Integrating COTS-Based Media Server Software

Case Study

radisys®

Industry/Market

Financial trading communications solutions.

The Challenge

Migrate to commercial, off-the-shelf (COTS) hardware and software components without sacrificing voice quality or functionality.

The Business Environment

Financial institutions, still reeling from the banking crisis, cut IT expenditures, driving equipment manufacturers to find new ways to reduce costs.

The Solution

The communications solutions provider began substituting hardware and software components from its fully proprietary platform with COTS alternatives, including the Radisys Convedia Software Media Server that ran on a standard server and operating system.

The Benefits

Exceptional audio conferencing and an opportunity to focus in-house resources on core development.

Customer Profile

A leading provider of financial trading communications solutions to financial services firms and global enterprises, the company implements VoIP technology for customers in countries all over the globe.

In the stressful and fast-paced world of financial services, traders have a very low tolerance for audio conferences with poor voice quality, even though participants, numbering in the thousands, are sitting in every corner of the world. Audio quality problems, like echo, voice dropouts and uneven volume levels, are unacceptable. Some traders use state-of-the-art desktop command centers with various screens and buttons supporting multiple communication modes and lines. These systems also have special circuitry to handle instances when excited traders literally scream into the phone.

Catering to this demanding marketplace, the communications solutions provider was understandably careful when considering the Convedia Software Media Server, because poor reliability or voice quality is simply not tolerated. The company had a clear lead in voice quality, and it was vital to maintain this advantage as they transitioned from proprietary to COTS media server software.

> *Radisys' willingness and ability to enhance the Convedia Software Media Server for the unique needs of this demanding market were paramount in the selection process.*
>
> **David Smith** General Manager, Media Service Business Unit at Radisys

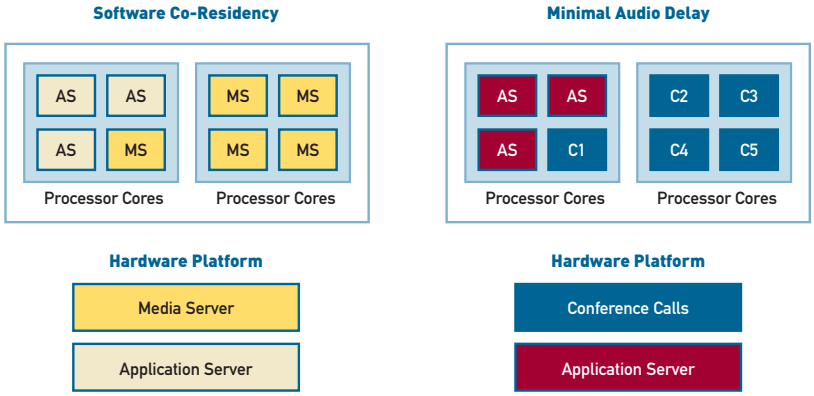
Easy Integration

Primarily for cost and time-to-market reasons, the communications solutions provider decided it was time to leverage COTS hardware and software components. A key part of this strategy was to adopt standard servers, run Red Hat Enterprise Linux and deploy the Radisys Convedia Software Media Server, which was designed for this type of open architecture. Further facilitating integration, the traffic flow is based on SIP (Session Initiation Protocol) and MSML (Media Server Markup Language), two widely adopted standards in the industry. The media server software exchanges information via the Simple Network Management Protocol (SNMP), thus allowing the enterprise communications company to preserve its user interface (UI).

Platform and Voice Quality Enhancements

One of the benefits of migrating to COTS hardware is the ability to leverage the latest server technology while avoiding the design churn that comes with implementing new processor generations and increasingly complex design rules. The amazing performance gains from multi-core processor technology can be directly applied to IP media processing, but there are some techniques capable of squeezing out even higher performance. These Convedia Software Media Server features are key in this application:

- **Software Co-Residency:** When the Software Media Server runs on the same hardware platform as an Application Server, their respective workloads can be assigned to specific CPUs or CPU cores, as shown in the graphic above.



Software Media Server Enhancements

Benefit: This feature helps ensure the Media Server and Application Server have sufficient computing power to handle the number of conference lines.

- **Minimal Audio Delay:** Conference participants are co-located and mixed on the same CPU or CPU core, as shown in the graphic.

  Benefit: This change eliminates the latency resulting from multiple cores sharing call data and processing responsibilities.

- **G.722 encoding/decoding:** Software Media Server incorporates high definition audio.

  Benefit: The G.722 codec samples audio data at twice the rate of traditional telephony interfaces and provides twice the frequency spectrum, which results in superior audio quality and clarity.

Validating Audio Quality

Radisys and the communications solutions provider conducted independent testing of the voice quality enhancements to prove the software enhancements satisfied call delay (time measured in milliseconds) and audio requirements. The G.722 codec delivered voice quality better than TDM (time-division multiplexing) based solutions at a fraction of the cost. The performance of the Convedia Software Media Server enabled the communications solutions provider to migrate from TDM to open standard SIP-based voice protocols and save cost by moving away from a propriety platform to COTS hardware and software components.

radisys.

Corporate Headquarters
5435 NE Dawson Creek Drive
Hillsboro, OR 97124 USA
503-615-1100 | Fax 503-615-1121
Toll-Free: 800-950-0044
www.radisys.com | info@radisys.com

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