



OPEN  
Compute Project

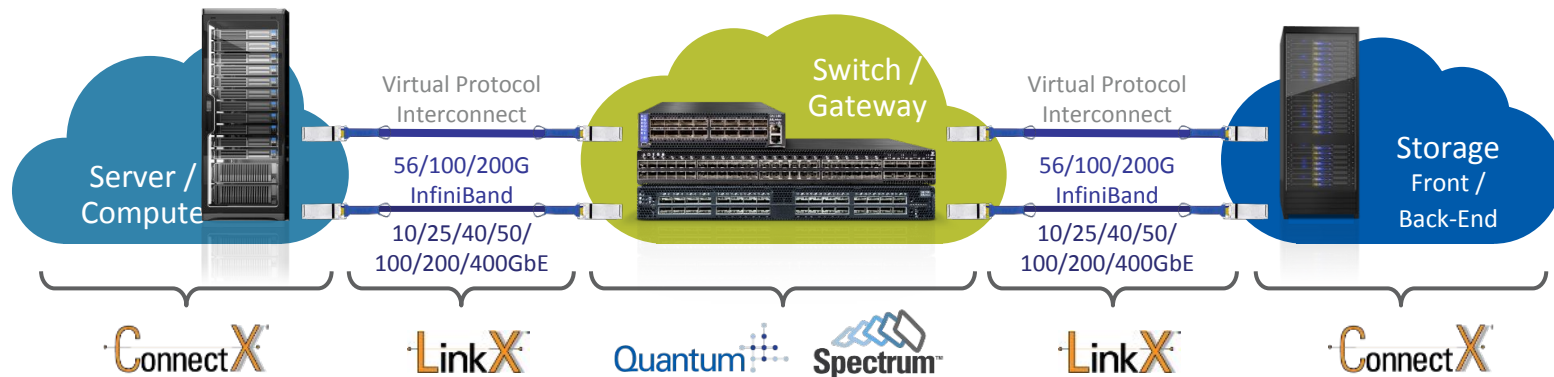


# Open Networking & OCP 3.0

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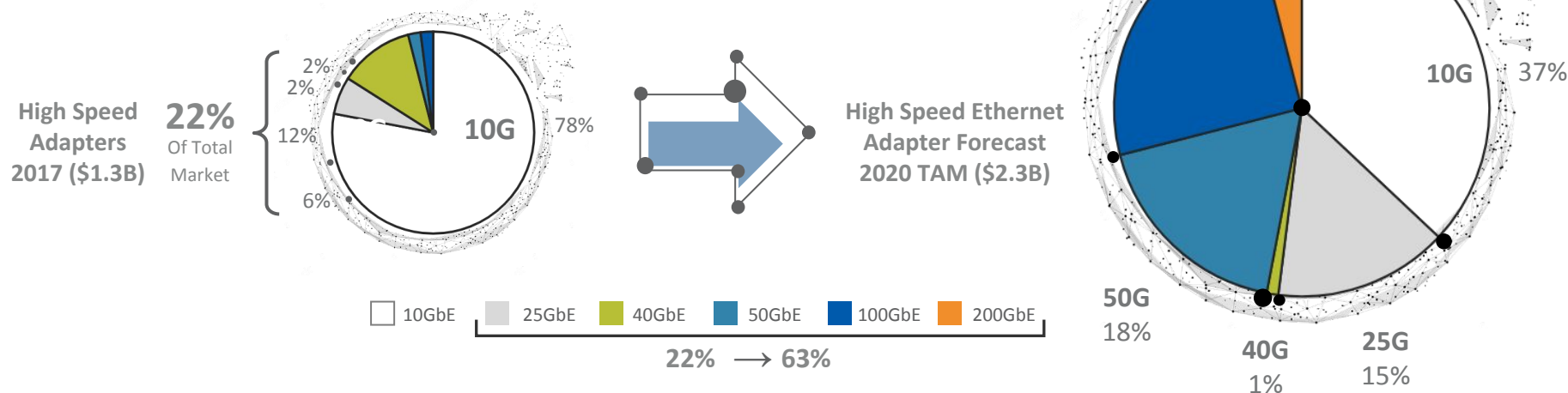
Consume. Collaborate.  
Contribute.

# Leading Supplier of End-to-End Interconnect Solutions

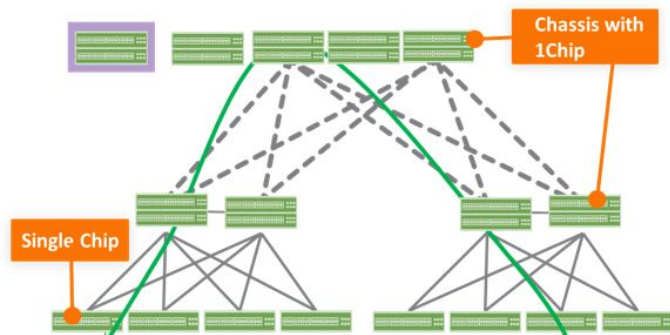


# Significant Growth of 25GbE and Above

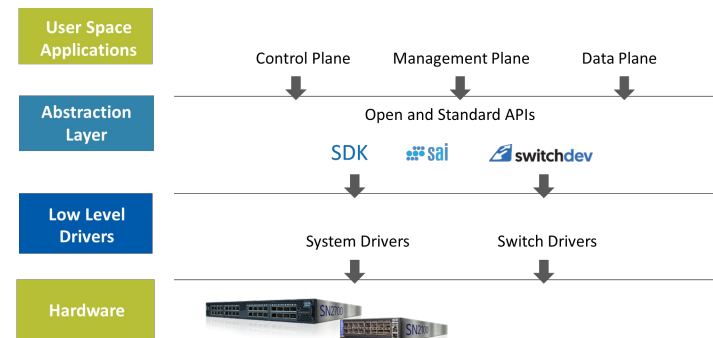
*25G and faster speeds growing to 63% of the market*



# Datacenter Network of Today..



- Based on CLOS – Leaf/Spine Architecture
- Based on a Single Chip Pizza box.



- Network Disaggregation : H/W & S/W...
- Open APIs.

# Welcome To Open Ethernet



Open OS



Vendor OS



User OS



OEM OS



Linux OS



Switch Abstraction Interface

Open SDK API

Switch Kernel Drivers

Platform Drivers



Choice of Software

Choice of Hardware



# Open Ethernet SN3000 Series



Introducing speeds from 1GbE through 400GbE

SN3700 – 32x200GbE

Up to 128x25/50GbE w/ cable splitter



SN3410 – 48x25/50GbE + 8x400GbE

25/50GbE → 400GbE ToR



SN3100 – 16x200GbE

Two switches in a single 1RU



SN3200 – 16x400GbE

Two switches in a single 1RU



Cumulus® Linux®  
Network OS



Consume. Collaborate.  
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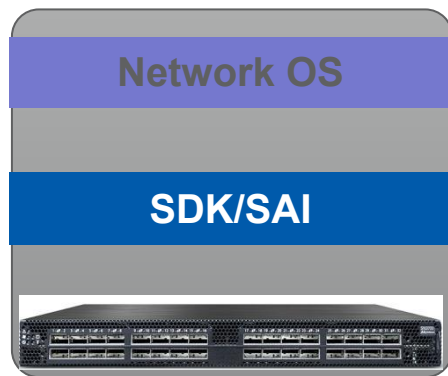
# Open Telemetry : WJH



1. SDK generates WJH messages

2. Agent collects the data:  
Streams to a Database or Controller

3. Presentation layer shows:  
What Just Happened



Packet's 5 Tuple + a very detailed description



# SONiC – Critical Resource Monitor



- Monitors utilization of ASIC resources by polling SAI attributes

- Syslog message if utilization exceeds thresholds

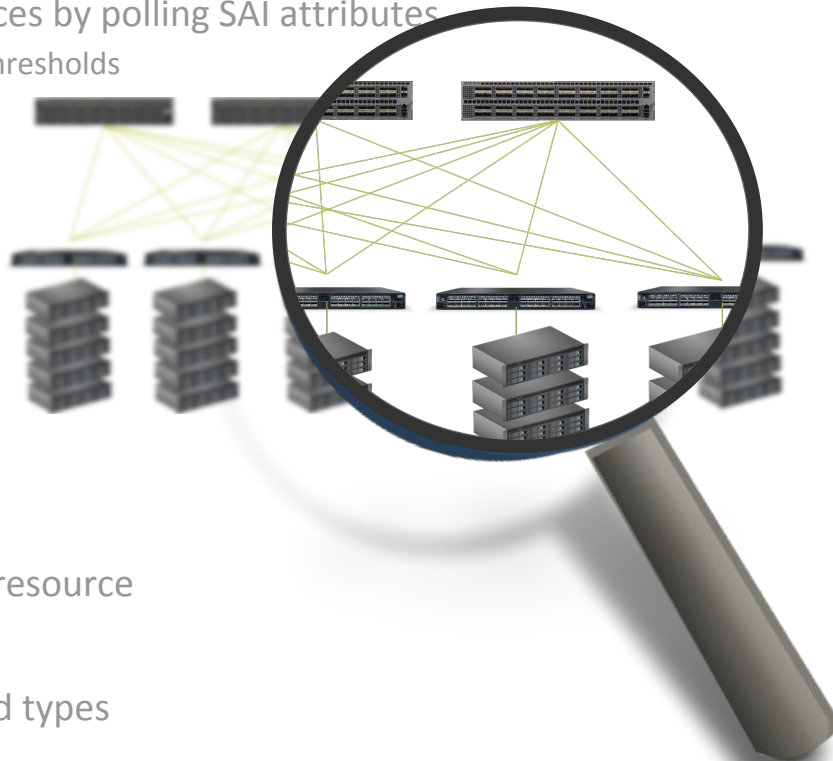
- Resources monitored by CRM:

- IPv4 and IPv6 routes
- IPv4 and IPv6 nexthops
- IPv4 and IPv6 neighbors
- Nexthop groups and group members
- ACL groups, tables, entries, counters
- FDB entries

- Low and High thresholds per each resource

- Percentage used and free threshold types

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# Open Compute Project Network Adapters.



- OCP Standard Form Factor
- Adopted by all leading OEMs, Initiated by Facebook/OCP
- Multiple generations : since 2012, currently 3<sup>rd</sup> Gen.
  - Newer generations: larger, higher speeds and power, host management
- Mellanox offering of all speeds with all ConnectX

	OCP 0.5	OCP 2.0 NIC	OCP 3.0 NIC
Physical Size	Non-rectangular (8000mm <sup>2</sup> )	Non-rectangular (8000mm <sup>2</sup> )	SFF: 76x115mm (8740mm <sup>2</sup> ) LFF: 139x115mm (15985mm <sup>2</sup> )
Network ports	SFP+/SFP28	QSFP/QSFP28 (NRZ)	QSFP56 (PAM4)
Connector type	One mezz (B2B)	Two Mezz (B2B)	Edge (0.6mm pitch)
Hot Swap	No	No	Yes (server dependent)
PCIe	Up to x8	Up to x16	SFF: Up to x16 LFF: Up to x32



# ConnectX-4 Lx on Facebook OCP Multi-Host Platform

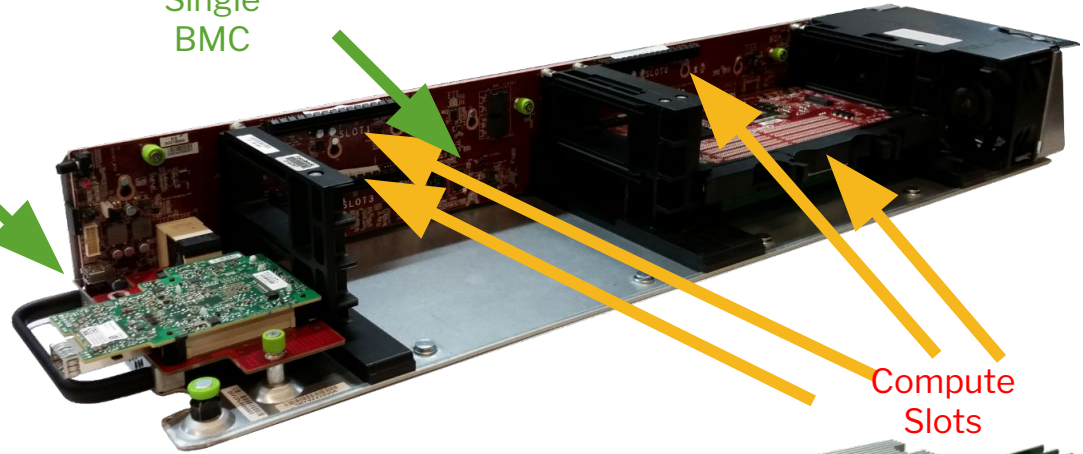


## Yosemite Platform



ConnectX-4  
Multi-Host  
Adapter

Single  
BMC



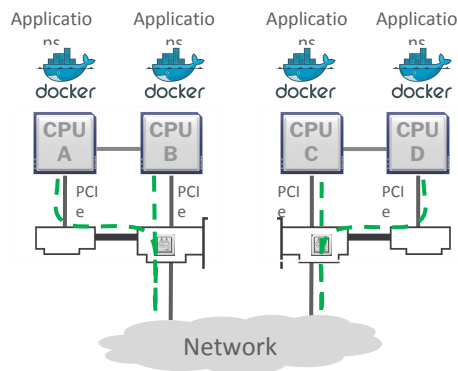
Compute  
Slots



facebook

The Next Generation Compute and Storage Rack Design

# Open Technology innovations.

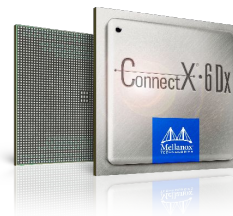


## Socket Direct - Maximizing Servers Performance

- Improving ROI
  - **78%** Lower Latency
  - **50%** Lower CPU Utilization
  - **16%** Higher Throughput
- Enable 100Gb/s on all Servers

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## ConnectX®-6 Dx

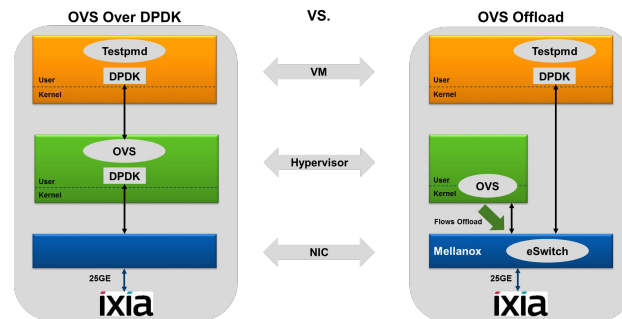


## Datacenter Security Adapter

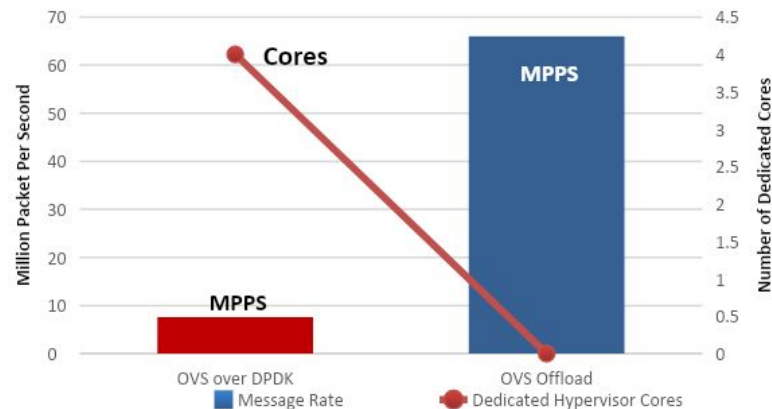
- Single Port **200GbE**.
- Single/Dual port 10/25/50/100Gb/s
- **Inline IPsec and TLS encryption for data in motion**
- Stateful rules checking, Connection Tracking
- Secure boot with hardware root-of-trust

# Data plane acceleration with OCP NICs.

- Maximize Data center efficiency.
- Acceleration of packet processing & Security.
- Open API for Packet acceleration



Offloading of Open Virtual Switch



ConnectX-5 provide significant performance boost, without adding CPU Resources.

# Mellanox OCP 3.0 Adapters



ConnectX	ConnectX®-4 Lx	ConnectX®-5	ConnectX®-5 Ex		ConnectX®-6	
Form Factor	OCP 3.0 SFF				OCP 3.0 SFF <sup>(2)</sup>	
PCIe	PCIe3.0 x8	PCIe3.0 x16	PCIe3.0 x16	PCIe4.0 x16	PCIe4.0 x16	
Port Type	SFP28		QSFP28		QSFP56	
Port Speed	2x10/25GbE		2x50GbE	2x100GbE	2x100GbE	2x200GbE
Availability	2015	2018			Q2'19	

# Key Take Away's



- Open Ethernet is gaining momentum.
  - Cumulus, SONIC...
- Drive efficiency & performance with NIC offloads.
  - Wide adoption of OCP 3.0 NICs.



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# Thank you

<http://www.mellanox.com/ocp/>

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