MAE® Services and Facilities

NANOG 27

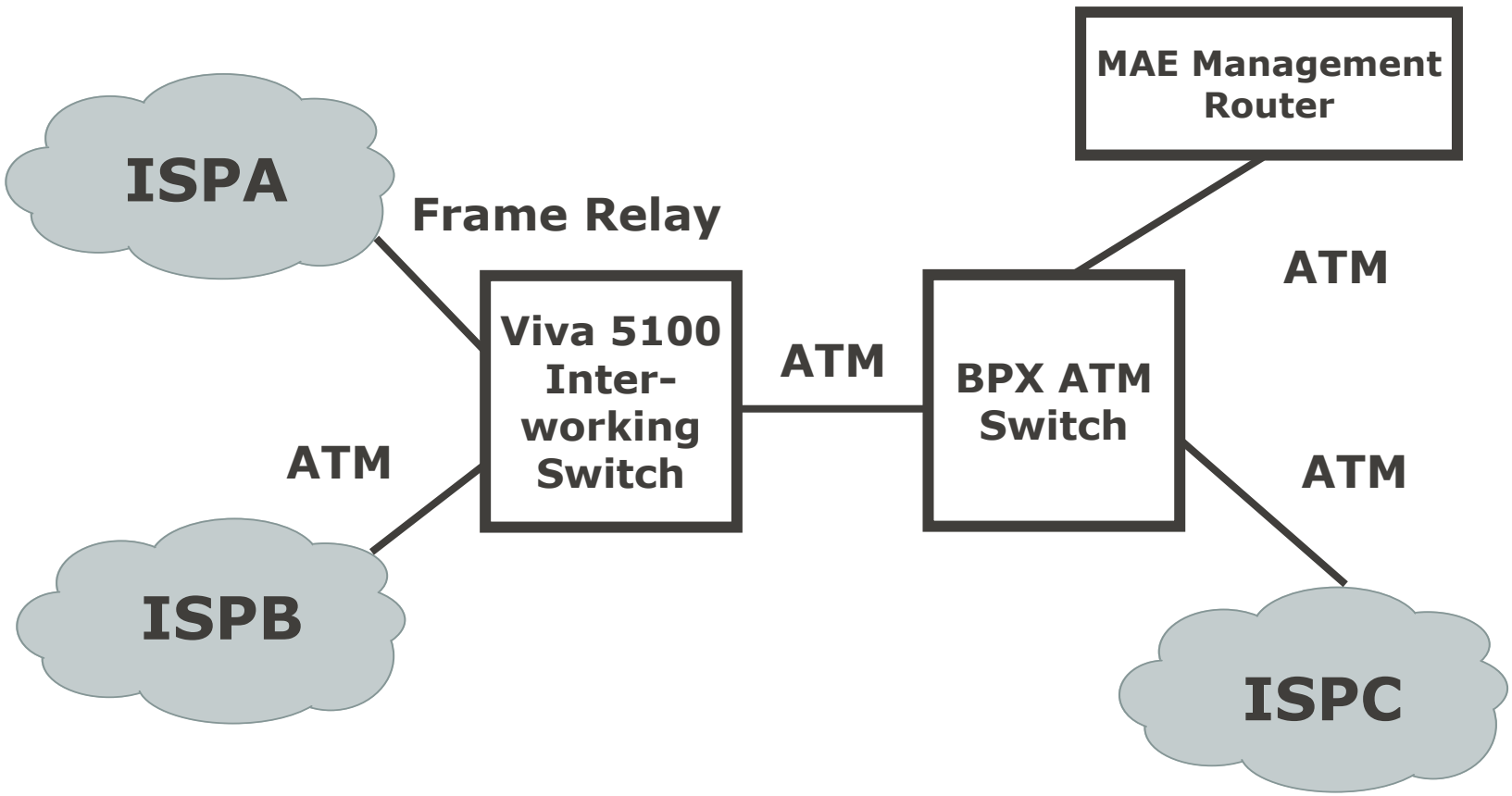
Tom Bechly
2/10/03

WORLDCOM

MAE Services Frame Relay Access

- **Frame Relay access available at MAE® East and MAE® West**
  - Frame Relay access speeds are OC3, OC12, and OC48
  - Customers that access the exchange via frame relay are able to exchange traffic with customers that access the exchange via ATM
  - Customer trials are underway, with general availability in March
- **Benefits of Frame Relay Access**
  - Efficient utilization of bandwidth (~15 – 20% more efficient than ATM)
  - Lower cost than ATM (CPE POS Router Ports and monthly access charge)
  - Colo-Neutral architecture (i.e., WAN protocol)
  - No routing information exchanged between MAE facility and CPE
- **Frame Relay/ATM Interworking based on FRF.8.1**
  - Priority and 'best effort' PVCs maintained across interworked connections

MAE Services Interworking Architecture



WORLDCOM

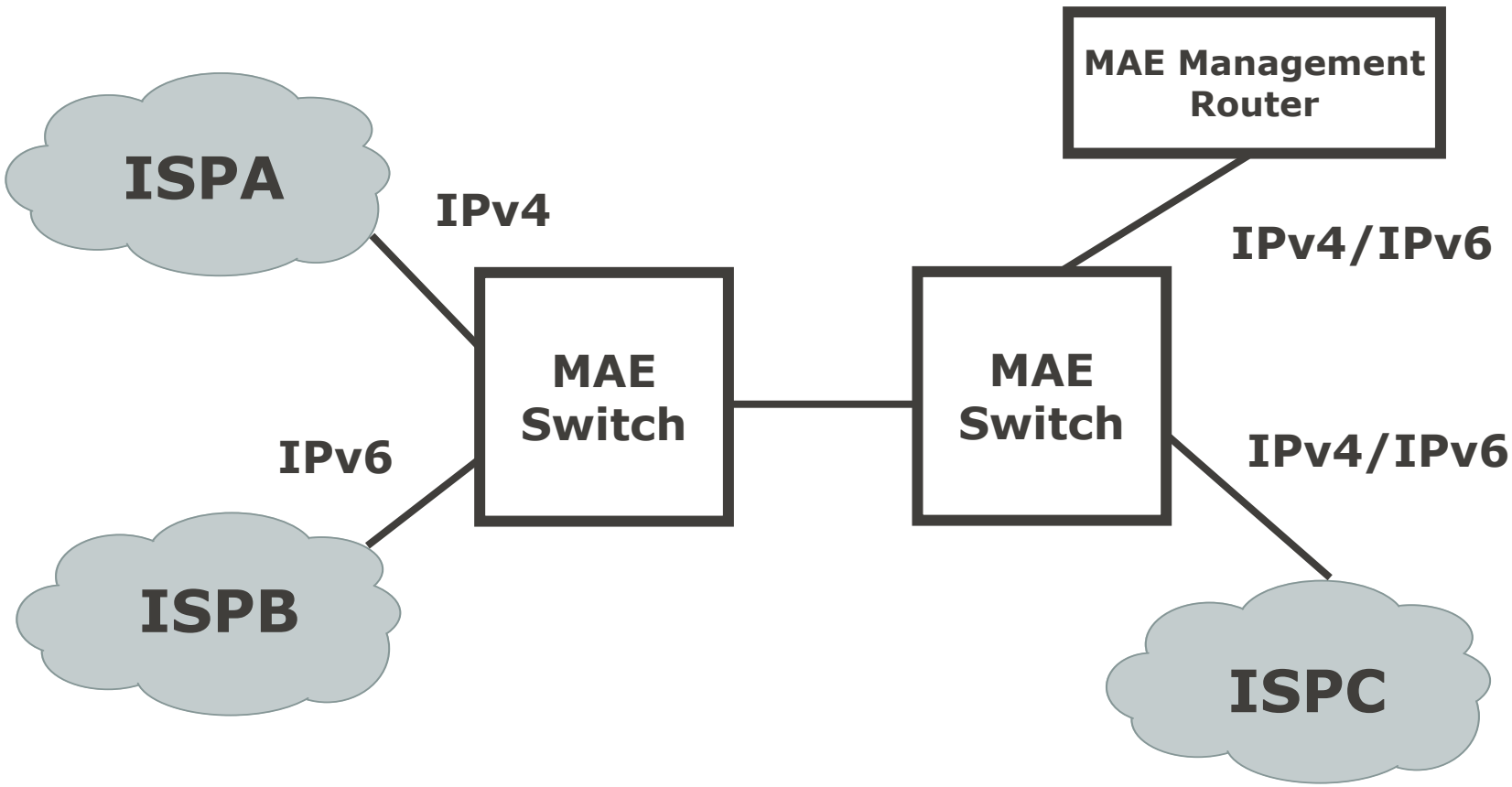
Reference Summary

- FRF.8.1, Frame Relay/ATM PVC Service Interworking Implementation Agreement, Frame Relay Forum, February, 2000
- FRF.18, Network-to-Network FR/ATM SVC Service Interworking Implementation Agreement, Frame Relay Forum, April 2000
- af-bici-0013.003, BISDN Inter Carrier Interface (B-ICI) Specification Version 2.0 (Integrated), The ATM Forum Technical Committee, December, 1995
- rfc2427, Multiprotocol Interconnect over Frame Relay, IETF, September 1998
- rfc2684, Multiprotocol Encapsulation over ATM Adaptation Layer 5, IETF, September 1999
- ATM Theory and Application, David McDysan and Darren Spohn, McGraw-Hill, 1999
- FRF.14, Physical Layer Interface Implementation Agreement, Frame Relay Forum, December, 1998
- rfc1619, PPP over SONET/SDH, IETF, May 1994
- rfc1662, PPP in HDLC-like Framing, IETF, July 1994

MAE Services IPv6 Support

- **IPv6 exchange supported at all U.S. exchanges in 4/30/03**
  - IPv6 is transparent to the exchange platform, whether access is frame relay or ATM
  - IPv6 already supported at MAE Frankfurt (ethernet L2 exchange)
- **IPv6 addresses have been allocated to EP.NET**
  - EP.NET block is: **2001:0478:0000:0000:0000:0000:0000:0000/32**
  - EP.NET allocates an IPv4/24 and an IPv6/48 address for each MAE Services exchange point
- **An ISP IPv6 address can be derived by mapping their current IPv4 address (from EP.NET) to the EP.NET block**
  - An example MAE East IPv4 address **198.32.187.222** maps to the IPv6 address of **2001:0478:0187:0000:0000:0000:0000:0222**

MAE Facilities IPv6 Service Surround



WORLDCOM

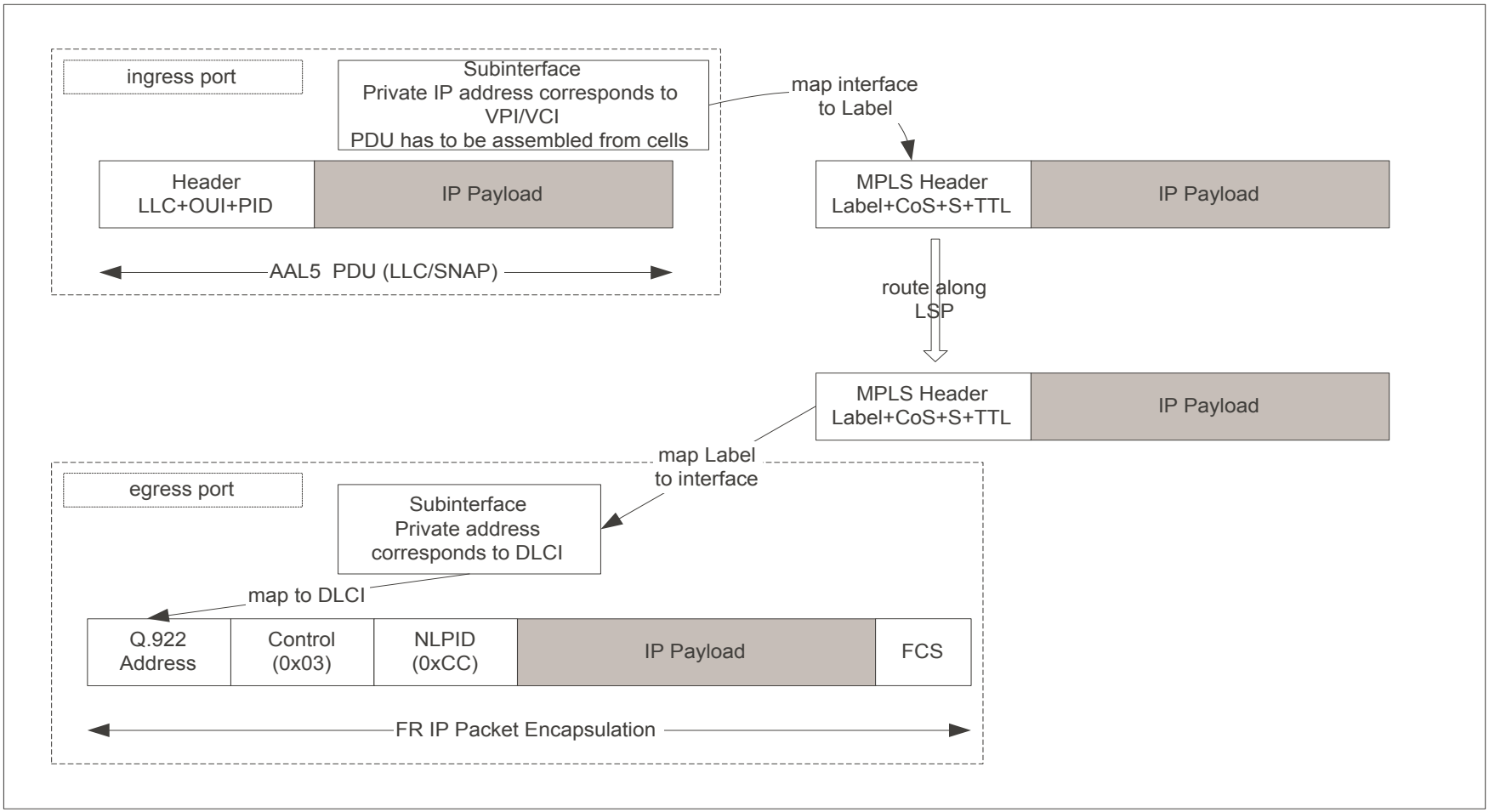
MAE Services – New or Planned Enhancements

- **MAE Central Expansion**
  - Atlanta POP added to MAE Central
  - Customers can exchange traffic between Dallas and Atlanta
- **RIPE Routing Information Service**
  - Remote Route Collector deployed at MAE West
  - See: **www.ripe.net/ris/index.html**
- **Gigabit Ethernet Access**
  - Gigabit Ethernet/Frame Relay/ATM Interworking
  - Planned for third quarter 2003

Thanks - For more information: www.mae.net

Questions to: info@mae.net or tom@mae.net

ATM/Frame Relay Packet Transformation



WORLDCOM