

Optimize the Cloud for Real-Time Communications

Leverage NFV and Virtual SBCs to Assure Success

When it comes to the evolution of real-time communications, service providers are striving to achieve a more flexible, software-defined, highly elastic way of building networks. Knowing that service providers may begin this evolution at differing starting points, Sonus has developed its solutions to support multiple migration paths to private and public Clouds which work in concert with a service provider's adoption plans for NFV, SDN, and the overall cloud infrastructure.

As service providers harness the power of NFV and move forward with their implementation strategies for virtualization, Session Border Controllers (SBCs) remain a mandatory component of critical network functionality for real-time communications. A software-based SBC running on a virtual platform in a cloud deployment can deliver the same functions as a hardware-based SBC, and also support a new generation of advanced IP communications services.

Sonus has undertaken many initiatives to ensure its SBC software architecture can integrate smoothly into virtualized, cloud-based environments. The Sonus SBC SWe is the industry's only software-based SBC that delivers unmatched scalability using the same code base, resiliency, session management, media processing, transcoding, and security technology of a hardware-based SBC.

With the Sonus SBC SWe, service providers can create virtualized SBCs, yet retain a single management view from their cloud-based network. When providing SBC microservices as virtual network functions (VNFs), the Sonus SBC SWe supports standard OpenStack and ETSI-based interfaces. Sonus has partnered with market-leading orchestration vendors to facilitate VNF implementations, yet for those service providers that prefer a more turn-key and integrated solution Sonus will provide an optional VNF Manager per ETSI specifications. In concert with the Sonus Element Management System, this allows a service provider who wants the applications to be more self-contained to interface with the VNF at a higher "service" level, leaving the life cycle management to the VNF itself.



Benefits of NFV and Sonus SBC SWe in the Cloud

- Simplified hardware requirements by eliminating need for proprietary SBC hardware
- Turn up new services in minutes rather than weeks/months
- Optimize total cost of ownership with virtualized SBCs in small points of presence, large central offices, or data centers
- Elasticity to match virtual resources with dynamic traffic profiles, such as required with interconnect SBCs
- Faster market and/or geographic expansion with software-only implementation
- Single management view of network with increased automation of installation, configuration, and provisioning
- Better economies of scale with centralized management and orchestration
- Reduced management costs, leveraging orchestration to automate turn up (and down) of virtual resources
- Successful migration to a virtualized cloud-based SBC demands a solution that addresses three critical architectural constructs: elasticity (scaling on-demand), load balancing (managing scalable resources), and high availability (automated switchover).

Elasticity

One significant advantage of the cloud environment is the ease and speed with which a new “logical” server, i.e., a Virtual Machine (VM), can be deployed. With the ability to perform scaling on demand, it becomes possible to very closely match service sizing with current traffic demand, scaling up when load increases and scaling down when load subsides. Service providers can allocate specific SBC VMs on demand to support new services or enhance existing ones, and temporarily allocate VMs to support high-traffic-volume events.

Service providers can now reinvent how they deliver real-time communications services by capitalizing on the flexibility of virtualized SBCs. To derive the most benefit from this elasticity, the turn-up and turn-down of SBC instances needs to be automated and touchless using NFV orchestration.



Load Balancing

Sonus ensures a well-designed load balancing strategy of resources, which is critical to leveraging and maintaining availability in cloud environments.

Service providers will be able to scale SBC resources more effectively, so that resource utilization (processor, memory, etc.) is evenly distributed to avoid overloaded instances that can cause failures.

As an ultimate goal, the load balancing strategy would enable the components executing the work to reallocate work to less busy ones in order to fine-tune the overall status of the application processing. Service providers can add or delete SBC capacity gradually, without committing large upfront capacity or reconfiguring other network elements.



High Availability

Real-time applications in a virtualized, cloud-based environment have the same high availability requirements for service, subscriber, and call resiliency as they do in traditional, proprietary hardware network environments.

These requirements warrant an architecture where critical state information in an SBC is backed up using a redundancy framework on both the active and standby systems to continuously monitor the active for any possible fault conditions which would trigger a switchover to the standby system.

Sonus replicates the same effective techniques used in its hardware-based SBCs to ensure high availability for real-time applications in cloud-based environments.



Virtual SBC Use Cases

Sonus' legacy is in building carrier-class SBC solutions that are robust enough to handle transcoding, security (including encryption), and DoS attack prevention, alongside high-performance sessions. Sonus has leveraged a decade of investment in SBC code and optimized it for a virtual SBC software platform. Sonus has ensured that its virtual SBC has the scalability required in a service provider environment. Service providers don't have to settle for any less performance or capability when they choose the Sonus SBC SWE.

Virtual SBCs have many innovative use cases that drive new business models for service providers and at the same time improve the end-customer experience:

Cloud-based Service Provider Offers SBC-as-a-Service

With NFV, service providers can deliver 'SBC as a Service' to enterprise customers by moving to a more efficient business model leveraging their virtualization and cloud infrastructure:

- Eliminating need to install, deploy, and maintain SBCs at the enterprise customer premise
- Serving enterprises more easily that have seasonal business or high variability in traffic levels
- Providing end customers with the ability to add/reduce capacity with a pay-as-you-go model

Virtual SBCs Deployed as Service Provider-owned Managed CPE

Service providers can choose to include a virtual SBC as part of a “Managed CPE” service, where low-cost COTS servers on the customer premises host VNFs, and the management and orchestration of the virtualized SBC is conducted from their cloud environment. Benefits include:

- Eliminating costly and manual turn-up/turn-down processes by conducting all service orchestration and automation in the cloud
- Seamlessly and dynamically scaling resources
- Quickly and easily deploying new services
- Reducing operations and maintenance costs by using COTS servers

Deploying SBC SWe as a Virtual Interconnect SBC

With NFV and orchestration, service providers can take advantage of cloud elasticity with automated, on-demand instantiation and configuration of virtual SBC resources. Benefits include:

- Dynamically matching SBC capacity to traffic demand at service provider interconnection points
- Ability to scale on demand to support variable spikes in traffic volumes
- Allocating work load across resource pools for efficient scaling with load balancing
- Transparently backing up critical state information in the network with no service loss

About Sonus Networks

Sonus enables and secures real-time communications so the world’s leading service providers and enterprises can embrace the next generation of SIP and 4G/LTE solutions, including VoIP, video, instant messaging, and online collaboration. With customers in more than 50 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), Cloud Exchange Networking Platform, policy/routing servers, and media and signaling gateways. For more information, visit www.sonus.net or call 1-855-GO-SONUS. Sonus is a registered trademark of Sonus Networks, Inc. All other company and product names may be trademarks of the respective companies with which they are associated.

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