C-Band spectrum. The goal is to become what Verizon Consumer Group Chief Revenue Officer Frank Boulben described as “a full connectivity provider for households and families. That

means offering mobility services, as well as home broadband, whether it’s with Verizon Fios, 5G Home or 4G LTE internet. We have multiple brands covering the entire market.”

In its ongoing network upgrade and expansion, Verizon is realizing efficiencies from offering mobility and fixed wireless access services from the same sites. “Our 5G network can serve both mobility needs and home connectivity needs,” Boulben said. “Previously, we had one network for mobility and one for home. Now, consumers will be able to interact with just one brand and one company for all of their connectivity needs.”

On the enterprise side, the C-Band activation marked a major expansion of 5G Business, Verizon’s business-facing fixed wireless access offering. In a recent interview with RCR Wireless News, Verizon EVP and

Business Group CEO Tami Erwin said 5G Business is all about “choice for customers. She noted that the FWA service, paired with existing national mobility distribution and leadership in every segment served, is a “natural extension” for business customers looking to bundle mobile and fixed broadband. “It really does give customers choice and value,” Erwin said. “The other thing we’re pretty excited about in our promotion at launch is...no price increase for 10 years.”

A two-pronged approach to MEC

Erwin said the C-Band activation is the “second phase of 5G” for Verizon. She said the combination of mmWave, mid-band and MEC results in a “21st century infrastructure.” In the context of 5G, gains in latency supported by the air interface need to be augmented with decentralized compute and storage;



Image courtesy of Verizon



The white concentric circles represent public MEC zones.

for latency-sensitive applications like precision robotics or augmented and virtual reality, piping data back to a centralized data center for processing offsets the reduction in latency made possible with the latest generation of cellular.

Verizon is all in on both public and private MEC and has a range of partnerships in place with the likes of AWS and Microsoft Azure as well as companies focused on applications. But its MEC infrastructure, live in more than a dozen metro areas in its public form and on customers' premises for private use, is part of a larger solution set, including its 5G network, both sub-6 GHz and mmWave, its private networks business, IoT devices and platform,

and managed services.

Partnerships are key in Verizon's larger strategy of delivering 5G-enabled enterprise solutions. In an interview ahead of Mobile World Congress Los Angeles, Verizon Business Chief Revenue Officer Sampath Sowmyanarayan said, "5G is all about the ecosystem. You cannot do it yourself. That's been our focus on anything 5G-related."

This partner-based approach has accelerated Verizon's sales cycle, Sowmyanarayan said, explaining that depending on the customer, Verizon may take the lead, AWS may take the lead, etc..."It actually helps because we're able to get to the right decision makers really fast. We can actually short circuit



Image courtesy of Verizon

"5G is all about the ecosystem. You cannot do it yourself."

*Sampath Sowmyanarayan,
Chief Revenue Officer, Verizon
Business Group*

what would typically be a four- to six-month process."

One example of how Verizon is using its MEC capabilities is to deliver near-real-time driver notifications to enhance road safety using sensor data. Working with Nissan North America's Research and Advanced Engineering team, the companies demonstrated how sensor data from vehicles and surrounding infrastructure can be processed at the edge of Verizon's wireless network and communicated back to the driver in near real time.



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Tackling the Trillion-dollar Question: How Do We Successfully Monetize 5G?

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Now, with opportunities to not only offer enhanced mobile broadband services to the general consumer but also massive IoT and URLLC to the enterprise markets, telecom operators have the challenge to transform their business from a connectivity provider to a holistic end-to-end solutions provider.

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The private, on-prem MEC solution is being used by logistics and supply chain specialist Ice Mobility for computer vision-assisted product packing. This flavor of MEC combines Verizon's network with the Microsoft Azure Stack Edge.

IoT: 'Low cost for massive deployment'

On stage at MWC Los Angeles, Sowmyanarayan announced that Verizon is committing further to IoT by enabling Verizon-certified IoT devices to connect to its 5G low-band spectrum network — branded as 5G Nationwide.

Additionally, the carrier debuted new intelligence capabilities that combine IoT network and device

analytics on a single dashboard available for customer trials now via Verizon ThingSpace, the company's IoT marketplace and management platform, which includes a bundle of existing IoT services, such as Intelligence Analytics Dashboard, SIM Secure, Device Diagnostics and Location Services.

As part of this IoT push, Verizon certified Quectel's new BC660K-GL module, becoming the first carrier in the U.S. to enable the module on its nationwide narrowband IoT network. Powered by the Qualcomm 212 LTE IoT modem, the module supports multiple frequency bands with extremely low power consumption.

"Low cost for massive deployment is the name of the game here," Sowmyanarayan said, explaining the module's low cost of sub-\$4 makes it an ideal choice for new narrowband-IoT device launches. Connectivity plans from Verizon will start at less than \$1. In many ways, he continued, the modules can be compared to Wi-Fi access points, but with "much greater value proposition" because it's "a turnkey cellular connectivity [solution] right out of the box."

Soon, Sowmyanarayan said, Verizon-certified devices will also be compatible with the carrier's Ultra Wideband network. With access to both networks, Verizon's IoT platform will prove to be a powerful tool for enterprises as they look to gain data and insight from IoT devices and sensors. "As we continue to expand 5G Ultra Wideband to more and more places," he said, "the opportunity for sensor densification explodes."

The big picture: 'People, process, product, and platform'

In terms of deriving new 5G service revenues from businesses, Erwin has talked before about the need to shift from transactional to consultative sales. "It's really the





“You can no longer just sell the pieces...How do I package a roadmap of transformation for businesses..?”

Tami Erwin, EVP and CEO, Verizon Business Group

mission we’ve been on since we became Verizon 2.0,” she said. Before that, “We were selling boxes. Now we’re really working with our customers in every segment we serve to say, ‘What is the transformation journey that businesses are on?’”

That means understanding, for example, the desired outcomes of a hospital or manufacturing operation or retail chain, then feeding those learnings back into Verizon to inform strategy related to, as Erwin put it, “people, process, product, and

platform. You can no longer just sell the pieces...How do I package a roadmap of transformation for business and really be able to say, ‘Here are all the things you need from a connectivity standpoint, from a platform standpoint, and from an applications and solutions standpoint. Customers really want one place to call. If they have a problem, they know they can call their Verizon team.’”

Dish’s approach to enterprise 5G

Amidst its greenfield 5G network buildout in the United States, Dish Network has also emphasized the importance of serving the enterprise space, focusing particularly on providing network customization and flexibility. Many of its partnerships demonstrate this

focus, highlighting the need for automation, artificial intelligence and machine learning for network optimization and to support the deployment of advanced 5G services at scale.

According to VoltDB’s Remella, subscribers appear to be the “publicly visible beneficiaries of 5G,” but in reality, it is enterprises that stand to benefit the most. He added that manufacturing, supply chain operations, brick and mortar retail, fleet management and vehicle automation are a few examples of industrial sectors that will feel the positive impact of 5G “immediately.”

Dish has previously claimed that its private enterprise 5G capabilities are “unique” compared to other Tier 1 providers, pointing to its cloud-native network, in particular,



as a differentiator. Specifically, a fully cloud-native network will allow it to sell virtually partitioned slices of its network tuned to the precise needs of an industrial user. While there's different flavors of private networks, including networks deployed in spectral set asides and fully owned and managed by the end user, Dish would be carving up its public network in a manner that, to an enterprise user, would work like a bespoke build.

“The good thing about these private networks that we're working on is they're not constrained by the geography of building our macro network,” Dish's Executive Vice President and Chief Commercial Officer Stephen Bye said during an August earnings call. “So, we're able to serve customers in different geographies within that environment. And then, the other thing, which is also important to highlight, it's across all verticals. There isn't a specific vertical that has an interest in this. We're seeing interest across every vertical and every industrial segment.”

He said the network capabilities Dish is planning to develop are “unique compared to what the other operators have in the market



Image courtesy of Dish Network

today. And so, not to say that they can't get there in the future, but we clearly have an advantage today that we're taking advantage of.”

Supporting those capabilities is AWS, which Dish's Chief Network Officer & Executive Vice President Marc Rouanne told attendees at 2021's AWS re:Invent is helping the provider achieve the flexibility and scale they need to become a “network of networks” to help provide customized services to enterprise customers based on speed, latency and other requirements. Dish is using AWS to host its RAN and 5G Core.

“It's not just one size fits all like we used to do,” Rouanne said during a keynote address. “Enterprise 5G customers need customizable services — individualized 5G networks

matched to enterprise needs. This customizability will be “a game changer for businesses across the industry and enterprises.”

Dish claimed that, in leveraging AWS, it will be the first telecom company to run its service on the public cloud. In line with this goal, the company also announced a partnership with Spirent Communications to enable automated, large-scale 5G core testing.

Of the partnership with Spirent, Rouanne commented: “As we deploy our cloud-native 5G network, we're looking forward to seeing the transformation of how organizations and customers will order and consume 5G services on their own slices and private networks.”

He also provided additional



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insights on how Dish plans to leverage the swift and virtualized cloud-based 5G testing capabilities that Spirent is providing, stating the Dish's ambition is to "offer one or many slices to any enterprise."

"Each enterprise could have many slices: Some high-speed slices, some very secure slices, some monitoring slices," he continued. "The problem is that they will have different requirements, so they will have different features. They will have different capabilities. Some may optimize for latency, some may optimize for cost, some may optimize for reliability or redundancy or security – or all of it. Which means that the testing of the slice has to be specific,"

Dish is also working with DigitalRoute, which will provide a cloud-native Usage Data Platform to help the provider monetize new 5G services and complex business models by ensuring flexibility and enabling better support for a wide variety of businesses and industries.

"The monetization of 5G services will be complex and continuously evolving," stated Andreas Zartmann, DigitalRoute' CEO. "It will require usage data to be processed from disparate network slices, from

the edge, from data centers and from various service applications and APIs. Our platform brings this all together to enable the complex scenarios of the future. The time when telecoms only charge per gigabyte is over."

T-Mobile working to double enterprise market share

T-Mobile US, which has the largest and deepest 5G network of the big three U.S. operators, is looking to leverage its network advantage into enterprise market share. As CEO Mike Sievert reminded investors on a recent financial call, the goal is 20% of the domestic enterprise market by 2025. And the company is on its way. "We already have commercial, revenue-generating

agreements for advanced 5G solutions,"he said.

When the company laid out its growth vision last year, former EVP and Chief Marketing Officer Matt Staneff, who has since left the company, said the idea is to use 5G network leadership to become more than "just a wireless phone company. 5G is going to be the technology powering the next decade of innovation. We're going to be a major player in all 5G applications."

In that same timeframe, T-Mobile Business Group President Mike Katz said enterprise decision makers engage in head-to-head testing which gives the advantage to T-Mobile. "The number one prerequisite for success among the [enterprise] customers we serve is network...



Image courtesy of T-Mobile US



Image courtesy of Alaska Airlines



That is a huge benefit for us in a category where the buying approach puts wireless companies in rigorous head-to-head testing.”

Katz said, in its effort to better address the disparate needs of verticals, T-Mobile would develop specialized sales and service teams attuned to the needs of those verticals. He said the goal isn’t just to be on enterprises’ radars but “top of mind for every CIO across America.”

One of T-Mo’s more public, high-profile enterprise wins is with Alaska Airlines, which tapped the operator for a wide-ranging partnership that installs T-Mobile as the preferred wireless provider to the airline. As part of the new agreement, Alaska will migrate the majority of its mobility business to T-Mobile.

“With air travel returning to normal, Alaska is looking to take advantage of the high-bandwidth, low latency capabilities of 5G to optimize every aspect of the customer experience – from ticketing to check-in, on-time departures and arrivals, baggage tracking and much more,” said the companies in a statement.

T-Mobile said Alaska Airlines will experiment with emerging 5G services like Multi-Access Edge Computing (MEC) and private networks to help improve efficiency and traveler experience.

“Leveraging over-the-wing, under-the-wing, and gate applications through MEC could enable airlines to provide ground and flight crews with the information

“We have a lot of capacity. Because of the 5G benefits and capacity, we can go and attack a home broadband market. We can go and attack [the] small towns.”

Neville Ray, President of Technology, T-Mobile US

they need to speed aircraft turnaround times, resolve gate issues and streamline operations to provide an even better passenger experience,” said the companies.

Providing an update at the company’s most recent earnings call, Katz said T-Mobile US ended 2021 with a win rate and a corresponding net add velocity that will get the operator to the 20% market share target in 2025. Katz also called out fixed wireless access as a significant growth

vector on the enterprise side. “We think there are opportunities across other business segments as well, including large enterprise, where we can provide both primary and redundant services in some use cases.”

On the FWA front, T-Mobile, like Verizon, is putting the service in front of both consumer and enterprise customers. In keeping with its “Un-carrier” branding, T-Mo’s messaging has leaned heavily into offering customers choice in markets otherwise dominated by one or two cable companies. At the same time, T-Mobile US is aggressively courting new subscribers in rural parts of America where its low-band, 600 MHz Standalone 5G network gives it a far reach.

President of Technology Neville Ray, speaking in June last year, framed the FWA offering as a function of T-Mo’s deep spectrum portfolio, including 600 MHz and 2.5 GHz. “We have a path, from a network perspective, to generate that opportunity at very low increment cost for the business,” he said.

Tying together FWA and rural customer acquisition opportunities with the network, Ray said, “The enormous capacity on the network is generating room for more

growth and new opportunities. We have a lot of capacity. Because of the 5G benefits and capacity, we can go and attack a home broadband market. We can go and attack [the] small towns...where over 130 million people live in the U.S. Those are real, tangible opportunities for us, with [the] powerhouse network that we have.”

Nokia: CSPs need to evolve from network providers to network-based enablers

In a written Q&A with RCR Wireless News, Nokia’s Elana Crowne, director of product marketing, monetization lead, and Olivier Guéret, cross-portfolio ecosystem and marketing, customer experience, shared the vendor’s perspective

on how operators are working to monetize 5G services. Successful communication service providers (CSPs) have monetization opportunities in both the consumer and enterprise segments, but success requires the right blend of technology, ecosystem partners and market positioning. The following text has been edited for length and clarity.

Q How does Nokia define 5G monetization?

A 5G monetization is top of mind for Communication Service Providers. Having invested billions of dollars in 5G deployments, they are now looking at the best options to maximize returns on their investment. 5G has the potential to drive new revenue growth and new business opportunities beyond



Image courtesy of Nokia



Elana Crowne, director of product marketing, monetization lead, Nokia

connectivity, both in the consumer and enterprise segments.

At Nokia, we are strongly convinced that a successful monetization starts with creating value for the end customer, consumer or enterprise. Therefore, our definition of “5G monetization” covers the whole process, from understanding the consumer and enterprise needs, to working with partners and ecosystems to address that need and eventually monetizing that value creation. We support our customers at every step of that process, with our consulting services, product and solutions but are also very active in fostering collaboration between industry players and the



Olivier Guéret, cross-portfolio ecosystem and marketing, customer experience, Nokia

creation of ecosystems.

Q How are CSPs faring when it comes to monetizing 5G? What obstacles are they having to navigate?

A There are several strategies when it comes to 5G monetization. CSPs can continue to apply the same pricing strategies and monetize connectivity and capacity, but those who seek to address their customer needs or pain points with bundled services (for consumers) or tailored solutions (for enterprises) are most likely to generate the highest returns. CSPs won't be able to do everything themselves and they will need to partner.

Additionally, CSPs need to ensure

they have the right technology in place to enable this and many CSPs are being held back by legacy BSS that are not fit to capitalize on these opportunities due to their monolithic architectures and limited flexibility.

Our independent monetization survey of 100 SPs across the globe (will be published in the new year) found that 98% are going to evolve or extend their BSS in the next 5 years to effectively monetize 5G.

Q How is Nokia helping CSPs address these challenges?

A In terms of ecosystems, Nokia has launched our Open Ecosystem Network (OpEN), a collaborative platform where industry players, big tech companies and start-ups alike, can co-ideate, co-create and bring to market innovative services and solutions.

In addition, CSPs require modern monetization solutions to meet the needs of the 5G economy. We are supporting CSPs with our innovative monetization solutions. The key elements of a 5G ready monetization system includes: enable CSPs to capture all new revenue opportunities; enable business agility through faster [time to market] of services and offers (no-code

configurability); meet CX demands of users; support operational efficiency through software architecture that reduces TCO.

Q What are some of the most readily-monetizable 5G use cases?

A In the consumer space, South Korea is one of the most advanced countries and a good example to look at when it comes to advanced 5G services. We recently interviewed LGU+ Vice President and Head of XaaS Business, Son Minseon, to talk about how her company shaped its 5G service bundles and pricing strategies. Their success is based on a fine-grained customer segmentation to meet specific lifestyle needs, such as video streaming, cloud gaming, immersive sports and music events with AR/VR services.

On the enterprise side, our recent monetization survey has found that the top use cases include enterprise IoT services and NaaS offerings.

Q In what ways might a CSP be required to extend or change their role as a connectivity provider to best capture 5G revenue opportunities?

A As stated by LGU+, CSPs need to evolve from

being a “network provider” to a “network-based enabler.”

CSPs will need to embrace openness, both internally to break down the silos and make the best usage of the goldmine of data but also externally by opening up their network APIs to partners in order to spur innovation, create value and deliver in a timely manner.

Q What sorts of partnerships should CSPs be developing to best monetize 5G?

A We believe there is no one type of ecosystem and CSP will need to get involved in (and sometimes lead) multiple ecosystems.

For services targeting a large audience with a medium added-value, they can simply participate in an already large, established ecosystem and bring the connectivity. By doing so, they can quickly access a large developer community and services can be brought to market faster.

For “long tail” services addressing a small audience but with a high added value, they might want to take part in (or lead) a smaller ecosystem.

These partnerships and ecosystems are also becoming increasingly important and our recent survey

found that 60% of new revenue will come from B2B2X business models and not from traditional B2B or B2C business models

VoltDB: CSPs must revisit the data layer of their networks

Figuring out how to offer new services and enabling new use cases that take advantage of 5G is only one piece of the monetization puzzle. In a Q&A with RCR Wireless News, VoltDB’s Chief Product Officer Dheeraj Remella explains that if CSPs want to support 5G-enabled enterprises, they need to evolve their internal business and operation systems, as well.

Q What role do data platforms play in 5G monetization? How have they had to evolve to support the applications being enabled by 5G?

A 5G networks are software driven end-to-end. This is done consciously to allow CSPs to be agile in their ability to provision and bring to market new products. When all layers are software driven, the entire system is producing data to inform and decide. This means that it is not just the subscriber data that is of interest, but rather data about the network is also important.

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February 15th, 9am-4pm EST
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women IN TELCO

March 8th, 9am-4pm EST
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Explicitly but not exclusively for women.

www.WomeninTelco.com



March 29th, 9am-4pm EST
Virtual Event

Can cloud economics make 5G the engine for digital transformation?

Cloud-native is a new frontier for the telecoms set and a necessary frontier given CAPEX and OPEX constraints, as well as the need to imbue 5G networks with hyperscale and new levels of flexibility. At the same time, the telecoms sector is a burgeoning market for hyperscalers looking to take learnings from more simplistic operational and business models and apply them to what is arguably the connective fabric of global commerce. With our deep expertise in telecoms, RCR Wireless News is positioned to facilitate a meaningful dialogue between major stakeholders who are committed to advancing their independent and collaborative growth strategies.

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“There is an important confluence of IT data and OT data that is going to drive the SLAs [service-level agreements] and services provided by CSPs.”

Dheeraj Remella, Chief Product Officer, VoltDB

There is an important confluence of IT data and OT data that is going to drive the SLAs [service-level agreements] and services provided by CSPs. When splitting the world into things to do to enable 5G and the things to do enabled by 5G, CSPs internal systems on both the business and the operations side need to evolve to support the 5G-enabled enterprises and industries. This means that most of the processes that used to be cyclical will need

to become continuous. To tie into the technical elements, things that were based on periodic and batch processes will be converted to continuous and streaming data processing. But to ensure the scale and latency requirements, data has to travel in the shortest path from creation to value. This means that elaborate complicated technology stacks will start to impede progress. Fewer layers touching the data and doing more when they touch will be the evolving pattern.

Q What else is required, from VoltDB’s perspective, to adequately monetize 5G?

A With the increasing data generation rates, just processing data in some data lake to analyze and learn will not suffice.

The agility that is required to adapt the systems to the ever changing environment would require operationalizing the learnings. There are two types of moments in any system: ones that give an opportunity to increase revenue through upsell, cross sell or even customer acquisition and ones that are indicating that something malevolent is shaping up to culminate in the compromise of the network or data or expose the network users

to harm. Either of these types of moments need to be acted upon before the context has changed and the decisions and actions are not germane anymore. It is important to not just meet scale and latency for simplistic operations but it is, and will continue to be, important to learn from data the current conditions and be able to incorporate those learnings into the automated decision making process. Monetization and security cannot be reconciliation exercises but need to be incorporated and intertwined into the day-to-day processes in an automated manner.

Q How are current BSS failing to meet the new latency requirements of 5G? What changes need to be made?

A Many of the BSS solutions out there are based on aging and tired technologies of yesteryears. With the demands that 5G is placing, tier 1 and tier 2 operators are already evidencing the inadequacies of these systems in meeting the speed, scale and latency requirements. The changes in core architecture to a service-based model is transitioning many of the network functions to become real-time even if they were batch oriented in the past.



With the BSS vendors aligning with the micro services architecture, it is not the application level that is going to be expressing scaling problems; it is the data layer that will experience scale, and consequently, data consistency problems at scale. BSS solutions, in their journey to address 5G architectural changes and needs, must revisit the data layer choices from previous generations to modernize to ensure they can meet the scale and latency expectations of the present and future. A modern data platform unifies the ability to ingest, store and process data in order to drive decisions for network function altogether while being horizontally scalable, durable, highly available and replicated across geographies

for resiliency.

Q What about revenue assurance? How is that changing?

A Previous generation revenue assurance centered around detecting, and in some advanced cases preventing, usage fraud. With the rise of IoT use cases, CSPs will need to ensure that not only do the fraud scenarios encompass usage, but also include intrusion and malware fraud. With the increased number of charging triggers proposed in the Release 16 specs, these trigger points can in addition to providing information for charging, can also supply the necessary information for protective measures such as intrusion detection, bot attack prevention and unauthorized access prevention.

Monetizing mmWave with strategic deployment

With deployment ongoing or planned in major global markets, 5G mmWave investment is positioned to ramp up in public and private mobile networks, as well as to support fixed wireless access and connect new types of cellular devices. For operators, 5G mmWave strategy should balance providing an enhanced user experience with adding capacity in localized hot zones and creating new service revenue opportunities, according to a recent study.



“What we see as the key opportunity for telecom operators is the monetization of additional data traffic.”

Vikas Dhingra, Principal, Bell Labs Consulting

While there are established challenges associated with 5G mmWave deployment, a new analysis by Bell Labs Consulting makes clear that with the right approach operators can achieve a four-year payback and 20% to 30% internal rate of return (IRR) following the payback period.

Bell Labs Consulting Principal Vikas Dhingra framed the issue: “mmWave has challenges, whether it is on propagation constraints, or whether it is on a lack of spectrum. But what we see as the key opportunity for telecom operators is the monetization of additional data traffic.”

Albeit to varying degrees, all three major U.S. operators have deployed

5G mmWave networks both mobile and fixed; the bulk of mobile investment is focused on urban cores, stadiums, airports, and other data-hungry locations. In Japan, all four operators—NTT Docomo, KDDI, Rakuten Mobile and SoftBank—have commercial 5G mmWave offerings. Earlier this year the Australian Communications and Media Authority auctioned off access to the 26 GHz band. And these are just some examples of what is accelerating traction around the world.

In working to realize the attractive payback period and IRR, operators have to think strategically about where to deploy 5G mmWave. “The key is to deploy 5G mmWave

in localized, capacity-constrained areas, such as train stations, stadiums, indoor shopping malls, outdoor areas where there is much higher network capacity needs,” according to Dhingra.

Remella also sees monetization opportunities with 5G mmWave from both consumers and m2m-type deployments. But he cautioned that with increased speeds comes a smaller window to engage with subscribers. “In a world of fast generation of data facilitated by 5G, machine type communications and fast consumption of services by subscribers, the moments of monetization and moments of revenue assurance are fleeting at best.

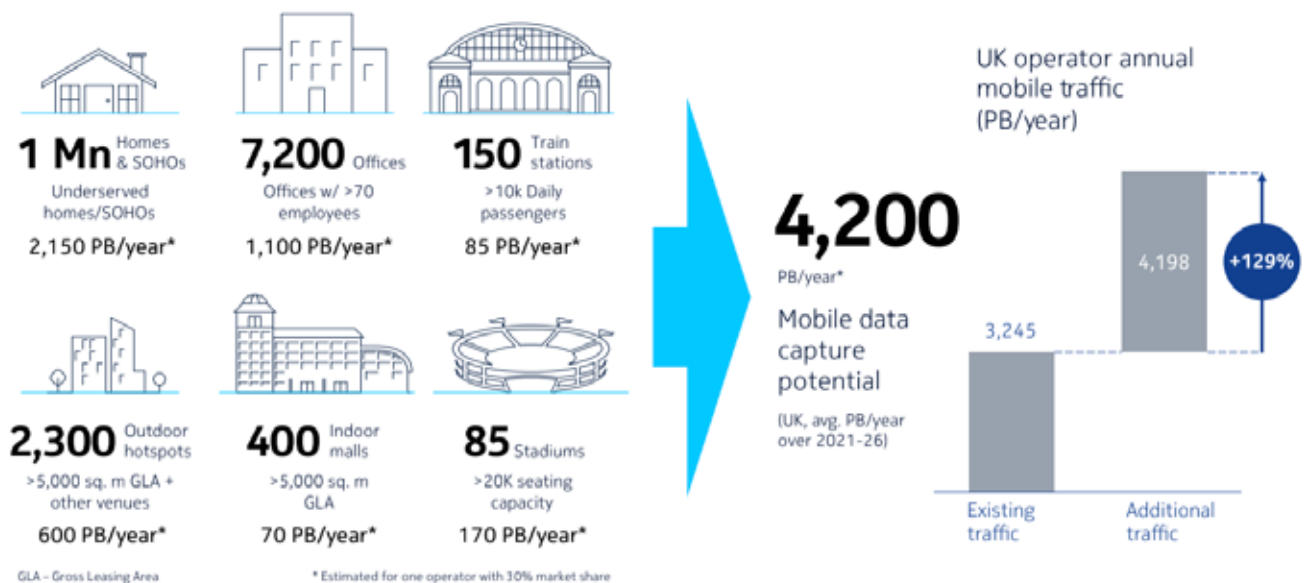


Image courtesy of Bell Labs Consulting/Qualcomm



“There appears to be a clear financial benefit for operators to rapidly deploy mmWave.”

Jim McGregor, Founder, TIRIAS Research

This means that unless reliable informed decisions are made as quickly as the data is arriving leading to quick actions corresponding to the events, these fleeting moments pass by unnoticed or worse noticed too late and actions incongruent to reality are taken.”

Further to the capacity point, industry analyst Prakash Sangam, founder and principal with firm Tantra Analyst, wrote in a contribution to RCR Wireless News: “The straightforward answer to the mmWave skeptics who often point

out its small coverage footprint is—it’s not coverage, but capacity! The [Bell Labs Consulting] report rightly points out the typical locations that they call ‘hot zones’ and use cases that are a perfect fit for mmWave.”

By adding capacity in these hot zones, operators can improve quality of experience and steer subscribers into more premium data plans while pursuing new business opportunities like 5G mmWave-based fixed wireless access and data plans for 5G-compatible laptops. This, Dhingra said, could potentially equate to up to an 8% increase in annual revenue.

TIRIAS Research Founder Jim McGregor concluded in a piece for Forbes that, “As with any new technology, the applications typically extend well beyond the initial intentions. It’s up to developers to innovate with the technology. However, there appears to be a clear financial benefit for operators to rapidly deploy mmWave.”

Conclusion

From mmWave to fixed wireless access to the powerful combo of 5G, IoT, and MEC, operators have a number of paths to monetize their

investments in 5G networks. Similarly, enterprises investing in digital transformation have an opportunity to leverage 5G and adjacent technologies to drive business efficiencies. But it’s going to take an ecosystem with operators playing a foundational and central role; and it’s not without risks given the dynamacy surrounding private networks, the growing influence of hyperscalers and the need for deep knowledge of specific vertical markets.

As Remella put it, “Enterprises will get solutions built for them leveraging 5G with or without the CSPs participating. If CSPs do not take steps to be a part of the solution, they will be very quickly relegated to being just connectivity players and this will make them akin to another utility player instead of the stalwarts of a visionary future that they can be.”

But operators are aware of the risks and, as we’ve explored in this report, are proactively positioning themselves to become more than just connectivity providers. In a connected future, the digital service provider who can sell business outcomes rather than technology stacks will be first to realize meaningful 5G monetization at scale. ((•))



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