Today’s digital infotainment and mobile TV solutions will eventually become the foundation of an integrated, multi-screen entertainment experience. IPTV is the first step most network providers take towards a full suite of multi-screen services. But the available IPTV platforms have made it difficult for small network providers introduce IPTV in their markets. The capital expenditures (CAPEX) and complexity level of those solutions have been higher than these organizations required. In addition, smaller providers do not have the same resources as larger providers that can be applied to address and overcome the main challenges and ensure success. For these network providers the right solution is an end-to-end platform designed specifically for smaller market deployments.
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Digital Infotainment Services Unlock New Revenue Opportunities

The proliferation and widespread adoption of advanced end user devices that can support Internet-based video streaming has created an insatiable appetite among end users for video-based infotainment and personalized, interactive content on any device, at any time with a high quality of experience (QoE). The latest reports from the U.S., for example, show that high-speed Internet has enabled a better online TV experience in 63.5 percent of U.S. households. Almost a quarter of households have smartphones that allow them to watch video wherever they are. And year over year growth of mobile online video viewing has reached 51.2 percent.¹

End users in the U.S. are not the only ones accessing online digital TV and entertainment. In the U.K., for example, all major broadcasters are now offering some type of on-demand online video service. And the BBC claims there were 120 million requests for TV and radio programs on BBC iPlayer across all platforms in January 2010 (both online platforms and devices and BBC iPlayer on Virgin Media TV combined), and over 23.8 million requests for programs during the first week alone.²

This growing demand for digital video and entertainment is not expected to decrease any time soon. The Multimedia Research Group estimates there were 41.2 million IPTV users at the beginning of 2010 and projects growth to 101.7 million users by 2014, a 25.3 percent compounded annual growth rate (CAGR).³ Based on these and other reports, it is expected that video will account for 90 percent of global network traffic by 2014.⁴

Large network providers continue to explore and introduce digital infotainment and mobile TV solutions that will eventually become the foundation of an integrated, multi-screen entertainment experience. These providers have leveraged consumer demand for video services to unlock new revenue opportunities and support sales of high speed broadband and other bundled service offerings. Most have been rewarded with significant gains in customer satisfaction and new revenues.

AT&T’s U-verse service and Verizon’s FIOS service rank number one in their respective regions for overall customer satisfaction with TV services.⁵ Portugal Telecom’s Meo triple play services offer (voice, data, and video) has helped reduce subscriber churn with a 50 percent year-over-year improvement in net disconnections in 2009, as well as generate revenues with over 50 percent of Meo’s IPTV customers using paid video on demand (VoD) services.⁶

These providers are now looking to leverage these initial investments and market successes. But while large network providers are reaping all the rewards, smaller network providers in smaller markets have, so far, been left out in the cold by hardware vendors and solution providers who are delivering the platforms that enable digital TV and entertainment. Complete, end-to-end solutions have been focused on larger applications, leaving smaller network providers partial solutions that do not completely address the need for a viable IPTV delivery platform for markets under 100,000 set-top boxes (STBs).

To properly address their market requirements and address end user demand, smaller providers need an IPTV solution that allows them to quickly get to market with an offering that delivers the high QoE and ease of use that will drive usage and revenue. And the solution must provide the same features as offerings from larger players, but in a less complex and more affordable way for smaller deployments.

⁴ Alcatel-Lucent market analysis, 2009.
IPTV solutions are optimized to deliver video entertainment (multicast live or time-shifted broadcast programming and unicast VoD programming) over IP-based, packet-switched infrastructures. They are designed for subscriber-based telecommunications networks that support high-speed access from end user premises via STBs and other end user devices. These solutions offer network providers a way to leverage their broadband networks and evolve their broadband service offerings into multi-screen services that will increase end user “stickiness”, reduce churn, and generate new revenue from enhanced multimedia services that end users can access from any device, anywhere, anytime. As such, they have become a competitive differentiator for large network providers, not just against traditional competitors, but new players such as cable and satellite service providers who already have the broadcast rights to programming and are moving into the network provider domain with new investments in fixed and wireless networks.

**IPTV deployment challenges**

But developing and deploying a cost-effective IPTV service presents a number of business, technical, and content challenges that all network providers must address. These challenges can best be understood in terms of the phases of a multimedia project: launch, perform, extend, and monetize the platform (Figure 1). Addressing each of these challenges effectively will drive Key Performance Indicators (KPIs) and ensure success with any IPTV offering.

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**Figure 1. Network provider challenges that must be addressed for a successful IPTV launch**
Launch
During the initial project launch, the network provider’s main challenge is time-to-market. At this stage, the network provider’s brand will be highly visible to end users, content owners and application and content providers (ACPs). Therefore, getting it right the first time is critical. And because IPTV and multimedia projects are complex, getting the launch right requires end-to-end expertise, which must be applied to all aspects of the proposed service to reduce time-to-market with an offer that not only works properly, but also offers the programming that will attract end user interest and quickly achieve a critical mass of subscribers.

For example, a typical IPTV launch usually requires the network provider to manage the integration of multiple, complex, multi-vendor components in a cost-effective way. This includes careful planning, design, validation and testing to ensure the solution offers true end-to-end quality of service (QoS) for the highest QoE. Therefore, the network provider must have the expertise to not only select the right platform, but also support network design and construction, end-to-end video integration, subscriber migration, and network upgrades. By effectively addressing these issues, the network provider can secure its brand, drive adoption, and manage risk in complex deployments, thereby ensuring a quicker return on investment (ROI).

Perform
Once launched, the network provider’s biggest challenge is ensuring and maintaining the highest QoE.

To ensure end users continue to enjoy a high QoE, the network provider must have the ability to monitor platform and service performance at all times. In addition, the platform on which the IPTV service is based must have the flexibility to allow the network provider to adjust and adapt to immediate and future market requirements. It must allow the network provider to scale the service to meet demand, while at the same time ensuring richness of the end user experience and ease of use. This is especially important as new IPTV services are introduced, such as high definition TV (HDTV) and multi-room services that may stress the home network and degrade system performance.

Extend
With the launch and the performance of the service under control, the network provider’s main challenge is to ensure the service generates immediate revenue and offers the opportunity to create new revenue streams. To address this challenge, the platform on which the IPTV service is built must allow the network provider to enhance the multimedia experience in many ways. This may include extending end user viewing options to integrate Internet video. It may include extending the reach of the service via hybrid networks. And it may eventually require the network provider to extend the service to multiple screens. With the right platform the network provider will be able to address all these requirements and generate new revenue from additional value added features that enhance the end user’s overall experience.
Monetize

Finally, once all the other challenges are addressed, the network provider is faced with the challenge of monetizing the platform to maximize ROI. To do this, the platform must enable the network provider to stimulate video consumption with novel IPTV and rich media services, which leverage network-based capabilities to enable personalized, targeted service options enhanced with advertising and interactivity. This may require network providers to adopt new business models that support new cooperative working arrangements with content owners and ACPs who can deliver the content and applications that will create a differentiated IPTV experience. But this is often a major stumbling block for most network providers who do not usually have the experience and expertise required to select, aggregate and negotiate application and content agreements.

IPTV Solution Requirements for Smaller Markets

While large network providers have been supported by platform solutions designed to mitigate the risks and eliminate the key challenges associated with IPTV service development and delivery, small Tier 2 and Tier 3 network providers who wanted to provide IPTV services to a small market area could not opt for available IPTV offerings. The capital expenditures (CAPEX) and complexity level of those solutions have been higher than these organizations required. In addition, smaller providers do not have the same resources as larger providers that can be applied to address and overcome the main challenges and ensure success.

For these network providers the right solution is an end-to-end platform designed specifically for smaller market deployments. That platform must offer the same features, functionalities and benefits available in solutions designed for larger markets. Ideally, it should be built on a micro-architecture that gives small providers the capability to offer IPTV and interactive TV services as part of a triple play or quadruple play offering for smaller markets. And it should be a completely integrated solution that reduces the complexity associated with large IPTV deployments while still providing a high QoE for end users.

With these features, this type of purpose-built solution will allow smaller network providers to retain and grow their customer base and optimize their ROI with a best-of-breed IPTV service that delivers a superior end user experience and is flexible enough to support future innovations.

Alcatel-Lucent IPTV Solution

To address the IPTV needs of small network providers, Alcatel-Lucent has partnered with Microsoft to develop the Alcatel-Lucent Integrated Solution for Microsoft® Mediaroom™. This solution addresses the needs of large network providers and was previously only available in two configurations:

- The Market Entry Profile, which was the smallest configuration designed to provide IPTV for 30,000 to 120,000 STBs
- The Typical Profile, which was designed to provide IPTV for millions of STBs

The new micro-architecture offering is a completely integrated hardware and software solution. It is designed to enable small network providers to create and deliver new digital TV and entertainment services in markets of up to 30,000 STBs, and extend service up to 100,000 STBs. The system's small footprint requires only one equipment rack, one-fifth of the number of servers compared to the Market Entry Profile, thereby reducing the complexity associated with large IPTV deployments and the associated installation costs by up to 30 percent.

However, the solution provides the same high-quality end user experience that can increase average revenue per user (ARPU) and allow small network providers to compete against satellite and cable TV providers in their markets. As a result, the Alcatel-Lucent Integrated Solution for Microsoft Mediaroom minimizes the technical and commercial risks associated with launching best-of-breed multimedia services.
Built on a market leading platform

The Alcatel-Lucent Integrated Solution for Microsoft Mediaroom is built on the Microsoft Mediaroom platform, the most complete digital TV solution on the market. This rich middleware platform comes pre-integrated with a number of key features, including channel associated signaling (CAS), digital rights management (DRM), and VoD sub-systems.

The Alcatel-Lucent micro-architecture platform makes the key features of the full Mediaroom platform available for smaller deployments, including:

- Live TV and radio service
- Pay-per-view (PPV) service over any channel
- Digital video recording (DVR) with local hard disk drive (HDD) extension of the STB
- Display one channel while recording up to four other channels
- Picture in picture streams
- Whole Home DVR
- VoD
- Interactive TV guide
- Instant Channel Change
- DRM
- Operations support system (OSS) and business support system (BSS) interfaces for an integrated service offering
- Application infrastructure to host interactive applications

In addition, network providers have the option to add new features, as required, including Live 2 VoD, high priority non-reliable notifications, data warehouse, and restart anytime. And, the solution provides an expansion path to the larger Alcatel-Lucent Microsoft Mediaroom Reference Architecture for IPTV solution and feature set, when required.

Finally, to further simplify design and reduce the complexity of the architecture and cabling requirements, the Alcatel-Lucent Integrated Solution for Microsoft Mediaroom uses HP Virtual Connect™ technology on blade servers. The resulting small physical footprint means a much “greener” deployment that reduces energy and operating costs.

Designed to reduce time-to-market

To better serve the needs of small network providers, Alcatel-Lucent has pre-validated this solution for up to 100,000 STBs in its end-to-end IP Transformation Center (IPTC) laboratories. This pre-validation and testing minimizes the technical risks associated with an IPTV deployment and enables a 90 day time-to-market.

In addition, Alcatel-Lucent helps smaller network providers address the key challenges associated with launch, performance, extension and monetization by providing a full suite of professional services. This includes end user insight from primary research, demand analysis, IPTV services definition and launch, as well as the end-to-end management of IPTV services. By leveraging Alcatel-Lucent experience and expertise with IPTV deployments, these value added advanced services decrease business risks further and deliver an even quicker time-to-market.

The solution at work

To date, the Alcatel-Lucent Integrated Solution for Microsoft Mediaroom has been deployed in multiple trials and non-public commercial deployments worldwide.
For example, a network provider in South America is using the platform to deliver an enhanced video experience to customers and offer customized on-demand services, thereby enabling viewers to create their own schedule of video programs. The service complements the provider’s existing voice and broadband Internet access service for a truly complete triple play package.

In the U.S., the platform has been adopted by Indiana-based Cinergy MetroNet as the foundation for a full suite of multimedia services for six cities, reaching 50,000 potential customers. Cinergy MetroNet plans to offer its customers complete multimedia services, such as broadcast TV blended with web content, the ability to simultaneously record multiple shows while watching another, and personalized multimedia services, such as weather, traffic and news.

Conclusion

The growing demand for online digital video and entertainment has created new opportunities for content owners, ACPs and network providers to develop and deliver multi-screen multimedia content and services that can be personalized and customized to fit each individual end user’s preferences. IPTV is the first step to multi-screen services end users can access anywhere, anytime, and on any device. But while large network providers have been supported by platform solutions designed to mitigate the risks and eliminate the key challenges associated with IPTV service development and delivery, small network providers who support from 1,000 to 100,000 set-top-boxes have been underserved when it comes to IPTV and next generation multimedia services.

The Alcatel-Lucent Integrated Solution for Microsoft Mediaroom makes the most deployed IPTV platform available for smaller markets and minimizes the technical risks associated with launching IPTV services. It offers the smallest deployment footprint in the world for a complete IPTV solution, comes with a pre-integrated management platform for the required servers, and is scalable and flexible enough to meet the evolving needs of small network providers. In addition, it provides an expansion path to larger profiles when required.

Alcatel-Lucent has pre-validated the Alcatel-Lucent Integrated Solution for Microsoft Mediaroom solution in its IPTC labs. In addition, it provides end-to-end deployment support backed by the experience and expertise acquired with IPTV deployments around the world. This further reduces the risks and costs of service introduction, and ensures a quicker time-to-market with a viable service offering.
Acronyms

ACP  application and content provider
ADSL  asynchronous digital subscriber line
ARPU  average revenue per user
BSS  business support system
CAGR  compounded annual growth rate
CAPEX  Capital Expenditures
CAS  channel associated signaling
DRM  digital rights management
DVR  Digital video recording
HDD  hard disk drive
HDTV  high definition TV
KPI  Key Performance Indicators
OSS  operations support system
IPTV  Internet Protocol television
PPV  pay-per-view
QoE  quality of service
QoS  quality of service
ROI  return on investment
STB  set-top box
VoD  video on demand

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