



# **SS7 Evolution: The Intersection of Virtualization and SS7 Signaling Transfer Points (STPs)**

NFV re-invigorates STPs and ensures  
positive ROI for the long term

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## Introduction

For many service providers, evolution to an IP-only network is an on-going process. However, in parallel with this evolution most service providers still have a need to support traditional SS7/SIGTRAN protocols for the foreseeable future. In turn, this means Signaling Transfer Points (STPs) are still needed in fixed and mobile networks for at least the next 10 years.

For service providers, this continued need for STPs is pressed up against the reality of fewer STP options. Over the last 5+ years, many STP vendors have announced End-of-Sale of their STP offerings, and those products are now reaching End-of-Service life. Other vendors have been acquired by non-service provider-focused companies. In aggregate, this leaves service providers with fewer choices, leading to higher risks and concerns about vendor commitments to STP product longevity. Service providers need to enter into relationships with vendors who can help evolve their STP architectures to a future-proof design. This will assure service provider revenue going forward.



This whitepaper will outline why bringing Network Function Virtualization (NFV) to an STP product line ensures that the continued deployment of STPs will indeed be economical for a service provider in the short term and contribute positively to the bottom line in the long term.

## How Network Function Virtualization Is A Better Way

For many vendors, STPs have already evolved from SS7/TDM proprietary hardware to an SS7/IP proprietary hardware solution. So what is the next step? The answer is moving to a virtualized solution.

Network Function Virtualization is the separation of what was previously tightly-coupled hardware and software in order to enable software to operate on industry-standard commercial off-the-shelf (COTS) servers. For service providers who need to expand deployment of IP-based STPs or are considering replacement of traditional TDM-based STPs then virtualization is the way to go.

By deploying a virtualized STP, a service provider can reduce both CapEx and OpEx. CapEx is reduced by taking advantage of lower-cost hardware and by using higher bandwidth, less expensive Ethernet interfaces rather than TDM interfaces. Furthermore, virtualization allows for higher overall utilization of a common hardware set, and reducing spares costs by having a single common pool versus fragmented spares with specialized hardware.

OpEx can be reduced by having fewer assets to maintain; simplified installation and configuration for software-only solutions; simplified and more efficient capacity growth processes (e.g., just turn up another VM server); and typically lower real estate, power, and cooling costs.

Sonus has taken these customer-driven benefits to heart and now has a fully virtualized portfolio. Specifically, Sonus has taken its field-proven STP (and Diameter Signaling Controller) software from the DSC 8000 hardware and architected it to operate in a virtualized environment.

## What About When Diameter Replaces SS7/SIGTRAN?

The use of Diameter protocol as part of Long Term Evolution (LTE) and IP Multimedia Subsystems (IMS) networks can indeed replace many of the functions previously performed using SS7/SIGTRAN protocols. For this reason, fixed and mobile service providers are deploying Diameter Signaling Controllers (DSC) to provide functions very similar to those of STPs in traditional SS7 networks.

Yet for most service providers the deployment of Diameter is being done as part of a cap and grow rather than a rip and replace strategy. This is due to extended decades-long migration of traffic and subscribers away from SS7-based services. In fact, there is still expected subscriber and usage growth in SS7-based 2G and 3G networks well into 2020, according to GSMA reports.

Thus, vendor solutions that can concurrently support both STP (SS7) and DSC (Diameter) functions on a single platform are ideal to accommodate the changing dynamics of signaling during this multi-decade transition. In fact, providing both STP and DSC functions in a virtualized environment broadens the investment incentive for the continued investment in STPs.

## Sonus' Commitment

Since the completion of the Performance Technologies (PT) acquisition, in February 2014, Sonus has re-affirmed its commitment to the SS7/STP market with one subsequent product announcement:

- In December 2014, Sonus announced the general availability of the Sonus DSC SWe (Software edition). With this announcement, Sonus delivered the same advanced IP-based SS7/STP (and Diameter) features and functionality found in Sonus' hardware-based Diameter Signaling Controller (DSC 8000), but delivered on a virtualized platform.

Sonus made the investment to pull SS7 solutions into the virtualized world because it strongly believes in the value of this intersection between SS7 and NFV. These two new products truly capitalize on having common SS7/STP/Diameter software across multiple implementation models. Now, service providers can future-proof their SS7/STP investments by deploying the DSC 8000, if TDM-based interfaces are still required, or by using one of Sonus' virtualized solutions when IP-based SS7/STP interfaces are required.

## Conclusion

Sonus believes STPs will be a viable part of service providers' networks for the next decade and beyond, and has demonstrated its commitment to the STP market with two new product releases. As STPs have already evolved from SS7/TDM proprietary hardware to an SS7/IP proprietary hardware solution, Sonus is at the forefront of the next step in STP evolution to a software-only, virtualized solution running on COTS platforms.

By deploying a virtualized STP, either as a standalone solution, combined with Diameter Signaling Control, or even integrated with Session Border Control capabilities, Sonus provides options for a service provider to maximize their return on investment.

## About Sonus Networks

Sonus brings intelligence and security to real-time communications. By helping the world embrace the next generation of Cloud-based SIP and 4G/LTE solutions, Sonus enables and secures latency-sensitive, mission-critical traffic for VoIP, video, instant messaging and online collaboration. With Sonus, enterprises can give priority to real-time communications based on smart business rules, while service providers can offer reliable, comprehensive and secure on-demand network services to their customers. With solutions deployed in more than 100 countries and nearly two decades of experience, Sonus offers a complete portfolio of hardware-based and virtualized Session Border Controllers (SBCs), Diameter Signaling Controllers (DSCs), Software-Defined Networking (SDN) capabilities, policy/routing servers, and media and signaling gateways.

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