Creating Service Provider Revenues in the 5G Era

By: Kevin Riley

Service providers are primed and ready to capitalize on new 5G opportunities that include everything from enhanced mobile broadband to the Internet of Things (IoT), the Industrial Internet of Things, smart buildings, smart cities, smart cars and more. As of this writing, Ookla's real-time 5G map lists more than 100 5G operators around the world boasting more than 7,100 deployments.

Delivering new 5G services has implications across a wide "spectrum" of the operators' network architectures and ecosystems, ranging from the networks' core to the edge with multi-access edge computing (MEC), distributed cloud, network slicing and the interworking of legacy systems. And while we are still only at the dawn of the 5G era, smart service providers are already gearing up for a new phase of revenue generation.

The Secret Sauce: Analytics with AI and Machine Learning

Of course, service providers are seeking to generate more revenue and profit with 5G. One obvious way to enrich and monetize service provider networks is through the power of analytics. However, existing analytics tools are not robust enough to support the ongoing changes that 5G will bring within business and communications networks. Communications service providers (CSPs) must therefore seek new ways to improve their use of data analytics to achieve the expected benefits from 5G applications. This can be realized through the adoption of big data analytics with artificial intelligence (AI) and machine learning (ML) to improve everything from profitability to operations, performance, resiliency, security and scalability.

In addition to monetizing the network and creating revenue opportunities with new 5G use cases, big data analytics offers service providers a number of benefits ranging from immediately improving network efficiency and security to dramatically improving the user experience.

The bottom line is that combining 5G services with big data analytics, AI, and ML can help improve almost every facet of the service provider's business, including monetization, business and network operations, network and subscriber management, quality of experience and threat detection and mitigation.

Let's take a closer look at how AI and ML improves these processes below.

Improved Consumer Experience

5G will usher in a truly elastic, multi-tenant network model in a pure software environment. Analytics will be essential to help monitor, allocate and assure service delivery in this new world. By better understanding network behavior, service providers can significantly enhance the user experience and, in turn, better serve their subscribers. Having the ability to substantially reduce the number of incoming complaints and time to resolution while more quickly resolving the issues that do come in is a huge competitive differentiator and a great customer retention tool.

Knowing subscribers and their usage patterns and having insights on individual customer experiences based on an extensive set of key performance indicators is invaluable to service providers. Analytics enable service providers to model different behaviors, trends and subscriber usage patterns. With this information, CSPs can create customized pricing and usage plans that truly meet the customer’s needs and ultimately curate a more personalized experience for the user. Advanced AI and ML analytics can also help service providers better understand how to target and secure premium and high-value customers with customized packages that will be most attractive to them.

Furthermore, the customer support experience is being re-architected with AI technology. Advanced chatbots help optimize the customer front-end support interface by integrating AI into automated "conversational solutions.” These same AI algorithms also run in parallel to agent-customer conversations to pull relevant data from corporate knowledge databases, expediting issue triage and information gathering.

Improved Network Performance, Insights, and Service Assurance

Leveraging the right analytics tools will deliver new real-time insights into service provider networks, help reduce customer churn and offer dramatic improvements in important areas such as service level agreements and service assurance. These areas can take on even greater importance as 5G—with its faster data connections—ushers in increased adoption of critical areas such as remote surgeries and other telehealth and vertical use cases.

Current rollout of 5G networks involves 4G and 5G network coexistence. Assuring 5G services with high throughput and speed requirements will be challenging in such environments. Depending on the application, the demands for data throughput will vary. For example, applications such as autonomous vehicles, remote surgery or massive IoT device connectivity will all require high-resolution streaming with minimal latency. AI applications like traffic classification can be applied within 5G networks to ensure that 5G traffic is optimized and served effectively.

Big data analytics can help service providers better understand new service uptake, stay keenly attuned to competitive threats and performance issues (e.g. quality of experience), leveraging a continuous and intelligent feedback loop.

Improved Business and Network Operations

Among the most-anticipated benefits of 5G will be its ability to offer network sharing via slicing and delivering network services “on-demand” and MEC. Implementing network slicing demands high levels of operational agility from the network in detecting and predicting traffic types and identifying the network slice best suited to handle the traffic. ML models can be trained to perform these functions and to monitor the performance of network slices to determine when an overload or failure is likely to occur in low latency.

Many CSPs are in the process of transitioning their current networks to software defined networking (SDN) and network functions virtualization (NFV) technology to give them the ability to dynamically scale network resources based on customer demand. This shift will reduce costs, increase network agility and improve customer service. However, intelligence from the network will be crucial in orchestrating the virtual environment. Given the complexity of the network, AI will be required to provide this intelligence.

Threat Detection and Mitigation

As 5G unlocks a huge number of opportunities and use cases for operators with

massive amounts of IoT devices, applications and data flowing through the underlying network, it also creates and raises new challenges. The additional billions of endpoints, applications and data enabled by 5G and the Internet of Things create an expanded threat surface, making operators increasingly attractive and potentially lucrative targets of distributed denial of service (DDoS), man-in-the-middle and authentication attacks, and other malicious activities.

Given the enormous amount of service complexity that 5G will bring, detecting threats and securing communications networks will become a new art and science. The automation and adaptation that analytics provides is the only means to keep up with this increasingly complex, hyper-scale threat landscape. The use of a variety of policies, advanced analytics, AI and ML tools can help service providers identify and filter out malicious activity before it has the opportunity to infiltrate their network. By understanding the evolving security landscape the new network brings, service providers can leverage analytics to manage these increased threat surfaces and reap the benefits of 5G technology. Protecting their customers, brands and reputations also protects service providers' bottom lines.

5G and its use cases will soon be used at massive scale, enabling dramatically improved connections for businesses and consumers. Making the transition to 5G technology and architectures, as well as securing next generation networks, are at the top of many service providers' strategic priorities in 2020 and beyond. How they go about achieving these mission-critical objectives is vital. AI-driven analytics must be a major part of service providers' plans, whether for automated network operations using machine learning, streamlining business operations, securing networks and user privacy, enhancing the end user experience or creating new revenue opportunities.