



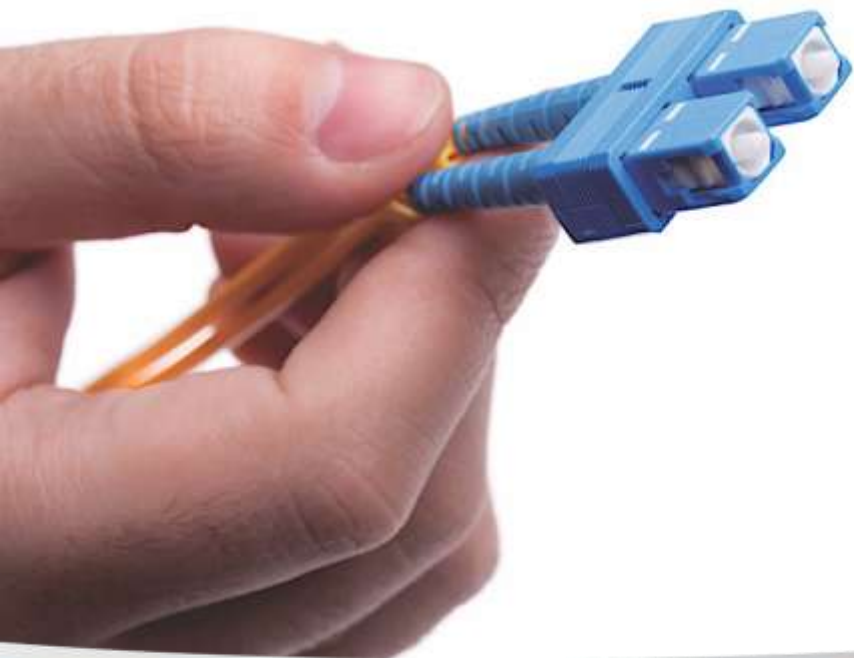
# **Private v Public Peering: Exploring the use cases for both**

Ben Hedges, CEO LINX America

# Peering

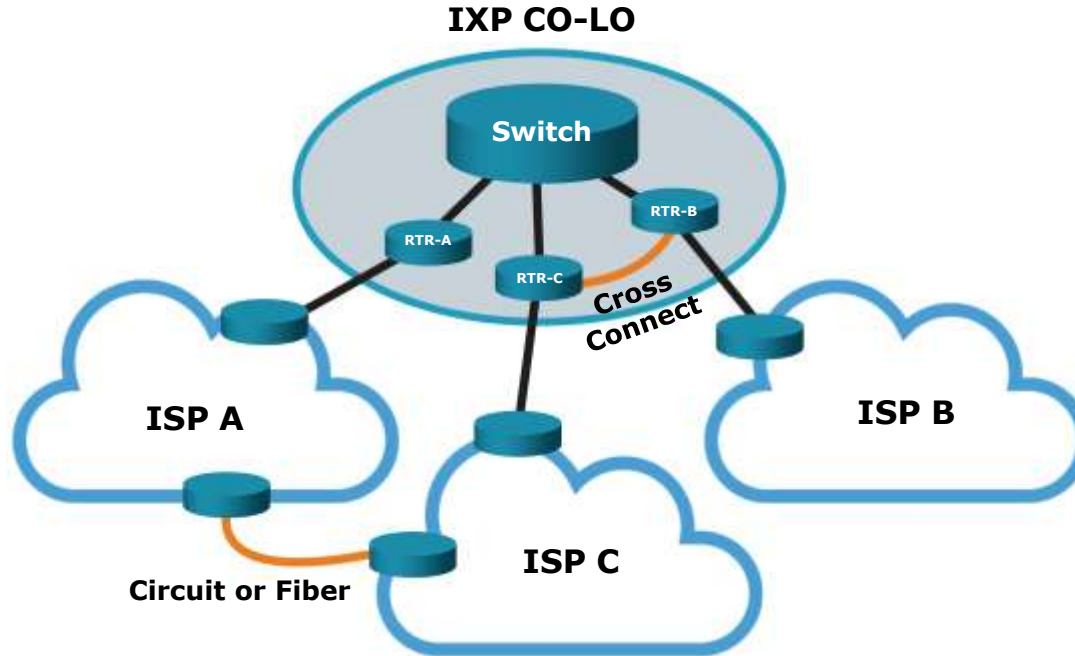
A voluntary interconnection of administratively separate *Internet* networks for the purpose of exchanging traffic between the users of each network

# Benefits of Private Peering



- Also known as Private Network Interconnect (cross connect)
- Preferred method of interconnect for VoIP providers
  - High reliability
  - Easier management of DDOS attacks

# Private Peering Examples



# Benefits of Public Peering

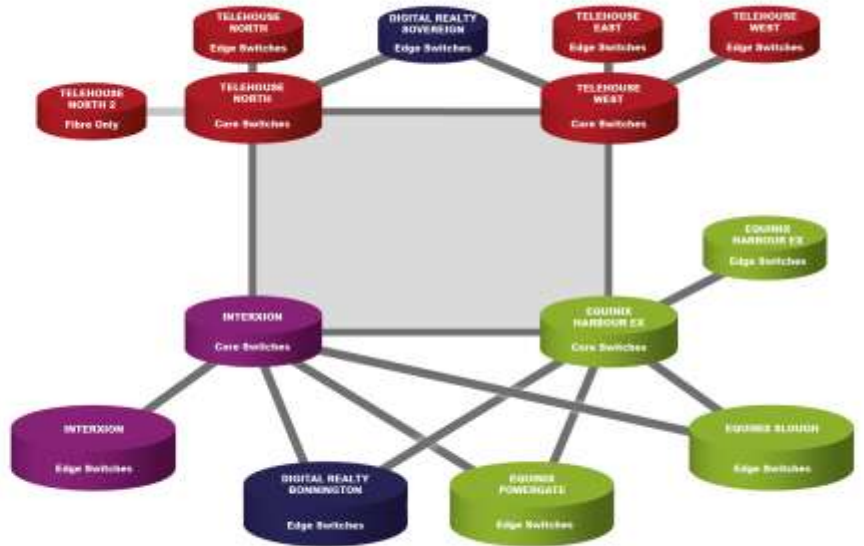
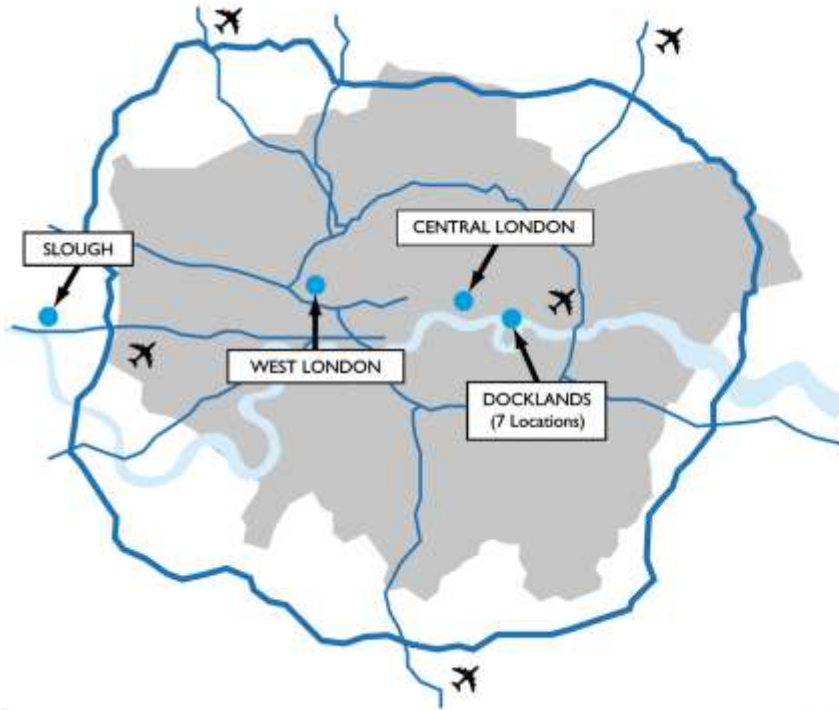
- One-to-many interconnect
  - Route servers on most IXPs
- Low-speed port only required
  - 1GE can handle >11,000 concurrent VoIP calls (in G711/22)
- Demonstrates technical skills & engineering focus
- Additional credibility
- Opportunity to further business interests
- Some IXPs, such as LINX, provide ancillary services
  - e.g. public policy representation



# One-to-Many Interconnect



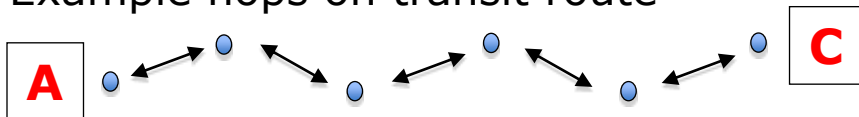
# Network Reach



# Jitter Bugs

Peering at an IX can give better reliability for SIP than transit

Example hops on transit route



Example hops going IXP route



*"We see less than 0.04ms jitter across the LINX fabric"*

Simon Woodhead, CEO, Simwood





# Drawbacks of Private Peering

- Scalability
  - Each connection requires a dedicated port regardless of amount of traffic exchanged
  - Monthly recurring charge on each cross-connect from most data center operators
- Reach
  - Can only exchange traffic with networks located in the same facility or campus
- Cost
  - Cost per Mbit can be several times higher than public peering

# Drawbacks of Public Peering

- Collateral damage on other network's attacks
- Reliant on others exhibiting good practice





# Path to Happy Customers

- Public & Private peering
- More control than transit
- Gives cost and performance efficiencies
- Resilient solution on same switch

*"Being on LINX has allowed us to directly reach out to much bigger Network Operator Centres (NOCs) and be taken seriously with our fault finding"*

Gavin Henry, MD, SureVoIP

# Lessons and Learnings

SIPNOC 2017

**LINX**  
— Est. 1994 —

# Demonstrating Trust

Resilience and low traffic latency offered by IXPs allow VoIP providers to demonstrate to a customer that they can trust them:

- Use basic tools like ping and traceroute to show how their routing tables reach them
  - Demonstrates a VoIP provider knows what they are doing because you're peering and want as many routes to the customer's network as possible
- You can test routing changes quickly and know that we can keep traffic flowing there if our transit providers have an issue
- This allows VoIP networks to bypass their providers if they are an enterprise network with fallback to their transit.
- *"We're on <large IXP>"* is a badge that gets taken seriously by other NOC's

# How Public Peering Helps with Support

IXPs give value such as networks being able to prove their technical prowess. This allowed networks to directly reach out to much bigger Network Operator Centres (NOCs) and be taken seriously with fault finding

- Routing changes can be tested quickly and know that traffic can keep flowing if the transit providers have an issue
- Offers direct access to the NOC contacts that you wouldn't get elsewhere
- Access to IXP support teams allows VoIP network operators to ask questions is a popular resource
- Confidence in the network builds with re-affirmation from peers

# Who already does this?

- Many household names with VoIP services are LINX members with multiple 100G edge ports
- More than 150 (of 818) LINX members provide VoIP services

**Using public peering is an acknowledged and successful strategy for exchanging SIP traffic**



# Thank You

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# Reference Materials

- PeeringDB: <https://www.peeringdb.com/>
- BGP Toolkit: <https://bgp.he.net/>
- Traceroute troubleshooting:
  - [https://www.nanog.org/meetings/nanog45/presentations/Sunday/RAS\\_traceroute\\_N45.pdf](https://www.nanog.org/meetings/nanog45/presentations/Sunday/RAS_traceroute_N45.pdf)
- Anycast in SIP architectures:
  - <http://blog.simwood.com/2017/08/cluecon-2017-anycast-in-sip-architectures/>
- IXP VoIP case study:
  - <http://www.linx.net/uploads/files/SureVoIPCaseStudysmall.pdf>