

The slide has a blue gradient background with horizontal light streaks. A large, faint, light-blue "CISCO" logo is visible in the background. In the top right corner, the text "Cisco.com" is displayed. The main content is centered and includes the following text:

Korea Wireless Seminar

Multi Service Solutions for UMTS Transport

Robin Smith, Cisco Technical Marketing

In the bottom left corner, the text "aamp_mobile" is visible. In the bottom center, the copyright notice "©2001, Cisco Systems, Inc. All rights reserved." is present. In the bottom right corner, the number "2" is displayed.

Who Am I ?

Cisco.com

- **Robin Smith**
- **Technical Marketing Engineer**
- **Multi Service Switching Business Unit**

We develop and market Cisco's Advanced ATM Multi Service Portfolio (AAMP)

Carrier Grade Technology for more than 10 years

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Agenda

Cisco.com

- **Generic Mobile Transport Architecture**
- **Multi Service Switching Reduces Costs**
- **Solution: Cisco's Advanced ATM Multi Service Portfolio (AAMP)**
- **Evolving to a Future Transport**

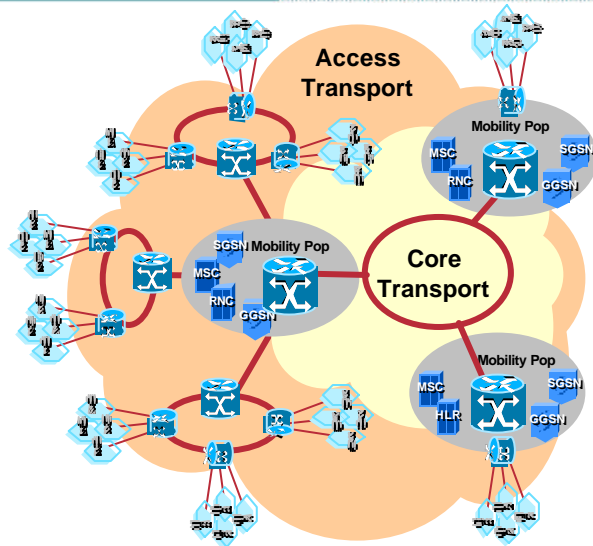
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Generic Mobile Transport Layers

Cisco.com



- Generally 3 sub-network components

The Voice Core

The Access

The IP Core(3G)

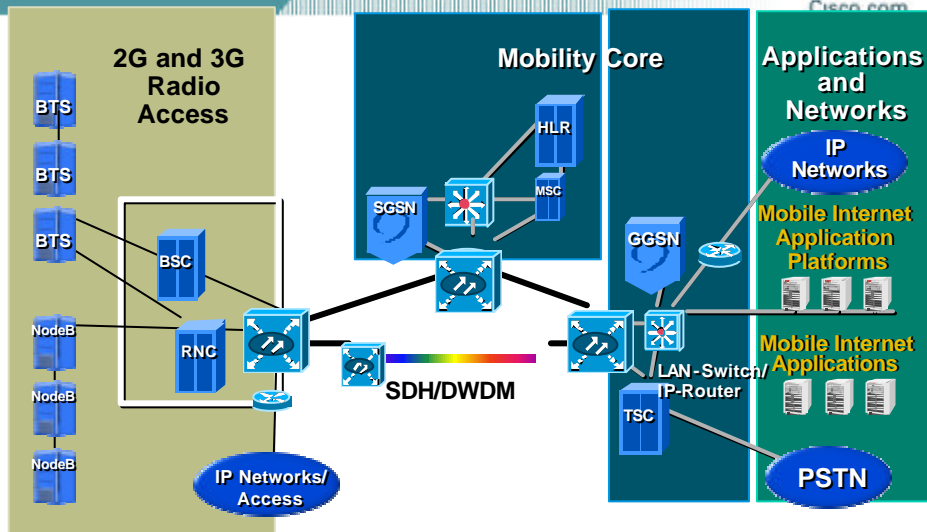
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Core Transport for Mobility Core POP's

Cisco.com



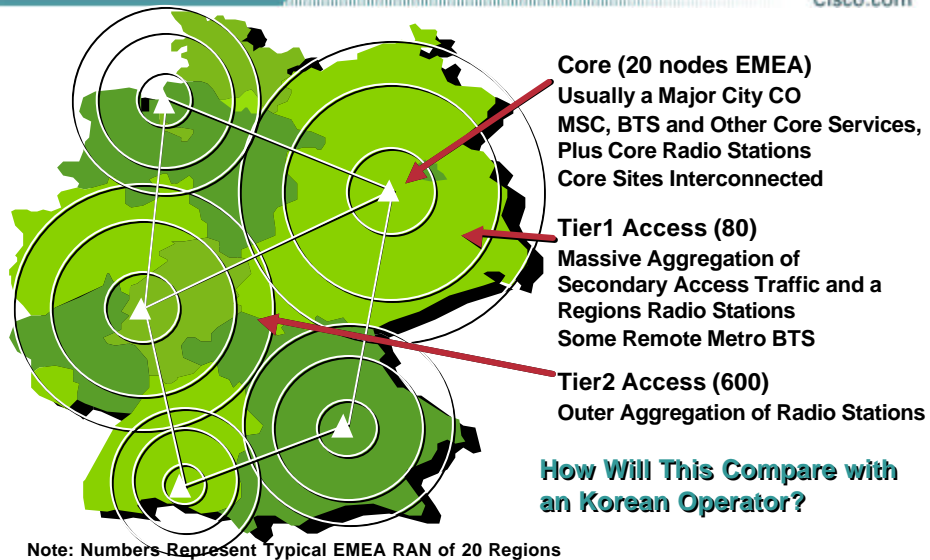
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Access Network Transport Hierarchy

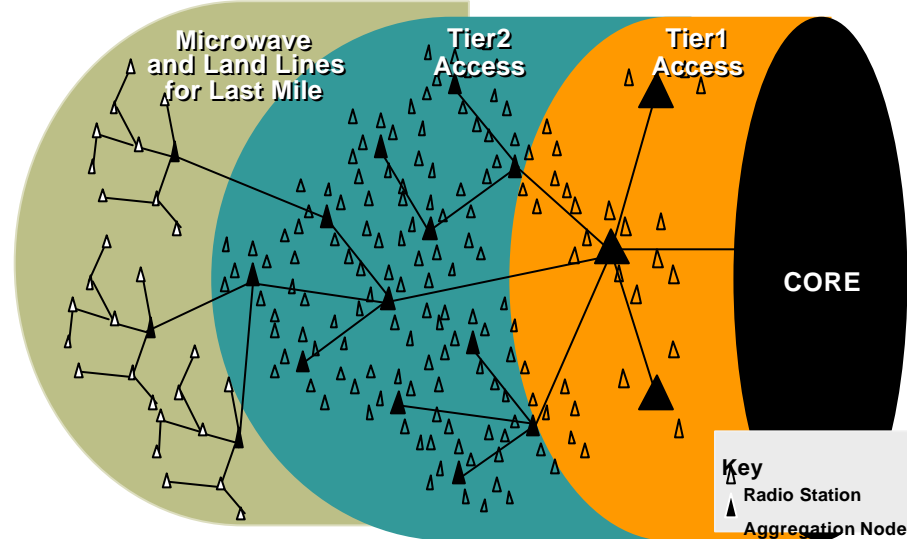
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Multi Layer Access Structure

Cisco.com



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Transport Network Scale

Cisco.com

	Phase 1 (Launch)	Phase 2 (Build-Out)
Radio Stations # of E1's Required	3300	8500
Secondary Node	300	600
Primary Node	20	80
Core Node	10	20

Multi Service Potential for a typical EMEA Operator

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Agenda

Cisco.com

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- Evolving to a Future Transport

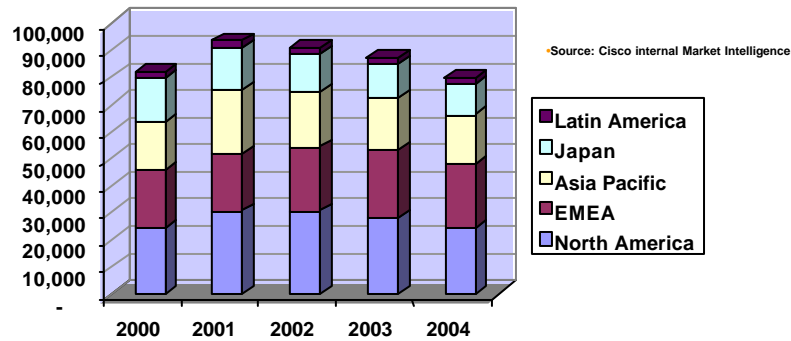
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World Wide Operator Capex (\$USM)

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- Mobile CAPEX has not declined with economy
- 3G revenues not expected to be significant until 2004
- R5 rollouts may delay until 2007 for some

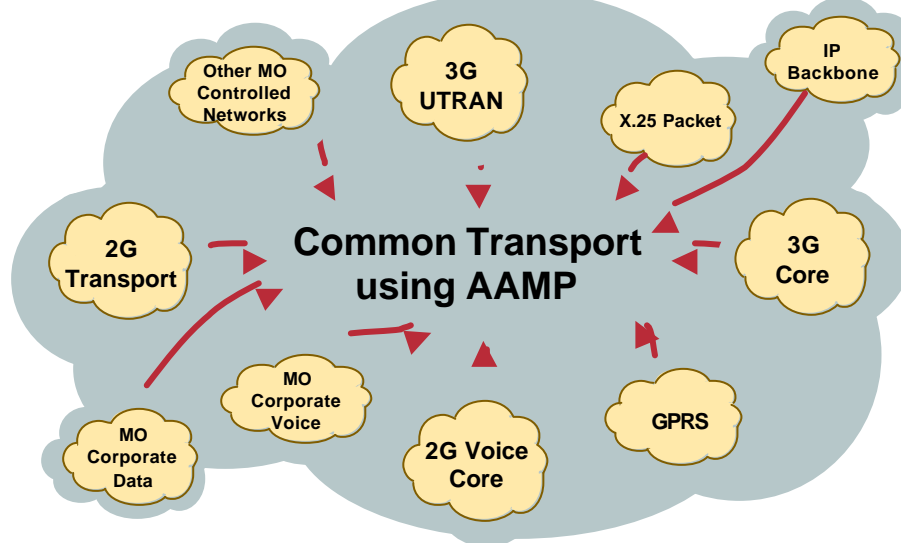
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OPEX Drives Convergence Onto ATM

Cisco.com



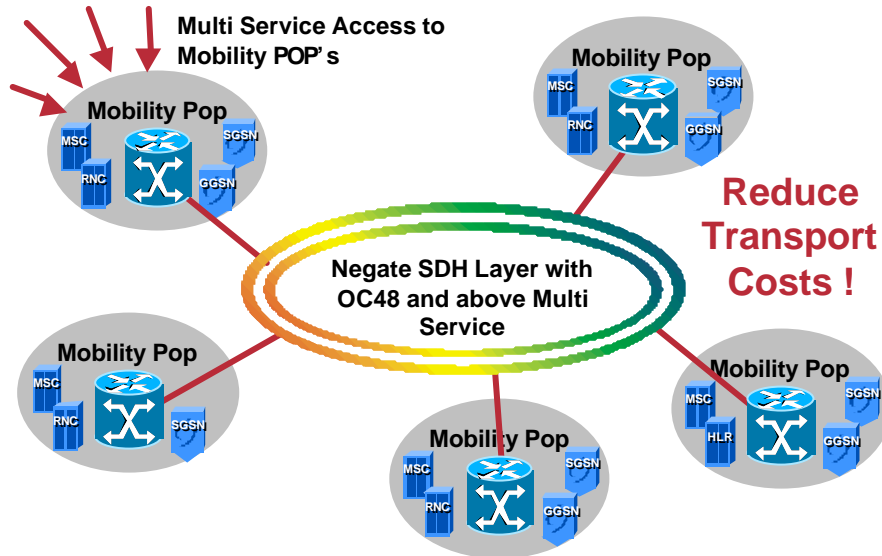
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Multi Service to Reduce Costs

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Multi Service for Operator Up Sell

Cisco.com

- **Push Multi Service into the RAN and give the Operator an Up Sell opportunity**
 - MPLS VPNs for enterprise customers. Bundle data service with wireless for enterprises
 - Additional revenue sources on same equipment
 - WLAN – Business services, Hot spots. Operator alternative to delay expenditure for 3G roll-out
 - CVSA: Investment Protection, 99.999, Application Density
- **Reduce subscriber churn by providing more, valuable services**
- **Regular Mobile services do not maintain customer loyalty**

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Wireless ROI Tool

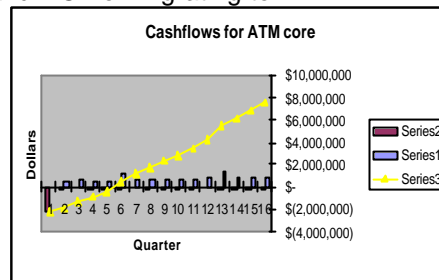
Cisco.com

- **What is it?**

- Calculates ROI for migrating wireless core from TDM to ATM
- Compares “doing nothing” with evolving to AAL1, AAL2 or MPLS
- Calculates incremental cash flows and ROI for migrating to MPLS core

- **Considers:**

- Capital expenditures
- Reduced monthly charges
- Reduced provisioning costs



- Check it out at <http://www.in.cisco.com/mssbu/solutions/mobile/>

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Agenda

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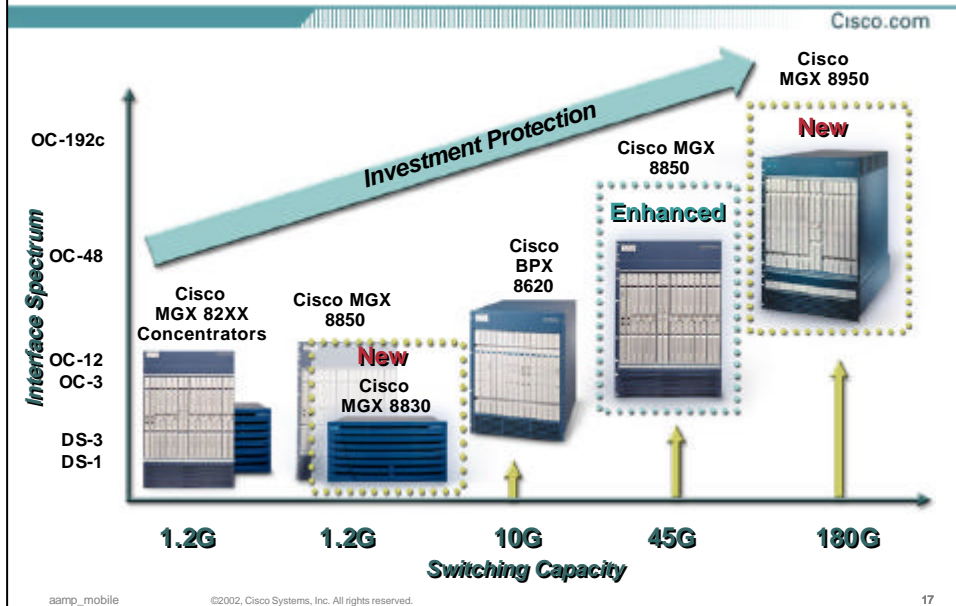
- **Generic Mobile Transport Architecture**
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Cisco Advanced ATM Multiservice Portfolio



Introducing Cisco MGX 8830


Entry Level Compact 1.2G Switch


Cisco.com

Cisco Innovation

Extends a Full Suite of Narrowband and Broadband Interfaces to Remote Sites with Low Density and High Service Mix Requirements, Using PNNI and MPLS for Flexible Network and Services Evolution

- 1.2 Gbps non-blocking switching capacity with PNNI Routing
- Supports 8 I/O slots
- Optimized for reduced space and power





Cisco Innovation—Industry's first ATM Modular Optics

- ? Unique ability to add bandwidth and mix optical interfaces for Service providers
- ? Enabling High Availability with hot swappable and replaceable individual transceivers for repairs

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Introducing Route Processor Module-XF

IP Services Gateway Powered by Cisco PXF

Cisco.com

Cisco Innovation

The Cisco RPM-XF is a seamlessly **integrated IP services gateway** for Cisco AAMP leveraging industry leading **Cisco IOS** software and powered by **Cisco PXF** innovative adaptive processing for highest service performance



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Introducing the Cisco MGX 8850

A complete portfolio of differentiated service offerings

Cisco.com

The Cisco MGX ®8850 Advanced ATM Multiservice Switch enables delivery of a complete portfolio of differentiated service offerings while scaling from DS0 to OC-48c/STM-16 speeds

- 45Gbps non-blocking switching capacity
...load sharing hot standby fabric
- Highest broadband density for WAN ATM switch
...192 T3/E3, 192 OC-3c/STM-1, 48 OC-12c/STM-4, 12 OC-48c/STM-16
- Greatest service provider flexibility
...Multiple, simultaneous control planes support unmatched flexibility and scalability for a complete range of ATM, Multiprotocol Label Switching (MPLS), and voice services



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Introducing the Cisco MGX 8950 Advanced Multiservice 180G Switch

Cisco.com

The Cisco MGX 8950 Scales Carrier Networks by Providing True 10 Gbps ATM interfaces, a 180 Gbps Redundant Switching Fabric, Industry-leading Broadband Density

- Industry leading always-on 180G
...offering dynamic load sharing for highest resilient fabric capacity across 4 separate 60 Gbps fabric modules
- 10G I/O capacity per slot
...offering industry leading broadband ATM density
- Complete separation of data and control plane
...Offering highest reliability



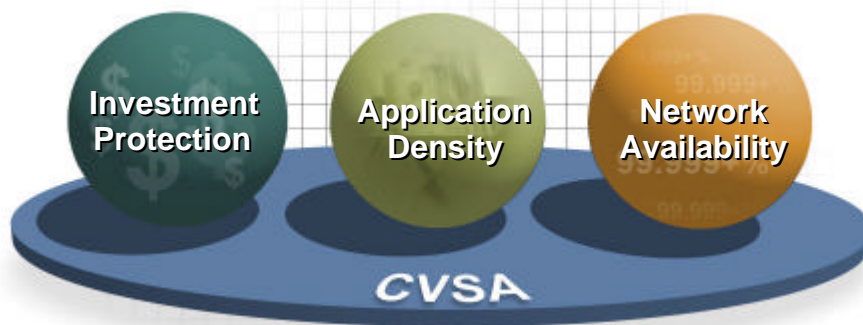
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Cisco Advanced ATM Multiservice Portfolio—Value Proposition

Cisco.com



AAMPlifying Service Provider profitability

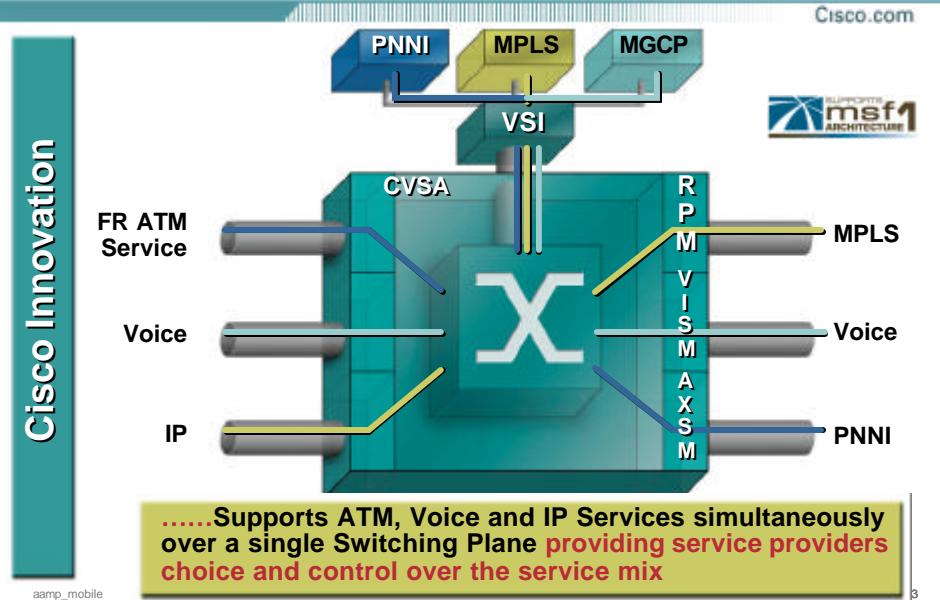
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Cisco AAMP Offers Multiservice Agility

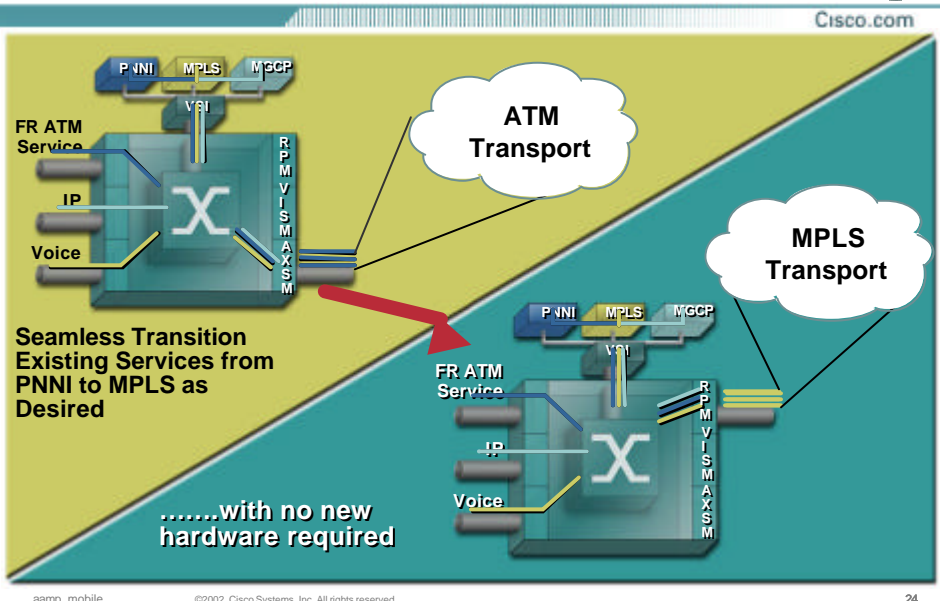
Investment protection



Cisco AAMP Is Core Agnostic

Seamless Transition from ATM to MPLS Core

Investment protection



Application Density

Application
Density

Cisco.com

• Traditional Services

ATM
Frame
Circuit Emulation
Transparent LAN
DSLAM Aggregation
for broadband

• Emerging Services

IP VPN services
Mobile Wireless—2G/3G
Aggregation
Packet Voice



Cisco AAMP—Enabling New Services *While* Maintaining the Revenue Stream from Traditional Services

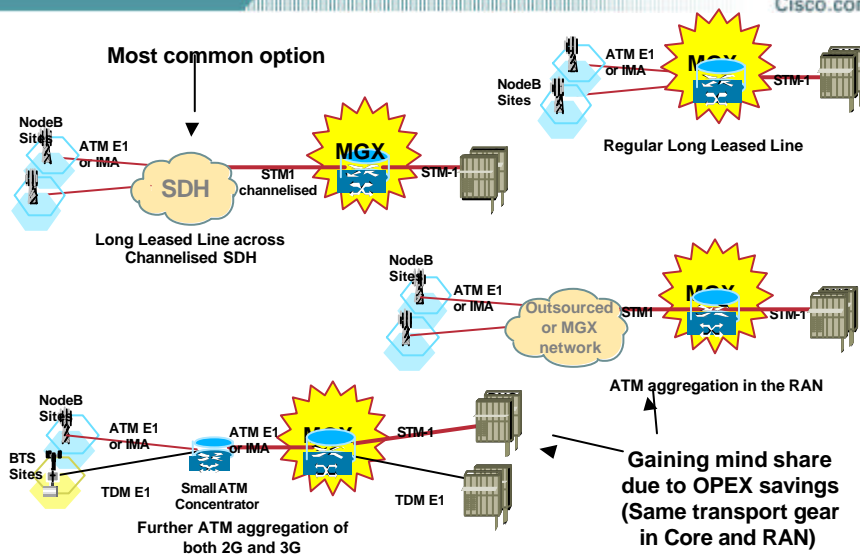
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Access Transport Options Using MGX

Cisco.com



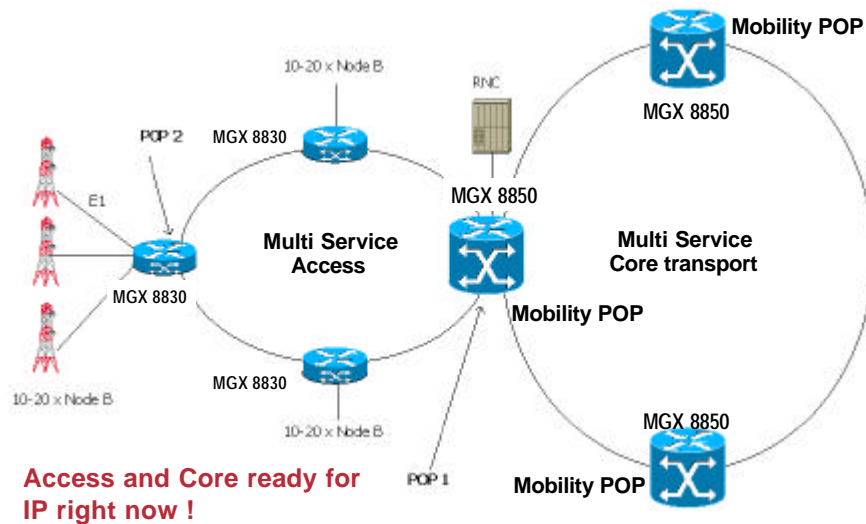
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Multi Service Access Aggregation

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Cisco AAMP Multiservice Application— IP-enabled Service on Any Port (ISAP) solution

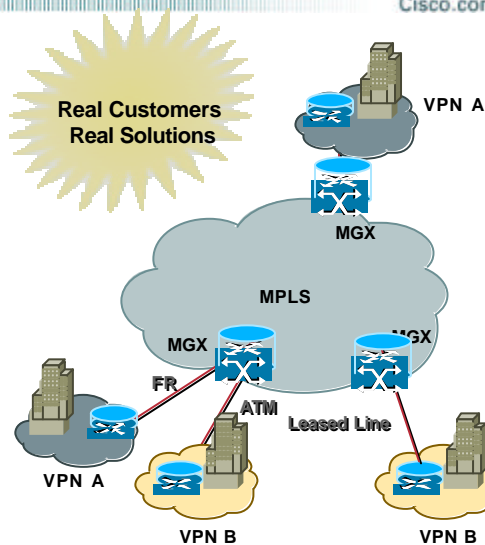
Application
Density

Cisco.com

Multiservice Innovation

Cisco Advantages

- Experience —More than 50 customers
- IOS advantage - Seamless integration with Cisco routers
- Seamless integration with widely deployed Cisco VPNSC for VPN provisioning
- Single chassis offers space, cost and provisioning advantage



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Cisco AAMP- Fully Integrated Packet Voice

Application
Density

Cisco.com

Multiservice Innovation

Cisco Advantage

- Adds VoIP or VoATM to existing ATM infrastructure enabling carriers ability to offer **converged voice services**
- Leverages IP gateway for **high capacity VoIP** applications
- Flexible service mix of VoIP and/or VoATM with partners offers **investment protection** as voice networks evolve



Real Customers
Real Solutions

PSTN

Softswitch

IP/ATM

Cisco MGX
8000 Series
Voice
Gateway

Broadband Access, Wireless Switched Voice, Wireless Trunking, Class 4 Offload

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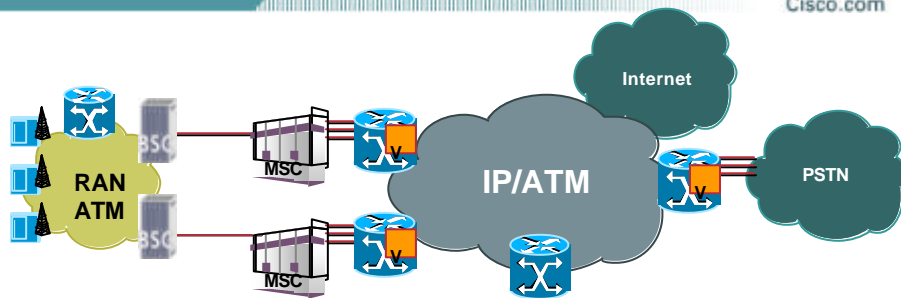
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Cisco AAMP Multiservice Application - Mobile Wireless Network Solution

Application
Density

Cisco.com



Cisco Advantages

- IP, ATM and Voice in a single chassis **offers space and cost savings with seamless evolution from ATM to IP/MPLS**
- **Investment protection**-Supports 2G, 2.5G and 3G services over a common ATM or IP network

Real Customers
Real Solutions
**Verizon
Wireless**

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Cisco AAMP- Key High-Availability Features

Network
Availability

Cisco.com

1. Separation of User, Control and Mgmt Planes

- Protect user traffic from control messages
- Continue to carry user traffic when control or management plane fails



2. Network-Centric Management Model

- Avoid synchronization problems caused by database-centric models



3. Closed-Loop Congestion Management with CAC

- Verify that capacity is available before rerouting traffic



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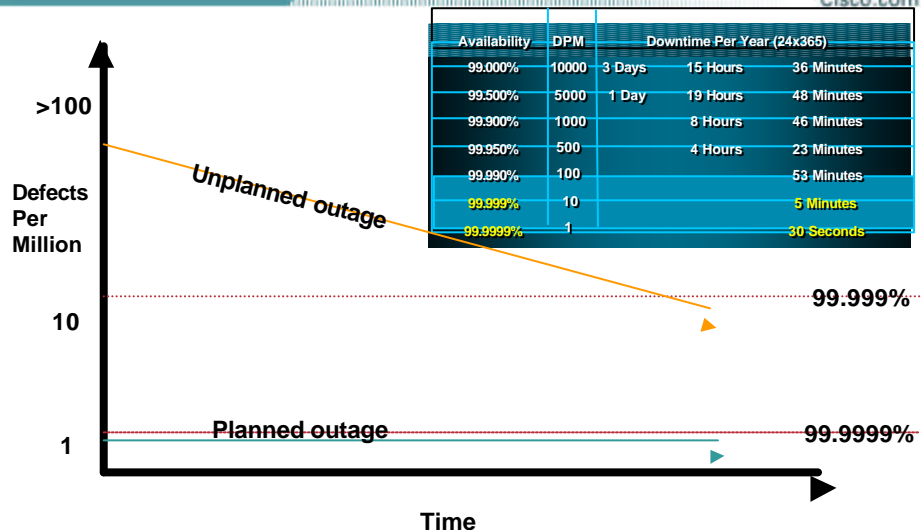
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Cisco AAMP- Exceeding 99.999% measured Network Availability

Network
Availability

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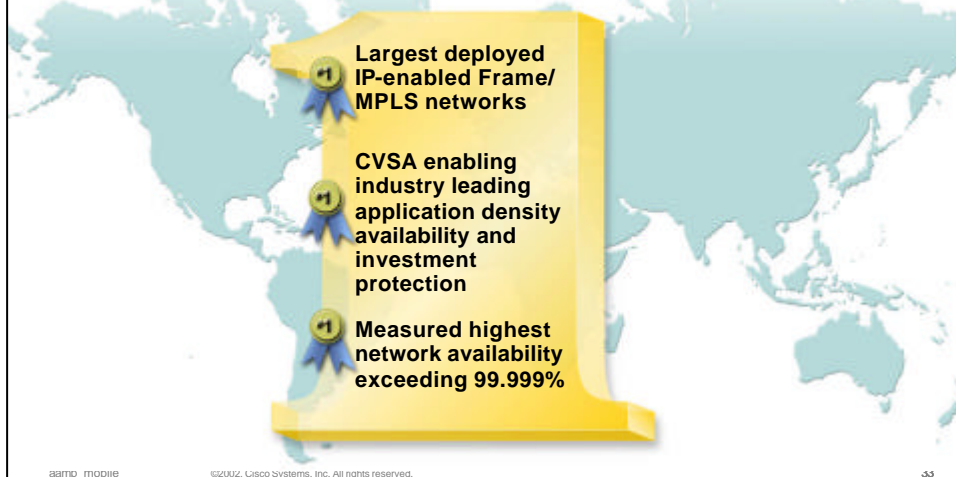
Source- Trend based on
several real customer data

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Cisco AAMP-Leadership

Cisco.com

Cisco Advanced ATM Multiservice portfolio(AAMP)



A Brief History of ATM at Cisco

Cisco.com

- **1986:** StrataCom ships IPX, the first switch with Frame Relay interfaces, Frame Relay FCS'd in 1990
- **1991:** "Gang of Four" forms Frame Relay forum: Cisco, StrataCom, Digital, and Northern Telecom
- **1993:** StrataCom ships the BPX
- **1996:** Cisco acquires StrataCom for \$4B
- **1996:** Cisco releases initial specification for MPLS/Tag
- **1999:** Cisco ships MGX 8850
- **2001:** AT&T Frame network exceeds reliability of TDM network (99.999% availability)
- **2002:** Launch Advanced ATM Multi Service Portfolio (AAMP) for risk free future transport evolution

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Agenda

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- **Generic Mobile Transport Architecture**
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Build a Mobile Transport Network of the Future ... Today!

Cisco.com

- **Future Network is Packet Based**
- **Cisco Multi Service is ready for 2G, GPRS, UTRAN Today!**
- **Cap investment in TDM**
- **Start with Voice Core transport**
- **Converge all Mobile Operator services onto the same Multi Service Transport**

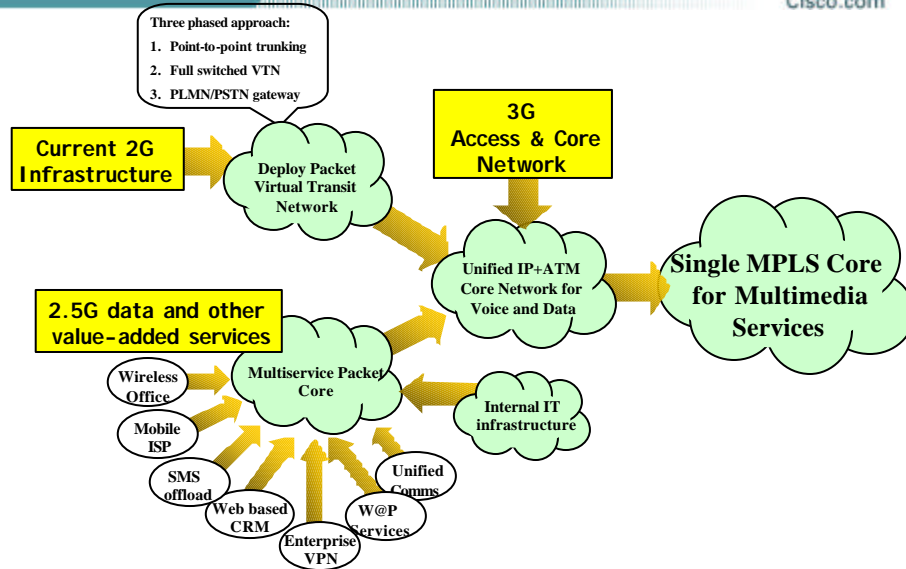
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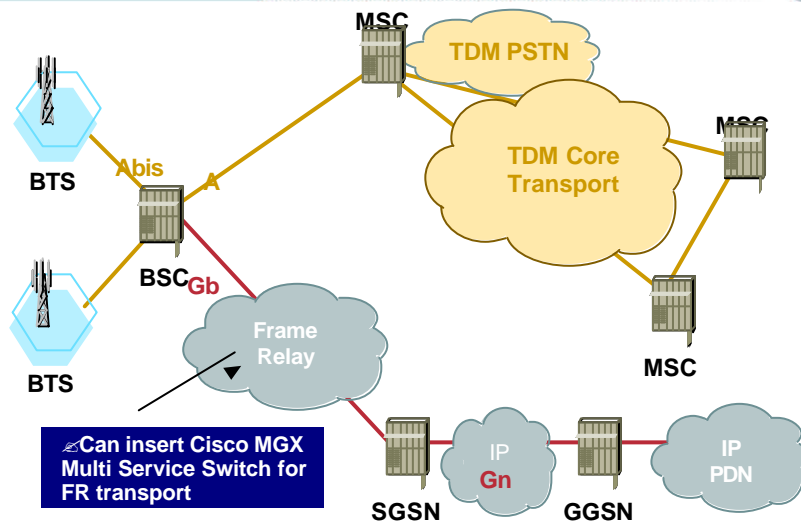
Generic Mobile Network Evolution

Cisco.com



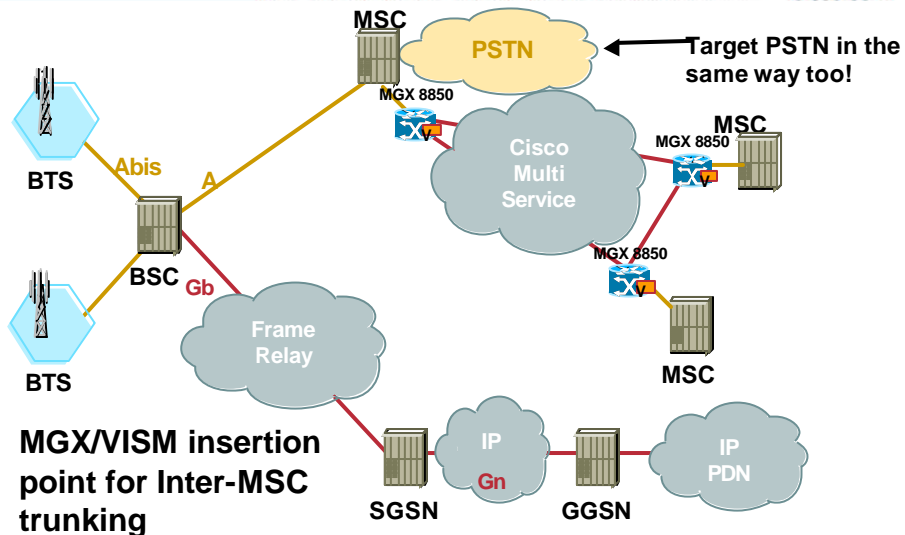
MGX for 2.5G GPRS Transport

Cisco.com



Migrate TDM to ATM for Core Transport

Cisco.com



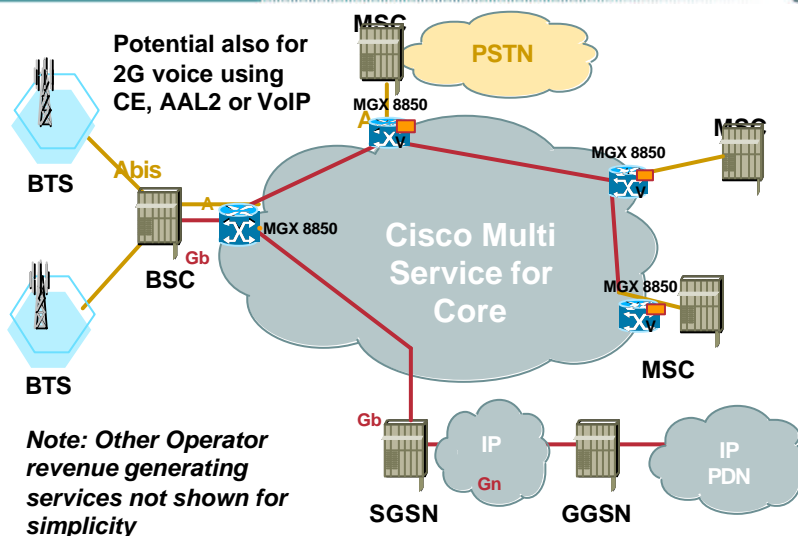
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Converge all Network Services

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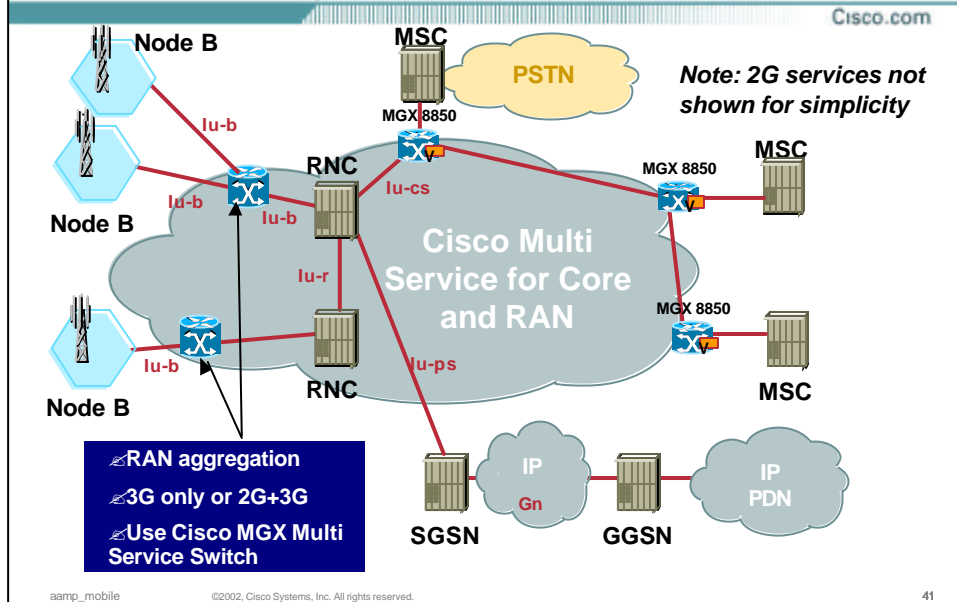


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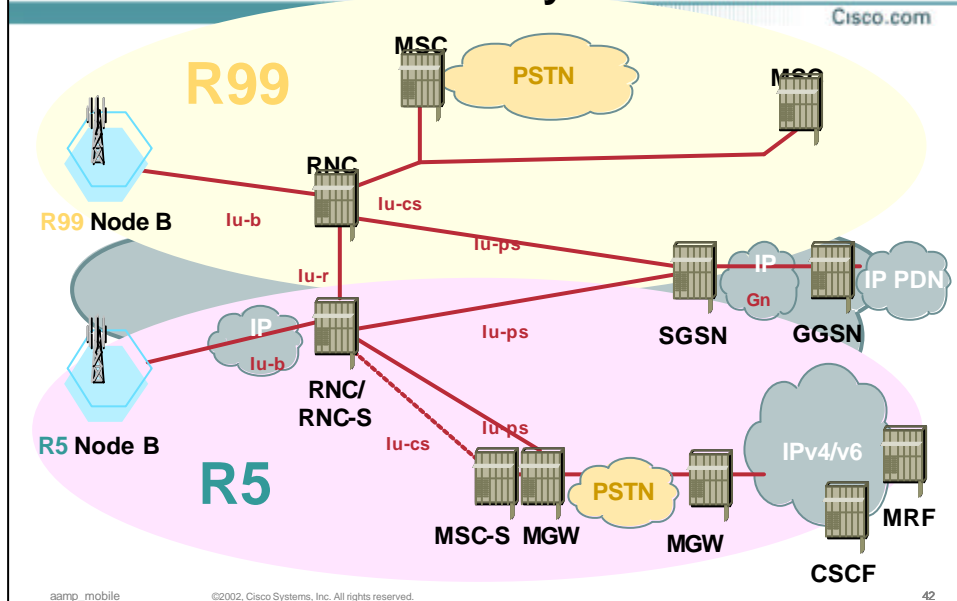
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Now Converge 3G services



Multi Service Allows UMTS R5 and R99 Co-existence. Evolve at your Leisure!



Agenda

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Cisco Multi Service Advantages

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- **The only vendor with a proven, realistic and mature IP evolution solution**
- **Best-of-breed "Multiservice" networking IP, MPLS, PNNI**
- **Cisco enterprise customer base**
- **AAMP - Integrated solutions from a wide range of Multi Service platforms**

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