A Foundation for Next-Gen Cloud Networks: Introducing Industry's First Cloud-Optimized 51.2 Tbps Networking Platform

March 2, 2023

Our focus: data infrastructure

Data center

Every major cloud

Carrier infrastructure

5G

4 of 5 top wireless OEMs

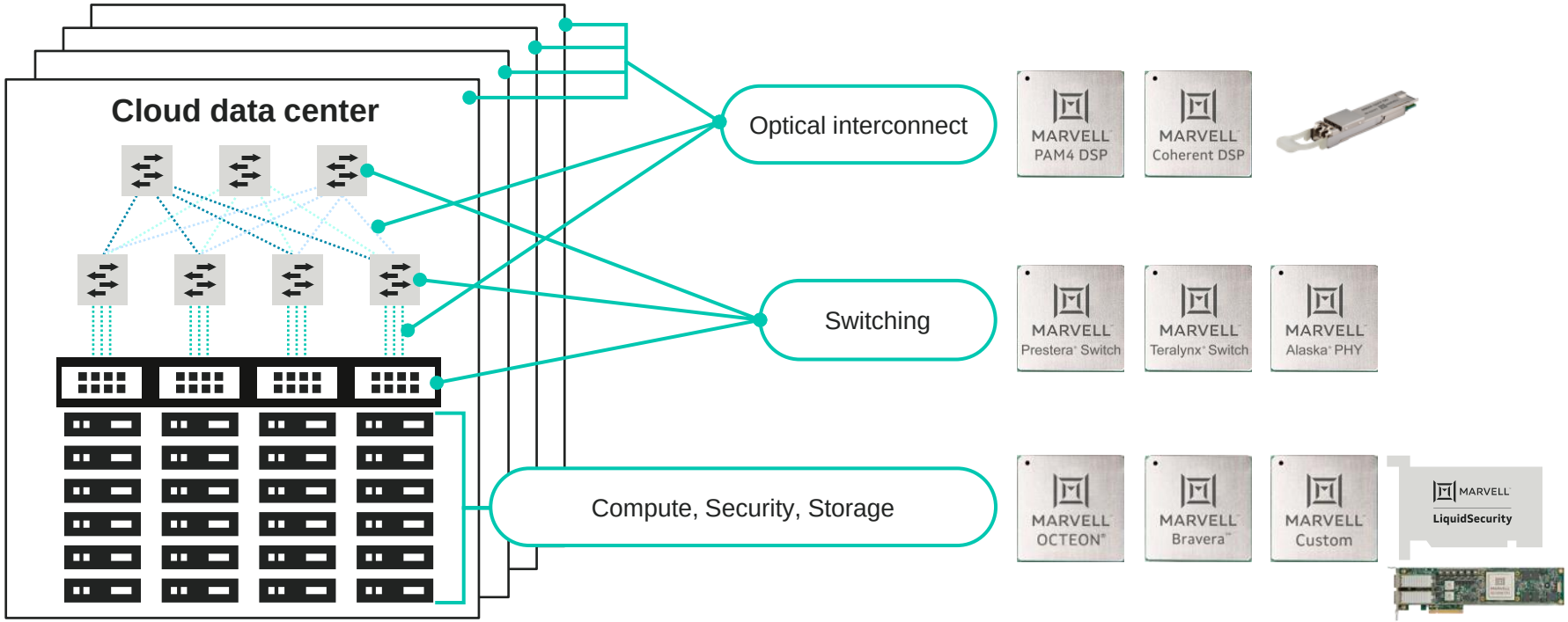
Automotive

8 of 10 top auto OEMs

Enterprise networking

17 of 20 top networking OEMs

Cloud-optimized data center portfolio



Addresses unique needs of the largest data center operators

Key market dynamics

1. New AI applications
2. Network bottlenecks
3. Bandwidth growth

New AI drives more bandwidth

More AI

OpenAI ChatGPT

Google Bard

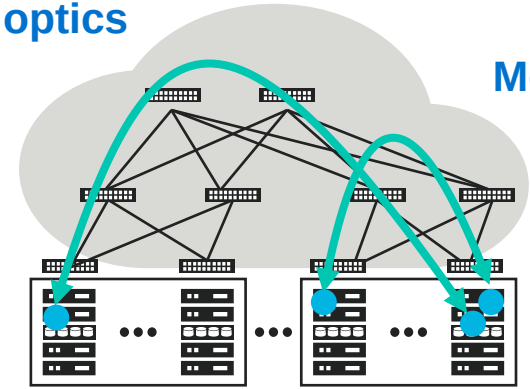
Microsoft Bing AI

Baidu 百度 Ernie Bot

More bandwidth

More optics

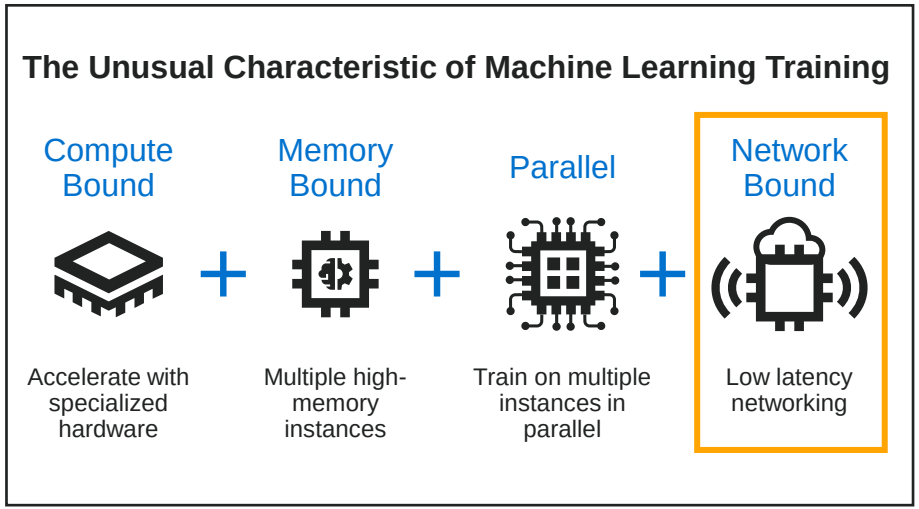
More switches



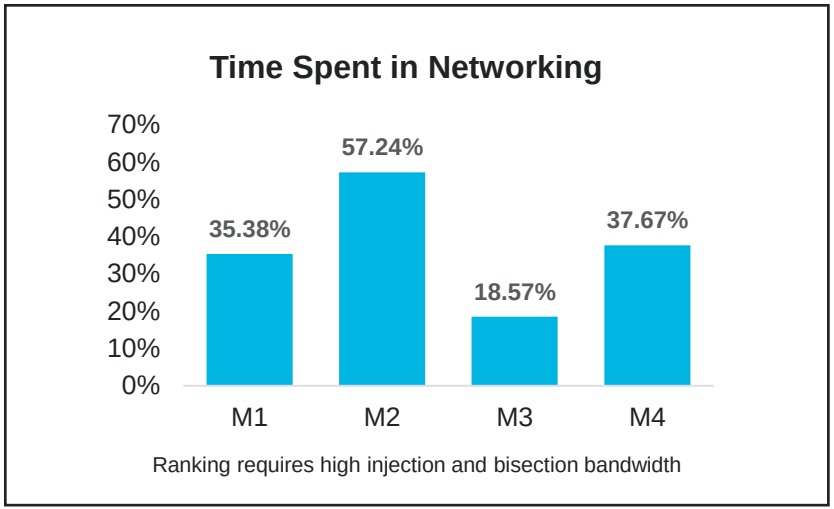
Cloud operators need networking to do more

Low latency critical for demanding applications

AWS keynote at re:Invent 2022



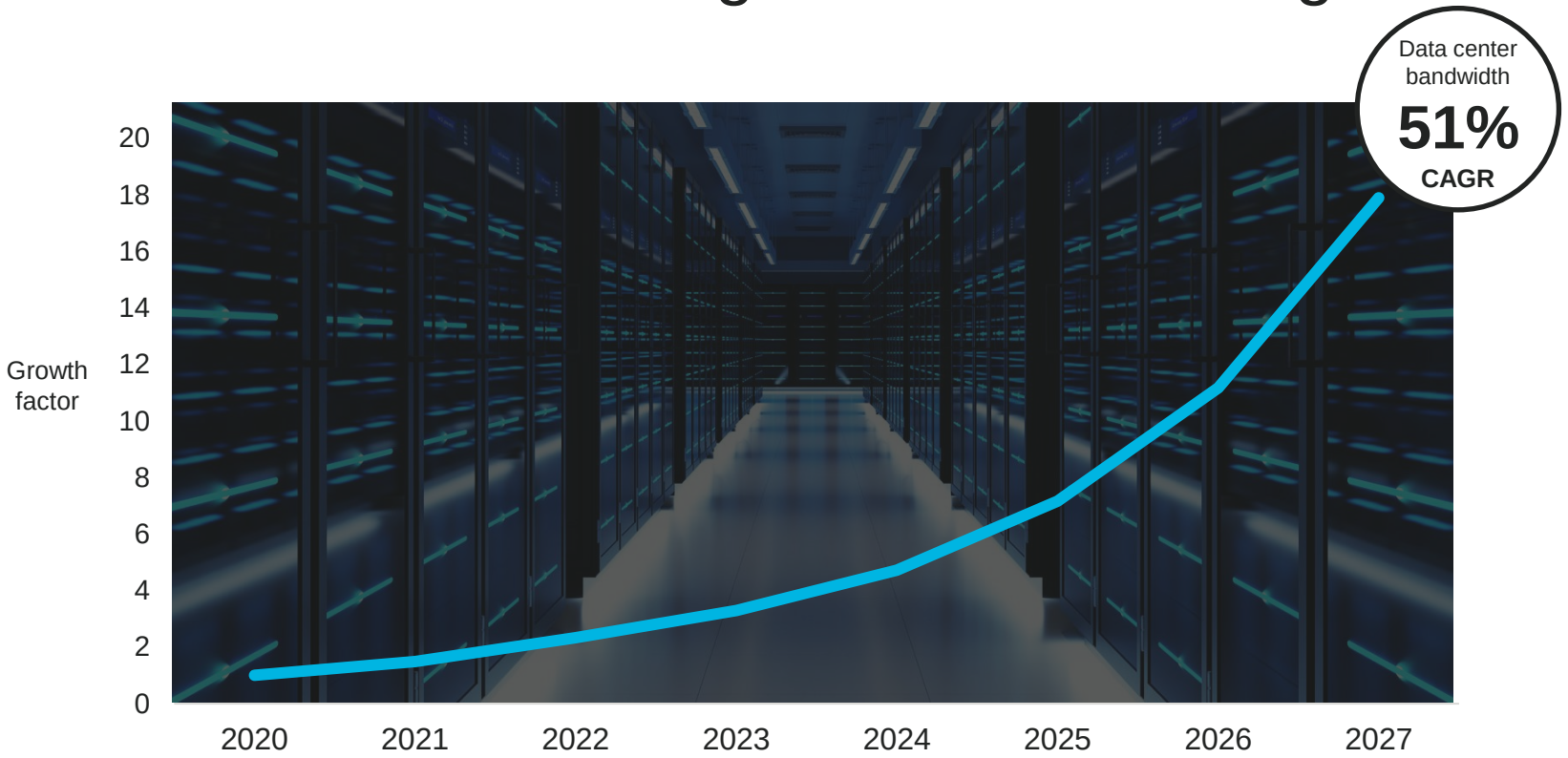
Meta keynote at OCP Summit 2022



Mx = ML training models

Network bottlenecks limit performance, hurt revenue

Data center bandwidth growth accelerating



Source: Marvell estimates based on industry analyst forecasts

A foundation for next-gen data center networks

1.6 Tbps PAM4 DSP

200G per lambda

51.2 Tbps Ethernet switch

Ultra-low latency, programmable

Cloud-optimized platform enables cloud networks to scale

Nova: Industry’s first 1.6T PAM4 DSP

Sampling now

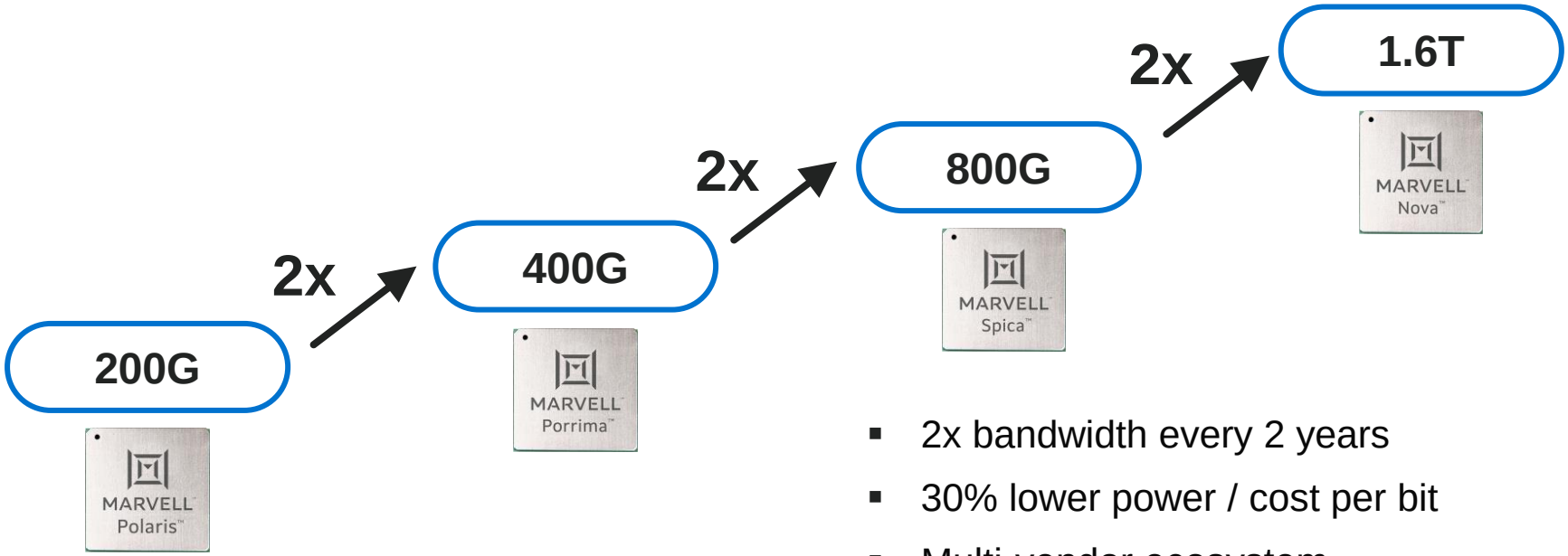
- **8 x 200G / wavelength (λ)**
- 30% lower cost/bit*
- 30% lower power/bit*
- Half module count
- 2x more reliable optics**
- Multi-vendor

*As compared to optical modules based on Marvell's previous PAM4 DSP generation

**Expected reliability improvement compared to the previous Marvell PAM4 DSP generation.

Doubles data center bandwidth for new AI/ML applications

Why PAM4 DSP?



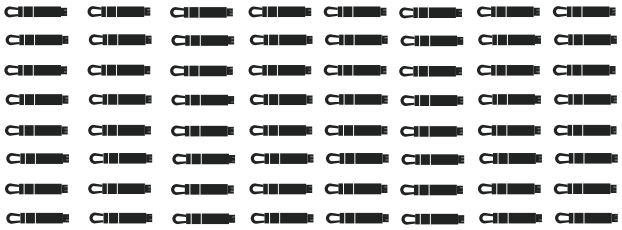
- 2x bandwidth every 2 years
- 30% lower power / cost per bit
- Multi-vendor ecosystem
- High volume, high reliability
- Backward/forward compatibility

Next-gen 1.6T disrupts data interconnects

100G/λ 800G

2RU

64 modules



200G/λ 1.6T

1RU

32 modules

200G/λ enables 1RU design, improving bandwidth density

Next-gen 1.6T disrupts data interconnects

100G/λ 800G

2RU

200G/λ 1.6T

1RU

30%
lower cost/bit*

30%
lower power/bit*

50%
fewer modules

2x
more reliable optics**

Nova essential for cloud-optimized 51.2T-based networks

*As compared to optical modules based on Marvell's previous PAM4 DSP generation

**Expected reliability improvement compared to the previous Marvell PAM4 DSP generation.

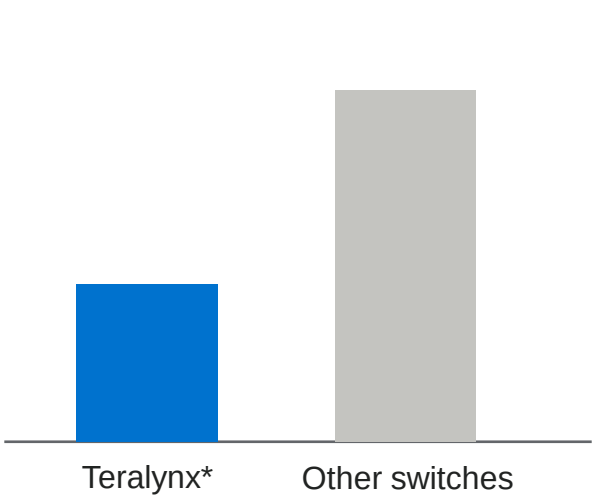
Teralynx 10: ultra-low latency 51.2T switch

Sampling: 2Q23

- **Ultra-low latency**
- Advanced telemetry
- Permutable flex-forwarding
- 80% power savings

Scales the cloud and addresses network bottlenecks

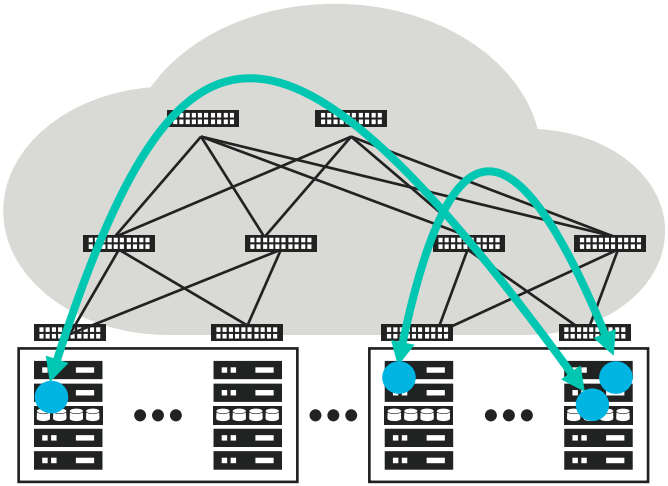
Ultra-low latency switch architecture



1.7x advantage

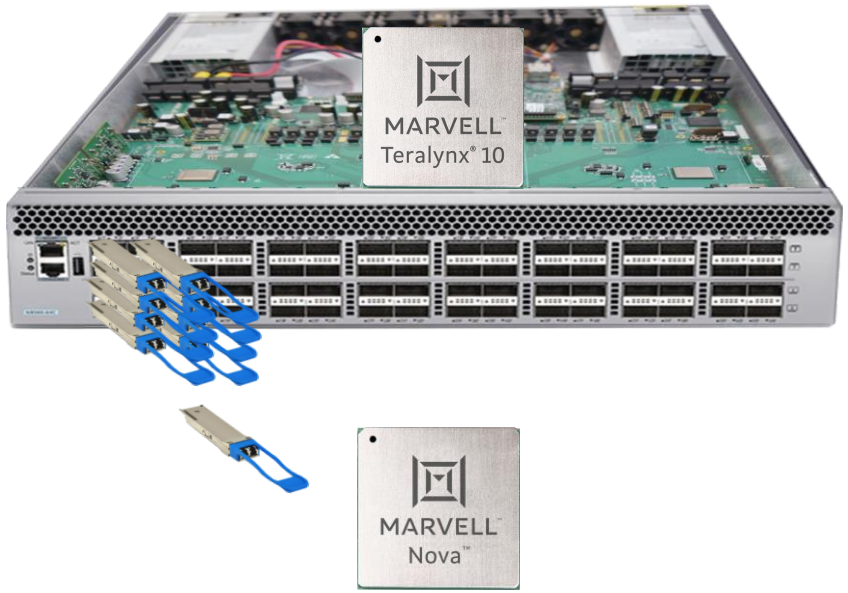
*Based on RFC 2544 FIFO latency with Teralynx 7 for 400G port

Optimized for AI/ML and data center fabrics



- Ultra-low latency
  Reduces job completion time
- Congestion-aware routing
  Minimizes congestion
- Advanced telemetry
  Auto-tunes network in real-time
- Permutable flex-forwarding
  Programs packet-forwarding as networks evolve

Industry-leading 112G SerDes

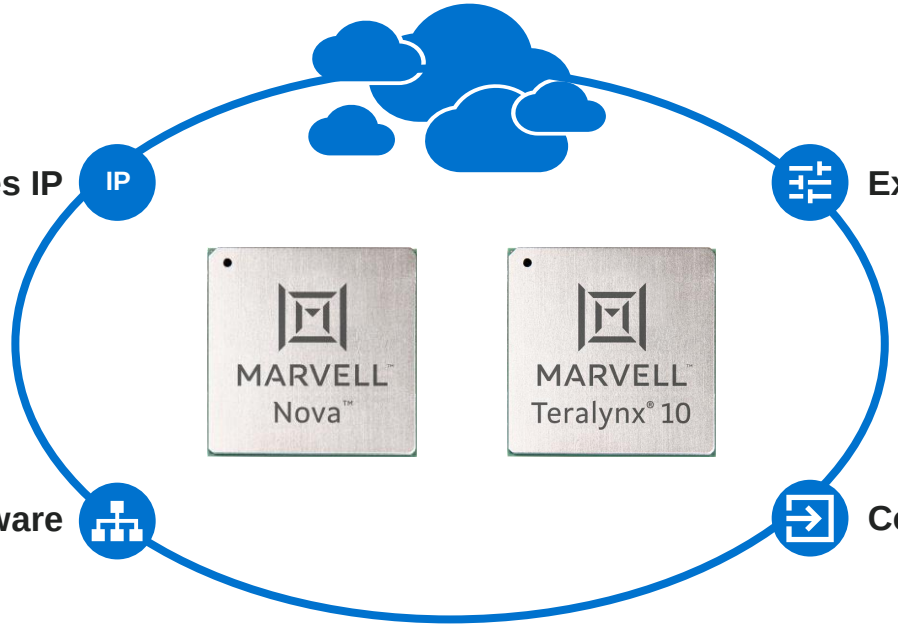


Best-in-class long reach

- Lowest bit error rate (BER)
- Flexible data rate
- Optimized designs without retimers
- Eliminates need for flyover cables

Enables lowest cost and power system design

The benefits of an all-Marvell solution…



…predictable deployment and faster time-to-market

Key takeaways

1. Industry’s first cloud-optimized 51.2T networking platform
2. Nova, industry’s first 200G/λ 1.6T PAM4 DSP
3. Teralynx 10, ultra-low latency 51.2T switch
4. Enables AI/ML and data center network scaling, lowers power/cost per bit
5. Accelerates time to market

*In a programmable switch

Essential technology, done right™