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⤙ What's an **Internet Exchange Point**?

An Internet Exchange Point (IXP) is a location where Internet Service Providers (ISP) exchange traffic. When the customer of one ISP wants to exchange data with (i.e. send packets to) the customer of another ISP, that traffic usually passes through an IXP somewhere.

IXPs are also known as EPs (Exchange Point), NAPs (Network Access Point), CIXs (Commercial Internet Exchange) and even MAEs (Metropolitan Area Exchange).

IXP and EP are neutral names for the concept, where as NAP was used to refer specifically to the four exchange points chosen by the NSFNET Backbone Service in 1987-1995. **CIX**[1] and **MAE**[2] are registered trademarks of the companies that run the exchange points that are called by those names. (Although CIX no longer runs an exchange point. Many International IXPs have included the letters CIX as part of their name.)

In 2010 the **European Internet Exchange Association**[3] made a video that explains IXPs' role in the Internet and they

put it on YouTube[4] .

⤙ What is "**RIR**"?

RIR is short for a Regional Internet Registry.

The **ICANN**[5] has delegated the responsibility of allocating and assigning some Internet resources, such as AS numbers and IP addresses, to RIRs. As this was written, there were five RIRs:

– **APNIC**[6] in Asia and on the Pacific;

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[1] http://www.cix.net/
[2] http://www.mae.net/
[3] https://www.euro-ix.net/
[4] http://www.youtube.com/watch?v=a5837LcDHfE
[5] http://www.icann.org/
[6] http://www.apnic.net/

- **ARIN**[7] in America and for Africa;
- **RIPE**[8] in Europe and for Norther Africa and Western Asia;
- **LACNIC**[9] in the Latin American and the Caribbean region;
- **AFRINIC**[10] in Africa.

↯ What is an **Autonomous System**?

An autonomous system (AS) is an independent routing domain within which all routers agree on the same external routing policy. ASes are uniquely numbered on the Internet and some routing protocols (mainly BGP) use this number when making routing decisions and especially when trying to avoid routing loops.

In Europe the autonomous system numbers are assigned by **RIPE**[11] according to their **document number 679**[12]. TREX will allow AS numbers assigned by other **RIRs** as well.

↯ What is a **Virtual Local Area Network**?

Virtual LANs, or VLANs for short, are a way of splitting a switch into multiple virtual switches. Any group of ports can belong to a virtual switch and moving a port from a virtual switch to another virtual switch is a matter of reconfiguring the port. A port can belong to multiple virtual switches if the switch supports trunking or tagging, but the equipment connected to that port needs to support the same method of tagging. The de facto VLAN standard is often called **dot1q** and it was standardized by the **IEEE**[13] working group **802**[14].1q.

↯ What is the **Internet Routing Registry**?

The IRR is a distributed database where operators register their routing information. It's purpose is to aid in debugging, auto-configuring and engineering the Internet. **RIPE**[15] runs a part of this registry in Europe. For more information see **http://www.irr.net/**[16].

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[7] http://www.arin.net/
[8] http://www.ripe.net/
[9] http://www.lacnic.net/
[10] http://www.afrinic.net/
[11] http://www.ripe.net/
[12] http://www.ripe.net/publications/docs/ripe-679
[13] http://www.ieee.org/
[14] http://grouper.ieee.org/groups/802/index.html
[15] http://www.ripe.net/
[16] http://www.irr.net/

It is usually enough to register objects on just one of these registries. In the early days it was also briefly called the Global Routing Registry (GRR).

⚐ What is **Dense Wavelength Division Multiplexing**?

DWDM is a method of transfering more data over a fiber by using several closely packed wave lengths of light to carry separate, independent data streams instead of just the one. New technologies, such as 100GbE and 400GbE will aggregate slower signals using DWDM at first.

⚐ What is a **Multi-Lateral Peering Agreement**?

An agreement whereby all signatories agree to peer with all other signatory parties of the same agreement. This is the simplest and fastest way to get lots of peers, but on the down side one may not have much control over who one ends up peering with.

The signatories may still have bilateral peering agreements with members outside the MLPA.

⚐ What are **transit**s?

A transit agreement is an agreement between a customer and an Internet Service Provider. The provider agrees to carry the customer's traffic to those parts of the Internet that the customer's own network doesn't extend to.

The provider also agrees to announce the customer's routes to everyone. In effect the provider also carries traffic destined to the customer's network from the Internet to the customer.

The word transit is usually associated only with customers that have their own independent address space and an **AS number**.

An **Autonomous System** can have multiple transits, which means that if one of their providers' networks breaks down they can still access most of the Internet using their other transits. Multiple transits can also be used to enhance the aggregate bandwidth available between the AS and the rest of the Internet. This is called traffic engineering.

There are also other variations on the theme, such as mutual transit, regional transit, inter-exchange transit, etc. They all fall in the category of **advanced BGP designs**[17].

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[17]http://www.axu.fi/services.html