When Will 5G Deliver What We Were Sold?

5G buzz is peaking. Mobile operators are announcing network launches, many later this year. Amid all the 5G hype, it is easy to forget the original 5G promise


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HELSINKI, FINLAND, September 5, 2018 /EINPresswire.com/ -- According to the 5G promise, end-users, services and applications will be allocated and guaranteed connectivity with characteristics that fully match their end-to-end needs. This includes bandwidth, delay, jitter and priority. The network slicing technology in 5G also allows for characteristics to be modified automatically in real-time according to a user's, service and application needs. This is called application aware network slicing.

Because of this end-to-end quality of experience guarantee, differentiated on a per network slice basis, it has been possible to sell all the 5G dreams to the markets – if you haven't heard of self-driving cars, remote surgeon and massive IoT, you must be living on another planet.

We are far from 5G deployments enabling surgeons to fix our failing knee caps from the other side of the world over a 5G connection. We are nowhere close to allowing us to take a nap while sitting in a self-driven car at 100 mph on a busy freeway.

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Network Slicing on the Radio Air Interface

The Next Generation Mobile Network Alliance (NGMN) defines network slicing as "Multiple independent and dedicated virtual sub-networks created within the same mobile network infrastructure to address mobile services having completely different requirements for latency, reliability, throughput and mobility."

One crucial technology challenge the industry must still solve is how to guarantee the mobile service quality characteristics also on the most demanding network, namely the air interface, which is a shared resource.

Further, 5G cannot exist in isolation. It must be fully interoperable with 4G networks so that end-

users, services and applications can fallback and still maintain connection with the agreed characteristics in case they move out of 5G coverage. Self-driving cars must be guaranteed real-time network responsiveness outside of any 5G network.

“Cloudstreet, the pioneering application-aware network slicing innovator from Finland, has invented a unique solution to provision quality parameters through the network slices end-to-end, including the radio air interface on 5G and maintaining the quality parameters on a 4G network when a user moves out of the 5G coverage.

Measuring Quality

5G networks will deliver Gigabit speeds with millisecond delays, which is a quantum leap compared to 4G. Not only that, for the first time, users, services and applications can get a fully tailored service for their needs with an end-to-end guarantee. For operators this means more revenues as each and every customer can be charged for what they need.

But this leads to another industry-scale dilemma to be solved in 5G … how to measure and assure quality of experience on all network slices from the operator and end-user and application perspectives?

In the 5G world, networks are formed by virtually slicing capacity with highly differentiated behavior on an end-to-end basis. Different network slices sharing common hardware resources may carry traffic with very different qualities.

A remote surgeon carrying out a critical medical operation needs high bandwidth and low delay measured in just few milliseconds. In an adjacent slice, a cloud application controlling a fleet of autonomous buses and self-driving vehicles requires a highly reliable, real-time data signaling service.

Service Level Agreements (SLAs) have always been present in telecommunications. In the 5G era, however, services, business models and pricing will all be largely SLA-driven, making accurate real-time monitoring and reporting of quality of experience a fundamental component for the entire 5G business ecosystem to function.

Network performance monitoring company Creanord was early to identify the critical role of SLAs in 5G. It has developed a high-precision measurement solution to assure end-to-end services by matching each Class of Service quality requirements in multi-vendor networks. Today, several operators in the United States use Creanord’s real-time performance analysis and automated SLA reporting tools to assure that their network delivers customers the quality of experience that was agreed upon.

SLA assurance will not only be an operator interest. 5G connectivity delivering a certain agreed quality becomes an inseparable component of many of the future applications and services such as virtual medical operations and self-driving cars. Connectivity, which doesn’t deliver upon an agreed SLA can destroy a service experience, prevent an application from working, or in the worst case, cause a serious accident.

One quality of service innovation company based in Finland called Kaitotek predicts that quality of experience monitoring will move into 5G application software. Its unique quality of experience measurement software solution called Qosium is the only passive application independent solution for measuring Gigabit speeds and below millisec latencies. As opposed to normal active measurement solutions, which measure injected test traffic on a network, the Qosium passive solution monitors the real-time performance of a live network as experienced by the application.

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the applications themselves can verify it, the 5G promise of network slicing can be realized in the way we were once sold.

Cloudstreet, CreaNord and Kaitotek are showcasing their 5G solutions at the Mobile World Congress Americas in Los Angeles in September 12-14th at the Finland Pavilion (Stand 1360). Other telecom and IoT companies showcasing at the Finland Pavilion are Bcaster, Convergentia, Exomi, F-Secure, Sitowise and Tosibox. Finland Pavilion is organized and funded by Business Finland's Connectivity from Finland business acceleration program. Business Finland is fully-owned by the Finnish Government.

Ends

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