Making ATM Network Content Transport Work

Yigal Abram
Hi-TV Marketing Manager - North America
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
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 adapter 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
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
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)
ATM Ring solution suggested to customer

- Need only single network for distribution and contribution, fully protected for any path failure
- Trial network deployed successfully
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
Hi-TV as ATM adaptor in each location

Centralized Play-Out Facility

Teleport / Head-End 1

Self-Owned ATM Network

Head-End 1
- DVB ASI

Head-End 2
- DVB ASI

Head-End 3
- DVB ASI

Head-End 4
- DVB ASI

MPEG-2 Encoder

MPEG-2 Mux

Video
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
Making ATM Network Content Transport Work

Yigal Abram
Hi-TV Marketing Manager - North America

Thank You!!!