

Iwatsu Taps RADVISION Multiprotocol and Developer Expertise to Deliver Interoperability, Advanced Call/Video Features in PBX System

Highlights

Client: Iwatsu Voice Networks Inc., a subsidiary of Iwatsu Electric

Application: Iwatsu has developed a Session Initiation Protocol (SIP)-based PBX design that handles both IP and TDM traffic while supporting more than 600 telephony applications. The SIP-enabled PBX also performs SIP-to-H.323 conversion, provides an on-board SIP server, offers a standard interface for linking up with SIP-enabled equipment, such as softswitches, and delivers advanced calling features and video support.

Product: RADVISION SIP Server Toolkit, H.323 Developer Toolkit, H.323 Gatekeeper Toolkit

Benefit: With the help of RADVISION's off-the-shelf SIP Server Toolkit and professional services team, Iwatsu could redirect engineering resources toward developing value-add telephone and video applications for its PBX design. Iwatsu also gained the ability to provide seamless SIP-to-H.323 interoperability and to implement an on-board server in order to reduce capital expenditure costs, deliver advanced calling features, and offer video capabilities to customers.

Iwatsu Background

Iwatsu Voice Networks is a leading manufacturer and provider of business telephone systems designed specifically for the North American market. Iwatsu Voice Networks is the flagship subsidiary

of Iwatsu Electric, the publicly owned industry leader in Japan and pioneer of many firsts in the telecommunications industry. Iwatsu serves millions of users in over 50 countries.

Iwatsu's SIP Transformation

Iwatsu Voice Networks is no stranger to the Session Initiation Protocol (SIP). When adding IP support to a TDM-based Private Branch Exchange (PBX) several years ago, Iwatsu dedicated a team of engineers to develop a proprietary SIP stack that would support its vast application set and provide enterprise customers with an evolution path when migrating to an all-IP design.

As Iwatsu made the move toward developing its Enterprise-CS PBX, which supports both TDM and IP connections, the company needed to make a big decision on the SIP front. In order for its PBX to gain adoption in the market, Iwatsu needed to implement a SIP stack that could easily talk with other third-party SIP-enabled systems, such as softswitches. At the same time, the company needed a stack that could be adapted to meet the continually changing SIP specifications being defined by the International Engineering Task Force (IETF).

For Iwatsu, one clear option was to take its team of SIP developers and re-direct them toward developing a new protocol stack for the Enterprise-CS PBX. That option, however, would require a significant amount of development time and a significant investment in interoperability testing -- both key concerns for Iwatsu."

"Updating our SIP stack coupled with interoperability testing would have required a big investment," said David Carissimi, president of Iwatsu Voice Networks.

The RADVISION SIP Toolkit is a powerful and highly versatile set of development tools designed to address the development requirements of production SIP User Agent systems. The SIP Toolkit complies with the latest IETF SIP specifications and key extensions. The Toolkit is a high performance SIP implementation and provides multiple API layers for optimal control and flexibility when developing innovative products and services.

In addition to development and interop costs, Iwatsu realized that reworking their in-house stack would tie up engineers who could be refocused toward developing applications for its PBX that would add value at the customer base. "We had up to 30 engineers building our SIPsack," said Don Gant, vice president of channel marketing and business development at Iwatsu Voice Networks. "We felt engineers working on our SIP stack could be better utilized working on projects that add value to our customer base. The SIP stack is important, but it doesn't encourage customers to buy equipment," Gant added.



Case Study

That big investment and resource allocation associated with the SIP stack led Iwatsu to start evaluating off-the-shelf SIP stacks for its Enterprise-CS PBX product. "Our value ad is in coreswitching and application software," Carissimi said. "We would be spending a lot of time and money keeping our stack up-to-date and compatible with others. We wanted to leave that job to people with that type of expertise."

Iwatsu, along with its parent company Iwatsu Electric, evaluated a number of off-the-shelf SIP protocol stacks. In the end, the company turned to RADVISION due to the market adoption and functionality provided by RADVISION's SIP stack, its broad H.323 protocol expertise, and the engineering talent provided by RADVISION's professional services operation. "We knew the RADVISION SIP and H.323 stacks were time tested. We knew that we were getting a very strong partner in RADVISION," Carissimi said. "RADVISION also has very good engineers in its services group."

The robustness of the RADVISION stacks and strength of the services showed itself in Iwatsu's need to provide seamless interoperability between SIP and H.323 calls. Working together, Iwatsu's engineers and RADVISION's services team were able to embed both SIP and H.323 protocol stacks in the Enterprise-CS PBX design and then create an abstraction layer that represented SIP and H.323 in the form of ISDN Q.931 messages. By doing this, the SIP and H.323 stacks could communicate with the call control engine and databases resident in the Enterprise-CS PBX and, in turn, provide seamless SIP-to-H.323 conversions or vice versa. Additionally, for H.323 call control Iwatsu developers implemented a robust RADVISION-based gatekeeper.

In a situation requiring SIP-to-H.323 conversion, SIP traffic enters the Enterprise-CS system. The SIP stack then communicates with

the callcontrol engine and database, which houses information on how an end point registered with the PBX, to determine whether a call should be routed to an end point using SIP or H.323. Using the call-control and registration information, the SIP stack, which runs on a VxWorks OS embedded in the Enterprise-CS PBX, then determines whether to send the call out using SIP or H.323 to the endpoint.

"The RADVISION SIP stack and the services team allowed us to develop a PBX that provides seamless connectivity from any protocol to any system," Carissimi said.

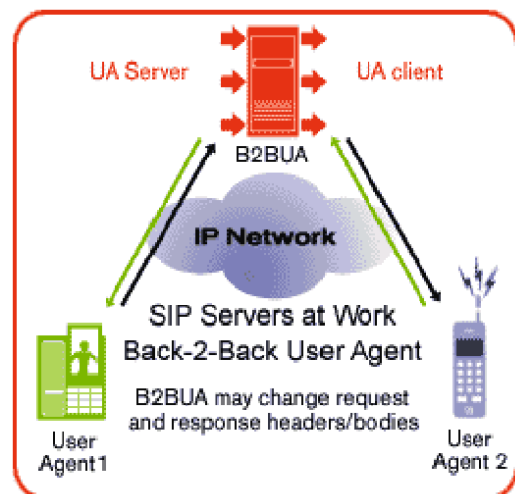
An H.323 gatekeeper is the central call and element manager within an H.323 network. The RADVISION Gatekeeper Toolkit complies with the ITU-T H.323 version 4 specifications and supports both mandatory and optional ITU-T H.323 gatekeeper functions including:

- Registration
- Address Resolution Services
- Admissions Control
- Bandwidth Control and Management
- Call Control Signaling
- Call Management
- Call Authorization/Access
- Zone Management
- Call Accounting
- Alternate Gatekeeper Procedures
- Dial Plan for Overlap Sending

B2BUA Brings Class 5 Features

Seamless conversion wasn't the only benefit that Iwatsu gained by turning to the RADVISION SIP Server Toolkit. Iwatsu also benefited from the back-to-back user agent (B2BUA) support provided in the SIP Server Toolkit. Through the B2BUA, Gant said that the Enterprise-CS PBX can monitor a call during its entire duration while also providing the ability to insert features on the fly to address the needs of a particular application. For example, the B2BUA provided in the Enterprise-CS system would allow a user to incorporate PBX features into a Windows Messenger session. "Therefore, a user could incorporate text messaging or use a PBX feature in a generic Windows Messenger application," Gant said.

The B2BUA also enabled Iwatsu to embed a server directly in the Enterprise-CS PBX. "This server provides "proxy-like" services and registration functions normally performed by an external SIP server," Gant said. "Since we don't require the external server, we can reduce capital expenditure (CAPEX) costs."



Success Story

Advanced Video Support

In addition to reducing CAPEX costs, the embedded server let Iwatsu more easily add video support to its Enterprise-CS PBX design. Through the embedded server, users can use Windows Messenger to set up a video conference. During this conference, the video call is peer-to-peer through the IP cloud and the voice conversation is controlled by the ESC PBX. "In essence, the enterprise user's computer becomes a voice and video terminal off of the Enterprise-CS system," Gant said. "Without RADVISION, we could have developed video as an adjunct to the Enterprise-CS PBX. But with the RADVISION stack we support video without the need for an external SIP server and offer the ability to add proprietary features delivered by the Enterprise-CS PBX to a standard Windows Messenger session."

RADVISION's SIP stack also enabled Iwatsu to add trunking capabilities to its Enterprise-CS PBX design. "RADVISION's toolkit allows the Enterprise-CS system to support SIP trunks directly," Carissimi said. "Our customers can use these trunks to access remote gateways that use SIP."

A SIP Back-To-Back User Agent (B2BUA) takes what is traditionally a SIP end-to-end call and mediates it through a central SIP server. The B2BUA enables the VoIP system to manage and track a call from beginning to end, integrate and offer new value added features, and bring Class-5 type functionality to IP networks.

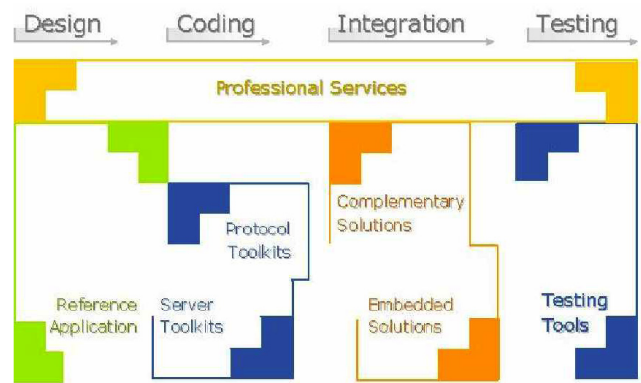
RADVISION Professional Services

The ability to implement trunks, along with advanced calling features and video support, could not have happened without the help of RADVISION's services team. "RADVISION's services team worked closely with Iwatsu during development and stayed on with the project through the testing phase," Carissimi said. "They also helped coordinate interoperability testing."

The benefits provided by the services team showed itself in two areas in the final design of the Enterprise-CS system. The first was on the price front. "The price per port provided on the

Enterprise-CS is great," Carissimi said. "We couldn't have hit these price levels without the RADVISION stack and professional services team."

The second benefit appeared on the time to market front. By working with the RADVISION professional services team, Iwatsu could significantly cut-down the time required to integrate the stack with its VxWorks operating system, call processing engine, and



Professional Services in the Development

databases. This integration help, Carissimi said, significantly reduced the time it took to get the Enterprise-CS system to market.

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.

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