

Redefining the Quad Play with IPTV and IMS

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Introduction

As service providers add interactive video services to their voice, data, and wireless triple-play bundles, will their subscribers be watching Internet protocol television (IPTV) or engaging in a multimedia experience?

There is an elegant and cost-effective way to not just deliver a voice, data, video, and wireless bundle, but also seamlessly integrate them into a richly interactive and personalized experience.

At one time, a service provider could differentiate itself by offering the triple play: three services—wireline, wireless, and Internet access—bundled on one bill. However, the triple play is becoming commoditized. Further, service providers are stepping up to deliver the ultimate quadruple-play bundle by adding IPTV video services.

The quad play bundles wireline, wireless, Internet access, and video in one service package with one monthly bill. The goals of offering a quad-play bundle are as follows:

- Win a greater share of wallet—Monthly revenue per subscriber can increase more than 85 percent when a telco adds video services to its voice and data offerings, according to Yankee Group research (*Will Video Drive New Revenue Growth for Telcos?* Yankee Group, May 2004).
“Households that subscribe to premium channels, digital cable and phone, and Internet services are more likely to stay loyal [and] can easily rack up a bill of over \$120 a month,” Peter Grant reported in the *Wall Street Journal* (“Cable Trouble: Subscriber Growth Stalls as Satellite TV Soars,” August 4, 2004).
- Reduce churn—“Adding a strategic product (voice, data, or video) can reduce churn by approximately 25 percent or more,” say Patrick Mahoney and Kate Griffin of the Yankee Group (*Driving toward the Triple Play: The Telco Video Opportunity*, Consumer Technologies and Services, Yankee Group, September 2004).
According to the report, bundling digital subscriber line (DSL) and long-distance service reduced churn by more than 50 percent for Bell South and 70 percent for SBC. Adding a cable modem product reduced cable TV churn by more than 25 percent for Cox Communications. When Cox completed its triple play by adding voice, churn dropped by more than 50 percent to an enviable 0.7 percent.

The Problem with the Traditional Business Model

Both cable and wireline operators are pursuing quad-play offers to maintain a competitive edge. Cable operators are enhancing their video on demand (VoD) offers and pursuing partnerships to add wireless to their existing video service and emerging voice services. Local telephone companies are adding high-definition television service to their established voice and Internet services. Both types of operators are hoping to win by offering customers the convenience of one vendor and one monthly bill at an attractive price, compared to buying each service individually.

The trouble is that the services are still separate everywhere except on the bill in the customer's mailbox. In the traditional business model, the reality is as follows:

- The networks are separate—Wireline access has traditionally been about voice. Broadband access has been a data service that is moving toward entertainment. Wireless started with voice but now delivers data and entertainment. IPTV is about video but is moving to add voice and data. A provider may be maintaining two or even three network infrastructures to deliver all of these services.
- The user experiences are separate—Content and devices are tied to access. Subscribers use different devices, interfaces, and methods to access their various services, which are different and do not interact with each other. The learning curve is steep for many users to master services on a new device. Users are demanding services that are easier to adopt.
- The billing systems are separate—Subscribers may see all their service charges integrated on one bill, but behind the scenes are disparate billing systems 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 quad-play offer is easy to duplicate. A competitor can come along and bundle exactly the same services at a lower price. If you are a service provider, where is your edge?

Compete with an Enhanced Service Experience instead of Price

If you are bundling discrete services and hoping to win customers on the allure of bundling, you are preparing for a price competition. 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 Internet protocol (IP) and IP multimedia subsystem (IMS) technologies, there are now better options, including the following:

- IP provides a cost-effective way to converge voice, data, and video transport onto a unified network infrastructure.
- IMS provides the next-generation core architecture that converges voice, data, and IPTV service attributes over multiple access types into one consistent user experience that is independent of a user's access or device.

- IMS takes the quad-play offer to the next level. By linking IPTV with IMS, television set-top boxes (STBs) can be added to the list of IMS endpoints, along with mobile phones, personal computers (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 extended to IPTV with the same look and feel as on a session initiation protocol (SIP)–based wireline or wireless device. Providers can offer services that help users manage their personal libraries of commercial and private content and extend these services to multiple devices and access networks. Video services such as network-based digital video recorders (DVRs) can be extended from the TV to mobile devices, with the goal of enabling users to take their content wherever they go.

Now the service provider is not competing solely on price, but also with an integrated offering that offers a richer user experience. By increasing the value of its service offer and not just the service inventory, the provider can gain significantly higher average revenue per user (ARPU) and loyalty.

Will Consumers See Value in an Integrated Quad-Play Offer?

Let us look at that last application—mobile TV. What if a provider in your area offered a service that allowed you to keep all your current TV channels but also watch them on your cell phone, PC, laptop, or car device? Would you sign up?

When Harris Interactive Research asked this question in a recent survey, 15 percent of respondents said yes and 9 percent indicated that they were willing to pay a premium for the privilege. Students and young singles were particularly intrigued, as were households with younger children, especially if they already had broadband service.

Mobile TV is just the beginning. A service provider that offers IPTV with an IMS foundation has many more opportunities to differentiate itself with specialized services. All of these services can be personalized by the user, including mobile gaming, music subscriptions, and video chat overlaid on live content.

New Service Opportunities with IMS–Enhanced IPTV

The initial opportunities for service convergence include adding voice and data functionality to IPTV and extending IPTV functionality to mobile devices. Beyond this, you can extend core service enablers to create a unified user experience across multiple devices. The following subsections describe typical opportunities that are possible with the combination of currently available IP and IMS technologies and an STB or card for the user’s television.

Extending Voice Services into the TV Environment

While watching TV, the user receives an on-line prompt showing the caller ID of an incoming call. The phone does not ring (a user-selectable setting) so that nobody else in the household is disturbed. The subscriber can choose from the following options:

- Accept the call. The phone rings and the call can be answered on the home phone, a mobile 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, and the subscriber sees a message-waiting indicator on the TV screen.

The subscriber does not have to get off the couch 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.

Extending 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 and trade comments about what they are watching, even though they are in different places.

Picture sharing is another popular option. Suppose you want to share digital photos with a distant friend or colleague who does not 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 STB. 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.

Extending TV Services into the Wireless Environment

A mobile device can become an extension of the IPTV service—both to control and to view video content. For example, suppose a change in your flight schedule will cause you to miss tonight’s episode of your favorite TV show. You can use your PC, personal digital assistant (PDA), cell phone, or other wireless device to pull up the TV schedule, select the episode, and send a command to the DVR service to record this episode.

Later, you can use your video-enabled mobile device to call up the DVR menu, select the pre-recorded program, and watch it wherever you are. Conversely, you could begin watching the TV show at home and then switch seamlessly to the mobile video device to watch the rest of the program on your trip. The user interface will be the same on the mobile device as on the home IPTV set, making navigation familiar and convenient.

Establishing a Consistent User Experience across Access Media and Devices

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

- Presence—Subscribers can see if someone on their buddy list is on-line, whether that person is connected through a mobile device, a PC, or an IPTV.
- Network buddy list—This is the subscriber’s circle of cohorts for sharing interactive services. The buddy list would be the same on a PC, a mobile device, or an IPTV.
- Single sign-on—Users can log on to a service using one device and continue their sessions in another device without having to sign in again. For example, when a subscriber signs on and accesses IPTV from the TV, there is no need to sign in again when switching over to watch the rest of the show on a mobile device. The service is seamless among devices.

A Typical Example of IMS-Enhanced IPTV Services in Use

The 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 are viewing. Mary uses the remote control on the STB 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 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 IMS devices.

When offered with an IMS foundation, IPTV changes the session from simply watching TV to experiencing TV—from a passive and solitary activity to a richly interactive one.

Benefits of the IMS-Based Quad Play

For service providers, IMS-enhanced IPTV offers a number of benefits, including the following:

- Winning new subscribers (and keeping the ones they have) by offering a richer home entertainment experience than can be achieved with competitors' standard triple- or quad-play offerings.
- Gaining new revenues by delivering a differentiated, value-added service—personalized and interactive—supplemented with revenues from carefully targeted advertisements.
- Reducing operating expenses by reusing a variety of functions across the quad-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.
- Deploying 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, IMS-enhanced IPTV improves 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, prerecorded 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 Quad-Play Environment

How can an IMS core network be a key enabler of a converged IPTV/quad-play service offer? The following is a high-level view of the IMS core elements in delivering what we call the “converged quad play”:

- **Single subscriber authentication**—This enables a user to log on to a service using one device and continue the session on another device without having to sign in again. This capability is made possible by a master database managed through a home subscriber server (HSS) element in the IMS core network.
- **Unified session control**—This enables sessions to be handed off between devices, such as when an IPTV viewing session is started on a TV and then continued on a mobile device. This function is accomplished from a call session controller (CSC) element in the IMS core network.
- **Service enablers**—Including presence and network buddy lists, these can be extended to any network device via the IMS core network, enabling features to be delivered in the same manner to a PC, mobile device, or IPTV STB.
- **Application ubiquity**—This refers to the way the IMS application layer applies to multiple access networks. New applications and services can be extended from one access or device type to another with relative ease.
- **Resource control**—This ensures that the required resources for a service are established among different access types. This IMS element manages policies for service by access type and makes sure the specific access network can deliver the required attributes.

IMS provides a core network foundation that allows a service provider to deliver a personalized multimedia experience beyond basic IPTV. Prior to IMS, a typical deployment used proprietary interfaces, separate service and subscriber processors and databases by access type, and separate networks for voice and data.

With IMS, the in-home television (STB) becomes another class of IMS-enabled device, much like mobile phones, PDAs, and laptop computers. Service providers can extend advanced, multimedia IPTV services to IMS-enabled devices—any content on any device—converging voice, data, and video services into a differentiated service offer.

IMS open-standard solutions use a single source for authentication, quality of service, content management, and security for telephony, multimedia, and IPTV. It enables users to sign on only once to access services across multiple access types, and it supports personalized libraries of content to be delivered to the subscriber's TV, PC, PDA, or other video-enabled mobile device.

Conclusion

It is not enough to create a basic quad-play service offering that delivers four 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 are 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 simplicity in managing and using their various services and devices—and they are willing to pay a bit of a premium for it. IMS can get you into this emerging market quickly.