



# AMS-IX overview

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# What is AMS-IX

- One of the major Internet Exchanges in Europe
- Located in Amsterdam, The Netherlands
- Not for profit, Neutral, Independent
- Over 212 members
  - ISPs, Carriers, Mobile Operators, Content providers etc.
- Majority of members ( > 60%) is International
  - European, US, Asian
  - Others are Dutch.

# AMS-IX organization

- All customers are member of an Association under Dutch law
  - Formally established in September 1997
  - Informally existed already early 1990
- Operational responsibility is with AMS-IX BV.
  - Association is 100% owner of AMS-IX BV
  - Executive board Association = Board of Directors AMS-IX BV
    - 5 persons
  - Executive board AMS-IX Association is elected by the AMS-IX Association members

# AMS-IX BV

- 14 employees
  - 7 \* Network Operations Center (AMS-IX NOC)
  - 6 \* CEO, Marketing, Administrative support
  - 1 \* EURO-IX secretariat
- Offices, NOC and Lab located in center of Amsterdam
- NOC offers 24\*7\*365 service
  - Office hours + : e-mail, telephone
  - Outside office hours telephone only

# AMS-IX Services

- 4 Switch locations in Amsterdam area
  - Locations are Independent Colocation Data Centers
- AMS-IX business is Interconnection:  
Not colocation!
- Implication:
  - Contract needed to connect to AMS-IX
  - Contract needed for colocation facilities.
- Or:
  - Connect through AMS-IX partner for one stop shop connection

# AMS-IX Services

- Flat Fee service
  - No membership fee
  - No first time connection fee
  - No extra upgrade/downgrade/”port move” fee
  - ONLY:
    - Monthly connection fee dependent on port type

# AMS-IX service LANs

- **Internet Peering VLAN**
- **GRX VLAN**
  - GRX = Global Roaming Exchange
  - Interconnection of GRX providers
  - Provides roaming between Mobile operators
  - Operation of current ad hoc root server for .GPRS in GRX environment

# AMS-IX service LANs

- MDX
  - MDX = Mobile data Exchange
  - Interconnection for Mobile operators
  - Exchange of MMS (and other) data
- Closed User Group LANs
  - Groups of members can ask for a dedicated purpose VLAN on switching infrastructure.

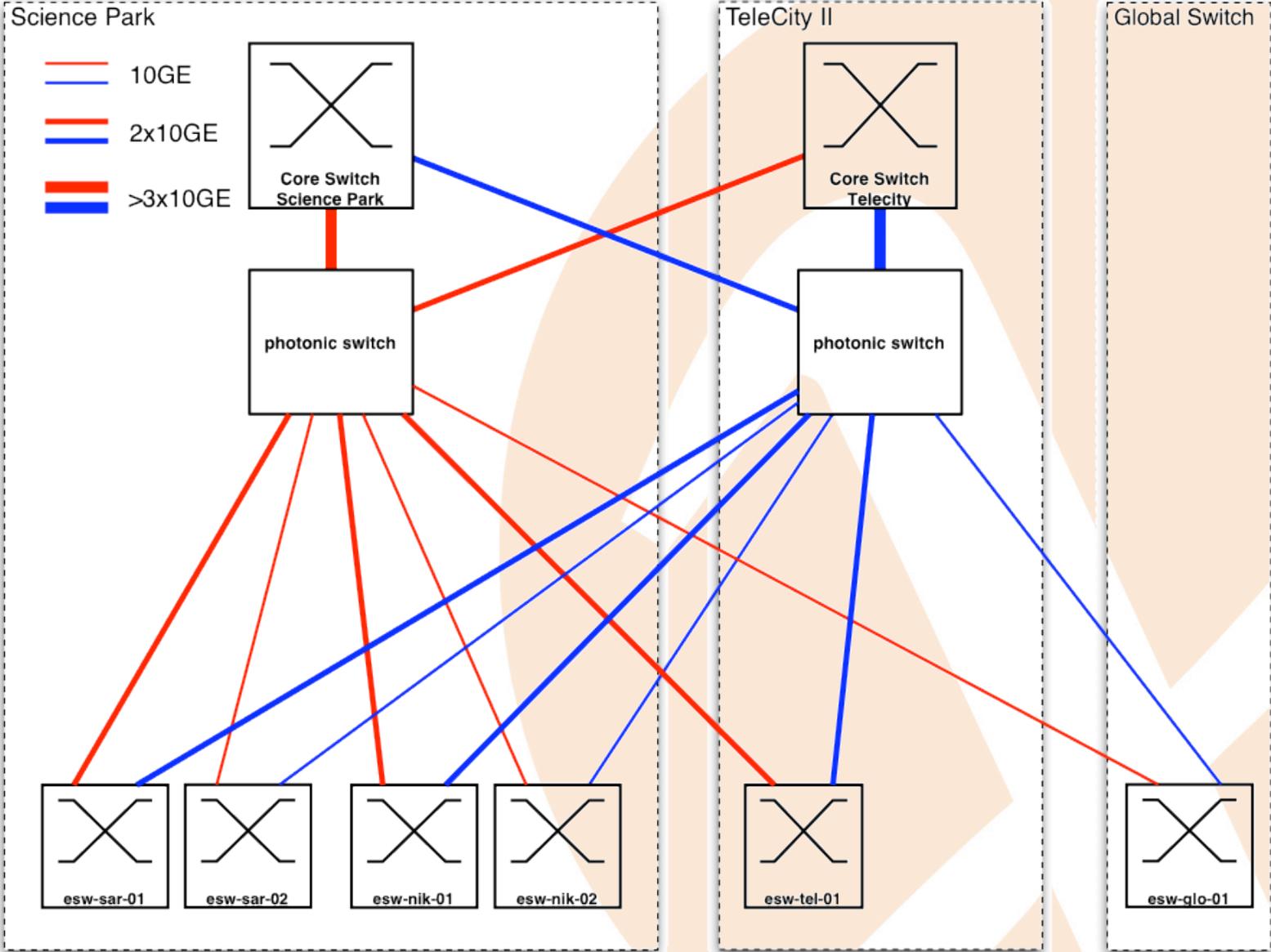
# AMS-IX switching platform

- Foundry Networks switches
  - BigIron 15000 on the edge
    - Customers  $\leq$  1GE (or multiple GE)
  - MG8 in the core
    - Interconnecting Edge Switches ( X \* 10GE )
    - 10GE customers
- Glimmerglass Networks System 300
  - Photonic switches
  - Fiber rerouting

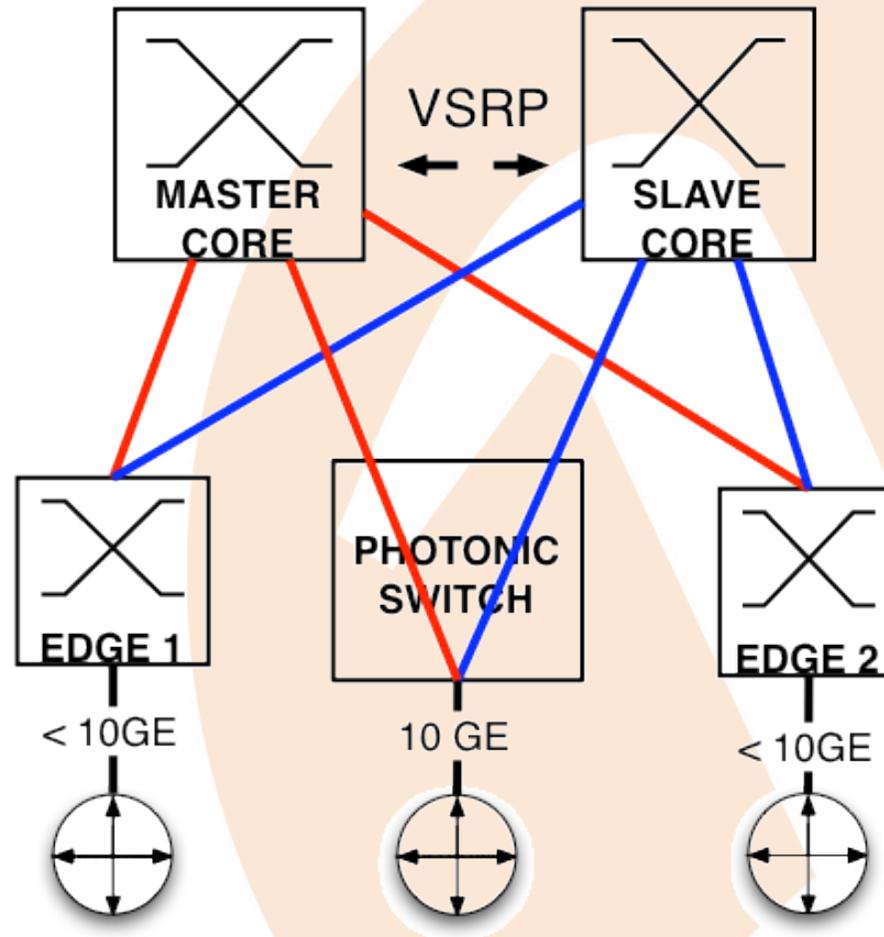
# AMS-IX Switch Topology

- Double Hub/Spoke
- VSRP
  - Virtual Switch Redundancy Proto
  - Failover between Core Switches
  - Loop prevention
- 10GE customer connections on Core switches
  - Protected by software developed at AMS-IX
  - Manages 10GE customer connections on GGN switches

# AMS-IX Switch Topology



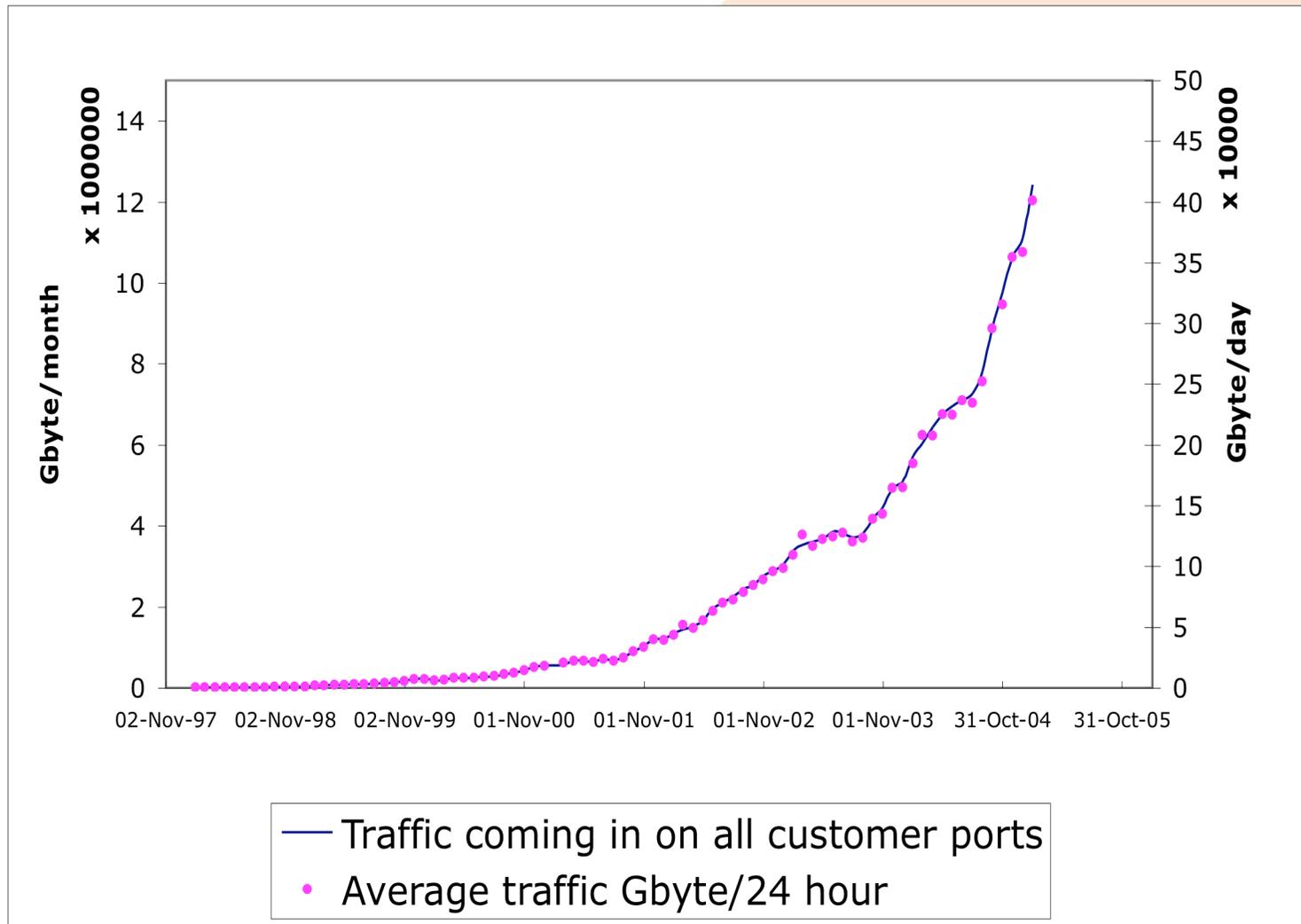
# AMS-IX Switch Topology



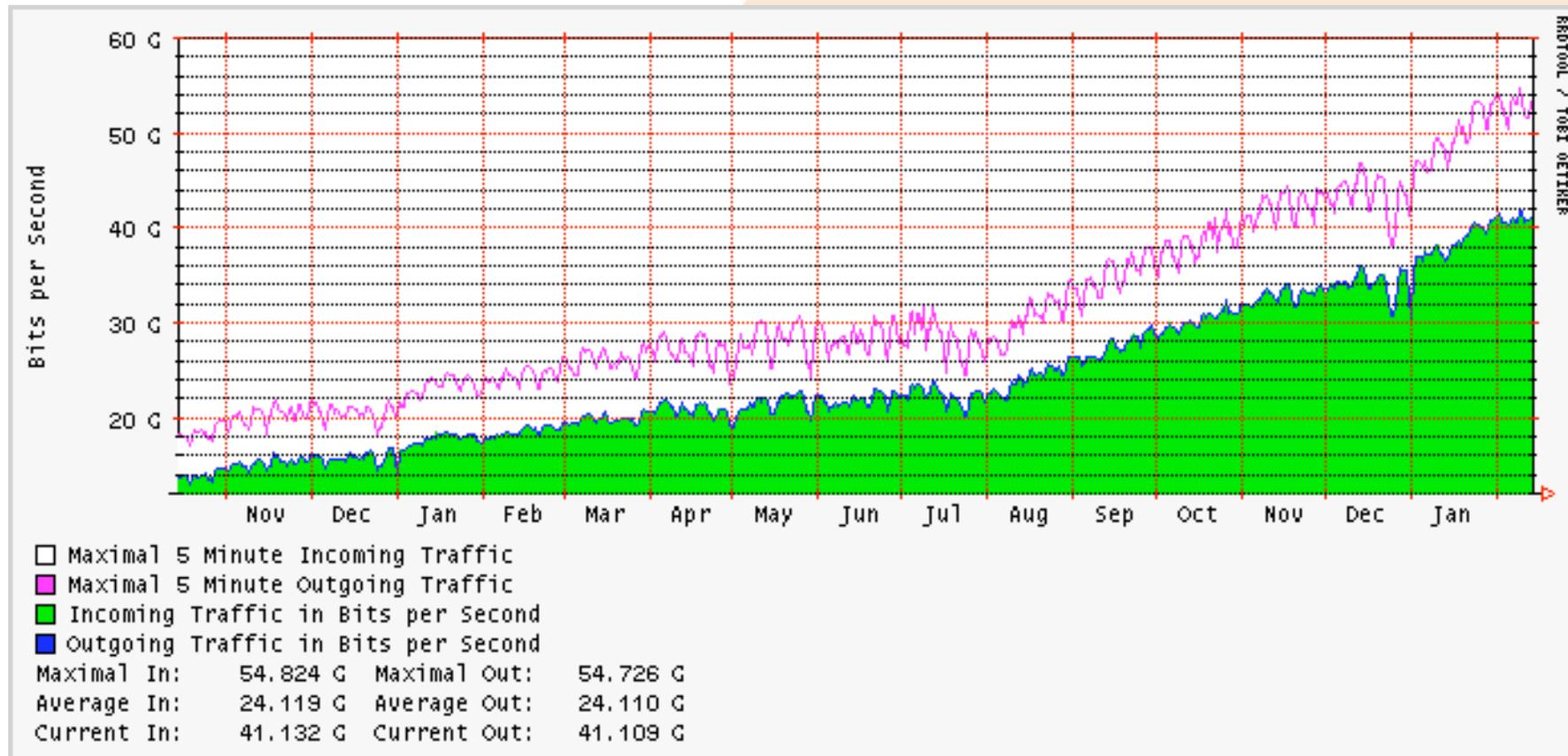
# Members and Ports

- Currently 212 members
- Connected on 313 ports
  - E, FE, GE (SX, LX and LZ), 10GE (LR, ER)
  - Last year large scale upgrade to aggregated GE connections (802.3ad)
  - Current trend upgrade to 10GE and further upgrades to aggregated GE connections
- Linear growth in customers and ports since 1997

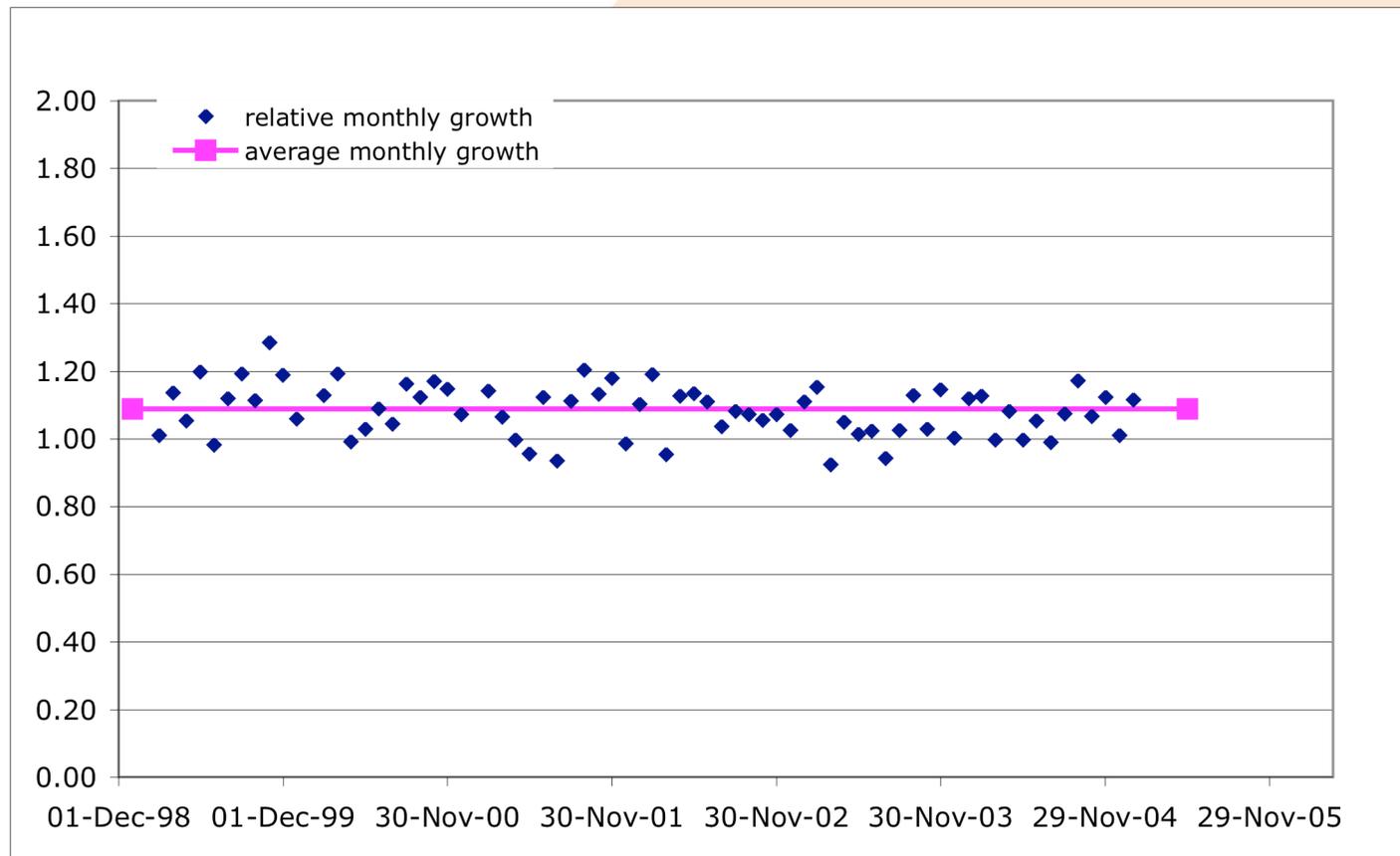
# Traffic trends: Traffic volume



# Traffic trends: Peak Traffic



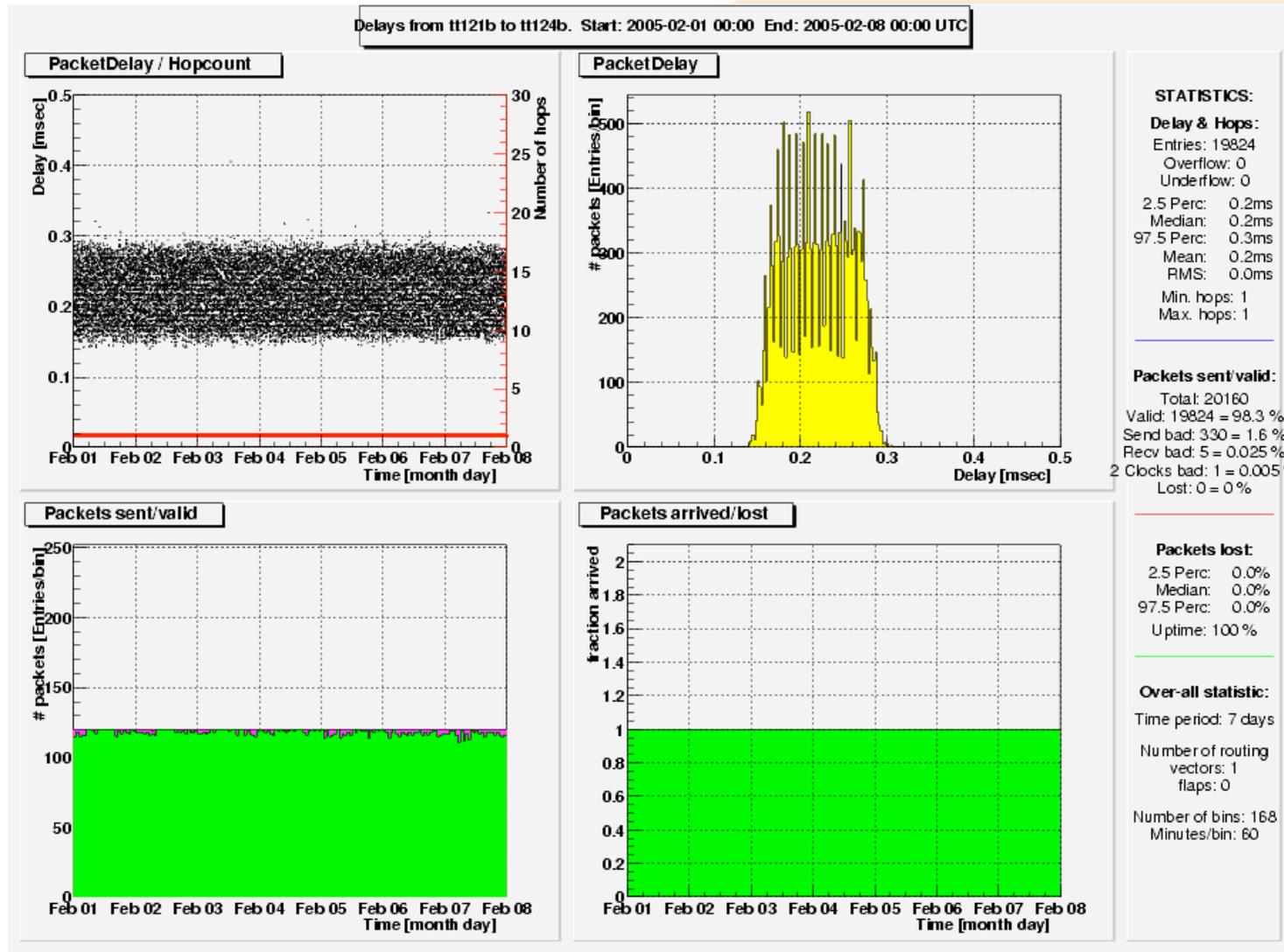
# Traffic trends: 10% increase/month



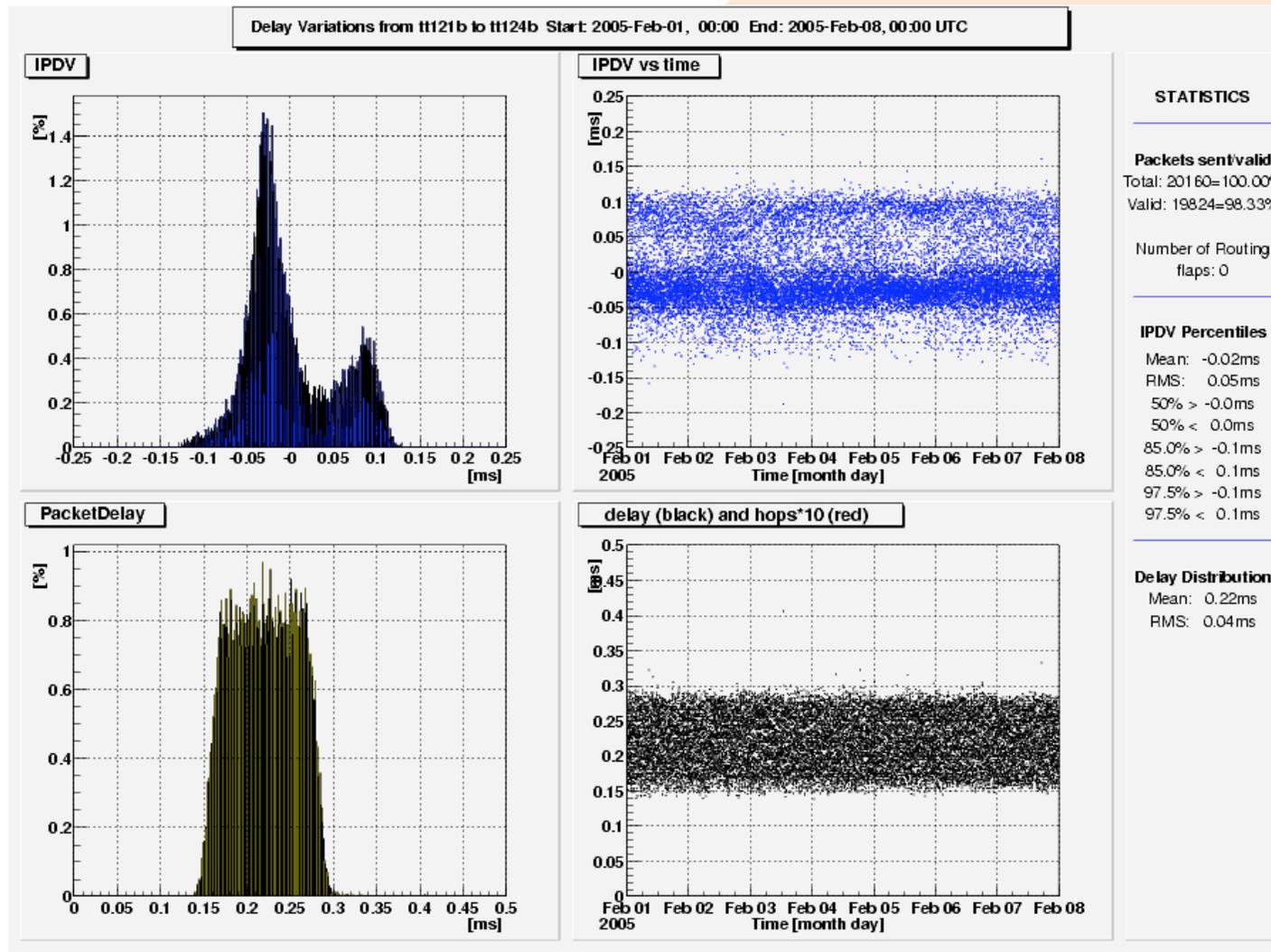
# Performance Parameters

- RIPE TTM boxes at 4 AMS-IX locations
- Performance of Exchange measured
  - Packetloss
  - Delay
  - Jitter
- Deviations from Allowed values considered error

# Performance parameters



# Performance parameters



# AMS-IX near future (2005/2006)

- Will install route servers soon
  - The number of BGP sessions per members becomes really large !
- We expect continuing growth in both members and ports
- We expect large scale uptake of 10GE in the next two years
- Enhancement of equipment availability

# So why join AMS-IX ?

- All the usual arguments to join an Exchange
- But also:
  - Largest number of European routes on single exchange
  - Relatively easy to get peering arrangements
    - Over 70% of AMS-IX members have open peering policy
  - Fast process to get connected
    - Contractual process plus port assignment can be less than 5 working days.

# AMS-IX links

- [Henk.Steenman@ams-ix.net](mailto:Henk.Steenman@ams-ix.net)
- AMS-IX website
  - <http://www.ams-ix.net>
- Connecting to AMS-IX
  - <http://www.ams-ix.net/connecting/howto>
- AMS-IX partners
  - <http://www.ams-ix.net/connecting/partners.html>