The ENTICE Softswitch Solution

Introduction

Times are changing. Although the concept of softswitches has been around for some time, a few years ago there were many more softswitch vendors providing solutions than there are today – the market hasn't really taken off – but it is about to. In the words of a leading industry analyst, "The market is in a consolidation phase but it is also at the point where packet based carriers are in crisis, and this isn't just a natural cycle of boom and bust. Underlying it, there's something fundamental going on. We have reached a crunch point in the transition from voice-centric (circuit) to data-centric (packet) networks. Today's traffic characteristics are not what they used to be, and the economic models are turned upside down as a result."

Softswitches will play a central role in enabling a migration to a converged environment and will be the central nervous system for a converged next-generation network.

Softswitches are finally becoming a real part of the emerging network. Emergent Network Solutions' ENTICE Softswitch solution was created to provide carriers with an open and independent solution with which to build, enhance or grow a softswitch enabled network.

is how to carry it in a way that minimizes capital expenditures, maximizes profits and yet limits risk both now and in the future. Most of the major equipment vendors offer a softswitch solution which is designed to work with their equipment and for some carriers the "single vendor" approach can be effective. However for many carriers, this simply is not an option. To them, the network will always be heterogeneous. The ENTICE Softswitch was designed for these carriers.

The ENTICE Softswitch (ESS) solution provides carrier-grade call control, translations, routing and element provisioning for a network of H.323, SIP or H.248 based network elements ranging from gateways and gatekeepers to H.323 and SIP endpoints. The optional SS7 controller provides access to signaling networks worldwide. The solution is scalable to control a network of over 100,000 ports and was designed to work as a standalone softswitch or to interwork with other softswitches for delivering specialized services or simply to expand capacity.

Because of the ESS'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 of relying only on their vendors for new applications and features and enables them to control their own destiny while at the same time providing stable and reliable soft-

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As stated earlier, the world of telecommunications is in a transition phase from the previous network which carried TDM traffic controlled by protocols such as SS7 to a packet based network running protocols like H.323, SIP and H.248. The existing circuit switched network is not about to disappear, however there is increasing growth in the packet side of the network. For today's carriers the opportunities of carrying the growing packet traffic on their networks is obvious, the challenge

Network Architecture with ENTICE Softswitch

ware in the form of well tested and field proven software generic releases. The illustration at left shows where the ESS fits into a carrier's network.

In this illustration, the ESS is used to provide call processing and element management services to a carrier's network which is composed of H.323, SIP or H.248 network elements.

Because the ESS has gatekeeper functionality it is able to interwork with other H.323 gatekeeper/ gateway devices, providing a full spectrum of routing, translation and screening capabilities for H.323
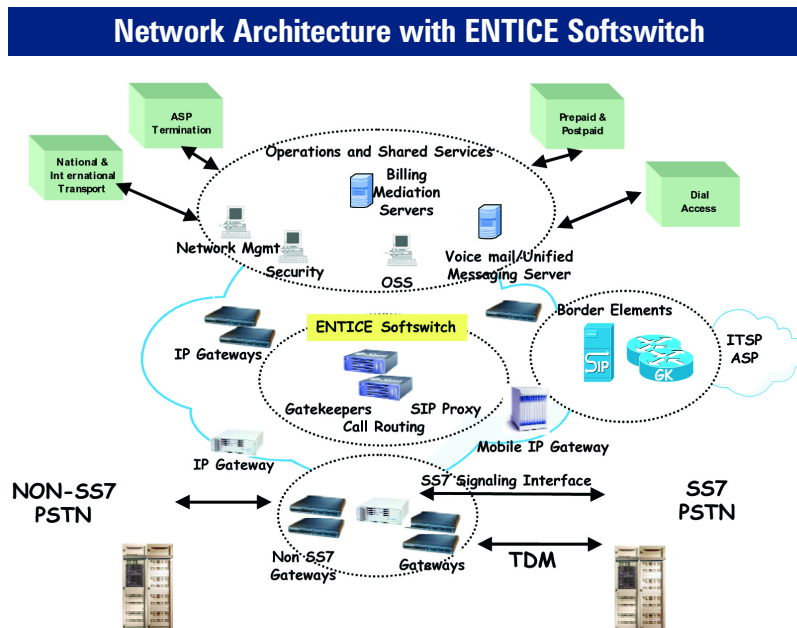
traffic. Similarly, the SIP Proxy/Redirect Services provide routing, translation and screening capabilities for SIP traffic and because ENTICE preprocesses all inbound calls into an internal generic format, the ESS is able to treat all inbound and outbound traffic in a standardized way. This allows the Entice Softswitch 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. With the optional H.248 server, compliant devices can easily be added to the network with full interworking among all components controlled by the ESS.

Element management is a day to day task for every carrier. The ENTICE Softswitch OAM&P interface was designed to make this task easier by allowing elements that are controlled by the ESS to also be managed and provisioned by ESS. ESS provides a WEB based user interface which simplifies the administration of network elements by centralizing their administration and providing the engineer with easy to use and understand screens to configure them. In addition, because of its innovative architecture, the ESS OAM&P is able to hide the complexities and idiosynchrocies of each vendor and present a unified methodology for configuration.

The ESS was designed with reliability in mind. Its distributed architecture allows it to run on a cluster of loosely coupled ENTICE controllers which are based on computers running the Solaris or Linux operating systems. This architecture insures that there is no single point of failure. In addition, each software component supports micro-rebooting which allows individual pieces or subsystems of software to be restarted without affecting the overall system.

Finally if software updates are either desired or required, each software element supports live updates of the running software to practically eliminate the need for downtime when adding new features or fixing old ones. This architecture is shown below.

Because of the distributed nature of the ESS architecture, additional ENTICE controllers can be added to increase the capacity of the system. An ESS system can be built with as few as a single ENTICE controller and then it can increase reliability and redundancy and grow to over 100,000 ports of capacity simply by adding additional ENTICE controllers.

In order to make a profit, carriers must generate billing information. The ESS stores all the 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 limited when looking for a softswitch solution. Softswitches from the major vendors, tend to be "vendor-centric" working best with equipment from that vendor. In addition, the major vendors typically don't care about small or specialized carriers and can't adapt to meet the specific needs of those carriers. The ENTICE Softswitch was designed to work in today's emerging network – which means that it can operate as a standalone softswitch or it can be used as the basis for delivery of services into any existing network including those built with other softswitches.

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.

ENTICE Software Architecture

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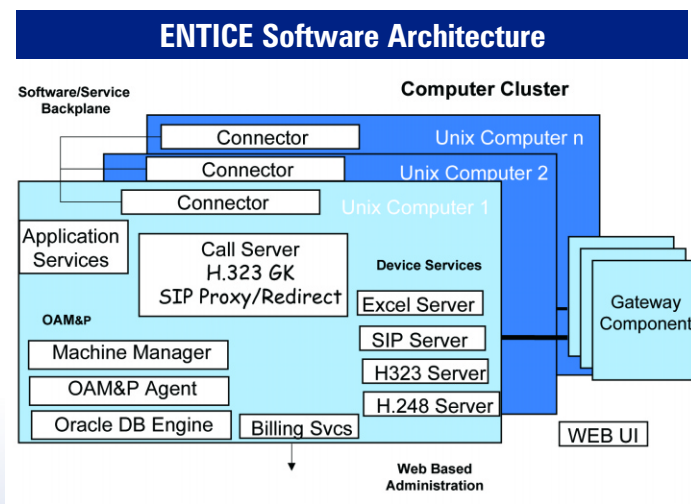
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