

MARKET NOTE

5G Operational Readiness: Wipro's 5G/MEC Edge Solution Delivery Approach

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EXECUTIVE SNAPSHOT

FIGURE 1

Executive Snapshot: 5G Operational Readiness – Wipro's 5G/MEC Edge Solution Delivery Approach

Wipro Ltd. is a global information technology, consulting, and business process company headquartered in Bangalore, India, with 180,000 personnel addressing the business needs of customers globally. Wipro is publicly traded (NYSE: WIT, BSE: 507685, NSE: WIPRO) with FY19–20 revenue of \$8.1 billion, of which the company's communications business unit accounted for \$971 million. Wipro has productized its solution services approach to 5G operations, which includes its edge solution framework (BLUE), two 5G labs for testing the full application life cycle, and a showcase of ready-to-deploy industry use cases. Wipro's customer base includes communications service providers (SPs) in six global continental regions.

Key Takeaways

- 5G is a game-changing technology for communications SPs, but only if the key business and operations processes are redirected from a network-only focus to a real-time "assured customer experience" involving solutions based on network connectivity services combined with partner-defined inputs.
- The 5G/MEC world places a dynamic spin on the service fulfillment, customer experience, assurance, and charging/billing processes to address real-time configuration change, support multiple user profiles for the same customer with thousands of new network access points via a MEC platform, support large groups of IoT devices attaching to each MEC, and keep pace with rapidly evolving customer usage conditions.
- Wipro BLUE is important for managing a hybrid cloud-native application life cycle on CI/CD through DevOps extended to edge services. It also seamlessly manages and orchestrates 5G edge application services and communications SP workloads across core, edge, and remote office/branch business sites.
- As part of the assist for deploying and implementing 5G edge solutions, Wipro Ventures established a crowdsourcing platform called Topcoder. The separately run Topcoder organization helps enterprises use crowdsourcing at scale. It includes 1.5 million designers, developers, programmers, data scientists, and algorithm creators from around the world. On average, 7,000 new challenges are floated on the Topcoder platform every year. To date, several telecom projects have been completed with communications SPs based in North America, Asia/Pacific, and Europe.

Source: IDC, 2020

IN THIS MARKET NOTE

As the global pandemic races on, the evolution of 5G standards has slowed but not stopped. Although 3GPP Release 17 will not be available until late 2021 or early 2022, communications service providers' (SPs') appetite for updated network architecture – 5G SA core, 5G RAN, and multi-access edge computing (MEC) – continues to increase globally. The new opportunities from 5G/MEC, especially for business customers, continue to expand even though it will take the capabilities defined by R17 to meet the full promises of network slicing, cross-domain roaming, and inter-carrier 5G handoffs.

Addressing the technical requirements for each of these capability sets will be carried out with precision by the network infrastructure suppliers over the coming months. However, the operations and monetization management functions that are a part of this new technology wave will take a significant level of communications SPs' expertise combined with the advanced systems, testing, and process insight of trusted business solution suppliers and systems integration (SI) partners.

This IDC Market Note looks at how Wipro with its 5G edge deployment strategy is making a difference in meeting the operational readiness needs of communications SPs the world over. Wipro addresses communications SPs' business management and operations functions – service orchestration, provisioning, inventory, catalog, activation, and assurance – through productized processes, implementation frameworks, and its 5G test labs. The document is based on insight gleaned from the Wipro Communications Business Leadership Virtual Summit held on November 4, 2020.

IDC'S POINT OF VIEW

5G and Evolving Service/Solution Delivery Requirements

5G is a game-changing technology for communications SPs, but only if the key business and operations processes are redirected from a network-only focus to a real-time "assured customer experience" involving solutions based on network connectivity services combined with partner-defined inputs. Getting to this point means evolving current business and operations management processes. It also means incorporating several new functions into these processes such as the Network Exposure Function (NEF). The NEF is designed to help communications SPs deliver higher customer value than previous technology generations by supplying network data/insight that can help software application developers, edge partners, and even enterprise customers create network embedded solutions (NES). NES-based applications can tightly keep communications SPs within the customer service delivery domain by providing customer value well beyond the connectivity pathway that cloud providers and hyperscalers took advantage of when 4G entered the connectivity scene.

Some of the key functional requirements needing attention as 5G/MEC takes center stage are:

- **Service fulfillment.** How will 5G/MEC solutions be instantiated for the customers that purchase them? What parts of the fulfillment process need human involvement, and which parts need to be automated based on network performance or business management conditions? What actions need machine-based learning (ML) due to complexity or inadequate human responsiveness? How will the assurance and monetization processes automatically adjust to meet dynamic service configuration changes? How are these processes different if the end user is a machine instead of a human? Can existing inventory systems designed to support thousands of MEC platforms, each capable of connecting with tens of thousands of IoT devices, address such needs or will new inventory systems be required? Will existing catalog

systems support internal and external service components? How will multislice coordination within the same service offering be addressed?

- **Customer and service-level assurance.** How will 5G solutions with very low latency requirements and/or quality of service guarantees be continuously managed? How will service assurance interact with the fulfilment and monetization processes to meet dynamic service conditions regardless of customer type (e.g., human, machine, consumer, or business/enterprise)? How will quality of service parameters be monitored? When violations occur, how will billing be notified? How will charging be accomplished for services with changing quality-of-service levels?
- **Charging and billing (monetization).** What are the best means for charging customers benefiting from 5G/MEC solutions? Are existing charging systems able to support hybrid network architecture such as 3G/4G/5G and/or 5G/MEC? Can existing billing systems charge customers based on parameters beyond throughput volume and speed to include factors such as latency, reliability, frequency, APIs, slices, edge resources, coverage area, number of devices, virtualized network functions, and/or partner-provided apps? How will services involving multiple business models with the same customer be enacted to provide the right level of accountability to the customer, partners, and the network operators involved?

Outside the traditional approach of first designing, then delivering, and finally monitoring service performance, the 5G/MEC world places a dynamic spin on each of these functions to address real-time configuration change, support multiple user profiles for the same customer with thousands of new network access points via MEC platforms, support large groups of IoT devices attaching to each MEC platform, and keep pace with rapidly evolving customer usage conditions. The operations and monetization requirements just suggested, along with several others, must be adequately supported if advanced 5G/MEC solutions (applications) are to provide the heightened customer value such applications promise. The most actively involved industry sectors working with communications SPs to offer end-user customers 5G/MEC services are:

- Software developers and device manufacturers that are modifying their product portfolios
- Public cloud and hyperscalers that are extending their services to the telecom edge
- Enterprises developing digital offerings that leverage various edge services

With the complexity 5G/MEC solutions and applications bring, many communications SPs are stretched to assemble the right resources for making things work. Getting each of the new business and customer experience needs right is no easy task and implementing processes to address them is the reason most communications SPs are looking to a trusted SI partner for help.

Wipro 5G/MEC Edge Solution Strategy

Application enablement for the telecom edge is a key focal point in Wipro's 5G market strategy. The company's approach looks at creating completely new internal support systems or adapting existing ones to address the required dependencies for operating within a communications SP's network and business operations environment. To date, Wipro is working with various types of stakeholders including communications SPs, independent software vendors (ISVs), device manufacturers, large enterprises, public cloud providers, and hyperscalers.

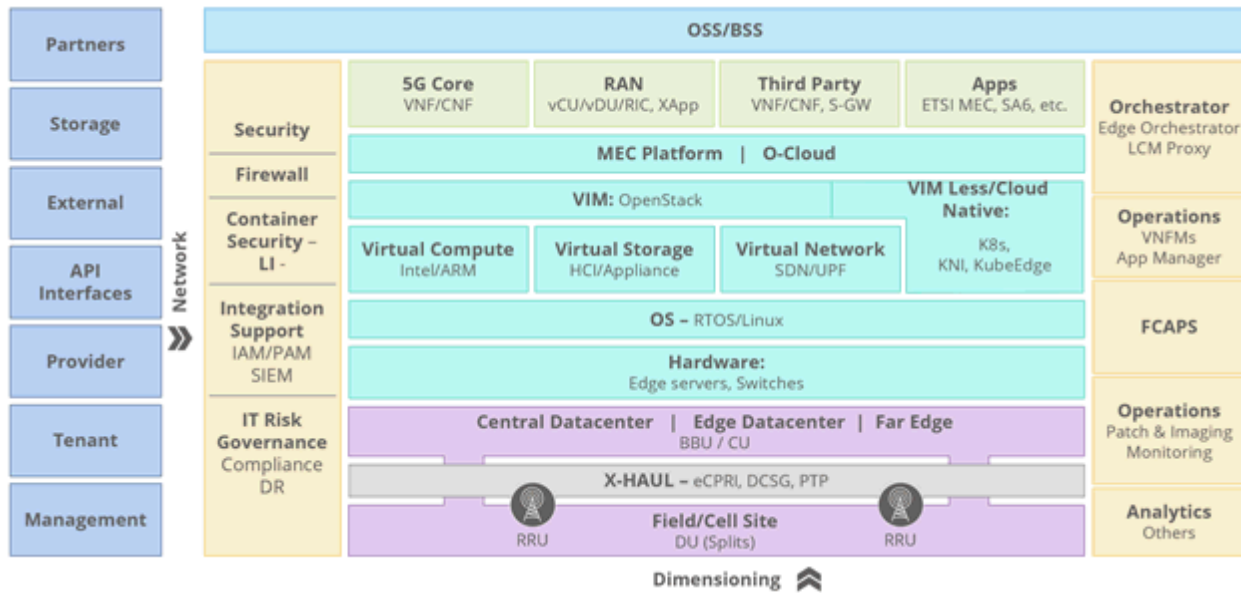
Wipro emphasizes that not every business solution benefits from connectivity with the telecom edge, and communications SPs do not always benefit from every edge application. Current market hype makes it easy to get caught up and commit valuable resources to a project without results. However, as Wipro notes, stakeholders would do well to get advice from trusted advisors and work on ways to

validate ideas. To this effect, testing end-to-end services and addressing interoperability issues, if identified, require complex lab investment. Wipro has two purpose-built 5G labs to test the full application life cycle including combinations with RAN, O-RAN, and core. Its telecom center of excellence is a showcase for ready-to-deploy industry use cases.

Wipro has formulated its BoundaryLess Universal Edge (BLUE) framework to address the different aspects of delivering robust and production-grade edge services (see Figure 2).

FIGURE 2

Wipro BoundaryLess Universal Edge (BLUE) for Telecom Functional Architecture



Source: Wipro, 2020

There are a range of accelerators for BLUE adoption for enterprises, communications SPs, and others. BLUE for telecom, for example, is an extension of the company's proven assets including BoundaryLess Data Center (BLDC), Enterprise Digital Operations Center (EDOC), Cloud Studio, and Digital Rig for stakeholders to transform and operate complete global-scale services. As part of this, Wipro has also created a full platform to enable a peer-to-peer marketplace for offering connected assets, including facilities, which can be white labeled according to customer needs.

Wipro also notes that BLUE for telecom carries over a range of capabilities for the full life cycle of 5G edge applications including a reference architecture (refer back to Figure 2), reusable components, and shared services. It assists with communications SPs' operations tied to running, monitoring, maintaining, and scaling at the edge. BLUE is important for managing a hybrid cloud-native application life cycle on CI/CD through DevOps extended to edge services. It also seamlessly manages and orchestrates 5G edge application services and communications SP workloads across core, edge, and remote office/branch business sites.

Beyond the foundational aspects of solution design using cloud-native and edge-native applications, Wipro's business focus is tied to edge-based applications for both public and private 5G by:

- Leveraging the 3GPP standards as they evolve from 15 to 16 to 17
- Incorporating the ETSI MEC platform and APIs
- Following various industry bodies such as LF EDGE, TSDSI, TM Forum, and ONS
- Using open source platforms such as the Intel Open Network Edge Services Software (OpenNESS) for leveraging low-level features
- Integrating platforms with telecom edge-specific APIs such as AlefEdge, MobileEdgeX, and IBM EAM
- Applying hyperscaler platform-based development to extend its offering for the edge through services such as Azure Edge Zones, AWS Wavelength, and Google GMEC

Wipro is in a position as a systems integrator and engineering partner to bring fully tested solutions to market for its customers. As an alternative, Wipro can also integrate customer-preferred solution building blocks from its partner ecosystem or open source options as needed by its communications SP customers. Enabling 5G/MEC solutions is no easy task and one that will take the combined efforts from organizations such as Wipro working in partnership with its communications SP customers for a very long time.

LEARN MORE

Related Research

- *Market Analysis Perspective: Worldwide Communications Service Provider Operations and Monetization, 2020* (IDC #US46799220, August 2020)
- *5G Operational Readiness: Amdocs, Netcracker, Nokia, and Oracle Communications Commit to TM Forum's Open Digital Architecture* (IDC #lcUS46652520, June 2020)
- *Netcracker Announces OSS/BSS Cloud-Native Digital Solution Portfolio* (IDC #lcUS46512820, June 2020)
- *5G Operational Readiness: HPE's Core-to-Edge Network Infrastructure and Operations Management Solution* (IDC #US46143620, March 2020)
- *5G Operational Readiness: Oracle's Digital Experience for Communications Solution* (IDC #US45943720, February 2020)

Synopsis

This IDC Market Note provides our perspective concerning how Wipro enables its customers to address the complex operations and monetization challenges that are becoming a key part of all 5G/MEC deployments.

"Operational readiness for the complex 5G/MEC world is anything but easy as real time is now a strategic necessity for the solution fulfillment, assurance, and monetization functions. Central to this business change is insight rendered by experienced partners in cloud-enabled operations, CI/CD software development, partner orchestration, end-to-end service-level management, and service testing. While each of these is an essential necessity, help in how to effectively use dynamically changing business models is an additional operational concern. Communications SPs cannot address all these new needs alone. It is the reason why solution suppliers and systems integrators, such as Wipro, will have a long-term role in the 5G/MEC market as they continue to deliver high customer value," says Karl Whitelock, research vice president, Communications Service Provider Operations and Monetization at IDC.

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