



Modern Day Network Data for  
Data-driven Peering Decisions

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AIOps for Network Professionals



# Why Peering?

Cost  
Performance  
Path diversity / resiliency

*Peering used to be a (more) trivial question to answer*

*- D.Glover, too old for this S#\$%*

# Shortcomings of Common Peering Analysis Methodologies

*AKA stuff that gets in the way of efficient peering*

- Not real time... at all (click, grow a coffee bean, make a coffee, grab it and come back...)
- Not self-serve (i.e. rent-an-engineer)
- Heavy spreadsheet wrangling involved
- Business logic is manual-labor intensive
- Weak path visibility in existing solutions
- Edge visibility only, not e2e
- Not holistic
- Reactive, not proactive
- Information is fragmented in multiple silos



# State of the Union

What does your network data get you today?

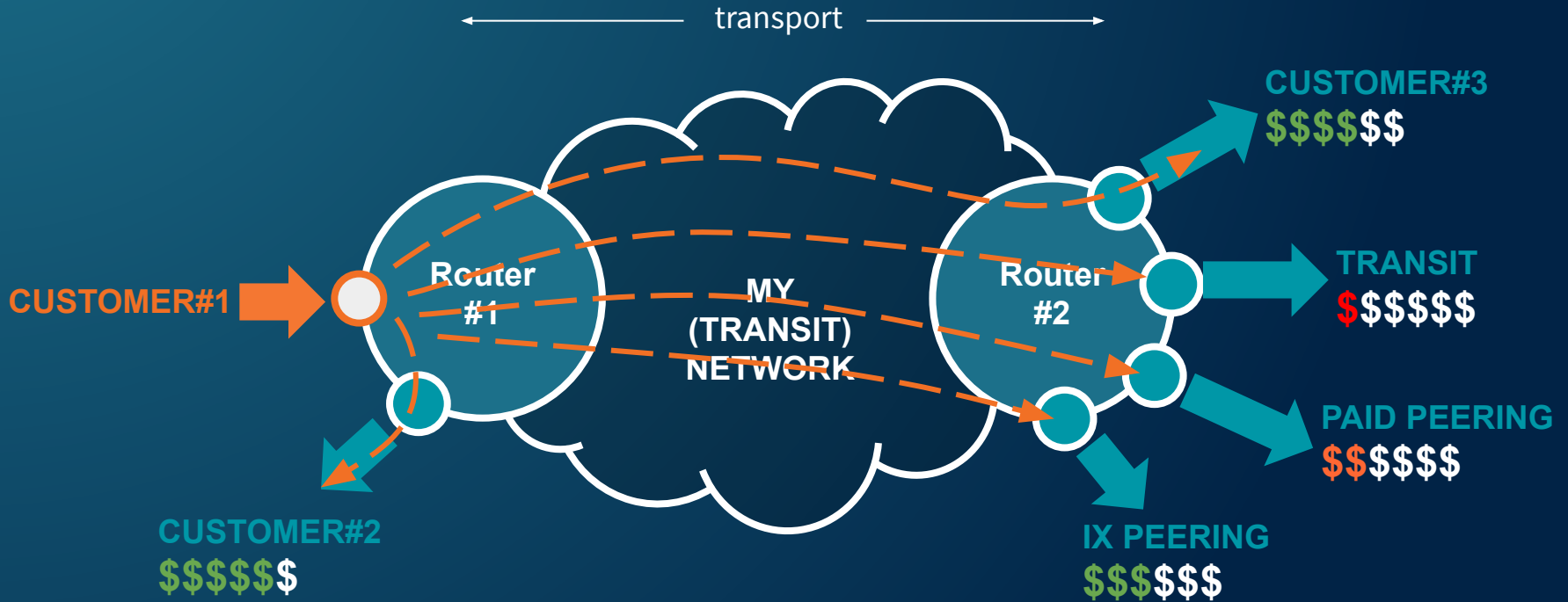
- Source/Destination ASN
- Basic GeoIP
- Router / Site Breakdowns
- Rudimentary AS-Path info

<**Hint:** not enough>



# Let's talk about cost for a second...

or in that case the **ROI** for Customer #1



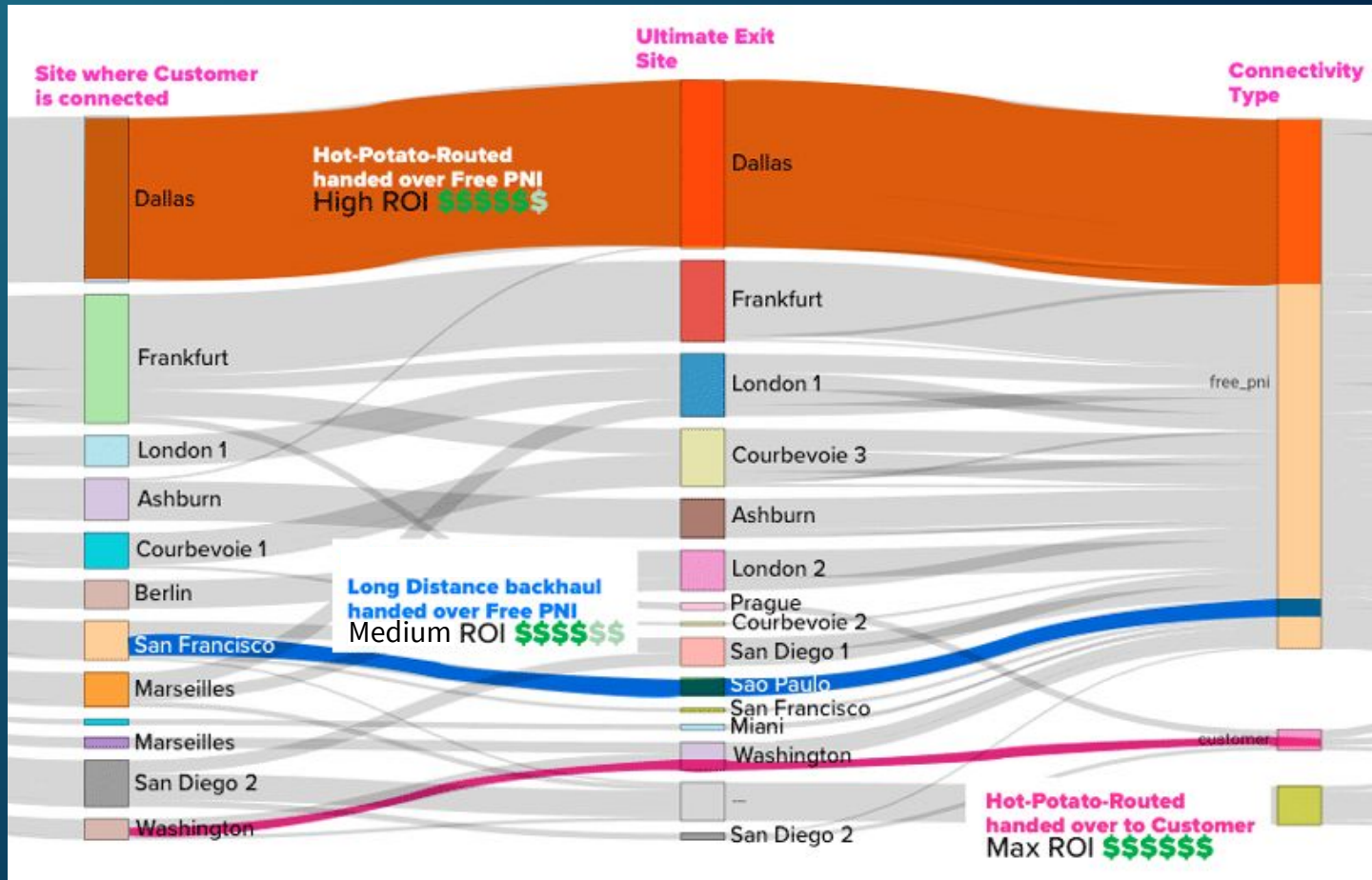
$$\text{\$COST} = \sum_{\text{Connectivity}} \text{\$Mbps} \times \text{Mbps} + \sum_{\text{Transport}} \text{\$Mbps} \times \text{Mbps}$$

On both ends

Between Ingress to Egress PoPs

$\text{\$COST} > 0 \rightarrow \text{COGS}$   
 $\text{\$COST} < 0 \rightarrow \text{Revenue}$

# ...wouldn't it be nice to know, holistically





# State of the Union

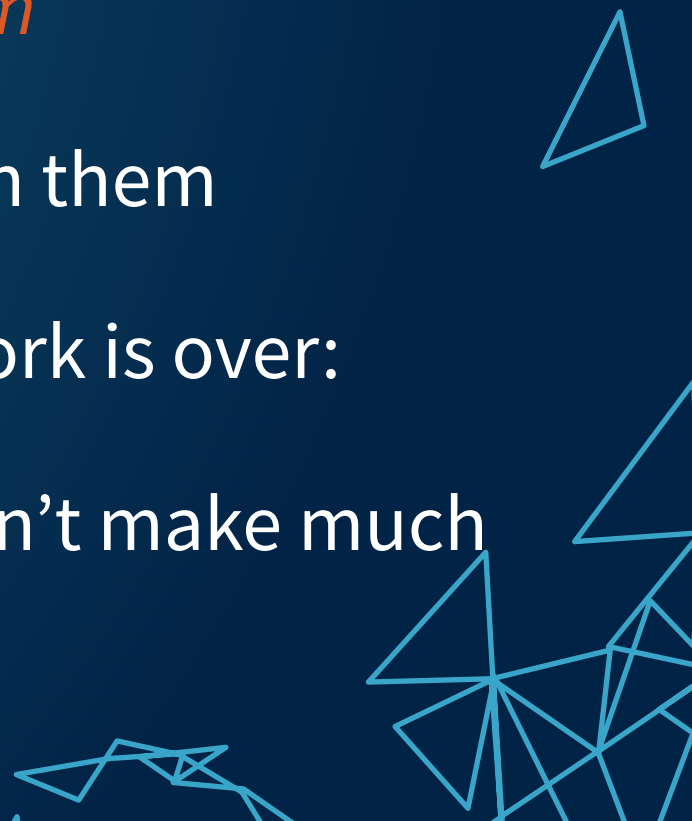
**Some crucial elements are missing in common network/peering analytics tools, because the landscape has changed.**

*The result is a **fragmented view** and **lack of analytical peering decisions.***

# Interconnection in a Modern World

*CDNs are the norm*

- Most content providers rely on them
- Veryable (pun intended) geometry
- The era of the seamless network is over: overlays galore
- ASN view of the Internet doesn't make much sense anymore



# Interconnection in a Modern World

*You know an OTT (yeah, you know me)*

- Performance and cost require **OTT service-level monitoring**, not ASN anymore
- Content providers leverage **all delivery methods available**, programmatically:
  - Commercial CDNs
  - Homegrown /purpose-built CDNs
  - Last-mile cache embedding
  - Traditional PNI (Free | Paid)
- OTT traffic events have become global, their **impact is hard to scope & mitigate**



# Interconnection in a Modern World

Let's look at a (not so) random CDN provider for a second...

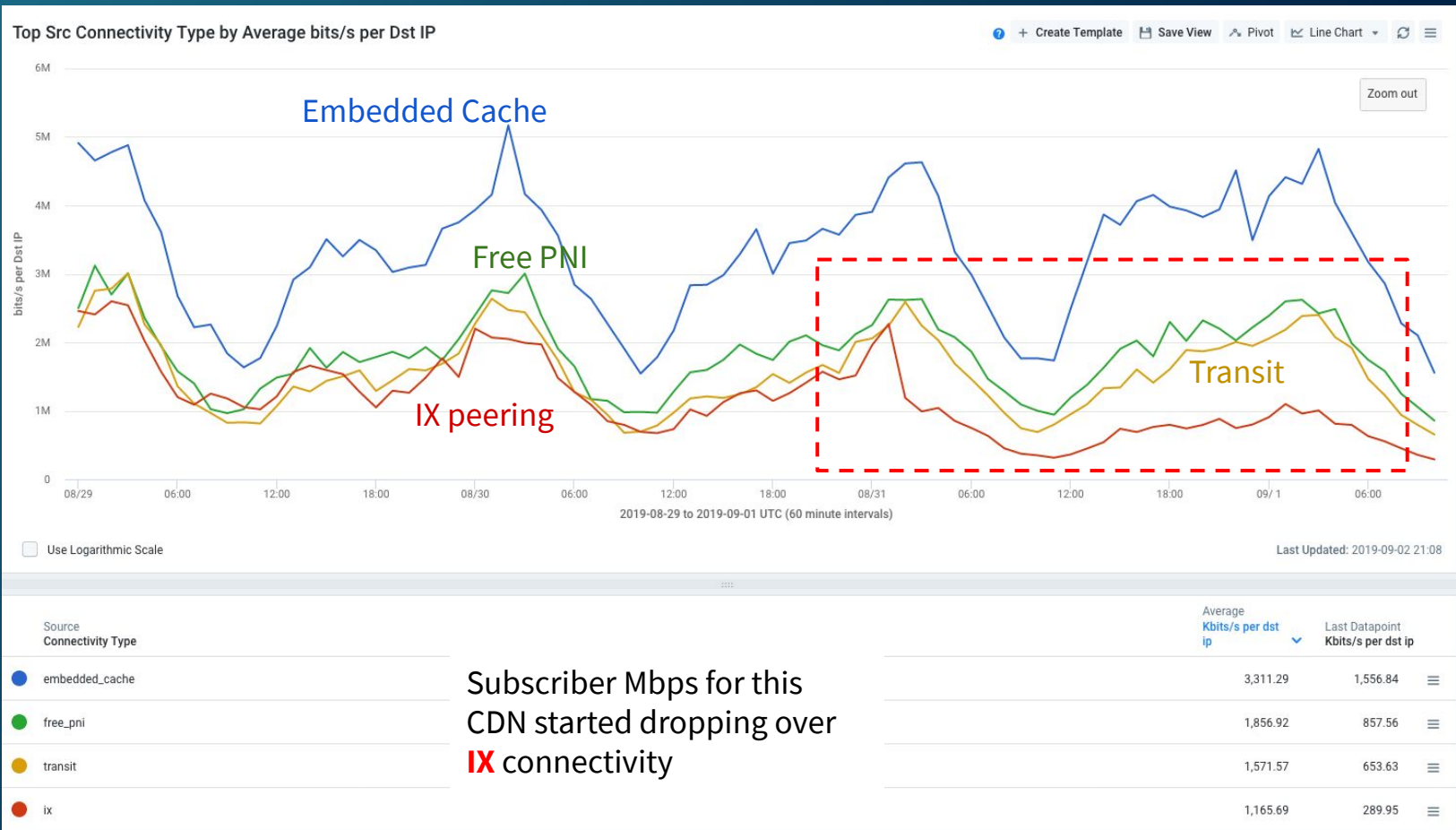


# What is Embedded ~ Transit (volume-wise) ?

## Looking at cost...

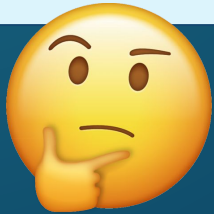


# Same picture, different angle: Performance?



*In the coffee/break room of an ISP (not so) far far away...*

Hey, our subscribers are complaining about **Hulu** performance, do we peer with them?



*silence...*



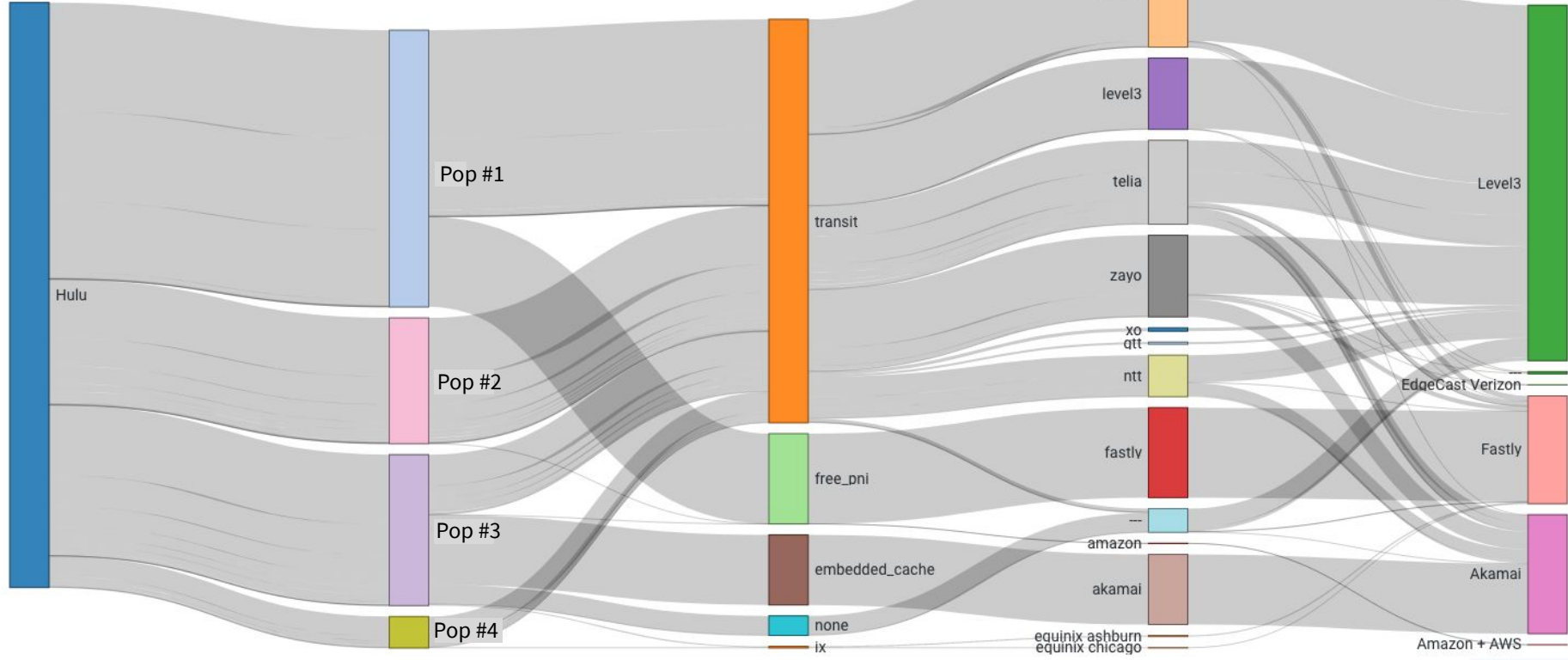
# OTT Service

# PoP

# Connectivity Type

# Connectivity Provider

# CDN





These are quick examples, there are many others.  
The technology is now available.  
Domain knowledge is well known by everyone.

**...so what do we do?**

# ...what we could/should do better

- Alert-based not review-based peering
- Suggest me when/if I need to peer, and where I need to peer  
→ *include PeeringDB data*
- On-demand peering answers & provisioning:
  - AS-authenticated peering requests
  - E/IN-gress volumes auto-evaluated (ratio)
  - Common Facilities/IXs auto-evaluated
  - Instant peering solution
  - Pre-wiring
  - Auto-config

→ **PROFIT !**



# Should we do it ourselves?



Field experience of  
Production Networks to fuel  
the other groups involved

**Network  
Engineers**

**Distributed Systems  
Software  
Engineers**

**Network Protocol  
Developers**

**UX Designers  
Frontend  
Software  
Engineers**

**Site  
Reliability  
Engineers**

Build a specialized BI tool  
Make the UX composable  
Enable producer/consumer users  
Data-visualization

Horizontal scalability  
Distributed Enrichment Ingest  
Custom Flow Datastore  
Query & Tagging Engine  
Streaming pipelines

Speak/Code \*flow  
Sampling  
Templates  
(MP)-BGP daemons  
SNMP collectors  
Programmable mitigations

Support fast/iterative  
Build  
Deploy  
Make all of the above work  
reliably



Thanks!



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