IPTV.2: The Second Generation of TV Over The Broadband Internet

Companies in Transition: The Biggest Telco Transition Since Deregulation

May 23, 2005
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1. Telcos Are Engaged in A Critical Battle For The Home

Telcos Are Fighting For Their Core Market Survival – Wireless and Cable Players Are Taking Voice Share From Fixed Line Operators

At Current Course and Speed, US Wireline Revenue Loss Could Be $14B-$18B by 2010

Source: Forrester, FCC, UBS Warburg, Merrill Lynch, Morgan Stanley, US Census Bureau, ADVENTIS Analysis
1. Telcos Are Engaged in A Critical Battle For The Home
Voice Is Increasingly Being Viewed As a “Bundle” Element By Consumers – And Bundle Purchasing Is Expected to Increase Significantly

Note: Bubble areas proportional to advanced segment sizes. Overlay areas roughly indicative of households purchasing more than one service.
1. Telcos Are Engaged in A Critical Battle For The Home

Four Imperatives Are Driving Traditional Telcos Into Their Most Important Transition Since Deregulation – Requiring Them To Compete in A New Market

1. Repel Competitive Threat & Associated Financial Risk

![CAGR 2003-2010: 22%]

- Displaced By: Wireless
- Cable Telephony
- IP

2. Reduce Churn Through Improved Bundles

<table>
<thead>
<tr>
<th></th>
<th>Unbundled Customers</th>
<th>Bundled Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video</td>
<td>2.7%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Digital Video</td>
<td>1.6%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Data</td>
<td>1.4%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Phone</td>
<td>1.2%</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

3. Re-ignite Eroding DSL ARPU

- Basic: 128Kbps, $29.95
- High-Speed: 1Mbps, $44.95
- Ultra: 3 Mbps, $69.95

Discounting does not necessarily result in “good” adds

4. Preempt “Insurgent” Moves

- Content Creators
- Content Distributors
- Internet/Last Mile Connectivity Providers
  - Wireline
  - Wireless
- Devices
- Enablers/Platform Providers
- Retailers
- Customer

Quarterly Net Additions (000)

- High-Speed and Ultra
- Basic
- High-Speed and Ultra
- Basic

2Q 2002 3Q 2002 4Q 2002
2. **Consumers Want a Different Video Experience**

Consumers are reallocating the time they spend consuming entertainment content, aided by broadband and a new generation of digital technology.

**Broadband availability and new devices like TiVo are starting to fulfill consumer’s preference for “What I Want, When I Want”**

### Consumer Behavior Changes After Upgrading to DSL

<table>
<thead>
<tr>
<th>Average Time Spent Online Per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dial-Up</td>
</tr>
<tr>
<td>11 Hrs</td>
</tr>
</tbody>
</table>

**Broadband users spend approximately 5 more hours online than dial-up users.**

After upgrading to high-speed consumers spend more time online doing the following activities:

- Surfing: 39%
- Downloading Music: 36%
- Exchanging videos/photos: 26%
- Downloading games: 17%
- Downloading movies: 16%

**On average they also spend approximately 5 hours less per week watching TV.**

### The PVR Responds to How People Want to Watch TV

Consumers with TiVo show high usage levels and loyalty:

- TiVo users spend only ~26% of total time watching “live” TV
- 70% of TiVo users record shows every day rather than watch them live
- Among TiVo customers, 90% claim their propensity to channel surf fell considerably

Source: ADVENTIS Survey of 400 consumers

Source: TiVo Customer Survey
2. Consumers Want a Different Video Experience

Research Shows That Consumers Are Increasingly Dissatisfied With The Current Broadcast/Linear Model

Potential for Basic Time-Shifting of TV Programs

<table>
<thead>
<tr>
<th>Frequency a Program Is Missed</th>
<th>Frequency a Program Is Broadcast at Inconvenient Time</th>
<th>Frequency There Is Nothing on Television to Watch</th>
</tr>
</thead>
<tbody>
<tr>
<td>% respondents</td>
<td>% respondents</td>
<td>% respondents</td>
</tr>
<tr>
<td>Several times/day</td>
<td>Several times/week</td>
<td>Several times/day</td>
</tr>
<tr>
<td>2%</td>
<td>4%</td>
<td>17%</td>
</tr>
<tr>
<td>Once/day</td>
<td>Once or Twice/week</td>
<td>Once/ day</td>
</tr>
<tr>
<td>12%</td>
<td>14%</td>
<td>9%</td>
</tr>
<tr>
<td>Once or Twice/week</td>
<td>Once or Twice/week</td>
<td>Once or Twice/week</td>
</tr>
<tr>
<td>16%</td>
<td>15%</td>
<td>5%</td>
</tr>
<tr>
<td>&gt; Once/month</td>
<td>&gt; Once/month</td>
<td>&gt; Once/month</td>
</tr>
<tr>
<td>12%</td>
<td>15%</td>
<td>4%</td>
</tr>
<tr>
<td>34%</td>
<td>25%</td>
<td>7%</td>
</tr>
<tr>
<td>52%</td>
<td>22%</td>
<td>26%</td>
</tr>
</tbody>
</table>

52% miss more than one program per week
47% cannot view at least one program per week – 22% encounter this problem several times per week
84% experience one or more times per week that there is no program to watch – 58% experience this problem frequently
2. Consumers Want a Different Video Experience
Consumer Viewing and Spending Habits on TV Suggest an Alternate “Pull” Model for Content Distribution

Free TV invests in original content (1st run) content in these areas

Free TV Success Zone

Pay TV invests in first run, live content in these areas

Pay TV Success Zone

TV Assets Under-leveraged by Broadcast or Cable Models

Telcos have the opportunity to enable this Pull TV offer

Source: Broadcasters Audience Research Board, ADVENTIS Analysis
3. The Uphill Share Battle for Linear TV

The Uphill Linear TV Battle: Penetration For Second and Third Linear Video Entrants Has Been Limited Historically, Reaching On Average Only 15% In 10 Years

Video Penetration Rate Analogs

Sources: BLS, Strategy Analytics, OfCom, UBS Warbug, RCN company reports, Bell Canada company reports, ADVENTIS Analysis
3. The Uphill Share Battle for Linear TV

Sky’s Success Was Assisted Significantly By its Exclusive Control of Key Content

### Key Success Factors

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Limited Competition</td>
</tr>
<tr>
<td>2</td>
<td>Regulatory Freedom</td>
</tr>
<tr>
<td>3</td>
<td>Exclusive Content</td>
</tr>
<tr>
<td>4</td>
<td>Aggressive Sales &amp; Marketing</td>
</tr>
<tr>
<td>5</td>
<td>Sticky Platform</td>
</tr>
</tbody>
</table>

### Exogenous Factors

1. Cable operators were not permitted to serve geographies reached by terrestrial broadcast systems (1984 Cable and Broadcasting Act), thus competition from cable was historically very limited
2. BSB, a competing satellite service launched in Apr 1990, encountered financial difficulties and merged with Sky in Oct of that year, creating a satellite monopoly
3. The Broadcasting Act of 1990 mandated strict regulation of terrestrial and high-powered satellite broadcasters, but not medium-powered broadcasters such as Sky

### Endogenous Factors

1. Negotiated exclusive control of highly sought-after content
   - Cricket World Cup (1992) – sales of dishes doubled
   - Premier League Football (1992) – subscribers grew 30%
   - Movie rights (1991)– 90% of Hollywood’s movies
2. Invested in aggressive subsidy and promotion of platform
   - Door-to-door sales – package included free installation and maintenance, and free movie channel subscription
3. Developed proprietary platform for conditional access
   - Sophisticated encryption platform prevented piracy and allowed for tiered pricing of premium channels
   - STB receives only Sky signal – switching costs to subscribers is be very high (second STB)
3. The Uphill Share Battle for Linear TV

FastWeb Benefited Greatly from Government Intervention and Access to MDUs in Dense Metro Areas

**Key Success Factors**

1. Pro-Competition Regulation
2. Government Subsidies
3. Limited Video Competition
4. Geographic/Segment Selectivity
5. Popular Content

**Exogenous Factors**

1. Italian regulators have intervened to restrain Telecom Italia’s dominance and encourage competition in the broadband market, primarily through LLU decisions
   - Mandated price decreases in Telecom Italia’s wholesale DSL service encouraged FastWeb to build a hybrid FTTH/DSL network (50%/50%)
2. Video offer has benefited from €150-per-STB government subsidies for digital terrestrial TV STBs, available to new and existing customers
3. Very little competition from cable operators

**Endogenous Factors**

1. Geographic and segment selectivity
   - FastWeb has targeted only dense metro areas populated primarily with MDUs, and has been successful in obtaining the necessary property rights
2. Obtained rights to broadcast Italian football from Sky Italy
   - Began offering football programming free to all subscribers as of Aug 2003
3. The Uphill Share Battle for Linear TV
Canadian Penetration Was Boosted By Weak Competition and Government Subsidy

Bell ExpressVu
- For the first 5 years of Bell ExpressVu’s deployment, BCE did not face competition from digital cable
  - Bell ExpressVu effectively one of two choices for HH seeking large channel selection

Sasktel Max
- Invested C$75M in 1990s to build out fiber-optic network, and $C44M developing the Max TV service
- Launched Max TV in Sep 2002:
  - Serving 9 metro areas
  - Delivering 2 standard definition TV streams over 6-8 Mbps connection
- Issues with signal quality of local cable service provided opportunity to provide superior service
- As of May 2004, Max TV service had achieved 20% penetration of Sasktel’s DSL subscribers

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**Canadian Multichannel TV Penetration Analogues**

<table>
<thead>
<tr>
<th>Year</th>
<th>Bell ExpressVu (% of SFH TV HH)</th>
<th>Sasktel Max</th>
<th>Bell ExpressVu (% of All TV HH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>2</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>3</td>
<td>15%</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>4</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>5</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>6</td>
<td>30%</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>7</td>
<td>35%</td>
<td>35%</td>
<td>35%</td>
</tr>
<tr>
<td>8</td>
<td>40%</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>9</td>
<td>45%</td>
<td>45%</td>
<td>45%</td>
</tr>
</tbody>
</table>

1. Addressable HHs defined as in-region video loop qualified voice HHs
2. 59% of Canadian HH live in single-family detached homes (Canadian Census 2001)

Sources: Company reports, ADVENTIS Analysis
**4. VOD – Market Disruptor Or Guardian?**

**VOD Seems Pervasive – Yet MSOs Like Comcast Use VOD Primarily To Upgrade Customers to Digital Tier Service And To Reduce Churn**

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**Comcast On Demand Offer**

1. **VOD**
   - Primarily movies on demand
   - Comcast believes that this is essentially close to Satellite’s NVOD offer
   - MGM/Sony deal gives them access to 400 movies per month

2. **SVOD**
   - All premium channels (e.g. HBO, Starz) have an on demand subscription option that allows you to watch programs whenever you want
   - Allows some differentiation over satellite
   - 15M downloads of HBO to date

3. **Free VOD**
   - Comcast believes this is the largest opportunity and greatest differentiator
   - Shows best of broadcast, cable and niche content
   - 600,000 NFL network downloads in the first week

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**Usage of On Demand**

- In most established on demand markets:
  - 23 orders per customer per month
  - 60% usage every month, 80% usage over 3 months

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**Impact of On Demand**

Impact of on demand services
- Churn
  - 20 – 30% reduction in churn
- Customer Satisfaction
  - 72% increase in customer satisfaction among on demand users

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**The Telco SVOD offer could be used in the same way to help Improve the DSL customer satisfaction and retain customers**

Source: Comcast

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4. VOD – Market Disruptor Or Guardian?

Beyond Linear Programming, Consumers View TV Content At Home In Four Ways – 96% Of the Spend Is In “Traditional” Video Purchase and Rental

1. VOD

 Aggregate Spending ($M)

2. PPV For Cable HHs

 Aggregate Spending ($M)

3. VHS and DVD Rentals

 Aggregate Spending ($M)

4. VHS and DVD Purchases

 Aggregate Spending ($M)

Converting the $60B+ DVD/VHS market into VoD is a large opportunity that MSOs may be more reluctant than telcos to grasp

Average Monthly US HH Spend on Movie Content

Source: Veronis Suhler Stevenson, 2004
5. Challenges For The Telco Transition

Telcos Around the World Are Leveraging Many Different Models To Manage Their Transition – Those Which Have Acted Like **Insurgents** Have Done the Best

- "Passive" Internet Dial-up Connection
- Broadband Connection
- Increasing ARPU
- "Full" QoS Video Service to TV Over DSL
- "Trickle VOD" Over DSL to PC (examples TBD)
- Satellite Partnership
- Broadband Portal Partnership
- DSL Partnership
- Dial-up ISP/Portal
- Dial-up ISP
- Plain Old Telephone Service
- "Passive" Internet Dial-up Connection

*Timeframe and Moves Vary Significantly by Individual Telco*
5. Challenges For The Telco Transition
Solving the Device Explosion Is Critical to Meeting the Needs of the “Bundle” Customer
5. Challenges For The Telco Transition

Consumers Are Increasingly Relying On Others To Help Solve Their Complex Technical Needs – Retail Stores Have Become Important In This Mix

**Example: Entertainment Equipment Installations**

- **Key Observations**
  - Only 45% of respondents are themselves responsible for equipment set-up (down from 51% in 2001)
  - Consumers are depending more on the retail store or a family member for installation

**Source: CTAM**
5. Challenges For The Telco Transition
Telcos Have An Opportunity To Embrace Innovative Business Models To Gain Advantage Over Pay TV Competitors

<table>
<thead>
<tr>
<th>Option 1</th>
<th>Network Provider as CSP: “Content Pipe”</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA/CP</td>
<td>CNP</td>
</tr>
<tr>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>User</td>
<td></td>
</tr>
</tbody>
</table>

- Network Provider takes direct distribution role
- Users pay for combined bandwidth/content services

<table>
<thead>
<tr>
<th>Option 2</th>
<th>Network Provider as “Dumb Pipe”</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA/CP</td>
<td>CNP</td>
</tr>
<tr>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>User</td>
<td>CNP</td>
</tr>
</tbody>
</table>

- Network Provider is a “passive” conduit of Internet content services
- Incremental revenue to CNP is limited and commoditized

<table>
<thead>
<tr>
<th>Option 3</th>
<th>Network Provider as “Smart Pipe”</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA/CP</td>
<td>CNP</td>
</tr>
<tr>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>User</td>
<td>CNP</td>
</tr>
</tbody>
</table>

- Network Provider offers platform services to content providers
- Bandwidth is variable and content services-driven

Key:
- $ = Content Service Revenues
- $ = Bandwidth Revenues
## Summary

### Why Telcos Can Win At Video

- Massive customer base
- Interactive, broadband infrastructure
- Accustomed to high capex projects
- Not wedded to existing video business models
- As new entrant, opportunity to create differentiated video experience

### Challenges and Obstacles

- Little experience in video business
- Little scale for acquiring content
- Uneven track record at innovating at most telcos
- “Upgrade conundrum” from DBS to IPTV
- Difficult to gain full support required from boards and senior management

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**The Telco IPTV Transition is Not Just A Choice – And Failure Is Not An Option**
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