QUINTUM™
TECHNOLOGIES, INC.

# VoIP for Calling Card Providers

## New VoIP Technology Available TODAY Gives Calling Card Providers A Powerful Tool to Deliver Communications Savings and Value-Added Telecommunications Services

As voice and data networks continue to converge, the Internet provides calling card vendors with a powerful tool to increase profitability and deliver a broad range of value-added services.

By routing telephone calls over IP-based networks – commonly known as Voice over IP or VoIP – calling card providers can offer significant savings to customers, and build a framework to support other profit-enhancing services, such as universal messaging, voice mail, broadcast faxing, conference calling, and more.

### VoIP – Cost Savings And Growth

- Domestic & International Long-Distance Service
- Universal Messaging
- Voice Mail
- Conference Calling
- Broadcast Fax Service
- Other Value-Added Services

### Multi-path VoIP Technology: Raising the Ante

While early VoIP technology solutions offered a great deal of promise, they lacked the quality, reliability, and acceptable service levels to justify the potential savings associated with deploying and managing VoIP equipment. However, as IP networks continue to evolve, a new breed of standards-based technology has emerged, leveraging the Internet while coexisting with traditional PSTN-based networks. This critical market driver has carved a new niche defined as the *Multi-path VoIP Gateway*, offering intelligence, scalability, and reliability.

## Minimal Required Commitment

Next generation VoIP offers an alternative to volume purchasing commitments typically associated with the major long distance carriers. Calling card providers now have an option to improve their business utilizing cost-effective voice over the Internet to offer long distance service, without major modifications to their networks.

# Introducing the Next Generation: Tenor MultiPath Gateway

Addressing the need for low-risk, low-cost, next generation VoIP technology, Quintum Technologies developed the Tenor Gateway, giving calling card providers an affordable and reliable solution to leverage IP networks – TODAY. The Tenor Gateway provides an extremely flexible solution to integrate VoIP into switch-based network environments, providing a reliable, scalable platform to expand existing services and support future growth.

## Realize Cost Efficiencies

Instead of aggregating minutes through a long distance carrier, calling card providers can install the Tenor Gateway in their own POP (or the POP of an ISP), and directly leverage the Internet to deliver low-cost, high-quality services over data networks.

## Easy Migration

Having the unique capability to coexist with PSTN and IP networks, the Tenor Gateway offers a risk-free platform to integrate VoIP technology today, while optimizing existing investments.

The Tenor Gateway offers an intuitive, multi-path gateway to route calls over IP networks. It provides an intelligent system to monitor network conditions, and transparently auto-switch calls between data and PSTN networks as needed – always ensuring high quality of service (QoS) and fail-safe reliability.

### Tenor Gateway Benefits

- **Simple**. Elegantly links IP networks with traditional PSTN-based systems.
- **Low-Cost**. Requires minimal up-front investment, and utilizes existing technology infrastructure.
- **Reliable**. Designed to support telephony levels of reliability.
- **Scalable**. Easily stackable, supports up to 960 channels. Flexibly accommodates the integration of future IP-based services.

## Increased Call Volume

The Tenor Gateway allows calling card providers to easily accommodate increased call volume. As call volume grows, additional Tenor Gateways can simply be "stacked" to add more capacity. Where the Internet characteristics are adequate for supporting the additional VoIP calls, the increased traffic can be routed over the Internet without expanding the PSTN "safety net" capacity.

## Enhanced Reliability

Utilizing the PSTN as a redundant path to the IP network not only ensures high voice quality at all times, but also provides enhanced reliability. Regardless of the condition of the data network or any of its components, service will always have the 99.999% reliable PSTN available.

## Key Advantages for Calling Card Providers:

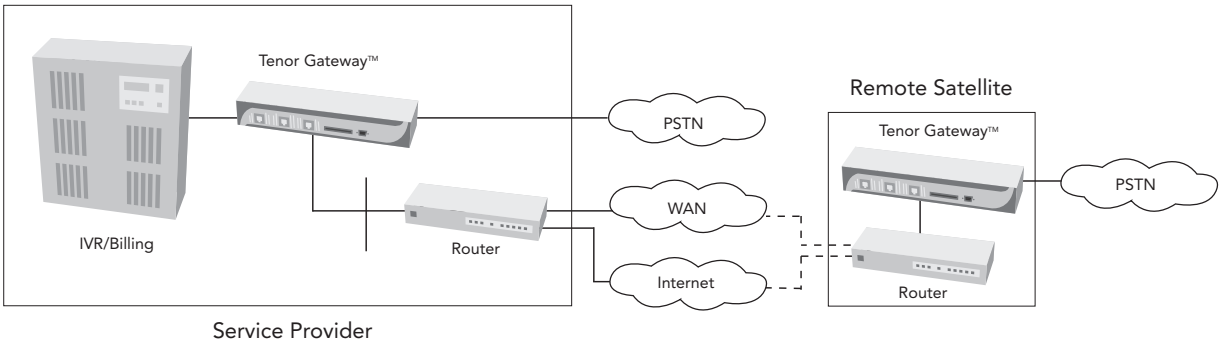
- **Design a multi-point network leveraging low-cost IP services.** This allows traffic to be delivered quickly to major service provider POPs, and provides the capability to expand much more rapidly than using point-to-point private lines. The service provider gets the flexibility of utilizing a bandwidth on demand multi-point network.

- **Eliminate the need for remote IVR equipment**. Because the Tenor Gateway connects to the PSTN network, it can be used in remote POPs, thus eliminating the need for remote IVR systems. New POPs can be easily deployed by installing a reliable Tenor Gateway in a co-location facility, then routing the traffic through centralized or regional POPs for IVR and billing.

- **Flexible deployment**. The Tenor Gateway can be used over leased lines as well as the Internet, providing the capability to systematically deploy and replace leased lines as the performance of the Internet continually improves.

- **New Sales Opportunities for the Enterprise Customer.** Once the Tenor Gateway is installed in its internal network, calling card providers can also offer enterprise organizations low-cost, high-quality voice long distance service. By providing enterprises a Tenor Gateway on their premises, the service provider can accept VoIP long distance calls via VPN, or in some cases the Internet – providing new revenue generating sales opportunities.

## Illustration of the Tenor Gateway in a Calling Card Environment



## Business Case: Small Investment Offers Big Savings!

Depending on configuration, the Tenor Gateway offers significant savings when compared to a point-to-point T1 connection. The Tenor Gateway supports up to 32 channels and is scalable up to 960 channels. In the business case outlined below, the Tenor Gateway, when used for domestic long distance, can save up to 74 percent, with international savings as high as 87 percent.

To illustrate this business case and potential savings utilizing the Tenor Gateway, consider the following example, leveraging co-location service for a low fee of $400 per month, with a one-time set-up fee of $500. The co-location fee includes rack space and 128Kb/s of bandwidth. Additional bandwidth is purchased on a statistical usage basis at $1.50 per Kb/s/month. A Tenor Gateway could be supported at full T1 capacity for $460/month.

The typical Internet co-location connection cost for two locations is $920/month (two sites X $460/month), which covers co-location space and Internet bandwidth to support the full T1 capacity. In contrast, the cost for a point-to-point T1 connection across the U.S. is $3,600 per month, and the cost of a T1 between New York and London is $7,000 per month.

With the purchase of expensive compression equipment, the capacity of a single point-to-point circuit can be increased five-fold. Co-location costs for five Tenor Gateways, with capacity to support five T1s would be $1,468 per month ($400 for co-location and $1,068 for additional bandwidth.) In this situation, the monthly cost of co-location at two sites for five Tenor Gateways ($2,936/month) still compares favorably with the costs of point-to-point T1s.

| | Tenor Gateway Co-location | T1 Connection | Savings |
|---|---|---|---|
| Boston - LA | $920/month | $3,600 | 74% |
| NY - London | $920/month | $7,000 | 87% |

| | 5 Tenor Gateways | T1 Connection | Savings |
|---|---|---|---|
| Boston - LA | $2,936/month | $3,600 | 18% |
| NY - London | $2,936/month | $7,000 | 58% |

**Contact Quintum Technologies for additional information on illustration.**

The cost of purchasing and installing a Tenor Gateway can quickly be recovered. The Tenor Gateway also provides additional benefits by maximizing capacity in the co-location arrangement. Another key benefit: the Tenor Gateway provides the flexibility of a bandwidth on-demand, multi-point network, rather than fixed, point-to-point leased lines.

## Summary

To ensure long-term growth and success, calling card providers can now transform their business model into a next generation provider utilizing advanced VoIP multi-path technology, such as the Tenor MultiPath Gateway. This new genre of VoIP technology offers a low-cost solution to deliver unlimited revenue-generating opportunities, with a minimal investment.