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5G: Who's Minding the Slices?

Digital transformation and maturity; Yuval Stein

New 5G wireless technology promises a lot of things, including 1,000 times the data volumes, five times lower latency, up to 100 times higher data transfer speeds, five-nines reliability and ten times the energy efficiency beyond what 4G provides today. It's hard to comprehend what all of this will mean once the hype becomes reality, but practically every business across every industry is thinking about ways this 'supercharged' connectivity can be leveraged. But it's not the 'speeds and feeds' that are exciting everyone. It's the promise of new services, new devices and even new industries that 5G will enable, and of course the new revenue opportunities that come with it.

What makes 5G so different is that it will be built and rolled out based upon specific use cases, versus the one size fits all, 'build it and they will come' mindset of wireless technologies of the past. The ability for carriers to create individualized slices of their network means that the roll out of 5G will happen in a more targeted fashion, since each network slice will be designed to cater to the specialized needs defined by each use case or industry. This opens a whole new world of customized network-slice-as-a-service (NSaaS) offerings that will be created by carriers and sold to different business verticals.

A new wireless era built on SLAs and KPIs
Historically, wireless services have been delivered mostly in 'best-effort' fashion, with everyone sharing the same network and getting the same basic level of coverage. But with 5G network slicing, carriers will be held to a new, higher standard and level of accountability for the services they provide, all driven by service level agreements based on KPIs. For example, certain mission-critical IoT applications, like self-driving cars or remote surgery, will require a network slice that provides extremely low latencies (1 – 10 milliseconds), high bandwidth, and a connection that is ultra-reliable. At the same time, long battery life and low cost may be the primary drivers for an IoT network slice designed for wildlife monitoring or smart city applications analyzing data from parking meter sensors. These applications may not be as dependent upon mission-critical reliability or high bandwidth.

And there will be dozens, and some say perhaps thousands, of these slices that each provider will need to support, with the challenge becoming: How will enterprise customers be assured that they are getting what they paid for? If the CSP doesn't hold up its end of the bargain, the stakes are high. And not just for critical applications like medical devices and autonomous vehicles, but for other applications as well. For instance, let's suppose a network slice is designed to deliver a low power connection that will help extend the battery life of thousands of sensors throughout a smart city. If services are provisioned incorrectly, it could cause the batteries to drain faster than expected. The sensors could stop working, potentially causing loss of service, while also costing the city millions of dollars to replace the sensors before their normal end of life.

Today, when we make a call, watch a Netflix video on our tablet, or access the internet from our smartphones, it's quickly evident if we have a connection or not. But when it comes to services being delivered over network slices, things get more complex. As a service provider, how can I assure my Enterprise customers that they are getting – and providing to their customers – the level of service we've agreed to? For this reason, many CSPs are looking at giving enterprise customers access to end-point systems that will be used to monitor and manage their slices. Because each slice of the network is purpose-built, the intelligence to run, control, manage, operate and administer a slice needs to be given to the provider of the service. Typically, this is the enterprise customer or OTT. These service dashboards are expected to provide end-to-end monitoring for each industry vertical and for each end user, enabling the 5G network provider to allow aggregated service performance visualization, with the ability to drill-down to individual network slices, while using powerful analytics and the backend to ensure that committed SLAs levels have been met. The dashboard is just the tool or 'window' into what is happening on the network, with the service assurance component providing the real analytics muscle behind ensuring everything is performing as promised.

Delivering this level of access, automation and visibility to customers may be common in the world of cloud services, but not in telecom. As an industry, CSPs are indeed entering a new and exciting 'DevOps' era, one that requires not just new tools and technologies, but also a new mindset and way of thinking about the services they're selling.

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