As all-IP networks add more services beyond fixed VoIP, the role of Session Border Controllers (SBCs) is evolving. Service providers are launching new services such as Voice over LTE (VoLTE), Rich Communications (RCS) and video over many devices and many networks. Services are also evolving toward Web Real Time Communications (WebRTC) embedded in HTML 5 browsers. In this environment, it becomes ever more important to economically secure and control media and signaling streams that cross the edge of service provider networks, whether fixed, mobile, PacketCable™-compliant or converged. The Alcatel-Lucent IP Border Controllers solution ensures that service providers’ New Conversation Experience offers will deliver a safer and trusted quality of experience (QoE) to subscribers, over any device and across any network.
USE CASES

Purpose-built for multimedia and naturally supporting the Web, the IP Border Controllers solution delivers superior performance through capabilities such as enhanced security, fast handling of mass registration events and eSRVCC for VoLTE. The solution scales easily to support growing Web and VoLTE traffic volumes, and requires half the number of SBCs used for typical deployments. With the Alcatel-Lucent IP Border Controllers solution, service providers – whether fixed, mobile, PacketCable™-compliant or converged – can keep up with growing markets and enjoy OPEX savings year after year.

Security

Security is an obvious requirement for session border control. As we move to all-IP networks, the security issues we’ve experienced on our PCs are now applicable to the plethora of end-user devices. Viruses, Denial of Service (DoS) attacks, spam over Internet telephony (SPIT), and theft or misuse of resources and personal information are just a few of the potential malicious attacks that can affect smartphones, tablets, PCs, televisions and other IP connected devices. The Alcatel-Lucent IP Border Controller solution offers superior protection from malicious attacks through several hardware-enabled security features.

SLA assurance

The IP Border Controllers solution helps service providers manage their network resources to meet SLAs by performing call admission control and bandwidth-based session admission control, and by prioritizing media traffic. The solution also ensures that the media path is optimized by allowing RTP traffic flow directly between caller and callee if they are part of the same enterprise.

Consistent VoLTE and RCS implementation

The solution provides key functions to ensure a successful VoLTE implementation. It also enables end-user devices to communicate with core network elements and with other devices that have different characteristics, such as VoIP transport, and different security and CODEC capabilities.
To ensure consistency with the VoIP user experience, the solution adheres to communications regulatory requirements, prioritizing emergency calls and supporting monitoring capabilities, so calls can be intercepted for recording of required by law enforcement agencies.

**Bridges telecom and the Web with WebRTC Border Controller function**

WebRTC technology allows any device with a browser to become a smart communicator with the capability to support sessions that include audio, video and data. This capability extends the reach of real-time communications into the Web and opens up new opportunities to capitalize on existing network investments and enhance the customer experience. By using the network to extend cohesive value across telecom and the Web, service providers can increase their total addressable market, create new markets and inspire web developers’ innovation.

**ARCHITECTURE AND COMPONENTS**

The Alcatel-Lucent IP Border Controllers solution is available in an integrated 4U form factor or a distributed form factor (see Figure 1), so service providers can deploy a flexible SBC model that meets their needs for subscriber scaling and application delivery. Both options maintain feature parity. Service providers can start small, with the integrated configuration, then scale easily to the distributed configuration.

- The Alcatel-Lucent IP Border Controller-4 (IBC-4) offers integrated SBC functionality for VoIP, multimedia and next-generation, presence-based applications in a fully redundant 4U chassis. Prior to a move to a distributed deployment, the integrated option dramatically reduces capital expenditures/operating expenditures (CAPEX/OPEX) by providing an integrated border controller suitable for a range of point of presence (POP) capacities.
- The Alcatel-Lucent IP Session Controller (ISC) and the Alcatel-Lucent Media Gateway (MGW) offer a distributed configuration. The ISC provides the Proxy Call Session Control Function (P-CSCF) as the signaling contact point for users. The ISC also provides the Service Policy Decision Function (SPDF) to ensure the availability of IP network resources according to operator-defined policy rules, supporting IMS-based applications such as video sessions. The MGW supports Core Border Gateway Function (C-BGF) to provide bearer processing and security capabilities.
- The WebRTC Border Controller Function that powers the Alcatel-Lucent WebRTC solution is available in both integrated and distributed configurations to perform signaling and media translation from the WebRTC client to the IMS core.

**Figure 1. Alcatel-Lucent IP Border Controllers: Platforms**

**INTEGRATED SYSTEM CAPACITY**
- 200,000 subscribers
- 32,000 concurrent sessions
- 4-Gb/s media throughput

**DISTRIBUTED SYSTEM CAPACITY***
- 2 million subscribers
- 64,000 concurrent sessions
- 16-Gb/s media throughput

*A single ISC can control multiple MGW for a flexible and scalable deployment

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