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Making ATM Network Content Transport Work

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Broadband
Multiplexers
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Introduction

- Does ATM content transport work ?
- Can we prove ATM really works ??
- Will ATM work for content transport ???
- How can anyone make ATM work ??????????

Forget all of this...

Putting ATM Content Transport to Work:

- Actual implementations of TV-over-ATM by broadcast organizations
- How can ATM content transport work to solve problems and facilitate applications
- Business and not technology is the issue





Contents

- Recent projects with 4 different customer types:
 - National Broadcaster(Danish Radio)
 - National Cable Network (Fox Sports Net)
 - National Carrier of Broadcast Signals (Nozema Holland)
 - National Cable System Operator (Telecable Holland)
- For each project:
 - Background & initial requirements
 - Overview of the deployed solution
 - Actual benefits gained (expected and unexpected)
- All projects involve Hi-TV, ECI's multi-channel adap to ATM of video & DVB signals





Case Study #1

**Customer: National Broadcaster (Europe)-
Danish Radio**

Application: Regional News Contribution





Background & Customer Needs

- Connect regional news facilities to central studio
- Replace most satellite transmissions and SNG
- Provide more up-to-the-minute news & events

Requirements:

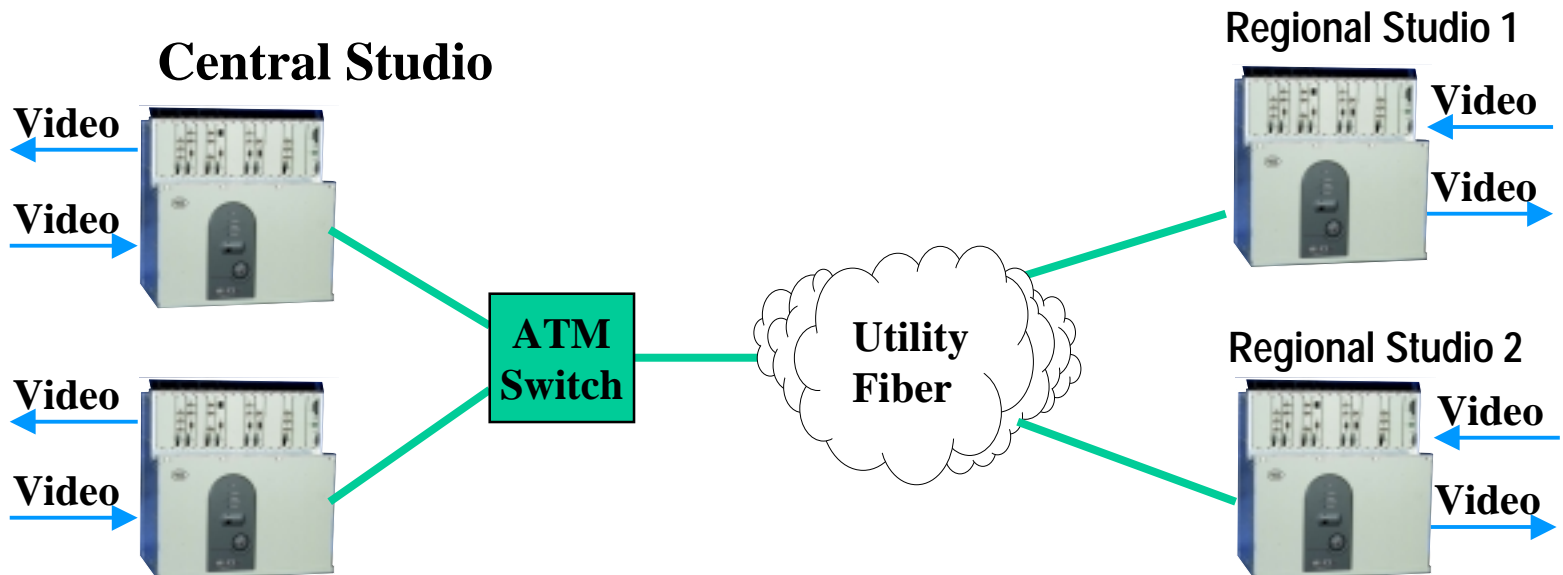
- ➔ Need codecs & ATM adaptors in each location
- ➔ Need reliable & robust transmission
- ➔ Need upgrade path to dial-up SVC
- ➔ Need central management
- ➔ Need low cost and compact physical size





Deployment & Architecture

- Two Hi-TVs in center
- Hi-TV in each remote bureau (2 sites in Phase 1)
- Hi-TV acts as multi-codec and ATM adaptor
- Fiber from utility service provider - Powercom
- Self-owned ATM switches





Actual Benefits Gained

- ✓ Replace most satellite transmissions and SNG
- ✓ Provide more up-to-the-minute news & events
- ✓ Reliable & robust transmission
- ✓ Radio and LAN traffic on the same network

Additional benefits not originally planned for:

- Flexibility: e.g. customer now considers placing remotely-controlled cameras in regional bureaus
- Integration: codecs & ATM adaptor in one chassis

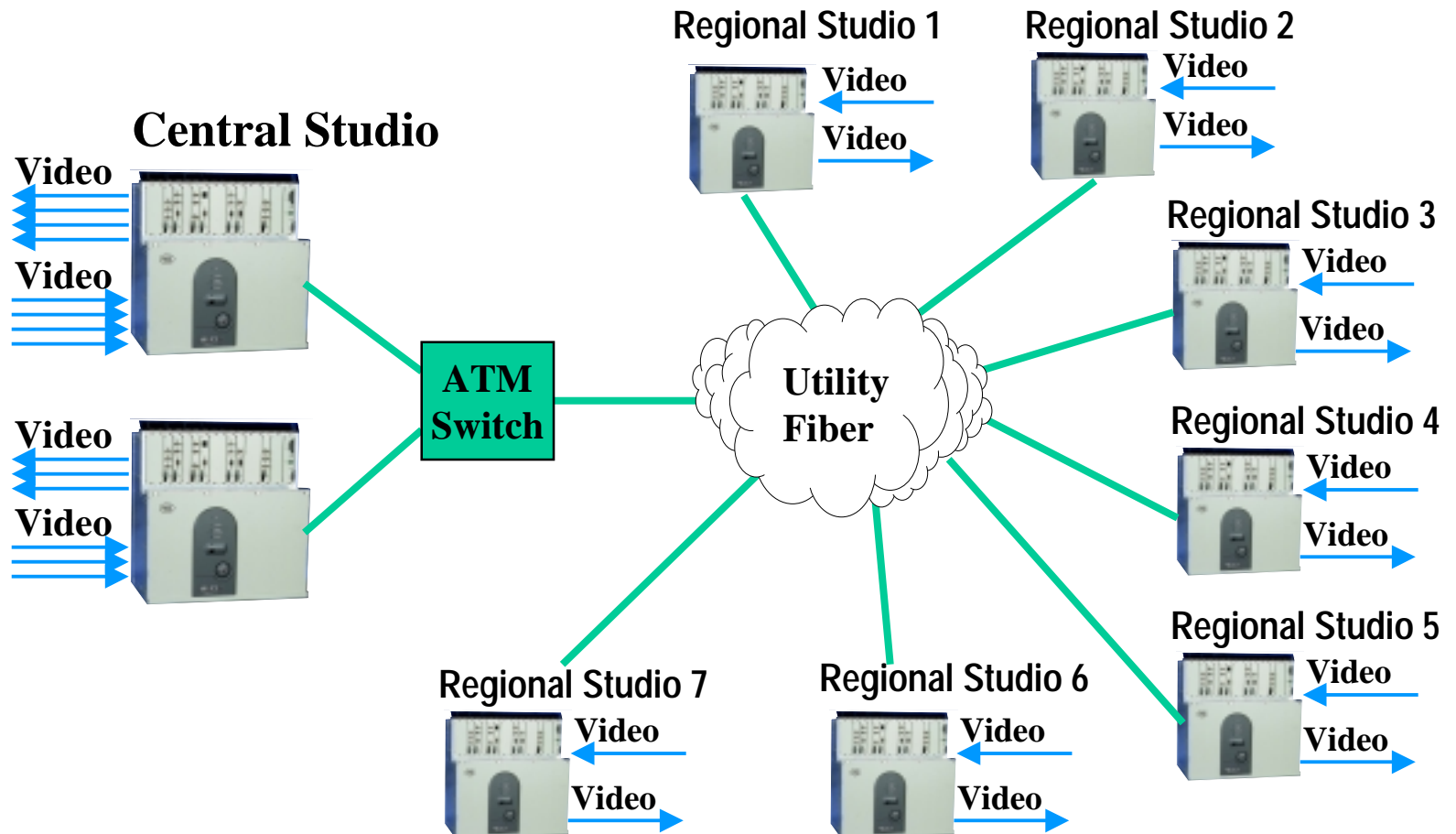
Customer already announced a major expansion





Phase 2 Deployment & Architecture

- 5 additional sites to be connected, this year
- More channels to be added to the central Hi-TVs



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Case Study #2

**Customer: National Cable Network (USA) -
Fox Sports Net**

Application: Studio-to-Uplink Transport





Background & Customer Needs

- National Cable Network based in the East Coast
- Merged with cable network group with existing multi-channel digital uplink in the West Coast
- Want to consolidate distribution on a single uplink

Requirements:

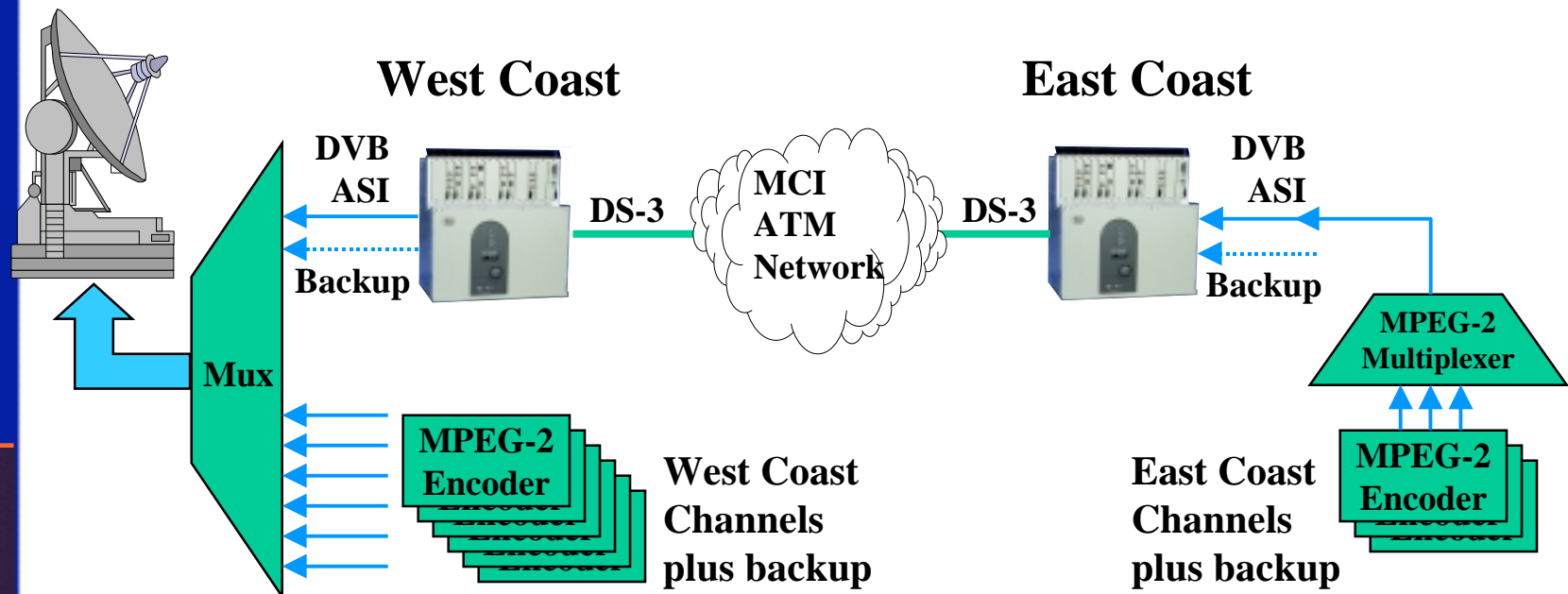
- ➡ Need to move a digital signal coast-to-coast 24x7
- ➡ Need reliable jitter-free transmission
- ➡ Solution must be cost competitive





Deployment & Architecture

- Hi-TV as ATM Adaptor in each location
- DS-3 local loop, long-distance ATM, service from established service provider - MCI
- Digital compressed feed, directly into uplink mux





Actual Benefits Gained

- ✓ Digital compressed signal coast-to-coast 24x7
- ✓ Reliable jitter-free transmission
- ✓ Cost-competitive access solution

Additional benefits not originally planned for:

- Scalability: can seamlessly add more digital channels from other locations to the same uplink
- Multi-Service: IP over ATM enables remote management of equipment at both ends

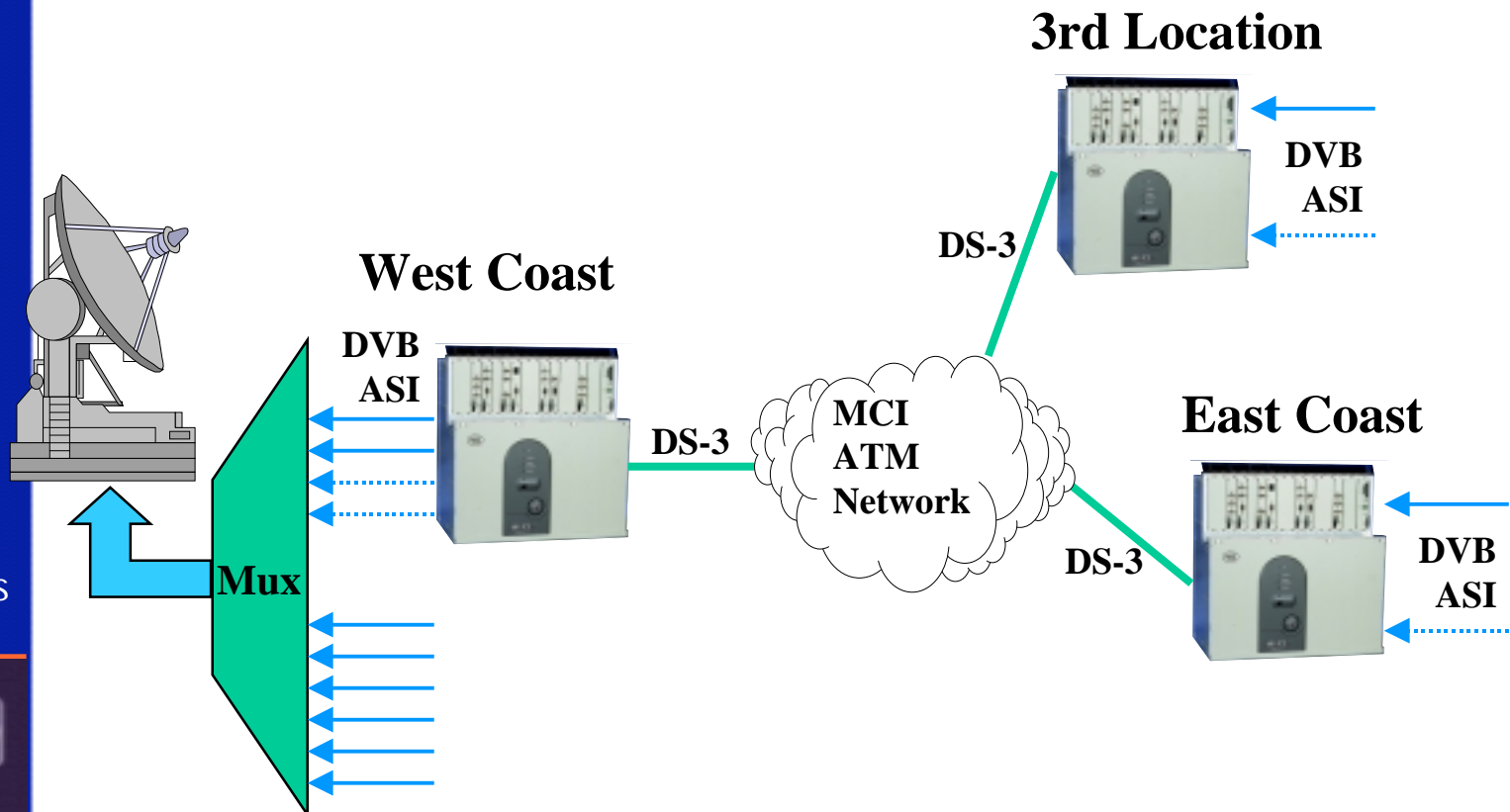
Customer recently ordered Hi-TV for 3rd location





Phase 2 Deployment & Architecture

- ✓ Upgrade is simple and straight-forward
- ✓ No need for another west coast DS-3 !





Case Study #3

Customer: National Carrier of Broadcast Signals (Europe)-

Nozema Holland

Applications: DTV Distribution and Local Contribution





Background & Customer Needs

- Customer carries studio-to-transmitters signals over existing nationwide microwave network
- Now building microwave DTV distribution network
 - Connect central studio to 13 transmitters
 - Carry 5 DTV signals consisting of 4 channels each
- Also need smaller video contribution network
 - One video channel from 4 sites back to center
- ➔ Both networks must be fully protected for any failure of transmission path (fiber cut equivalent)
- ➔ Need ATM adaptors (due to DVB standard)





Actual Benefits Gained

- ✓ Distribution and contribution solution
- ✓ Fully protected transmission over microwave
- ✓ Compliance with DVB-Over-Network standards

Additional benefits not originally planned for:

- Bandwidth Efficiency: single network for both applications - cuts microwave links and spectrum
- Cost reduction: no need for SDH layer equipment
- Integration: contribution codecs in ATM adaptor

Full network to be deployed in year 2000





Case Study #4

**Customer: National Cable System
Operator (Europe)-**

Telecable Holland

Application: CATV Backbone Distribution





Background & Customer Needs

- National Cable System Operator
- Has SDH (SONET) rings between head-ends over existing fiber, with ATM switches on top
- Want digital distribution from play-out facility & from international downlink to head-ends

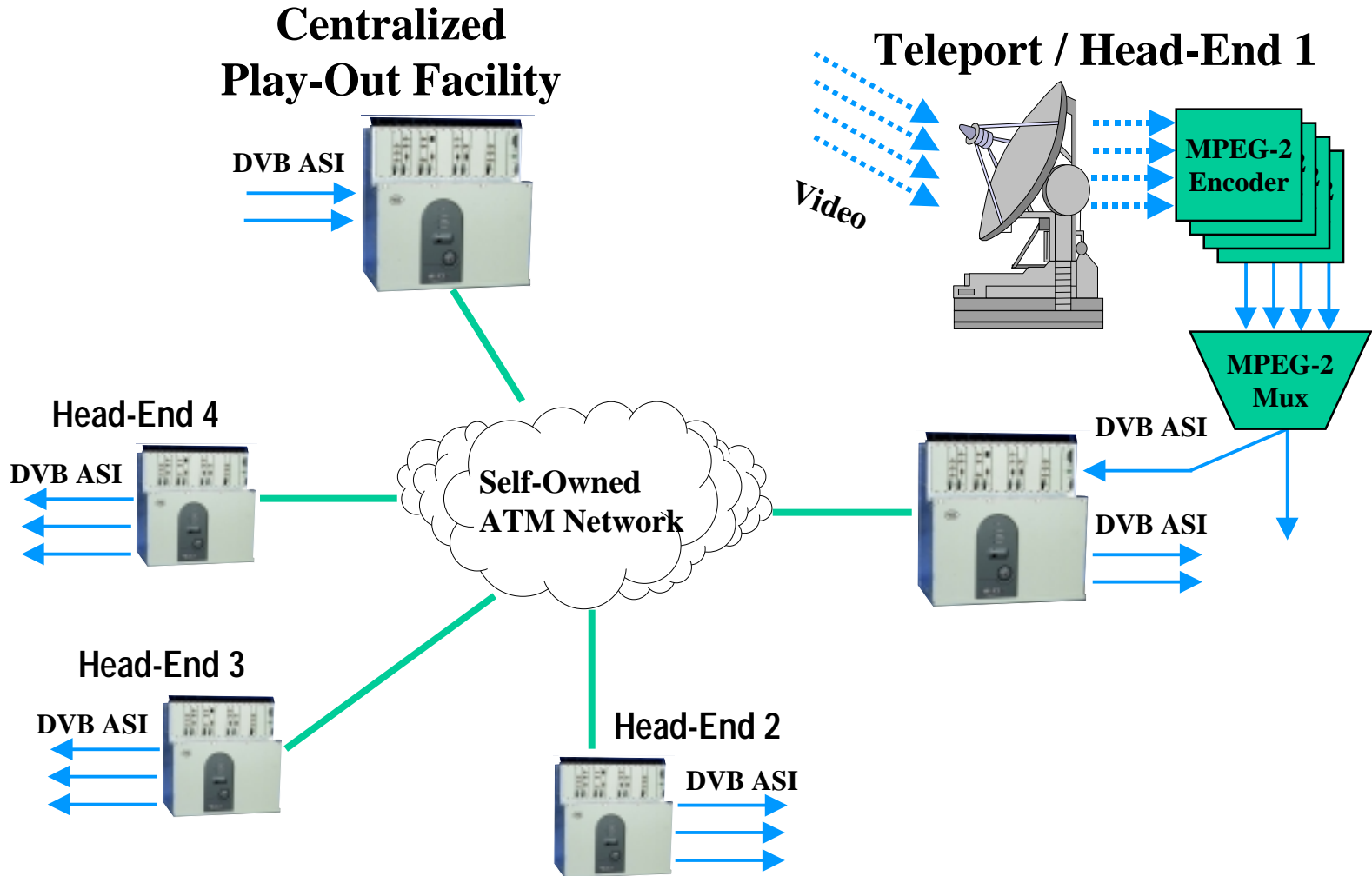
Requirements:

- ➡ Need multi-channel ATM adaptors
- ➡ Need inherent flexibility and growth capability
- ➡ Need central in-band management



Deployment & Architecture

- Hi-TV as ATM adaptor in each location





Actual Benefits Gained

- ✓ Seamless digital distribution from two origination points to all head-ends
- ✓ Inherent flexibility and growth capability
- ✓ Integrated multi-channel network adaptors
- ✓ Central in-band management (with IP over ATM)

Customer already planning upgrades & changes:

- Add another multi-channel DVB signal to all sites
- Add another head-end
- Originate one of the signals from a new facility





Summary

- ATM Content Transport does Work, in real-life
- Mainly contribution and backbone distribution, of immediate live signals (easier justification)
- Mainly regional to national scope (ATM is enabler)
- USA and Europe share same basic requirements
- Implementations vary, depending on specifics:
 - Fully managed service from ATM service provider
 - Self-owned ATM switches over leased network
 - Private ATM network, over fiber or digital microwave
 - Usually it starts small, confidence builds, then it grows

Customers satisfied and prove it by follow-on orders





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Thank You!!!

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