MIX REPORT

2013

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From the Chairman

Something has changed…

As we began to discern at the beginning of the year, and as has already been highlighted in the 2012 Report, both the national Internet scenario and, mainly, MIX's role in this context, show clear signs of a positive evolution.

First of all, this is a positive indication for all of us, a sign of hope in a condition that sees the national economy in near desolating stagnation. With optimism and will it could be said that, as happened in our Country during the past times of recession, something is stirring below threshold and, nobody knows though Italy is making preparations, how and where to adopt more pervasive and effective Network technologies than ever before both in the industrial area and in social one. Who knows how, once a new cycle of economic growth has started, if the productivity will increase overnight, enabled by ICT technologies at large, and more specifically by Internet technologies.

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Notwithstanding the concerns we expressed in the year gone by, when, in 2013, after a protracted preparation period, Telecom Italia gave the go-ahead to operation "depeering", its impact on MIX was minimally negative in the short period. Later in the year, the growth both in terms of customers and of peering bandwidth, set more new records in MIX than ever in its 10 year-long life.

Something has changed. Even if not completely; as was highlighted in the November 2013 MIX Salon. There still is a highly concentrated market of Internet access in our Country.

This could coax some large-market-power operator to try to cash in, even in small or very small quantity, the network effect of their own customer base against smaller operators, but deluding that it will be able to cash a substantial toll from OTTs for access.

I do not believe this route will bring great results: on one hand there is a telco operator with a mature business strategy, whose only strength is the access service it provides to a “captive” base of 12-15 million customers, on the other hand there are players, providers of content or services longed for by everybody and with a strong customer base of a billion “addicted users”.
As I said in an improvised speech at an ETNO Conference in Brussels, “Are access operators, strong in their own - small - domestic market, really sure that pursuing a strategy that aims at excluding small and medium operators from the market will not leave them at the mercy of the large and ruthless global OTTs?”. Something has changed.

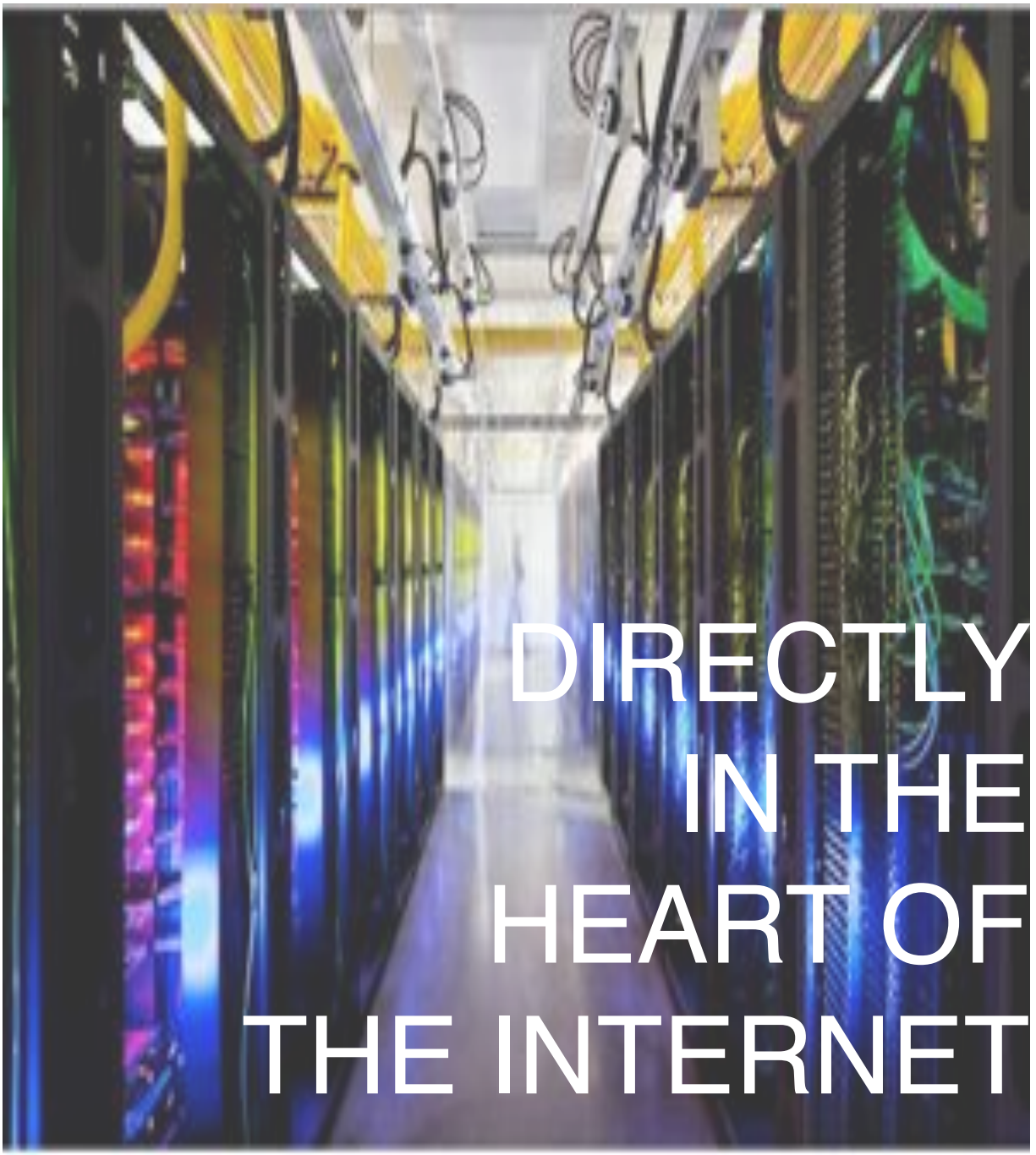
Another indication of on-going changes has been the birth of the first working group of the greatest Italian IXPs, whose first action was the drawing up of a “Manifesto of the Italian IXPs”, publicly announced during the November 2013 MIX Salon. Even if with different roles and business models, all of us agreed on certain fundamental principles, which concern, in particular: Peering, the Internet Ecosystem, the role of Market and the option of Regulation and the role of Public Administration.

Turning to financial and economic issues, it must be emphasized that MIX has recommenced investing at a substantial level, both in response to the increasing customer demand, and as a way of expanding and consolidating the perimeter of the sites where customers can interconnect. Regarding the supply oriented towards small and medium operators, “Pooling” showed up as the best vehicle, enabling the aggregation of several remote operators on to a single fiber optic strand toward the Milan site.

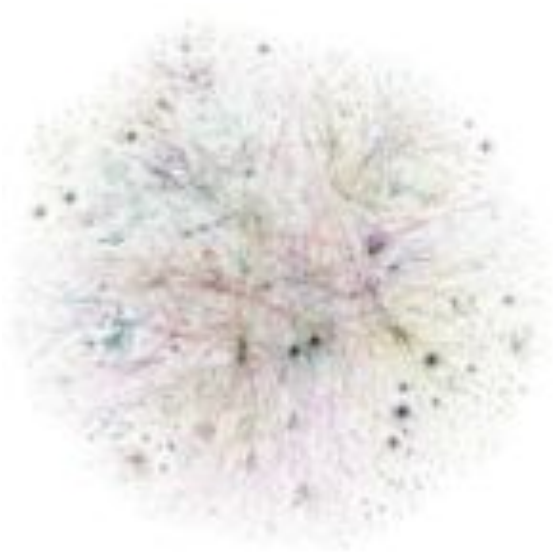
For large operators and, more and more, for all - national and international - players who think peering it is a mandatory feature of their cloud architecture, MIX is constantly upgrading its presence inside Data Centers with the appropriate requirement of neutrality.

Last but not least, it must be emphasized that with the Annual Assembly of FY 2013 there was a full renewal of the Board. In the new BoD Marco Concina, Vittorio Figini, Marco Fiorentino, Paolo Nuti and Renzo Ravaglia were confirmed, the new directors are Marco Barbieri, Luca Spada and Paolo Venturini, along with myself as Chairman.

A special thanks goes to Lorenzo Chirico and Paolo Susnik who shared with us many years as all conducting MIX up to this moment. For the new Board the hope is that it will work with farsightedness and a spirit of cooperation, because what is at stake is not only the future of a small company, but also a substantial slice of the technological future of interconnected Italy.


DIRECTLY
IN THE
HEART OF
THE INTERNET

WHAT AN INTERNET EXCHANGE IS

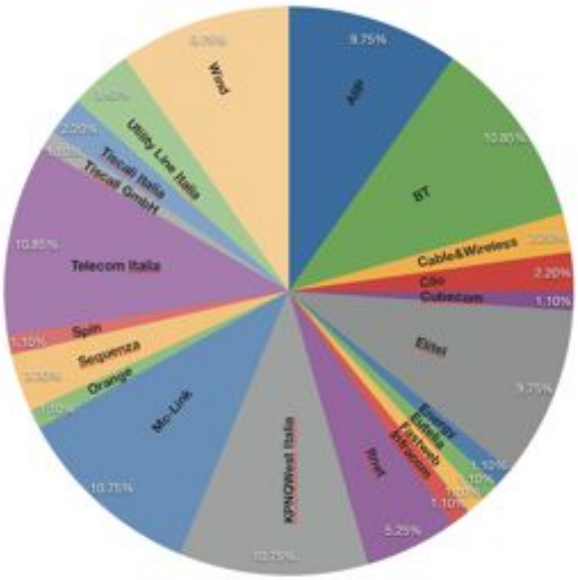


Internet is a system of interconnected networks where the players work to facilitate its growth.
Some of these, of neutral nature, allow the Internet Service Providers to connect themselves to a shared Peering LAN exchanging their IP traffic with all the operators connected without the need to use single interconnections.
These crucial points of the network where **traffic is exchanged** (peering) are called **Internet eXchange Points** (IXPs).
By doing peering agreements, the operators of an Internet Exchange Point have the advantage to optimize both costs and quality, thanks to a strong reduction of latency and hops.
The distribution of the Internet Exchange Points in the world are rather uniform even if in Europe their concentration is superior, since peering is a service historically more developed.

THE FIRST GLOBAL ITALIAN INTERNET EXCHANGE

THE MILAN INTERNET EXCHANGE

Founded in 2000 with the signing of 28 founding members representing the largest Internet Service Providers, MIX works to improve the infrastructure of the Internet in Italy and supports the development facilitating the intercommunication among the different ISPs operating in the country.



Thanks to a service provided through high performance switching platforms and its strategic position within the technological Caldera campus where the backbones of some of the most important telecommunication operators merge, today **MIX is the most important Italian Internet exchange** with more than **130 operators** connected to the peering LAN and **a peak traffic of 140 Gbps**.

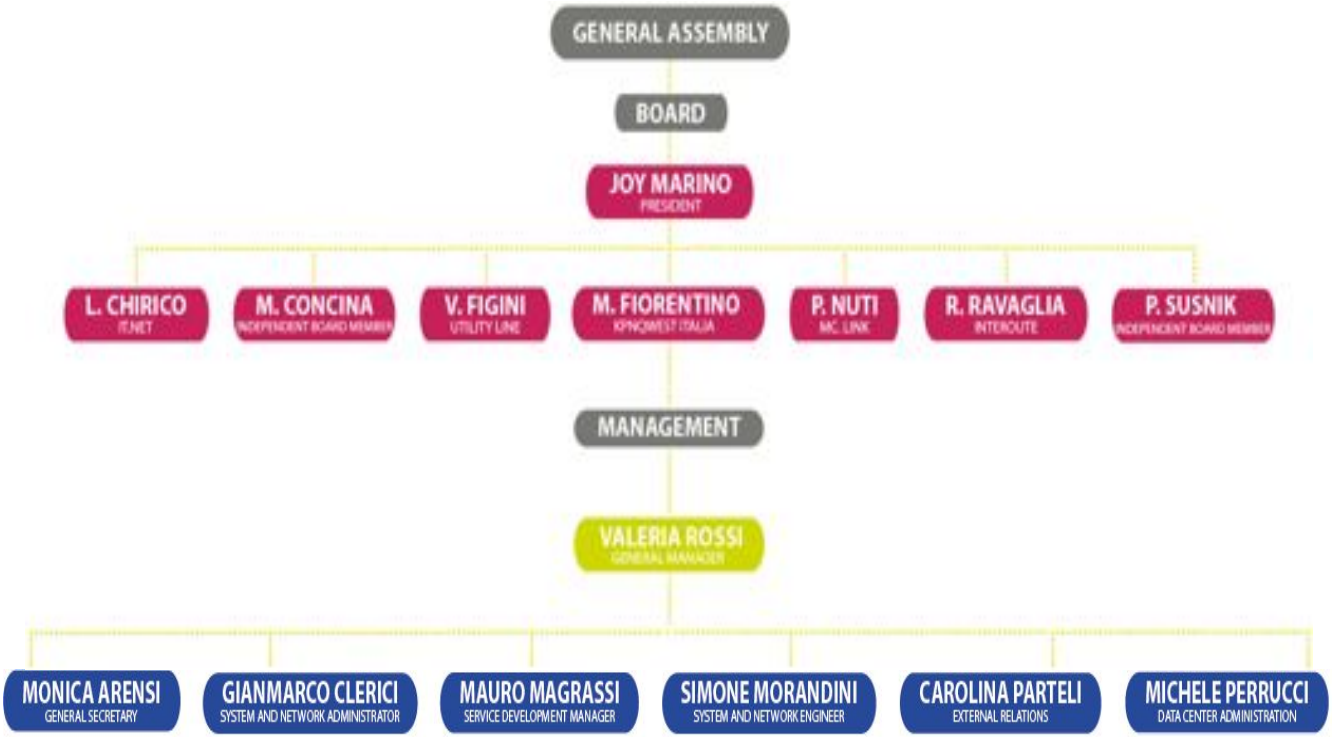
Its **corporate structure** due to incorporations, handovers and sometimes bankruptcy, has changed over the years and currently its capital is divided among 21 companies with shares that go from 1.10% to a maximum of 10.85%.

The members meet in **Ordinary Assembly** once a year to approve the budget while the **Board of Directors**, which has the responsibility to define the strategic and organizational goals, takes care of the ordinary and extraordinary management of the company.

The Board meets in four formal meetings per year organised concurrently with the quarterly meetings of the **Board of Auditors**. For the year 2013, the Ordinary Assembly held in April was attended by the legal representatives of the companies belonging to the corporate structure of MIX representing the 64% of the share capital. The Assembly approved the balance sheet for the financial year ending on the 31st December 2012, the budget for the year 2013 and the proposal of the Board of Directors concerning the allocation of the operating result.

The General Direction and a staff of six people complete the workforce.

THE ORGANIZATION CHART



WHOM IS MIX FOR

MIX is addressed to **Internet Service Providers**, **Carriers**, **Content Providers**, **CDN**, **Broadcaster**, **Web Hosters**, **Research and Public Administration networks**, **WISP**, **Telcos** and operators who provide national and international connectivity.

Root-name-servers and **TLD DNS** that are connected to the peering switches and that offer super-partes services useful for Internet operations complete the operators list.

In order to connect, each operator must have the **necessary authorizations** to provide these services, an **Autonomous System** number, provided by RIPE or another RIR, from which announcing its own networks and a **connection** to the global Internet **independent from the connection** to MIX.

WHY JOIN MIX

It is the most important Internet Exchange Point in Italy with more than 130 important peers and a total traffic peak of more than 140 Gbps.

By joining MIX, the operators have several advantages: a direct access to **more than 150.000 networks** announced by **more than 130 other operators**, both national and international, and by the most **important CDNs** and **Social Networks** of the world, establishing peering agreements with **root name servers** and **TLD DNS**, realising **dedicated transport** or transit connections with other operators and Telcos with just a fiber cable inside MIX datacenter, having safe colocation services inside a state-of-the-art data center managed independently by a qualified technical staff, being inside the widest technological Italian environment.

All of this at very low cost, that usually decreases every year, with a significant saving in terms of construction and management of the network infrastructures.

NEW OPERATORS 2013

The presence of Telecommunication operators with whom to connect and exchange traffic, of some of the most important "**Over The Top**" players like **Google**, **Facebook**, **Amazon**, and of the major **Content Delivery Networks**, makes MIX a crucial point for those who want to expand their network.
Despite the choice of Telecom Italia to close all its peerings, influencing the investment plans of many ISPs, we achieved extremely considerable goals in this year, both for the **traffic exchanged (+32%)** and for the **memberships of new operators (+25%)**.
Among the new members, it has been very important the connection of **Etisalat**, the Emirates Telecommunications Corporation, leader for the Telecommunication in the Emirates, **Facebook**, the most popular social network in the world, **SKY**, important international broadcaster and the "**Sole 24 ore**" the first magazine who connects to our exchange.
This improvement of new members is due to a more flexible policy of membership and the **increasingly use of Pooling@MIX**, service who allows the operators outside Milan district to connect by **sharing the access resources**.
In 2013, in fact, **Lepida (AS31638)**, a company that develops and manages the regional network of the Emilia-Romagna and which is involved in the creation and optimization of the infrastructure system, has formed the first Italian Pooling connecting with a 10 Gbps circuit shared with **Deltaweb (AS49653) Goomobile (AS198291)**, **Progetto 8 (AS198721)** and **Stel (AS56550)** while from the international point of view the operator **IX Reach (AS43531)**, connected in 2012, has allowed **Etisalat (AS8966), Gandi (AS29169)** and **Websense (AS44444)** to use the same service.

Alfanews (AS197589)
AMT Services (AS41160)
Biesse Solution (AS57495)
CDNetworks (AS36408)
Convergenze (AS39120)
Deltaweb (AS49653)
Edgecast (AS15133)
Elsyconn (AS196983)
Etisalat (AS8966)
Facebook (AS32934)
Gandi (AS29169)
Genesys Informatica (AS24994)
Goomobile (AS198291)
Grifonline (AS43942)
Intred (AS31115)
Lepida Spa (AS31638)
Progetto 8 (AS198721)
Retn (AS9002)
Servereasy (AS60798)
Il Sole 24 Ore (AS12650)
SKY (AS60772)
Stel (AS56550)
Terra (AS31222)
WaveMax (AS198292)
Websense (AS44444)
WispOne (AS60822)

PEERS 2013

Abilene Net Solution
Acantho
Active Network
Afilias
Amazon
Aria
Aruba
Asdasd
AT&T Global Network Services
Atrato IP Networks
Biesse Solution
Brennercom
BT Italia
BT Italia / I.Net
CDLan
CDNetworks
Clio
CloudItalia
Club Nautilus / Maki
Cogent Communications
COLT International
Comeser
Consortium GARR
Continent 8
Dada
Deltaweb
Digitel Italia
DIR.org
DTS
E4A
Easynet Italia
Elsyconn
Engineering.IT
Enter
ePress
Estracom
Eurocall
EuroTransit
Facebook
Fastnet
Fastweb
Fondazione IFOM
FUB - Fondazione Ugo Bordoni
Gandi
Genesys Informatica
Global Crossing
Google
Goomobile
Grifonline
H3G
Hurricane Eletric
i3b
ICT Valle Umbra
ICTeam
Infracom
Interactive Network
Intercom
Internet One
Interoute
Intred
Itelsi
ITGate Network
IX Reach
KPNQwest Italia
Leaseweb
Lepida Spa
Level 3 Communications
Level IP
Limelight Networks
Lottomatica
Mainsoft
Mandarin Wimax
Mc-Link
Mediaset
Metrolink
Microsoft
Netnod
NGI
NTRnet
OKCom / Teleunit
Omniwave
Optima Italia
Orange Business
OVH
Planetel
Postecom
Progetto 8
Qcom
RAI
Registro .it
Retelit
Retn
RIPE NCC - RIS project
RIPE-NCC - k.root-server
ScanPlus
Seeweb
Seflow
Servereasy
Siportal
SKY
Spin
Stel
Sunrise Communications
T.Net
Tata Communications
TelecityGroup Italia
Telecom Italia
Telecom Italia Sparkle
Telecom Italia San Marino
TELEImpianti
Telia
Teligo
Telnet
Tiscali Italia
TopneT Telecomunicazioni
Trentino Network
TWT
Unidata
Uno Communications
Utility Line Italia
Verisign
Verizon Italia
Vodafone D2
Vodafone Omnitel
Warinet Global Services
WaveMax S.r.l.
Webdiscount
Websense
Welcome Italia
Wifiweb
Wind
WispOne
Wolnext

Note: the red operators are Carrier too

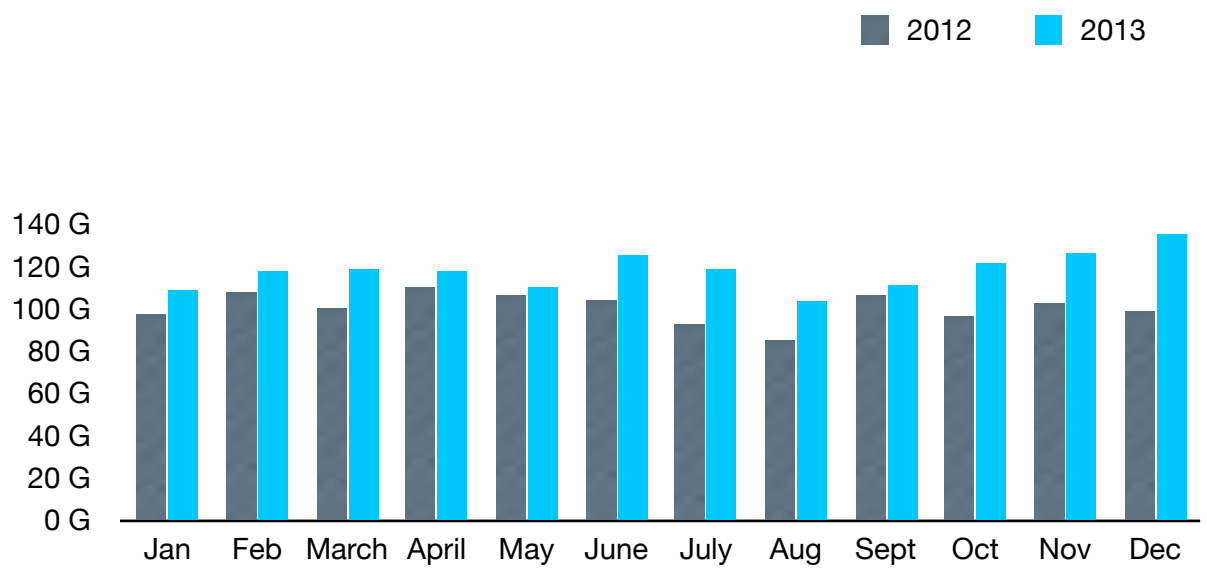

THE INTERNET
EXCHANGE
WITH MORE THAN
140 Gbps
OF TRAFFIC

THE PEERING

The exchange of IP data traffic among the networks of Internet service providers, often realised through an Internet exchange point, is called Peering.
Through MIX, the Internet operators can establish peering sessions with all the other providers connected, optimizing their costs thanks to a single physical connection.
The opening of Peering sessions improves the quality of service, allows a direct control of exchanged traffic flows and keeps local traffic local, providing a lower latency and avoiding the use of international routes.
Despite during the year Telecom Italia decided to close all its connections with the national providers, putting definitively an end to public peering, MIX growth never stopped, in terms of both traffic and new customers.
And just to assert the centrality and the efficiency of "peering", in collaboration with other national exchanges as NaMeX (Nautilus Mediterranean eXchange Point) and TOP-IX (Torino Piemonte Internet Exchange), MIX participated in the drafting of a shared Manifesto in which it was publicly expressed the thought of the three IXPs on the General Principles that should govern the relationship among the networks of Internet providers, and the role that the IXPs have in the global scenario.

THE TRAFFIC

The aggregated traffic is the result of Public and Private Peering sum achieved inside the IXP.
Over the years the trend of MIX traffic has always been positive thanks to the improvements of the provided services, for the presence of increasingly important operators and for a simplification of some membership requirements that in the past were more restrictive.
The most significant increases, compared to 2012, were recorded in **July (+ 27%)**, **October (+ 27%)** and **December** when the traffic increased by **more than 37%**.
Despite the physiological decrease in August, although increased by the 22% compared to 2012, the trend of traffic starts to increase again in the following months achieving the **145 Gbps peak in December**.

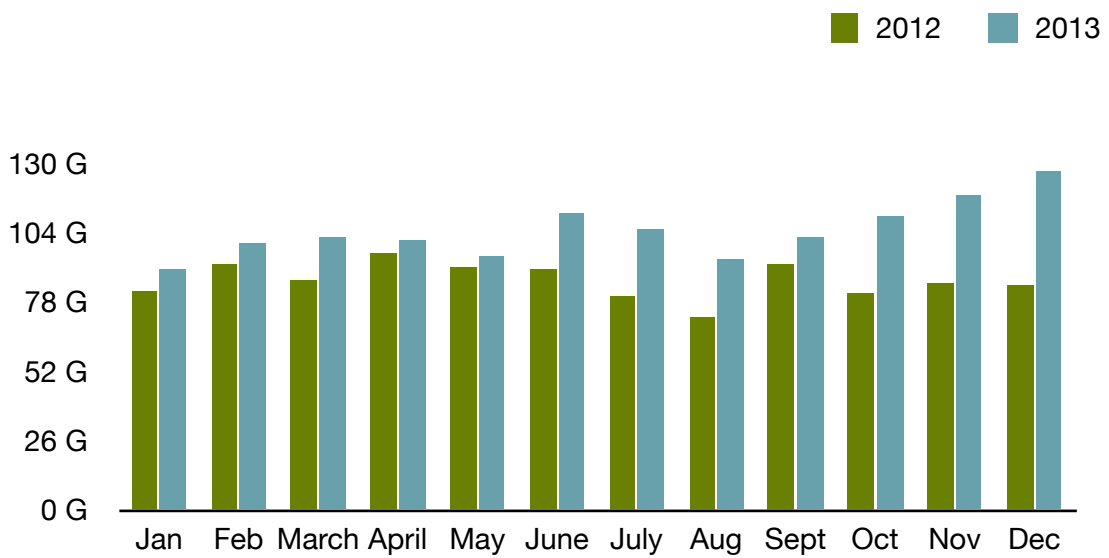


SERVICES: THE PUBLIC PEERING

Peering is the exchange of IP traffic among more than two Internet Service Providers realized in one Internet eXchange.

This service at MIX is realized on two VLANs, one primary and another with back-up functions, both enabled for IPv4 and IPv6 traffic and able to optimally manage multicast traffic flows allowing different redundancy scenarios: with different routers (full backup), with different ports of the same router (simple back-up), with a unique port for promiscuous use (q-tagging) for both VLANs (virtual-back-up).

Thanks to the connection by pooling that positively influenced the rise of new operators, the Peering Public level, compared to 2012, has always grown reaching significant increases, especially in **October (+ 34%)**, **November (+ 39%)** and **December (+ 50%)**.

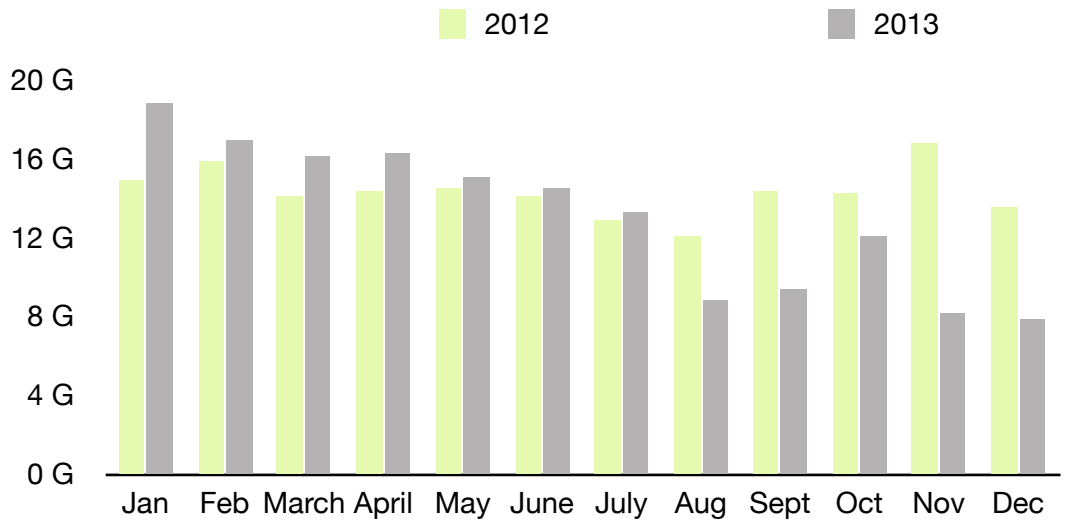


SERVICES: THE PRIVATE PEERING

It is a service provided only to the operators connected to MIX and realized by **dedicated VLANs** or interconnections between devices installed in the data center that involves only the interested subjects. This type of service allows the use of a dedicated port on the switches or the q-tagging of the interface already in use for the Public Peering.

In case of a dedicated VLAN, the traffic of private peering is monitored separately from the Public and the related data can be displayed only by the involved ISPs. To calculate the actual bandwidth consumption, the traffic exchanged on the private VLAN is added to the one generated on the public VLAN.

Compared to the traffic of 2013 Public Peering, that has always touched positive values, the Private Peering has remained roughly on the same levels as 2012, decreasing slightly during the months of August, September, November and December. It achieved the peak of 19 Gbps in **January (+ 27%** compared to 2012).



SERVICES: COLOCATION AND INTERCONNECTIONS

The presence of many ISPs and Carriers inside the same area has created an environment suitable for the development around Peering of many other services that the operators can take advantage from: transit selling/purchase, private peerings and physical interconnections among networks.
Colocation service is available to Carriers and ISPs connected to MIX needing room to host their network equipment.
Even if it was born as a subsidiary service to the institutional one and it is just designed for this purpose, it is still an offer that reflects the needs of the operators. If we consider the carriers equipment located in the Red Area, the optical boxes ending dark fibers in the Green Area and L2 transit equipment of the Yellow Area, at the end of the year we counted 525 devices installed inside MIX Data Center.
With the growth of colocation service numbers we have also seen an increasing demand of laying interconnection circuits, and the Data Center evolved naturally to **a big "Meet-Me-Room"** representing today the biggest neutral one in Italy.

SERVICES: PEERING WITH THE ROUTE SERVER

The connection to the Peering LAN by route server allows the interested operator to configure a single BGP session with the route server and to open at the same time peering sessions with all the other subjects connected to it.

This service is particularly useful for an operator who just joined MIX because it can have an immediate advantage from its presence **exchanging traffic with more than 85 peers** that are present on the route server and reaching those operators that, for internal policy, prefer to configure only a few direct BGP sessions and rely on a route server for the majority of their peerings.

Since the success of the route server service, in 2011 a second machine has been set-up on the primary peering LAN in order to have redundancy on the routing information received and in 2012 to optimize the management of backup peering sessions, a new route server has been configured on the secondary LAN. To ease the maintaining and configuration of the platform, we installed BIRD on this second machine as well, since over time it also proved to be stable and widely adopted within the Euro-IX community.

All the route servers are configured to work in IPv4 and IPv6 dual stack.

SERVICES: PEERING VIA CLOSED USER GROUP

The service, available for all the ISPs connected to the Public Peering LAN, is offered to a closed group of ISPs that require **sharing a LAN** on which to route types of traffic subject to interest (SLAs) of the group itself.

FEES

In order to allow the members to manage their connection to MIX, we adopted a per-port fee scheme that permits to connect to the LAN Peering using different speeds. In addition to the ports and the other services fees, the membership is considered completed by the payment of an **annual fee of € 850.00**.

The available ports that an operator can require at MIX are Fast Ethernet, Gigabit and 10 Gigabit and the latter with the possibility to be fractioned at 200 Mbps and 2 Gbps, respectively. If the operator decides to connect using a fractioned port, any excess of traffic is balanced and that port is adapted to a higher capacity. Compared to the last year, also the prices of MIX ports decreased in 2013, and the new fee scheme entered in force in July. The main changes were the elimination of the Virtual Rate Limit for the FastEthernet port, the reduction of their cost **by over the 50%**, and the decrease of the Gigabit and 10 Gigabit prices.

Furthermore, considering the increased request of 10 Gigabit ports, we have included on the fee scheme the 100 Gigabit ports, which is subject to a specific quotation.

Port Type		Speed Mbps	First Port Fee (€/month)	Following Ports Fee (€/month)
100 FE TX	Full	100	€50.00	€50.00
1 GE LX o SX	Full	1.000	€500.00	€400.00
	Fraction	200	€350.00	€350.00
1 GE LH (*)	Full	1.000	€500.00	€400.00
	Fraction	200	€350.00	€350.00
10 GE SR o LR	Full	10.000	€1,400.00	€1,300.00
	Fraction	2.000	€1,200.00	€1,200.00
10 GE ER o ZR	Full	10.000	€1,400.00	€1,300.00
	Fraction	2.000	€1,200.00	€1,200.00
100 GE		100.000	POA	

(*)Fort these ports a one-shot cost for the gbic provisioning, subject to specific quotation is applied

MORE THAN 130 OPERATORS AND OVER 150.000 NETWORKS ANNOUNCED

MONITORING SYSTEMS

One of activities that MIX has looked after since the beginning is the display of interesting information for ISPs.

To monitor their own traffic, together with tools of public knowledge such as MRTG, which allows each member connected to the Peering LAN to check at any time the daily values of its own traffic and display the one generated on the peering VLAN, the members have also other tools to analyze in **detail their own traffic**.

In addition to the creation of the "**peering matrix**" (that is the traffic matrix among all ISPs connected to MIX) built from the actual traffic data and not, as usually happens, from static DB entries, we have developed the "**traffic matrix**" exchanged between couple of ISPs and the "**typology matrix**" that allows to display the composition of traffic exchanged between two ISPs in terms of protocols and applications used.

The idea of "how much traffic am I exchanging with whom and how is it composed" is of great interest for both ISPs and other european IXPs, is refined by the possibility of composing an "on-demand" graph, either for protocols (TCP, UDP, etc) and the most used applications (http, ftp, eMule, etc).

INTERCONNECTION MODALITIES

To facilitate the interconnection to MIX, the operators can choose the solution that best suits their technical needs.

1

Connection to the peering switch through the router installed at MIX.

The connection between the router and the Peering LAN will be realized through the pre-cabling made available by MIX.

2

Connection to the peering switch through the router installed in a data center in Caldera.

The connection is realized using the fibers already available throughout the campus and ending in one of the optical boxes which are in MIX data center.

3

Connection to a PoP of MIX.

Thanks to partnerships with Telecity Group, KPNQwest, Infracom and Interoute, MIX has opened some Points of Presence connected directly to the Public Peering LAN.

If one ISP has its equipment in one of these data centers, its router will be connected directly to the local switch, according to the rules, procedures, and costs of the provider of data center space.

4

Connection through a LAN extension service offered by a carrier (remote switch).

The patches used for the interconnection between the end device and MIX switches are provided by the supplier of the LAN extension service.

If the ISP uses one or more Fast Ethernet connections, a fiber/copper rack-mount media-converter will be used.

5

Connection by Pooling@MIX service

It allows ISP groups to connect by sharing the transport circuit and the port on the peering switches, having a clear advantage in terms of cost reduction.

To open a MIX Pool there must be a Pool Registrar (PR) who has a direct contact to MIX and two or more ISPs interested to connect to MIX (Pool Element). The Pool has 1 Gbps and 10 Gbps ports available, on which control mechanisms for an optimal and secure traffic exchange are enabled, as it already happens on the peering ports of the switches.

All the ISPs that connect in this way are, to all intents and purposes, full MIX members, that is, will have the same peering opportunities and will have access to all the complementary services as if they were individually connected to MIX.

6

Connection by a radio-link

For this type of access, MIX provides a dedicated structure on the top of building D inside Caldera campus (whose ground floor hosts the main MIX PoP) on which the operators can install their antennas, in order to connect to MIX through a radio-link circuit.

Management and control equipment (modems) of the operators can be installed and powered in a specific shelter near the structure that supports the antennas, and can be connected to the main datacenter by means of fibers provided by MIX. Within the datacenter, radio-links are then connected to the active equipment (routers or switches) of the MIX members.

POINTS OF PRESENCE

To improve peering relations among the existing operators and facilitate the access to those who would have had difficulties, for geographical or technical reasons, we have opened some PoPs (Point of Presence) in Italy.

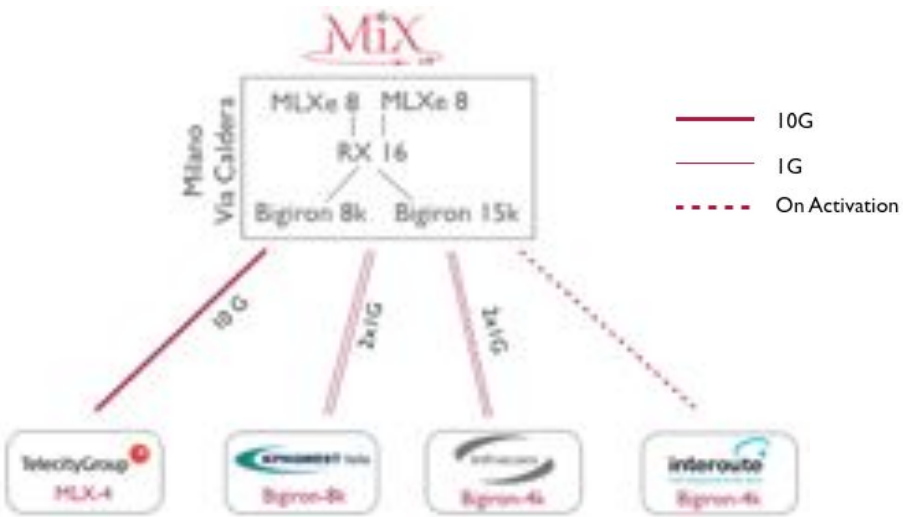
MIX is present inside **Telecity Group (south of Milan)**, **KPNQwest Italia** and **Infracom (inside Caldera Campus)** datacenters where access switches have been installed and through which the customers of each operator can connect to our Internet Exchange.

At national level instead, an agreement has been signed with **Interoute**, allowing the presence of MIX equipment inside the Interoute landing station in **Bari**.

The basic service is offered in these data centers in the same way and at the same prices than the interconnection realized directly in the headquarter of Via Caldera.

Due to the increase of new customers and the growing demand of 10 Gigabit interfaces, the peering platform has been upgraded with two new switches, expanding the internet exchange network that is now formed by eight switches. The new devices, as all the others, are manufactured by Brocade and they are only used to connect customer with single or aggregated 10Gigabit interfaces. They are configured to behave as a single device from the logical point of view: the multiple links are distributed on the two chassis without needing specific configurations on the customer side, with a result of an increased redundancy.

Network Infrastructure 2013



THE DATA CENTER

Contextually to MIX development, a new space started to populate, the space that will become its **key element: the data center**.

Unlike many European IXPs who have their own data centers in many points of the city, MIX has decided to have its headquarters close to the data center in order to ensure at any times NOC intervention and to guarantee the complete neutrality of the exchange point.

Over the years, thanks to the increase of members, the data center has seen several improvements until it was finally enlarged, in 2007, up to 270 sqm.

From the structural point of view, in order to create a new space, to improve the safety level and to reduce the risk of fire, we moved all the batteries and some of the UPS (activities to be completed in 2014) during the year in a space created outside the data center.

From the electrical point of view it has been designed to ensure the continuity of the service, both for the 220V AC and -48V DC. Taking advantage of the two parallel and independent lines of supply, powered to 150 kW in 2012, that form two physically distinct electrical systems, it can minimize the risk of unavailability to all those systems with redundant power supplies. Each electrical system is connected to an UPS and the continuity of service is ensured by a pair of generators both of 250 kVA to achieve a perfectly symmetrical design of the electrical system of the data center.

Some maintenances of the electrical system have been realized during the year to ensure a higher level of reliability.

In terms of investments, in 2012 two new power stations -48V DC were purchased while in 2013 we bought two new UPS. The data center is equipped with fire, flood and burglar systems, and it is monitored by means of closed-circuit video-cameras. In 2014 the fire protection system will be integrated with a power plant of air detection and aspiration with a laser technology (VESDA type) which analyzes the air drawn inside the environment verifying in advance the presence or absence of combustion particles. This system allows to gain precious time in case of fire. The internal temperature is constantly maintained at 19C° thanks to the presence of seven internal cooling units with external air condensers.

To make its management easier, the data center has been divided in five areas:

Red Area: dedicated to the operators that provide data transport services on their own equipment (for ex. ADM, xWDM or other). This area has been equipped with two completely redundant -48V DC power stations which include a battery system able to guarantee a supplementary endurance of 6 hours even in case of lack of UPS systems and generator.

Green Area: dedicated to the operators present inside the Campus who end their backbones in their optical boxes installed inside the data center. These racks are already pre-cabled to the peering switches with singlemode and multimode fibers.

Blue Area: is the area dedicated to the installation of peering equipment (router and switches) of MIX members. The area is equipped with racks provided with redundant 220V AC power and certified copper/fiber cabling to the peering switches.

Orange Area: is the area studied to provide the operators and/or the ISPs both AC and DC power.

Yellow Area: dedicated the switches and other AC powered equipment of the operators that offer Lan Extension services towards MIX.

The access to the data center is possible only after NOC authorization and in presence of one member of the staff.

NETWORK OPERATION CENTER (NOC)

It manages the activities related to the technical services provided, supporting the operators in any condition, it is responsible for the data center organization and maintenance and it monitors the traffic so that any possible problem is quickly managed.
The NOC staff is subject to weekly shifts of on-call availability with a 24x7x365 formula, during which it carries out regular checks on the switching equipment and it receives real-time alerts, from the internal alarm systems, related to any failure of connections to the peering switches and data center facilities.
In 2013 the NOC managed more than 400 interventions, mainly for ordinary requests, for a total activity of more than 1200 man-hour, both during day and nighttime.

MAINTENANCES CALENDAR

Name	Category	Day	Time	Notes
Electrical testing	Ordinary / Critical	Wednesday	6-8 a.m.	2 annual tests
Electrical board maintenance	Ordinary / Critical	Wednesday	6-8 a.m.	2 annual tests contemporaneous to the electrical tests
UPS maintenance	Ordinary / Critical	Wednesday	6-8 a.m.	4 annual tests; 2 of them contemporaneous to the electrical tests
Electrical generators maintenance	Ordinary	Wednesday	Flexible	3 annual tests
-48 DC power station maintenance	Ordinary	Wednesday	Flexible	2 annual tests
Conditioning plant maintenance	Ordinary	Wednesday	Flexible	12 annual tests
Fire/Flood/Burglar plants maintenance	Ordinary	Wednesday	Flexible	2 annual tests
Switch and peering equipment maintenance	Ordinary/Extra-ordinary Critical	Tuesday	23 p.m. - 05 a.m.	On need

THE EUROPEAN SCENARIO

The **European Association of Internet Exchanges** (Euro-IX) was born in May 2001 with the aim to enforce the Internet Exchanges community and to share experiences and technical knowledges.
Conscious of the international market importance and the basis on which the association would have been established, with **AMS-IX** (Amsterdam), **BNIX** (Brussels), **DE-CIX** (Frankfurt), **LINX** (London), **NETNOD** (Stockholm) and **VIX** (Vienna) **MIX is one of the founders** and it has been a member of its board of directors for six years.
Initially created only for European exchanges (Standard Members), over the years it has evolved and expanded beyond its original borders. It was opened to non-European IXPs (Associate Members) in 2005 and to others, who had the interest to be part of the community of Internet eXchanges (Remote Members) not being able to participate to the forums for geographical reasons and limited human resources, in 2009.
Over the years, the success of Euro-IX and the strength of the Community of European IXPs led to the creation of APIX (Asia Pacific Internet Exchange Point Association) and Lac-IX (Latin American and Caribbean Internet Exchange Point Association).
At the end of 2013, compared to the last year, Euro-IX registered an increase of **22 new members** represent **47 countries** and they are divided as follows:
Members: 41 (from 27 European countries)
Associate Members: 10 (from 6 non-European countries: Brazil, Curacao, Egypt, Japan, India and United States)
Remote Members: 22 (8 from 5 European countries: Germany, Finland, Italy, Luxembourg and Ukraine and 10 from non-European countries: Australia, Canada, Congo, Kenya, Mozambico, Nepal, Nigeria, Sud Africa, Tanzania, Tunisia, United States and Zambia).
During the year, the Association is involved in various activities: it participates, representing its members, in numerous european and worldwide events, it organizes international forums dedicated to its members and it does

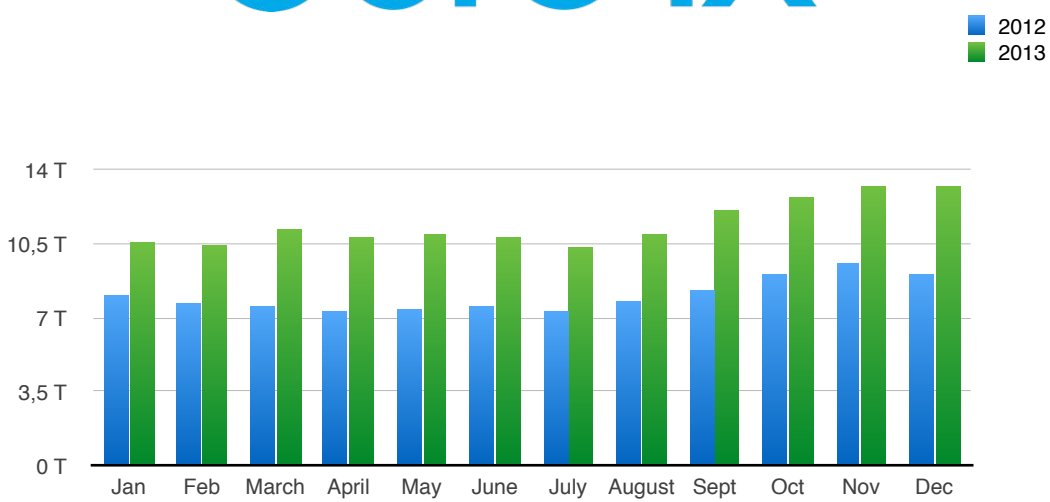

23rd Euro-IX Forum - Helsinki

PR activities with many representatives of the Internet world. In **2013**, the forums organized were held in **Helsinki** and **Hamburg**, the first hosted by **FICIX**, in October, and the second by **DE-CIX** Frankfurt in April.


24th Euro-IX Forum - Frankfurt -

Both the editions, for the number of participants that were present (**50 IXPs in Helsinki and 51 in Hamburg**) and the topics discussed, had a great success.

Among the news of 2013 it is to be highlighted the **signing of a Memorandum of Understanding** (MOU) **with the Internet Society** (ISOC), which establishes the mutual cooperation for the promotion and growth of the role of IXPs and the Internet in the world and the **presentation of the new logo**.



Source: Euro-IX

A FEW WORDS FROM THE GM

Year 2013 started with many questions, as we knew it would. The Italian peering scenario would have changed: the action of Depeering announced by the most important Italian access operator was about to happen, but when? With which actual consequences? What impact would this have on the role development MIX had been accomplishing with considerable success in these last few years? What would happen to the quality and contents that the main OTT transferred into the network, to our satisfaction thanks to MIX, at least in part? It would mean less certainty, a considerable amount of discussion but also strong determination.

It has been a year in which we have planted seeds, set up new challenging projects of which we have announced the first results, increased business activity to a world-wide level and begun a campaign to improve the coordination of MIX activities with those of the other Italian IXs.

Where the market is mature, the role of the IXs is growing and the growth of MIX gives us the hope that Italy is also evolving…

Articulated paths that have begun to bear their fruits and that we undertook to follow remaining faithful to the principles that underlie our model, while carefully considering other, authoritative international voices.

In such a delicate moment, we have maintained a growth of traffic aligned with that recorded in London and Amsterdam and reached the record number of 25 new members connected during the year, results that convince us of the feasibility of our current strategies and that clarify future choices to us.

Where the market is mature, the role of the IXs is growing and the growth of MIX gives us the hope that Italy is also evolving, maybe just a little slower than others, along a road that makes it more attractive and viable for the investments of the big operators. The backlash of old models slow down but do not hinder, Italian operators have demonstrated a capacity for cooperation and cohesion, overcoming yet another obstacle. MIX, as every IX, has aimed at the Internet growth of a country, is one of the means of creating the right ecosystem for a mature telecommunications market.

COMMUNICATION AND MARKETING

THE LOGO

Keeping coherence between the corporate identity and the image determined by the communication process is the base of our communication strategy. The use of new solutions and the improvement of the communication tools tipically used, have frequently renewed MIX communication in these years. The first important step was in 2010 in the occasion of the tenth anniversary when a new corporate logo and website have been launched.

To give the brand a continuity, some graphic elements have been preserved, such as the elliptical shape around the logo and the arrow partially cut, while the news introduced have been the color, the orientation and the three circles that conceptually reproduce the image of a chip and graphically balance the optical dynamism created by the arrow.

Today, MIX logo fully respects its distinctive features: it is original, extremely recognizable and able to be used in different communication tools.

Due to the several contexts in which the logo is used, we have realized a brand manual where we consider all the using possibilities so that the end image is always coordinated and able to communicate in a strong and recognizable way.

THE NEWSLETTER

Written with the aim to be a dialog instrument with members and anyone interested, the **newsletter** is published three times per year and it deals with news involving MIX and the Internet world.

The **registration** can be done by filling and sending a form from the website in the Public Relations section, while **the cancellation** from the mailing list should be required directly to MIX and will have an immediate effect.

Together with the last numbers, each new newsletter is downloadable in the "**Press Kit**" area of the web site and its publication is communicated via email to the subscribers list.

THE WEB SITE

The site has been organized so the user is able to gather quickly and easily the required information.

From the home page it is possible to be updated on the latest news and daily data traffic while scrolling through the side menu the user can discover the services provided, the rates and other details regarding the company and the context in which it works.

The web site has a **reserved area** that MIX uses to communicate directly with its customers and it is accessible only **after authentication**, here the user can find useful information such as the monthly report, the application form for the interventions, the private documentation, the statistics and some other tools.

The private pages have **different levels of access** to display general information, to edit technical information and to view aggregated statistics of other peers.

THE PRESS REVIEW

During the year, the printed media and the online newspapers granted an important coverage to MIX, either for the growth of the exchange, the new important activations of operators such as Il Sole 24 Ore, Lepida, Etisalat, Facebook and SKY and some articles in which we were directly involved. Here below, we report the titles of the articles and the newspapers which can be downloaded directly from the section of our website Public Relations/Press Releases.

December - "*Milano Caldera Business Park, the house of italian data center*" by HostingTalk.it - November - "*MIX Salon 2013: Interconnections in a Glocal World*" - by Libero.it, TechWEEKeurope and Oipa Magazine. "*The Manifesto of italian Internet Exchange Points (IXP)*" by Area Press, Assodigitale, Che Futuro, Corriere delle Comunicazioni, Libero.it, News24, Oipa Magazine, Tom's Hardware (Gruppo Espresso) and Wired. "*Telecom pole in Palermo is not connected to Milan Internet Exchange*" by Sicilia Informazioni. "*Since 10 days new Sicilian probes peek at Europe and M.O.*" by Sicilia Informazioni. - October - "*MIX Milan is not the place where Nsa spies Italy*" by Wired. "*MIX is not the the cross point of the metadata marketplace*" by Key4biz, Corriere delle Comunicazioni and Assodigitale. "*Gruppo24Ore connects to MIX*" by Informazione.it.

"*Digital divide, with Lepida new opportunities to have bandwidth at cheaper conditions*" by Key4biz. April - "*Pooling@MIX: LepidaSpa is a new member*" by Area Press, Corriere delle Comunicazioni, Free On Line, Libero, Regione Digitale, Comunicati Stampa and Primi Blu. February - "*Greetings from Internet*" by Rivista Studio. January "*Expo, the metamorphosis of Milan in smart city*" by Expo2015.

EVENTS

Considered the increasing attention on the Telecommunication world, the events organised during the year that gather the representative of the Internet World are several.

Considered an ideal platform for meeting new players and business consultants, the national and international events allow MIX to face with a miscellaneous audience and keep up to date on the issues and news of the field in which it works.

In the year 2013, the meetings and the technical workshops were numerous and they allowed MIX representatives to be present both as participants and speakers, not only in Italy but also in Europe and in the United States and Emirates.

The events attended by MIX were: NANOG 57 (February-Orlando), Menog (March- Dubai), 22 ° Euro-IX Forum (April-Hamburg), Ripe 66 (May-Dublin), ICT Festival (September- Milan), AFpif (September-Casablanca), EPF (September-Iceland), Ripe 67 (Athens-October), 23° Euro-IX Forum (October-Helsinki).

EVENT PLANNING

To share and pursue current themes and news involving MIX and the field in which it works, we are used to organise annually two kind of events that, for the topics they deal with, we divided in Salon and Salottino. The choice of the name, rather unusual for this kind of events, is a clear reference to the Enlightenment, where the salon was a place where people meet and socialize with the aim to spread knowledge and develop new contacts.

THE SALON

The Salon has become a regular appointment in November in the Telco world. Organised once a year, it is open to a wide audience composed of network and research experts, general managers, technical and trade directors and other subjects who are involved in the world of Internet. The formula used is the one of a workshop where high-level speakers discuss issues of current topics generating a debate.

The edition in 2013, titled "**Interconnections in a Glocal World**", was held at Grand Visconti Palace in Milan and it was attended by **over 130 guests**. The theme of peering, the core business of Internet Exchange Points (IXPs), has been tackled largely by international speakers and it had a special introduction made by **Bill Norton**, better known as "dr. Peering ". His presentation also allowed the less technical audience to understand how the peering has always been at the basis of the Internet operation.

For the occasion the speakers who attended, moderated by the journalist of Radio24 **Enrico Pagliarini** were **Bernard Krönung**, member of DE-CIX Board, the largest IXPs in Germany, **John Souter**, CEO of LINX, the largest IXPs in the UK, **Innocenzo Genna**, Council Officers of EuroISPA, the European Association of Internet Service Providers and expert on European regulations, **Solène Souquet**, marketing manager of France-IX, the largest French IXP and **Joy Marino**, MIX President.

THE SALOTTINO

Organized with the aim of creating a direct line between MIX and its members, these events are generally two per year, depending on the suggested topics. They have, by choice, an easier organization than Salotto and they are organised in our headquarters of Via Caldera opened to only MIX members.

The day begins with a "Welcome Coffee" that allows participants to interact before the opening of the session and ends in the afternoon with a "lightning talks" moment. In 2013, due to some renovations of the offices, Salottini were not organised but in 2014 their organization will regularly come back.


FINANCIAL
ACCOUNTS
CAPITAL
PROJECT
SUPPORT
IDEA
PROFIT
DATA
PLAN
JOB
SUCCESS
PROFIT
SHARES
MONEY
LOSS
MARKET
DECREMENT
DISCOUNT
PRODUCTION
GROWTH
BONUS
CRASH
LOSS

Fotografia degli ultimi 5 anni

Last 5 years snapshot

		2009	2010	2011	2012	2013
Clienti già collegati	*Customers*	77	86	100	109	127
Traffico di picco (Gbps)	*Peak Traffic (Gbps)*	49	68	95	116	187
Personale tempo pieno	*FTE staff*	6,8	6,8	6,8	6,8	6,8
Ricavi (K€)	*Revenues*	1.277,0	1.452,0	1.498,0	1.595,0	1.742
EBITDA (K€)		145,5	207,6	194,4	223,6	202,1
Ammortamenti (K€)	*Depreciation*	95,6	108,1	126,9	115,9	141,2
Utile Netto (K€)	*Net result*	19,6	49,0	27,6	66,3	38,2
Investimenti (K€)	*Investments*	113,4	124,4	80,1	99,4	376,7
Patrimonio Netto (K€)	*Net Assets*	482,9	531,9	559,5	625,8	663,8

Stato Patrimoniale *Balance Sheet (K€)*	2013	2012
Attivo *Assets*	**1.344,4**	**1.263,6**
Immobilizzazioni	**717,9**	**487,6**
immateriali	9,9	11
materiali	708	476,5
finanziarie	0	0
Attivo circolante	**560,7**	**737,2**
crediti	446,3	323,7
disponibilità liquide	114,4	413,6
Ratei e risconti attivi	**65,7**	**38,8**
Passivo *Liabilities*		
Patrimonio Netto	**663,9**	**625,9**
Fondi per rischi e oneri	**42,2**	**77,4**
Trattamento di Fine Rapporto	**244,3**	**218,3**
Debiti	**293,4**	**256**
Ratei e risconti passivi	**100,6**	**85,9**

Conto Economico

Profit & Loss (K€)

	2013	2012
A- Valore della produzione *Revenues*	**1.742,2**	**1.595,3**
Ricavi	1.740,1	1.594,9
Altri Ricavi	2,1	0,3
B- Costi della produzione *Costs*	**1.681,4**	**1.487,6**
Materie prime e sussidiarie	3,6	2,5
Servizi	757,1	637,3
Godimento beni di terzi	193,1	182,4
Costi per il personale	553,3	486,7
Ammortamento	141,2	115,9
Altri Accantonamenti	0	0
Oneri diversi di gestione	32,9	22,8
A-B	**60,8**	**107,6**
Proventi ed oneri finanziari	4,6	5,8
Proventi ed oneri straordinari	8,6	0,7
Risultato prima delle imposte	**74,1**	**114,1**
Imposte *Taxes*	-36	-47,8
Risultato Netto *Net Result*	**38**	**66,3**

From the Auditors' statement

During the accounting period ended on 31st of December 2013, we supervised on the observance of the law and of the company act; we participated to the General Assembly and the Board of Directors' meetings, done accordingly to articles, laws and regulations rules; we can reasonably assure that board resolutions have been done with the keeping of law and articles and haven't been unwary, careless, in clash of interests or compromising the company assets integrity.

We have also had knowledge of the adequacy of the organizational, financial and accounting structure of the company and supervised on it. Furthermore, during our three-monthly inspections, we have verified the correctness of the bookkeeping.

The financial data as above reported are coherent to the Balance Sheet we have examined and they are in accordance to the accounting results of the Company.
During the year, the Board of Auditors did not receive any notification of ex art. 2408 c.c., and during the surveillance activity no omissions, censurable facts, limitations, exceptions or irregularities occured.

Dr. Alberto Gulisano
President Board of Auditors

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