Benchmarking Enterprise Networks: Modeling Hybrid Network Costs
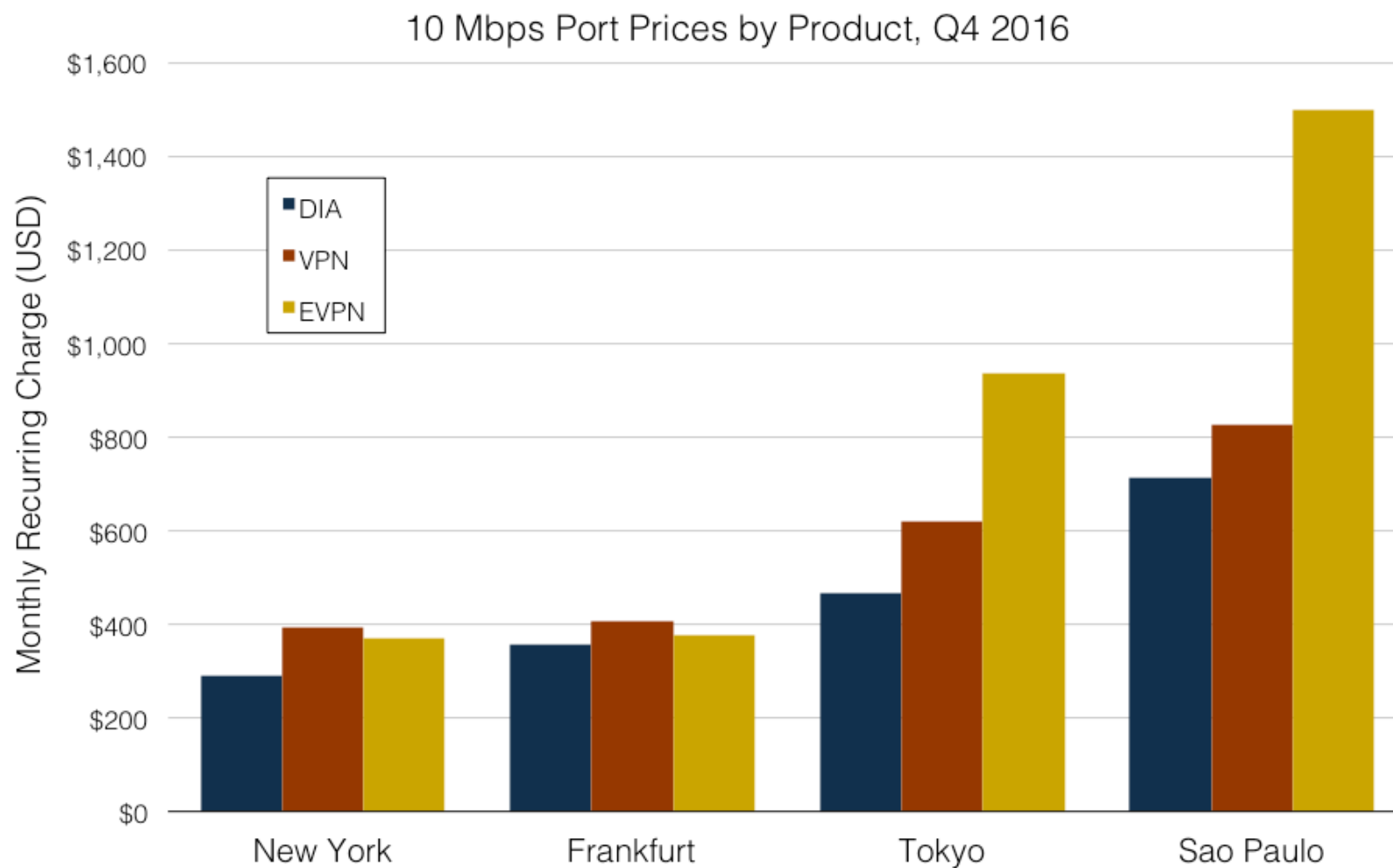
Michael Bisaha

TeleGeography

Overview

- Topics covered
  - General trends in network pricing

  - Cost optimization strategies for network design

  - Role of diversity (both in route and product choice)

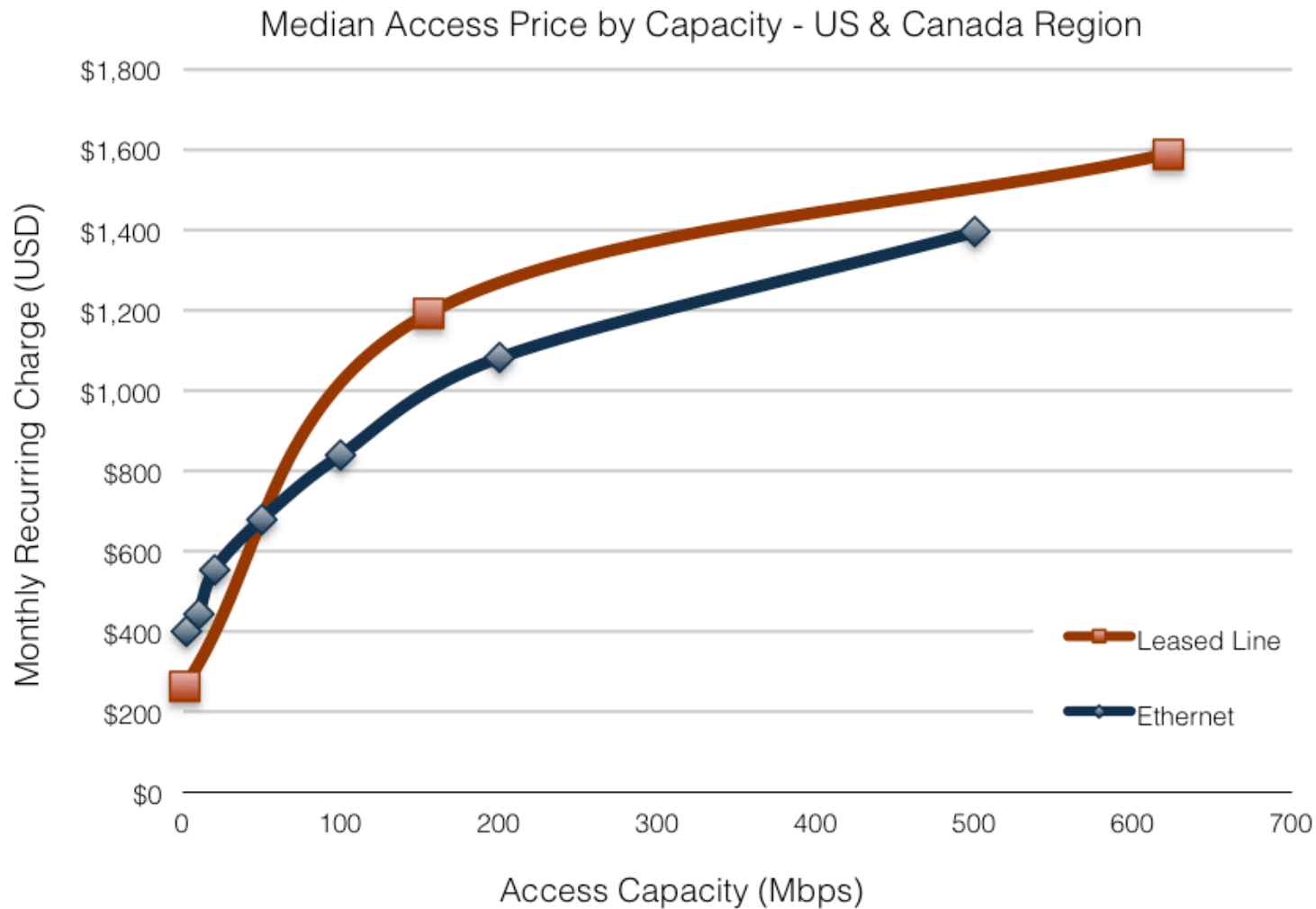 - Modeling and evaluating potential network designs and deployment strategies

Pricing Components and Trends

- Baseline price components of a WAN deployment

    – Network Port
    – Access Line
    – Rental charges for CPE (Customer Premises Equipment)
    – Class of Service
    – Backup / Diversity Charges

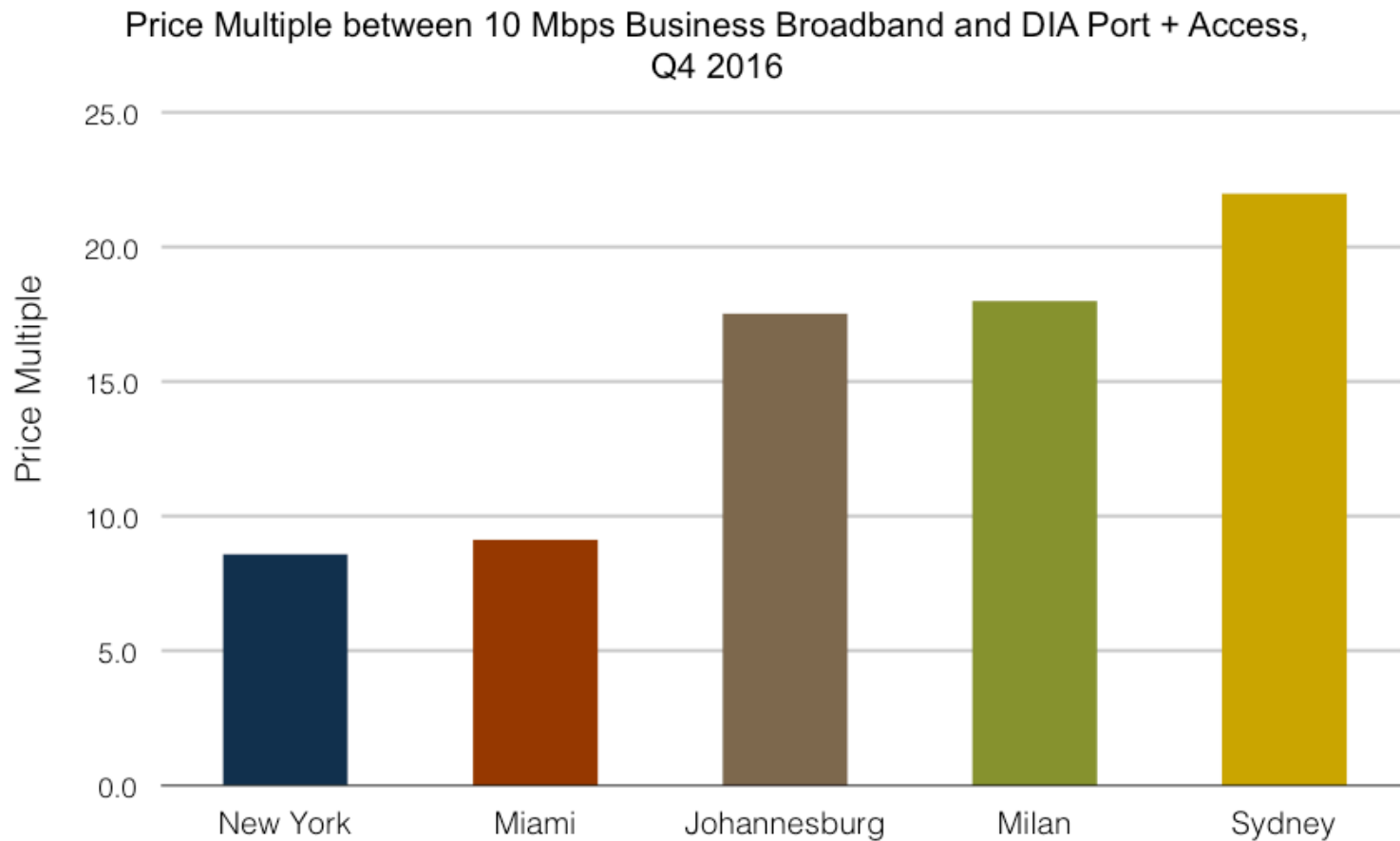# Product Choices – Network Port

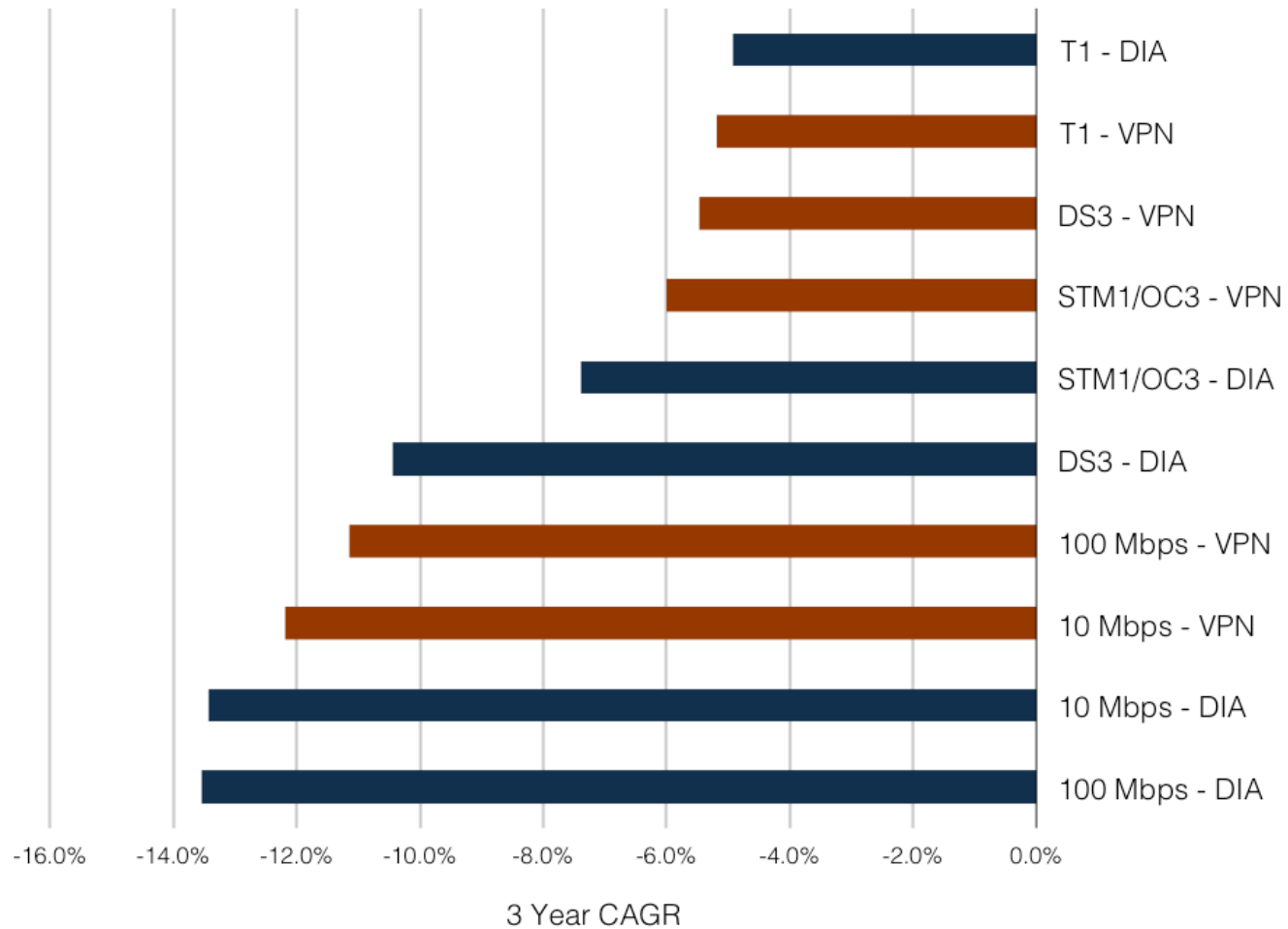

10 Mbps Port Prices by Product, Q4 2016

Access Types

Median Access Price by Capacity - US & Canada Region

Broadband Price Multiples

Price Multiple between 10 Mbps Business Broadband and DIA Port + Access, Q4 2016

Differing Rates of Price Decline

Rate of Price Decline for DIA and VPN Solutions at Key Capacities - New York City

Categories (top to bottom):
- T1 - DIA
- T1 - VPN
- DS3 - VPN
- STM1/OC3 - VPN
- STM1/OC3 - DIA
- DS3 - DIA
- 100 Mbps - VPN
- 10 Mbps - VPN
- 10 Mbps - DIA
- 100 Mbps - DIA

X-axis: -16.0%, -14.0%, -12.0%, -10.0%, -8.0%, -6.0%, -4.0%, -2.0%, 0.0%
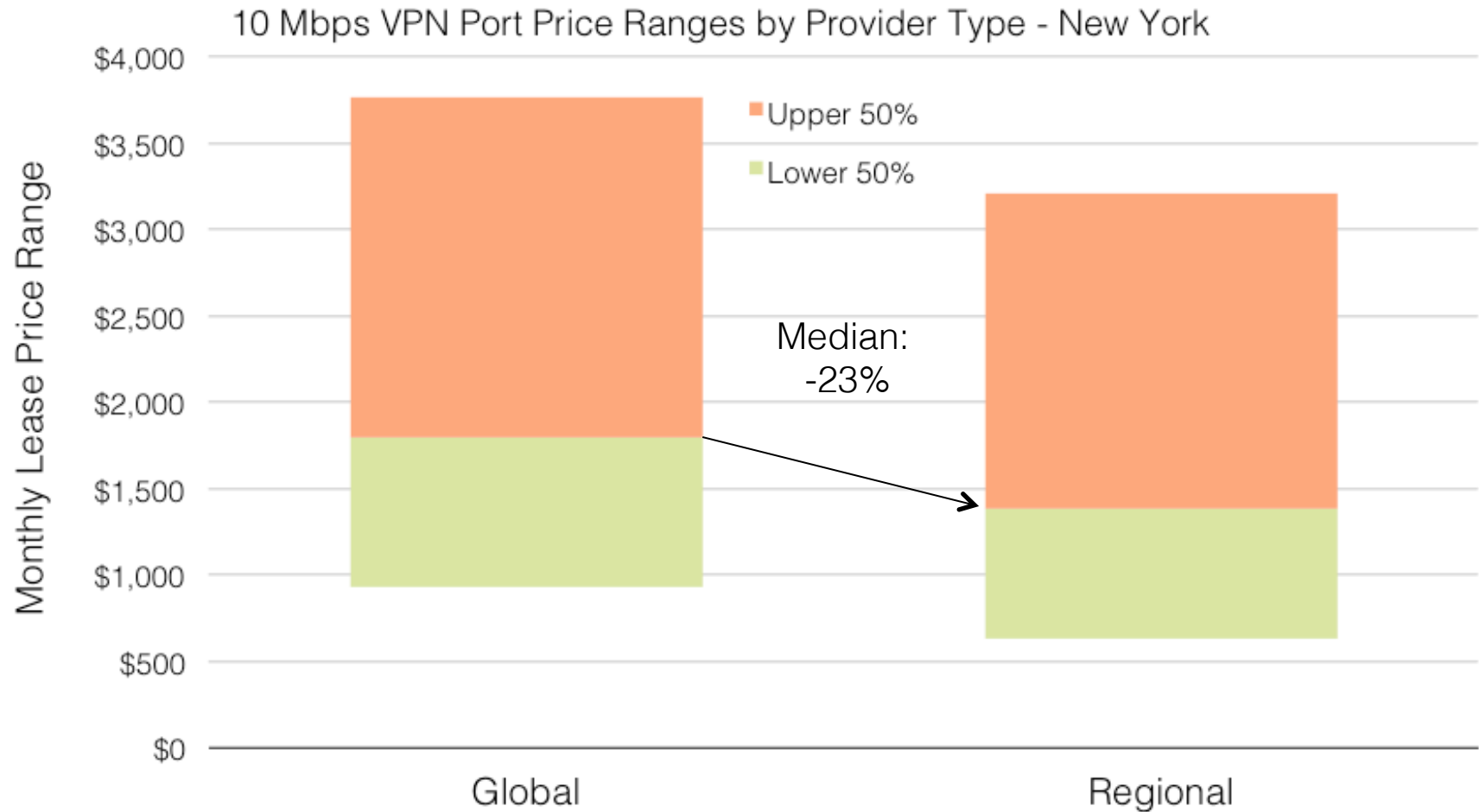
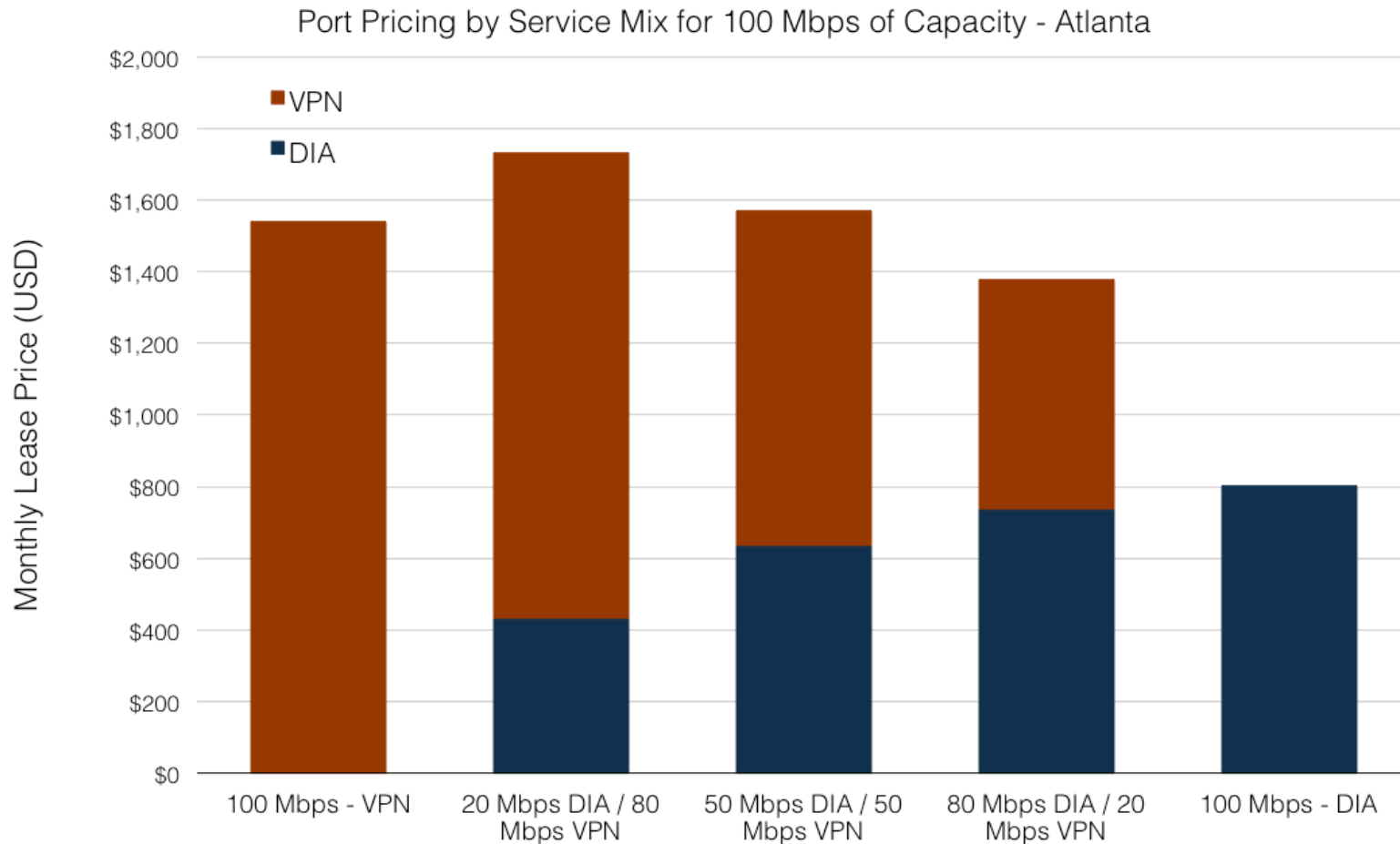3 Year CAGR

From Trends to Strategies

- How can we apply these trends in pricing to advantageous network design? What should I be thinking about when writing an RFP for my network?

- What are my baseline requirements for each site, and for each major traffic stream at each site? And what are my network design options given those key restraints?

- What role does my choice of provider play in evaluating expected costs and specific RFP responses?

Provider Choice Matters

10 Mbps VPN Port Price Ranges by Provider Type - New York

Monthly Lease Price Range

- Upper 50%
- Lower 50%

Median: -23%

Global   Regional

Scale vs. Product Diversity

Port Pricing by Service Mix for 100 Mbps of Capacity - Atlanta
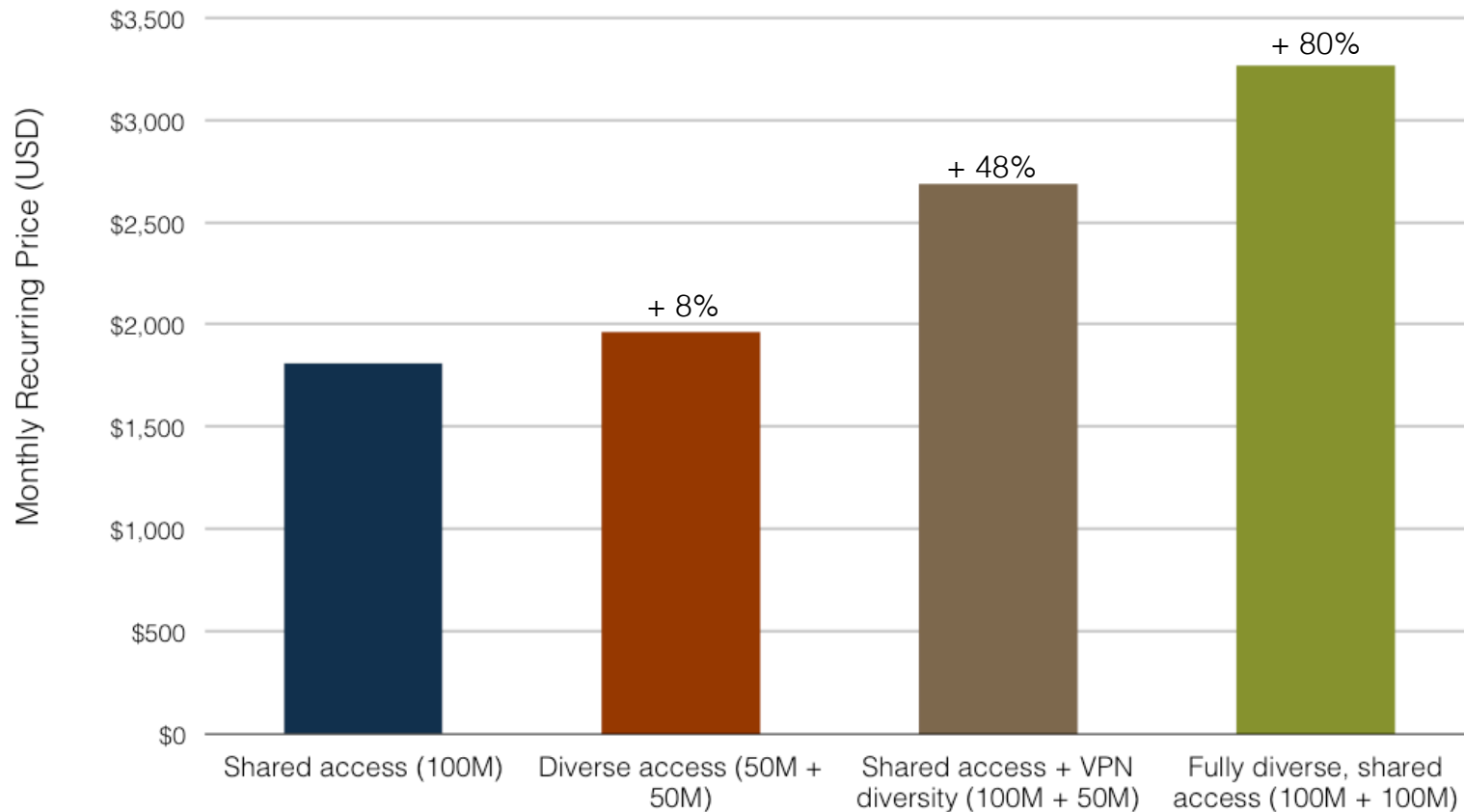
Shared vs. Diverse Access

Access Pricing for 50M DIA / 50M VPN Solution by Diversity Strategy - New York
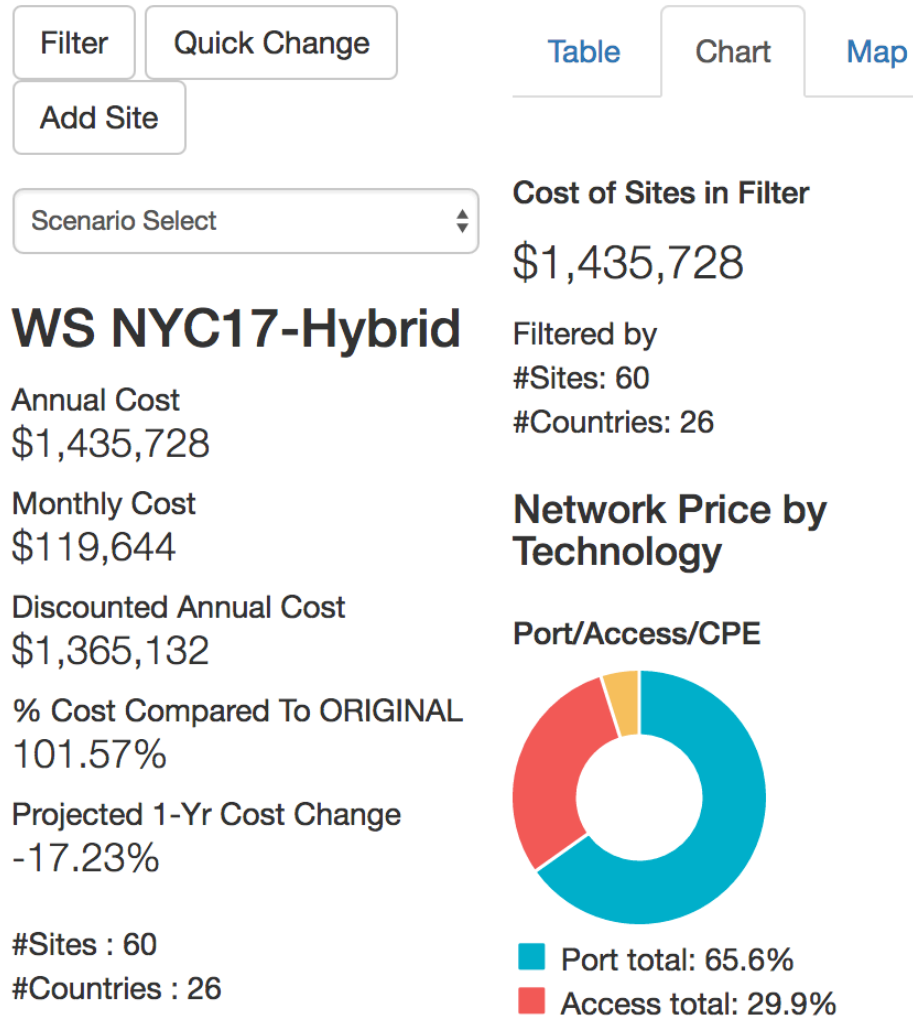
Evaluating Network Strategies

- General strategies are great, but each network is different. An approach for one deployment may not hold for another
  - Varying site geographies
  - Differing providers in a position to bid
  - Other local market conditions

- Where possible, it is best to evaluate potential strategies against a model of your specific deployment

Baseline Hypothetical WAN Configuration

- Scenario analysis based on hypothetical global network

- 36 sites – 10 in Asia, 10 in Europe, 6 in LatAm, 10 in the US

- Capacities range from 2-1000 Mbps

  – most common are 2 Mbps and 100 Mbps

- Class of Service mix: 10% Voice/Video, 30% Business Critical, 60% Best Efforts

- Ethernet access preferred over leased line, except at low capacities

Interactive Modeling

- TeleGeography tracks and models networking costs for customized networks in detail in our Interactive Benchmarking application

Filter | Quick Change

Add Site

Table | Chart | Map

Scenario Select

WS NYC17-Hybrid

Annual Cost
$1,435,728

Monthly Cost
$119,644

Discounted Annual Cost
$1,365,132

% Cost Compared To ORIGINAL
101.57%

Projected 1-Yr Cost Change
-17.23%

#Sites : 60
#Countries : 26

Cost of Sites in Filter

$1,435,728

Filtered by
#Sites: 60
#Countries: 26

Network Price by Technology

Port/Access/CPE

Port total: 65.6%
Access total: 29.9%

Scenario Comparisons in App

Three Final Takeaways

- ## Pick network products wisely
  - Offloading low-priority traffic to the internet can help optimize costs
  - Multiple services at a single site can give you more flexibility to take advantage of solutions like SD-WAN for improved performance
  - Scale should not be overlooked – larger ports have a lower cost per Mbps. Splitting that port into multiple, smaller services doesn't always result in cost savings

- ## Backup and Diversity
  - Site diversity has many dimensions (network product, provider, access route, etc)
  - Shared access is a useful strategy for cost savings, but should be balanced with the appropriate backup solution for that site's traffic

- ## Provider Choice matters
  - The regional vs. global provider choice often has a substantial financial impact, but doesn't have to be an all or nothing choice

Thank you!

For questions, please contact me at:

Michael Bisaha
mbisaha@telegeography.com