IPTV Introduction

• **IPTV definition:**
  - Secure delivery of high-quality video over a closed broadband IP network, to a managed consumer electronics device
    • At its core, IPTV is a new application of the time-tested TV business found in cable TV
    • IPTV goes beyond cable TV to enable new types of interactive television, gaming, communications, and new modes of advertising and promotion not previously possible.
IPTV Creates a New Personalized Subscriber Experience

Customer’s expectations have been raised and they will continue to grow. Opportunity to revolutionize how users interact with their PCs, TVs, and Phones.
What’s Needed

- Content
- Feature Rich IPTV Middleware
- Open Integrated Ecosystem
- Scalable, Resilient Video-on-Demand servers
- Economical Solution
- Low entry point
- Automated workflow to drive low cost of operations
- High Performance
- Adaptability for convergence of Television and Internet media
- Solid deployable system to ensure customer satisfaction
IPTV Deployments Today... and Future

Devices – Now
☒ Mobile Phones
☒ PDA’s
☒ Wireless Devices

Devices – Future
☒ Mobile Phones
☒ PDA’s
☒ Wireless Devices

Super Headend
Service Provider (Headend)

Existing Infrastructure
- Billing
- Provisioning
- Network Mgmt
- Other OSS/BSS

IPTV Infrastructure
- Broadcast TV Headend
- IPTV Application Servers
- Video Servers
- Encryption

Subscription Topology – Now
☒ Single Headends
☒ Simple
☒ CENTRALIZED & FOCUSED

Subscription Topology – Future
☒ Wider Reach
☒ Regional Headends
☒ Local Content
☒ DECENTRALIZED & COMPLEX

Network

Regional Headend

Existing Infrastructure
- Billing
- Provisioning
- Network Mgmt
- Other OSS/BSS

IPTV Infrastructure
- Broadcast TV Headend
- IPTV Application Servers
- Video Servers
- Encryption
We know what we know … or can predict … …but we don’t know what we don’t know.

- IPTV will include services we haven’t yet thought of
  - Mobile phone analogy: SMS and MMS, Ringtones, Wallpapers and more)
- Today’s choices MUST NOT create a barrier to future services

Openness and Flexibility are KEY!
## Integrated Partner Solutions
### Kasenna IPTV Ecosystem

<table>
<thead>
<tr>
<th>Category</th>
<th>Logos</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set-top Boxes</td>
<td>Amino, Motorola, Tilgin</td>
</tr>
<tr>
<td>Application Platforms</td>
<td>HP, IBM, EMC, Dell</td>
</tr>
<tr>
<td>Network Equipment Provider</td>
<td>Ericsson, Calix, Cisco Systems, OCCAM, Redback, Zhone</td>
</tr>
<tr>
<td>Conditional Access</td>
<td>Widevine, SecureMedia, verimatrix</td>
</tr>
<tr>
<td>Headend</td>
<td>Harmonic, VBrick, Motorola, Tandberg, Optibase</td>
</tr>
</tbody>
</table>
PortalTV: Industry’s Most Comprehensive IPTV Solution...

**LivingRoom Middleware**
- New “Third Generation” middleware solution
- Comprehensive App suite: Broadcast TV, Network-PVR, StartOverTV
- Full Internet integration with Web Services Framework
- Adapters for OSS integration with using Open APIs

**MediaBase VOD Servers**
- Scalable and resilient video streaming and distribution servers
- Library servers, Edge Servers, RAM Servers, Recording Servers & more
- Open Platform: IBM, HP ...

**vFusion Content Management**
- Comprehensive Element & Work Flow Management
LivingRoom Middleware

Features & Services

- **LivingRoom Client**
  - Electronic Program Guide
  - Broadcast TV
  - Video-on-Demand
  - Subscription-on-Demand
  - Network PVR
  - StartOver TV
  - Local PVR
  - Music-on-demand
  - Emergency Alert (EAS)
  - Caller ID
  - Parental Controls (Broadcast TV & VOD)
  - Integration with 3rd party games
  - Internet Integration

- **LivingRoom Backend Administration**
  - Content management
  - Service management
  - Subscriber management
  - Integrated with SMS/OSS/BSS
MediaBase
Scalable and Resilient Video Servers

• Industry Leading VOD Server
• Network Digital Video Recorder
• Entertainment-on-Demand Server

• New SATA based disk configurations for small deployments

• >10% share of the VOD market worldwide today
  – >7,000 Servers deployed world-wide

• Performance for high volume
  – Industry’s Most Scalable & Dense VOD Infrastructure for cost effective deployments
    • >8,000 streams per server
    • >80,000 streams per cluster
    • >100,000 streams per rack

• Industry’s Most Resilient & Highly Available Infrastructure
  – Clustering
  – N:1 Redundancy

• Feature Rich Entertainment-on-Demand Server
  – VOD, NVOD, Network PVR and more
  – All advanced formats: SD, HD, MPEG-2, MP3, MPEG-4 H.264/AVC
  – Fully integrated with major encryption vendors, Set Top Boxes and network equipment providers
  – EncryptCache server for automatic content ingestion and encryption
Content Viewing Characteristics

- Popular
- Less Popular

- Memory Cache
- Disk Cache
- Library

- Request vs. Asset graph showing percentage distribution.
  - 8.94% for Memory Cache
  - 53.98% for Disk Cache
  - 98.07% for Library

- The graph illustrates the distribution of requests and assets across different cache and library categories.
vFusion: Content Distribution Management Solution...

Requires complex workflows across multiple platforms from multiple vendors

Central Site – main ingest, library & distribution point

Regional content, redundant feeds, distribution/propagation point

Caching & streaming for popular content, reduced core bandwidth usage