



# End user perspective on higher speed Ethernet

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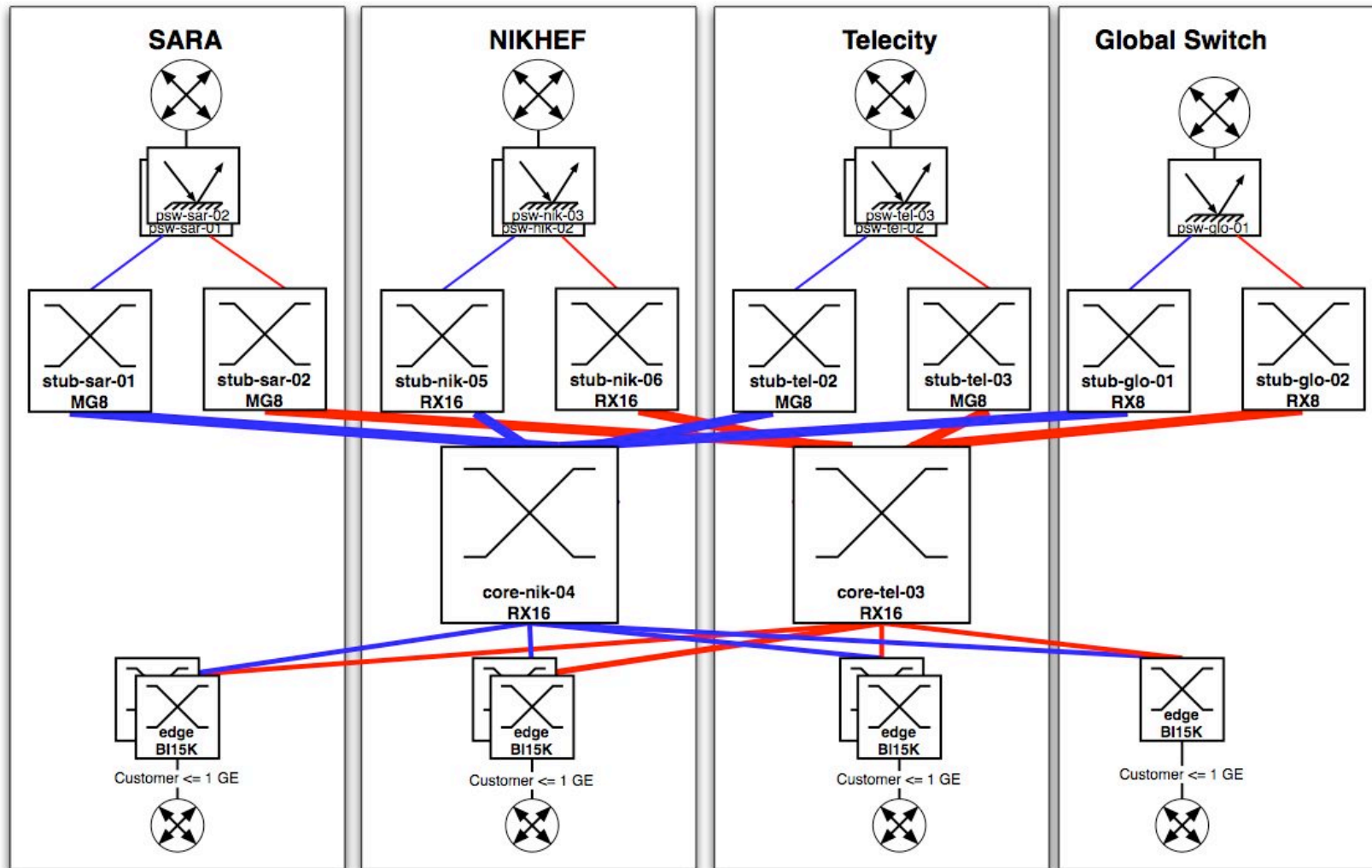
# Agenda

- Short overview of AMS-IX
- Current utilization of the platform
- Future projections
- Requirements on Higher Speed Ethernet

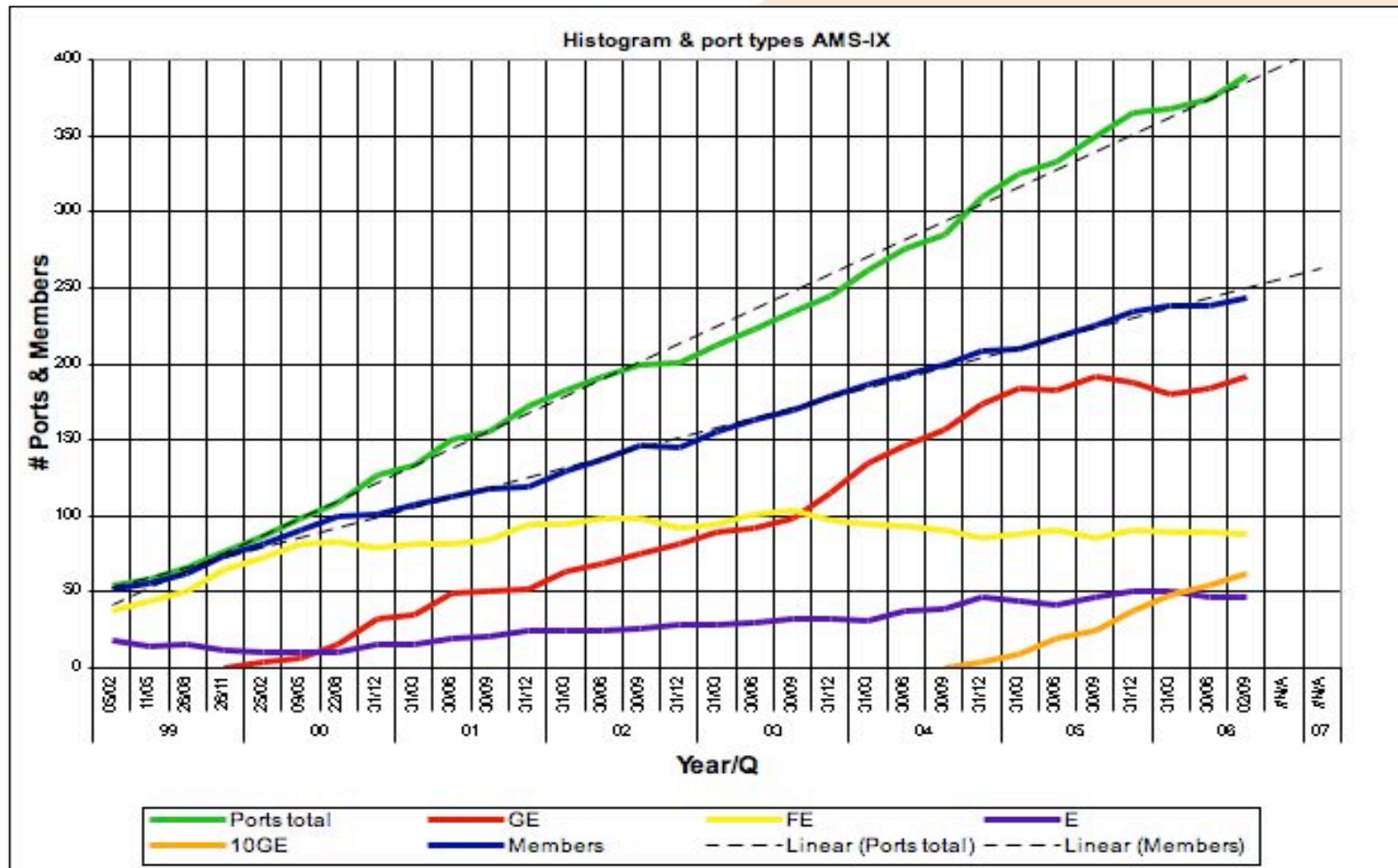
# AMS-IX

- Amsterdam based Association under Dutch law.
- Members are Internet related businesses
  - ISPs, Content providers, Carriers, GRX providers, etc
- Purpose of the association is to provide a platform for Internet data exchange between the members
- AMS-IX BV (owned by the association) does day to day management

# The AMS-IX infrastructure

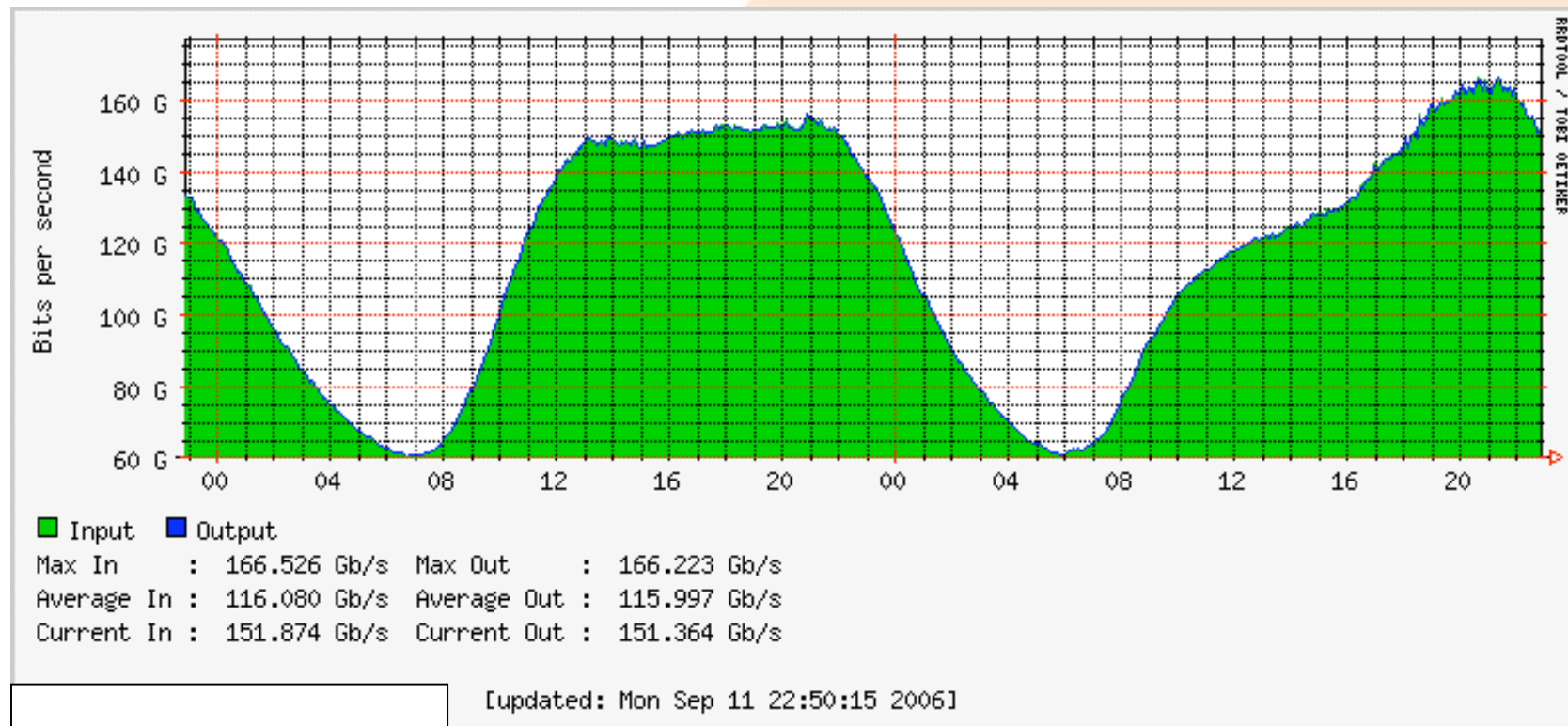


# Port growth

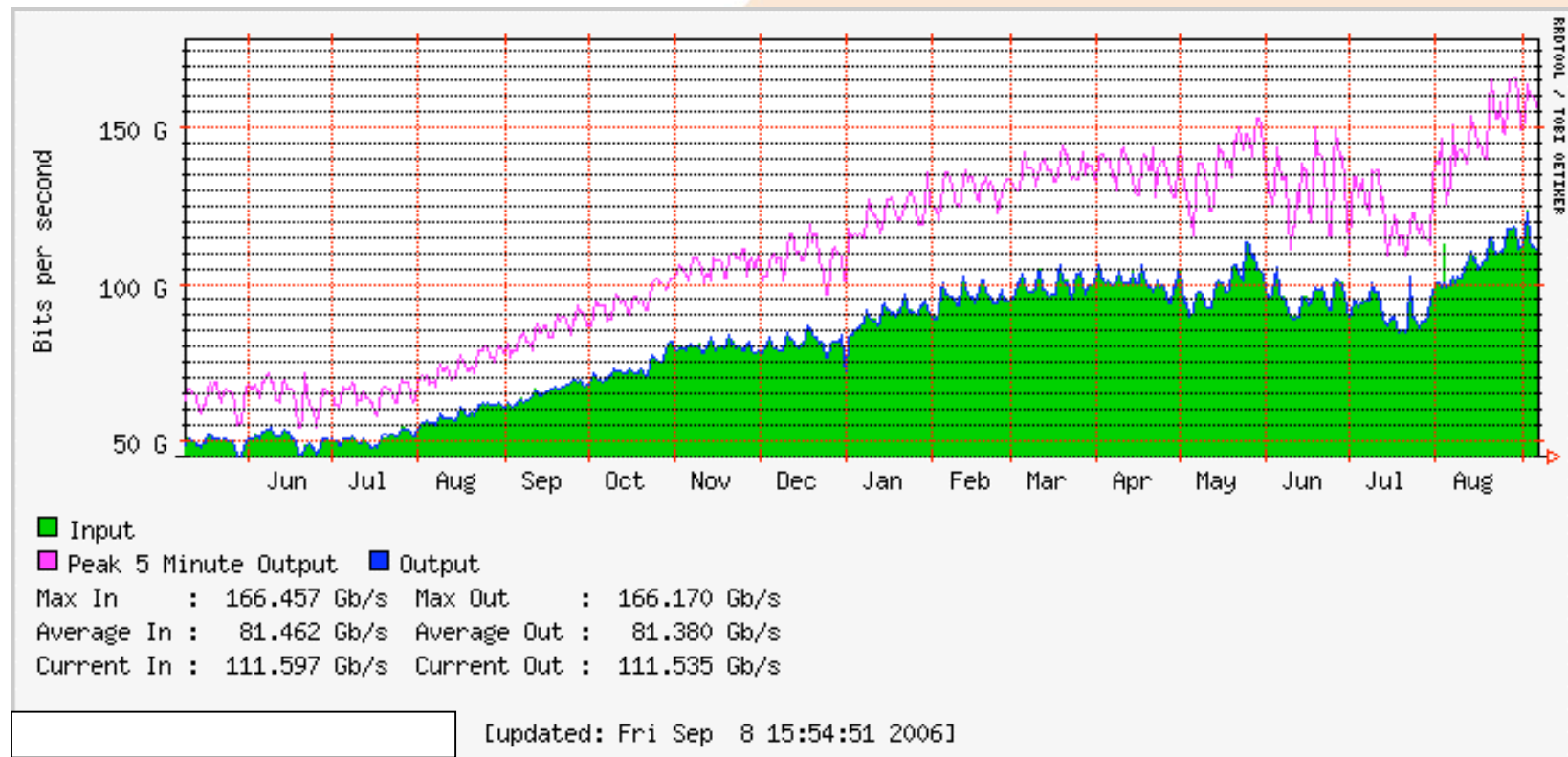


Amsterdam, Sep 2006

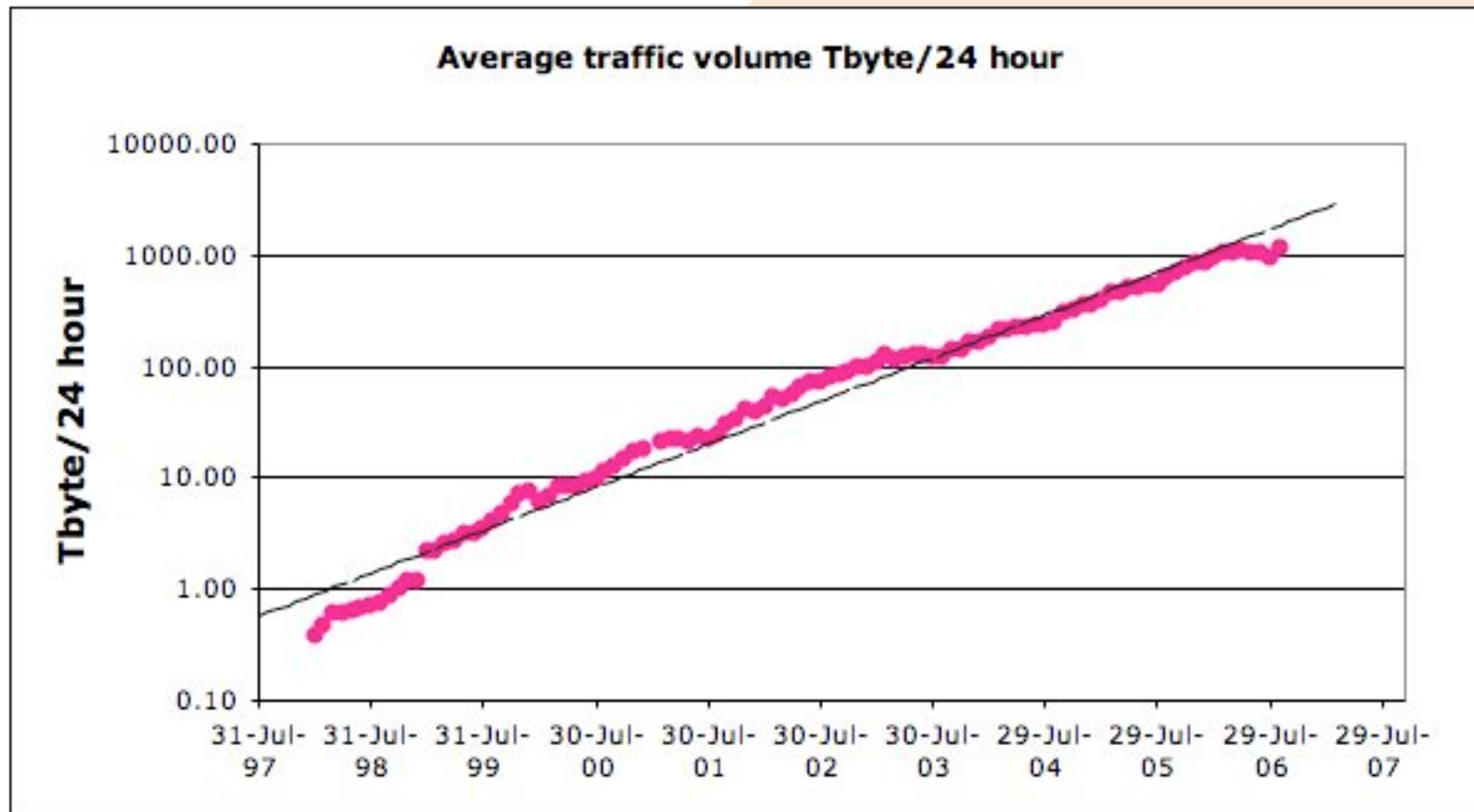
# Current Network Usage



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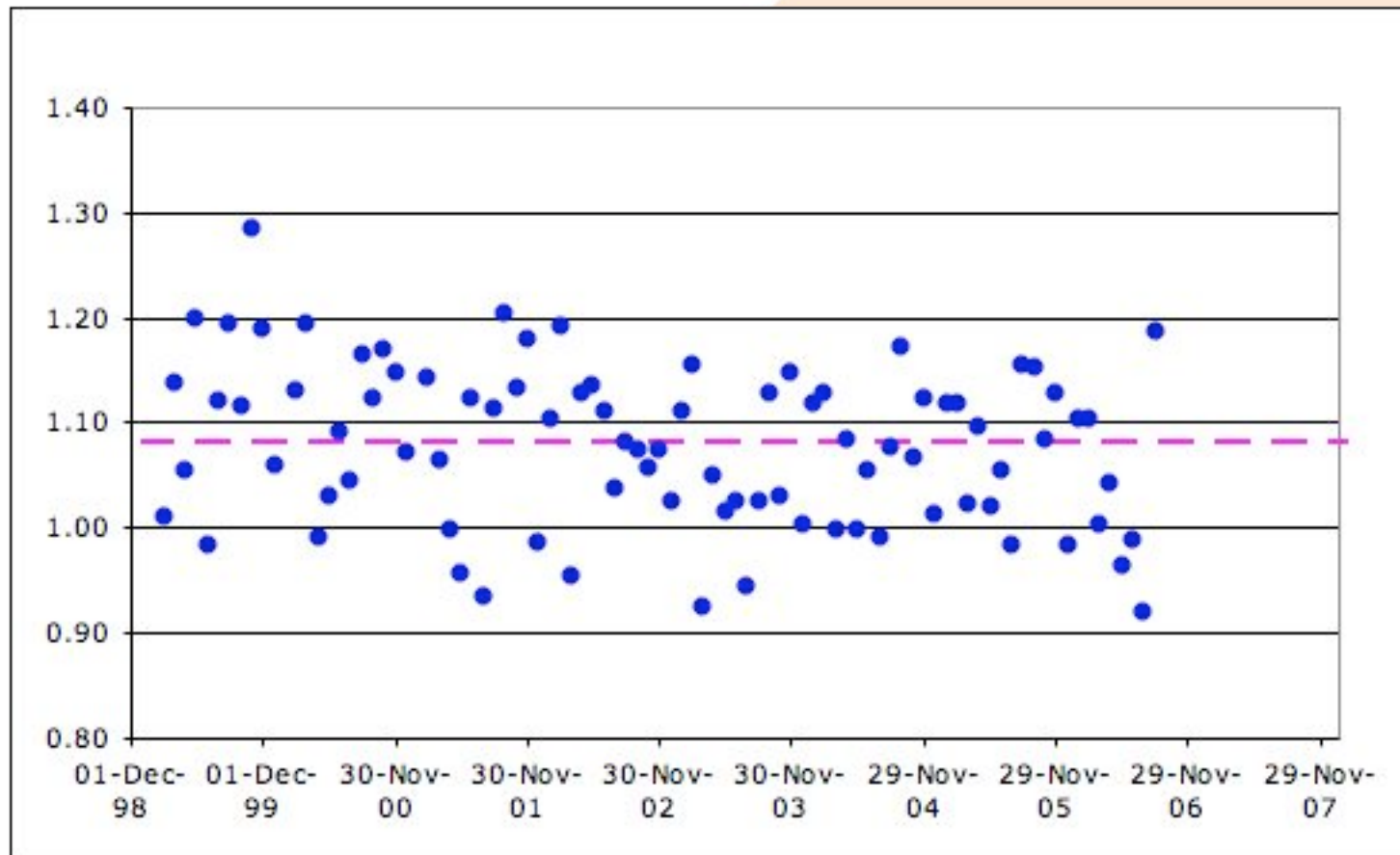
# Overall traffic growth





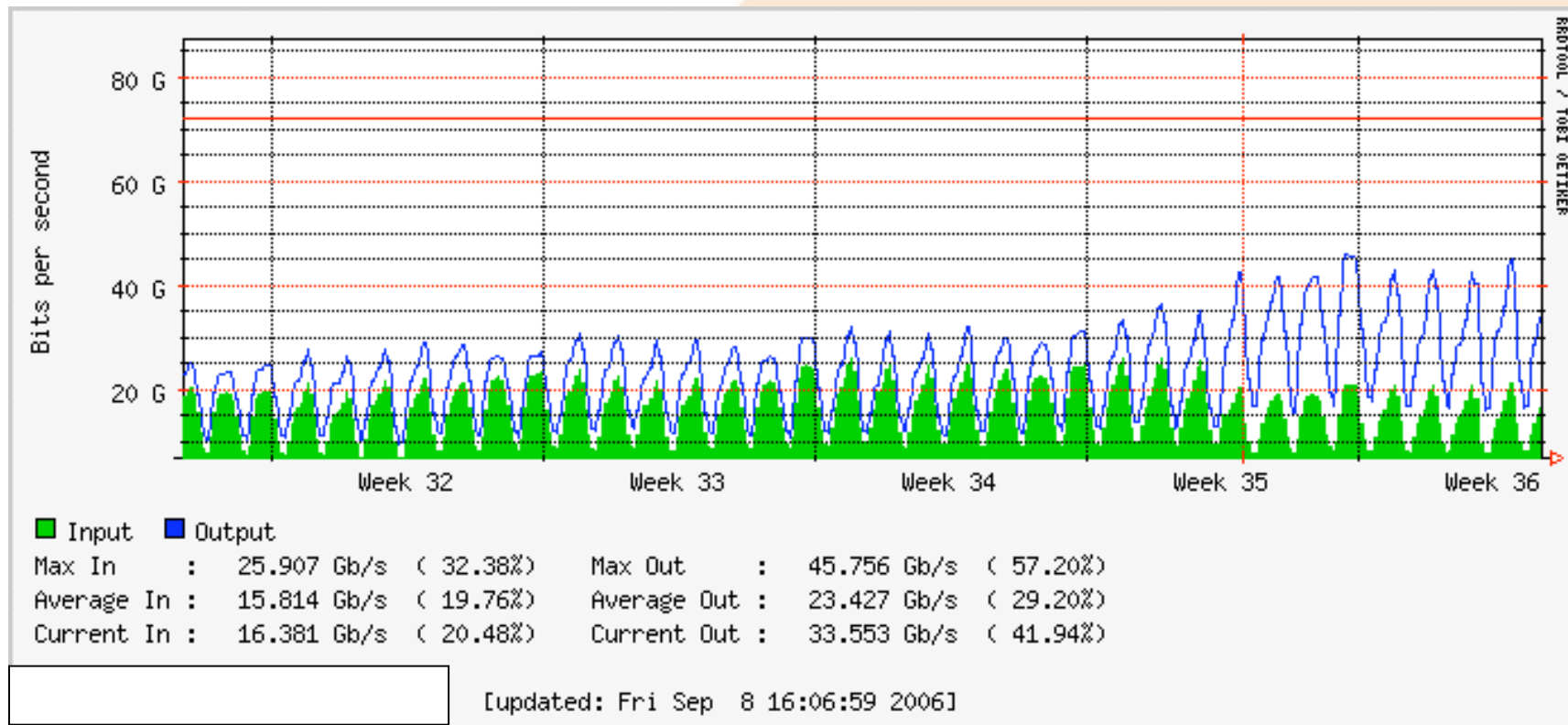
# Overall traffic Growth

## Relative growth: average monthly traffic



Amsterdam, Sep 2006

# Inter switch traffic



# Traffic projections

- Current 45-50 Gbit/s for 24 10GE customer ports
  - Roughly 20% of available capacity on ISL
  - Assumptions
    - Number of customer ports increase to 48 on single switch
    - Average load stays the same
    - End of 2007 ISL capacity will need 80-100 Gbit/s
  - Requires upgrade to 12 -16 \* 10GE LAG
  - This will not be enough for another year !

# Traffic projections

- Started offering 10GE customer access ports Q3 2004.
- Now first 3\*10GE LAG access port to customer router
  - Many 2\*10GE LAG access ports
- Expected to offer >4\*10GE LAG access port before end 2007

# Link Aggregation

- Main concern with link aggregation
  - 10GE port density on available switches.
  - Additional fibers or WDM equipment
    - Added cost
    - More complexity
  - Traffic distribution on (LAG) specifically customer ports not always optimal due to large flows

# AMS-IX requirements on Higher speed Ethernet

- At least 100 Gbit/s
- Fiber length between 10 and 40 km on Single Mode fiber
- Port Density:
  - 1 \* 100GE port should not replace more than 4 \* 10GE
- Link Fault Signaling
- Support Link Aggregation