ERICSSON

In collaboration with

Telstra

Success story:

Australia's first 5G network enabled by Ericsson Transport

November 2020

First steps in Telstra's 5G journey

As Telstra, Australia's leading telecommunications provider, embarked on its 5G journey, it chose the Ericsson Router 6000 to provide a flexible mobile backhaul solution that helped enable the first 5G services.

Telstra, Australia's leading telecommunications provider, offers communications services in multiple markets. It provides 18.3 million retail mobile services, 3.7 million retail fixed bundles and standalone data services, and 1.4 million retail fixed standalone voice services.

Telstra works to build a connected future, so that everyone can thrive. The company's brand is based upon network leadership, such as having the largest and highest quality network available in Australia, and more recently this has included 5G leadership. 5G will transform the way that we live and work; connecting devices more quickly and via a higher quality network, it will be characterized by new functions that could never be possible on current LTE networks.

What was Telstra's challenge?

Telstra recognized early on the strategic importance of 5G, and set a goal to lead the field with early 5G deployments in Australia. As part of that strategic vision, it began the journey to modernize its mobile transport capability and selected Ericsson to be part of that transformation. At the time, Telstra's transport solution was based on a layer 2 aggregation network offering primarily 1GE client interfaces. It was recognized that this would not meet the requirements of the rapid pace of Radio Access Network (RAN) evolution for both LTE and 5G.

The transport modernization journey started with the introduction of Centralized RAN (CRAN) deployments. With baseband capacity concentrated in 'Baseband Hotels' a step change in both client port density and aggregated transport capacity were required. In addition, transport layer resiliency was required to eliminate single points of failure that could lead to wide scale customer impact. To make the most from the CRAN architecture, Ericsson's unique Elastic RAN (ERAN) function was deployed. This required a low-latency (<100µs) and high-bitrate (>100Gbps) baseband interconnect solution.

As Telstra began the deployment of 5G across the country it became clear that providing synchronization to every 5G cell site would be a challenge. For 5G time division duplex (TDD) maintaining an accurate and reliable synchronization source is required to avoid interference from neighboring sites. This was a new challenge for Telstra, as its LTE network was based on frequency division duplex (FDD) which did not have the same strict requirement. This elevated synchronization to a critical function for the operation of the 5G network and Telstra looked to the transport network to assist in securing its availability.

Telstra looks to 5G as an enabler for new network use cases beyond mobile broadband. Supporting that vision from a transport perspective required a flexible future-proof platform that could support segment routing, software defined network (SDN) orchestration and tighter integration with Telstra's RAN network.

How did Ericsson help Telstra with its challenges?

Over the years, Telstra and Ericsson have continuously demonstrated industry leadership through innovation and collaboration. With these extensive collaborative efforts, we continue to place Australia at the cutting edge of mobile technology. Extending this way of working into the mobile transport segment of the network with the selection of Ericsson's Router 6000 platform was the best solution, following a market assessment, to meet Telstra's 5G transport challenges. This also helped to optimize the total cost of ownership (TCO) of Telstra's 5G solution, helping Telstra provide value to its customers by building wireless capacity and coverage where it's needed most.

The Router 6000 platform is built with mobile backhaul in mind. It features a modern routing feature set supported by high density, high bitrate and low latency interfaces. This is complimented with features that other routers in its class did not offer, such as high quality Oven-Controlled Crystal Oscillator (OCXO), to enable reliable synchronization distribution and hardware accelerated IPSec processing for securing mobile traffic, without limiting peak throughputs. With the evolution towards 5G placing stricter demands on the transport network, the Router 6000 offered Telstra a purpose-built solution to support a high-performance 5G experience.

By working together in Telstra's mobile engineering and development labs, a tailored solution that met Telstra's transport challenges was found. This collaboration ensured that not only did the solution help to meet Telstra's technical challenges but also that it seamlessly fit into its operational environment. By developing network rollout procedures and workflows to support large scale deployment, Telstra's 5G network launch goals[1] were achieved. The success of this collaboration was evidenced by Telstra meeting its 5G network launch goals and further accelerating its rollout program, with 5G now being introduced in more than 60 cities and regional towns across Australia, covering more than 12 million Australians.[2]

[1] www.telstra.com.au/aboutus/media/media-releases/Telstra_launches_first_5G_Melbourne_and_Sydney_sites
[2] exchange.telstra.com.au/5g-will-shape-the-2020s-an-update-on-telstras-progress

Through strong partnerships, Telstra will continue to deploy 5G across Australia

Looking to the future

As Telstra continues to evolve its 5G network to offer more tailored network offerings to its customers, important focus areas for the future include network slicing, automation and packet fronthaul. Telstra's mobile transport network is well prepared for future capabilities and growing network demands.

Network slicing enables the creation of customized offerings for specific applications or services. The transport network is an integral part of ensuring the customer requirement for each slice. Automation will also be a key area to be able to handle the increased level of network complexity. Another interesting area is packet fronthaul which will help to cost-effectively scale the network and add improved architectural flexibility. Ericsson's packet fronthaul solution offers a unique solution to packetize the large legacy of radios in Telstra's network. Ericsson and Telstra will continue to work closely together to develop the transport network as part of the 5G journey.

"The close collaboration between Ericsson and Telstra has been key in enabling the rapid transformation of Telstra's mobile transport network to support the requirements of early 5G deployments. By partnering with Ericsson, we have reduced risk and streamlined the introduction of 5G into our network. As Telstra continues to roll out and develop its 5G network across Australia, it continues to look to its strategic partners to support its goals of bringing the best 5G experience to all Australians."

David Fatseas,
Network Engineering
and Planning Senior Lead,
Telstra

Challenges

- Low latency and high capacity baseband interconnect
- Introducing transport resiliency
- Distribution of time and phase synchronization
- Modernization while managing TCO

Solution

- The flexible Router 6000 platform provided a common platform for Telstra's RAN architectures
- Embracing a collaborative working relationship with Telstra RAN teams to provide tailored solutions

Result

- A solution that enabled the first 5G site, providing a high-bitrate, transport resiliency and synchronization functionality
- A right-sized, agile mobile transport solution that meets Telstra's 5G needs today, and is well prepared for future challenges

Ericsson enables communications service providers to capture the full value of connectivity. The company's portfolio spans Networks, Digital Services, Managed Services, and Emerging Business and is designed to help our customers go digital, increase efficiency and find new revenue streams. Ericsson's investments in innovation have delivered the benefits of telephony and mobile broadband to billions of people around the world. The Ericsson stock is listed on Nasdaq Stockholm and on Nasdaq New York.

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