

# Milan Internet eXchange RIPE 49

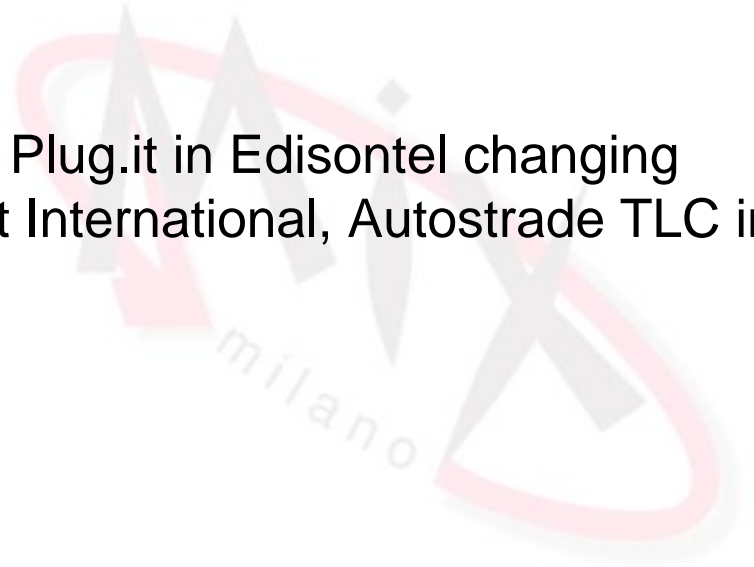
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# Members

- 56 Members (61 in September 2003)
  - 5 New (MCI/UUNET, Noicom, Arcor, Vodafone Italy, Teleunit)
  - 5 Lost (Dynergy Europe, Cubecom, Terzomillennio, Integra, Genuity)
  - 5 Incorporated (Nextra in Tiscali, Plug.it in Edisontel changing name in Eutelia, Colt Italia in Colt International, Autostrade TLC in Infracom Italia, Estel in Wind)



# Carriers

- 14 Carriers present in MIX data center (11 in September 2003)
  - Albacom
  - Atlant
  - Colt
  - Eutelia (formerly Edisontel)
  - ePlanet
  - Interoute
  - Fastweb
  - Global Crossing
  - Autostrade TLC
  - Telecom Italia
  - Wind
  - **Noicom (New)**
  - **Tiscali (New)**
  - **Vodafone Italy (New)**



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# Intra-campus operators

- 18 operators' optical boxes present in MIX data center (17 in September 2003)
- Lost
  - Cubecom
- Local operators list:
  - Cities on Line/T.Net
  - I.Net
  - Infracom Italia
  - KPNQWest Italia
  - Level IP Italia
  - Mc-Link
  - Netscalibur
  - OpeNNet
  - Swisscom IP
  - Telia
  - Telnor
  - Tiscali
  - Wind
  - Grapes
  - Interoute
  - Elitel
  - **MCI-UUNET (new)**
  - **Sprint (new)**



# Traffic during year 2004

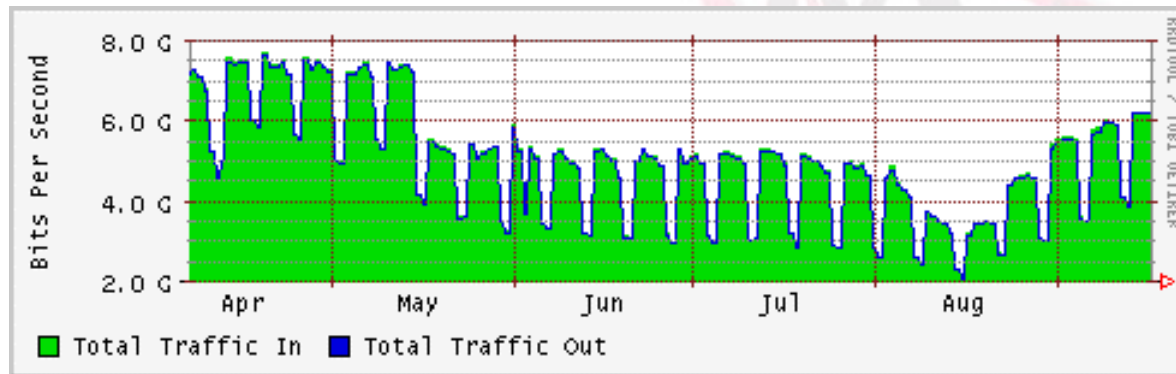
- Public Peering Lan

Max Peak **7.7 Gbps** in May 2004

Today (Sep. 2004): **6.2 Gbps**

~ 2Gb moved in May to back-to-back connections inside MIX premises

Total traffic exchanged in MIX premises is ~ **6.2Gb + traffic generated by direct connections**



# Upgrade of MIX Infrastructure

- Wiring Upgrade
  - Optical and Electrical
- Power supply upgrade
- Air Conditioning system upgrade
- New Layer 2 switch
  - Foundry BigIron 15K (Jetcore architecture)
  - 10Gbe ports available



# New Services available for members (no additional fee)

- IPv6: operational since April 2004
  - 6 Members (Tiscali, Planet, KPN Qwest Italia, ITGate-Network, Eutelia, Easynet Italia)
  - Same LAN used for public IPv4 peering
  - Someone prefers different interfaces for IPv4 and IPv6
- Multicast
  - Will be in production starting from november
  - Same LAN used for unicast traffic
  - PIM Snooping enabled on Layer 2 switch

# New Services (cont.)

- Test Traffic Measurement
  - Operational since September 2003
  - Used also as NTP server
  
- RIS
  - RRC10 operational since November 2003
  - 16 IPv4 Peerings
  - 6 IPv6 Peerings



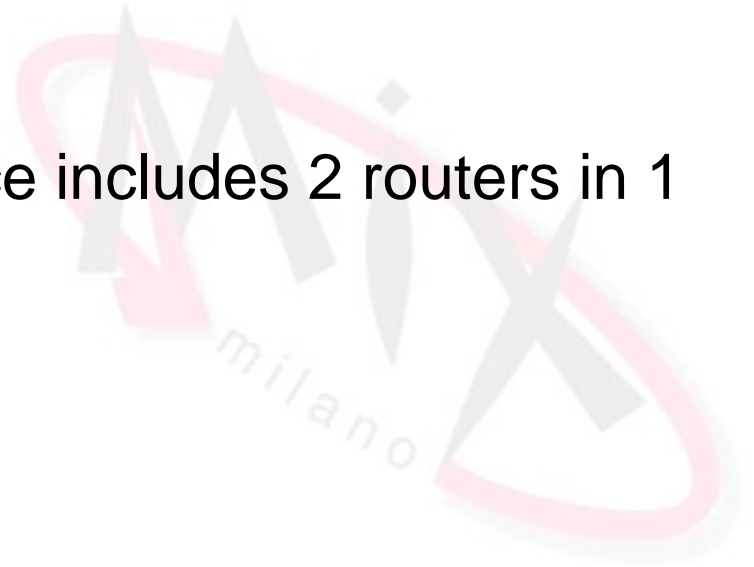


# New Services (cont.)

- DNS Root Servers
  - I-Root server replica operational since December 2003
    - 14 peerings
    - global scope
  - K-Root server replica operational since August 2004
    - average ~50 queries per second
    - 11 peerings
    - local scope (prefix announced only to MIX members and their customers)

# Additional Services for ISPs

- Additional ports (basic service includes 2 ports)
  - 10/100BaseT, 1000BaseSX, available now
  - 1000BaseLX and 10G-BASESR starting from november
- Port Tagging (not included in basic service)
  - 802.1q
- Additional space (basic service includes 2 routers in 1 rack)
  - Additional Racks
  - Additional Routers



# Additional Services for ISPs (cont.)

- Private Peering on dedicated VLAN
  - between two members
  - IPv4 /30 (assigned by MIX or provided by one of the members)
  - IPv6 /64 prefix (assigned by MIX or provided by one of the members)
- Back-to-back connections
  - directly connected routers (inside MIX premises)
  - IPv4 and/or IPv6 addresses not provided by MIX
- Closed user groups
  - max number of members: 6 (if not otherwise agreed)
  - IPv4 /29 and or IPv6 /64 prefix provided by MIX
  - used to satisfy special requirements of groups of members

# Additional services for carriers

- Layer 1 Interconnection
  - Interconnection of transmission equipment (ADMs) and/or optical boxes between carriers or between carriers and local operators present at MIX
- Circuit provisioning to ISPs
  - Allows operators to provide circuits to ISPs present at MIX used for scopes different from connection to the MIX peering LAN
- Layer 2 MPLS transport (Ongoing)
  - Definition of parameters for carriers able to offer connectivity through Layer 2 transport over MPLS

# Inter Provider Traffic Analyzer

- First presented at RIPE 46
- First version: beta 0.3 (3rd Euro-IX forum 11/2003)
- **New version 1.0 released**
  - What's new in IPTA 1.0
    - completely re-written in C++ (doesn't require Matlab's libraries anymore)
    - is able to use already existing mrtg/RRD queries;
    - is MRTG version independent;
    - improved ideal day computation method.
- More technical info
  - <http://www.mix-it.net/ipta/index.html>
  - [ipta@mix-it.net](mailto:ipta@mix-it.net)
- Software Available for euro-ix members at
  - <http://www.euro-ix.net/member/resources/tools/mix/>



# IPTA: Next Steps

- Real-Time anomalies detection
- Ad-hoc analysis using flow analyzers
  - \*flow protocols (e.g. sflow)
- Anomaly Classification:
  - Who is responsible of traffic spikes or holes?
    - IP address, flows (TCP/UDP), service type (http/ftp/etc.)
  - Which kind of traffic?
    - Denial of Service, big file transfer etc.

# More Info

- MIX Web site
- General Information
- Administration
- Technical Support

<http://www.mix-it.net>

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