



Real-Time Management System Improves Call Quality and Reliability for VoIP Networks

Intel® network processors power unique appliances from Qovia*

Summary

The time has come for VoIP to live up to its promises—higher quality, feature-rich, versatile communications at a lower cost than analog or digital solutions. As an emerging leader in the hot telephony segment, Qovia* is helping to make it so.

With a unique management solution designed specifically for VoIP networks, Qovia is enabling IT managers to cost-effectively deploy and operate VoIP technology at the highest levels of quality and performance.

Although Qovia's solution is exciting in itself, the story here is about the development process that helped them save as much as a full year off their time-to-market, delivering the Qovia VoIP Monitoring and Management System (VMMS) months ahead of known competitive offerings.

Using scalable, high performance Intel® network processors, along with hardware design and development resources from ADI* Engineering, Qovia has set a breakneck pace for innovation in the emerging VoIP industry. Read this case study to find out how.

VoIP—Myths and Realities

For years the concept of VoIP has promised to help businesses lower their phone bills and improve communications. The bait is alluring: when properly implemented, VoIP networks can cost a lot less to operate, maintain and upgrade than comparable digital or analog phone systems. At the same time, VoIP technology offers more potential features and greater flexibility than conventional phones.

Because traditional phone systems run themselves, the myth persists that VoIP networks can too. But the reality is that they require even more coddling than their data-only counterparts. Like IP data networks, voice systems need constant care and vigilance to ensure that they stay reliable, safe and free from hiccups—even during periods of increased network traffic. But unlike data-only environments, VoIP services are real-time, and they demand real-time monitoring and management.

And therein lies the problem. Until Qovia, there were few monitoring and management solutions suitable for VoIP applications, and none that were vendor-neutral and engineered from the ground up to be used specifically in VoIP networks. During pilot deployments, many businesses have discovered that proper management tools are essential to ensure call quality and reliability, as well as keep operating costs down and deliver a greater ROI. The absence of such tools is a primary factor keeping Internet telephony in the early adopter category, says Qovia.

From Concept to Solution

The ideal VoIP management solution, says Qovia, integrates hardware and software that can be dispersed throughout the network, yet centrally operated. “Hardware probes can act as virtual hands for remote management,” explains Eric Bear, Qovia’s VP of Product Development. “They allow IT managers to keep operating costs down even in large organizations.” He adds, “Those probes must vary in performance and features to accommodate the needs of a variety of VoIP network environments, but they must all run a single software application for interoperability, scalability and ease of management.”

Real-time performance feedback and management tools are essential to ensure call quality and reliability. “It doesn’t matter very much if there’s a slight delay in your email transmissions,” explains Bear. “But it matters a whole lot if there’s any latency in your voice communications.”

Another consideration is cost, says Qovia. “Qovia’s success depends on our ability to bring out great management tools that help our customers move from pilot phase to full-blown deployment. But the cost to do so has to be reasonable. We have to deliver solutions that scale in both price and performance so that all of our customers can reap the rewards of VoIP technology and get the best possible ROI in the fastest time,” says Bear.

Qovia’s plan to address all of these requirements is simple: one design that scales in both hardware and software to provide the greatest possible economic efficiencies. “The only way to achieve our price-performance goal is by scaling our design, with one software application that can be deployed in any VoIP environment, and a scalable hardware platform to run it on,” explains Bear.

Tactics for Success

Once Qovia decided to pursue a scalable product design, they looked for ways to achieve efficiencies in hardware development. To this end, Qovia made two important hardware engineering decisions:

1. **Choose a single, scalable processing architecture for all hardware in Qovia’s solution set.** Qovia’s leaders expect this strategy to save engineering resources by enabling hardware design reuse. It also saves Qovia from rewriting software for each version of hardware that’s developed for different environments.



“When you look at overall design and engineering cost, along with the features you get, Intel’s platform gives us so much more for the money than anything else we’ve seen.”

Eric Bear
Qovia, VP of Product Development

2. **Outsource hardware engineering to industry experts.**

Qovia’s management team decided that outsourcing hardware design and production will allow the emerging company to bring out leading edge solutions in a fraction of the time and expense it would take to do the same with in-house resources. Leveraging the highly skilled engineers employed at an outside firm, Qovia eliminated several development steps that can slow time-to-market and interfere with application development.

Hardware Heroes: ADI* Engineering and Intel

As it turns out, the scalable solution strategy fit neatly with these hardware engineering tactics. With a scalable product roadmap in hand, Qovia leveraged third-party hardware expertise from ADI Engineering and a highly scalable network processing platform from Intel to deliver a lot more than a cost-effective price point. The result? The highly versatile Qovia VoIP combines with any one of Qovia’s unique appliances to form a scalable VoIP management system that runs on any VoIP network available today.

Why Qovia* Chose Intel® network processors

Qovia’s success in delivering the hardware components of VMMS is due in large part to their decision to use Intel network processors based on Intel XScale® technology for the hardware platform. Intel was selected over other processing designs because it offers “the best total solution,” says Bear. “Intel has network processors that meet our needs

on both the low and high end of the scale, for the appliances we're building today as well as our long-term roadmap. Plus, Intel has one of the best performance records and offers more capabilities than other processing platforms we looked at."

Other criteria that were important to Qovia include the ability to reuse platform design from one network processor to the next without rewriting code for the application software. Support for encryption, packet filtering, common communications interfaces, and proven reliability also factored into the decision process.

Bottom line: Qovia says that Intel network processors enable them to meet their aggressive pricing goals. "Overall cost-effectiveness of the Intel® platform is significant," says Bear. "When you look at overall design and engineering cost, along with the features you get, Intel's platform gives us so much more for the money than anything else we've seen."

The first solution to employ an Intel network processor will be the Qovia 3000 appliance, which uses the Intel® IXP425 network processor—a highly integrated, versatile single-chip processor with an Intel XScale core. The Intel IXP425 network processor meets all of Qovia's criteria for features and performance—including encryption—yet at the right price point for this base-level appliance. While Qovia was evaluating processors, they used the 3000 concept design and the Intel IXP425 network processor to find ADI Engineering—Qovia's eventual hardware engineering partner.

Why Qovia Chose ADI Engineering

As a member of the Intel® Communications Alliance, ADI Engineering is an experienced developer—and qualified expert—in solutions built with the Intel IXP425 network processor. With dozens of designs completed for this chip, ADI had the kind of know-how Qovia needed to bring their concept to market quickly. What's more, ADI understands the architecture of the Intel XScale core, which is an essential element in all Intel network processors. This means that ADI can deliver the full range of hardware solutions with scalable performance for Qovia over the long term.

In fact, ADI is now developing Qovia's next generation Gigabit Ethernet appliance based on the newly announced Intel® IXP2325 and Intel® IXP2350 network processors. Because these two new network processors are built on the same architecture as previous Intel network processors, ADI can engineer the platform a lot faster than if they had to start design work from scratch.

ADI's very efficient engineering and use of the single Intel network processing architecture helps Qovia deliver on their aggressive pricing strategy. For the Qovia 3000 appliance, ADI Engineering met this need with a ready reference design that closely matched Qovia's product concept. "Having a pre-built reference design to work with really sped up our software engineering process, too," explains David Chapman, Director of Product Development at Qovia. "We could start testing code almost immediately, and we didn't have to wait for the prototype."

And because ADI had already done a lot of development work in the reference design, the time and effort saved on product development enabled ADI to meet Qovia's cost-containment strategy. "It's all about risk," explains Mark Budzinski, VP of Business Development, ADI Engineering. "Once a customer decides on a design based on Intel products, the next

About Qovia* VoIP Management Technologies

Qovia's* VoIP Monitoring and Management Software (VMMS) and hardware appliances are currently the only tools designed from the ground up for VoIP network management. Qovia's carefully engineered VoIP tools enable administrators to monitor and manage the VoIP network in real-time for optimum quality and performance.

Qovia's VMMS monitors the network, detecting issues before they affect call quality and reliability; alerts the IT team when issues do occur; and acts as virtual hands to allow remote management of VoIP network elements. Qovia VMMS is also unique in that it looks beyond just call quality monitoring, focusing on network reliability, emergency and E911 services, operational support and security.

The Qovia VMMS application can be implemented on a number of Qovia hardware appliances, based on the needs of the network. The Qovia 3000 is a low-cost network probe designed to capture data and performance information from the VoIP network. The Qovia 5000 provides aggregation and management capability and is typically deployed in higher traffic areas of the network or near the IP PBX. Both the Qovia 3000 and 5000 appliances use the Intel® IXP425 network processor for efficient, scalable, high-performance processing.

Qovia also plans to release a larger-scale Gigabit Ethernet appliance that will run on the Intel® IXP2325 (or Intel® IXP2350) network processor, a design suitable for very large VoIP implementations with high processing and high-availability needs.

challenges are how to design, test, and get it into the field at a reasonable cost and within a quick timeframe. As a member of the Intel Communications Alliance, ADI is well-poised to take on these challenges in bringing an Intel XScale core-based solution to market.”

Success Metrics

Qovia estimates that the entire success formula saved as much as a year off time-to-market, enabling them to get a big jump on the competition. Harnessing the design and manufacturing expertise available from ADI allowed Qovia to cost-effectively deliver a feature-rich solution for optimum value.

For emerging leaders like Qovia, access to experienced, trained engineering resources can make all the difference in a company's success. Thanks to the Intel Communications Alliance, Qovia—and other OEMs like it—can duplicate this success formula again and again.

Conclusion

The story here is not about VoIP technology—exciting as that may be. It's about Qovia's success in bringing a cutting edge solution to market well ahead of competitive offerings, at a value-price point that meets customers' needs.

It shows what's possible when emerging leaders like Qovia tap the engineering and design experience in the Intel Communications Alliance. Using standards-based, industry leading technologies from Intel and third-party engineered software and/or hardware, technology pioneers can deliver breakthrough solutions—painlessly. And what a story that is.

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Qovia*
www.qovia.com

ADI* Engineering
www.adiengineering.com

Intel® Network Processors
www.intel.com/go/networkprocessors

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