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Unlocking 5G Monetization with Next-Generation Billing

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Fifth-generation mobile broadband technology, commonly known as 5G, creates new business opportunities for communication service providers (CSPs) and cloud service providers. 5G technology improves the quality and capacity for voice communications and expands wireless data capabilities. The wireless broadband infrastructure can now handle large quantities of near real-time data, enabling new service models.

With 5G, service providers are also adopting new fee and billing strategies that provide more potential for revenue and greater scalability. The old approach of charging by the minute or for bits and bytes crossing the network gives way to new "intent-based" pricing. Rather than charging to connect, 5G service providers can charge for actual service consumption, including quality of service (QoS) defined by service level agreements (SLAs). 5G will make it possible to charge for premium access, delivering wireless broadband service by the network slice.

Edge computing and network slicing

New technologies have changed how CSPs deliver mobile broadband services. The 5G ecosystem relies on edge computing and network slicing to increase capacity and reduce latency. As a result, 5G infrastructure enables new types of broadband services, requiring more partnerships to deliver those services.

Edge computing is a distributed computing strategy that reduces the load on the 5G broadband infrastructure by handling data processing at the network's edge. Edge computing helps increase throughput and reduce network latency, adding customer value.

The traditional data processing model centralizes storage at the data center (or in the cloud) and thenpushes the data processing to endpoints. With edge computing, data processing is distributed. Data is delivered by wireless connection to local CSPs, who then manage data processing at the network's edge before delivery to customers. Edge computing gives users faster, more reliable service and saves bandwidth, given that data is transmitted over a shorter distance. It also presents new business opportunities for CSPs to manage multi-access edge computing (MEC) services.

Network slicing is another innovation that is part of 5G wireless broadband. A wireless 5G link can be transformed into multiple virtual data links using slicing. Each logical network connection is self-contained and managed independently, with each connection meeting different speed, latency, and reliability requirements. With network slicing, service providers can charge for QoS by the slice. For example, a high-bandwidth, low-latency connection to support a business-critical computing application would cost more than a lower-bandwidth connection to support machine monitoring or some lower-level function. 5G customers will pay a premium for higher QoS performance.

MEC revenue sharing

High-capacity wireless broadband allows data sharing anywhere, opening possibilities for new applications.

Services that rely on the Internet of Things (IoT) are taking full advantage of 5G. IoT systems can monitor everything from home thermostats to mission-critical robotic manufacturing. IoT data traffic can be prioritized depending on the application. For example, IoT data that reports on life-saving medical equipment can be prioritized over periodic energy usage checks. Smart cities, for example, will be powered by 5G networks that connect sensors to handle energy and water management, traffic control, smart lighting, and other aspects of the infrastructure. The ability to sense and respond in real time makes using IoT and 5G together inevitable. 5G also supports

multimedia applications such as augmented and virtual reality. In addition to consumer applications like gaming, AR/VR is also used in engineering, construction, and other industrial applications.

Wireless artificial intelligence (AI) applications are taking advantage of 5G. Edge computing gathers data from local devices to train and refine centralized machine learning models. AI analytics can use wireless sensors to monitor smart city infrastructures to control traffic signals to optimize traffic flow. AI can also be applied in security for threat and intruder detection.

Expect to see a growing number of industrial applications for 5G. In logistics, 5G tracks goods in transit and for fleet monitoring and navigation. In healthcare, 5G is used to monitor wearable health monitors. Retailers use IoT sensors to track inventory and manage checkout using AI to identify goods. IoT devices are used in agriculture for applications such as monitoring livestock. AI and IoT combine to monitor equipment for proactive equipment maintenance in manufacturing.

Each of these applications has a different QoS profile requiring different levels of 5G service. CSPs, service providers, and others will collaborate to deliver these MEC services, charging and sharing fees based on service priority and demand.

The CSP is responsible for maintaining the network to deliver applications to the end users. Moving data processing to edge computing systems allows CSPs to deliver the last mile of service to customers, creating a new revenue stream for CSPs, given they can charge for MEC access and management of the service. Because CSPs, cloud service providers, equipment manufacturers, software as a service (SaaS) software providers, and others are all involved in delivering 5G services, MEC transparency is essential for revenue sharing.

Using intent pricing

Providers will also start using intent pricing for services as billing for broadband access no longer makes sense. Intent billing charges for services consumed on demand, based on performance SLAs. Charging access fees for continuous access for IoT monitoring is impractical. Instead, MEC services

will bill for IoT access on demand, charging more for priority data traffic and less for low-level monitoring. Customers will pay a premium for high-speed, high-priority access.

When purchasing services and paying via intent billing, the customer shares their intent with the service providers, for example, if they need a dedicated 5G connection to operate remote hardware between 2:00 and 3:00 p.m. The service providers then set the price for service based on the network requirements. Each participant supporting the MEC service quotes a fee based on the cost of service, latency and slicing requirements, and other factors. Once the price is calculated based on user intent, the customer can accept or reject the service agreement terms.

To demonstrate how intent billing for 5G services can work, Blue Planet, Gotransverse, MATRIXX Software, Salesforce, Verizon, and Vodafone Group joined forces to create a B2B2X marketplace as part of a Catalyst project for TM Forum. The test case showed how a building contractor could license services to use 5G-networked drones for site inspection. The contract called for 5G access for a specified time of use with latency requirements, connection reliability, and other variables calculated as part of the service, including the additional load on the 5G ecosystem. Revenue sharing is calculated in the price of the service. Once the fees are calculated, the contractor receives a quote for service.

Service providers and their partners have just started to tap the immense revenue potential of 5G. New commercialization ideas, such as our B2B2X marketplace test case, continue to emerge. With every new service model come new revenue opportunities to monetize for CSPs and other partners in the 5G delivery system.