

## RADVISION Developer Platform Brings Flexible H.323 Implementation to Acme Packet Session Border Controller

# CASE STUDY

### HIGHLIGHTS

**Client:** Acme Packet

**Application:** Acme Packet Net-Net session border controllers (SBC) satisfy critical security, service assurance, and law enforcement requirements in delivering real-time interactive voice, video, and multimedia sessions across wireline, cable, and wireless network borders. Their deployments span all border applications -- from trunking to hosted subscriber services -- at all borders -- peering, access network-backbone network, and data center.

**Product:** RADVISION H.323 Developer Toolkit

**Benefit:** By turning to RADVISION's H.323 Protocol Toolkit, Acme Packet gained access to a proven implementation of the complex H.323 protocol for the development of its Net-Net family of session border controllers. In addition to accessing high-level APIs for general functionality, the RADVISION platform enabled Acme Packet to tap low-level APIs and make changes to source code to optimize the H.323 signaling stack to the specific needs of the Acme Packet session border controller design.

### Acme Packet Background

Acme Packet, the leader in session border control, enables service providers to deliver premium, interactive communications - voice, video, and multimedia sessions - across IP network borders. The Net-Net family has been selected by 8 of the top 10 and 15 of the top 25 service providers in the world.

### Acme Packet's Move to H.323

When crafting its Net-Net session border controller (SBC) family, which handle tasks such as IP internetworking and service level agreement (SLA) assurance, Acme Packet wanted to provide scalability and flexibility to meet the current and emerging needs of service providers worldwide. With that goal in mind, the Burlington, Mass. based company opted to implement a third-party H.323 stack -- a robust and very mature signaling protocol -- in its Net-Net SBC design.

"H.323 is a protocol that has to be included in an SBC in order to support deployed IP PBXs, gatekeepers, and gateways from many companies like Avaya, Clarent, Cisco, Italtel, Nortel, Sonus UTStarcom VocalTec and others," said Cliff Spencer, director of call signaling software at Acme Packet. "H.323, however, is a very complex protocol suite. The suite encompasses numerous protocols and each has its own requirements with regard to parsing, transaction management, and encoding/decoding. It was important to us to be able to defer that level of complexity to an off-the-shelf H.323 stack when developing our SBC."

But, Acme couldn't just turn to any off-the-shelf or open-source H.323 protocol. In order to meet the distinct signaling, interworking, and service assurance requirements of its carrier customers, Acme needed a stack that could be adjusted -- through low-level APIs and at the source code level -- during implementation in its SBC design.

After evaluating a number of options, Acme Packet found its answer in RADVISION's H.323 Protocol Toolkit. "RADVISION brought a lot of H.323 experience to the table and delivered a quality H.323 offering," Spencer said. "But, most important, RADVISION's H.323 Protocol Kit gave us the control we sought. We wanted to change the behavior of the protocol at a low level. RADVISION's

H.323 Protocol Toolkit let us do that. Turning to this kit saved us at least a man year of development time.

"We would have been crazy to go with an open-source H.323 kit," Spencer said. "We needed RADVISION's toolkit because it provided the robustness, flexibility, and functionality we needed to build our award-winning SBC."

### **APIs Simplify Design**

One of the ways that RADVISION provided control is through the implementation of Conference Manager Application Programming Interfaces (APIs) in the protocol toolkit. This suite of APIs, which includes both high- and low-level APIs, simplifies the use of the various H.323 sub-protocols, such as Q.931 and H.245, for developers. To do this, the Conference Manager APIs direct all conferencing activities, hide protocol complexity, assure proper initiation of call and channel setup, and manage resources.

"The Conference Manager APIs make the RADVISION H.323 kit easy to use," Spencer said. "Using these APIs, we were up and making a call within an hour."

The low-level APIs provided in the Conference Manager API suite were particularly important for Acme Packet during the development of the Net-Net SBC. "We used the low-level Conference Manager routines as a mechanism for interfacing internal, in-house developed software with the Radvision H.323 stack," Spencer said. By interfacing the software with the stack, Acme could easily control how its software received and dispatched events to/from the RADVISION logic.

The low-level APIs also allowed Acme to deliver better interoperability between its Net-Net SBC and other elements in a carrier's network. "To meet the numerous interoperability requirements of a carrier network, we really needed to modify the message flow," Spencer said. "Using the APIs in the toolkit, we could reorder the sequencing of the H.323 protocol and adapt message flows to ensure interoperability with other network elements," Spencer added.

### **Source Code Changes**

The APIs provided in RADVISION's H.323 Protocol Toolkit clearly left a favorable impression on Acme Packet during the development of the Net-Net SBC family. But, these APIs weren't the only elements that provided the flexibility Acme Packet needed to implement a third-party H.323 solution in its SBC designs. By turning to the RADVISION H.323 toolkit, Acme Packet was also afforded the ability to make changes to the source code of the signaling protocol. And, by doing this, Acme could make changes that allowed the H.323 signaling stack to excel in its SBC designs.

"We needed to modify the RADVISION code to provide finer-grained access to message parameters," Spencer said. "Since call processing in an SBC generally involves distinct call-legs, we needed to be able to extract specific information elements from an incoming message and manipulate those elements in an outgoing message. We also needed to modify the handling of Q.931 Progress Indicators to manage some complex early-media scenarios." By having access to the source code, Spencer said that Acme could make the appropriate tweaks.

Access to the source code also allowed Acme Packet to pass events back from the H.323 stack that weren't available in RADVISION's standard H.323 stack product. "On occasion, our SBC must generate accounting records with a specific status code when a call was dropped," Spencer said. "For example, through changes in the source code of the H.323 stack, we created a call-back to occur when the max-calls parameter was exceeded in a stack."

Changes at the source-code level were also necessary to provide SIP-to-H.323 interworking in the Net-Net family of SBCs. "When implementing SIP-to-H.323 interworking, we needed to build our own capability messages," Spencer said. "This required knowledge of many low-level routines, which was only available by examining the source code. "By having access to the source code, we had as much control as we wanted," Spencer said.

### **Top-Notch Support**

Acme Packet started implementing RADVISION's H.323 signaling protocol in the second-generation of its Net-Net SBC platform, which has been implemented by 8 of the top 10 and 15 of

the top 25 service providers worldwide. Despite the rise of open-source and other third-party stacks, Acme Packet sees no reason to not to use RADVISION's Stack in future members of its SBC family. "Our plans call for the continued use of the RADVISION H.323 stack," Spencer said. "This stack does the job nicely for us."

Clearly, the quality and flexibility provided by the RADVISION stack have played a key role in Acme's continued use of the product. However, in addition to these elements, Spencer said RADVISION's customer service team played a key role in the decision to continue using the H.323 stack.

When selecting RADVISION's toolkit, Acme Packet opted to make all tweaks and customizations to the stack in-house. During the process, however, the company has tapped RADVISION's technical support team on numerous occasions to find answers to engineering questions and problems. In all instances, this support group has shined.

"RADVISION's technical support team has provided an A-plus effort in our development process," Spencer said. "They provide very accurate and rapid answers to our questions. We can't say that about all of our third-party software vendors."

### **About RADVISION**

RADVISION (Nasdaq: RVSN) is the industry's leading provider of high quality, scalable, and easy-to-use IP communication products and technologies for converged voice, video, and data over IP and 3G. The company offers a strong and comprehensive product line of infrastructure, developer platforms, and professional services that enables vendors and service providers to develop and deploy a wide variety of high-revenue multimedia solutions and services.

Today across the globe, RADVISION-powered equipment can be found powering advanced IP-based communications and entertainment services such as IP telephony, 3G video telephony, IP video streaming, residential video calling and broadband remote surveillance/monitoring.

For more information please visit our website at [www.radvision.com](http://www.radvision.com).

For more information about Acme Packet, please visit [www.acmepacket.com](http://www.acmepacket.com).

RADVISION Contact  
**Keith Lincoln**  
PR  
Tel: 201-689-6327  
[klincoln@radvision.com](mailto:klincoln@radvision.com)

Acme Packet Contact:  
**Annalisa Ouellette**  
Media Relations  
Tel: 781-756-6836