MIX REPORT 2014

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Prefazione del Presidente



The Chairman's comment

The year 2014 was an important one in the life of MIX. I believe that in the future, looking back, we will recognise these years as a turning point in our history.

To begin with, it was a year in which all Italians discovered that Internet Exchanges exist and that they are a critical hub for the country's entire communications infrastructure. Joking aside, in the month of July, a letter, sent by the Privacy Authority to the Prime Minister's Office and which was supposed to be confidential, ended up with the editor of a newspaper and therefore on the front pages

of the press. Prior to this letter the Authority had sent inspectors the previous April to MIX for what was presented as a "cognitive visit", followed by similar inspections at other Italian IXs.

That MIX is a critical hub is well known in the sector, as is the notion that the standards of reliability and security at MIX are basically high level.

All the same, the intervention of the Authority, once the media frenzy had died down, was useful to better formalise what minimum standards should be certified and ... the role of MIX as a business catalyst and network services enabler is – and will be increasingly - fundamental.

to launch a process of quality improvement for the entire IX system in Italy. Also related to this is the self regulation code which the three leading IXs signed in October in the presence of the Ministry of Economic Development.

For MIX it was another chapter to mark its coming of age.

The main news, however, is that the rise in traffic exchanged through MIX has undergone significant acceleration, with a growth rate that puts us in first place in Europe.

Two things can be taken from this news: on the one hand that the Italian Internet market has firmly entered into the radar of all major "Over The Top" operators and of "Content Delivery Networks" and MIX is recognised as a focal point where Italian and foreign operators interested in optimizing their network infrastructures can meet; on the other, as happened in the past, that the first "hidden" signs have emerged of the much awaited economic recovery in our country, signs that begin with online services and the interaction via the network with the whole world. Let's keep our fingers crossed.

Looking to the near future, because this is the time for budgets as well as planning, MIX has to keep up with growth, strengthening the infrastructures of the centre in Via Caldera according to the plans already identified last year, which will require increased space and a multi-year investment plan.

At the same time it must be ready to seize the opportunities set to arise these coming months, opportunities that may lead to a more widespread presence of MIX points in the area of Milan.

Broadening our gaze to the entire Mediterranean area, other initiatives have been launched, where the role of MIX as a business catalyst and network services enabler is – and will be increasingly - fundamental.



WHAT IS AN INTERNET EXCHANGE

The Internet is a group of interconnected networks in which entities that promote its growth coexist.

These include ones of a neutral nature which, through a connection with a shared LAN, enable Internet operators to exchange their IP traffic (Peering) with the Autonomous Systems (AS) of all providers connected to it.

These crucial network points are known as Internet eXchange Points (IXPs).

Their presence on a global level is rather evenly spread out, although there is a higher concentration in Europe where peering is a much more developed phenomenon.



THE PEERING

Thanks to the shared platform made available by MIX, operators can forge peering relationships with all other connected clients, thus obtaining different advantages:

- reduced costs: with one single physical connection, operators at MIX can interconnect directly with the other 150 connected operators (figure for 31 December 2014);
- higher performance: direct access to over 150,000 networks which can be reached today via MIX, avoids traffic being transferred through the networks of many other providers before reaching the final destination;
- · less complex network management, thanks to direct control of traffic flows;
- local maintenance of local traffic and therefore fewer latencies: the fact that the networks are close to one another promotes the exchange of traffic without having to use international lines.

Peering helps to make the Internet strong, with higher and more secure performance.

THE MILAN INTERNET EXCHANGE (MIX)

Set up in 2000 with the subscription of 28 founding shareholders representing leading Internet

Service Providers, MIX operates with the goal of improving and developing the Internet infrastructure by facilitating intercommunication between the different Internet operators working on Italian soil.

Thanks to its high-performance switching platforms and its strategic location inside the Caldera technology campus where the backbones of the most significant telecommunications



operators converge, today MIX is the most important Italian Internet Exchange with 150 operators connected to the peering LAN and Internet traffic which reached peaks of over 230 Gbps during the year.

Its shareholding structure, due to acquisitions, transfers of company branches and in some cases bankruptcies, has undergone some changes over the years and its share capital is currently divided between 21 companies with stakes ranging from 1.10% to 10.85%. While the shareholders approve the financial statements at the annual General Shareholders' Meeting, the ordinary and special management of the company is down to the Board of Directors, which has the responsibility of identifying strategic and organisational guidelines.

The company organisation is completed by general management and six staff members.

THE ORGANIZATION CHART



WHO CAN CONNECT

Connection to MIX is reserved for Internet Service Providers, Carriers, Content Providers, CDNs, Broadcasters, Web Hosters, Research Networks and the Public Administration, WISPs, Telcos and in general entities that operate on the Internet on a national and international geographical level. This list is completed by root-name servers and TLD DNS providers.

REQUIREMENTS

Authorisation to provide services, an **Autonomous System (AS)** number issued by a public Register and a **connection** to the global Internet **independent** from our infrastructures are the only requirements necessary to be able to join the MIX community.

NEW OPERATORS 2014

In 2014, the number of **new ASs connected to MIX** was **up by 24**, from Italy, Russia, Switzerland and Singapore.

3P System (AS199837) Akamai (AS20940) Cesena Net (AS200043) CloudFlare (AS13335) EasyConn (AS199941) Engineering (AS21176) Fibering (AS51569) Globecorp Networks (AS63113) GoDaddy.com (AS26496) Horizon Telecom (AS201518) Integrys.it (AS196753) Interplanet (AS34758) IPTP networks (AS41095) Irpinia Net-Com (AS48500) NETandWORK (AS201877) Nexus (AS199947) Nice Blue (AS59699) Redder Telco (AS33986) Sg.Gs (AS24482) Swisscom (AS3303) Telemar (AS13097) Timenet (AS51580) TransTeleCom (AS20485) Xmatica (AS60475)

ELENCO OPERATORI

3P System Abilene Acantho Active Network Afilias Akamai Alfanews Amazon AMT Services Aria Aruba Asdasd AT&T Atrato IP **Biesse Solution** Brennercom **BT Italia** BT Italia / I.Net CDLan **CDNetworks**

Cesena Net Cloudflare CloudItalia Cogent COLT Continent 8 Convergenze D.T.S. Dada

Deltaweb

Clio

Digitel Italia DIR.org E4A EasyConn Easvnet EdgeCast Elsvconn Engineering Enter ePress Estracom Etisalat Eurocall Facebook Fastnet Fastweb Fibering FUB Gandi GARR Genesys Globecorp Go Internet Google Goomobile Grifonline H3G Horizon Hurricane ICT V.Umbra

ICTeam

IFOM Il Sole 24 Ore Infracom Integrys.it Intercom Internet One Interoute Interplanet Intred **IPTP** Irpinia Net It.Net ITGate IX Reach **KPNQwest** Leaseweb Lepida Level 3 Limelight Lottomatica Mainsoft Mandarin Mc-Link Mediaset Metrolink Microsoft Net Global **NETandWORK**

i.root-server

Nexin

Nexus

NGI Nice Blue Optima Orange OVH Planetel Postecom Progetto 8 Qcom RAI Redder Registro Retelit Retn Ris Project (RIPE) k.root-server ScanPlus Seeweb Seflow Servereasy Sq.Gs Siportal Skv Spin Stel Sunrise

Swisscom T.Net

Tata Telecity **Telecom Italia**

Telecom Italia Sparkle Telecom SM Telemar Telia Sonera Telnet Terra Time-Net Tiscali Topnet Trentino Network TTK TWT Unidata Uno Communication Utility Line IT i.root-server Verizon Italia Vodafone D2 Vodafone **Omnitel** Webdiscount Websense Welcome Italia Wifiweb Wind WispOne Wolnext **Xmatica**

WHY CONNECT TO MIX

- it is Italy's leading Internet exchange with carried traffic exceeding 230 Gbps ;
- it allows direct access to over 150,000 networks;
- it is constantly growing: there were 24 new clients in 2014 and traffic in the past two years increased by almost 100 G (2013/145 G 2014/230 G)
- it means Peering agreements can be made with root name servers and TLD DNS;
- it allows special connections to be created with over 150 operators in the same place;
- it has a special area in its DC equipped with 4 -48Vdc power units where over 30 Carriers provide interconnection services;
- it helps Carriers to sell transport and transfer services;
- it offers secure co-location services for peering equipment;
- it offers 6 different connection methods for all technical requirements;
- it is inside the via Calera technology Campus, home to many DCs and PoPs of national and international operators,
- · the DCs of the Campus are directly connected to the MIX DC
- it provides 24/7 on call services all year round;
- it has an independently managed cutting-edge data centre, equipped with the most high-tech security systems and powered by due parallel and independent energy supply lines capable of guaranteeing uninterrupted service for all equipment, be it 230V or -48V powered;
- it provides its clients with personalised tools for monitoring daily traffic data at all times and to see that generated on the Peering VLAN as well as statistical tools created ad hoc;
- it can guarantee physical as well as logical security of the switching platform to which all clients are connected (ISO27001 certification in completion);
- it boasts fifteen years of experience in supplying IP services;
- · it has highly qualified staff



TRAFFIC

The performance of traffic during the whole year follows macroscopic trends which have been consolidated with time, and one of the typical characteristics is the strong upturn after the summer break. Very often, in recent years, the peak of traffic was registered in September, and this year, in addition to this "natural" behaviour, is a considerable rise in the number of new operators on the one hand, 20 in the first 10 months of the year, and frequent upgrades in resources by existing operators on the other.

Some percentages regarding the growth in total traffic registered in 2014:

July	+ 62%
August	+ 70%
September	+ 96%
October	+ 88%
November	+ 82%
December	+ 62%

2014

2013

	2013	2014		
January	109,20	158,45		
February	117,67	161,70		
March	119,00	158,63		
April	118,12	163,87		
Мау	110,40	167,24		
June	125,67	179,30		
July	118,82	192,48		
August	103,68	176,97		
Septembe	r 111,64	219,71		
October	122,23	230,42		
November	127,07	229,00		
Dicember	135,13	219,34		
Nota: i valori di traffico sono				

espressi in Gbps, e sono i valori di picco di ciascun mese.



PUBLIC PEERING

This service is provided on two VLANs, one primary and another as back-up, both enabled for IPv4 and IPv6 traffic and capable of efficiently managing multicast traffic flows allowing for various redundancy scenarios: with different routers (full backup), with separate ports of a single router (simple-back-up) or even with a single port for combined use (tagging) of both VLANs (virtual-back-up). Through a high performance switching platform based on Brocade equipment, MIX guarantees refined configurations for the correct routing of traffic. Some percentages regarding the growth in Public Peering traffic registered in 2014:

July	+ 74%
August	+ 79%
September	+107%
October	+103%
November	+ 87%
December	+ 67%

	2013	2014		
January	90,29	149,41		
February	100,66	152,37		
March	102,79	149,29		
April	101,81	155,72		
Мау	95,39	159,23		
June	111,11	171,55		
July	105,50	184,25		
August	94,84	169,98		
Septembe	r 102,26	211,98		
October	110,10	223,96		
Novembei	• 118,88	222,50		
Dicember	127,17	212,77		
Nota: i valori di traffico sono				
espressi in	Gbps, e s	sono i		
valori di pic	co di cias	cun mese.		

1<mark>8</mark>4 172

2013

2014



PRIVATE PEERING

It is a service offered only to operators connected to MIX and provided through special VLANs or interconnections between equipment installed in the data centre, of which only the interested parties have mutual visibility.

This type of service involves the use of a special port on the switches or q-tagging the interface already in use for Public Peering. In the case in which the VLAN is created according to the first method, Private Peering traffic is monitored separately from Public Peering and the relative data can be viewed exclusively by the ISPs involved.

Compared to the Private Peering traffic registered in 2013, the traffic statistics for 2014 show a drop in private interconnections in favour of greater demand for the Public Peering service.



PEERING VIA ROUTE SERVER

Connection to the Peering LAN through **Route Server/s** allows, by configuring a single BGP session, peering sessions to be opened simultaneously with all the operators connected to it.

This service is particularly advantageous for those recently connected not only because it allows operators to instantly exploit their presence by exchanging IP traffic with over 100 peers present on the RS, but also because it enables to reach those operators who, due to internal policy, prefer to manage few BGP sessions directly transferring most of the peering session management to the RS. The service is provided through two Route Servers configured on MIX's main LAN, guaranteeing total redundancy, and one on the back-up LAN.

To facilitate configuration and maintenance of the platform, the BIRD routing deamon was used, which has proven stable over the years and was adopted by many other European and non European exchange points.

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

PEERING VIA CLOSED USER GROUP

The service, available for all ISPs connected to the Peering LAN, is offered to closed ISP groups that **need to share one LAN** for routing specific traffic types and subject to the interests (SLA) of the group.

COLOCATION E INTERCONNECTIONS

The coexistence of many ISPs and Carriers within the MIX Data Centre has created the need to develop a series of other services for the operators present to support the Peering service, like sale and purchase of transfer, the opening of special peering and physical interconnections between networks. The ever-growing number of devices installed in the centre has gradually increased the demand for the realisation of circuit interconnections between the same, making the MIX DC evolve into a large "**Meet-Me-Room**", today the biggest neutral DC in Italy.

For operators that need a space to house of their network equipment, MIX offers a collocation service.

Today, the MIX DC hosts 614 devices (525 in 2013) including 284 Peering devices in the Blue Wing, 180 transmission devices for Carriers in the Red Wing, 48 dark fibre termination cabinets in the Green Wing,16 L2 transport devices in the Yellow Wing and 86 devices in the Orange Wing.

MEMBERSHIP FEES

The MIX fees scheme is based on the speed of the ports.

Besides the fees for ports and any other Peering support services, MIX membership includes an annual fee of \in 500 (\notin 850.00 for operators that connect to MIX through Pooling).

The ports available on the Peering switches are Fast Ethernet, 1G, 10G, and 100G with the option of fractioning 1G and 10G ones to 200M and 2G respectively.

The fractional ports are not blocked on a physical level, so any traffic peaks are managed without affecting performance.

Port	Туре	Speed Mbps	First Port Fee (€/month)
100 FE TX	Full	100	€ 50,00
1 CELV - SV	Full	1.000	€ 400,00
F	Fraction	200	€ 300,00
1.05111.(#)	Full	1.000	€ 400,00
1 GE LH (*)	Fraction	200	€ 300,00
10 GE SR o LR	Full	10.000	€ 1.200,00
10 GE ER o ZR	Fraction	2.000	€ 1.100,00
100 GE		100.000	POA

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



NETWORKS ANNUNCED

CONNECTION METHODS

Operators can decide to connect to MIX using different methods depending on their technical needs.

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

Connection between the router and Peering LAN is created by way of a

pre-cabling made available by MIX.



MIX is currently located inside the DC of **Telecity Group Italia** (South Milan), KPNQwest Italia

(Caldera Campus), Infracom (Caldera Campus) and since the beginning of summer 2014, thanks to a partnership with GARR, also at the Computing centre of Palermo University. The basic service is offered in these locations with the same method and same prices for interconnection made directly at the data centre in Via Caldera.



Connection to the Peering switch through the router installed in a data centre inside Caldera.

The connection is made using fibres already laid on the campus and terminating in one of the optical fibre cabinets inside the Data centre.





Connection through a LAN extension service provided by a carrier (remote router).

In this case the interconnection patches between the termination device and the MIX switch are looked after by the service provider of the LAN extension.

Connection through Pooling@MIX

Enables groups of operators located outside of the area of Milan to connect to MIX by sharing the transport circuit and the

port on the Peering switch. The model increases business opportunities for all entities involved, be they ISPs, carriers, data centre providers or regional IXs. Advantages for ISPs:

- option of MIX membership at competitive prices;
- help in the set-up phase for connection to MIX.
 Advantages for Carriers:
- offer of a new type of L2 transport service;

• opening of a new market in transport circuits.

When the Pool is organized by a regional IX, the IX aggregator has the benefit of:



- increasing its traffic;
- · increasing turnover in terms of margin on organised purchasing groups;
- expand its portfolio of services (introduction of a one-stop-shop service);
- promoting customer loyalty.

In the case in which, instead, the Pool is organised by a company offering collocation services, the DC provider has the advantage of:

- entering the MIX connection into its portfolio of services;
- promoting customer loyalty;
- · increasing the number of clients in co-location participating in the Pools where not already present

Connection through radio link

For this type of access, MIX offers a special structure on the top of building D inside the Caldera campus (whose ground floor is home to the main MIX PoP) on which operators that wish to connect through a radio link circuit can install their aerials. A special shelter next to the aerials structure contains the management and control equipment (modem)

belonging to our operators, whose connections are relaunched by MIX towards its data centre. In the data centre, the radio link terminates in the operator's active devices (routers or switches).

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POINTS OF PRESENCE

With the aim of making connection scenarios increasingly in line with its operators' needs and to promote interconnection with MIX for operators already present in other DCs, four PoPs (Points of Presence) have been opened where the access switches installed are connected to the Public Peering LAN.

Today, MIX offers this option to operators present or near the DCs of **Telecity Group Italia** in Via Savona, Milan, **KPNQwest Italia** and **Infracom**, inside the Via Caldera technology campus and, from summer 2014, also to operators geographically close to the Computing centre of Palermo University. The opening of the PoP in Palermo, thanks to an alliance forged with **GARR**, represents the first step in a broader strategy aimed at enhancing Italy's role in international telecommunications and to promote the infrastructural development of Sicily and Southern Italy in general, thus opening up new opportunities for the spread of advanced services by public and private entities. The PoP has been set to be able to accept connections by new operators which, thanks to high speed connection between the Milan and the Palermo centres, will become MIX customers like the others currently connected to the Milan centre.

NETWORK INFRASTRUCTURE

With the considerable increase in new customers and the ever-growing demand for 10Gigabit interfaces, the MIX network infrastructure has been expanded with the installation of two new peering switches by Brocade (MLXe8) destined exclusively to connect client equipment with 10G, interfaces, single or group. The two devices allow for greater redundancy, being configured to behave like a single device from a logical viewpoint: the multiple links are distributed on two chassis, but no specific client configurations are necessary.



SITUAZIONE PORTE ATTIVATE 2011/2014

2011	2012	2013	2014
Fast: 1	Fast: 6	Fast: 5	Fast: 6
1G: 16	1G: 7	1G: 21	1G: 15
10G: 8	10G: 6	10G: 22	10G: 30

THE DATA CENTER

In tandem with the set up of MIX, the space that would become its **true nerve centre - the data centre** – began to grow.

Unlike almost all other IXPs that have their equipment installed at third party data centres, MIX immediately decided to set up its own technology area in order to ensure absolute neutrality. The Data Centre's proximity to the offices area guarantees timely intervention at all times by MIX technicians.

Over the years, thanks to the positive growth trend, the centre underwent several improvements before being definitively expanded in 2007 to reach 400 m2.

Besides the space for housing operators' network devices, the room was equipped with a separate area created to further improve the level of security and reduce the risk of fire, home to all of the -48 DC power unit batteries and the 4 new UPS. The latter, as well as having a higher energy class and greater power (currently up to 200kVA) than the previous ones, were chosen as modular and expandable.



Both spaces are equipped with an alarm system complete with **anti-flooding**, **anti-intrusion**

and fire prevention detectors, which in 2014 was integrated with a laser technology air detection and aspiration unit (like VESDA) thanks to which the air samples taken from inside the room are analysed to verify the presence or otherwise of combustion particles.

From an **electrical viewpoint**, the DC has been equipped to guarantee **uninterrupted service**, both for 220V as well as -48V powered devices. Using two parallel and independent power supply lines which give rise to two physically separate electrical plants, the risk of disruption for all devices with redundant power supply is minimised.

Each electrical panel is connected to a UPS unit and continuity of the Service is ensured by a couple of 250 kVA generators which make the electrical plant perfectly symmetrical and redundant.

To guarantee maximum reliability, **regular maintenance** is carried out on all equipment necessary for the correct functioning of the DC. The temperature in the centre is kept at a constant 19°C thanks to the presence of **7 cooling units with remote air-cooled condensers**.

From a logistics viewpoint, the data centre is divided into five different areas according to the type of installation required:

The Red Wing is devoted to the operators that provide data **transport services** on their own devices (e.g. ADM, xWDM or others) and it is equipped with four completely redundant -48V DC power units which include a battery system capable of supplying an extra 6 hours of power, even in the event of complete absence of the UPS systems.

The Green Wing is destined for operators on the Campus which terminate their backbones in their own optical fibre cabinets housed in specially equipped racks in the Centre. These racks are installed with special pre-cabling in multi-mode and single-mode optical fibres towards the MIX switches.

The Blue Wing is the area where our operators' **peering equipment** (routers) are installed and it is equipped with racks complete with 220V AC redundant power rods and certified optical fibre cabling and copper towards the switches.

The Orange Wing is dedicated to operators and/or ISPs that require direct or alternating current towards their racks.

The Yellow Wing is home to the switches and **the alternating current devices** to supply the access service to MIX through LAN extension type services.

Access to the data centre is made exclusively in the presence of the MIX NOC and subject its authorisation.

NETWORK OPERATION CENTER (NOC)

The NOC manages the activities related to the technical services offered by supporting operators in all circumstances, looks after the organisation and maintenance of the data centre and monitors the traffic performance so that any anomalies are promptly dealt with. The NOC staff is on weekly work shifts 24/7 all year round, during which it regularly carries out checks of the switching devices receives warnings regarding any malfunctions in both the connections to the peering switches, as well as the data centre systems, in real time, from the internal alarm systems. In 2014, over 500 requests for mainly ordinary repairs were managed for a total of over 1.240 hours/staff member, day and night.

MANTEINANCES CALENDAR

Name	Category	Notes
Electrical testing	Ordinary/Critical	2 annual tests
Electrical board maintenance	Ordinary/Critical	2 annual tests contemporaneous to the electrical tests
UPS maintenance	Ordinary/Critical	4 annual tests; 2 of them contemporaneous to the electrical tests
Electrical generators maintenance	Ordinary	3 annual tests
-48 DC power station maintenance	Ordinary	2 annual tests
Conditioning plant maintenance	Ordinary	1 monthly test
Fire/Flood/Burglar plants maintenance	Ordinary	2 annual tests
Switch and peering equipment maintenance	Ordinary/Extra- Ordinary Critical	On need

MONITORING SYSTEMS

The creation of analysis systems that allow connected operators to elaborate statistics regarding traffic generated on MIX has always been a particularly important aspect of our services.

Besides the option of using widespread public tools like MRTG, which enables each operator connected to the Peering LAN to check the daily traffic data at any time and view that generated on the peering VLAN, our operators also have other more specific tools for analysing their traffic:

- "Peering matrix": built on the basis of actual traffic data and shows with which AS connected to MIX an operator has peering sessions open,
- "Traffic matrix": allows the operator to view the traffic exchanged with every other operator connected to MIX
- "Traffic type matrix": shows the composition of the traffic exchanged between two operators in terms of protocols (TCP, UDP, etc) and applications used (http, ftp, eMule, etc).

EUROPEAN SCENARIO

Euro-IX, the **European Association of Internet Exchanges**, was set up in May 2001 to strengthen the Internet Exchange community and share its experience and technical expertise.

Aware of the importance of the international market and the conditions on which the association would be founded, MIX together with **AMS-IX** (Amsterdam), **BNIX** (Brussels), **DE-CIX** (Frankfurt), **LINX** (London), **NETNOD** (Stockholm) and **VIX** (Vienna) was **one of the founding members**, forming part of its Board of Directors for six years running.

Initially founded only for European IXPs (Standard Members), Euro-IX gradually evolved and expanded beyond its original boundaries. In fact, in 2005 it opened up also to non-European IXPs (Associate

euro-IX

Members) and in 2009 to other IXPs which participate remotely in association activities (Remote Members). Over the years, the success of Euro-IX and the ever-growing strength of the Community of European IXPs led to the birth of APIX (Asia Pacific Internet Exchange Point Association), Lac-IX (Latin America and the Caribbean Internet Exchange Point Association) and Af-IX (African Internet Exchange Association). In October 2014, these three Associations, together with Euro-IX, created IX-F, the Internet Exchange Federation, which aims to build a global Community of IXPs contributing to their development worldwide.

With over 70 member IXPs and more than 3,600 clients connected to them, Euro-IX represents a large part of the European IP community, arousing considerable interest from politicians, regulators, vendors and other industrial entities.

Today, Euro-IX boasts over 70 member IXPs from 49 countries:

Standard Members: 42 (from 28 European countries)

Associate Members: 8 (from 4 non-European countries: Brazil, Japan, India and the United States) **Remote Members**: 25 (Germany, Finland, Iceland, Italy, Luxemburg, the Netherlands, Serbia and the Ukraine. Non-European: Australia, Canada, Congo, Curacao, Kenya, Mozambique, Nepal, Nigeria, South Africa, Tanzania, Tunisia, USA and Zambia).

During the year, the Association organises different activities including participation, to represent its members, in many European and world events, coordinating international forums for associates and managing relations with different world Internet and network companies.

In 2014, the forums organised were held in Leeds and in Bucharest, the former hosted by LINX, Lonap and IXLeeds in March, and the latter by InterLAN in October. Both editions met with great success (52 IXPs in Leeds and 51 in Bucharest).







Total aggregated traffic of Member IXPs (in Gbps) / Worldwide

Source: Euro-IX

A WORD FROM THE DIRECTOR

Growth and expansion. These are the two watchwords for a year in which we focused on the analysis of medium and long-term strategies.

An increase of over 60% in traffic on the peering LAN in the space of 12 months is a really impressive figure and we are proud to be able to say that we were ready to absorb it and manage the resulting capacity upgrade requests (over 30%) with the activation

of over 50 new connection ports. Daily activity increased dramatically, with a data centre that boasts 750 circuits and over 300 client devices. Major figures that reflect a fast growing business.

Speaking of long term plans, while it may seem almost anachronistic, for MIX it has always been not only normal procedure over recent years, but a genuine need in order to lead and promote the

2014 Pride for MIX growth

- 60% of traffic
- 30% access capacity
- 50 peering ports
- 750+ interconnection circuits
- 300+ installed devices

evolution of the IP market in Italy. This year we have further expanded and strengthened our technological infrastructure, developed the data centre systems, set up the first MIX PoP outside the area of Lombardy by laying the first stone in Sicily of a much bigger project which will take shape later on in 2015. We analysed the growth potential in the urban sphere, set to make Milan one of the leading technological cities in Europe, and shared strategies and projects with major operators in the Mediterranean, participating in the most important meetings in the Middle East.

We are ready! 2015 will be a year of further study and driven towards what we believe will enhance digital Italy and increase the benefits of being directly connected to MIX.

Valeria Rossi

COMMUNICATION

EVENTS

The Internet world is changing but especially expanding on a large scale. The net is reaching

increasingly remote areas hitherto cut off. The attention aroused by the internet is greater and greater thanks to the business opportunities it generates. During the year, the events in the sector which bring together professionals from the Telco and Internet world are more numerous and of major interest.

National and international events thus represent the ideal platform for meeting new operators and sales consultants and to generate an active exchange of information to guarantee ongoing innovation in a sector in constant evolution. Every year, MIX takes part in leading events, enabling it to examine the problems and novelties of the sector in which it operates.

In 2014, the calendar of meetings and technical workshops was vast and varied, enabling us to

WARCH ARCH DAY BER SDAY BER SDAY BER SDAY UMARSON UMAR

be present, both as participants as well as speakers, not just in Italy and Europe but also in the United States.

The events which MIX participated in were: Peering Day (March-Vienna), 24th Euro-IX Forum (March-Leeds), VSIX event (April-Padua), RIPE68 (May-Warsaw), NANOG61 (June-Washington), 25th Euro-IX Forum (October-Bucharest) and Ripe69 (November-London).

MIX EVENTS

To share and explore subjects and news regarding MIX and the sector in which it operates, we organise some annual events which, due to the specific topics covered, we divide into "Salotti" (salons) and "Salottini" (mini salons).

The choice of names, unlike those of similar events, aims to be a reference to the enlightenment period when the salon was a meeting place, one of socialisation, cultural exchange with the simple goal of spreading knowledge and developing new contacts.



THE "SALOTTO"

The many editions organised and an ever-increasing public have made the Salotto into a now regular appointment for the Telco world. Organised once a year, it is devoted to an audience which includes experts from the internet and research world, CEOs, technical and sales managers and other opinion leaders who revolve around the internet world.

The formula used is the round table discussion to which high



profile speakers are invited to discuss relevant topics, moderated by a journalist from the sector.

Past editions:

2007 The new media and the TV meet on the network: what scenarios can we envisage?

- 2008 It's a question of balance
- 2009 NGAN: Who can resist an irresistible idea?
- 2010 Internet, daughter of NN.
- 2011 Internet: an evolving structure. Now and always.
- 2012 Internet and the hornet.
- 2013 Interconnections in a Glocal World.
- 2014 You think it or know it?

THE "SALOTTINI"

Organised with the aim of creating a direct link between MIX and its operators, the "Salottini" (mini salons) are generally twice a year, depending on their contents.

They are more contained organisationally speaking than the Salotto, and are held at the Via Caldera premises exclusively for MIX operators.

The day's agenda is packed with addresses and presentations that touch on different subjects, from analysis of successful companies to new projects in which the company is involved



or more technical studies of common interest. The work sessions end with "lightning talks" in which participants can share breaking news or brief updates regarding their own work spheres.

EDUCATIONAL MEETINGS

Since 2010, Mix has been organising educational meetings for schools that wish to understand more about the TLC world and observe an Internet eXchange close up. Students of the Lombardy

Technical Institute are invited to the offices of MIX and after an introductory course held by Simone Morandini, engineer, in the NOC area of MIX and a visit to the Data Centre, can see what was explained to them during school hours first hand.

The daily workshops are always marked by great enthusiasm and curiosity, and enable students to get to know often ignored aspects of the TLC world.





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 (KE)	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

From the Board of Statutory Auditors' Report

During the financial year closed on 31 December 2014, we monitored compliance with the law and with the articles of association; we took part in the Shareholders' meetings and Board of Directors' meetings, held in observance with statutory, legislative and regulatory standards and for which we can reasonably ensure that the actions decided upon were compliant with the law and the articles of association and not manifestly imprudent, risky, in conflict of interests or such as to compromise the integrity of shareholders' equity.

We also examined and monitored the adequacy of the company organisation and the administrative and accounting system as well as the reliability of the latter in correctly representing the affairs of the company. Our quarterly checks during the financial year also enabled us to establish the regular company book keeping and the accurate recording of company affairs in the company accounts.

The financial statement data above are consistent with the financial statement data we examined, which are compliant with the company's accounts and records.

During the year, the Board of Statutory Auditors received no notifications pursuant to art. 2408 of the Italian Civil Code, just as no omissions, reprehensible actions, limitations, exceptions or irregularities emerged during our monitoring activities.

Mr Alberto Gulisano Chairman of the Board of Statutory Auditors



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