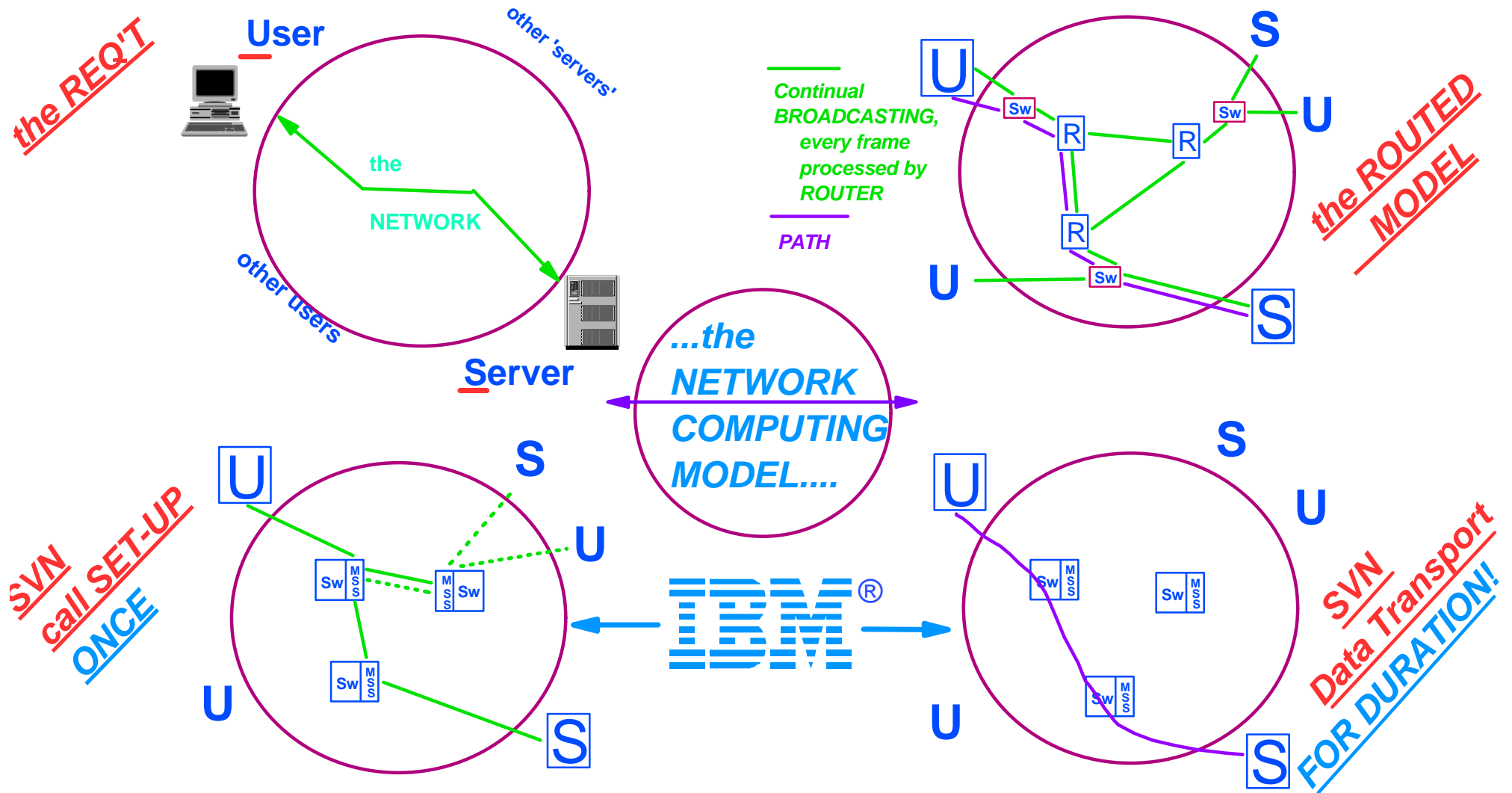


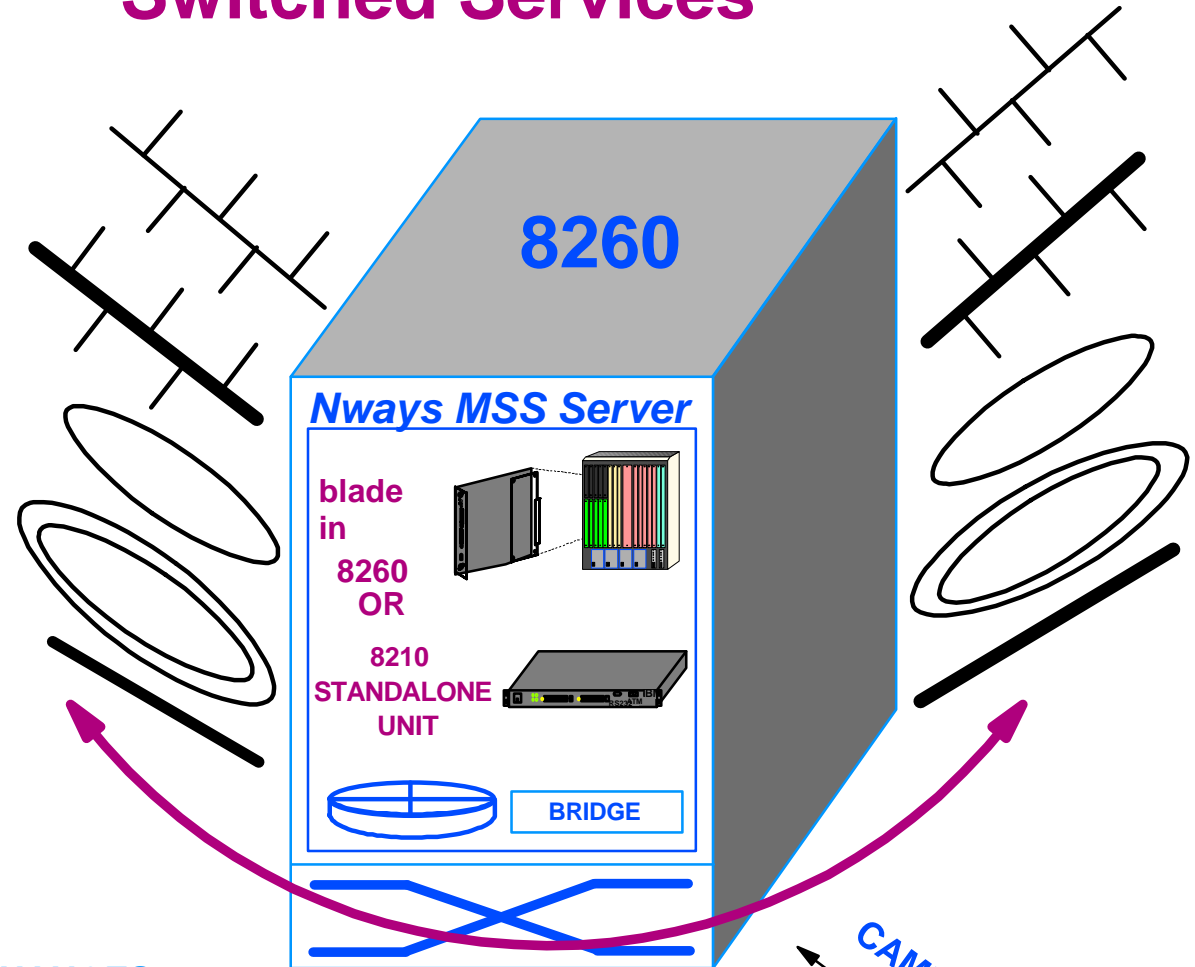
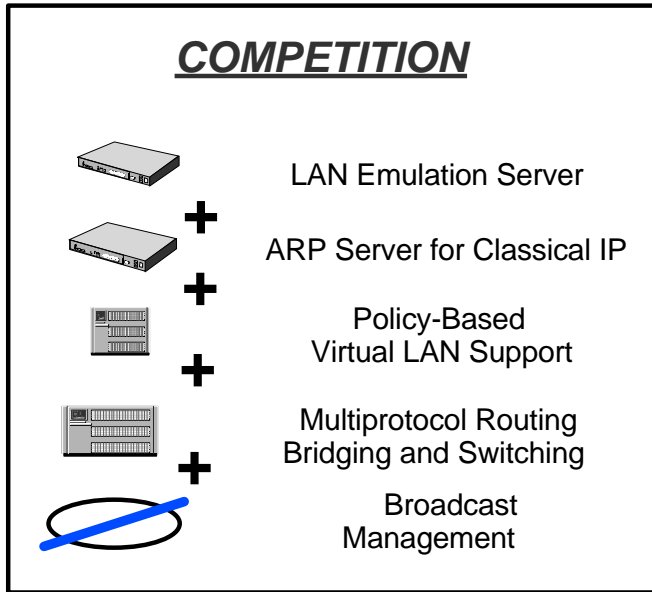
IBM's Switched Virtual Networking SVN



1. SERVICES , ROUTE-PATH set up at INITIATION ,.... then CONNECTION oriented SWITCHED SESSION
3. SIMPLE MIGRATION path at INCREMENTAL pace (workgroup , backbone at a time)
4. COLLABORATIVE applications (VIDEO conferencing , Multimedia)
5. MOBILE WORKFORCE access to Network,...NO ADMINISTRATIVE INTERVENTION
6. NEW SERVICES added (..... to the SERVER , away from the TRANSPORT PATH!)
7. STANDARDS BASED SOLUTIONS,... IETF , ATM Forum

MIGRATION ,....Routing to SWITCHING
LEGACY Network INVESTMENT PROTECTION
 removes ROUTING from DATA PATH
 new MULTIMEDIA applications

Multiprotocol Switched Services



LAN Emulation Server

- NO change to N/W, migrate at own pace

ARP Server for CLASSICAL IP

- switched path between IP subnets , NO CHANGES

POLICY-BASED VLANS

MOVES,ADDS,CHANGES, membership = LOGICAL

BROADCAST MANAGEMENT

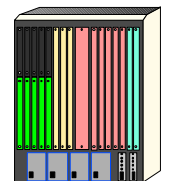
- ONLY implementation to CONTROL broadcasts in VLAN

MULTIPROTOCOL Routing , Bridging , SWITCHING

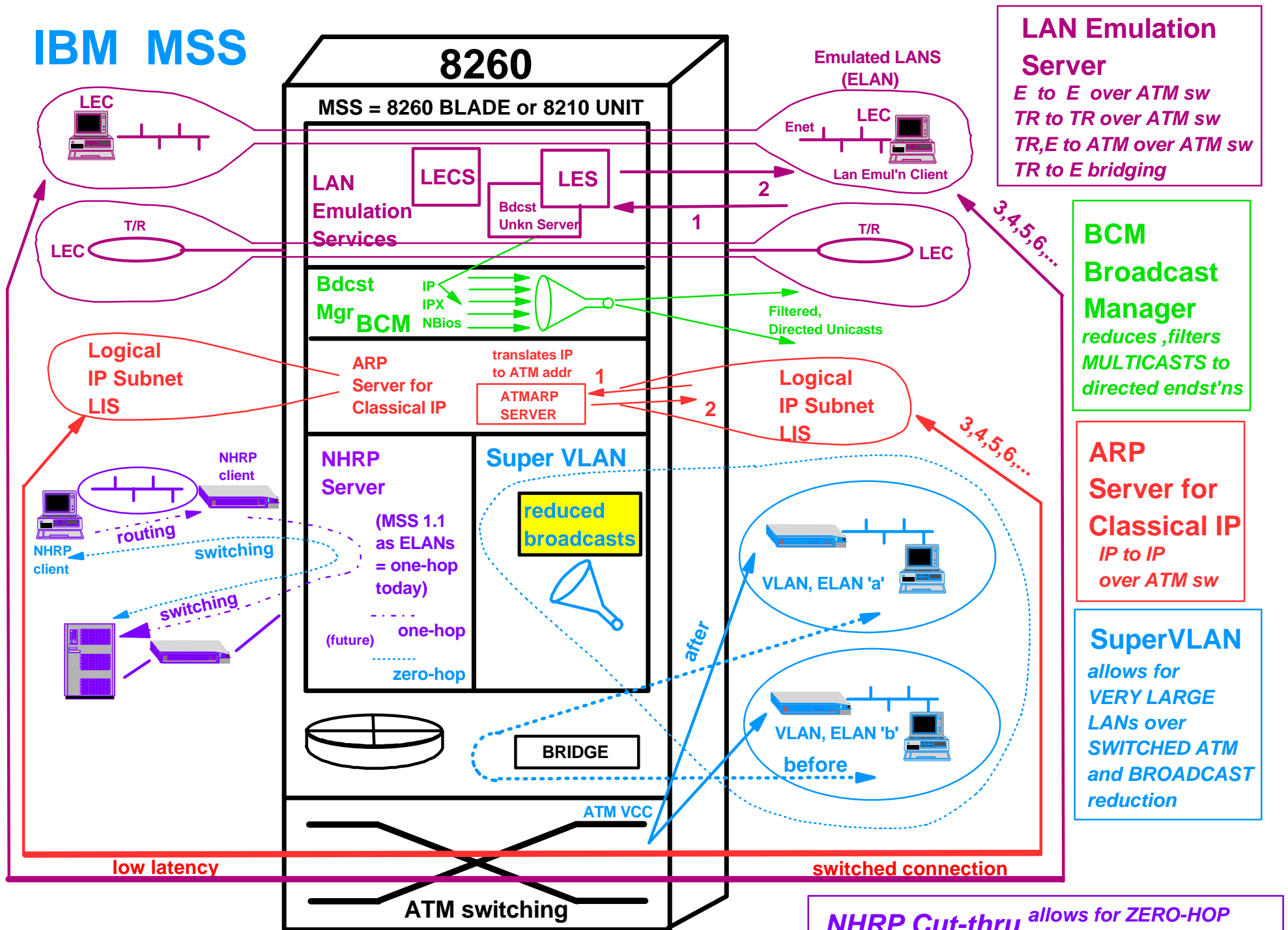
- route determined ONCE by SERVER

- DATA transported via CONNECTION Oriented SWITCHED path

STANDARDS based...



IBM MSS



LAN Emulation Server
E to E over ATM sw
TR to TR over ATM sw
TR,E to ATM over ATM sw
TR to E bridging

BCM Broadcast Manager
reduces ,filters MULTICASTS to directed endst'ns

ARP Server for Classical IP
IP to IP over ATM sw

SuperVLAN
allows for VERY LARGE LANs over SWITCHED ATM and BROADCAST reduction

NHRP Cut-thru Routing *allows for ZERO-HOP routing, SWITCHING from WKSTN to SERVER*

Multiprotocol Switched Services

IBM's NETWORK HARDWARE SOLUTIONS

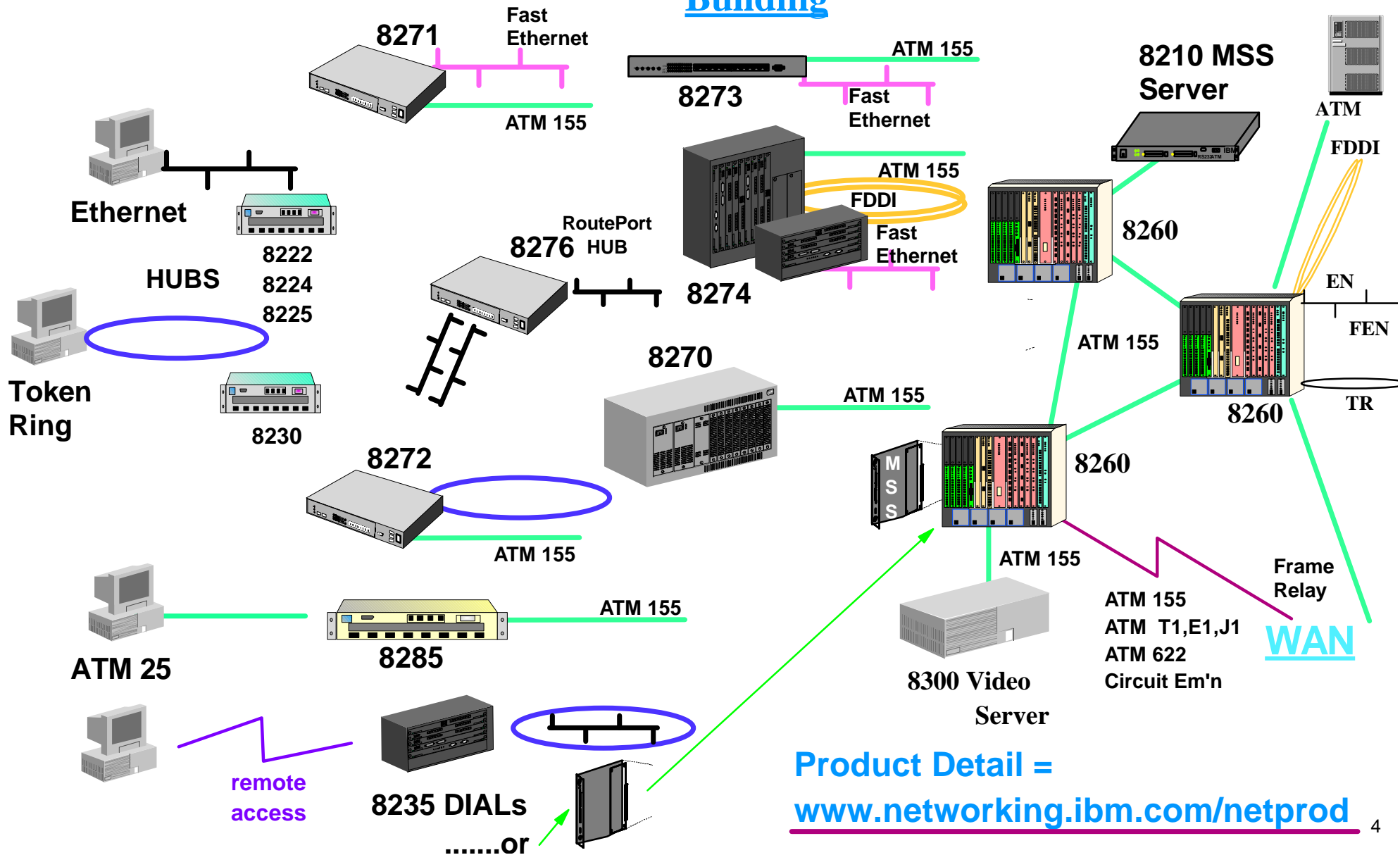
Clients

Small Workgroup

Large Workgroup or Building

Backbone

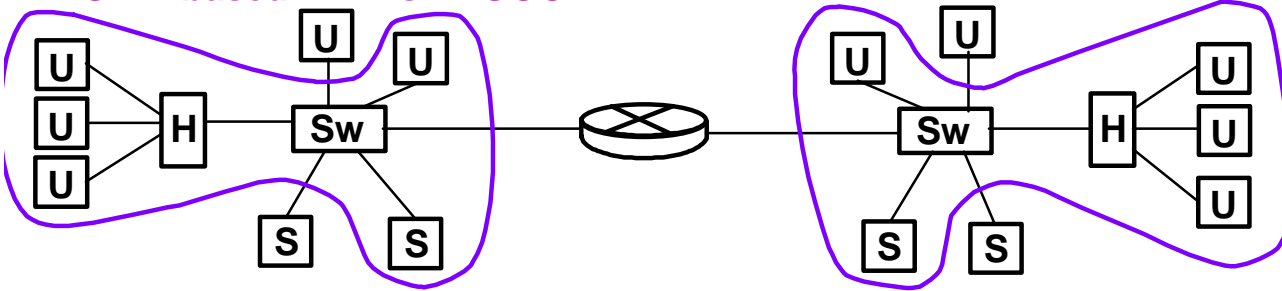
Servers



Product Detail = www.networking.ibm.com/netprod

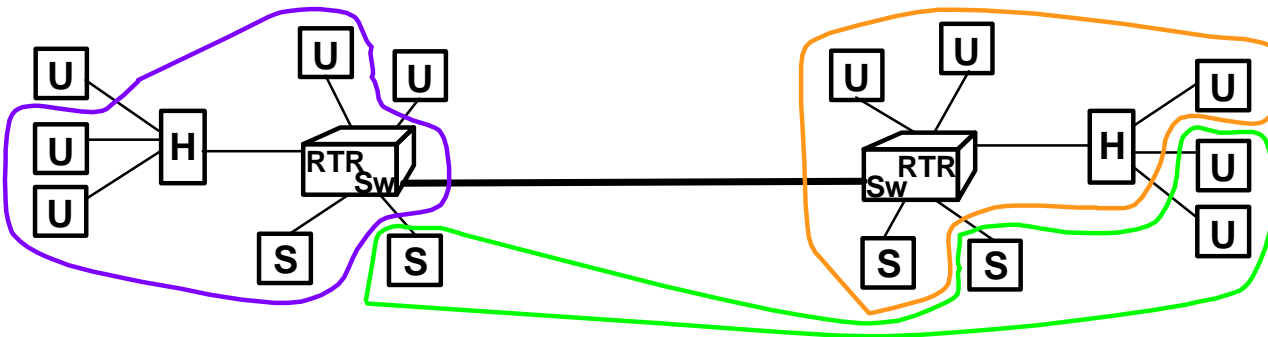
VLAN's

PORT- based VLANs GOOD



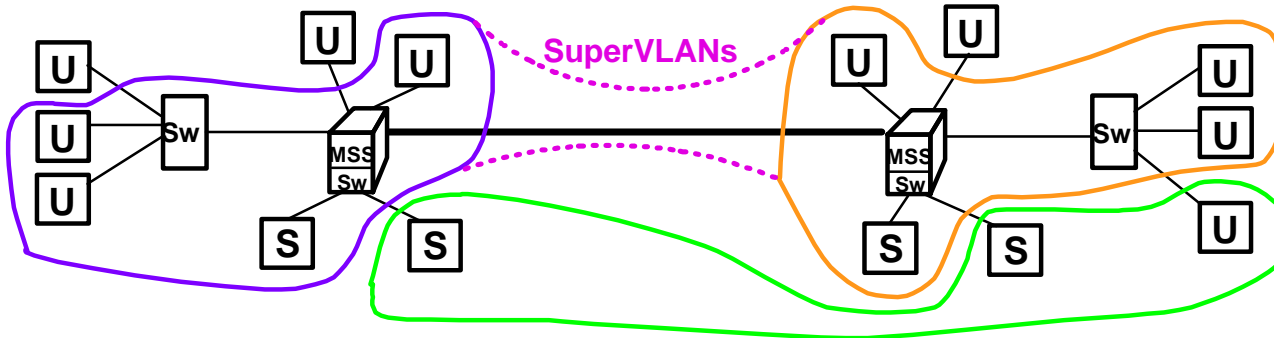
Groupings of SWITCH PORTS only
 - if PORT = HUB att'd, all HUB users are in that VLAN
 RTRs to communicate between VLANs
 - even VLANs on same SWITCH
 3COM , BAY , CISCO
 - PORT based VLANs

RouteSwitch VLANs BETTER



VLANs based on
 MAC , Layer3 and NW address
 - increased flexibility
 MEMBERSHIP policies based on
 "Communities of INTEREST"
 - not PHYSICAL LAN attachment
 RTRs still needed to communicate
 between VLANs
 PRODUCTS = 8273 , 8274

MSS & Emulated LANs ... BEST



ALL of above plus more FLEXIBILITY
 ROUTING function at EDGE of N/W
 Super VLANs scale to LARGE N/W's
 BROADCAST Mgt eliminates
 wasted B/W usage
 Standards BASED LAN Emulation
 PRODUCTS = 8210 , 8260 , 8285

IBM's MSS VLAN implementation eliminates the major issue of BROADCASTS in a FLAT NETWORK !

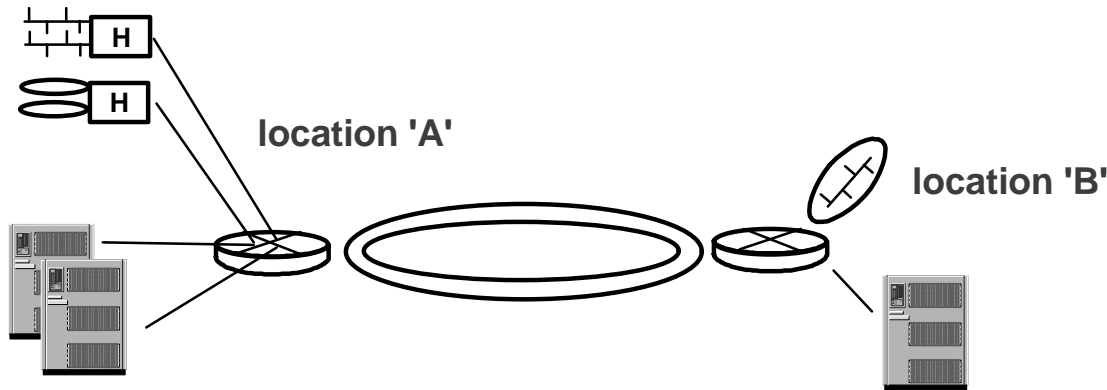


MIGRATION steps to ATM with MSS

CAMPUS TOPOLOGY

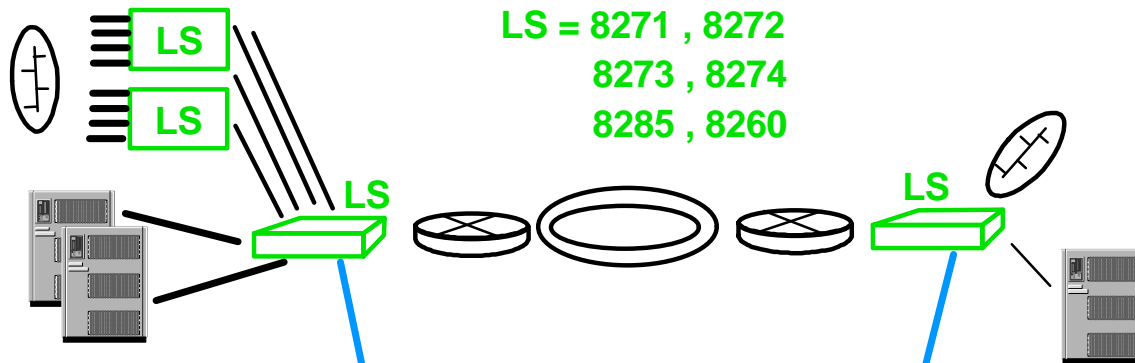
CHARACTERISTICS, ISSUES addressed

T
O
D
A
Y
?



need for incremental migration to ATM
SERVER bandwidth BOTTLENECKS
SEGMENT CONGESTION
 Minimal Workstation **MOBILITY**
 Plan for MultiMedia Applications?

1



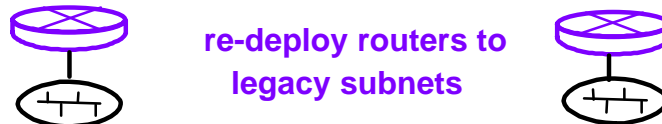
LAN Segmentation = Bandwidth RELIEF
SERVER ACCESS relief
NO WIRING changes
 some DeskTop ATM Implem'n
 some VLAN Implem'n (8273/4)

2



ATM BackBone added Capacity
 switch bridged traffic across ATM
 VLANs = reduced broadcasts
 M/Media applications initiated
 Simpler VLAN administration
Workstation MOBILITY
SERVER location centralization
ATM WAN access

3



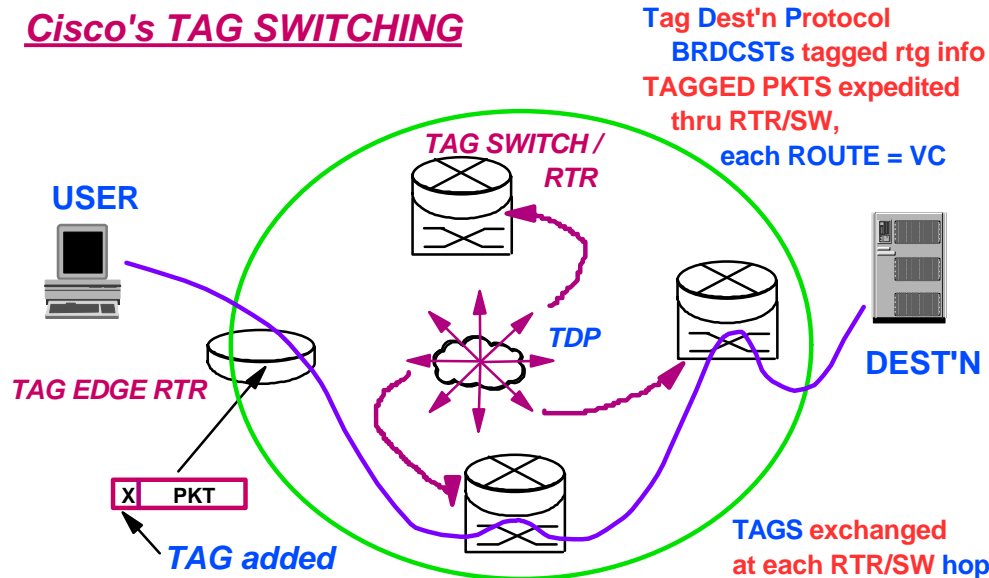
MultiPROTOCOL Label Switching ??

the issue INCREASED data flows
 "KILLER APP'N" = the WEB
 Business expects high QoS

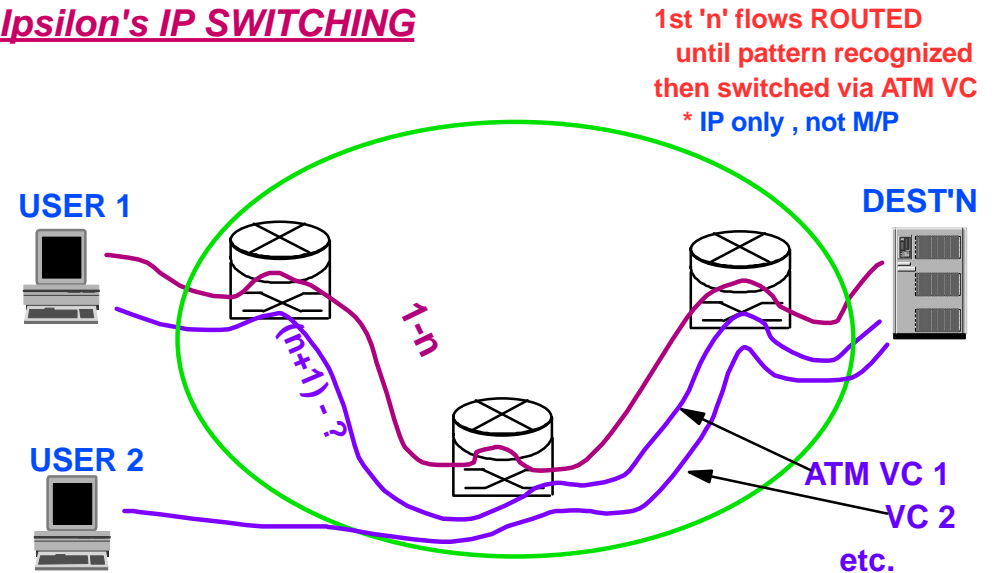
some solutions Bigger Faster Rtrs
 Integrated Cell Sw/RTRs
 Virtual RTRs

IETF evaluating options/solution for STANDARDS

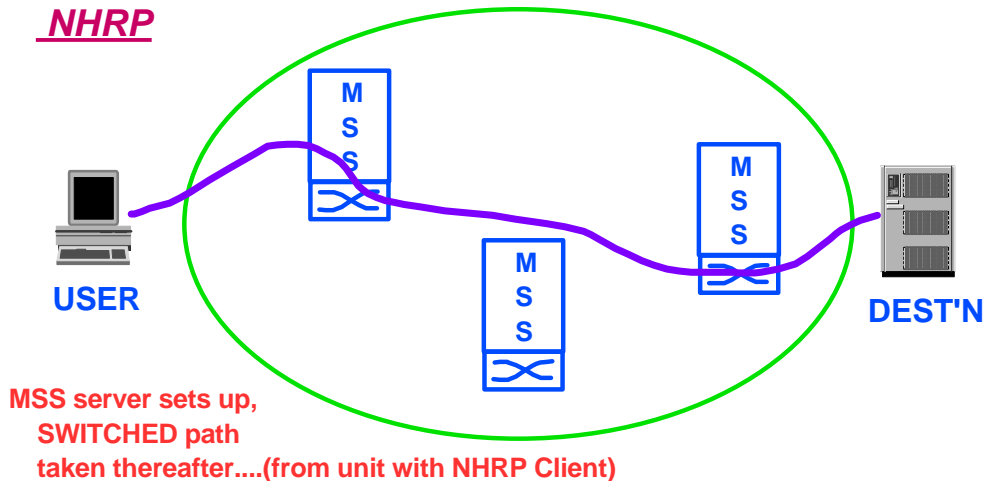
Cisco's TAG SWITCHING



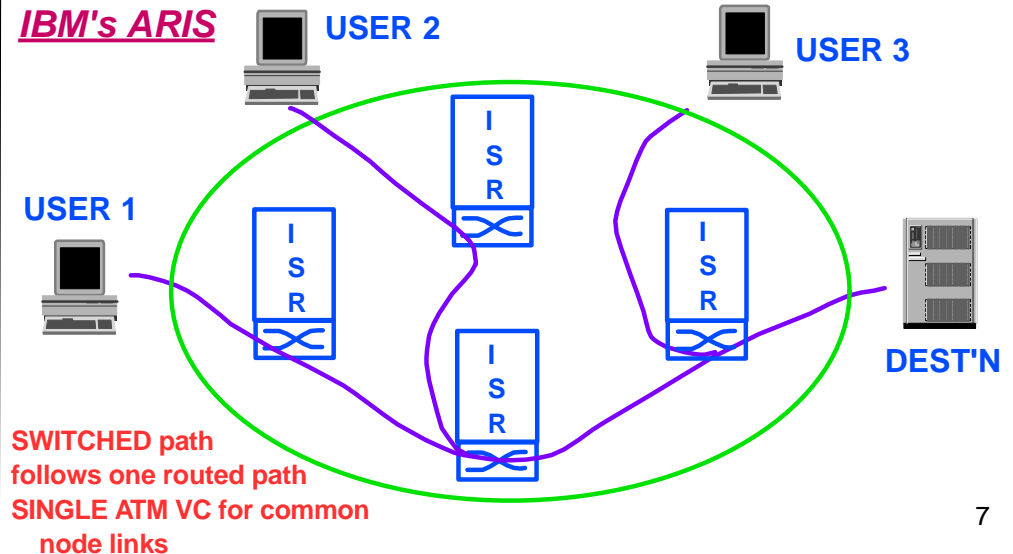
Ipsilon's IP SWITCHING



IBM's implementation of NHRP

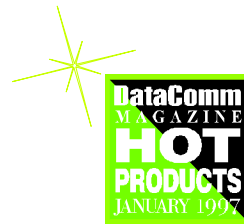


IBM's ARIS



■ Inventions

- Prizma switch
- Aggregated Route-based IP Switching (ARIS)

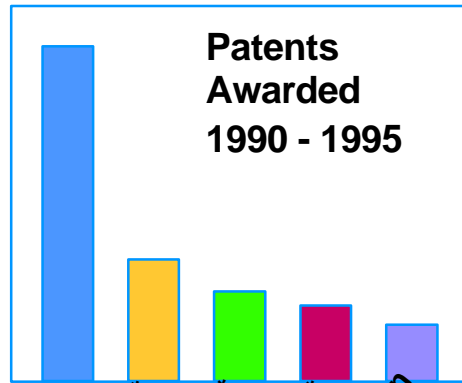


■ Standards Development

- Lan Emulation
- Network Interoperability Alliance
- Committee leadership
 - ▶ IETF
 - ▶ ATM Forum

■ Award-Winning Products

- Grand Prize Winner at 2 of past 4 InterOps
- Perennial Winner of Network Management Summit

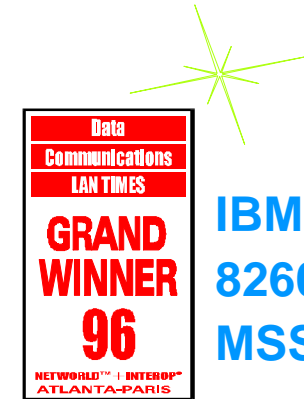


* incl. acquired companies

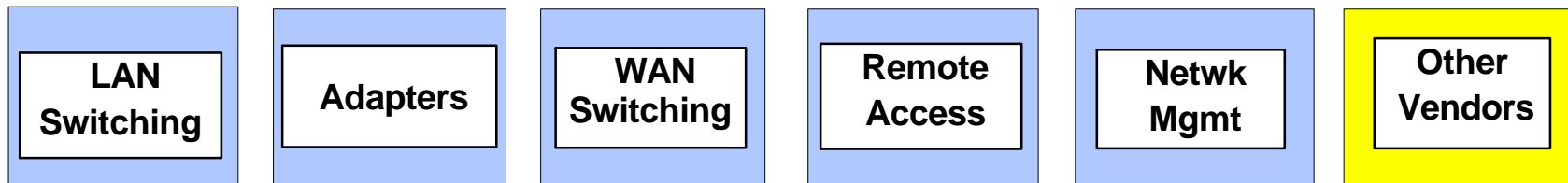


WEBSITES

www.ibm.com
www.networking.ibm.com



IBM
8260 , 8210
MSS





**SWITCHING
PRODUCTS**

QUICK REFERENCE

Model/Feature:	Function:
8273-100	12 RJ-45 Ethernet ports, 2 Expansion slots, 8M DRAM & 2M Flash
8273-10E	12 RJ-45 Ethernet ports, 2 Expansion slots, 16M DRAM & 4M Flash
8273-10U	8 Universal slots, 2 Expansion slots, 8M DRAM & 2M Flash
Expansion slots:	
7131	1 Port FDDI MMF MIC
7129	4 Port CDDI RJ-45
7128	ATM 155 Mbps OC-3 SONET (SDH) MMF SC 500K
7127	ATM 155 Mbps OC-3 SONET (SDH) MMF SC 2M
7126	ATM 155 Mbps OC-3 SONET (SDH) SMF SC 500K
7125	ATM 155 Mbps OC-3 SONET (SDH) SMF SC 2M
7124	ATM DS-3 BNC
7123	4 Port 100BaseT RJ-45
Sub-modules:	
7120	100BaseTX UTP
7121	100BaseFX MMF
7122	100BaseFX SMF
7123	100BaseT UTP
7130	1 Port FDDI SMF MIC
0596	2 Port WAN Frame Relay
0597	4 Port WAN Frame Relay
Universal slots:	
7119	AUI/10BaseT (2 slots)
7118	10BaseFL MMF ST
7117	10BaseFL SMF ST
7115	10Base2
7116	10BaseT RJ-45
7114	10BaseT Adapter Board

Model/Feature:	Function:
8274-500	5 slot chassis, 250 watt power supply
8274-513	5 slot chassis, 250 watt power supply, 13.2 Gbps cell-based backplane
8274-900	9 slot chassis, 350 watt power supply
8274-913	9 slot chassis, 500 watt power supply, 13.2 Gbps cell-based backplane
8274-W53	5 slot 'wide' chassis, 250 watt power supply, 13.2 Gbps cell-based backplane
8274-W93	9 slot 'wide' chassis, 500 watt power supply, 13.2 Gbps cell-based backplane
Switching Modules:	
7108, 6863 *	12 Port Ethernet 10BaseT RJ-45
7107, 6864 *	12 Port Ethernet 10BaseT Telco
7106, 6866 *	8 Port Ethernet 10BaseFL ST
7105, 6865 *	Ethernet Universal Switching
Adapter Boards:	
7104	Universal Switching AUI/10BaseT RJ-45
7103	Universal Switching 10BaseFL MMF
7102	Universal Switching 10BaseFL SMF
7101	Universal Switching 10BaseT RJ-45
7100	Universal Switching 10Base2 UNC
7099	Universal Switching 10Base2 FDX AUI
Fast Ethernet:	
7098, 6867 *	4 Port Fast Ethernet 100BaseT RJ-45
7025, 6868 *	8 Port Fast Ethernet 100BaseT RJ-45
7096, 6869 *	1 Port 100BaseTX
7095, 6870 *	2 Port 100BaseTX
7094, 6871 *	1 Port 100BaseFX MMF
7093, 6872 *	2 Port 100BaseFX MMF
7092, 6873 *	1 Port 100BaseFX SMF
7091, 7074 *	2 Port 100BaseFX SMF
8722, 8723 *	1 & 4 Port 100BaseTX RJ-45/Cat 5
8724, 8725 *	1 & 4 Port 100BaseTX MMF/Cat 5
8726, 8727 *	1 & 4 Port 100BaseTX SMF/Cat 5
Token Ring	
7089, 6875 *	6 Port TR 4/16 Fiber ST
7088, 6876 *	6 Port TR 4/16 150/UTP 100
WAN Switching Modules:	
8728	4 Port WAN Switch
8729	8 Port WAN Switch
	* indicates module with increased CAM size
	(continued on following page)

Model/Feature:	Function:
8274	(continued from previous page)
ATM Modules:	
7087, 6877 *	1 Port 155Mbps OC-3c SONET (SDH) MMF 500K
7086, 6878 *	1 Port 155Mbps OC-3c SONET (SDH) MMF 2M
7027, 6879 *	2 Port 155Mbps OC-3c SONET (SDH) MMF 500K
7084, 6880 *	2 Port 155Mbps OC-3c SONET (SDH) MMF 2M
7083, 6881 *	1 Port 155Mbps OC-3c SONET (SDH) SMF 500K
7082, 6882 *	1 Port 155Mbps OC-3c SONET (SDH) SMF 2M
7081, 6883 *	2 Port 155Mbps OC-3c SONET (SDH) SMF 500K
7080, 6884 *	2 Port 155Mbps OC-3c SONET (SDH) SMF 2M
7078, 6886 *	1 Port 155Mbps OC-3c SONET (SDH) UTP5 2M
7076, 6888 *	2 Port 155Mbps OC-3c SONET (SDH) UTP5 2M
7053, 6891 *	1 Port ATM E3
7054, 6892 *	2 Port ATM E3
7051, 6889 *	1 Port DS-3 BNC 500K
7052, 6890 *	2 Port DS-3 BNC 500K
FDDI/CDDI:	
7055, 6893 *	1 Port FDDI DAS MMF MIC
7056, 6894 *	2 Port FDDI DAS MMF MIC
7057, 7075 *	4 Port CDDI RJ-45
7058, 7026 *	8 Port CDDI RJ-45
7028, 6895 *	1 Port CDDI/FDDI
7060, 6896 *	1 Port FDDI DAS SMF SC
7061, 6897 *	2 Port FDDI DAS SMF SC
0583, 0582 *	1 Port FDDI DAS SMF SC Extended Distance
0585, 0584 *	2 Port FDDI DAS SMF SC Extended Distance
	* indicates module with increased CAM size
Management Processors:	
7113	Management Processor Base
7112	MPM II
0586	MPM-IG
0587	MPM-IGW
RouteSwitch Software:	
5697-B69	8273 RouteSwitch Software Program
5697-B70	8274 RouteSwitch Software Program

Model/Feature:	Function:
8260-010	10 slot chassis
8260-017	17 slot chassis
Switch Modules:	
6208	2 Slot 8272 LAN Switch Module
6308	3 Slot 8272 LAN Switch Module
9196	4 Port Token Ring UTP/STP UFC
6985	2 Port Token Ring Fiber UFC
6212	2 Slot 8271 LAN Switch Module
6312	3 Slot 8271 LAN Switch Module
9195	4 Port Ethernet 10BaseT UFC
8603	3 Port Ethernet 10BaseFL UFC
6995	1 Port Fast Ethernet 100BaseTX UFC
7000	1 Port Fast Ethernet 100BaseFX UFC
8260-P07	7 slot chassis, packet bus
8260-P10	10 slot chassis, packet bus
8260-P17	17 slot chassis, packet bus
Packet Bus Features:	
7312	12 Port 10BaseT 1 slot
7324	24 Port 10BaseT 2 slot
7310	10 Port 10BaseFL 1 slot
7320	20 Port 10BaseFL 2 slot
7314	12 Port 10BaseT and FDDI DAS 2 slot
7412	10 Port 10BaseFL and FDDI DAS 2 slot
7304	Dual FDDI DAS 2 slots
7504	4 Port 100BaseTX 1 slot
7404	4 Port 100BaseFX 1 slot
7302	Packet Channel/ATM module
7016	LAN Access Switching module
8260-A10	10 slot chassis, ATM backplane
8260-A17	17 slot chassis, ATM backplane
8260-G17	17 slot chassis, packet bus & ATM backplane
8285-00B	12 Port ATM 25 Mbps base unit
5502	8285 Expansion Unit
ATM Modules:	
5012	12 Port ATM 25Mbps
5002	ATM 155Mbps Flex Module
8800	1 Port 155Mbps MMF I/O card
8801	1 Port 155Mbps SMF I/O card
8802	ATM 155Mbps UTP5/STP
5000 (5100)	ATM Switch Control Point Module (16MB)
5102 (5202)	Utopia 1 ATM Carrier Module, 1 slot or (2 slots)
8501	1 Port E3 I/O card for WAN/ATM
8502	1 Port DS3 I/O card for WAN/ATM
8505 (8506)	1 Port STM I/O card for WAN/ATM SMF or (MMF)
8503 (8504)	1 Port OC3 I/O card for WAN/ATM SMF or (MMF)
8507	4 Port E1 I/O card for WAN/ATM
5212 (5312)	8271 Ethernet Switch w/ATM, 2 slots or (3 slots)
5208 (5308)	8272 Token Ring Switch w/ATM, 2 slots or (3 slots)
5003	3 Port 155Mbps Module
5300	8210 MSS Module
5101 (5201)	1 Port 622Mbps MMF or (SMF)