

The practical benefit of an IXP

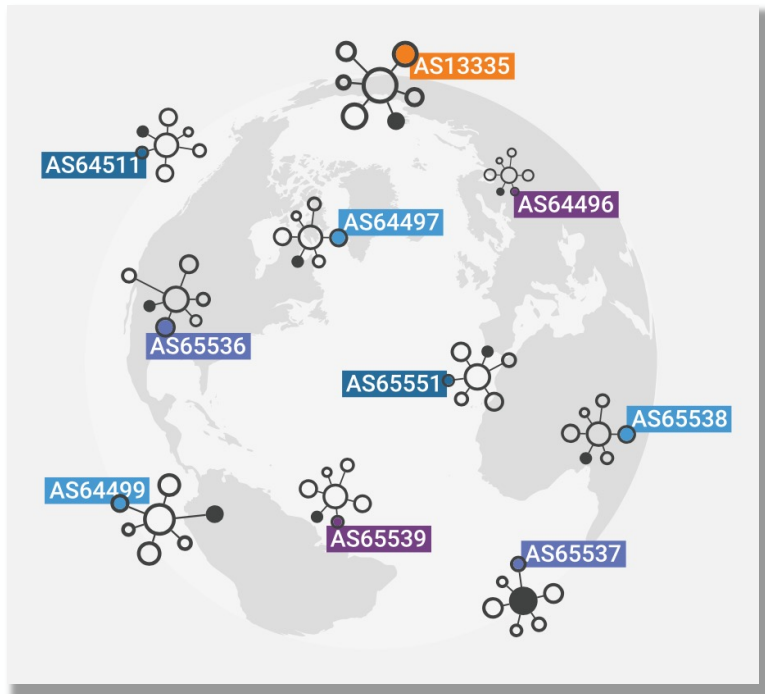
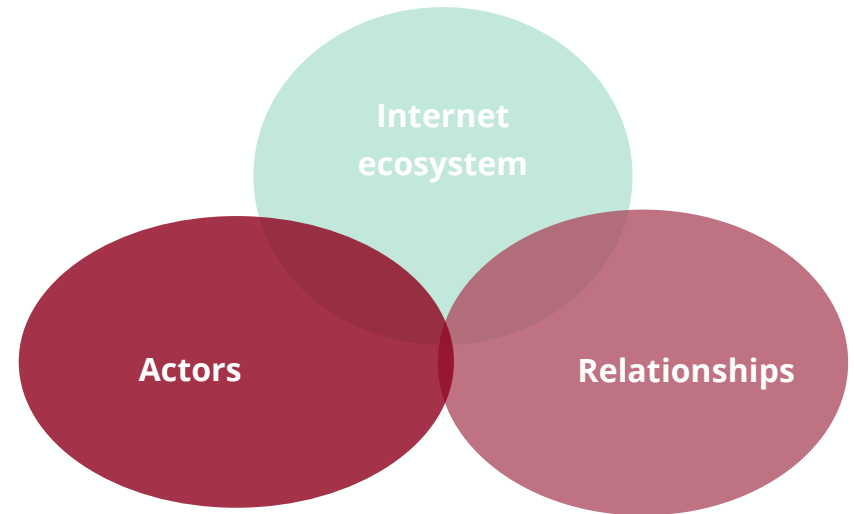
Flavio Luciani – Namex CTO

7 April 2022



THE INTERNET

As a network of networks, the Internet critically depends on adequate interconnection between the different participants in the Internet ecosystem.



PeeringDB Search Interface

Search here for a network, IX, or facility. Register or Login

Advanced Search

Amazon.com **Diamond Sponsor**

Organization: Amazon.com
 Also Known As: Amazon Web Services
 Long Name: Amazon.com
 Company Website: http://www.amazon.com
 ASN: 16509
 IRR as-set/route-set: AS-AMAZON
 Route Server URL:
 Looking Glass URL:
 Network Type: Enterprise
 IPv4 Prefixes: 6000
 IPv6 Prefixes: 2000
 Traffic Levels: Not Disclosed
 Traffic Ratios: Balanced
 Geographic Scope: Global
 Protocols Supported: Unicast IPv4, Multicast, IPv6 servers

Organization: Cogent Communications, Inc.
 Also Known As:
 Long Name:
 Company Website: http://www.cogentco.com/
 ASN: 174
 IRR as-set/route-set:
 Route Server URL:
 Looking Glass URL: http://www.cogentco.com/en/network/looking-glass
 Network Type: NSP
 IPv4 Prefixes: 420000
 IPv6 Prefixes: 60000
 Traffic Levels: 100+Tbps
 Traffic Ratios: Not Disclosed
 Geographic Scope: Global
 Protocols Supported: Unicast IPv4, Multicast, IPv6, Never via route servers

Public Peering Exchange Points

| Exchange # | ASN | Speed | RS Peer |
|------------|------|-------|---------|
| IPV4 | IPV6 | | |

No filter matches. You may filter by Exchange, ASN or Speed.

Private Peering Facilities

| Facility # | ASN | Country | City |
|--|-----|--------------------------|--------------|
| 1-Net East | 174 | Singapore | Singapore |
| 1025Connect | 174 | United States of America | Westbury |
| 123.NET - DC1 - 24700 Northwestern Hwy | 174 | United States of America | Southfield |
| 1500 Chamea | 174 | United States of America | Denver |
| 151 Front Street West Toronto | 174 | Canada | Toronto |
| 300 Bent | 174 | United States of America | Cambridge |
| 365 Data Centers Buffalo (BU1) | 174 | United States of America | Buffalo |
| 365 Data Centers Chicago (CH6) | 174 | United States of America | Chicago |
| 365 Data Centers Detroit (DT1) | 174 | United States of America | Southfield |
| 365 Data Centers Indianapolis (IN1) | 174 | United States of America | Indianapolis |
| 365 Data Centers Nashville (NA1) | 174 | United States of America | Nashville |
| 365 Data Centers New York (NY10) | 174 | United States of America | New York |
| 365 Data Centers Philadelphia (PH2) | 174 | United States of America | Philadelphia |

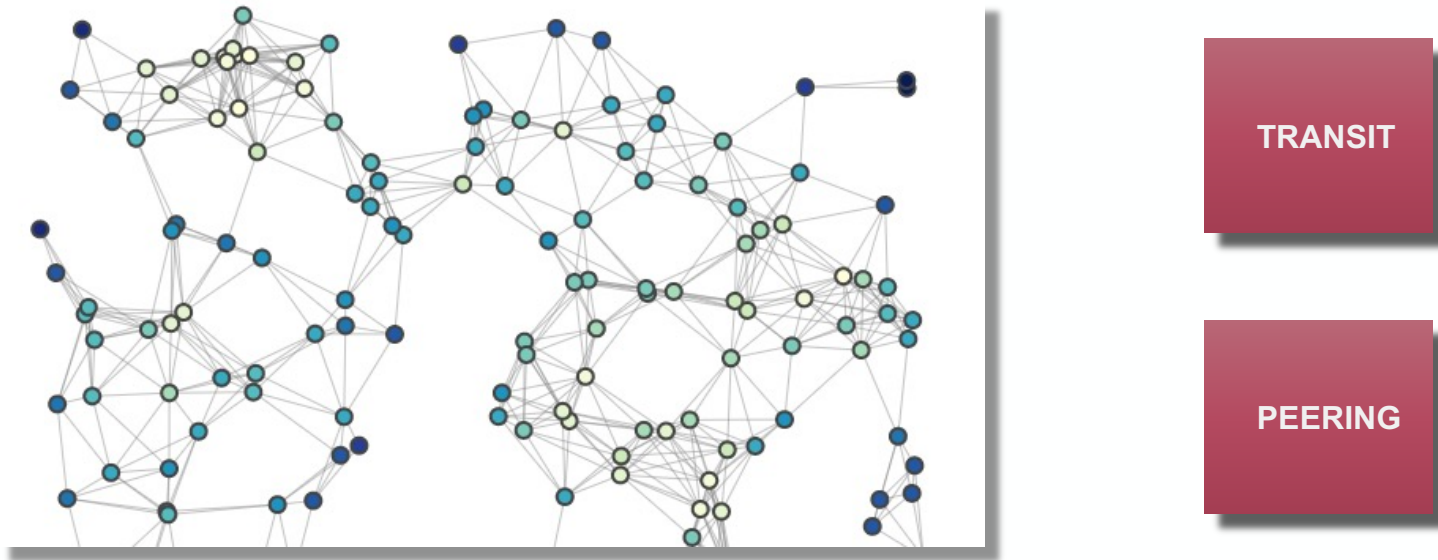
Peering Policy Information

| | |
|----------------------|--------------|
| Peering Policy | |
| General Policy | No |
| Multiple Locations | Not Required |
| Ratio Requirement | No |
| Contract Requirement | Not Required |

<https://www.peeringdb.com/>

RELATIONSHIPS

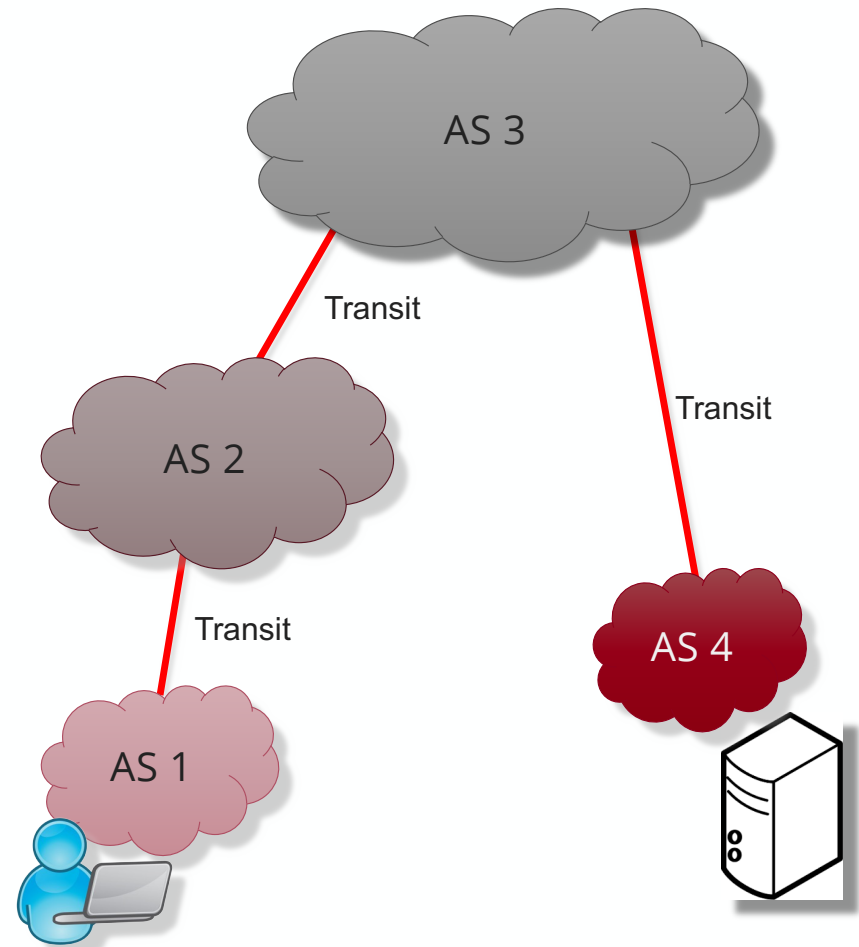
Autonomous Systems need to interconnect in order to mutually share their resources and to enable customers to reach each other



TRANSIT RELASHIONSHIP

Although necessary for global connectivity, transit has its own inconveniences:

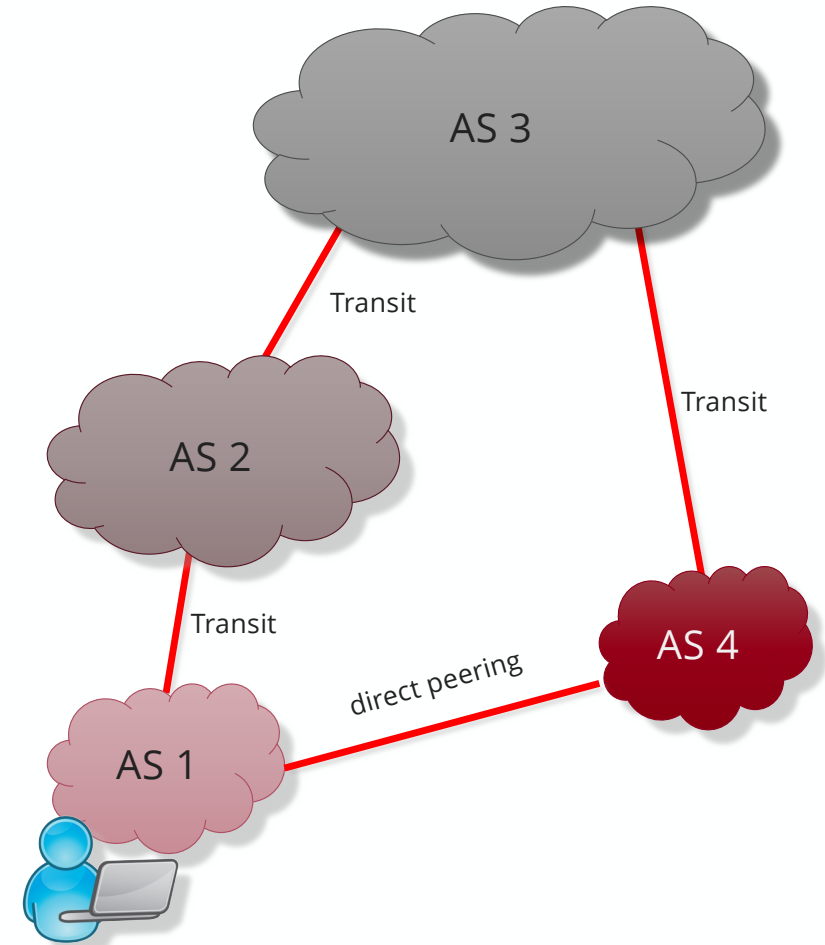
- Transit can have higher economical costs for customer ASes
- Transit can have high performance costs in terms of round-trip time
- Transit gives no way for customer AS to influence the way its traffic goes around the Internet
- Local communications between “close” ASes are penalized by transit



PEERING RELASHIONSHIP

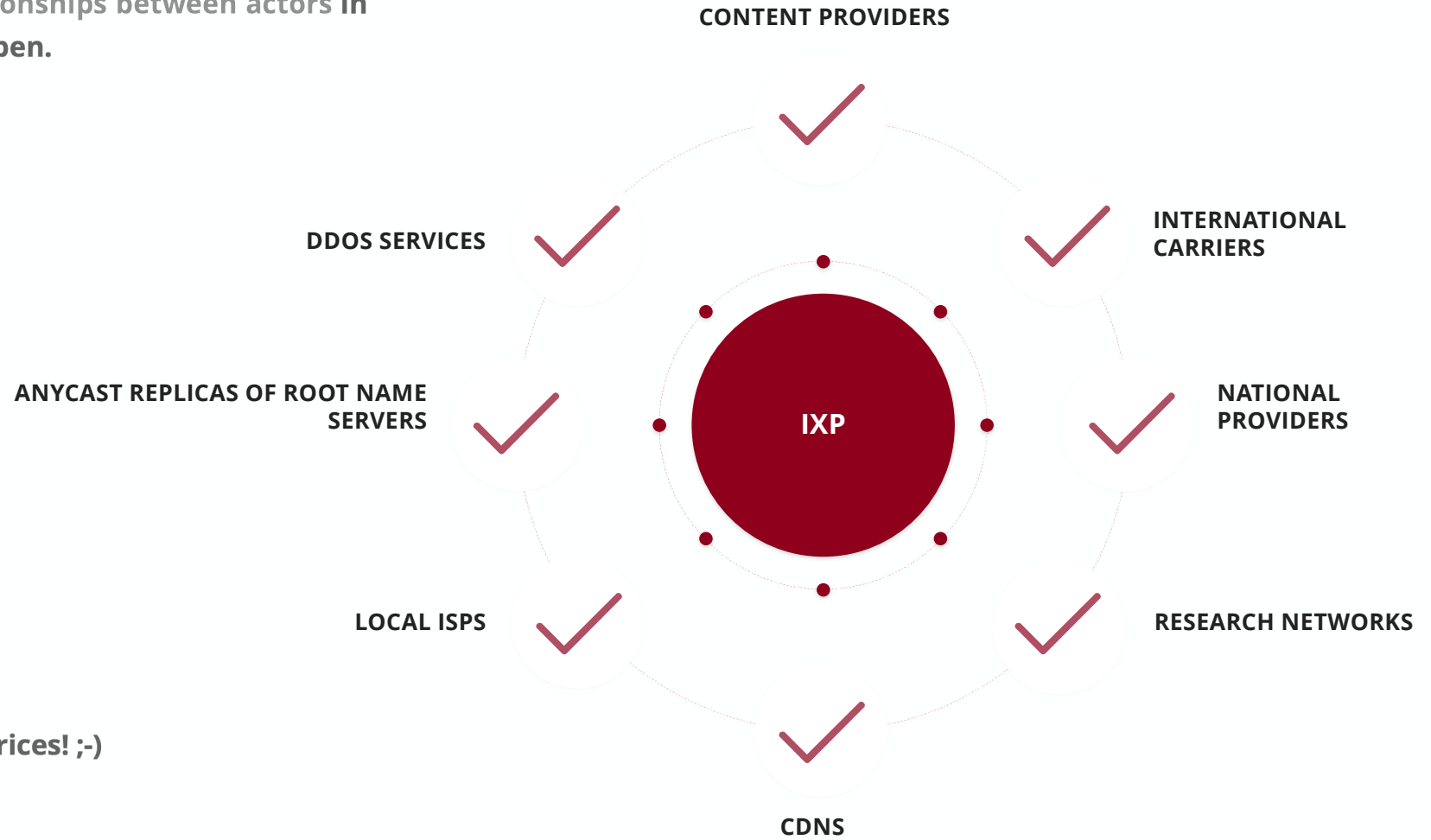
Direct peering introduces some benefits over a hierarchically tiered organization:

- Peering is a mutual agreement between peers
- Round-trip times are dramatically reduced
- Local communications, local traffic exchange is improved
- Peering is quite always for free



The IXP

A neutral place where relationships between actors in the Internet ecosystem happen.



Bilateral peering at lower prices! ;-)

Internet Peering at IXPs

PEERING KEY ELEMENTS

ONE PLATFORM



FABRIC

ONE DOMAIN



PEERING LAN

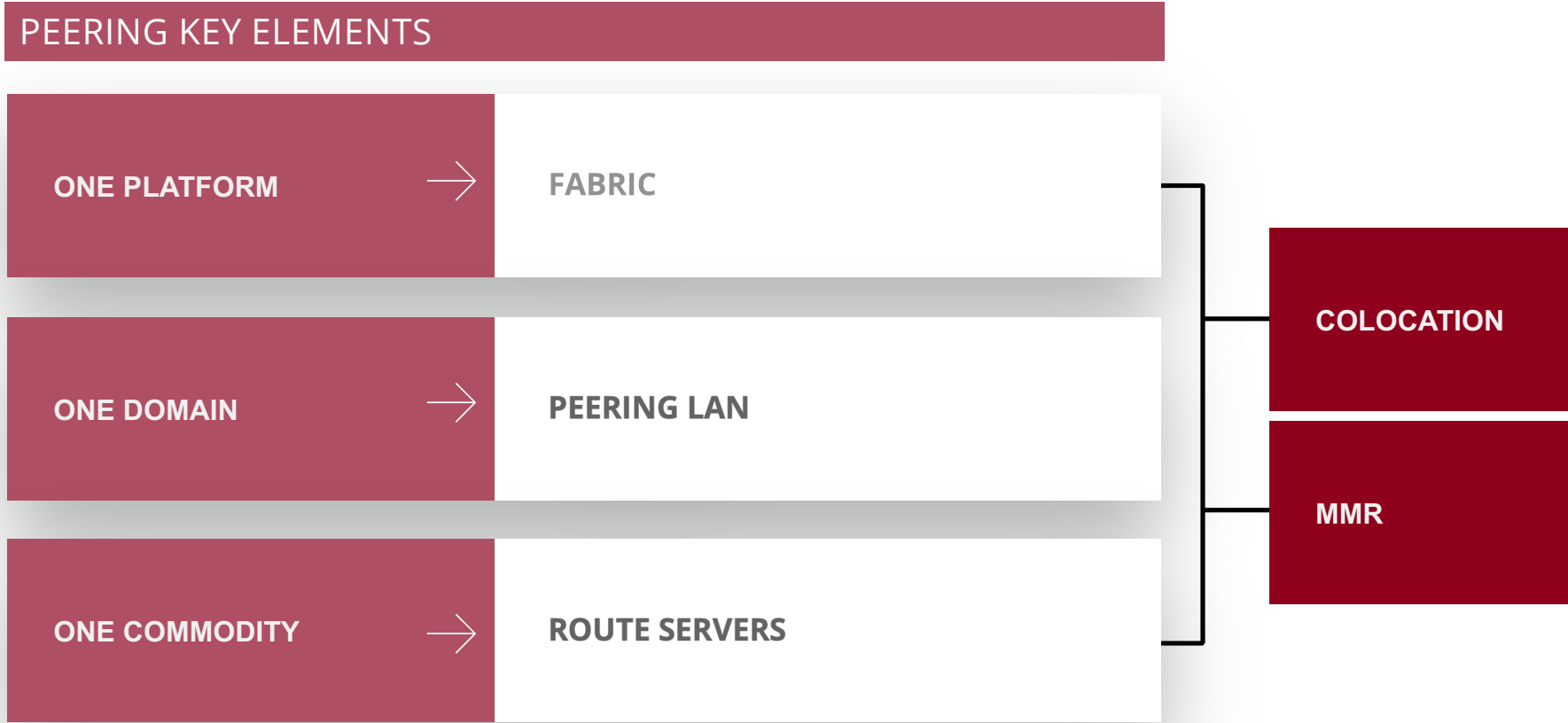
ONE COMMODITY



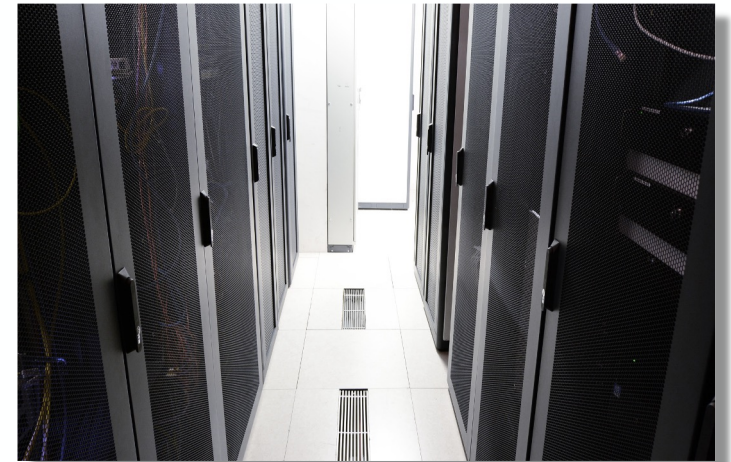
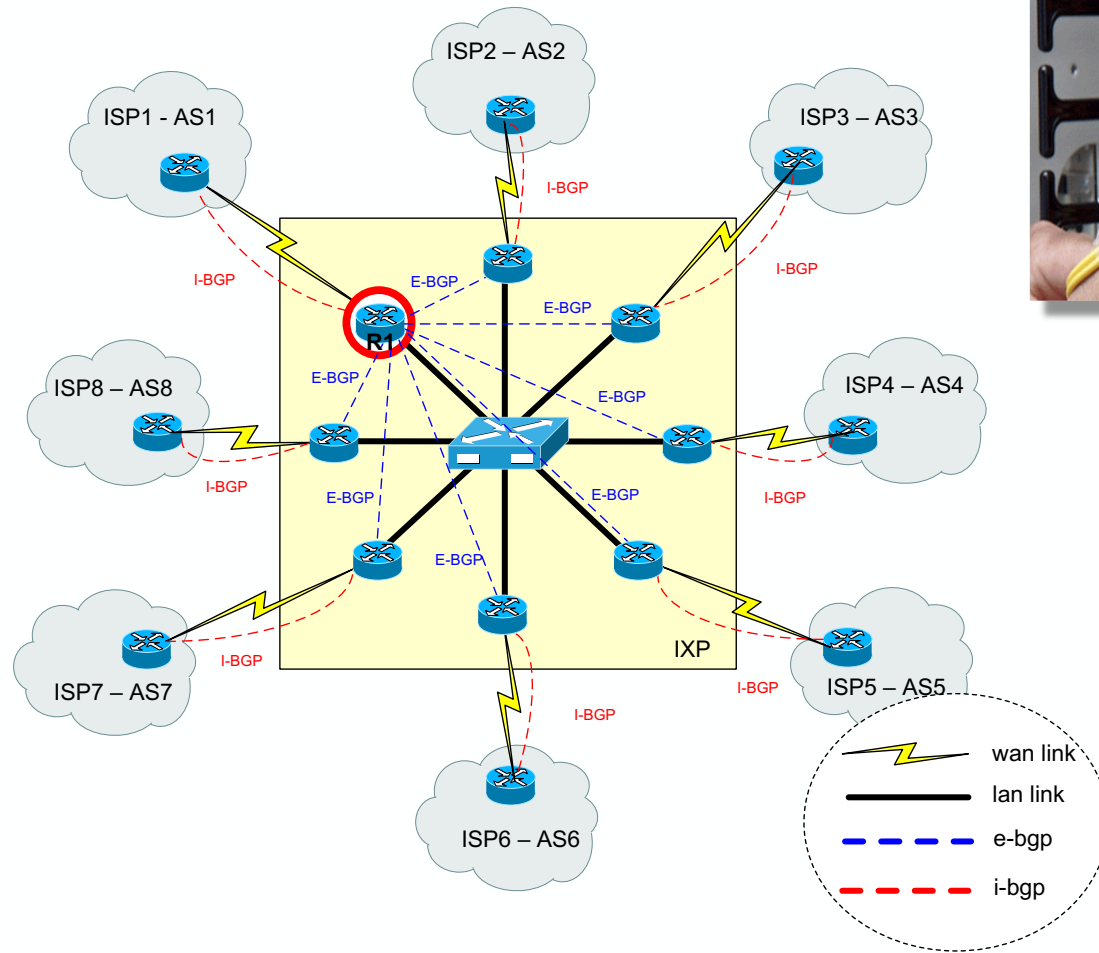
ROUTE SERVERS

COLOCATION

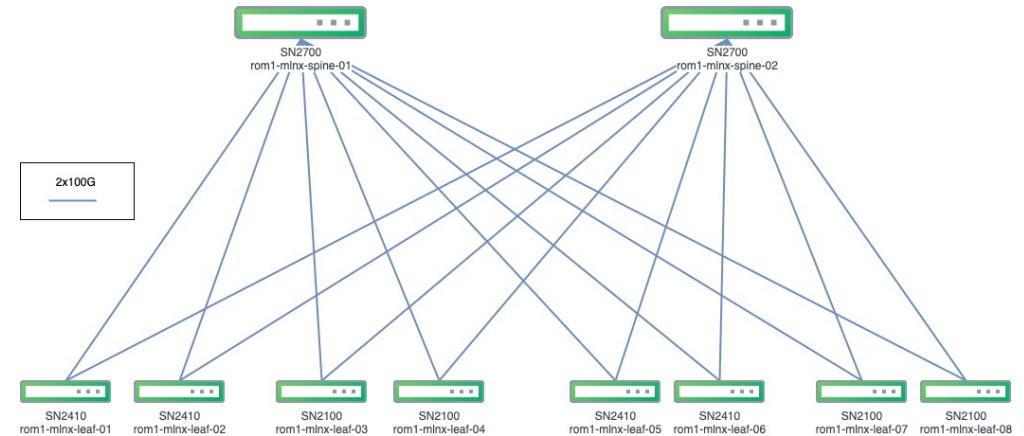
MMR



PEERING PLATFORM



PEERING PLATFORM



The platform consists of 2 **Mellanox SN2700** (32x 100G ports) spine nodes with 4 **Mellanox SN2100** (16x 100G ports) and 4 **Mellanox SN2410** (48x 10G ports + 8x 100G ports) leaf nodes. Each leaf node is connected with 2x100G links to any spine node, thus achieving a backplane of 400G output from any leaf node.

The implementation is based on VXLAN and BGP/EVPN

Namex Peering Platform: <https://blog.namex.it/2021/04/switching-to-ip-fabrics/>

ROUTE SERVER

WHAT?

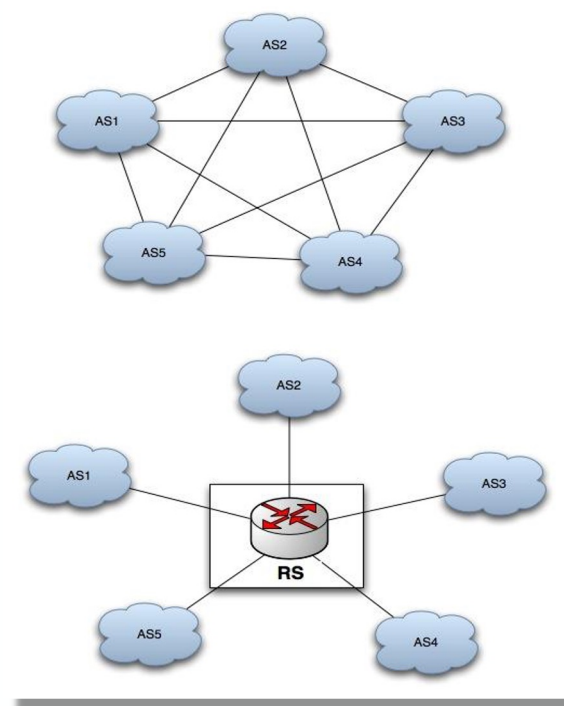
Route Servers (RS) provide support for the establishment of peering arrangements between IXP peers: theoretically, a single peering session replaces a complex full mesh BGP interconnection

WHY?

- Reach a lot of parties with just one BGP session
- Providing backup for direct peering session
- Preventing/Mitigating misconfigurations (hijacks)
- Easy entry point for new members to the exchange – immediate traffic
- Security features

Route Server Looking Glass: <https://lg.namex.it/>

Route Server Prefix Filtering: <https://blog.apnic.net/2021/11/15/checking-prefix-filtering-in-ixps-with-bird-and-openbgpd/>



The challenges

WHAT

International Content/Transit Providers establish a presence at the IXP

WHY

Satisfy the needs of local ISPs / Content closer to end users and transit open market

HOW

Create a critical mass of local ISPs

GOALS

Local ISPs may compete at higher levels in the Internet value chain, transit requirement is reduced, peering value is drastically increased

Peering Key factors

Why peer – Keep Local Traffic Local

Performance

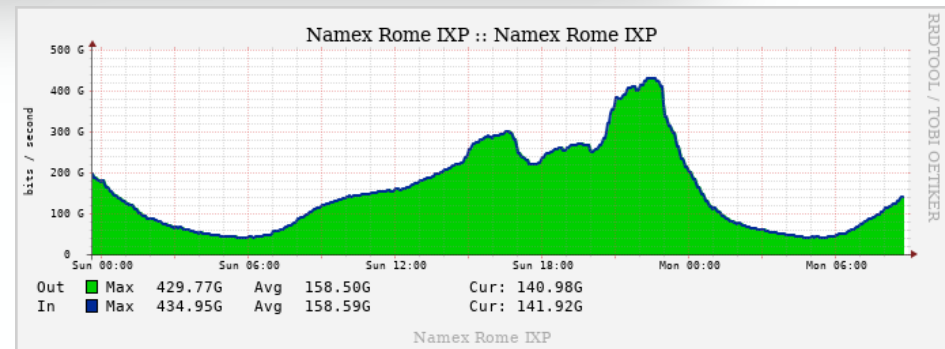
Lowers the latency

Increase the throughput

Improves user experience in terms of speed and stability

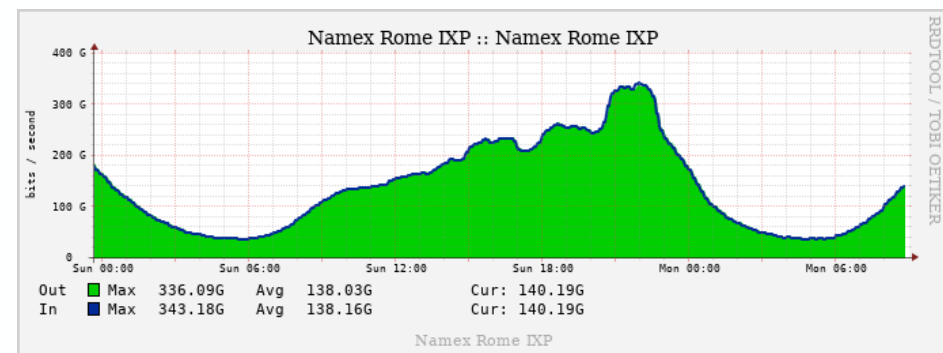
Saturday, April 3rd 2022

The football match in the Italian Serie A Championship between Juventus – Inter.



Wednesday, January 23rd 2022

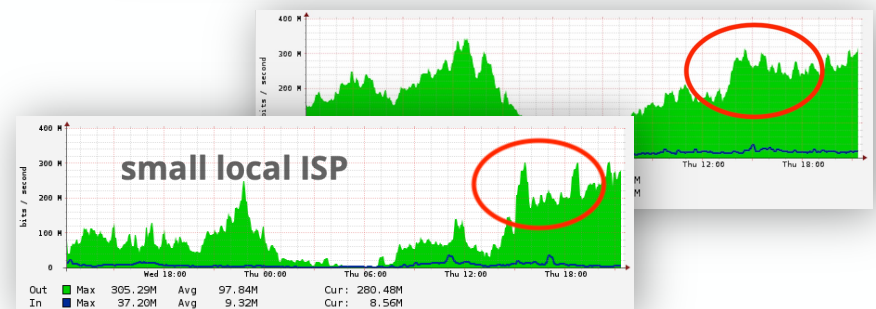
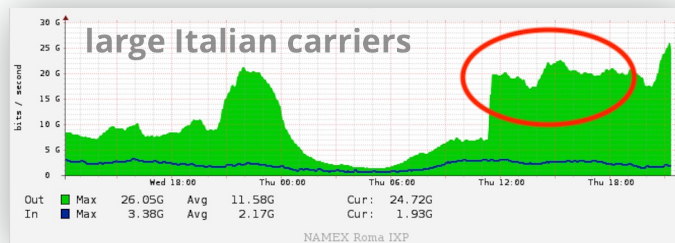
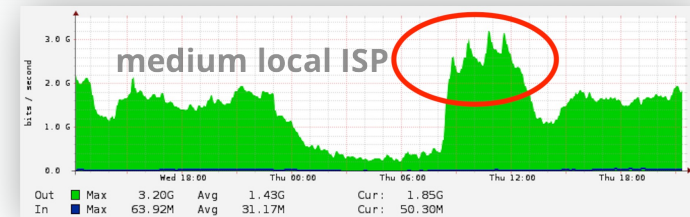
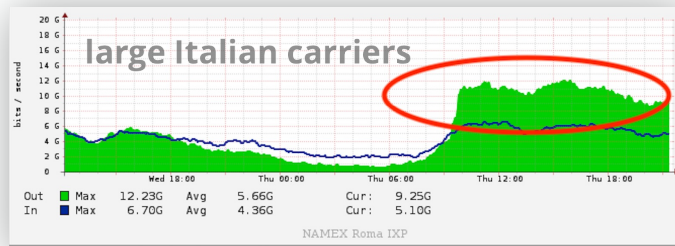
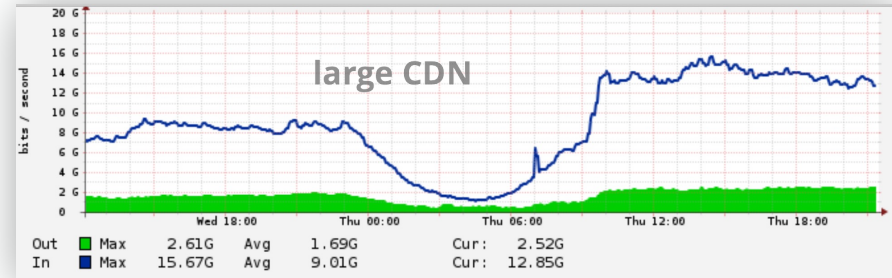
The football match in the Italian Serie A Championship between Milan – Juventus.



Why peer – Keep Local Traffic Local

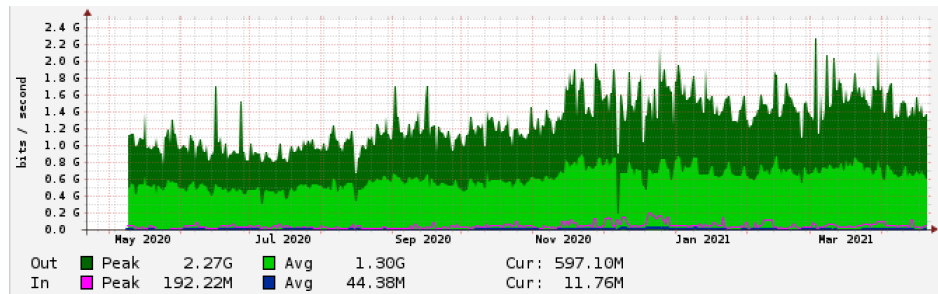
Thursday, April 22nd 2021

Game update “Call of Duty”, released by a known and large CDN through the peering platform.

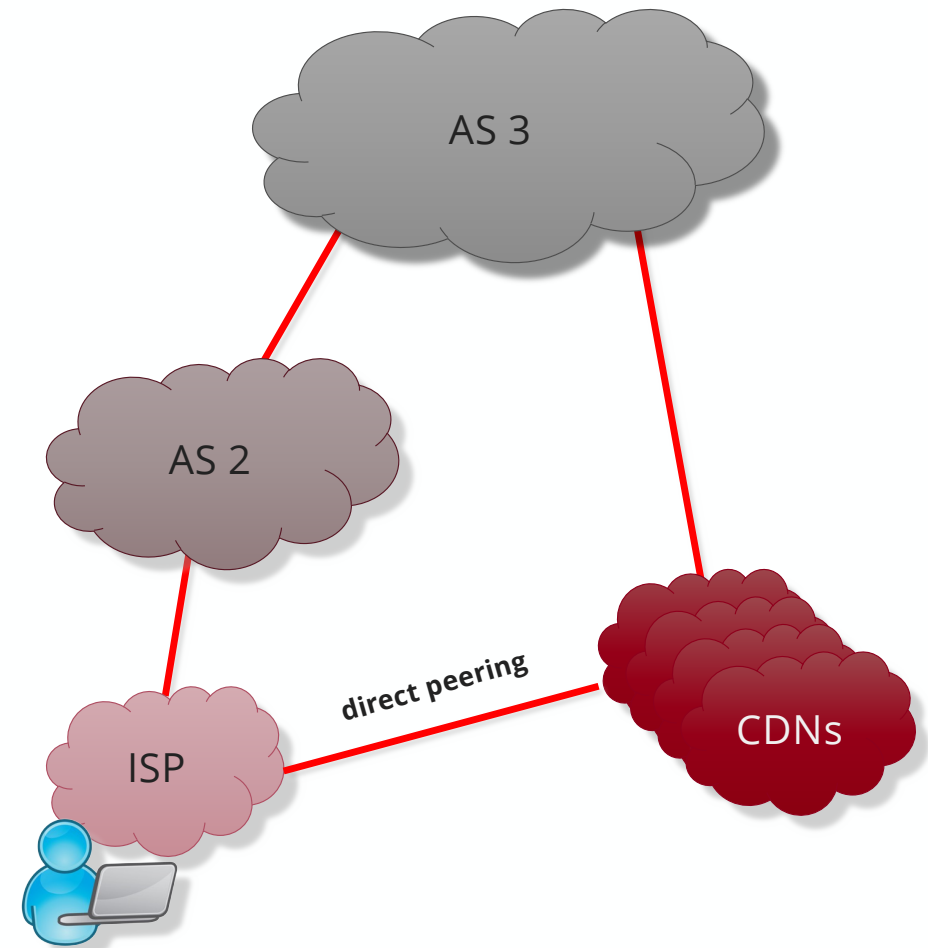


Why peer – Keep Local Traffic Local

Keeping services as close as possible to their users contributes to have a greater control over traffic flows



Italian small-size ISP. Over 60% of the overall traffic flows through the IXP



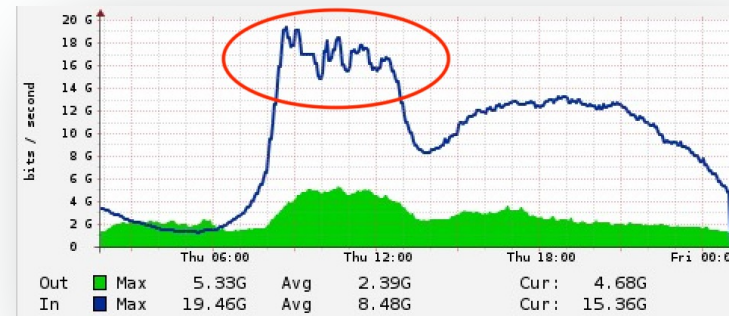
Why peer – Resiliency

Increase of number of possible
“paths”

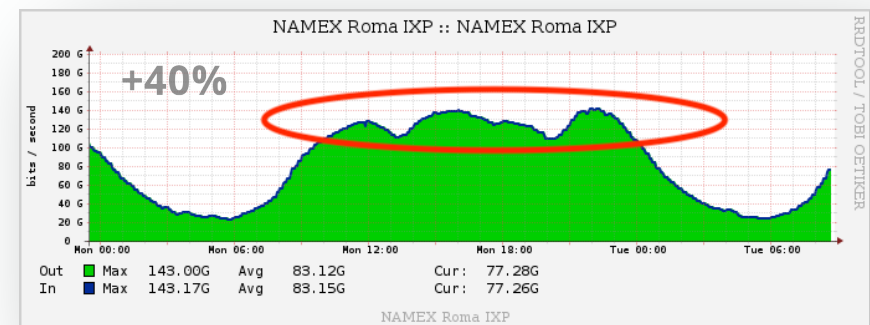
Improves overall bandwidth

Backup for Transit Disruption

During the pandemic, Internet traffic is experiencing a significant increase. Distance learning as well as communications in general need more performance (keep local traffic), high capacity and reliability.



morning distance learning



Traffic during covid era at Namex

The practical benefit of an IXP

THANK YOU!

www.namex.it

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