The ENTICE Session Controller Solution

Introduction

Intense competition and thin margins in the carrier business mean that carriers are constantly looking for ways to increase their profitability. Carriers can do this in a number of ways: they can expand their customer base and grow their network, they can add new services to sell to existing customers or they can make their network operations more efficient.

Emergent Network Solutions offers a complete line of ENTICE based products specifically created to address the needs of these carriers.

The ENTICE Session Controller Solution

Much of the new traffic being generated today is carried over VoIP networks, and carriers are looking at ways either to add this traffic to their existing network or to increase their capacity to take advantage of this opportunity. Connecting one VoIP network to another involves working with many different types of equipment, including customer premise equipment such as SIP or H.323 phones, routers, firewalls and gateways. Issues often arise when interconnecting this equipment to form an end to end network.

Network Architecture with ENTICE Session Controller

Protocol Interworking:

Typical issues include: vendor or country based signaling incompatibilities, signaling type incompatibilities, translation issues, firewall issues, and billing issues. There are a number of basic approaches to solving these issues. One approach is to buy all the equipment, software and services from a single provider whose products are designed and tested to work with each other and then adapt the company's plans to fit the supplier's capabilities. Another approach is to buy equipment from a number of vendors and then work as a system integrator with the various vendors to attempt to resolve any incompatibilities or other issues that may arise.

The final approach is to build small compatible networks of equipment and then bridge the gap between them with session controllers. At Emergent Network Solutions, we feel that it is unrealistic to expect that a growing carrier can satisfy its needs from a single vendor, therefore there will always be interconnection issues and specific unique requirements that must be addressed.

Topology Hiding:

VOIP carriers must be constantly alert to the competitive pressures that might encourage their customers to use network monitors to discover the underlying network topologies and then utilize this information to forge new carrier relationships in an attempt to save money. The E-SC has a built-in capability to hide the network topology to discourage this type of activity.
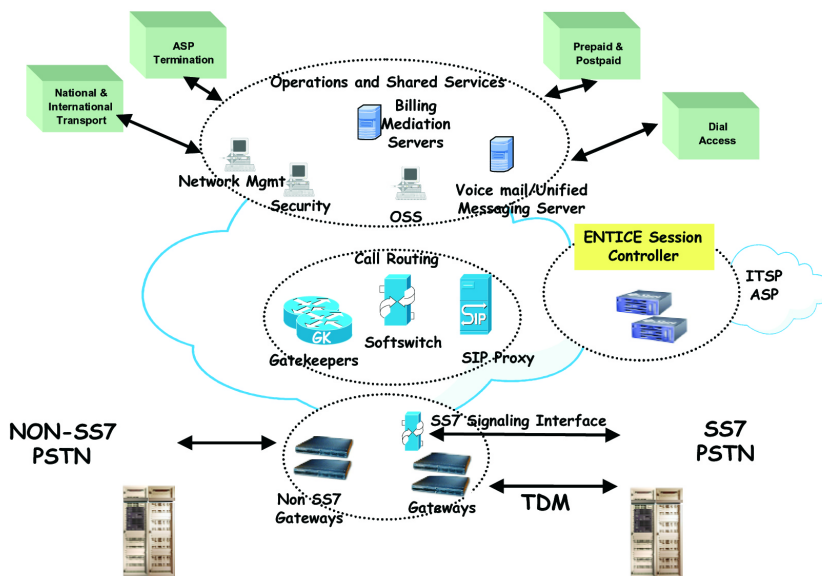
Optional Endpoint Support:

Many VOIP networks must provide end-to-end service. This is especially crucial when providing residential or enterprise VOIP services. The E-SC is an integral part of the ENTICE Residential/Enterprise VOIP solution (E-REV) and the E-SC can be readily upgraded (to E-REV) to allow the processing of this type of traffic.

Other Features:

The ENTICE Session Controller (E-SC) was designed to address the problems that arise when building new VoIP networks or interconnecting networks of VoIP equipment. The E-SC has the ability to perform the following functions in a network:

▶ H.323 Gatekeeper
▶ H.323 Back to Back Gateway Services
▶ SIP Proxy Server
▶ SIP Redirect Server

- SIP Back to Back User Agent Services
- H.323/SIP Protocol Conversion and Interworking
- Media Redirection
- Media Grooming
- Media Monitoring
- Security
- NAT Traversal
- STUN Support
- Optional Endpoint Support
- Optional Media Services

These features are utilized to solve the most common issues that arise which include:

- Connection to customers behind firewalls (including NAT firewalls)
- Secure interconnection with other service providers (ITSPs, ASPs, etc.)
- Billing Mediation

Customizable:

In addition, because of the E-SC's unique architecture, custom solutions can be easily created by modifying these features via the built in APIs to fulfill the exact requirements for a specific network without the need to release new software generics. This frees carriers from the gridlock caused by relying only on their vendors for new application and features and, enables them to control their own destiny while at the same time providing stable and reliable software in the form of well tested and field proven software generic releases. The illustration on the front page shows where the E-SC fits into a carrier's network.

Extensive Routing and Interworking:

In this illustration, the E-SC is used to interconnect an existing network with an Internet Telephony Service Provider (ITSP) or an Application Service Provider (ASP). All calls going to and from the adjacent ITSP or ASP will be sent to the E-SC which will groom and route the signaling and bearer traffic according to the needs of the two carriers.

The gatekeeper functionality of the E-SC allows it to interwork with other H.323 gatekeeper/gateway devices, providing a full spectrum of routing, translation and screening capabilities for H.323 traffic. Back to back gateway capabilities allow the H.323 signaling and bearer traffic to be groomed according to the needs of each network.

Similarly, the SIP Proxy/Redirect Services provide routing, translation and screening capabilities for SIP traffic and the back to back user agent capabilities allow the SIP signaling and bearer traffic to be groomed according to the needs of the network.

By using device drivers to translate SIP and H.323 messaging into an internal generic format, the E-SC is able to treat all inbound and outbound traffic in a standardized way. This allows the E-SC to effectively translate SIP to H.323, H.323 to SIP and to provide interworking between the protocols while also providing a unified environment for customized services. The Virtual Media Server allows the media path to be intercepted, groomed and monitored. Because all aspects of the traffic are under ENTICE control, most firewall traversal problems can be solved with this product.

Billing:

Finally, in order to make a profit, carriers must generate billing information. The E-SC stores all the call by call information in easily integrated call detail records. These records provide the basis for creating customer bills and for billing mediation between carriers.

Conclusion

In the past, carriers were hindered when deploying VoIP by the incompatibilities of the various components and solutions that existed in the network. They were forced to either place their bets on a single vendor or were faced with the continuing hassle of trying to cajole different vendors to interwork with each other. The ENTICE Session Controller frees carriers from these problems and allows them to easily connect with networks from around the world, while providing the security features that they need to protect their current revenue and a path to add services to their network to enhance those revenues.

About Emergent Network Solutions

Based in the Dallas, Texas area, Emergent Network Solutions, Inc. (ENS) is a leading provider of advanced telecommunications software and services that enable carriers and service providers to integrate current and future network technologies. We assist our customers in reaching their business objectives by providing real, deliverable telecommunications software solutions and specialized consulting services for all facets of network design, analysis and management.

To learn more about ENS, our products and our services, please visit *www.emergent-netsolutions.com*, or contact us today.

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