



# Remote Peering

Zaid Ali

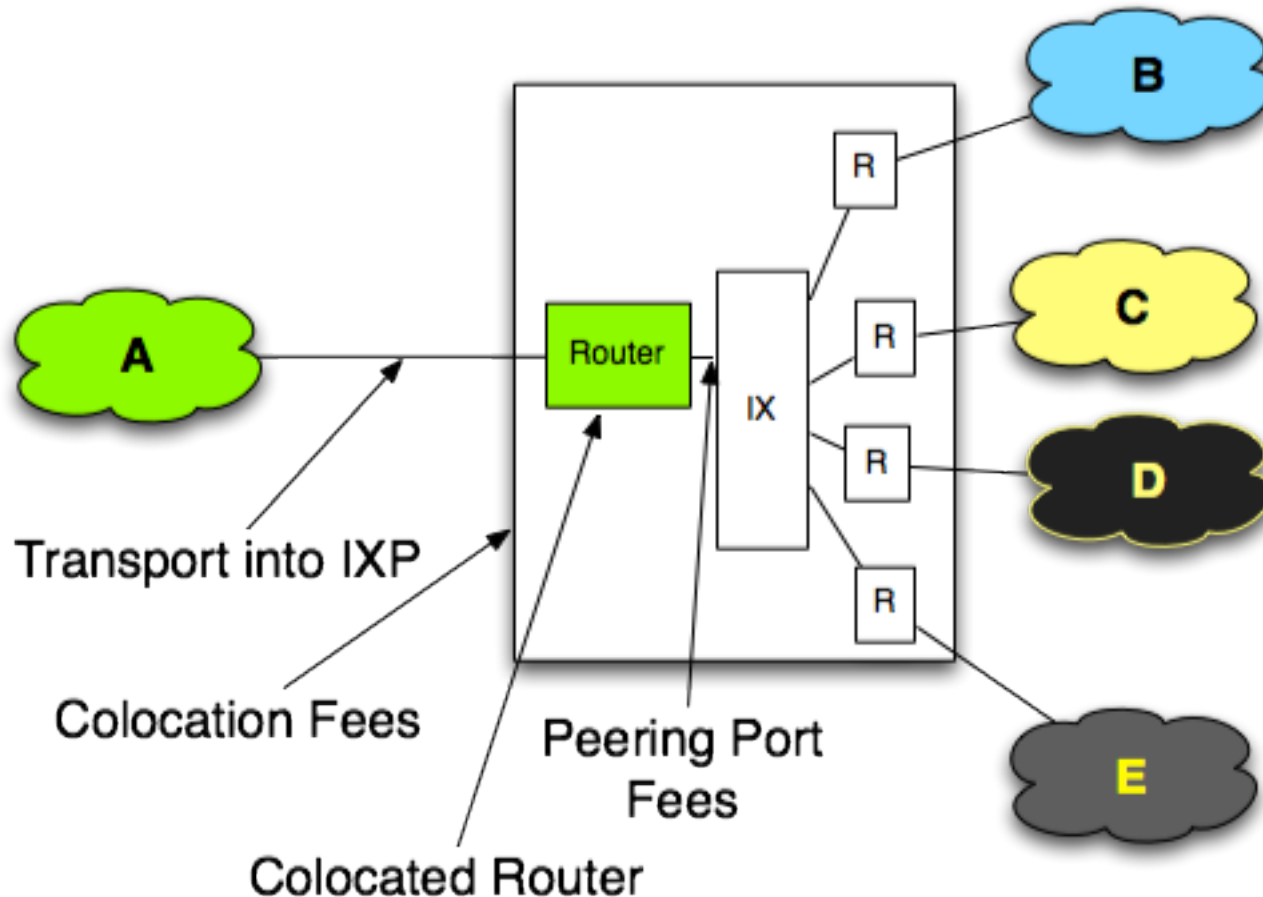
LinkedIn Corporation



# Observations

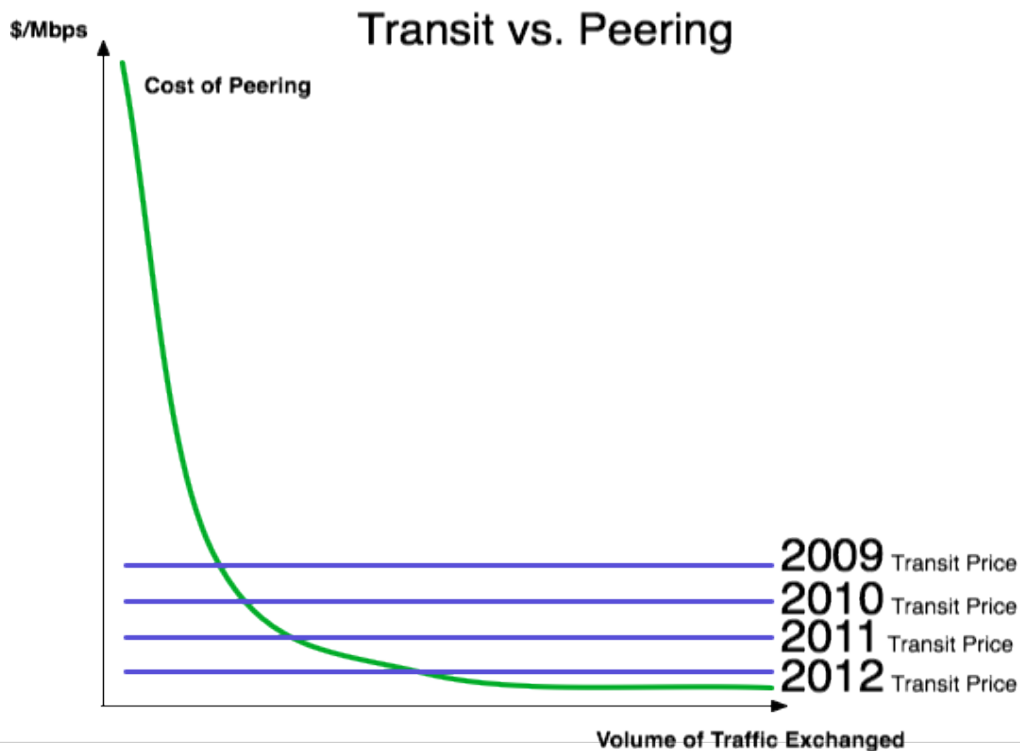
- Number of IXP's are increasing
- Peering density at IXP's are growing
- Transit prices are dropping
- Sound business cases for peering
- More love between content & eyeballs
- Higher adoption of remote peering

# Traditional peering model



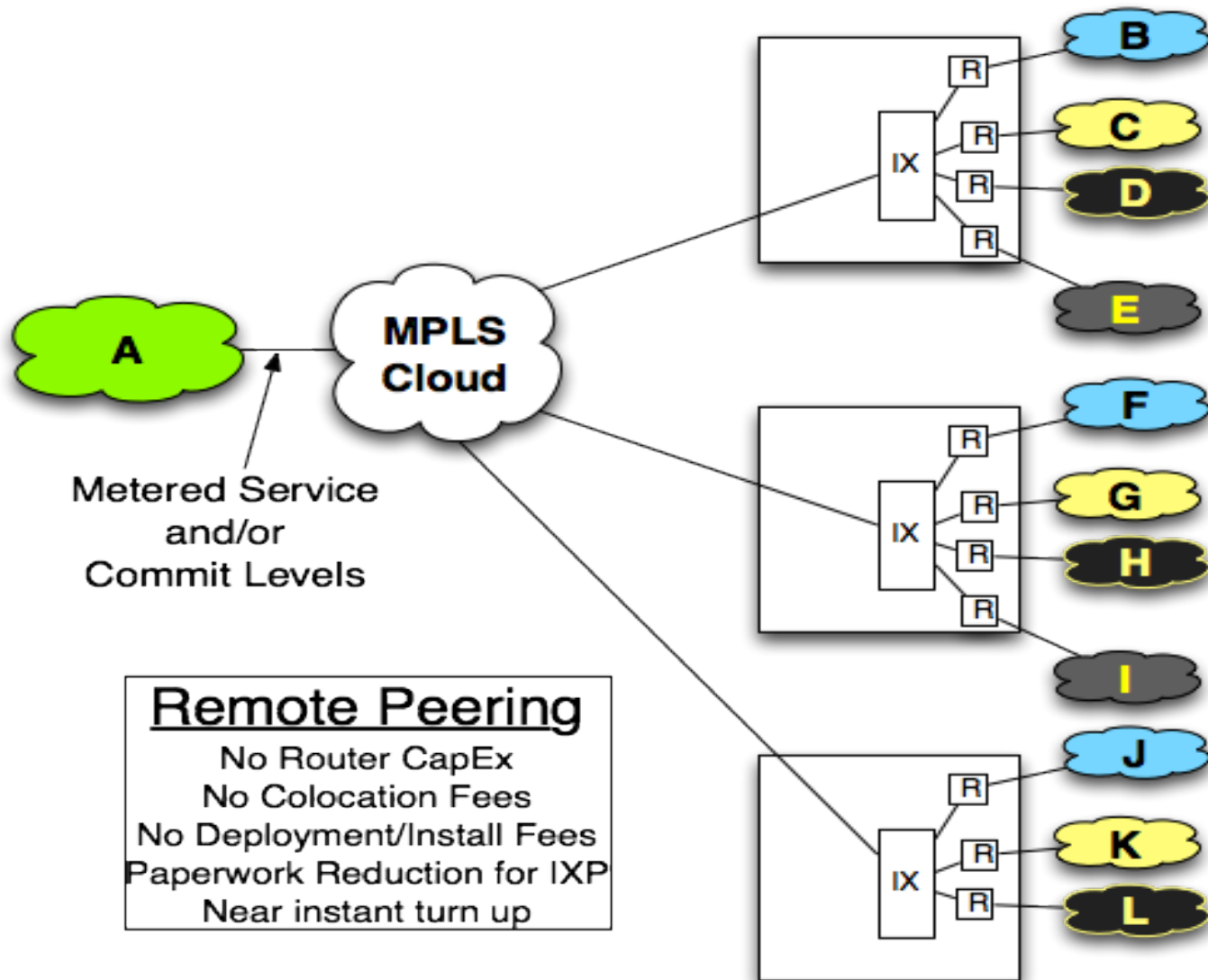
# Challenges with traditional model

- Cost is fixed
- Transit drops faster than IXP port/co-location costs & routers



For large traffic volume peering makes \$\$ sense. What about for the rest & performance argument?

# Remote Peering model



# Router configs

```
interface GigabitEthernet0/1/2
description Your_Favourite L2 Transport_Provider
no ip address
no ip proxy-arp
load-interval 30
negotiation auto
!
interface GigabitEthernet0/1/2.861
description IXP1
encapsulation dot1Q 861
ip address 1.1.1.2 255.255.252.0
ip access-group ACL in
ip access-group ACL out
no ip proxy-arp
!
interface GigabitEthernet0/1/2.1835
description IXP2
encapsulation dot1Q 1835
ip address 2.2.2.10 255.255.252.0
ip access-group ACL in
ip access-group ACL out
no ip proxy-arp
!
```

# Business case: Closer to eyeballs at lower cost

	Traditional Peering	Remote Peering
CapEx for 4 POP's	\$1.1M (275K/POP)	\$0
OpEx for 4 POP's	\$15K/month	\$0
Circuit costs to connect POP's	\$6K/month	\$1200/month (1G)

\* Data courtesy of Drpeering.net

# Our experience/advise

- You probably don't want to do remote peering across continents or where latency doesn't work in your favor.
- Try to take the hybrid approach where you blend traditional IXP setup with remote peering
- Remote peering is a great way to get closer to eyeballs and grow your peering while you are building out your global backbone
- IXP's treat you the same even if you come through a partner. Keep doing this!



# The debate

- L2 service adding more complexity
  - Harder to monitor
  - Complex to debug issues compared to L1
  - Added latency
- Remote peering can lead to routing inefficiency
  - Breaks the model of “Peering keeps local traffic local”
  - Latency benefits could disappear?
  - Higher adoption of remote peering could lead to routing problems or anomalies
- Dropping bits on the floor waiting on BGP timers
  - L2 service drops but you have to wait on timers
  - Argue: How is this different from peering across multiple switches?
- Commitment issues
  - Not physically present may mean you are not really serious about peering in the region

It's about choices!



TRANSIT



Peering



Remote Peering

# Acknowledgements

Bill Norton – Graphs/Diagrams

Ask DrPeering – Whitepaper on remote peering

Drpeering.net

**peering@linkedin.com**

