WHITE PAPER

Hitting a Home Run with Triple-Play

Network Asset Management Solutions to
Reduce Business, Financial and Technical Risks

Visionael

I. Introduction: The High Stakes of Triple-Play

For carriers, service providers and cable operators, "triple-play" service – the delivery of combined IP video, voice and data over a single network – promises to present extraordinary opportunity, as well as heated competition for subscribers. Networks will soon be taxed with geometric increases in traffic, and maintaining service levels will be a top requirement for ensuring customer satisfaction and retention.

Technical issues aside, as carriers enter new markets with unregulated services, they are eager to avoid the challenges that early broadband providers faced nearly a decade ago—specifically, they need to ensure that customers who want the service can actually receive it. How can providers proactively manage and optimize the performance of the network to assure that customer service level expectations are met?

Many providers are deploying triple-play service in select test markets, hoping to optimize network conditions before conducting broader rollouts. These services are being promoted outside of carriers' home markets in an attempt to build market share in new geographic regions with new offerings. Competing against incumbents is difficult, and customers' first impressions will greatly affect new market entrants' long-term success.

Isolated testing is therefore insufficient. Forward-thinking providers recognize that a comprehensive network service and asset management strategy is essential in mitigating the business, financial and technical risks associated with offering triple-play IP services. Likewise, network build-outs must also be strategic, to quickly capture the maximum available share of new markets.

This whitepaper discusses the triple-play market and how offerings from Visionael® Corporation, a leading provider of network asset management solutions, can help providers mitigate business, financial and technical risks as they enter into this new environment.

II. Customer Retention: More Prized than Ever

Nearly a decade ago, the corporate world was mesmerized by the then-revolutionary concepts of "one-to-one marketing," "lifetime customer value" and related statistics such as:

- U.S. corporations lose half their customers every five years.
- In some industries, reducing customer defections by as little as five points – for example, from 15 percent to 10 percent – can double profits.
- The cost to attract a new customer is as much as five times greater than the cost to retain an existing one.

The top-of-mind status of these trends and statistics coincided with the birth of the customer relationship management (CRM) industry, an enterprise application now used across myriad industries – including telecommunications and broadband – to help retain customers and cultivate more profitable relationships with them.

Customer retention determines providers' success with triple-play

In surveying these decade-old facts against a backdrop of the market for triple-play services, it's clear that what is old is, in fact, new again. Customer retention is the most critical success factor in the introduction of triple-play services. Providers are making extremely large capital investments to build out triple-play networks; to reach profitability most quickly, they want to maximize the lifetime value of each customer relationship by providing multiple services presented on one bill.

This line of thinking has been in place for several years in the double-play market, telephone or cable television service being the primary service and high-speed Internet the secondary service. However, it has largely gone unrealized because loyalty to the primary service is generally not affected by service level expectations of the secondary service. This is because secondary service was, and is, readily available from multiple providers. With triple-play service, however, the customer's choice of a high-speed internet provider will affect his or her choice of all other providers, i.e., VoIP and video.

Industry research already shows that triple-play customers are most likely to defect at two points in the customer lifecycle: within the first 30 days of using the new service, or after the relationship has been long-established (i.e., two to three years). Regarding the first juncture, initial service processes and service quality either create loyalty and retention, or they fuel dissatisfaction and cause defection. These "moments of truth" – ordering the new triple-play service, having it installed, using it, adding a feature, responding to a promotion, paying a bill - define the customer's perception of value. Later into the relationship, customers are likely to defect to a provider they feel is more customer-focused and/or innovative if they perceive the current provider as delivering poor customer service, or lacking in new and compelling offerings.

Adding a further layer of challenge to the triple-play customer retention dynamic is the fact that consumers are already skeptical about the feasibility of triple-play based on past negative experiences. Both cable operators and digital subscriber line (DSL) providers have been guilty in the past of being unable to deliver on advertised high-speed Internet services.

The need to "get it right the first time"

The intense scrutiny that providers are subject to from wary consumers ratchets up the business risk assumed when launching triple-play services—and the pressure they are under to "get it right the first time" in doing so. If providers make the investment to acquire and install new customers, only to have them quickly defect, the cost is two-fold: first, the substantial marketing investment made to acquire the customer is wasted, and second, providers lose the potential lifetime value of the customer - thousands of dollars in future revenues. Now, more than ever, customer satisfaction and retention are paramount to providers' success.

III. Mitigating Risk: Technical and Financial Challenges

The two types of triple play providers – cable operators and DSL providers – face similar business risks in launching triple-play services, but are very different in terms of network capabilities and challenges. Cable networks are built to download high amounts of content across long distances, at very high speeds, over their coaxial and digital infrastructure, but are not nearly as efficient in uploading it. DSL technology is more restrictive in nature – by line distance from the telecommunications central office (CO), by the provider's equipment and by the provisioning done by the carrier – but it typically offers upload and download speeds similar to the cable companies. Importantly, DSL network performance is not affected by the traffic load created by other users in the neighborhood; the performance of cable-based high-speed Internet services can slow in direct proportion the number of users within a given service area.

Potential technical risks in triple-play service delivery

In terms of their ability to deliver triple-play services, each type of provider faces different types of technical risks. In the performance area, cable operators are susceptible to localized degradation if networks become overloaded with traffic from simultaneous downloads. This can occur, for example, during video-on-demand sporting or entertainment events held at a specific day and time, causing resource contention in the backbone. Today, DSL providers' network performance is comparatively more stable; they are only vulnerable to system-wide problems in the telecommunications infrastructure, which today have fairly minimal impact. However, as DSL providers move to embrace true triple-play capabilities by delivering IP television (IPTV), their networks can falter systemically. IPTV is still a nascent technology in the trial stage, but consumer and industry interest in it is high and growing. By 2010, close to 40 percent of US households might be able to get TV service from their telephone companies, creating what could be highly competitive market conditions.

These fundamental differences create further unique technical risks in delivering triple-play services, ranging from problems with customer premises equipment (CPE) to challenges in managing the network's access layer and core. Triple-play services are easiest to deliver on networks with large backbones carrying traffic that is not necessarily coincident, is dispersed over long periods of time and is not sensitive to delay.

Neither cable operators' nor DSL providers' networks meet all these conditions. When there is coincident traffic that is sensitive to delay, traffic must be segmented. This will ensure that the highest-priority traffic will always be able to get through, such as 911 emergency calls placed during an on-demand performance of a major sporting event. For example, during times of heavy network traffic, cable operators will backhaul voice traffic to a point of presence (POP) on a traditional telephone company's network instead of carrying the voice traffic on their backbone network. Voice companies that are DSL providers want to carry as much traffic as possible on their backbone networks because they can gain efficiencies there that cable companies can't—the exception being truly national cable operators with well-developed backbone networks, such as Comcast.

This situation is fairly unique to the US and is not present in Europe, where telecommunications companies and cable operators are moving into geographies outside their home markets. In new markets these expansionist companies do not have the right to offer regulated services such as voice. They are permitted to offer unregulated services like high-speed Internet access and wireless services, but only in such a way that can't typically take advantage of their backbone networks.

Although different providers will address the challenge in different ways, traffic segmentation and prioritization creates technical risk in the form of potential performance and availability issues. For example, how will carriers handle security issues and other extraordinary events—e.g., how will traffic priorities be affected? This issue dovetails with the inevitability of providers pre-classifying (segmenting) traffic before it goes over their networks. Which types of traffic are pre-classified as priority, and under which conditions? The answers are not yet clear.

On the horizon: Digital rights management

Digital rights management is a looming issue that is sure to add another layer of complexity to an already complex equation. Similar to Apple Computer's iTunes arrangement, in which Apple sells songs from a wide range of publishers through its Web site, and then pays the publishers for each song sold, triple-play service providers will soon have the same requirement to track and pay royalties on pay-per-view movie and specialized content sales.

These capabilities are already in place for simple viewing, but policies will need to be developed that govern activities such as saving a pay-per-view movie to a recording device such as TiVo, transferring the movie file to a PC, and then copying it to other PCs or burning a DVD of it. Exactly what is permissible, what is not, and what kinds of systems will be put in place to manage the process? Again, the answers are not yet obvious in the rapidly evolving triple-play marketplace.

The financial risks of triple-play: Over-building and under-subscription

Clearly, providers are making major investments in delivering and marketing triple-play services. Both cable operators and DSL providers are spending large sums on their infrastructure to enable triple-play, creating significant financial risk. What if customers want the service and it is not available? Or the service is widely available and too few customers choose it? Already, two-thirds of homes in North America and Europe have voice and cable lines outside their door, allowing them to choose from an array of service providers with equal ease. Providers must therefore strike the balance between building out too much capacity and too little.

And the cost of failure is high. According to one analyst report, Cox Communications has achieved more than a 30 percent penetration rate for voice over cable in the Oklahoma City test market. For the first time, cable companies have the technical capability to compete directly with local exchange carriers—and customers are willing to make the switch.

Although the majority of homes in prime geographies have network connections to the home, providers still must upgrade existing infrastructure to serve them with triple-play offerings. Legacy analog networks must be upgraded to support all-digital services. Additionally, in the DSL arena, the general proliferation of telephone numbers means that ports in the CO are scarce;

phone numbers provide the physical one-to-one linkages between a user and the corresponding port at the CO. Some triple play carriers are even using dual DSL connections to meet triple-play service expectations, making overall CO capacity that much more scarce. To deploy triple-play service to large numbers of subscribers, more telephone numbers must be activated, requiring additional infrastructure to be built out.

Regardless of the provider's technology, the objective remains the same: to build out the infrastructure in a measured fashion such that adequate capacity is always available to meet demand and, as more customers subscribe to new triple-play services, more capacity can be added in small increments. The worst-case scenario all providers want to avoid is the inability to serve a customer who places an order.

Network knowledge and proactive management are essential

Although the elements of each category of risk – business, technical and financial – vary widely, all of them can be mitigated with a proactive management approach based on complete network knowledge. Together, these capabilities will enable consistent delivery of triple-play services because they address associated time and place issues. In order to effectively navigate the multi-dimensional complexity of triple-play services, proactive management is required – which in turn is based on precise knowledge of the network's assets and interfaces.

IV. Visionael Network Resource Manager: Network Asset Management for Triple-Play Providers

Network asset management represents the next generation of software used to manage the large, growing and ever-more complex networks that will carry triple-play services. As opposed to the tactical, reactive orientation of traditional network management products, network asset management offers both a high-level, strategic view of network resources and an extremely granular view into the smallest components of network inventory. Network asset management solutions allow users to compare the desired state of the network versus its as-built state, and provide the tools to proactively manage change.

Equipped with the proper network asset management tools, network professionals can plan changes and new scenarios, implement those changes, and continually measure whether the network is meeting objectives for design. For triple-play providers, this fine level of control provides definitive answers to providers' most pressing question – "Is the company building the network the way it intends to?" – as they prepare to deliver triple-play services on a large scale.

Visionael NRM enables network knowledge and control

Visionael network asset management solutions are specifically designed to enable service providers to secure and manage efficient, scalable networks, to maximize the profitability of current offerings while preparing to offer complex triple-play services. Visionael Corporation has acquired years of experience in working with telecommunications carriers, enabling it to fully understand and respond to the unique requirements of service provider networks.

Visionael software transforms the economics of deploying, delivering and managing triple-play services, providing carrier-grade service creation and network resource management software solutions. The company's software products are a key component of any cutting-edge operations support system (OSS) or network management system (NMS). Visionael Network Resource Manager (NRM), the company's flagship product, couples the centralized repository of physical and logical network inventory with an unparalleled combination of capabilities that delivers an accurate, real-time view of network resources.

For triple-play providers, the Visionael solution delivers important benefits including:

- Reduced time and cost in deploying new equipment, because granular knowledge of network inventory reduces guesswork and potential installation problems.
- The ability to recover and re-deploy stranded assets. This leverages NRM's ability to provide current and extremely accurate knowledge of network resources. While industry-wide averages indicate that only 30 to 60 percent of network

resources are known, current Visionael deployments deliver discovery levels of 99 percent-plus of network assets.

- Increased efficiency and up to 90 percent lower labor costs associated with repetitive provisioning tasks.
- Reduced mean time to repair (MTTR) by up to 40 percent, through correlation of Visionael NRM with fault management systems. This enables service levels that support new value-added services including IP-VPNs and hosted solutions, ISP-style services and voice over IP (VoIP), a key component of triple-play services.

IV. Visionael Network Resource Manager: Network Asset Management for Triple-Play Providers

The foundation for triple-play services has already been built over the past several years – a combination of network assets and hard-won customer loyalty. This major Cable Operator and triple-play provider today serves more than 21.5 million cable subscribers, over 7.7 million high-speed Internet customers and 1.2 million cable telephone subscribers across the US. In 2002 it had just 8.4 million subscribers nationwide when it acquired the network assets of a former broadband provider and business partner, and was under intense pressure to rapidly migrate the newly obtained assets into its own network.

NRM enables complete network discovery

After the abrupt bankruptcy of its business partner, to which it had outsourced its broadband service offering, the Cable Operator was forced to quickly migrate the former broadband provider's infrastructure to its own network – an absolute necessity in maintaining high service levels and customer satisfaction.

The first step in the process was to gain complete knowledge of the acquired network assets. The NRM solution was deployed to document the former broadband provider's network, which spanned 41 markets and 375 network operations centers supporting nearly a million subscribers. During a 60-day effort by the Cable Operator to model the expanded network in its own development and pre-production test lab, more than half of the network was documented in the NRM product. After the implementation was complete NRM went "live," managing the network in real-time.

Comprehensive functionality for ongoing management

An inventory of the combined network gave the Cable Operator 625,000 managed objects in the NRM solution, including more than 700 Cisco universal broadband routers (UBRs) and associated ports, cards and connectivity. Visionael NRM also documented the Cable Operator's VPN coverage, routers, switches and circuit connectivity, providing a complete picture of the expanded network's assets.

The NRM solution continued to play an integral role in streamlining ongoing operations. In conjunction with the Cable Operator's OSS, NRM was integrated with Micromuse Netcool and Impact, as well as BMC Remedy Action Request System (ARS). The NRM data was used to automatically enrich network system events via integration with Impact, which then populated ARS trouble tickets, allowing field engineers to rapidly locate and repair failed or impaired devices.

Fast payback from a business-critical investment

The NRM solution played a pivotal role in alleviating the extreme pressure the Cable Operator was under to swiftly absorb the acquired network assets and restore customer confidence. The solution's rapid discovery and documentation process helped the Cable Operator to quickly and transparently gain control over its new network assets; customers experienced no change in service during the migration.

Ongoing management of a much larger, more complex network was made significantly easier by integrating Visionael NRM with Micromuse and BMC Remedy, which enabled engineers to rapidly locate and repair failed or impaired devices. This capability streamlined the troubleshooting process and eliminated most avoidable network downtime.

Network management was further simplified by the ability to suppress alarms during planned network maintenance, saving time by freeing field operations from "false alarm" distractions and allowing them to focus on legitimate network events. By providing this capability, the NRM product enabled a smoother upgrade process for updating network devices with the latest firmware.

In sum, the complete, accurate knowledge of network inventory NRM facilitates helps drive the time and cost out of network management, allowing the Cable Provider to focus its resources on increasing the value of its services to its customers.

Three years later, the Cable Operator is one of the country's leading providers of triple-play services, aggressively rolling out the offering in key markets across the US. Today it relies on the Visionael NRM solution more than ever. Since acquiring the assets of the bankrupt cable provider it has grown organically and has successfully merged with another large broadband provider, nearly tripling its customer base.

VI. Summary

The rapid rise of triple-play services promises catalytic growth for well-prepared providers—and irreparable business damage to those unable to balance high demand for this new offering with the business, technical and financial risks inherent in delivering it. More than ever, customer satisfaction and retention are key to business success—and the most elemental step in achieving them is to be able to provide customers with the triple-play service they request.

Accurately balancing demand and infrastructure build out requires extremely granular levels of network knowledge, as well as high-level, strategic management capabilities. Visionael NRM provides both of these capabilities. It is used to build and support the processes associated with effective delivery of triple-play services, and affords a comprehensive view of the network.

Visionael NRM helps providers ensure success as they enter the high-stakes triple-play environment, allowing them to manage the rate at which they deploy new infrastructure and make services available for customers—mitigating the business, technical and financial risks associated with triple-play.

About Visionael

Visionael is a privately-held company headquartered in Mountain View, California, with Engineering centers in Tulsa, Oklahoma, Sweden and Bangalore, India. Visionael enables IT professionals to more effectively manage and secure their networks. Visionael solutions empower large enterprises, government agencies, outsourcers and service providers to discover, design, deploy, provision and operate mission-critical networks. Visionael has an extensive worldwide customer base, including Sprint, HBO, Verizon, Siemens, EDS, Time Inc, IBM Global Services, Kaiser Permanente, and Fidelity Investments. For more information about Visionael, please visit www.visionael.com or call +1 (650) 963-0960.