Cloud-based Session Border Controller

Value to the ecosystem

A session border controller (SBC) is a network element used to support voice over Internet Protocol (VoIP), multimedia, next-generation presence-based applications for wireline, 3G and voice over LTE, IMS and pre-IMS networks.

SBCs play an important role at the network edge by providing signaling and media security, service level agreement assurance and regulatory compliance capabilities. SBC features for multimedia applications such as voice, fax and video include: far- and near-end Network Address Translation traversal/firewall, secure Real-time Transport Protocol, IPv4/IPv6 networking, Call Admission Control, session routing, overload protection, transcoding, and quality of service and regulatory compliance.

SBCs can be located at smaller points of presence – supporting as few as 5000 subscribers – or in larger central offices or data centers supporting millions of subscribers. It is a critical component for managing Internet traffic to help safeguard the multimedia communications that are integral to our daily lives as the number of IP devices continues to grow.

Key Benefits of SBC cloud deployment

1. SBC signaling functions are very compute intensive and will greatly benefit from implementation on commercial off-the-shelf (COTS) cloud infrastructure
2. An important SBC function is to protect against denial of service and distributed denial of services attacks – using low-cost hardware to manage unexpected surges while maintaining support for non-attack traffic is crucial
3. Just-in-time deployment flexibility
4. Almost infinite elasticity and scalability
5. Support for new services, such as “SBC as a service”

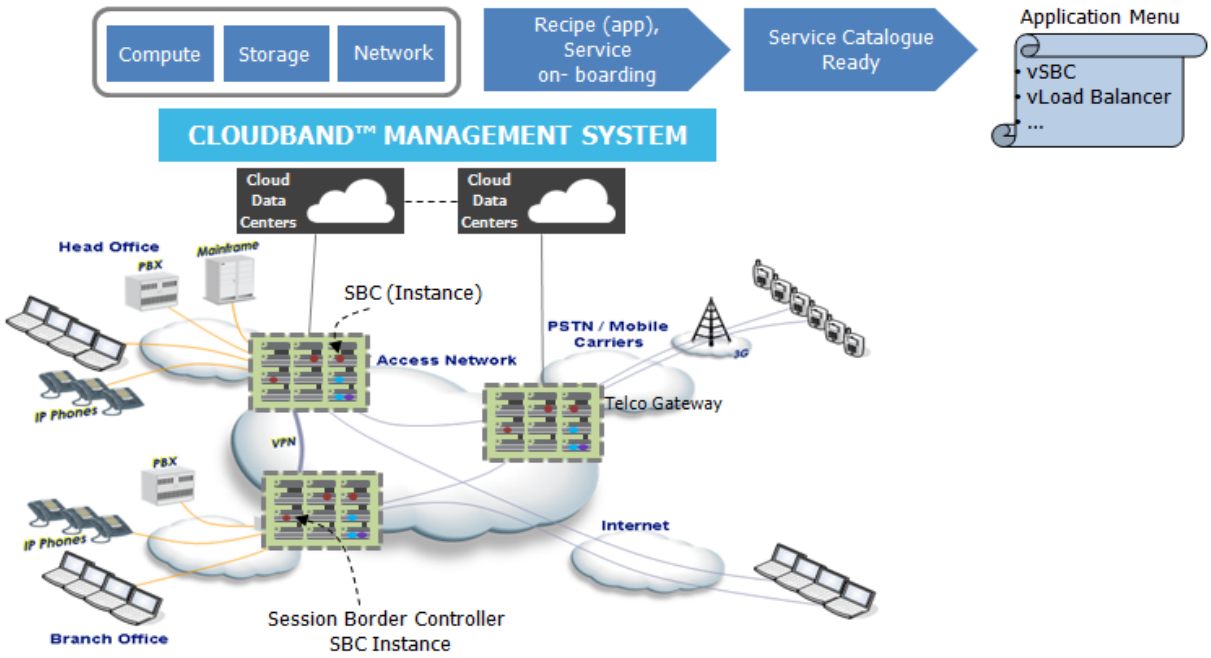
Solutions(s):

The SBC is well suited to cloud deployment, where it can be fully virtualized and deployed on a cloud Network Function Virtualization platform such as CloudBand. There it can take full advantage of the underlying infrastructure to obtain the necessary distributed or local deployment flexibility, elasticity, reliability and high availability. These are all critical for carrier-grade operations; however cloud deployment eliminates the need for closed, customized or proprietary hardware. The common, distributed infrastructure – with centralized management and orchestration – can be shared between many similar carrier-specific applications to achieve economies of scale.

SBC Integration with CloudBand:

The virtualized SBC is deployed onto the CloudBand platform using the carrier platform as a service (cPaaS) layer by creating a set of recipes (like a template or a cookie cutter) that deploy the necessary service tiers for the application and manage the relationship between these services. In addition, it provides full application lifecycle management, including scaling (based on defined key performance indicators), self-healing and upgrading. This essentially creates a simple, one-touch, automated, end-to-end application deployment that also accommodates any operator-specific constraints.

Due to the cookie-cutter nature of the application template, deploying multiple instances requires little time or effort. Further, the underlying infrastructure, in conjunction with the management and orchestration system, provides the necessary reliability, availability and security for the application to meet the strict carrier-grade requirements, all on COTS hardware.



SBC on CloudBand: deployment architecture

Attribute	Conventional	CloudBand
Appliance	Hardware appliance (typically ATCA or x86 bare-metal) architected for peak capacity	Virtualized software appliance on cloud infrastructure architected for current capacity
Deployment	Site engineer investigates, deployment engineer installs, configures and provisions the system and monitors heath	Management and Orchestration system deploys new instance with standard configuration and automatically monitors health
Scale	Add new cards/blades into the system hardware and perform re-configuration	Orchestration system adds additional instances and adds them to the load-balance pool
Upgrade	Replace new upgraded blade with existing blade	Upgrade a new instance and just switch traffic to it. Delete old instance
Operation	Hardware, OS, Application, Alarms	OS, Hypervisor, Application, Alarms
Slicing	Service partitioning of hardware based systems can be very difficult and cumbersome	Simply create a new service slice by deploying new application instance and service chain with other NFV components

Example: Operational benefits of SBC cloud deployment

Solution Partners: