NORTEL

White Paper

Delivering converged entertainment and communication services with IPTV and VoIP Multimedia for regional carriers

As regional service providers combine interactive video with voice and data services to form triple-play bundles, will their subscribers be watching IP television (IPTV) or engaging in a new multimedia experience? There is an elegant and cost-effective way to not just deliver a video, voice and data bundle — but to seamlessly integrate them into a richly interactive and personalized experience.

The triple-play bundles video, voice and data into one service package, with one monthly bill. The immediate goals of offering a triple-play bundle are twofold:

> Win a greater share of wallet

> Reduce churn

Both cable and wireline operators are pursuing triple-play offers to maintain a competitive edge. Cable operators are adding digital voice services to their existing video and high-speed data offerings. Local telephone companies are adding video services to their established voice and Internet data services. Both types of operators are hoping to win over customers by offering the convenience of a single monthly bill from a single provider and an attractive bundled price — compared to buying the same services individually.

The trouble is, the services are still separate everywhere except on the bill in the customer's mailbox.

In the traditional business model:

> **The networks are separate.** Voice has traditionally delivered on a wireline network, data on a broadband network and video on cable or satellite. Mobility services have been restricted to voice, only recently expanding to include data service. A provider may be maintaining two or three separate network infrastructures to deliver all of these services.

> **The user experiences are separate.** Content and devices are tied to access. With each service, the user uses a different device with a totally unique look and feel. The services do not and typically cannot interact with each other — and too often, the learning curve for each device is too steep for most users to master. Users are demanding services that are easier to adopt.

> **The billing systems are separate.** Subscribers may see all of their service charges integrated into one bill, but behind the scenes there are disparate billing systems and subscriber databases that must be maintained separately for each service.
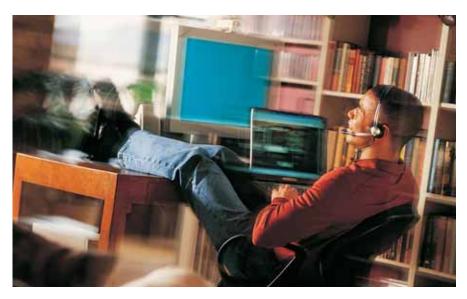
With all this duplication of infrastructure, operating expenses are high. It is complex and costly to introduce new services. Even if you could create a consistent user experience for a service across multiple media, the application would have to be developed separately on each platform. For users, there is little benefit in moving all of their services to one provider except for the promise of a better price. Worse yet, this triple-play offering is easy to duplicate. A competitor can come along and bundle exactly the same services at a lower price. If you're a service provider, what's your edge?

Compete on an enhanced service experience instead of price

If you are bundling discrete services and hoping to win customers on the allure of bundled prices, you are essentially resigning yourself to competing on price. How long do you want to "win" by eroding your own profit margin, especially if the company is footing the costs of separate infrastructures for these bundled services? With advances in IP, VoIP and IMS technologies, there are now better options:

A unified IP-based network environment provides a cost-effective way to converge entertainment and communication services

This enables voice, data and video services to be delivered over any access type, creating one consistent user experience that is independent of a user's access or device. This takes the triple-play offer to the next level. By linking IPTV and VoIP multimedia with an evolution path to IMS, television set-top boxes become multimedia SIP end points, along with mobile phones, PCs and other consumer entertainment devices. Users can enjoy a consistent user experience across various devices and access networks. Voice or data services can be converged into an IPTV environment with the same look and feel as on a SIP (Session Initiation Protocol)-based wireline or wireless device. This architecture establishes a path for evolution to IMS, which will provide a true converged network facilitating any voice, data or video service to be deployed on any device.

With a unified IP-based network environment, the service provider is not competing solely on price, but with an integrated offering that offers a richer user experience. By increasing the value of their service offer, the provider can gain significantly higher average revenue per user (ARPU) and increase user loyalty.

Will consumers see value in an integrated triple-play offer?

New service opportunities with VoIP multimedia over IPTV

One initial opportunity for service convergence involves adding voice and data functionality to IPTV. Following are some service opportunities that are possible with currently available VoIP multimedia and IPTV technologies, and a set-top box or card for the user's television.

Extend voice services into the TV environment

While watching TV, the user receives an online prompt showing the caller ID of an incoming call. The phone doesn't ring (a user-selectable setting), so nobody else in the household is disturbed. The subscriber can choose to either:

> *Accept the call* — The phone rings and the call can be answered on the home phone or a speakerphone associated with the TV.

> *Reject the call* — The phone never rings and the call is discarded.

> *Forward to voice mail* — The caller can leave a voice mail message, and the subscriber sees a message-waiting indicator on the TV screen. The subscriber does not have to get up to see who is calling, which is particularly welcome if the calling party is not of interest. Who wants to interrupt a favorite TV show to take a message for another household member, when voice mail can do just as well or better? The service also supports click-to-call capability, whereby a subscriber can place a call using the remote control, either from an address book or a list of received calls. In the future, subscribers will also be able to place and receive video calls using a TV-mounted webcam.

Extend data services into the TV environment

Data integration can also take several forms. For example, subscribers could exchange instant messages (IMs) with others on their personal buddy lists, while watching a TV show. Thanks to "presence" capabilities, the system knows whether the subscriber's buddy is watching the IPTV service, and if so, sets up the IM connection for them to share a back-and-forth chat while watching TV. The two subscribers can then share the viewing experience, trading comments about what they're watching, even though they're in different places.

Picture-sharing is another popular option. Suppose you want to share digital photos with a distant friend or colleague who doesn't have a PC or Internet connection. You could send the photos to the service provider's photo exchange service, which in turn uploads them to the recipient's set-top box. That person receives a notification that pictures are available for viewing, and selects "slideshow" on the TV remote control to view the photographs on the TV screen.

Establish a consistent user experience across access media and devices

The unified service experience is made possible by core service enablers such as:

> **Presence** — Subscribers can see if someone on their buddy list is online, whether that person is on a mobile device, a PC or watching their IPTV.

> **Network buddy list** — This is the subscriber's circle of cohorts for sharing interactive services. The buddy list would be the same on the PC, mobile device or IPTV.

> **Single sign-on** — Users can log onto a service using one device and their sessions can be continued in another device without having to sign in again. For example, when a subscriber signs on and accesses VoIP services from their TV set, there is no need to sign in again when switching over to watch the rest of the show on a PC client. The service is seamless between devices.

Enablers such as presence and a Network buddy list can be delivered over a VoIP multimedia network and IPTV. The evolution of the network to IMS will extend these across multiple devices and add additional enablers such as Single Sign-on.

A typical example of IPTV/VoIP multimedia services in use

Following is a hypothetical example of how these integrated capabilities can be used in the real world, to transform the entertainment and communication experience.

Mary, who is in the middle of a big remodeling project, is watching a home-improvement show for inspiration. Her personal avatar appears on the television screen and plays a short multimedia video clip of her interior designer, who is also watching the show and wants to share some ideas based on the home they're viewing. Mary uses the remote control on the set-top box to accept the incoming session. A picture in picture window opens up, and Mary sees her designer appear.

Together, they agree on some light fixtures and decide to open a group chat session with Mary's husband, Greg, who is at the home improvement store. They text chat with Greg to ask him to check out fixtures of the type

Voice services on TV

> Caller ID on TV

> Telephony click-to-call

> Call handling
  – Call Ignore and Reject
  – Forward to voice mail

> Voice mail indicator and retrieval

> Video calling (two- or three-way)

Data services on TV

> Chat — Standalone IM/ multi-user chat

> Information sharing
  – Web page and image push
  – Central picture share

> Friends list and presence
  – Who's online; where are you?

> Address book similar to Outlook/PDA

they just saw on TV. Using his video streaming mobile handset, Greg captures some short video of the lighting fixtures, and the IMS application plays the video clip to both women simultaneously. Recognizing the presence of an active group session, an advertisement application linked to the home-improvement show sends out an overlay video clip offering the chance for the group to sign up, for a small fee, to participate in an information session about selecting and installing home lighting. Greg and Mary accept and enjoy the multimedia learning session from their mobile handsets and TV sets.

Mary then uses her handset to instruct the IPTV application to track remodeling ideas on her subscribed channels. While Greg and Mary are at work, the network-based recording capability creates an index of the targeted content. Whenever they choose, they can readily navigate through the recorded program choices and access them from any of their SIP-based multimedia devices.

When offered with a SIP-based foundation with future migration to IMS, IPTV changes the session from simply watching TV to experiencing TV… from a passive and solitary activity into a richly interactive one.

Subscribers not only require low prices and the convenience of a single vendor, they also want a simpler and more natural user experience, regardless of the device or access they use.

It is not just about individual services (four — if we add mobility to the triple play experience) at a great price. It's about integrating the user experience across multiple domains.

Benefits of the IPTV-VoIP multimedia-based triple-play

For service providers, SIP-based VoIP multimedia over IPTV offers a number of benefits:

> **Win new subscribers** (and keep the ones you've got) by offering a richer home entertainment experience than can be achieved with competitors' standard triple-play offerings.

> **Gain new revenues** by delivering a differentiated, value-added service — personalized and interactive — supplemented with revenues from carefully targeted advertisements. Building on a VoIP multimedia over IPTV architecture, the migration to IMS will allow this service experience to be extended over multiple access networks and devices. The following are some of the incremental values delivered over IMS.

> **Reduce operating expenses** by reusing a variety of functions across the triple-play environment, such as subscriber, service and user profile data, authentication, authorization, Digital Rights Management (DRM), charging support, and the media and data servers that optimize delivery to various device types.

> **Deploy new services faster,** since an application can be created in one place and deployed across all access networks and devices, with a core billing system that aggregates billing data.

For end users, VoIP multimedia over IPTV enhances the communication and entertainment experience with value-added capabilities. The traditional TV viewing experience can be combined with diverse types of person-to-person or group communications — such as chat, instant messaging, caller ID, videoconferencing or video mailbox — to enrich the experience. Subscribers can create, manage and share their unique libraries of content — both commercial and personal. For instance, they can establish video surveillance for home security, share photographs and video blogs with friends, push Web pages or send a favorite pre-recorded TV show to a fellow subscriber.

In spite of the diversity of service opportunities, the user experience is simpler — and familiar from one device to another — and services can be personalized to meet users' needs across devices.

The architecture of the converged entertainment and communication environment

How can service providers deliver a converged IPTV/VoIP triple-play service offer? Here's a high-level view of the core elements in delivering a "converged triple-play" architecture.

A key element in Nortel's VoIP multimedia over IPTV architecture is the Entertainment and Communications Convergence Module (ECCM).

ECCM follows a client server architecture model. The client resides on the set-top box (STB) and interworks with the middleware client software to handle the presentation of the advanced application features to the consumer. The client can be kept very simple and lightweight such that it can be deployed on the maximum number of STBs.

The light-weight ECCM client communicates with the ECCM server via HTTP. The ECCM server resides within the network and provides support for a large number of client devices. The ECCM server supports the interfacing to multiple application servers to ensure the real-time delivery of services to the consumer.

In spite of the diversity of service opportunities, the user experience is simpler — and familiar from one device to another — and services can be personalized to meet users' needs across devices.

In the future, it may well be possible to simplify the architecture by providing more intelligent STB clients. Nortel believes this architecture is optimal at present as:

> It minimizes the complexity of the client such that it is deployable on the maximum number of STBs

> It makes interfacing to multiple servers and protocols more easily tested and deployed

> It enables the churn associated with services innovation to be managed more easily

A converged service offer builds loyalty for existing customers and creates a compelling reason to attract new ones.

Closing thoughts

It is not enough to create a basic triple-play service offering that delivers three separate services on a single bill. Yes, customers do want the convenience and simplicity of a single provider — and they do appreciate the discounts they can get with bundled services. If you're willing to compete solely on price, this is the way to go. However, customers are eager for more than a price break and a single bill. They are looking for advanced services with simplicity in managing and using both the service and the devices — and they're willing to pay a bit of a premium for it. Nortel's VoIP multimedia and IPTV solutions can get you quickly into this emerging market. Nortel can help. Visit us at *nortel.com/iptv* and *nortel.com/voip*.

IPTV with VoIP Multimedia enriches the user experience

> Use a variety of personal, mobile devices to experience TV and interactive sessions

> Add multimedia capabilities to the TV and mobile devices

> Share pre-recorded and personal content with other subscribers

> Manage and view video content from anywhere

> Combine video with personal or group communication services to increase productivity, entertain and create online communities

Nortel is a recognized leader in delivering communications capabilities that enhance the human experience, ignite and power global commerce, and secure and protect the world's most critical information. Our next-generation technologies, for both service providers and enterprises, span access and core networks, support multimedia and business-critical applications, and help eliminate today's barriers to efficiency, speed and performance by simplifying networks and connecting people with information. Nortel does business in more than 150 countries. For more information, visit Nortel on the Web at **www.nortel.com**.

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