



# Update: Deployment Considerations for 100Gbps links

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# DDoS Considerations for Carriers

Rapid change will characterize the Internet related infrastructure, topology and technology landscape for today's competitive carriers. Navigating the move to virtualized services, 100G Internet access, tunneling and overlays, 5G, IPv6, edge compute and more can be challenging. At the same time you need a plan to protect your network and customers against the ever present threat of DDoS related outage or service impact.

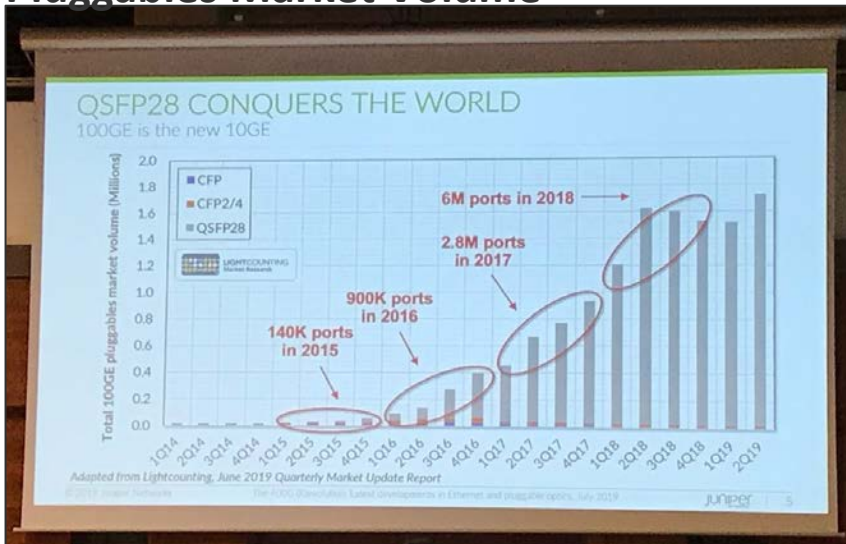
Search: **'IHS Markit ddos 100g'**



# Considerations moving from 10 to 100GbE transit

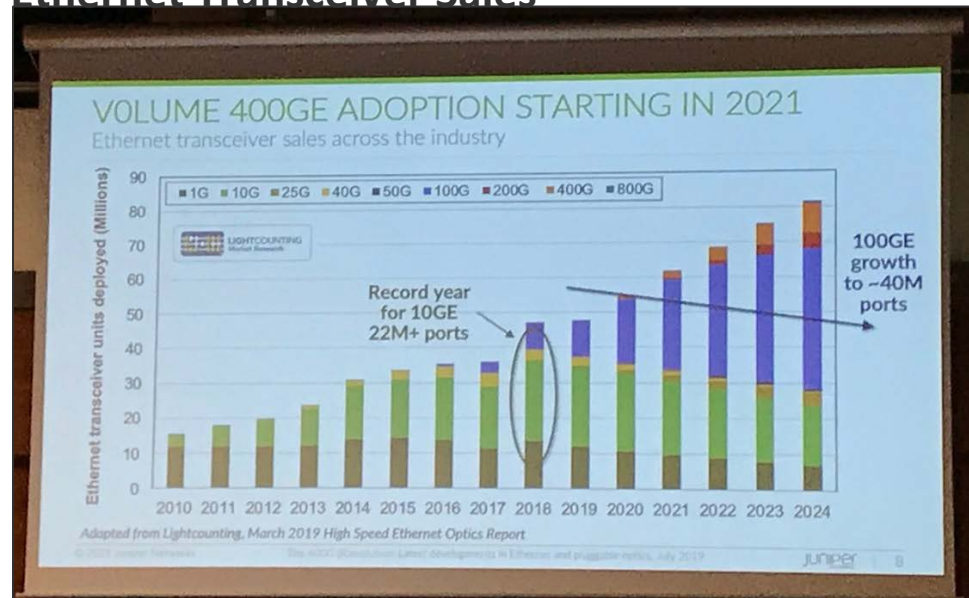


## Pluggables Market Volume



Source: Lightcounting June 2019 Quarterly Market Update

## Ethernet Transceiver Sales



Source: Lightcounting June 2019 Quarterly Market Update

# Considerations moving from 10 to 100GbE transit



Last 10 years were the era of  $n \times 1\text{G}/10\text{G}$  Internet, the next 5 years rapidly becoming  $n \times 100\text{G}$

## Drivers:

- **Demand Growth** – many customers need more than  $2 \times 10\text{G}$

8 x 10G



## Enabling:

- 100G technology costs are coming down rapidly
  - Ports / routers / switches, also power, density, performance
  - Optics / Fiber e.g. QSFP28, for 100G SM LR is already in place for 10G
- **Service Provider Transit Connection Economics** (10x boost)
  - 20G CDR over 100G vs. 10G – fiber is the same, just need 100G endpoints
  - Monthly services revenue uplift vs. one time investment in 100G ports/optics
- **Customers increasingly “running hot”** on 10G links reducing DDoS tolerance
  - Spare capacity (10Gbps – peacetime Gbps), DDoS is distributed but is not predictable or fair ☺

1 x 100G



Bandwidth  
Growth  
Increase



Bandwidth  
Cost  
Decrease

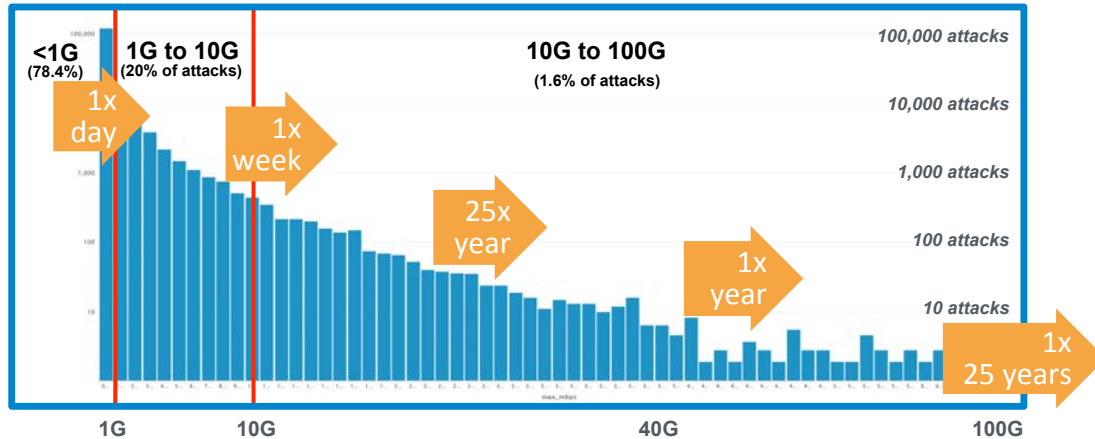




# DDoS Attack Statistics for 1 to 10 to 100Gbps

- Attacks in the 10G to 100G domain can be “fast and furious”
- Need real-time detection and mitigation
- Seconds count
- Need to block before they infiltrate your network

Statistics for > 150,000 attacks over 12 months



## MAJOR ATTACKS DOUBLED

100%

Increase in DDoS attacks over 10Gbps

The percentage of attacks over 10Gbps has doubled in 2018 compared to 2017.

Though still in the extreme minority large-volume attacks have doubled from 1% to 2% of overall attacks.

## SHORT DURATION ATTACKS CONTINUE

81% of attacks in 2018 lasted less than 10 minutes.

Short duration attacks, which often go undetected by traditional DDoS solutions, are becoming more common. 81% of attacks in 2018 lasted less than 10 minutes, up from 71% in 2017.





# DDoS in the age of 100GbE Transit connections

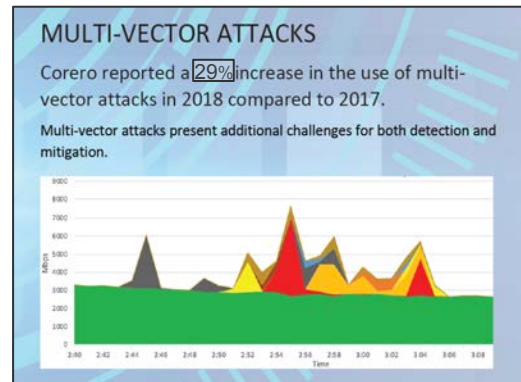
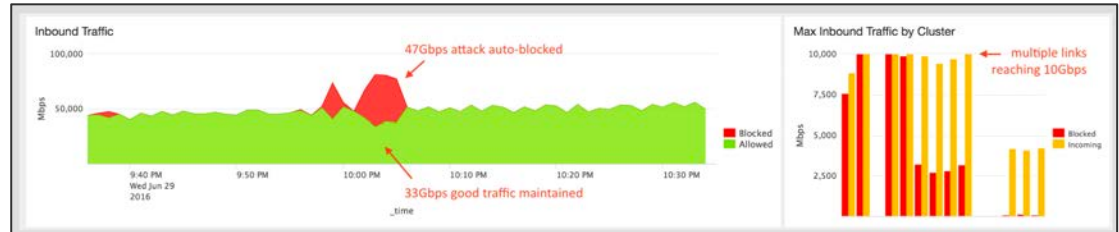
## DDoS and 100G transit connections - challenges and opportunities

### • Challenges

- 100G Inrush (DDoS can burst)
- 100G vs. internal bottlenecks
  - Server/Service connectivity
- 100G vs. downstream bottlenecks
  - Subscribers, tenants, downstream infrastructure (wireless)

### • Opportunities

- 100G absorption of nx10G attacks (excess inbound capacity)
- Supports Provider consolidation while maintaining diversity
  - Reduced complexity
  - Better bargaining power
  - Better economics





Thankyou

