Agenda

- Economics of Programming
- Economics of Streaming
- Technology infrastructure driving new economic models
- New Business Model
Illustrative potential cable network returns

- Relatively lower start-up costs for niche vs. broad-based networks yield a higher return on investment

**BROAD-BASED NETWORK**

<table>
<thead>
<tr>
<th>Estimated per-sub value</th>
<th>Low</th>
<th>Midpoint</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subscribers (mm)</strong></td>
<td>38.4</td>
<td>38.4</td>
<td>38.4</td>
</tr>
<tr>
<td><strong>Value (mm)</strong></td>
<td>$614.0</td>
<td>$652.4</td>
<td>$690.8</td>
</tr>
<tr>
<td><strong>IRR</strong></td>
<td>47%</td>
<td>49%</td>
<td>51%</td>
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</tbody>
</table>

**NICHE NETWORK**

<table>
<thead>
<tr>
<th>Estimated per-sub value</th>
<th>Low</th>
<th>Midpoint</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subscribers (mm)</strong></td>
<td>17.0</td>
<td>17.0</td>
<td>17.0</td>
</tr>
<tr>
<td><strong>Value (mm)</strong></td>
<td>$136.0</td>
<td>$153.0</td>
<td>$170.0</td>
</tr>
<tr>
<td><strong>IRR</strong></td>
<td>65%</td>
<td>70%</td>
<td>74%</td>
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</table>

**Cable Network IRRs**

- Broad
- Niche
Illustrative cable network start-up costs

- Start-up costs for niche vs. broad-based networks are relatively lower due in large part to less competition for programming

<table>
<thead>
<tr>
<th>(in millions)</th>
<th>Years 1-5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Broad</td>
</tr>
<tr>
<td>Subscribers</td>
<td>38.4</td>
</tr>
<tr>
<td>Affiliate revenue</td>
<td></td>
</tr>
<tr>
<td>- Paid by cable and satellite operators to networks on a per subscriber basis</td>
<td>$76.0</td>
</tr>
<tr>
<td>Advertising revenue</td>
<td></td>
</tr>
<tr>
<td>- Mature networks carry 20 national and 2-4 local 30-second spot advertisements per hour</td>
<td>65.2</td>
</tr>
<tr>
<td>Total revenue</td>
<td>$141.2</td>
</tr>
<tr>
<td>Cash for carriage</td>
<td>(25.4)</td>
</tr>
<tr>
<td>- Paid upfront as lump sum per sub for distribution (Can avoid by offering free period on affiliate fees)</td>
<td></td>
</tr>
<tr>
<td>Programming expenses</td>
<td>(119.6)</td>
</tr>
<tr>
<td>- Costs for acquiring programming and producing original content</td>
<td></td>
</tr>
<tr>
<td>SG&amp;A and other</td>
<td>(117.7)</td>
</tr>
<tr>
<td>Capex</td>
<td>(4.7)</td>
</tr>
<tr>
<td>Total</td>
<td>($126.2)</td>
</tr>
</tbody>
</table>
Streaming Media Economics

Total Output Capacity

Burst

SLA

6 am

Time

5:59 am
Strategic Assets and Market Direction

**Market Drivers**

- **Consumer Media**
  - Digital Music
    - Islands of DAM
      - Proprietary
      - Isolated
      - Multiple content formats
    - Proprietary
  - Near VOD
    - Limited VOD, PPV
    - Start small, open
    - Enterprise vision and scalability
    - Enterprise application integration
  - Online Gaming
    - $1 billion in U.S.
  - VOD, iTV, DTV
    - VOD in 50% and PVVs in 25% of U.S. households
    - 30% of screens are DC by 2008
  - Digital Cinema HDTV
    - HD streaming

- **Enterprise Media**
  - Unstructured Content Concern
    - Consumer goods
    - Extensive retail
    - Mass customization
  - Brand Management
    - RDM core to business
    - High volume, complex files
    - Government, pharmaceutical, health care
  - Lead Verticals
    - Core to all business processes
    - All sectors
    - ERP/CRM integrated
  - Broad DCM Adoption
    - Core to all business processes
    - All sectors
    - ERP/CRM integrated

**Rich Media Asset Management**

- **Highly Fragmented**
  - M&E Backlash
  - Enterprise Gets Interested
  - Roll up into big IT players

- **Specialized, Proprietary**
  - Open, Standardized
    - Use of off-the-shelf hardware
    - Utility-sharing
  - Architectural Integration
    - Content-sharing
    - Workflow UI
    - Media storage

- **Metadata Creation**
  - Open file systems
  - Select standards
  - Open source
  - "ISBN-type" standardization

- **Media management layer**
  - Services-led solution integration

**RDM Adoption**

- D-base
- DAM app integration
- Embedded in ERP/CRM
**Strategic Assets and Market Direction**

The Utility can influence & accelerate the trend toward open systems, integrated applications, and solution development.

### Proposed Reference Frameworks
- Broadcasting-oriented
- Few 3rd party adapters
- No common services agreement

### Microsoft versus Framework
- Third-party adapters
- Browser, UI
- Solution tailoring - BS, mobile, print

### DCM, DCD, NM
- Roll together

### Framework Evolution

<table>
<thead>
<tr>
<th>Content</th>
<th>Production</th>
<th>Exchange</th>
<th>D-Base Integration</th>
<th>Tools</th>
<th>Metadata</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows Media</td>
<td>XMP</td>
<td>XML</td>
<td>ODBC</td>
<td>Ingestion</td>
<td></td>
</tr>
<tr>
<td>QuickTime</td>
<td>WebDAV</td>
<td>SOAP</td>
<td>JDBC</td>
<td>Editing</td>
<td></td>
</tr>
<tr>
<td>PDF</td>
<td>AAF</td>
<td>.NET</td>
<td>CORBA</td>
<td>Production</td>
<td></td>
</tr>
<tr>
<td>HTML</td>
<td>MXF</td>
<td>J2EE</td>
<td>JSR-170</td>
<td>Packaging</td>
<td></td>
</tr>
<tr>
<td>MPEG 2, 4, 7 DVD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Operating Systems
- UNIX/Windows
- Windows/UNIX/Linux
- Linux/Windows

### Storage Systems
- Large File Handling
- Fixed Content Systems
- Large Arrays

### Standards
- Ubiquity-Based Standardization
- Operating Systems
- Storage Systems

### Tools
- Ingestion
- Editing
- Production
- Packaging
- Streaming

### Metadata
- MPEG 7
- OS2000
- Open Cable
- TV Anytime

### Ubiqity-Based Standardization
- Common service abstractions
- Web services, UI
- Software aggregation
- Workflow framework
- Storage integration
- Multi-device rendering
- Content security and metering
- Enterprise application integration
Broadband "IP" TV
Media in the Digital Decade 2004-2010

Today – Everything is Going Digital!

- PCs installed base hit major milestone last year – 1B PCs
  - 2nd billion will ship in 2008 (Gartner)
- >70% of US HH have a PC as of Mar 2003
- 35% of home PCs in living room or family room;
- Nearly 20M homes with broadband, growing to 35M by ‘05
- 40% of America's largest companies streaming today
- MSNBC delivering 10M streams/month
- DVD players outsell VHS players 2:1
- More digital cameras than analog sold this year
Digital Experiences Everywhere

Media Center PC

Media Center PC

Home network

Home Media Server or networked PVR

Den/Office

Wireless LAN

Broadband
- DSL
- Cable

Childrens Bedroom

Portable Players

Master Bedroom

Home network

Childrens Bedroom

Portable Players

Wireless Pad

Living Room

Networked DVD, PVR, or Home Media Server

PC Terminal

Kitchen

Portable Players

Home network

Wireless Pad

Living Room

Networked DVD, PVR, or Home Media Server

PC Terminal

Kitchen

Garage

AV Components

Wireless Data/Networks
- 802.11
- 2.5G / 3G

Wireless Sync
In the Car

Portable Players

Home network

Portable Players

Wireless Pad

Living Room

Networked DVD, PVR, or Home Media Server

PC Terminal

Kitchen

Garage

AV Components

Wireless Data/Networks
- 802.11
- 2.5G / 3G

Wireless Sync
In the Car
Video over IP provides the highest quality video distribution platform layered on top of IIP to secure revenue generation now.

Fully managed end-to-end video distribution platform
Point-to-Point & Point-to-Multipoint
Product Benefit Statement

- Long-haul 4.5 Mbps IMA T1s
  - Reduced bandwidth requirements
  - Reduced cost
- Tandberg codecs
  - Industry standard
  - 5th generation codec
- Savvis is first to market with a Video over IP solution that works
  - Fully managed from video source(s) to video destination(s)
  - Software Conditional Access
  - Embedded and Pervasive Watermarking
- Savvis provides all the benefits of IIP, Hosting, and Internet services in addition to Video over IP solutions
Now is the time to capitalize on the broadband access trend

- Broadband market size - Currently 11.2M broadband subscribers in North America with market growth rates of 13 - 17% per year over the next 5 years

- Half of U.S. homes will be regular users of video-on-demand (VOD) by 2008 spending $8.2 billion on such services.  
  
  Strategy Analytics (3/03)

- Revenues are forecast to reach $287 million for 2003, rising rapidly to reach $3.5 billion by 2005 and $8.2 billion by 2008.

  Strategy Analytics (3/03)

- Revenue from subscription-based (VOD) is expected to account for two-thirds of all revenues by 2008.

  Strategy Analytics (3/03)

- Broadband is a main driver behind streaming media, with 3 out of every 5 broadband users now accessing some form of online audio or video

  Nielsen/NetRatings (12/02)

- Expected revenue from Consumer Broadband in 2007 = $37Billion

  Insight Research (2/03)
Target & Customer Profiles Market VoD

- **Content Producers**
  - Foreign Broadcasters and Foreign language content producers
  - Major Studios (FOX, MGM, Paramount, Universal, SONY, Dreamworks)
  - Independent Film Makers
  - News & News Archives
  - Original Content Owners (Discovery Channel, National Geographic)
  - Adult Content
  - Sports Content

- **Content Distributors**
  - Broadband ISPs
  - Cable Providers (COX, ComCast, Charter, Cablevision, Time Warner)
  - RBOC’s
  - xLEC’s / IOC’s
Market Analysis IPTV

- 12,000 Broadband Headends in the US
- 70% are located in a < 7 mile radius of a major metropolitan area
- 5% are located in rural or > 50 mile radius

![BQVD 3 Year Outlook](image)

![BQVD 3 Year Outlook - Revenue](image)
Target Markets & Customer (US Only)

- **Content Producers**
  - Foreign Language Content Producers (Spanish, Japanese, Chinese, Italian, etc.)
  - Major Studios
  - International Sports Producers
  - Leagues

- **Broadband Providers**
  - COX
  - Charter
  - Comcast
  - Time Warner
  - Echostar
  - Cablevision
  - ISPs
  - IOCs
  - LECs & RBOCs
What Do Customers Want?

- **Consumers**
  - Provide great audio and video quality
  - Make it easy to use, fast and flexible
  - Respect their wishes regarding privacy
  - Personalized Content (Demographic, language and interest specific)
  - Time Shifting and On-demand services

- **Enterprise**
  - BDM: use digital media to improve productivity and gain competitive advantage
  - Marcomm - just-in-time delivery
  - Training and corporate communications (product launches, executive reviews)
  - IT Pro: easily deploy and integrate into solutions
  - All: Save money, increase revenues, gain rapid ROI

- **Content Delivery Industry**
  - Enable better economics for the entire value chain
  - Satisfy consumers while protecting assets and respecting IP
  - Build a platform that works for today and tomorrow
Content Delivery Industry

- **First Generation - 1995**
  - Radio, Narrowband, low quality

- **Second Generation - 1999**
  - Broadband Ready, higher quality Audio/Video, DRM for emerging Business models
  - Inconsistent user experience (Not TV-like)

- **Third Generation – 2004 forward**
  - Accelerated Broadband Penetration
  - Content on Demand
  - Compelling viewer experience
  - IT & Broadcast Convergence
  - IT and Home Entertainment Convergence
  - Theater type Experiences
  - Improved Economics (Storage, Processing & Network)
Logical Architecture

- Leverage the power and flexibility of web services
- Last mile provider operates a Utility Media Delivery Node

Content Owners/Aggregators

Movies
Music
Games
Live Broadcast

SAVVIS Content Services

Retrieve
Transrate
Transcode
Authenticate
Protect
Subscribe
Deliver
Host
Cache

SAVVIS / BSS Systems

XML Web Services

PC
STB
Mobile Device
Any Other Device

Consumption App/Dev

Leverage the power and flexibility of web services
Last mile provider operates a Utility Media Delivery Node
Service Business Models

- Operate multiple business models on same platform
  - Retail Consumer/Enterprise On Demand Service
  - Wholesale content delivery for 3rd party service providers
The Utility provides a complete Broadband distribution service for content owners

1. Content Provider
2. SAVVIS Exchange
3. Utility
   - Manages the service
   - Provides:
     - Storage / Archive
     - Ad Insertion
     - Customer service
4. Savvis Global Network
5. Content Utility
6. Secure Players
7. SAVVIS CDN

- Content owners commit investment and content
- Utility encodes and stores content
- Utility develops and operates web site with federated search capabilities as well as branded pages
- Utility develops and manages the video distribution network

- Customer markets website through targeted web ads, permission-based e-mail campaigns
- Customer provides player to consumer to manage and play the movies they select
- Customer manages all of the subscription billing and settlements process as well as customer service
Potential Business Model

- Broadband operator collects subscription and PPV fees from consumers and distributes content owner, service provider and investors in the Utility alliance.

- Funds flow model:
Summary

- Telco’s and Cable providers will race to lock up customers - new business models to be created.
- Private Network Model versus Public Internet Model
- Subscription (predictive - CDN Load Balanced) Model versus Advertising (non predictive - Peak over entire infrastructure) Model.
- IP Channel versus Docsis Channel
Presentation to Columbia University

Clifford H. Friedman
Senior Managing Director

April 15, 2004