Secure Real-Time
Communications

ribbon

Signaling Network Transformation to the Cloud

Ensure Success by Separating Myth from Reality

White Paper

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Introduction

SS7 Signaling Transfer Points and Diameter Signaling Controllers are at the core of service provider networks, protecting and managing signaling that is required for all real-time services, such as voice, messaging, and roaming. Traditionally, these network functions have been deployed on proprietary hardware. However, over the past several years, service providers have been planning, investing, and now executing the migration of real-time services and their core networks to virtual, cloud deployment models. The importance of virtualization and optimization for cloud deployment of network functions seems indisputable, as service providers expect the Cloud to be a critical component of their core networks.

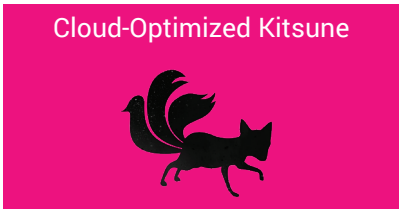
So, what does this transformation mean for signaling? As the transition to the Cloud takes place, it is important to understand the common myths associated with this transformation and to learn why Ribbon' Diameter Signaling Controller Software Edition (DSC SWe) dispels those myths with a cloud-optimized signaling solution.

Signaling in the Cloud Myths and Realities

There is a lot of confusion regarding the transformation of signaling to the Cloud. In this paper we will discuss some of myths related to moving SS7 and Diameter into the Cloud, and illustrate how Ribbon is helping customers with the realities of their network transformation. The four myths we will discuss are:

- "Virtualization" equals software optimized for the Cloud
- Performance at scale for signaling in the Cloud is not achievable
- Migrating SS7 and Diameter signaling to Cloud is too high-risk
- Maintaining your SS7 network is a no-win situation

"Virtualization" Equals Software Optimized For the Cloud



Myth: Like the illusions of the shape-shifting trickster Kitsune, some people believe that virtualization is all that you need to optimize an application for the Cloud.

Reality: Unfortunately, virtualization alone does not optimize an application for the Cloud. To truly unlock the potential of the Cloud takes a more comprehensive approach. This is especially true for signaling associated with real-time communications in service provider networks. The reality is that Ribbon has leveraged the inherent architecture of the DSC SWe to optimize it for Cloud deployments, and to ensure the DSC SWe fits into a management and orchestration (MANO) framework. The DSC SWe integrates with a true orchestration model, so both virtual Signaling Transfer Point (STP) and virtual Diameter Signaling Control (DSC) functions can be instantiated as "run-time" ready, unlocking automated, elastic scaling. Ribbon' DSC SWe solution supports market-leading, third-party orchestration and NFV infrastructure (NFVI) vendors to facilitate VNF implementations, supporting standard OpenStack and ETSI-based interfaces.

Signaling Performance at Scale in the Cloud Is Not Achievable

Myth: High performance for signaling in the Cloud is like the mythical unicorn; it does not exist, because achieving performance requires a trade-off with feature functionality.

Reality: With Ribbon, full performance has never been limited by applying features. This is inherent in the Ribbon DSC SWe architectural design, which has always isolated the management, signaling routing, and database (DRA sessions and Number Portability) application functionalities into separate processing domains. Ribbon has extended its design even farther with the adoption of a microservices architecture, the addition of a virtualized, internal load balancing function, and the implementation of the DSC SWe capabilities as virtual network functions (VNFs). These enhancements enable independent, dynamic scaling of VNFs to achieve performance in the Cloud. The DSC SWe also incorporates unified management, ensuring alignment and optimization of the scaling between each of the routing and database application VNFs.

Migrating SS7 and Diameter to the Cloud is High-risk

Myth: SS7 and Diameter networks are too important to risk moving to the Cloud. Like Icarus flying too close to the sun, if this transformation is undertaken it is sure to end in tragedy.

Reality: With Ribbon' DSC SWe, it is possible to eliminate the risk of deploying SS7 and Diameter in the Cloud, because it is architected for carrier-grade availability and reliability. With microservices, the Ribbon DSC SWe supports different functionality in separate VNFs, ensuring operational independence. For each VNF type, multiple instances can be "clustered" so traffic resiliency is achieved across multiple instances, offering better reliability and high availability options. In addition, for the critical signaling routing function, the Ribbon DSC SWe integrates a virtualized front-end load balancer to hide the complexity of managing traffic distribution to multiple routing instances. This is important because in a dynamic virtual environment, there needs to be assurance that the addition or deletion of virtual routing resources does NOT impact configuration of other signaling nodes.

Maintaining Your SS7 Network Is a No-win Situation

Myth: Maintaining your SS7 network over the next decade will be like trying to sail through a narrow channel protected by the monsters Scylla and Charybdis. It requires a difficult choice between two equally costly options — staying on end-of-life technology or solely investing in Cloud technologies.

Reality: Transforming your SS7 signaling network to the Cloud does not need to be difficult or overly burdensome with Ribbon, because the Ribbon DSC SWe assures investment protection. SS7 transformation is simplified with the Ribbon DSC SWe, because its SS7 STP software is identical, whether in the Cloud or on proprietary hardware. Migrating STP functionality to the Cloud means being able to take advantage of Cloud attributes like on-demand scaling up, or down, without an over-commitment of physical resources. SS7 transformation is also future-proofed, because the Ribbon DSC SWe supports integrated SS7 STP and DSC functionality, making the shift of virtual resources from SS7 to Diameter possible with licensing changes.

Conclusion

The network transformation to Cloud environments for real-time communication services has already started, and will continue in the foreseeable future. As part of this transformation, SS7 and Diameter signaling networks also should be considered for deployment in Cloud environments. Yet for many network operators, how to move their signaling networks to the Cloud is confusing and the path forward is not clear. In this whitepaper, Ribbon has identified and dispelled four myths associated with this signaling network transformation. By talking with Ribbon to understand Cloud reality, network operators can achieve what is truly possible with a cloud-optimized SS7 and Diameter signaling solution.

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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