Cisco MGX 8240
Private Line Gateway
Product Update

Migrating TDM Private Line Services to ATM

Session 2909
Agenda

- Market Drivers
- Private Line Packet Solution
- Cisco MGX 8240 Private Line Gateway
- Customer Applications
- Summary

Private Line Market Overview

- Private line services are the most prevalent dedicated access network service in the world, accounting for $24.5 billion or 72% of 1999 total market revenue
- Intense competition, technology, regulatory changes and demand for data services are changing the economics of providing private line services over traditional TDM infrastructure
- Service providers now seek infrastructure solutions for providing high value data services while driving down the cost of providing private line services

![1999 World Wide Public Data Services Market](chart.png)
Different Networks for Different Services

- POTS Services
- Private Line Services (T3, DS1 and N x DS0)
- IP, FR, and ATM Data Services
- OC-48c
- OC-12/OC-3
- Class 5 Switches
- Class 4 Switches

Issues with Current Private Line Architectures

- Private Lines (Data Service)
- Long Distance Network Handoffs
- HDSL Loops
- TDM Long Distance Network Handoffs
- AMI Loops
Challenges for Service Providers

- Providing continuity of services as convergence forces network evolution
- Leveraging current investment in capital equipment infrastructure
- Supporting rapid growth in customer base with increasing diversity of high value of services
- Reducing costs and complexity of OAM&P

Agenda

- Market Drivers
- **Private Line Packet Solution**
- Cisco MGX 8240 Private Line Gateway
- Customer Applications
- Summary
Who Needs Cisco’s Private Line Packet Solution?

- Service providers who:
  - Plan to enter the market for private line services
  - Plan to expand their existing private line services business
  - Need a scalable high volume infrastructure solution
- While removing the technology limitations of TDM and dramatically improving the operational economics of traditional digital cross-connect (DCS) solutions

Who Needs Cisco’s Private Line Packet Solution (Cont.)?

- Service providers who are migrating from traditional TDM based network architectures to ATM or multiservice packet based architectures:
  - Networks consisting of ATM edge and core switches
  - Multiservice edge concentrators
    - ATM circuit emulation service (CES) over CBR
    - ATM PVC/SPVC across the ATM network
  - That enable the replacement of TDM DCS elements with ATM based elements that extend the ATM edge/core to support high volume private line services
Private Line Services on an Converged Packet Network

- Reduced complexity and TCO (total cost of ownership)
- Fastest turn-up time results in faster time to market
- Lowest cost of operation

Cisco MGX 8240 Enables Rapid Transition from TDM to ATM
Private Lines and Voice Trunks Converge on Single Network

- Build/leverage investment in service agile backbone
- Continue to offer traditional high revenue services
- Transition to value-added offerings

The Cisco MGX 8240 converges voice trunks and private lines for transport over an ATM backbone

New Model for Private Line Services

- Network consisting of gateways and ATM switches
- ATM forum recommended circuit emulation service (CES) over a single CBR ATM PVC/SPVC across the ATM network
- Provisioning, optimal routing, and cross-connecting of circuits done automatically in a single step by the ATM switches using point-and-click technologies
- Automatic rerouting of circuits in case of a network fault
- No manual re-grooming of circuits
- Test and turn-up of circuits done using multi-session test functions built directly into the edge concentrator
Agenda

- Market Drivers
- Private Line Packet Solution
- Cisco MGX 8240 Private Line Gateway
- Customer Applications
- Summary

Introducing the Cisco MGX 8240 Private Line Gateway

**Highest Density Private Line Solution in Industry**

- Capacity: 90 channelized T3s per 7’ rack; 2520 T1s
- Highest availability: 99.999%
  - 1:N on line cards; one second failover
- Lowest cost of operation and provisioning
  - End-to-end provisioning capabilities
  - DS0/N x DS0/DS1 cross connect capability
- Fast access to service revenue
- Advanced performance monitoring, remote testing and troubleshooting
  - Embedded loop-back and BERT
End-to-End Provisioning with Cisco MGX 8240

- Supports in-band (ATM) and out-of-band (Ethernet) network management capabilities
- Provides full performance monitoring for both T3 and ATM (OC-3c) trunks and logical DS1s within each channelized T3
- Allows operators to configure, control, and monitor private line gateways deployed in the network
- Enables end-to-end provisioning across ATM network by interfacing with the ATM switch client software
Cisco MGX/BPX Provisioning

OSS/BSS

Cisco WAN Manager

Conn-Segment

ATM OC-3

MGX/BPX Multiservice Network

MGX 8850

ATM OC-3

PLS Telephone

MGX 8850 Data

Cisco Service Management

... Building Blocks for Multiservice Management Solutions

Common Foundation
Topologies, Object Model, GUI, Data Store, Directory

Service Management
Netsys and NMT Tools
Cisco Provisioning Center
Cisco Info Center
Concord Network Health Reports

Network Management
Cisco IP Manager
IOS Based Devices
Cisco WAN Manager
Multiservice Platforms
Cisco Virtual Switch Manager
- Voice
- VSC

Element Management
Cisco Access Manager
- Dial
- DSL
- Cable
Cisco MGX 8240 Product Structure

- Cisco MGX 8240 Base System
- Processor Service Module
- PSM I/O Module
  - 3xT3 and OC-3c
  - OC-3 and OC-3c
- Integrated Management Controller
- Virtual Command Line Interface

Cisco MGX 8240 Base System

Mid-Plane Architecture with 16 Slots

- Main Components:
  - Base System
  - PSM Front Cards
  - PSM I/O Cards
  - IMC Card

NEBs Compliant Design
MGX 8240 Auto Switch-Over Function

Top View of Chassis

Normal Operation

Access and Trunk Interface/Connections

Other Modules

Primary Module

Back-Up Module

Front

MGX 8240 Auto Switch-Over Function (Cont.)

Top View of Chassis

Normal Operation

Front

Access and Trunk Interface/Connections

Other Modules

Primary Module

Back-Up Module

Primary Module (Cont.)
Cisco’s New Private Line Gateway Accelerates TDM to ATM Transition

- Extremely dense, scalable circuit emulation
- High availability through redundancy
- Embedded operational diagnostic support
- N x DS0/DS1 cross connect capabilities

Agenda

- Market Drivers
- Private Line Packet Solution
- Cisco MGX 8240 Private Line Gateway
- Customer Applications
- Summary
Carrier’s DS1 Private Line Architecture Example

POP-1 Los Angeles
- Cisco MGX 8240
- ATM Switch (LA)
- OC-3c ATM (1+1 APS)

ATM Core Network

POP-2 Dallas
- Cisco MGX 8240 #1
- Cisco MGX 8240 #2
- ATM Switch—DLLS

POP-3 New York
- ATM Switch (NYC)
- Cisco MGX 8240

TDM/ATM Interworking (CES)

ATM Cross-Connect

Step 1: Configure Line-Side Ports

Configure Line Side Port Parameters

Configure Line Side Port Parameters

POP-1 Los Angeles
- Cisco MGX 8240
- ATM Switch (LA)
- OC-3c ATM (1+1 APS)

POP-2 Dallas
- Cisco MGX 8240 #1
- Cisco MGX 8240 #2
- ATM Switch—DLLS

POP-3 New York
- ATM Switch (NYC)
- Cisco MGX 8240

ATM Cross-Connect

TDM/ATM Interworking (CES)
Step 2: Configure TDM to ATM Interworking

- Configure TDM/ATM Interworking
  - POP-1 Los Angeles
    - ATM Switch (LA)
    - Cisco MGX 8240
    - OC-3c ATM (1+1 APS)
  - POP-2 Dallas
    - ATM Switch—DLLS
    - Cisco MGX 8240 #1
    - DS1 #2 #3 #5
  - POP-3 New York
    - ATM Switch (NYCM)
    - Cisco MGX 8240
    - DS1 #6

Step 3: Build ATM Core PVC

- Interconnect ICAFs with ATM Core CBR PVC/SPVC
  - POP-1 Los Angeles
    - ATM Switch (LA)
    - Cisco MGX 8240
    - OC-3c ATM (1+1 APS)
  - POP-2 Dallas
    - ATM Switch—DLLS
    - Cisco MGX 8240 #1
    - DS1 #2 #3 #5
  - POP-3 New York
    - ATM Switch (NYCM)
    - Cisco MGX 8240
    - DS1 #6
Local Cross-Connect
Ports on the Same Cisco MGX 8240

Agenda

• Market Drivers
• Private Line Packet Solution
• Cisco MGX 8240 Private Line Gateway
• Customer Applications
• Summary
Cisco’s Private Line Gateway Solution Offers:

- Ability to migrate private line services onto a cost-effective multiservice ATM backbone
- Highest density private line solution in the industry: 45 channelized T3s per chassis
- Highest availability private line ATM gateway
- Low capital costs and ongoing operations and provisioning costs for private line services
- Fastest turn-up time for private line services

Summary

- Private line services are moving to ATM
  Lower capital and operations costs
  Greater flexibility for rapid service delivery
  Essential transition for creation of new IP services
- Cisco is enabling TDM to ATM transition
  Cisco MGX 8240 significantly accelerates the transition process for private line services
Cisco MGX 8240
Private Line Gateway
Product Update

Session 2909

Please Complete Your
Evaluation Form

Session 2909