TeleGeography Deep Dive: Internet Middle Mile
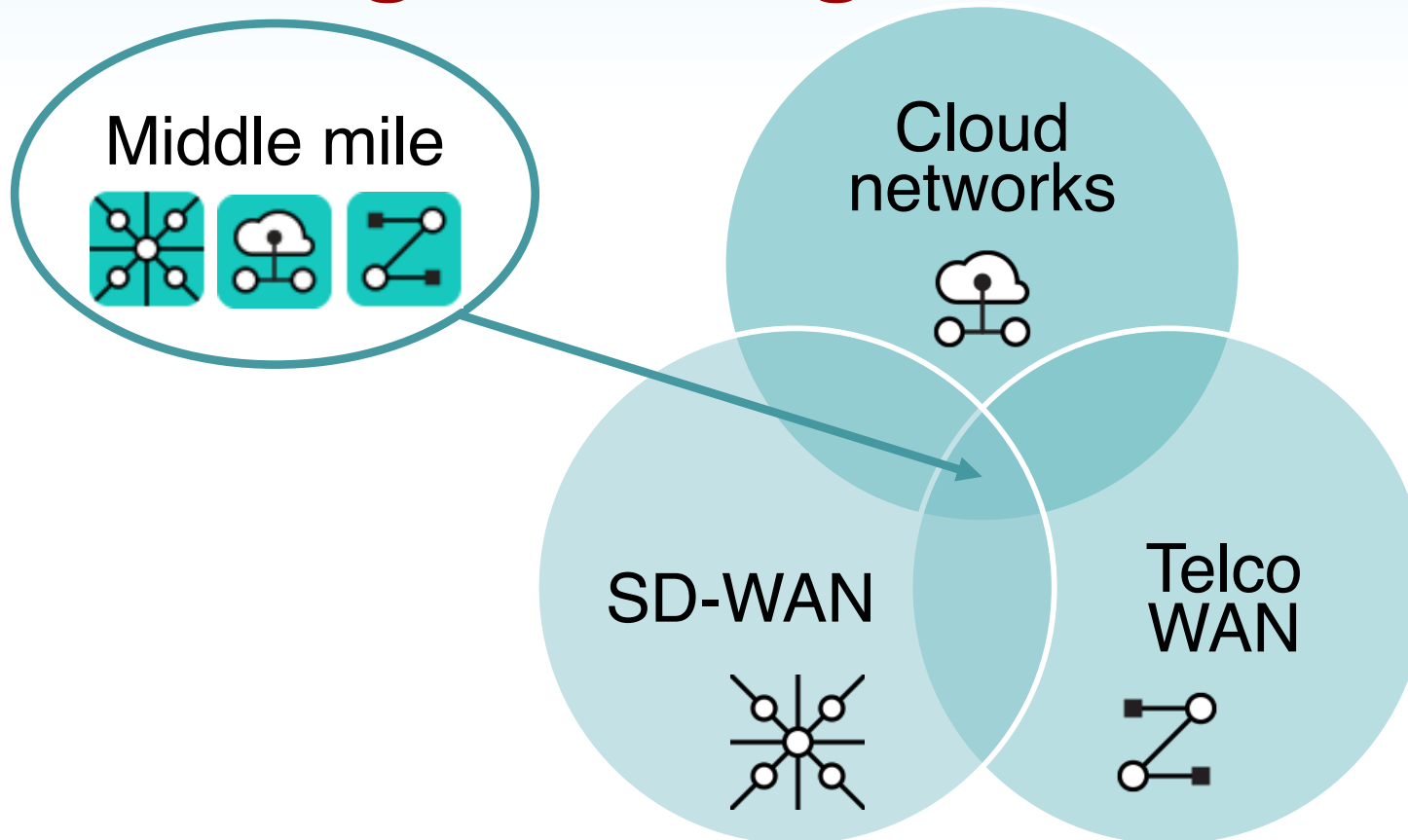
Erik Kreifeldt

Principal Analyst
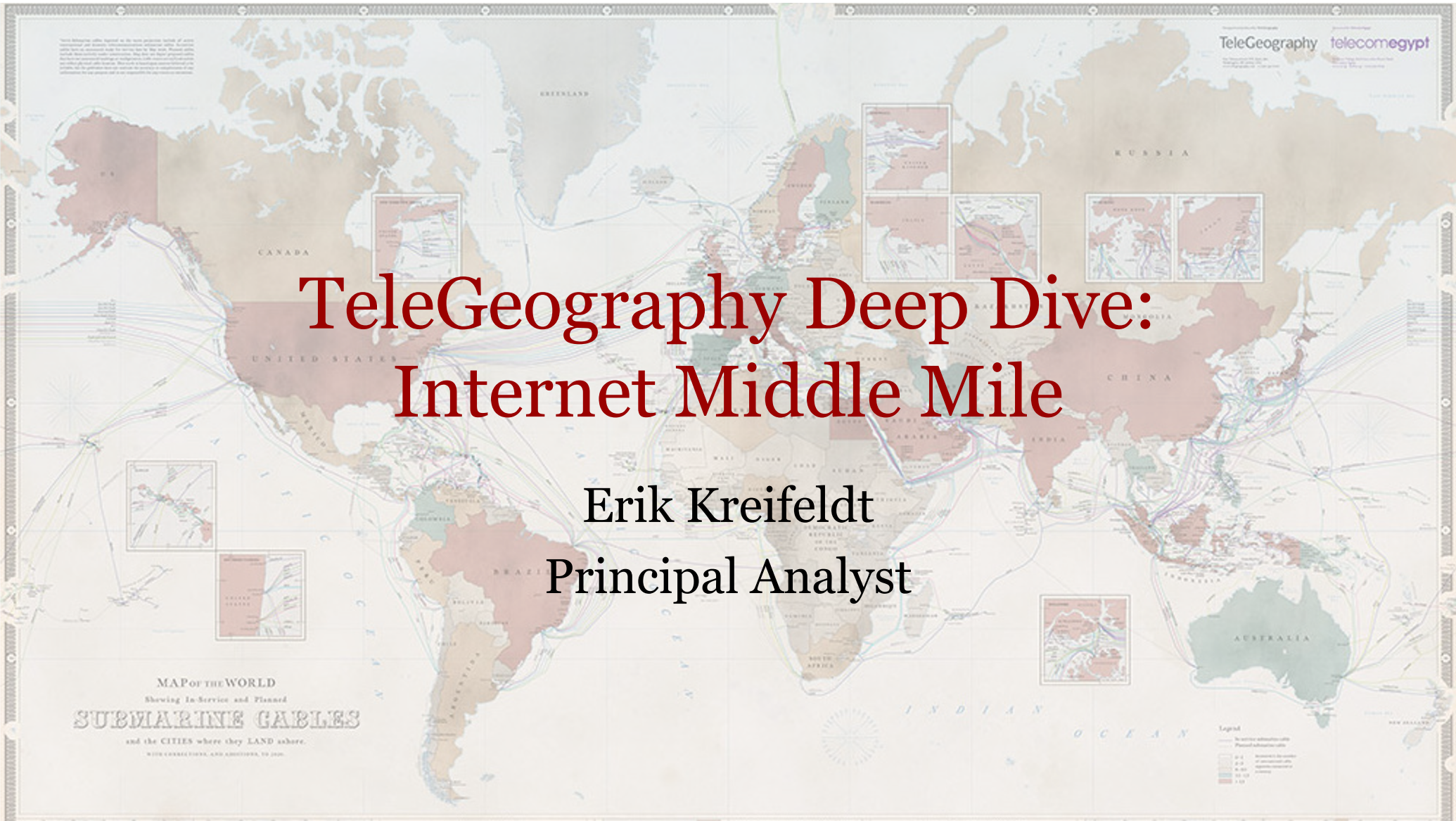
# Defining a new segment

Middle mile

Cloud networks

SD-WAN

Telco WAN

Middle mile provider proposition

1. Differentiation from telco WAN

2. Alignment with cloud

- Short-term transactions vs. multi-year terms
- Usage-based or flat rate pricing by region
- Agile provisioning via user-friendly portals
- Network performance monitoring and visibility
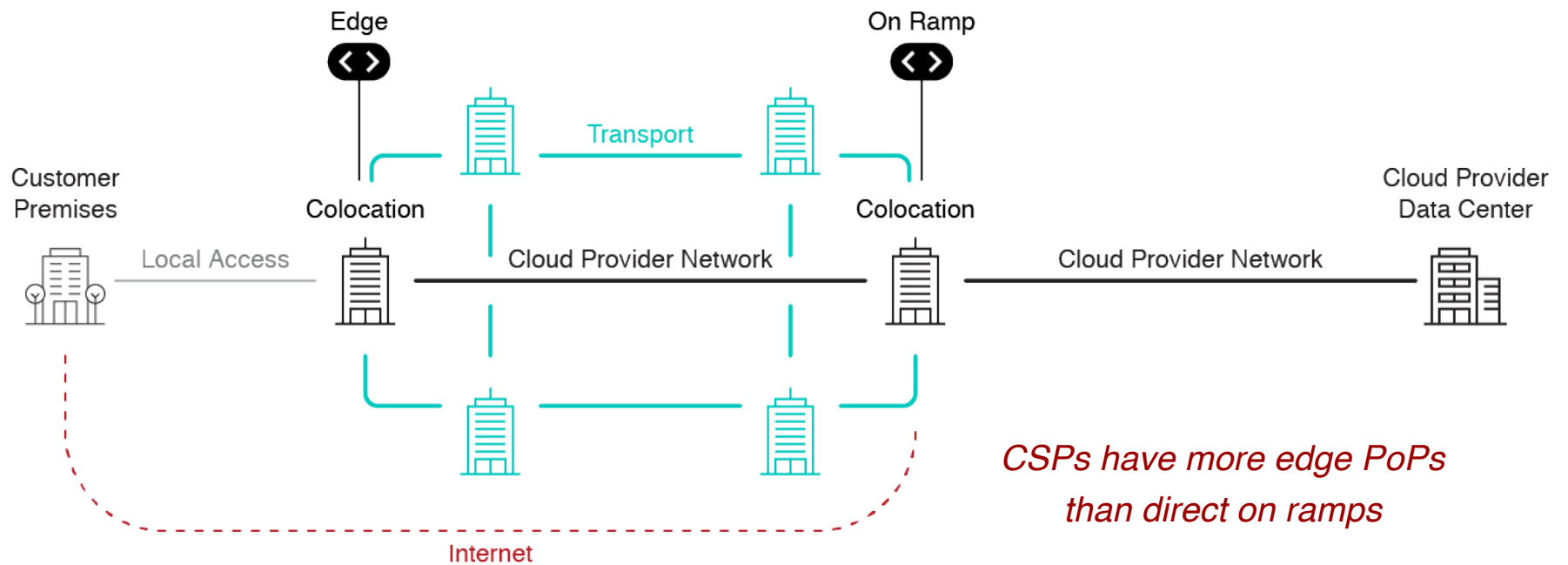- Accessible customer service and support

Middle mile overview
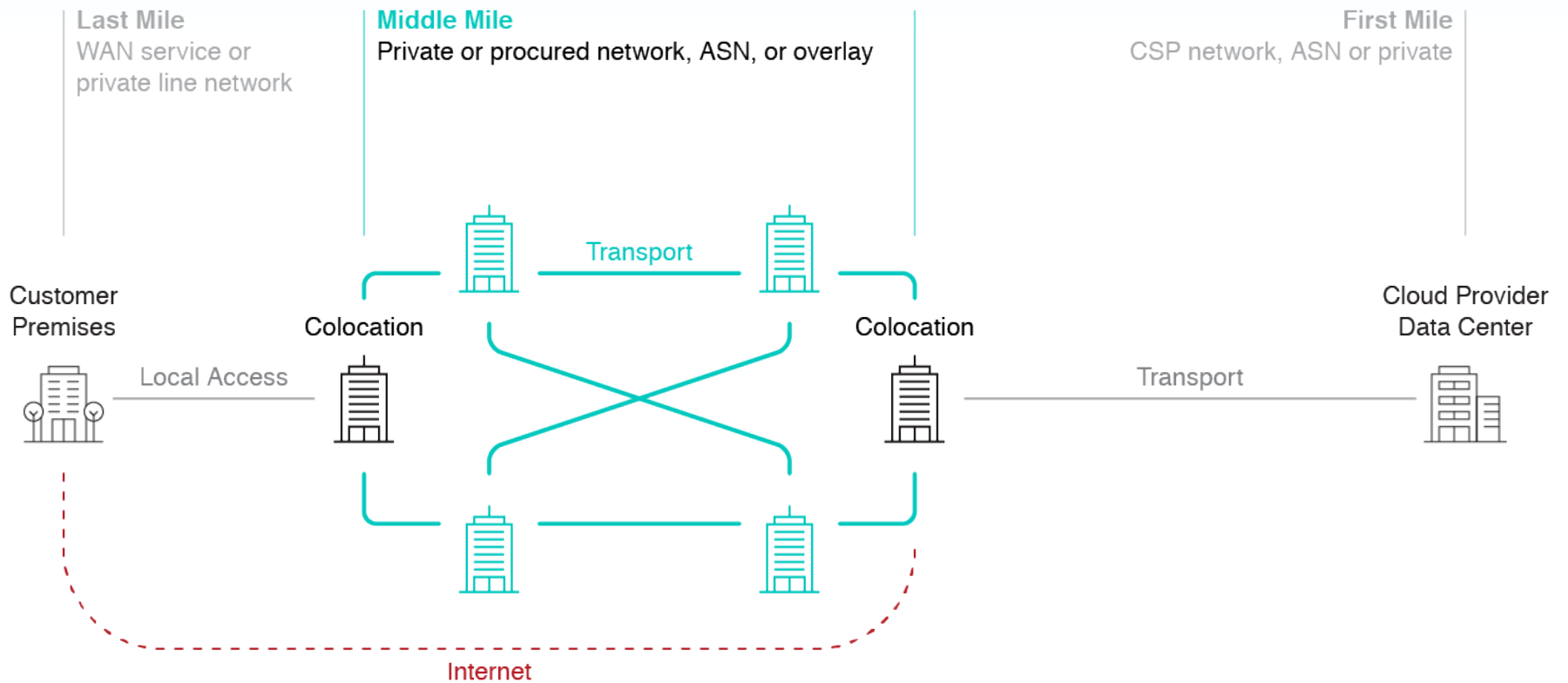
Cloud connectivity is a key attribute

- Two ways to connect to the cloud
  1. Directly
     - Interface between enterprise WAN and CSP network
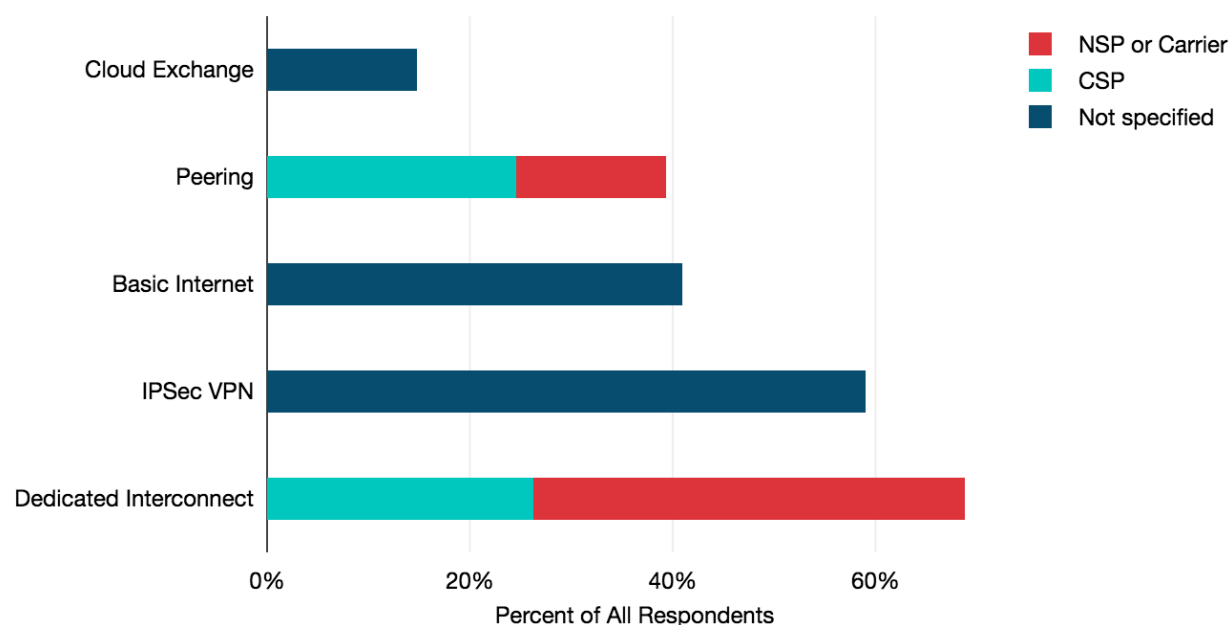 2. Indirectly
     - Over the internet

Cloud access at edge or on ramp

CSPs have more edge PoPs than direct on ramps

How WAN managers connect to the cloud

- Almost 70% have a dedicated interconnection
  - 2/3 of those use a NSP
- Over half using IPSec VPN
  - Available, not so scalable
- Basic internet 40%+
  - Fueled by hybrid networks

What methods do you use to connect to your IaaS providers?

Legend:
- NSP or Carrier
- CSP
- Not specified

Chart categories (y-axis): Cloud Exchange, Peering, Basic Internet, IPSec VPN, Dedicated Interconnect

X-axis: Percent of All Respondents (0%, 20%, 40%, 60%)

Enterprises have established dedicated cloud interconnects in their network architectures
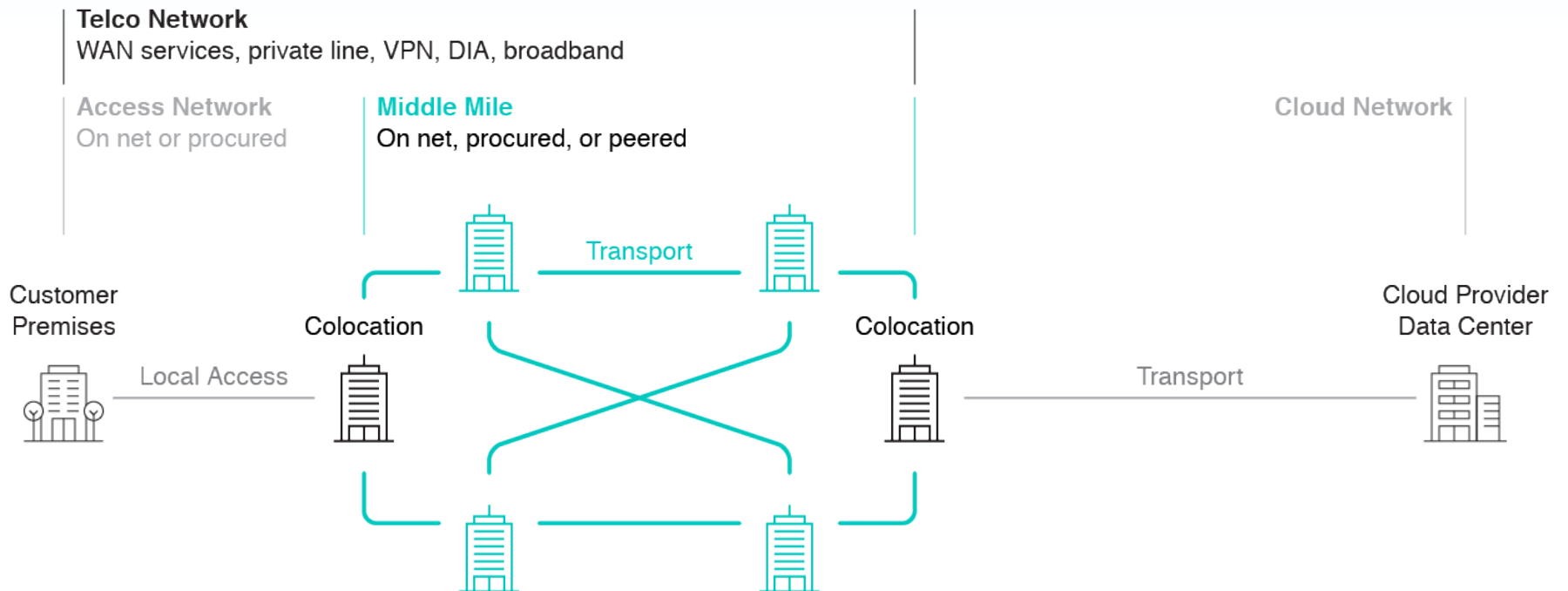
Multiple IaaS engagements are common

- Almost all use at least one IaaS cloud provider
- Nearly three-quarters use more than one IaaS partner
- The largest group of respondents, 44%, use two

How many IaaS partners are you using?
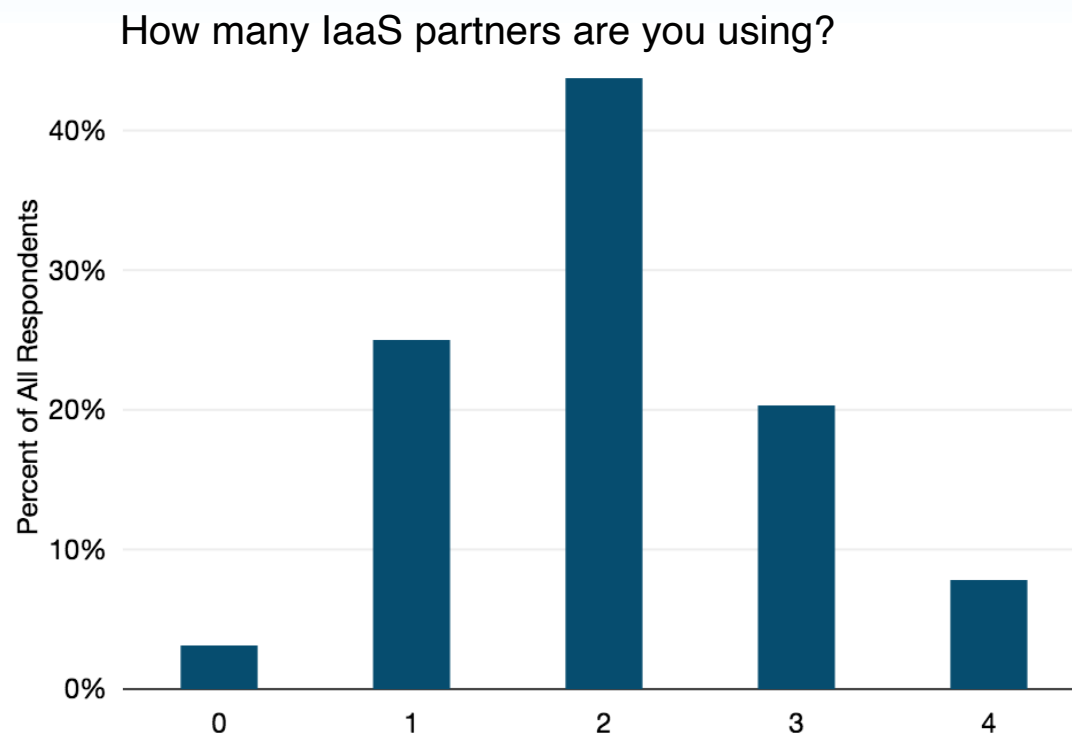
Opportunity to orchestrate multiple bilateral cloud connections

Baseline: telco WAN service

Telco Network
WAN services, private line, VPN, DIA, broadband

Access Network
On net or procured

Middle Mile
On net, procured, or peered

Cloud Network

Customer
Premises

Colocation

Transport

Colocation

Cloud Provider
Data Center

Local Access

Transport

Adapt the traditional menu of WAN services to connect the cloud

Internet backbone providers can carry traffic "on net"

Shepherd internet traffic to the cloud
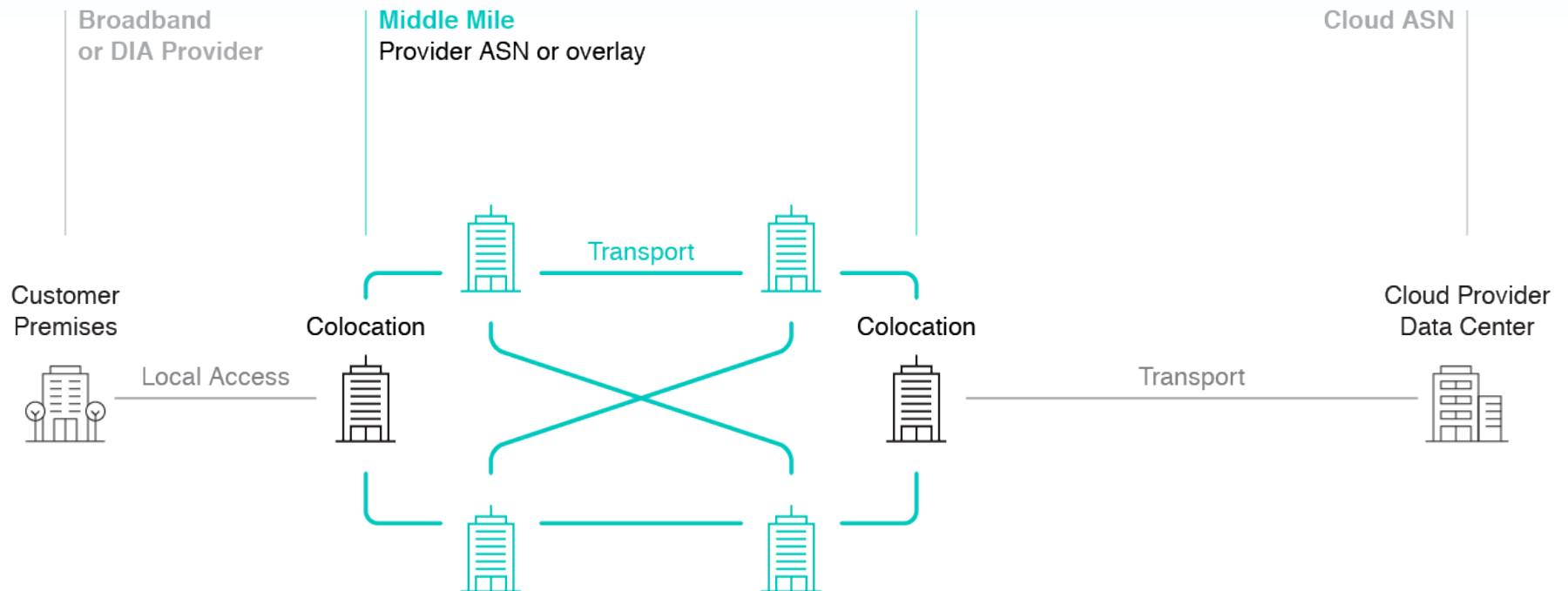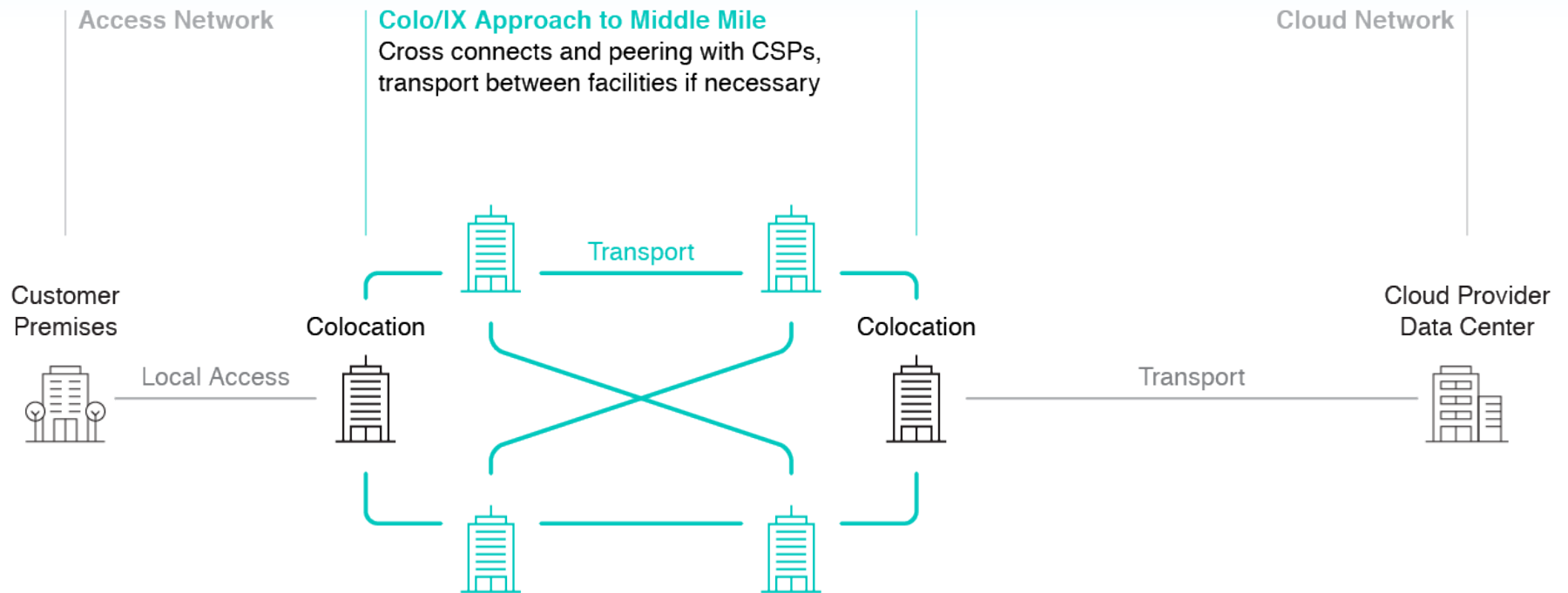

Deploy "virtual routers" or join the internet backbone with an ASN

Leverage network exchange points

Access Network

Colo/IX Approach to Middle Mile
Cross connects and peering with CSPs,
transport between facilities if necessary

Cloud Network

Transport

Customer
Premises

Colocation

Colocation

Cloud Provider
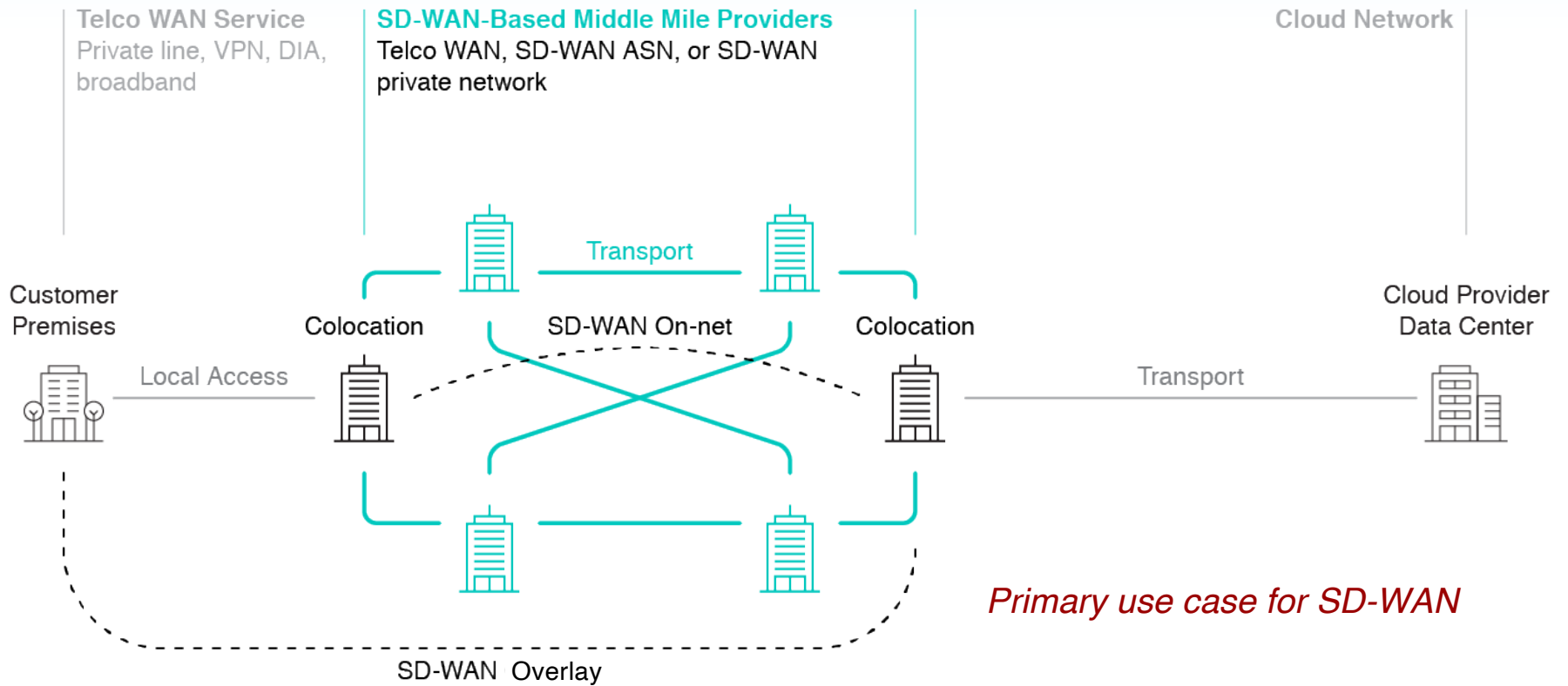Data Center

Local Access

Transport

Could limit middle mile to one facility

Transport traffic on private network
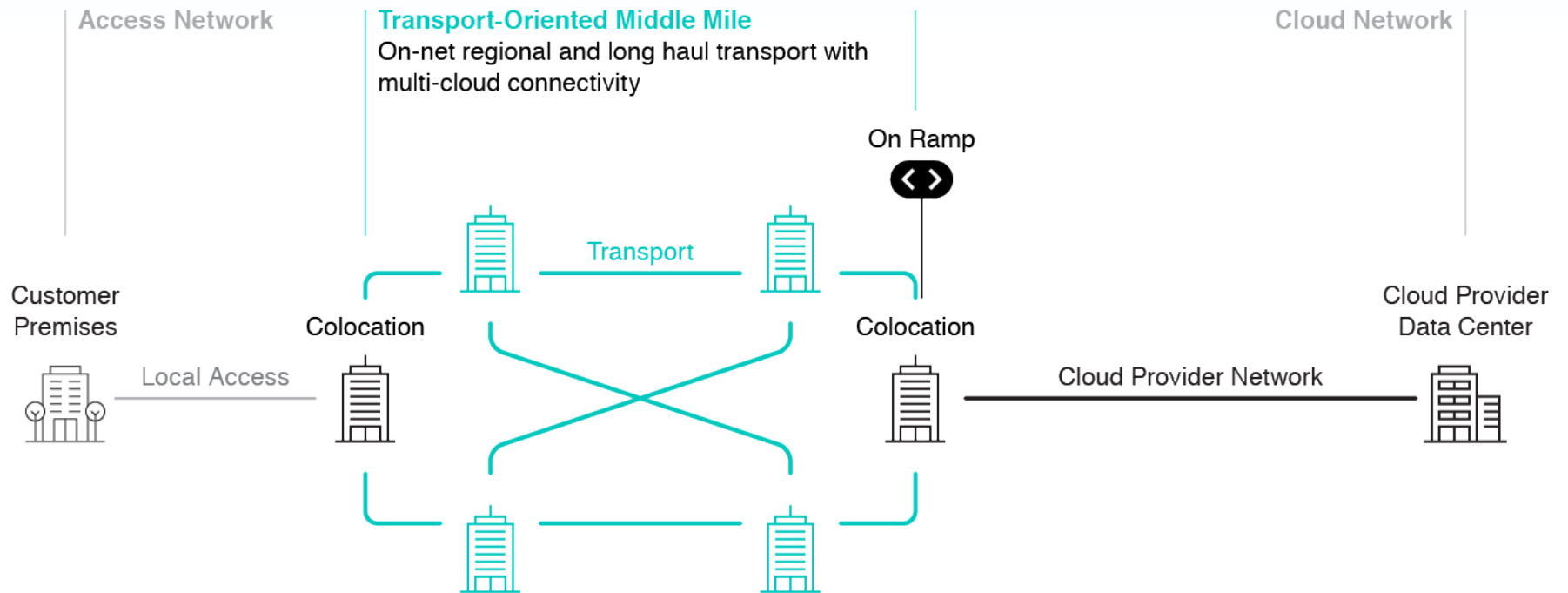
Harkens back a private line mesh—with software defined agility

SD-WAN overlay or network-based

Telco WAN Service
Private line, VPN, DIA, broadband

SD-WAN-Based Middle Mile Providers
Telco WAN, SD-WAN ASN, or SD-WAN private network

Cloud Network

Transport

Customer Premises

Colocation

SD-WAN On-net

Colocation

Cloud Provider Data Center

Local Access

Transport

Primary use case for SD-WAN

SD-WAN Overlay

Summary and discussion

- ## What problems can the middle mile solve?

  - ### Purpose built to access applications hosted in multiple cloud venues

  - ### Aligned with cloud service transactions and decoupled with legacy WAN services

- ## How does it work?

  - ### What is the service provided?

  - ### How do customers procure and use it?