

# Backbone Network IVO by DTS

THE LAND OF QUALITY IP SERVICES



VER 4,8 del 29/06/2018

# Network Description

IVO's network is structured on multiple levels:

- ▶ Fiber optic level
- ▶ DWDM/SDH level
- ▶ IP level AS49605



Fiber optic  
level

DIRECT MANAGEMENT  
OF FIBER OPTICS FOR OWN  
CONNECTIONS NETWORK



# DWDM/SDH level

TRANSPORT LONG DISTANCE  
UP TO 10GBPS

MULTI SUPPLIER

PATH DIVERSITY

OVER 70GBPS EDGE  
CAPACITY



IP level  
AS49605

INDEPENDENT AND DIRECT  
MANAGEMENT OF ALL  
NETWORK DEVICES

LOW LATENCY

FULL DUAL STACK IPV4/6

JUNIPER<sup>®</sup>  
NETWORKS

MX Series



IP level  
AS49605

OUR NETWORK HAS  
PROTECTION FROM  
DDOS ATTACKS  
EMBEDDED

AND

FULL JUMBO FRAMED

JUNIPER<sup>®</sup>  
NETWORKS

MX Series



# IP level AS49605

We are present at these IXs:

- ✓ MIX-IT Milan 10G
- ✓ TIX Florence 2G
- ✓ MINAP Milan 1G
- ✓ DE-CIX Frankfurt 1G
- ✓ AMS-IX Amsterdam 1G
- ✓ NETNOD Stockholm 1G
- ✓ LINX London 1G
- ✓ NAMEX Rome 1G
- ✓ MSK-IX Moscow 250M
- ✓ SWISS-IX Glattbrugg 1G
- ✓ FRANCE-IX Paris 1G



# IP level AS49605

## Our IP transit suppliers

### Delivery @Milan:

- ✓ RETN AS9002
- ✓ TELIA AS1299
- ✓ LEVEL 3 AS3356

### Delivery @Rome:

- ✓ GTT AS3257
- ✓ COGENT AS174





# IP level AS49605

We are Tier 2 IP transit provider, the main benefits for our customers:

- ✓ More routes than just one Tier1.
- ✓ The shortest and/or more efficient route from a cost and quality stand-point.
- ✓ Quality is leading instead of cost savings.
- ✓ Not affected by peering-wars between Tier1s.
- ✓ Availability of alternative paths to a destination.



# IP level AS49605

Some peculiar characteristics:

- ✓ > 2.100 ASN neighbours BGP IPv4 and/or IPv6
- ✓ BGP communities to influence routing
- ✓ RTT < 10 mS (Milan – Florence) and (Milan – Siena)
- ✓ RTT < 5 mS (Florence – Siena) and (Florence – Rome)
- ✓ SLA 99,999%
- ✓ Full MPLS redundant backbone



# IP level AS49605

Our main MPLS PoP:

- ✓ Milan #1 (MIX)
- ✓ Milan #2 (Caldera21)
- ✓ Florence (GTT)
- ✓ Rome (NAMEX)
- ✓ Siena
- ✓ Frankfurt (Equinix)
- ✓ Amsterdam (NIKHEF)



# IP level AS49605

Our internet full routing table:

- ▶ IPv4 table (up to /29) > 700K routes
- ▶ IPv6 table (up to /48) > 50K routes



**Over 90% of traffic via peering**



# IP level AS49605

Direct peering with  
main fixed and mobile italian operators:

- ▶ TIM
- ▶ Wind
- ▶ Fastweb
- ▶ Tiscali
- ▶ Vodafone
- ▶ H3G
- ▶ Cloudditalia
- ▶ Iliad



# IP level AS49605

Direct peering with  
main multimedia streaming suppliers:

- ▶ RAI
- ▶ Sky
- ▶ Spotify
- ▶ Mediaset
- ▶ Netflix
- ▶ Apple
- ▶ Google  
(dedicated 10G)



# IP level AS49605

Direct peering with  
main social and tools networks:

- ▶ Facebook
- ▶ Yahoo
- ▶ Google Plus
- ▶ Dropbox
- ▶ Twitter
- ▶ YouTube
- ▶ Flickr
- ▶ Wordpress
- ▶ Linkedin
- ▶ Amazon
- ▶ VK



# IP level AS49605

Cooperation on research and development with:





# IP level AS49605

Accelerated Network Partner  
with capacity 4Gbps

"Most people don't know it,  
but I think Akamai IS the  
Internet."

– Investec

– Investec



# IP level AS49605

Hosting root server on AS 20144:

**L.ROOT-SERVER.NET**

199.7.83.42 - 2001:500:9f::42



**“One of the 13”**

„One of the 13„

