

Telia Carrier

For Telia Carrier, All Routes Lead to 4G Roaming and Interconnect with Ribbon DSC 8000 Diameter Signaling Controller

Founded more than 150 years ago as a telegraph company, the Telia Group has seen communications technologies evolve over the ages from Morse code to smartphones. Today, the group is at the cutting edge of communications, with 190 million subscriptions from Nepal to Norway. Telia Carrier owns one of the world's largest fiber-optical networks and provides network infrastructure and services to more than 1,000 customers in 80 different countries worldwide.

For Telia Carrier, being at the cutting edge means being everywhere for its customers and delivering a mobile experience that supports all devices in all locations, all of the time. It's an ambitious goal, and one that the company achieves through its global IP eXchange (IPX) network.

With the global trend toward IP-enabled communications and 4G/LTE networks, communications providers like Telia Carrier are looking to upgrade their networks to provide 4G/LTE services in more locations to more subscribers. Faster and less expensive than pay-per-use Wi-Fi networks, 4G is revolutionizing mobile communications by providing a high-speed, low-cost, simple alternative to wireless data roaming for smartphones, tablets and other mobile, multimedia devices. Yet the 4G future won't be built in one day, but will happen in stages as 3G networks and devices reach their natural end of life. In the meantime, Telia Carrier has made 3G and 4G roaming a seamless experience in order to ensure the best mobile performance to both the Telia Group's own outbound roaming subscribers as well as visiting inbound roaming subscribers, regardless of their location or device.

Telia Carrier gives the mobile network operators it serves a competitive advantage in the market by providing 4G roaming and signaling capabilities via its global IPX network, which spans 200 unique Points of Presence (PoPs). Through its 4G roaming and signaling services, Telia Carrier enables operators to offer customers a seamless, high-quality communications experience wherever they travel, simply by connecting to Telia Carrier's IPX network.

The Challenge

- Telia Carrier sought to provide a low-cost, high-quality solution for mobile broadband roaming services to mobile network operators through its IP eXchange (IPX) network.
- In order to capitalize on the rise in 4G traffic, Telia Carrier needed to add Diameter signaling capabilities to its IPX network, while keeping network costs and complexity to a minimum.
- A rapidly changing and highly competitive European market required a quick implementation in order to capture market share.

The Solution

- Ribbon DSC 8000 provided centralized Diameter routing that allowed Telia Carrier to simplify its network even as 4G signaling demands increased.
- Telia Carrier was able to deploy its new Diameter Roaming Exchange (DRX) service ahead of its competitors, resulting in a higher share of Diameter traffic that grew by one billion messages in the first year alone.

A Tale of Two Signals

For consumers, the primary difference between 3G and 4G comes down to speed and coverage. For network operators, however, the difference between the two runs much deeper, down to the signaling systems that connect calls, authenticate users and track billing charges. 3G networks use the long-standing Signaling System 7 (SS7) protocol to handle text messaging and the authentication, authorization and accounting (AAA) of mobile media sessions, while 4G/LTE networks use the newer Diameter protocol. Both SS7 and Diameter are highly complex signaling systems, requiring multi-message communications before, during and after the media session. 4G sessions, however, require more communications in part because of the complex nature of 4G communications—which often feature richer media that may include mobile app permissions, video quality policies, presence and other considerations—and the sheer number of network elements that send and receive Diameter messages in a 4G/LTE network. A key challenge for network operators is to streamline these communications to reduce network traffic and prevent service “hiccups” as more subscribers migrate to 4G devices.



For Telia Carrier, the challenge is greater because the launch of its new Diameter Roaming Exchange (DRX) service means opening the floodgates to potentially millions of 4G subscribers across Europe and the rest of the world. Roaming in Europe can be especially complex because of the different local and national networks and carriers involved, resulting in 4G sessions that frequently fall back to 3G networks and vice versa. Because of the high volumes and potential volatility of the Diameter traffic expected, Telia Carrier sought a signaling solution that could handle this unpredictable mix of 3G and 4G traffic without adding complexity to their network. That search eventually led them to Ribbon Communication and the solution known today as the Ribbon DSC 8000 Diameter Signaling Controller.

Ribbon DSC 8000 Does a Bigger Job in a Smaller Footprint

Ribbon built its reputation—and many of the world’s leading telecommunications networks—with its media and signaling gateways, including an SS7 signaling platform that has consistently earned high marks for its reliability, flexibility and proven ability to handle high traffic demands. What attracted Telia Carrier to the DSC 8000 product were its unique features—specifically, its ability to simplify 4G signaling traffic between network elements through its centralized routing capabilities. The DSC 8000’s ability to provide SS7 and Diameter signaling functions alongside one another means that carriers such as Telia Carrier can also simplify and streamline 4G signaling traffic for better network performance, cut the number of new signaling routers needed in half, and make better use of them by routing 3G and 4G traffic through the same device if they choose.

“Enabling 4G roaming and interconnect in our global network with the DSC 8000 solution is key to our commitment to provide high performance connectivity for the Telia Group mobile operators and our customers worldwide,” said Simon Dodsworth, Vice President and Head of Voice and Mobile, Telia Carrier. “We were therefore able to quickly integrate and launch our DRX service and accelerate our time to revenue.”

Telia Carrier was also intrigued by the future direction that Ribbon envisioned for their DSC product, including plans to deploy the DSC 8000 on virtualized servers and combine it with Ribbon’s session border controller (SBC) products to combine SIP and Diameter signaling from a single platform. With all bets on 4G as the dominant communications platform of the future, Telia Carrier felt confident that it and Ribbon were headed in the same direction. The interconnect provider took delivery of its first Ribbon DSC 8000 at the end of 2013 and to date, has deployed Diameter services for the majority of European mobile operators in the Telia Carrier.

Telia Carrier Profits from 4G Interconnect

As Telia Carrier knows, being everywhere for your customers creates loyalty, but being there first creates a competitive advantage. The DRX service represents the industry's first managed 4G roaming service that allows mobile operators to offer quality data services without the complexity and cost of building the solution themselves, giving Telia Carrier an early advantage in the European 4G market. Since deploying the DRX service, Telia Carrier has seen the number of packet-switched Diameter messages in its network grow by one billion in less than one year.

With the Ribbon DSC 8000, Telia Carrier has a carrier-class signaling solution with built-in simplicity, making it easier for them to scale cost-effectively to meet the rising 4G demands of the future through virtualization and eventual SBC consolidation. For Telia Carrier and Ribbon, it would seem, all signals point to a bright future.

About Ribbon Communications

Ribbon is a company with two decades of leadership in real-time communications. Built on world class technology and intellectual property, Ribbon delivers intelligent, secure, embedded real-time communications for today's world. The company transforms fixed, mobile and enterprise networks from legacy environments to secure IP and cloud-based architectures, enabling highly productive communications for consumers and businesses. With locations in 28 countries around the globe, Ribbon's innovative, market-leading portfolio empowers service providers and enterprises with rapid service creation in a fully virtualized environment. The company's Kandy Communications Platform as a Service (CPaaS) delivers a comprehensive set of advanced embedded communications capabilities that enables this transformation.

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