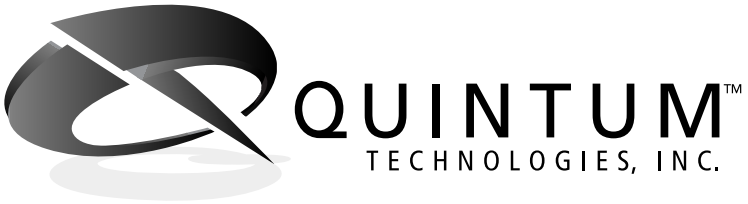
Premise Keepers:

How the Right Customer-Premises Equipment Can Help Service Providers Sell VoIP, Gain Competitive Advantage and Win the Battle for the Convergence Market



Premise Keepers

How the Right Customer-Premises Equipment Can Help Service Providers Sell VoIP, Gain Competitive Advantage and Win the Battle for the Convergence Market

- Executive Summary 2
- Why Convergence is like Heaven 2
- Quintum's Tenor Gateway: Training Wheels for a Nervous Marketplace 4
- The Advantages of Placing the Tenor Gateway on Customers' Premises 5
- Why Partner with Quintum? 7
- About Quintum

Tenor MultiPath Gateway, Quintum, Quintum Technologies, Inc., VoIP Made Easy, TASQ, TASQ Technology and An Elegant Migration to Converged Networks, are all trademarks of Quintum Technologies, Inc.

Executive summary

The future of convergence beckons consumers and providers of technology alike. Lower telecommunications costs, streamlined resource management, more efficient use of available bandwidth, and the potential development of new high-value voice/data applications are being dangled in front of the marketplace like the proverbial carrot-on-a-stick. And everyone is drooling.

But organizations are finding it difficult to take the first steps towards convergence. Although it's clear that this first step should be voice-over data – or, more specifically, voice-over-IP – most corporate decision-makers have serious concerns about such a major migration. These concerns include the quality of VoIP calls, the reliability of IP networks, and their lack of expertise in voice-over-data deployment.

Fortunately, Quintum Technologies' Tenor Gateway directly addresses these concerns, providing a risk-free migration path to VoIP deployment. It accomplishes this by delivering an automated switching technology that "senses" the condition of the IP network. The moment the quality or reliability of voice calls over the IP net is threatened, the Tenor Gateway simply directs the call over the PSTN. It's a simple yet elegant solution that allows organizations to initiate VoIP migration with confidence.

What does this mean to service providers with convergence ambitions? By placing Tenor Gateway switches on customers' premises, service providers can jump-start their customers' VoIP migration – delivering superior value and reduced risk without locking them into any single vendor's hardware/software platform. For the service provider, the potential results are extremely attractive:

- a bigger piece of the convergence market earlier in the game
- reduction of PSTN access costs – with savings passed along to the customer
- better long-term customer retention through an integrated, competitively superior offering
- rapid deployment of a money-making multi-point VoIP network

The Tenor Gateway is a particularly appealing solution for service providers because of its hassle-free installation, excellent remote manageability, and PBX-grade reliability. The unique benefits of the Tenor Gateway customer premises solution makes Quintum Technologies a powerful business partner for any service provider seeking to take advantage of the convergent communications marketplace that's poised to expand exponentially.

Why convergence is like heaven

Why is convergence like heaven? Because, even though everyone will tell you they want to get there, no one is in a hurry to do what it takes to get there.

The benefits of convergence are well known. They include lower recurring transmission charges, reduced ongoing technology ownership costs, and the ability to deploy powerful new integrated voice-and-data applications. These benefits are already being experienced by aggressive early adopters of voice-over-IP, voice-over-frame and other convergence technologies.

Convergence is also appealing to service providers. It enables them to:

- more efficiently utilize their existing bandwidth to provide value to the customer
- leverage low-cost Internet connectivity.
- bundle a broader portfolio of services into integrated packages to increase revenue-per-customer and improve account control
- support new, high-value voice-and-data services, and
- provide a competitive advantage in an otherwise commodified bandwidth market for those who are able to get to market quickly.

Despite the clear benefits dangling on the stick of convergence, users aren't moving very quickly. There are a few distinct reasons for this:

1) They're concerned about loss of voice quality

Corporate technology people understand that data networks are very different from voice networks. On their Ethernet/IP networks, packets bounce around indeterminately. They collide and get distorted or even lost. Error-correction mechanisms in Ethernet hardware and the IP protocol compensate for these phenomena on the data side, and the millisecond delays that occur usually don't affect applications. But such problems can obviously have an adverse effect on voice calls – which require consistent real-time flow of packets from one end of the network to the other. It doesn't do any good to explain to customers that the human brain can comprehend speech even when there's a significant amount of distortion. Corporate decision-makers believe that they need to provide the same call quality that they have now. Any deterioration in that quality is perceived as a disruption of the business – and users won't tolerate it.

2) They're nervous about reliability

Corporate technology buyers know from experience that data networks aren't as reliable as voice networks. They know what it's like to have their computer freeze or to be told that the network is "down." But this rarely happens with their phones. Immediate and uninterrupted access to others over the phone is such an essential aspect of conducting business that few executives are willing to put voice communications at risk, regardless of how attractive the potential savings may be.

3) They don't want to be prematurely "locked in" to a given vendor's architecture

The rapid pace of technological change makes vendor "lock-in" a major concern for any potential buyer. Two aspects of lock-in trouble these decision-makers. One is the possibility that a better solution for voice-over-IP will come along shortly after an investment has been made in a particular vendor's product. If that investment is substantial, it's usually impractical to scrap it and switch to the better approach.

Another concern is the fact that selection of one vendor's approach to voice/data convergence may cause lock-in that extends far beyond the VoIP solution itself – forcing a long-term commitment to that vendor's overall networking architecture. Many companies have already experienced this with desktop applications and data network hardware, where use of a particular operating system or routing technology has narrowed their choices in many other areas – such as applications and management tools. No one wants their VoIP implementation to result in a similar limitation of long-term choices.

This concern is exacerbated by the lack of clear standards in the VoIP market. In the absence of such standards, technology managers have legitimate concerns about committing their companies to any proprietary architecture.

4) Their lack of expertise and experience in VoIP makes them insecure

Technologists, by their nature, like to really know what they're doing. And, in recent years, they have already had to put a great deal of effort into rapidly assimilating a wide range of new technologies – Web site development, Internet security, object-oriented programming, etc. The addition of VoIP technology to this knowledge base is not an especially attractive prospect to already-overburdened staff, especially if convergence has not yet gained strong support from the executive suite.

5) Convergence may have undesirable internal political implications

People like to keep their jobs, and they like to make sure that their friends keep their jobs, too. Unfortunately, convergence can potentially disrupt the roles and structures of corporate technology staff. As things stand now, data applications are the responsibility of an IT team – while voice communications fall under the aegis of a telecommunications group. Convergence undermines these distinctions and roles. Decision-makers may be skittish

about implementing convergence technology – whether consciously or subconsciously – because it threatens their own territory or the territory of someone with whom they really don't want to wrestle.

For service providers who want to move ahead with convergence offerings, these obstacles may be as formidable as the issues of capital investment and technical architecture. Given this customer mind-set, service provider executives have to ask themselves several questions. These questions include:

- How can I overcome my customers' anxieties and concerns about migration to VoIP?
- Can I somehow "prime the pump" for the nascent, high-growth convergence market?
- What changes in my business model might help accelerate acceptance of VoIP?
- Is there a solution that will make my customers comfortable with a VoIP pilot today?

The answer to all these questions can be found with Quintum Technologies' Tenor MultiPath Gateway.

Quintum's Tenor MultiPath Gateway: Training wheels for a nervous marketplace

Quintum Technologies' Tenor MultiPath Gateway directly addresses the issues that prevent customers from moving ahead with VoIP implementation. The Tenor Gateway does this through an intelligent, multi-path voice/data switching architecture that eliminates risk and maintains an open, vendor-independent migration path to future technologies. It also provides an easy-to-implement solution that doesn't immediately threaten existing corporate voice or data network empires.

The Tenor Gateway switch sits between the corporate PBX, the PSTN and the IP data network. Its most prominent distinguishing characteristic is its ability to continuously monitor the condition of the data network, and to route voice traffic accordingly. If conditions on the data network are sufficient to support the required level of voice quality, the gateway switches voice traffic to the appropriate router. If conditions on the data network deteriorate for any reason, then the switch automatically re-directs voice traffic over the public switched network.

This intelligent switching capability is a powerful platform for ensuring a safe, controlled migration to VoIP. By giving customers a "fall-back" position during their VoIP pilots, the Quintum Tenor Gateway delivers the following key benefits:

It eliminates the risk of inadequate voice quality

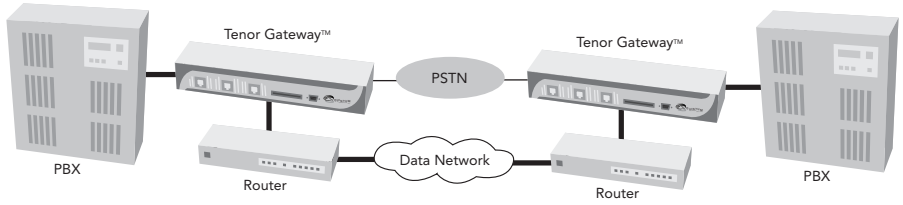
If conditions on an IP network threaten the quality of voice-over-data transmission – such as overall network congestion or a high packet error rate – the Tenor Gateway immediately and automatically responds by switching calls to the PSTN. This temporarily eliminates the savings associated with VoIP, but that's a small price to pay for avoiding any potential interruption to normal business operations.

It eliminates fears of poor VoIP reliability

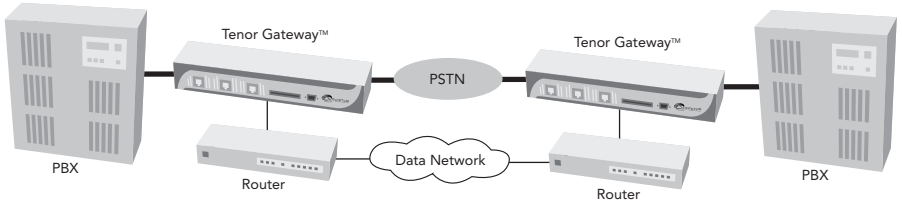
An intelligent multi-path switch protects against loss of voice service in two ways. First, it re-routes calls over the PSTN in the event that the failure of a data networking device threatens the continuity of voice service. Second, it protects against its own failure by becoming a transparent "wire" to the PSTN in the event of shutdown. It should also be noted that because the Tenor Gateway is designed as a telecom switch rather than as a piece of data networking hardware, it is far less prone to failure than conventional routers and access devices.

It eliminates the possibility of vendor "lock-in"

The Tenor Gateway can be used with virtually any PBX, any routing/switching platform and/or any service provider. Because it is not directly tied to either hardware or software architectures, it can serve as a highly flexible "shim" during any type of infrastructure or service migration.



Calls are routed over the IP Network



Congestion on the internet - Calls are moved to the PSTN

It eliminates pain and risk from the VoIP learning curve

Because the Tenor Gateway allows the customer to turn VoIP off or on at a moment's notice, it significantly raises the comfort level that both technical and business managers have with any initial foray into VoIP implementation. Note, too, that because the Tenor Gateway can easily be programmed to selectively route only specified types of calls over the corporate data network, it provides an ideal method for testing, piloting and benchmarking VoIP traffic in advance of any incremental "production" deployments. In other words, it allows technicians to safely conduct a wide range of point-to-point experiments on the corporate network without impacting business-as-usual.

It allows VoIP pilots to be initiated without first forcing a resolution of internal territorial disputes

Because the Tenor Gateway neither displaces nor interferes with the telecom or data network infrastructure, it won't arouse the types of personal and political concerns that corporate managers may have about the possible re-organization that can occur as a result of VoIP implementation. In this way, it provides an excellent means for initiating a migration to convergent networking while executives are still undecided about how to tackle the thornier political issues associated with convergence.

Thus, it's clear that the Tenor Gateway can be a very useful tool in getting customers to overcome their fears about moving ahead with VoIP. The next natural question is how service providers can best take advantage of these capabilities to achieve their own business objectives.

How the Tenor Gateway on customers' premises can help service providers sell VoIP, gain competitive advantage and win the battle for the convergence market

So far, we've looked at the benefits of the Tenor Gateway intelligent multi-path switch from the customer's point-of-view. Now let's take a look at how the Tenor Gateway can help service providers with their own pressing business objectives.

The Tenor Gateway enables service providers to overcome customers' stated and unstated objections to initiating VoIP

As noted in the previous section, the Tenor Gateway addresses customers' primary technical and business concerns about VoIP – including VoIP quality, reliability, vendor lock-in, skills shortfalls and organizational conflict. By getting customers to install a Tenor Gateway, VoIP service providers can quickly overcome these objections. It should also be noted that, because the Tenor Gateway is relatively simple to install and doesn't require extensive modifications to either PBX or data networking gear, it allows VoIP pilot projects to be treated as just that: pilots. Customers gain the added comfort of knowing that they can easily roll back their implementation if they're not happy with the results. They won't have to worry about the possibility that such a roll-back will mean the waste of big investments in the re-configuration of their voice and data communications equipment.

The Tenor Gateway is a powerful competitive differentiator

Because no other vendor currently offers this same type of intelligent multi-path switching solution, service providers who bundle the Tenor Gateway with data networking services can offer customers several value propositions that the competition simply can't.

1) *Easy deployment of services utilizing the existing IP network.*
   VoIP allows service providers to quickly and efficiently deploy a variety of services including telephony, unified messaging and fax over IP services. Service providers are able to expand their offerings to their customers in short order by utilizing the IP network for local access. As a service provider, very attractive wholesale rates are available for transporting and terminating calls anywhere in the world.

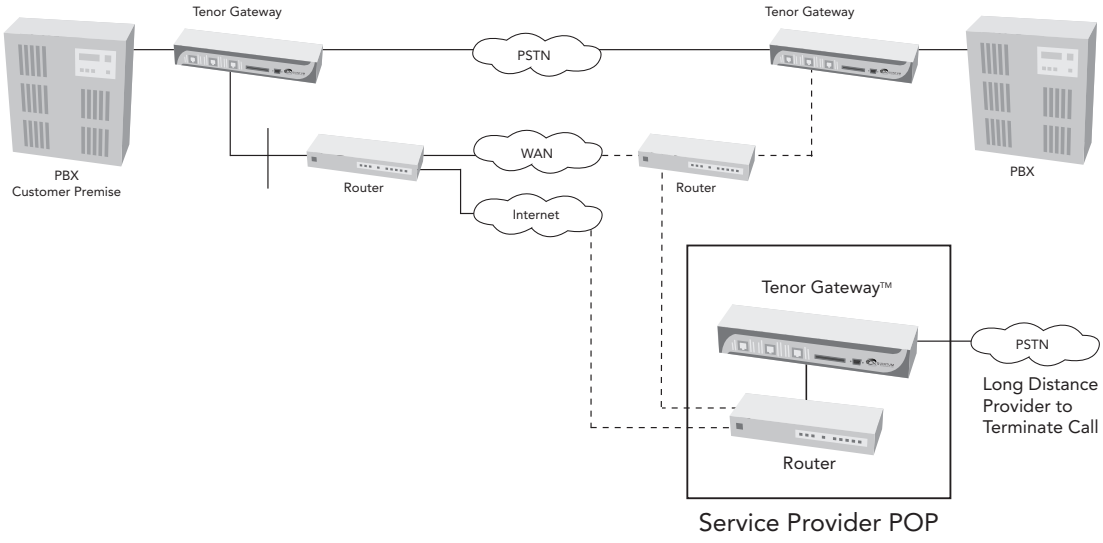
2) *The ability to create "voice VPNs" for internal corporate voice traffic – without risk.*
   Voice calls between locations can ride across the data network that the customer has already paid for. For many large organizations, these savings can be substantial. For companies with multi-national locations, they can be phenomenal. With the Tenor Gateway, customers can implement these "voice VPNs" simply and inexpensively.

3) *Local-loop bypass for lower-cost long distance services.*
   Instead of going through incumbent local carriers, voice traffic heading outside the enterprise can be forwarded to the service provider as IP packets. This eliminates the artificially high local loop per-call charges that limit the potential savings on long distance services.

4) *The Tenor Gateway is an excellent tool for rapidly building VoIP infrastructure.*
   There's another application of the Tenor Gateway that convergence-aggressive service providers may also find appealing. The Tenor Gateway can serve as an excellent platform for building VoIP service infrastructure. By deploying distributed Tenor Gateways on a "co-location" basis at ISP facilities, service providers can quickly and inexpensively build flexible, H.323-compliant VoIP POPs. These POPs can be used to support profitable, competitively differentiated convergence services.

5) *Tenor can deliver high-quality services that no other VoIP solution can.*
   No other solution offers the benefit of TASQ technology providing failover to the PSTN in the event of IP degradation. This feature insures that customers always have high quality voice – they won't know they are on VoIP. On the occasions when the Tenor Gateway switches calls to the PSTN, the additional telephony costs can be minimized by utilizing very low cost wholesale telephony service.

Because there are a variety of ways in which service providers can package the Tenor Gateway, it provides an even greater set of opportunities for competitive differentiation. A service provider can simply recommend purchase and installation of the Tenor Gateway as a prerequisite for



implementation of a VoIP service or services. Or the service provider can assume the role of a value-added reseller – either selling or leasing the Tenor Gateway directly to the customer. Alternatively, a service provider may choose to simply install the Tenor Gateway at no visible cost to the customer as part of an integrated service offering. Each of these possible approaches offers a different value to different types of customers.

It's worthwhile to note that neither Quintum nor the Tenor Gateway is a household word at the moment. So, by making the Tenor Gateway an integral part of their service offering, VoIP service providers can clearly differentiate themselves from competitors. The flexibility, economy and comfort level that Quintum's multi-path switching technology offer simply can't be matched by any other product/service bundle on the market today.

By helping generate early marketshare, the Tenor Gateway can help service providers assume leadership in the convergence space

There's probably some money to be made in the first wave of VoIP adoption. But that's peanuts compared to what the second wave is going to look like. So imagine you're a typical second-wave buyer, and you've waited out the early stages of VoIP development (despite the no-risk proposition that the Tenor Gateway offers!). Now you're ready to make your move. Who are you going to buy from? The provider who talks big but has only managed to sign up a few VoIP customers, or the one who walks into your office with the most VoIP installations already in place? Chances are, if you fit the profile of the wait-and-see buyer, you'll seek safety in numbers. Use of the Tenor Gateway is therefore not only an effective near-term strategy for getting customers to pilot VoIP, it's also a critical element in any long-term plan to gain leadership in the convergence market. That early leadership is likely to impress investors looking for a convergence play, too. So anyone who plans on being an important player in converged communications services needs to establish a strong position early in the game. Now is the time, and the Tenor Gateway is the tool.

Why partner with Quintum?

A strategic business partnership is a serious thing, especially when the stakes are as high as they are with the potential convergence market. So why should a service provider decide to partner with Quintum?

Quintum has telecom roots and delivers carrier-class solutions

Quintum is not a Silicon Valley start-up launched by Internet wunderkind. Quintum's management and engineering teams come from leading telecom organizations such as AT&T/Bell Laboratories

and Teleos – as well as data networking leaders such as Madge and 3Com. These industry veterans have had intimate involvement with the development of technologies such as SS7 signaling and ATM. The Tenor Gateway itself is a model of PBX-class engineering, with robust environmental tolerances and total "fail-safe" reliability.

Quintum offers an exceptional opportunity for market-making channel partners

One of the main problems that any value-added channel faces is over-distribution and the resulting commodification of technology. As a unique and specialized VoIP migration solution, Quintum's Tenor Gateway is neither over-distributed nor commodified. For "charter" channel partners, this offers two benefits. First, it means that in the near-term, Quintum service provider partners will be able to achieve clear competitive advantages and healthy margins on hardware sales. Second, because Quintum is committed to protecting its market-making channel partners, it ensures that these competitive advantages will be sustainable over the long-term. Partners who establish themselves in Quintum's channel today will be able to protect their accounts and market position in the future – especially as Quintum continues to roll out innovative convergence switching solutions.

The Tenor Gateway's remote management capabilities make it ideal for managed service offerings

The Tenor Gateway was designed from the outset with the requirements of managed service providers in mind. Its remote management capabilities therefore make it ideally suited for the high-value managed service offerings that are becoming increasingly attractive to over-burdened corporate IT/telecom departments. The Tenor Gateway provides comprehensive remote monitoring and administration tools, which can be easily integrated with TMN- and/or SNMP-based applications as well as proprietary service management platforms. And, because it simply passes signals directly to the PSTN in the unlikely event of a total device and/or power failure, it won't create a situation in which service provider staff must respond to a business-threatening emergency. In essence, the Tenor Gateway offers service providers the same risk-avoidance value proposition that it offers end-users: VoIP without fear.

It's here today

While other vendors offer convergence roadmaps, Quintum offers a real convergence solution. It's a solution that customers can use even while the IETF tries to formulate a working standard for IP QoS (quality of service) and CTI vendors work out their H.323 implementations. Users don't have to bother with special dialing prefixes. Corporate technical staff doesn't have to get bogged down in extensive implementations. You simply install the Tenor Gateway today and start generating incremental revenue tomorrow – while your customers save money with every call.

Convergence represents the single largest market opportunity for service providers at the beginning of the new millennium. Service providers who can get a head-start in this market will be in a much better position to enjoy long-term growth and profitability than those who wait for the market to come to them. Corporate customers who take advantage of convergence will also find themselves in a competitively superior position than those who delay. At this early stage in the evolution of convergence, however, a variety of valid concerns can impede the progress of service providers and customers alike. Fortunately, Quintum's Tenor Gateway addresses these concerns – allowing service providers and their customers to take the first steps toward the exciting and lucrative future of convergence. With intelligent multi-path switching in place on customer premises, service providers lead the market instead of following it.

About Quintum

Quintum Technologies Inc. is a privately-held corporation headquartered in Eatontown, N.J. The company offers highly reliable VoIP products that deliver superior voice quality and provide an easy, risk-free migration path to the convergent future of networking. Quintum was founded by Cheng T. Chen and Dr. Rajiv Bhatia, both of whom have over 20 years of experience as lead engineers at companies including Bell Laboratories, Teleos, Madge and 3Com. The company's mission is to deliver VoIP solutions that provide:

- Outstanding value to customers
- Ease of installation, ease of use, and ease of management
- Superior quality and reliability
- Open architectures and standards compliance
- Flexible migration to succeeding generations of convergence technology

Quintum's unique Tenor MultiPath VoIP Gateway is the first VoIP gateway that intelligently switches calls over both IP networks and the PSTN in order to ensure high voice quality and provide failsafe capability. Unlike conventional VoIP gateways that only route calls over IP networks, the Tenor Gateway can transparently switch calls over to the PSTN if IP network congestion or a device failure impacts voice quality. The Tenor Gateway thus addresses the reliability concerns that have heretofore prevented many corporate decision-makers from moving ahead with VoIP and receiving all of its benefits.

More information on the company, its management team, and its products can be found at www.quintum.com.

14 Christopher Way
Eatontown, NJ 07724
877-SPEAK IP (toll-free)
732-460-9000
732-544-9119 fax
www.quintum.com
info@quintum.com