Current Analysis
Streetwise Intelligence.™

Telebriefing

Triple Play:

Tripling Pleasure or Tripling Pain?

Presented by:

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Part 1:

Equipment Provider Perspective on Triple Play

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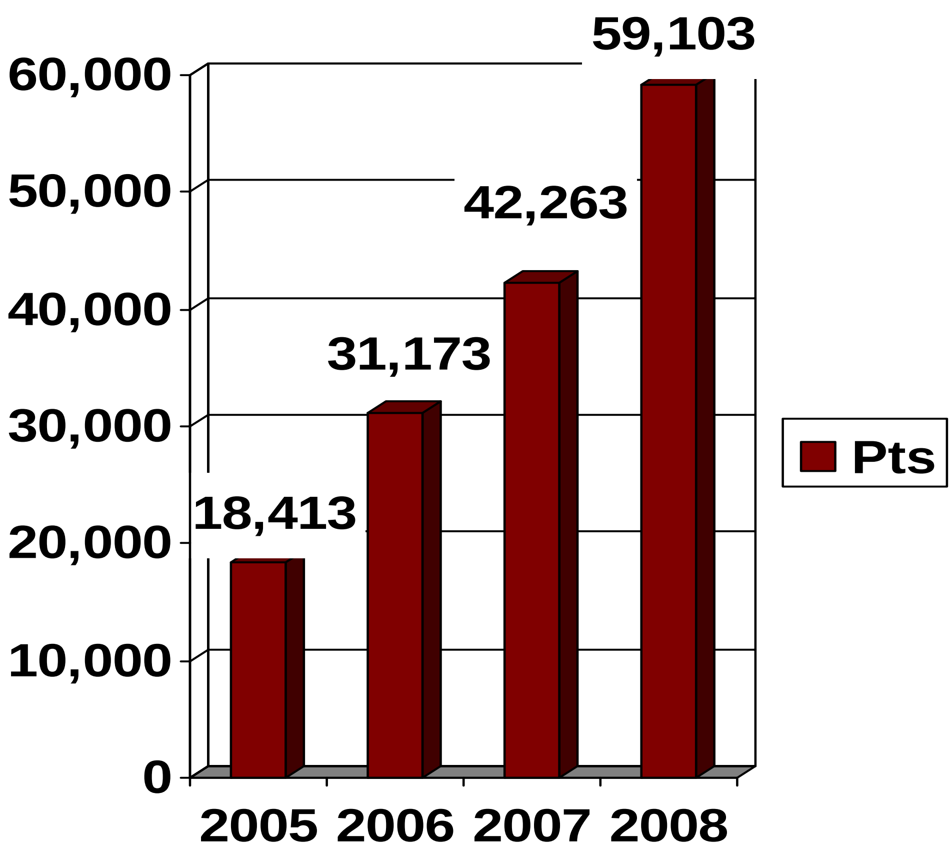
Upside Indicators for Triple Play Equipment

IP DSLAM Port Annual Projection (Ports Divided by 1000)



- Annual IP Port Shipments Expected to Increase 39.2% on CAGR Basis during 2005-09 Time Frame
- A.S.P Ports expected to Decrease 6.17% on CAGR Basis During 2005-09 Time Frame
- CAGR Increase of 30.66% Projected for IP DSLAM Sales During 2005-09 Period
- IP DSLAM Ports and Revenues Will Supplant ATM Ports and Revenues

Chart Source: Synergy Research Group

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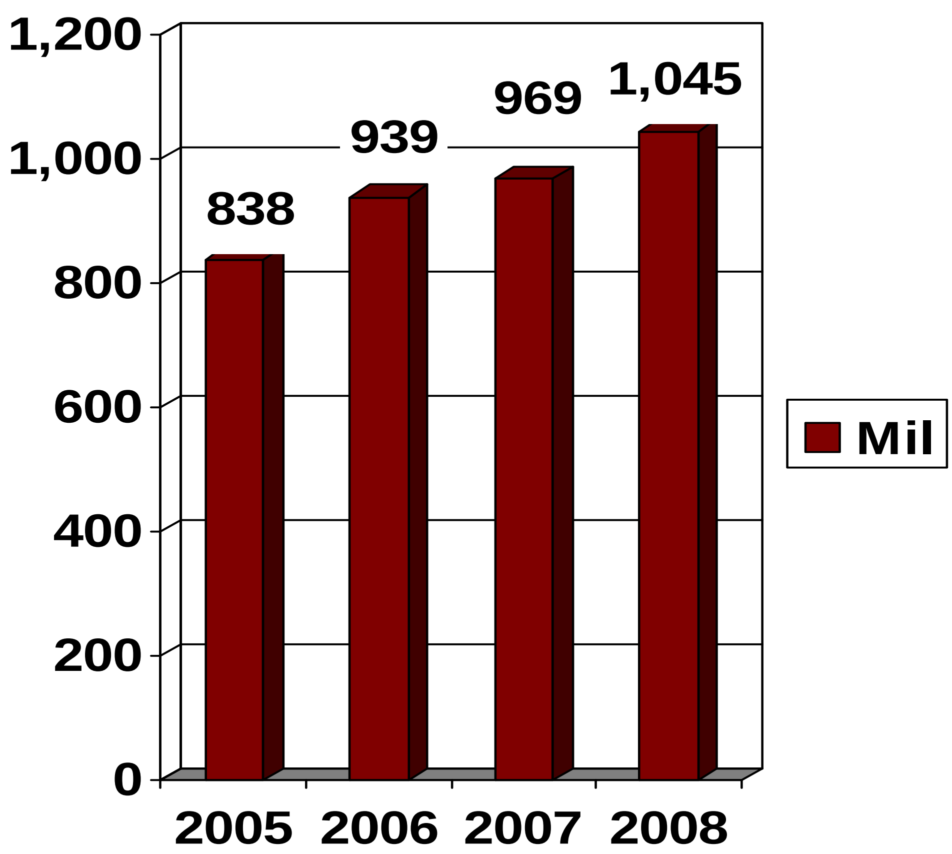
Upside Indicators for Triple Play Equipment

Broadband Aggregation Revenues Annual Projection (Sales in Millions)



- Annual BB Aggregation Equipment Revenues expected to Increase 8% on CAGR Basis during 2005-09 Time Frame
- BB Aggregation Equipment Units expected to Increase 7.7% on CAGR Basis During 2005-09 Time Frame
- Coincides with Unit and Revenue Increase w/in Overall Carrier Edge
- Fueled by Migration toward IP architectures (e.g., IPTV)

Chart Source: Synergy Research Group

Main Challenges in Deploying Triple Play Services

Triple Play Barriers: More Work Lies Ahead

- Legacy BRAS and DSL Access Technology Purpose-built for High-Speed Internet Applications
- Some Concern About Scaling Video Applications w/ ADSL2+ (20Mbps+ Business Case Requires VDSL, PON)
- Residential Gateway/BRAS QoS Signaling; SLA Formatting; ATM-based Auto-Configuration; On-demand QoS
- FTTx Effective (When Available)
- Architectural Challenges
  - **ATM and TDM not Well-suited for Scaling Video**
  - **PPP Model also Challenged by Video**
- Multiple Levels of Integration
  - **Video/Broadcast Introduces New Elements, Operational Processes, and Scaling Requirements**

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Main Challenges in Deploying Triple Play Services

Additional Triple Play Equipment Challenges

- Streamlining Network Elements while Expanding Functions
- Subscriber Awareness (Granular Level)
- Outside Plant Rigors
- Wireless/VoIP Considerations
- IPv6: Asia-Pac and Government Driving
  - **Mobility, Security (Network-centric), Plug and Play**
  - **IP Address Management and Expansion**

Additional Triple-play Concerns

- RG/STB Implementations
- Regulatory Factors - Video/Broadcast Licensing

Approaches Toward Meeting Triple Play Challenges

Recommendations to Meet Triple Play Equipment Challenges (Telcos)

- Flexible Migration Capabilities
  - **L2/L3 Interworking**
  - **CapEx, OpEx Benefits**
  - **Evolving Services Model**
- Combining Multiple Functions on Common Network Elements (e.g., DSL/PON, Ethernet/ATM/TDM)
- Policy Networking More Important

Ethernet Aggregation Key to Video Scaling

- Second Mile Evolution
- DHCP Supplanting PPP

Approaches Toward Meeting Triple Play Challenges

Recommendations to Meet Triple Play Equipment Challenges (Telcos)

- Expanded, Diversified Integration Packages
  - **Major Telcos will Drive Suppliers, but Video Integration will Entail Deeper, More Strategic Relationships**
  - **Independent/Regional Telcos: Many More Dependent of Key Strategic Relationship; Video Integration Looks Daunting in Some Cases**
  - **More In-house Video Networking Elements Helpful**
- Marketing and proving IMS Capabilities
- WT-101: Access and Aggregation Mix and Match

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Approaches Toward Meeting Triple Play Challenges

Recommendations to Meet Triple Play Equipment Challenges (Cable Operators)

- CableLabs Regime
  - **DOCSIS 3.0 and M-CTMS**
  - **PCMM/SIP**
  - **Distributed CA**
- Marketing and proving Wireless Capabilities
- Wideband for International MSOs

Back-Office Considerations (both telcos and MSOs)

- Common Management Schemes
- Policy Networking

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Part 2:

Service Provider Perspective on Triple Play

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Convergence – *Aren't we there yet?*

Telco/Cable TV Mergers

Interactive Television

TIME WARNER CABLE

Orlando Trial

Cable TV Builds

Cable Overbuilders

GTE

Mainstreet

Cable TV Investments

Tele-TV

MMDS (Wireless Cable)

OVS Licensing

...trials...trials...
...trials...trials...

I-SNET

AMERICAST

Video over DSL

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“Triplets” Here and Now

Today’s Telco Bundle: The Juggling Act

- Local central office switches provide dialtone; limited consumer VoIP
- DSL overlay adds broadband: Tiered approaches
- EchoStar and DIRECTV partnerships widespread
- Wireless bundles for the “quadruple play”
- Vestiges of the Full Service Network investment legacy

Cable Finds its Voice

- Substantial Comcast (AT&T Broadband)/Cox circuit-switch legacy
- Widespread cable VoIP deployments where cable telephony left off
  - DOCSIS 2.x built-in QoS functions.
  - Tapping telco expertise (Sprint, MCI, Level 3).
- Do-it-yourself bundling from consumers (Vonage, AT&T CallVantage)

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Hurdles for Telcos

Telco-based Triple Play a Massive Undertaking on all Fronts

- Network capital costs, lead times and perils of outside plant deployment
  - Aerial or trenched fiber – neither is a panacea.
  - Long-term maintenance of fiber-to-the-X builds.
- Franchise licensing
  - IP video encapsulation, ie. “video as information service”.
  - Franchise licensing to bypass community negotiations.
- Content licensing
  - 388 non-broadcast networks, ~50% affiliated with cable/media entities.
  - DRM: IP video's versatility spikes content providers' worries.
- Platform issues
  - Can the IP pipe support multiple TVs, HDTV?
  - How much buffering lag is acceptable?
  - Microsoft IPTV – Platform reliability? Open standards?

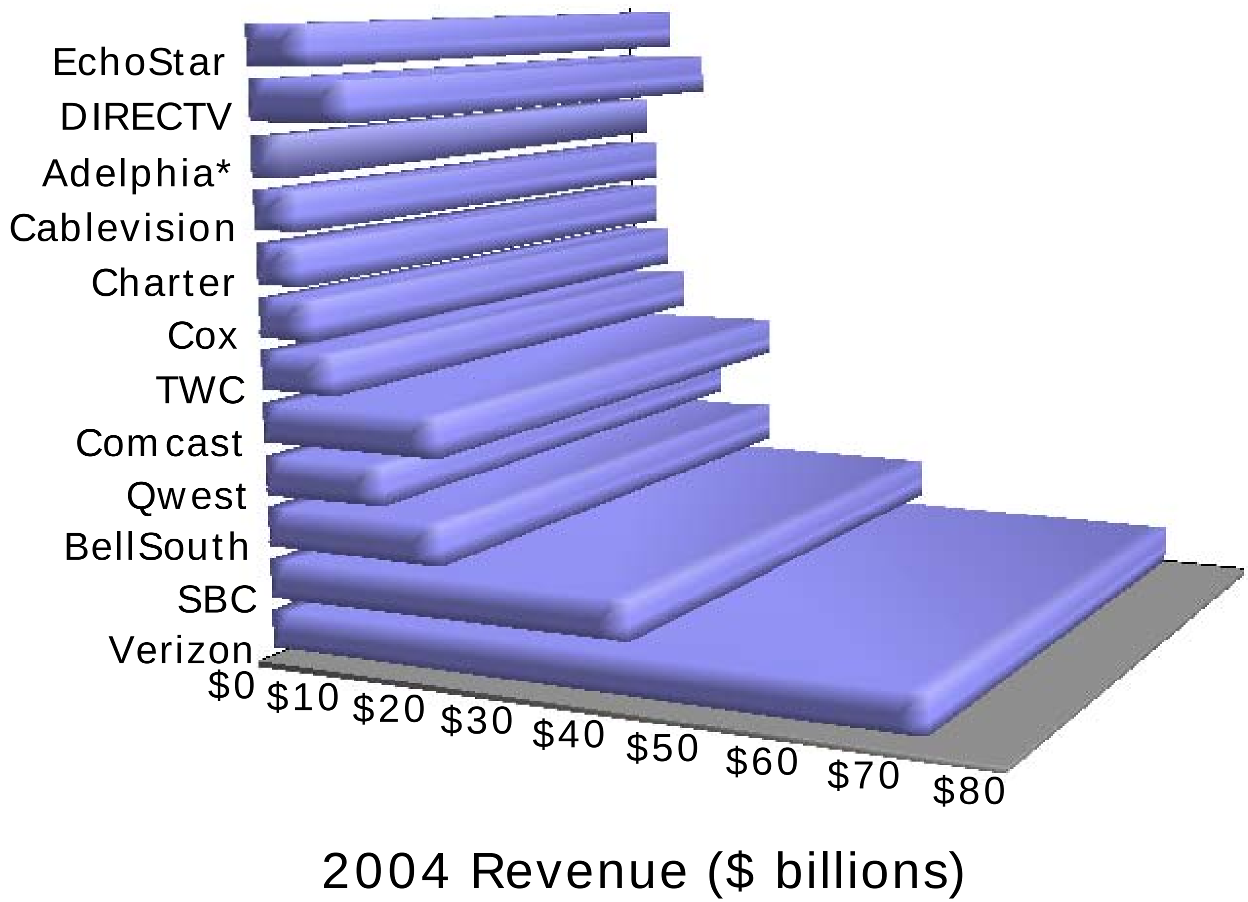
Hurdles for Cable TV

Establish a Dialtone Service Quality Heritage

- Still building lifeline service track records
  - Major market players split between lifeline vs. best-effort dialtone.
  - Third-party dialtone VoIP providers may tarnish the market sector.
- Fighting larger legacy telco footprint
  - Cable TV metro clusters vs. comprehensive RBOC territories.
  - ~95% of occupied homes with TVs passed by cable TV systems.
  - ~60% of homes served by cable TV vs. ~90+% telephone service.
- Lack of tiered services
  - Tendency to offer only premium service at a premium price
  - VoIP-based cable phone services entering with unlimited calling only.

Telco vs Multichannel Video

How Much Revenue Clout?



*Adelphia based on 2003 revenue.

Source: Current Analysis

Telco Near-Term Recommendations

Build Smart, Control the Message

- Line up at the regulatory border & push for cable franchise workarounds
- Make best use of Section 251 exemptions to reduce CLEC exposure
  - Take advantage of cable's general lack of business services.
  - Use FCC exemption extension to add small/medium businesses.
- Leverage triple play's fourth element – wireless
- Content should be easy – if telcos partner/outsource to content experts
- Leverage available resources
  - Unbundle applications – open interfaces and a la carte services.
  - Use bundling "glue" applications properly – iobi and universal messaging.
- Stay out of cases requiring cable TV broadband equal access
- Push back on content providers insistence on oppressive DRM

Cable TV Near-Term Recommendations

Get out of the Box!

- Vital to cable TV service reputation to get voice right the first time
  - 911 lawsuits, new FCC requirements shed light on lifeline's importance.
  - Brace for additional VoIP taxes, charges & regulation.
- Join with communities to block telco bypass of current franchise system
  - Is cable TV an ISP if it IP-encapsulates video traffic? Example: MBone.
- Critical to step up business services portfolio & sales efforts
  - HFC/cable modem-based services differentiated from residential.
  - Need competitive alternative to T1 & Symmetric DSL.
  - Exceed telco network availability track record, SLA guarantees, customer service.
- Incite challenges that telcos are shunting universal service obligation
  - Completed and attempted sell-offs of rural local territories.
  - Accusations of “red-lining” communities with initial residential fiber builds.

The Long-Term View

- IPTV set to... flop
  - Cable TV industry needs to co-opt successful IPTV applications.
  - Telco success hinges on content, not whiz-bang IPTV video features.
- The Bundle Race
  - Telcos need to mirror their satellite TV and fiber-to-the-X video packages.
  - Cable TV needs to yield to cheaper broadband and voice service tiers.
  - Everyone needs “glue” applications to help encourage service bundling.
- The Business Angle
  - Telcos could put business-grade optical wavelengths on residential fiber.
  - Cable TV could extend business-grade optical wavelengths on HFC.
- The Public Relations Battle
  - Cable TV can position telcos as just more would-be cable overbuilders.
  - Telcos can position cable as lacking a service quality heritage.
  - Cable TV can show telcos trying to railroad past community franchising.
  - Telcos can say cable TV is trying to lock out market competition.

THANK YOU:

Questions and Answers