

# The Role of Systems Integrators in IPTV

Much has been said about IPTV and the strategic and competitive importance this video technology offers telecom service providers across the globe. Less has been said about how to manage a successful implementation from the pre-deployment phase to day-to-day operations. This article identifies the three key categories of IPTV vendors, their similarities and differences, and what value they bring to a potential IPTV service provider and the value chain.

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## Introduction

The IPTV undertaking is seen as a vital strategic initiative as it enables telecom service providers to stabilize landline losses and provide competitive bundled service offerings (any combination of television and broadband with mobile and wireless) that enable telecom operators to challenge cable and satellite's video dominance in the home. However, IPTV isn't easy.

It's an understatement to say that IPTV has lots of moving parts. The complexity is compounded because, although we are beginning to see some consolidation, there is still a plethora of IPTV middleware and software systems in the marketplace. In Western Europe, which has 55% of IPTV subscribers, early adopters of IPTV didn't choose off-the-shelf solutions and preferred to build their own IPTV ecosystem. In 2007, an estimated 23% of IPTV subscribers were being served by proprietary IPTV middleware at operators like Italy's FastWeb, France's Neuf, Sweden's TeliaSonera, and USA's Verizon. The alternative approach is to choose one of many proven off-the-shelf IPTV middleware platforms with the tightly coupled ecosystem. In this category, Microsoft's Mediaroom has emerged as the Tier One telecom leader with over three million of the 26.7 million global IPTV subscribers and it is beginning to win Tier Two and cable companies over too, as the latter upgrade to DOCSIS 3.0.

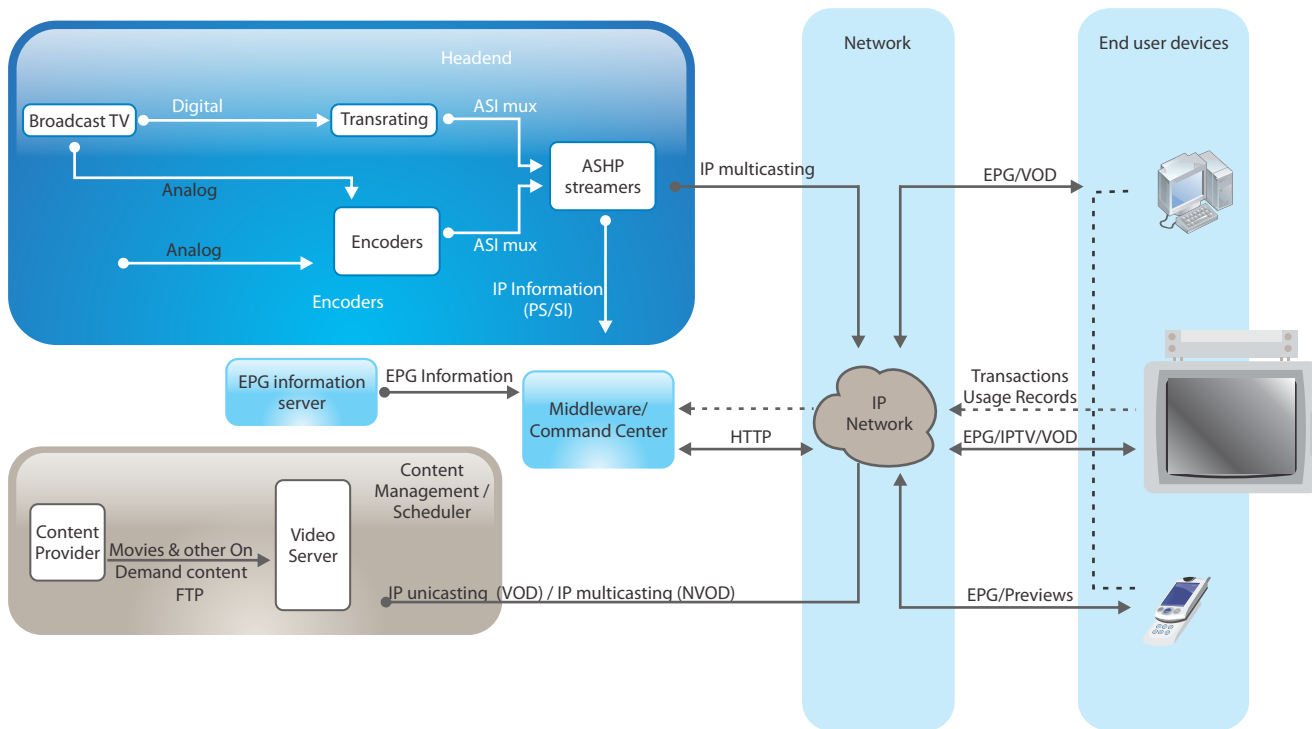
Whichever middleware path is taken, there are three types of IPTV vendors who can play a role in the deployment and operation of a new IPTV service.

## The Rationale for IPTV

The telecom service provider's traditional landline voice business is being challenged from every corner – from mobile to VoIP services. A leading market research firm has been tracking telco revenues and has seen the subscriber base eroding by four to eight percent per year, which has doubled from earlier analysis and has led to flat revenues in recent years. Steve Rago, principal analyst for iSuppli says, "They [telcos] can't exist as bulk voice carriers and must become multimedia content providers...They must reinvent themselves".

## The Challenges

For a telecom service provider to transform itself from an access-based service provider of voice and internet services into a triple-play that includes television, it must corral together network elements and systems into a single operational network. Aligning the network, access systems, video network (headends and video-on-demand servers), DRM (digital rights management)/CAS (conditional access systems), and IPTV middleware and IT systems (OSS/BSS, Scheduling, MIS) is the only way to deliver the quality of experience (QoE) that customers have come to demand from existing cable and satellite video services. Without this, IPTV customers will experience poor TV quality and service and ultimately abandon a telco-based TV service for one of its competitors.



**Figure 1: End-to-End IPTV Ecosystem**

To an extent, some of this is familiar territory, but the introduction of video network elements and content services requires a whole new approach. Video services are brand new to the majority of telecom service providers and have transformed them from utilities into media distributors. This metamorphosis comes with significant changes across the whole business.

Overnight, the telecom service provider has to consider its content management capabilities, the network and its readiness for pumping standard and high-definition TV to thousands of homes, platform maintenance to roll out service enhancements, training to keep installation and maintenance costs low and, when there are problems, well-trained customer care specialists who can identify and resolve things quickly. And this doesn't even address the marketing aspects of running a video business, such as channel line-up, content acquisition deals, and competitive marketing strategies to win and keep customers.

## The Risks

Research shows that investment in IPTV systems is estimated to grow to \$5.5 billion by 2012, encompassing access systems, video headends, video-on-demand, set-top boxes, middleware, DRM/CAS, and system integration/professional services .

One leading bank estimated that telecom service providers looking to deploy IPTV need to commit at least 10% to 15% of their total capex budgets to it - and the initial investment is just the tip of the iceberg. Analysis shows that, once launched, IPTV service providers could expect to increase their spending on

IPTV to as much as 20% or 30% of their total capex budget. IPTV leaders in North America like AT&T and Verizon Communications have spent about 15% to 20% of their capex buying access equipment and overhauling networks to deploy video. AT&T is upgrading its network for U-Verse and replacing subscriber ADSL with VDSL; Verizon's FiOS is replacing copper by taking fiber to the home.

With this level of activity, one forecast predicted that the number of global IPTV subscribers will grow from 26.7 million in 2009 to 81 million in 2013, a compound annual growth rate of 32%, with developing regions like Eastern Europe investing in higher network speeds for IPTV and other value-added services.

It is clear that infrastructure is crucial in delivering the bandwidth needed to launch IPTV services, but IT services also play a significant part as the 'glue' that brings the different components together to offer seamless service to customers. The software integration around functions like customer and service provisioning utilize systems like CRM, ordering, and billing.

As expected, the majority of IT costs are incurred at the beginning of an IPTV project, but there are also IT service needs as the service ramps up, along with routine service maintenance and IT and middleware fixes and upgrades. It's possible that some IT integration needs are satisfied by internal resources, but since IPTV is one of the more complex systems in the telecom space, specialist support is often sought, especially at launch phase.

IT integration services really come into their own with complex legacy IT environments that need to accommodate the new IPTV business. Expertise in the development, maintenance, and support of IPTV processes will reduce major failures and keep costs down. Roland Berger Strategy Consultants estimated that IT development, if properly carried out, had a low impact on profitability (~3-6%), but IT integration costs can increase rapidly if mishandled, leading to adverse financial results.

## Players in the IPTV Ecosystem

There are three main categories of system integrator that help provide these IPTV professional services.

First are IPTV vendors that have wares for specific parts of the IPTV solution, both hardware and software, such as the access and video network (e.g. Alcatel Lucent, Cisco and Motorola), the middleware platform (e.g. Microsoft Mediaroom), the back-office software, (e.g. Oracle's Siebel CRM or Geneva billing) or the content aggregators (e.g. Avail Media) that fall into this group; each of them provides a level of system integration for their specific part of the IPTV solution. They may even provide end-to-end services to reduce the deployment hurdles for carriers.

Second are specialized IPTV system integration firms that focus on either equipment installations or specific functional solutions. Their main focus is the recommendation of IPTV hardware equipment, installation, and configuration, although they may also have an IPTV solution themselves that has been developed over time. Professional services may cover system planning, project management, ongoing maintenance, and upgrades of that hardware.

The third and final group is neither an ecosystem vendor nor equipment-focused system integrator, but tends to contain specialist telecom and media engineers focused on the IT integration, daily IPTV operations, managed services, and technical support needed to ensure IPTV is a viable business during the launch phase and throughout its lifecycle.

Tata Consultancy Services (TCS) is one of the leaders in this latter group of systems integrators and has been focusing on IPTV for a number of years, working with some leading telecom service providers to address the challenges of launching and scaling an IPTV service to 100,000+ subscribers. Yet, the learnings, toolsets, and accelerators TCS has developed on these large deployments are applicable to smaller telcos with more focused ambitions for their IPTV business.

## Services Portfolio

The breadth of services of this third category of system integrator will include a broad range of consulting and IT services, typically including network readiness, integration services for the middleware platform, and back-office software suites. For greenfield IPTV opportunities, these systems integrators leverage valuable consulting experience to study organizational gaps in preparation for managing the processes required for an IPTV launch.

Where these system integrators bring unique value is in "Day Two" services for operating the IPTV business. Whether it is content operations to manage SLAs tied to third-party content deals, BPO (business process outsourcing) of IPTV FAB (fulfillment, assurance, and billing) functions or, more typically, IPTV platform development and technical support, this third group of system integrators act as invaluable in-house specialists and help make IPTV profitable by reducing costs through their on-demand availability, operational efficiency, and continuous process improvements.

## No One Size Fits All

Although the approach of a service provider in one country cannot be directly mirrored elsewhere, the study of early IPTV services in both Western Europe and North America can provide insight into where the market is heading and how to anticipate the forks in the road.

- New markets – Tier Two and Tier Three telecom service providers; multi-dwelling units and hotels; cable operators moving to IP
- Convergence – mobile and remote interactivity and features to deliver place-shifting as well as time-shifting; over-the-top video integration; internet widgets (social networking, etc.)
- Revenue models – traditional subscription; VOD PPV; free-to-air
- Advertising – addressable and personalized adverts
- Costs – capex: server virtualization, hosted models; opex: hosted models, outsourced operations

These shifts have affected each of the three categories of IPTV vendor (referred to in the ecosystem section) differently. In the first group, some vendors have expanded horizontally by creating consortiums to tackle the market opportunities and challenges. As the less experienced and resourced telecom service providers look to provide their customers with IPTV, this first group of vendors has to do more of the

hand-holding and systems integration to bring together key aspects like content aggregation and distribution to reduce the burden for smaller telecom service providers. The second group's core business hasn't changed significantly, although their partnership portfolio may have broadened to address the next-generation services of IPTV. IT-based system integrators, the third group, have seen an increased demand from IPTV service providers that need to manage the IPTV platform (rapid functionality enhancements and product upgrade support) and pressure to improve operational performance (cost and effectiveness of quality).

At one leading European telecom service provider, IPTV is considered a complementary service to its DSL business. To minimize the impact across the whole of the organization - network/engineering, IT, sales, and marketing – the telco initially engaged TCS' IPTV operational team to deliver faster time-to-market by ensuring that the telecom service provider's technology architecture and business architecture were aligned to enable and operate a new IPTV business. After this successful engagement, TCS was brought in to manage the IPTV integrated delivery and support, which was a significant undertaking that required a supplemental team to manage the 24x7 IPTV operation within an existing organizational structure and operations.

However, as IPTV approaches maturity, we are seeing some clear differentiation in the players in the IPTV ecosystem. There is an overlap of services offered by the three groups of vendors, but their core strengths are distinct, so it is important to recognize the differences amongst them while understanding the complementary nature of their services in the complex IPTV ecosystem. The good news is that telecom service providers have a lot of expertise available to them to navigate the IPTV Lifecycle (see Figure 2). The challenge is in knowing the right questions to ask before deciding which companies to partner with.

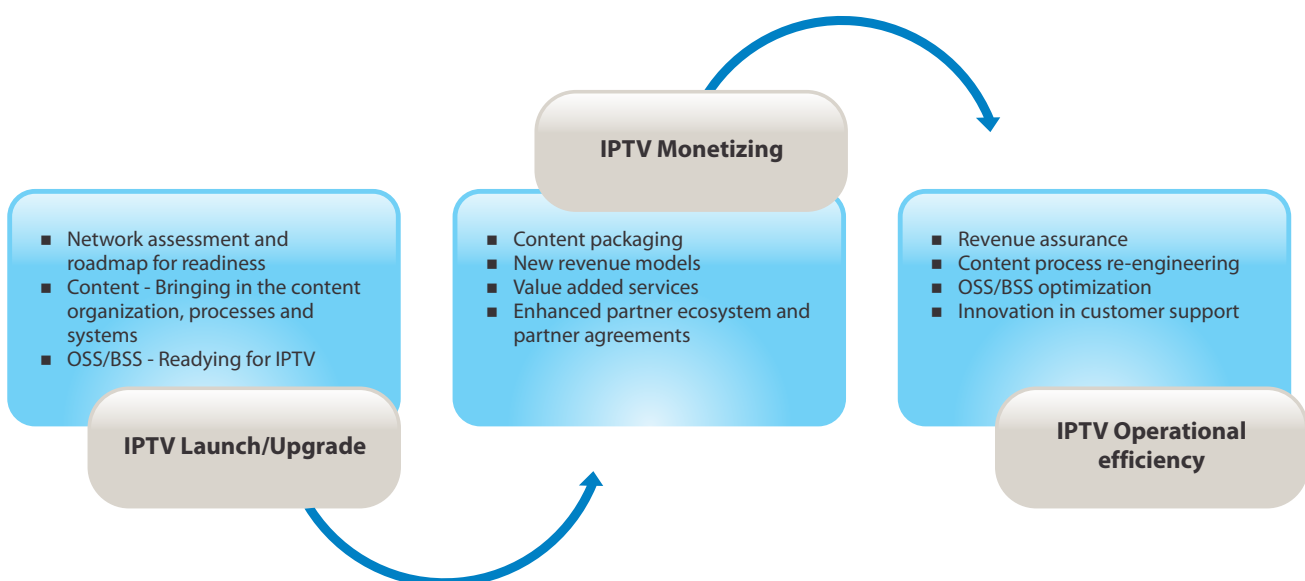


Figure 2: TCS IPTV Lifecycle

## Early Adopters and the Next-Generation

A leading IPTV research firm splits the IPTV market into four regions around the world: Europe, Asia, North America, and Rest of World. Since each of these markets has different requirements, many IPTV solutions have emerged, particularly in Europe, which is projected to lead IPTV service revenues by 2012, with North America and Asia following.

Regardless of whether an IPTV system is home-grown or a commercial platform, these early adopters may face technology obsolescence and limited feature sets as consumers' demands shift. This requires ongoing development and revamps to ensure that the video offerings and interactive features are competitive in the market place.

## Task at Hand

IPTV service providers have gone beyond providing a simple triple-play bundle to win customers. Today's IPTV services now have additional advanced features like Caller ID, Bill View, and Remote DVR programming being offered as USPs (unique selling points). TCS sees a growing need for its services in IPTV customization, development, and integration as IPTV service providers grow their video businesses and begin to build in interactive applications, convergence features, and new revenue models such as addressable advertising.

In the U.K., content owners like the BBC have built applications based on Microsoft Mediaroom to bring the richness of internet-based content to the TV screen. The next wave of innovations that are beginning to emerge from the labs are bringing convergence to the IPTV home to allow more flexible viewing experiences between the TV and mobile devices and greater access to subscription TV content on the PC to compete with free content services like Hulu and user-generated content portals.



Figure 3: Screenshots of BBC's IPTV Applications

Look at AT&T's efforts to leverage its exclusive deal to distribute the Apple iPhone in North America. The U-Verse team developed features on top of Microsoft Mediaroom to incorporate interactivity with the iPhone to increase the stickiness of both subscription services.

These innovations may require enhancements to the IPTV platform and smooth interactions between the operational and billing subsystems, network elements, and customer equipment. This is where the third category of IPTV systems integrator plays an invaluable role in testing, platform upgrades, and technical support. Once the system is running, the IPTV systems integrator continues to play a role with its “Day Two” services to maintain quality of service (QoS), manage content, and oversee the service around the clock.

	Consulting	Systems Integration	Test & Validate	Deployment & Maintenance	BPO
Network	<ul style="list-style-type: none"> <li>Technology Assessment</li> <li>Network Readiness</li> <li>Architecture Design</li> <li>Roadmap for Network Deployment</li> </ul>	<ul style="list-style-type: none"> <li>Network Migration</li> <li>STB Stack Development and Integration</li> </ul>	<ul style="list-style-type: none"> <li>Network Testing</li> <li>STB Testing</li> <li>Network Bottleneck Analysis</li> <li>Field Trials</li> </ul>	<ul style="list-style-type: none"> <li>Network Lifecycle Management</li> </ul>	<ul style="list-style-type: none"> <li>NOC Operations</li> </ul>
Content	<ul style="list-style-type: none"> <li>Middleware Evaluation</li> <li>Content Operations Strategy</li> </ul>	<ul style="list-style-type: none"> <li>Content Management Processes</li> <li>Content Management</li> <li>Headend Deployment</li> <li>VAS Development</li> </ul>	<ul style="list-style-type: none"> <li>Content QoS</li> <li>DRM Evaluation</li> <li>QoE</li> <li>CDN Testing</li> <li>Middleware Testing</li> </ul>	<ul style="list-style-type: none"> <li>Content Lifecycle and Operations</li> <li>CDN Enhancements and Maintenance</li> <li>Middleware</li> </ul>	<ul style="list-style-type: none"> <li>Metadata and Management</li> <li>Content Operations</li> <li>Fallout Management</li> </ul>
B/OSS	<ul style="list-style-type: none"> <li>Technology Assessment</li> <li>B/OSS Readiness</li> <li>Revenue Assurance</li> <li>System Rationalization</li> <li>Architecture Design</li> <li>B/OSS Roadmap</li> </ul>	<ul style="list-style-type: none"> <li>B/OSS Processes</li> <li>B/OSS Integration</li> <li>BAM on FAB</li> <li>Infrastructure</li> <li>Middleware Integration</li> <li>Revenue Assurance</li> </ul>	<ul style="list-style-type: none"> <li>B/OSS Testing for Compliance</li> <li>Test Execution</li> </ul>	<ul style="list-style-type: none"> <li>B/OSS System Enhancements and Maintenance</li> <li>Infrastructure Services</li> </ul>	<ul style="list-style-type: none"> <li>Order and Jeopardy Management</li> <li>Manual Tasking Handling</li> </ul>
Application	<ul style="list-style-type: none"> <li>Application Service Strategy and Development</li> <li>Competitor Assessment</li> </ul>	<ul style="list-style-type: none"> <li>SDK for Service Creation</li> <li>Service Deployment</li> </ul>	<ul style="list-style-type: none"> <li>Scalability of Service Testing and Analysis</li> <li>Service Adoption Management</li> </ul>	<ul style="list-style-type: none"> <li>Services Lifecycle Management</li> <li>Infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Level 1-4 Support</li> <li>Contact Center Operations</li> </ul>

Figure 4: TCS IPTV Lifecycle Services

## IPTV Service Delivery Innovations

With such an important role to play, the third group of IPTV systems integrators hasn't gone unnoticed. Tata Consultancy Services has forged partnerships with solution providers like Microsoft (middleware) and Motorola (service delivery platform) to extend the reach and scalability of their IPTV platforms. Both of these platforms are installed at TCS' IPTV Lab in Hyderabad, India, with projects being delivered worldwide.

By delivering systems integration and BPO services, companies like TCS are seeing opportunities to move along the value-chain and partner with IPTV software companies to provide hosted software services to telcos. The business case behind this is that, as the IPTV market matures, sightings of Tier One greenfield opportunities become rarer and the focus has moved to Tier Two telecom service providers and other

non-telecom areas, like multi-dwelling units and hotels. Yet, in this space, purveyors of costly IPTV software (billing systems and service delivery platforms) find it harder to get the initial budget past the CFO. An alternative approach that is gaining some favor is for software vendors to partner to offer a SaaS (software as a service) model with companies like TCS. As part of the Tata Group, TCS is able to deliver because it can leverage close ties with Tata Communications and telco customers to bundle software hosting, systems integration, and operations to IPTV operators.

## The Operational Results

In the U.K., BT launched BT Vision using the Microsoft Mediaroom IPTV platform and has worked with TCS since 2006 to reduce BT's time to market for IPTV services, manage operational costs, and improve customer satisfaction and QoS. BT has seen significant improvements in content operations and subsystem delivery, testing, and support. The results are an uplift in content volume and availability (which are key drivers for customer acquisition and satisfaction), increased efficiency, new customers, and improved revenue assurance and billing. In recognition of its outstanding work, TCS won an IPTV Excellence Award in 2009.

## Summary

IPTV is a complex telecom offering, but it is vital for service providers to remain competitive in a triple-play environment. To deliver it well requires knowledge of the network and video infrastructure, software systems, customer premise equipment, and the operations of a video platform and its thousands of video assets. TCS has defined three key stages along the IPTV lifecycle and has successfully applied its IPTV and VOD domain expertise and flexible IT delivery and support model to maintain IPTV service quality and ensure efficient IPTV operations.

## IPTV Glossary

ADSL (Asymmetric Digital Subscriber Line)

BSS (Business Support System)

BPO (Business Process Outsourcing)

CAS (Conditional Access System)

CRM (Customer Relationship Management)

DOCSIS 3.0 (Data Over Cable Service Interface Specification)

DRM (Digital Rights Management)

FAB (Fulfillment, Assurance, and Billing)

FiOS (Fiber Optic Service)

Headend (equipment facility where media streams are collected and encoded for IP distribution)

IPTV (Internet Protocol TV)

Middleware (hardware and software solution that enables the delivery and management of video services)

MIS (Management Information System)

OSS (Operational Support System)

PPV (Pay-per-View)

QoE (Quality of Experience)

SaaS (Software as a Service)

SLA (Service Level Agreement)

VDSL (Very high bit-rate Digital Subscriber Line)

VOD (Video-on-Demand)

VoIP (Voice-over-IP)

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**About TCS Telecom Industry Solution Unit**

TCS' Telecom Business Unit is the second largest vertical contributing higher percentage to the overall TCS revenues. With a dedicated pool of professionals and an accumulated experience and ongoing associations with world-class Telecom service providers and equipment manufacturers, TCS has acquired unparalleled understanding of the Telecom domain.

TCS helps wireline, wireless, broadband, and cable service providers redefine their markets with innovative solutions that help them become more agile, reduce fixed operations costs, and introduce next generation services. TCS sets customers apart from their competitors with instant access to industry solutions, best-in-breed technology, assets, and frameworks.

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