

A long-exposure photograph of a road at night, showing vibrant light trails from cars in various colors (red, white, blue, yellow) curving through the frame. The background is dark, with some distant lights and a sign visible.

Storage on the *Move*

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Fellow

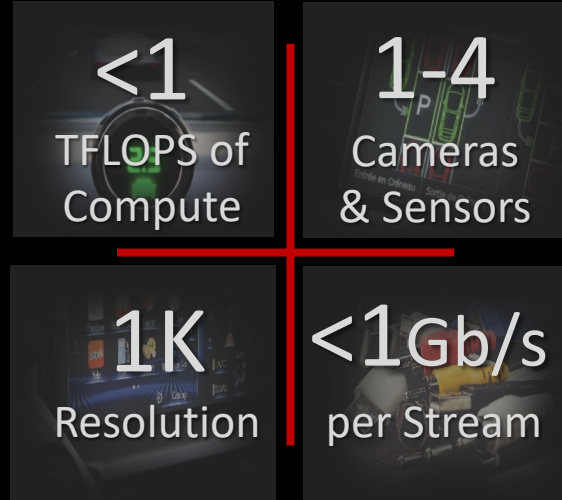
VP Technology and Architecture, Marvell

4.2 TBs

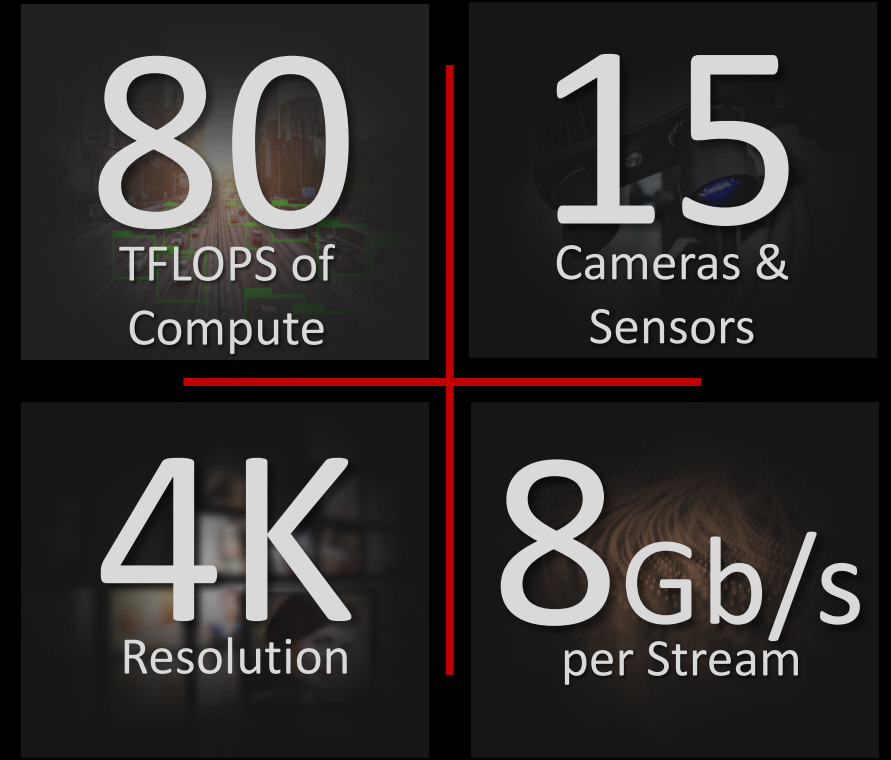
Per day, will be generated by a self driving car



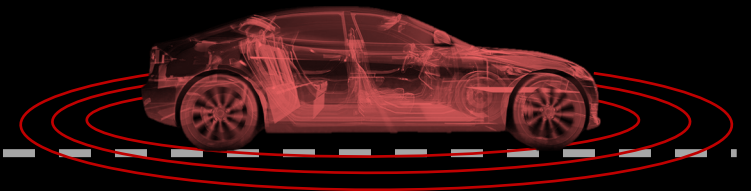
A Level 1 Car



A Level 2-3 Car



A Level 4-5 Car



Today

Next Generation Cars need a **Zonal Architecture**



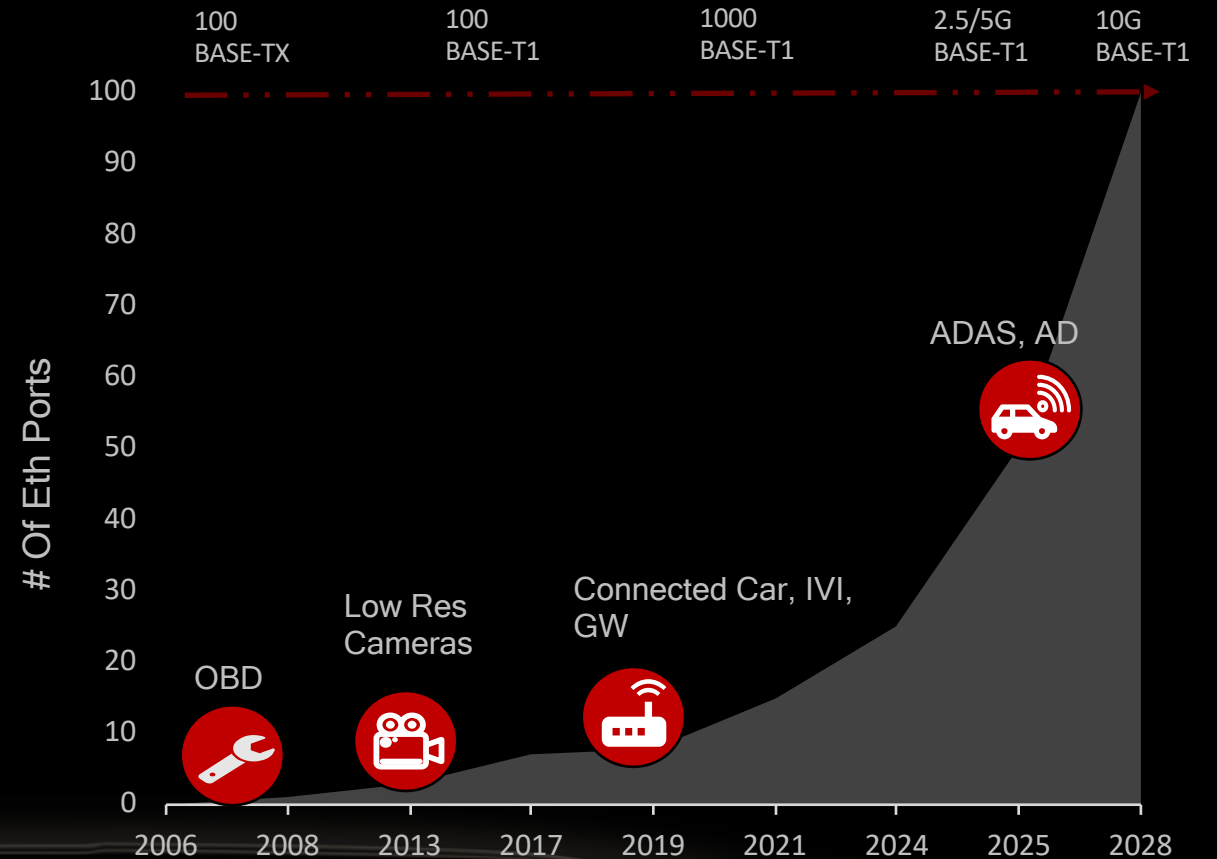
Three Foundations

- 1.** Centralized Compute
- 2.** Centralized Storage
- 3.** Ethernet Interconnect



Ethernet *Connects* it all

- Scalable
- Designed for large number of connections
- Real Time (TSN) and Best Effort models
- Built in Security
- Native Virtualization, Mng, QoS support
- Single standard – any to any connection





Centralized Storage?

State regulations require recording at least the last 30 seconds from all the vehicle functions (and a few seconds after)

Reduce weight and packaging

Minimize duplications

Simplify the edges

Easier to secure, protect and manage

Not everything is latency sensitive (but some is...)



Storage Requirements

- 01 **TBs** of capacity
- 02 **Virtualized and Shared** by 100's
- 03 **Dozens** simultaneous accesses
- 04 **Available and Reliable** Storage
- 05 **μ s' s** low latency
- 06 **Scalable** grow upon need over time

A dark-colored car is shown from a front-facing perspective, with its headlights illuminated. The car is centered in the frame against a black background. The Marvell logo is visible on the front grille area.

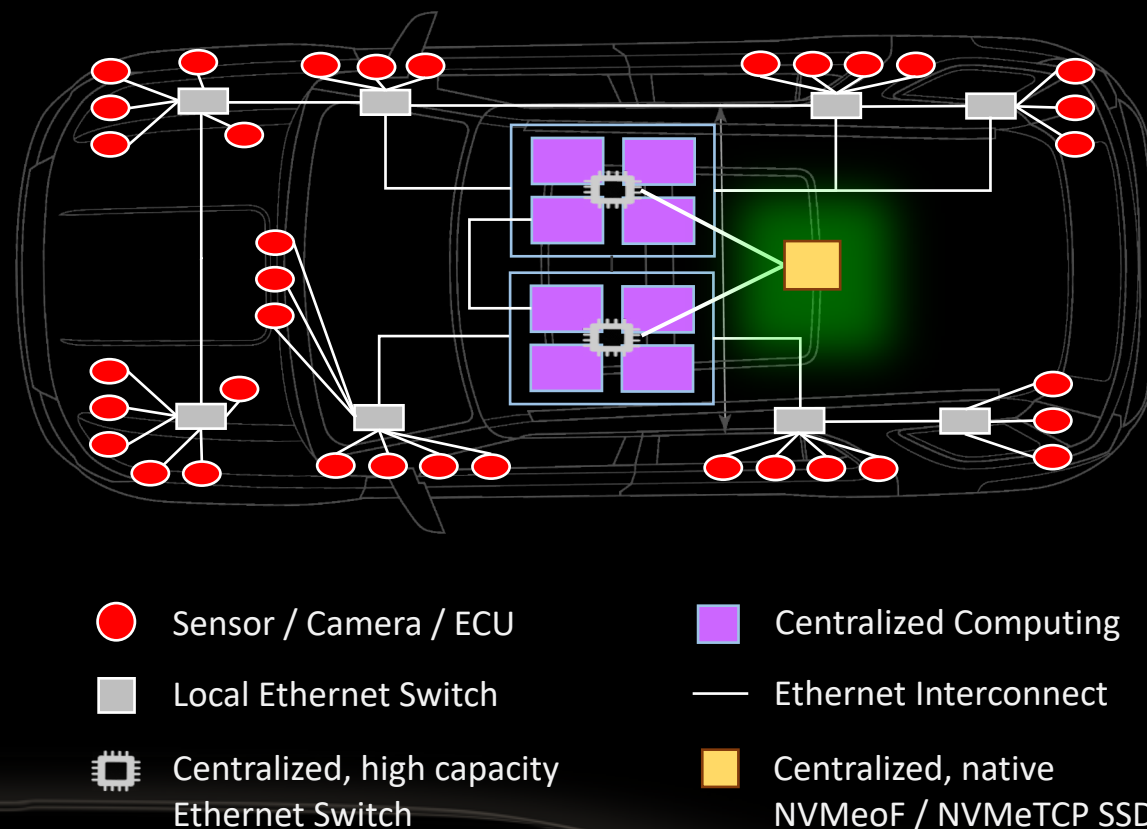
Introducing the concept of

AUTOMOTIVE STORAGE OVER FABRICS

Centralized, seamless NVMeoF / NVMeTCP
connectivity for in car storage communication
over Ethernet backbone

Centralized Automotive Storage over Fabrics

- Native NVMeoF / NVMeTCP connectivity
- Direct access to all (simultaneously)
 - No single point of failure
 - Complete virtualization of storage
- Reliable connection:
 - Built in redundancy ports
 - RDMA, TCP
- Scalable architecture
 - Add more storage capacity when needed behind the Ethernet switch
 - Native service protocols
- Low latency access time



AUTOMOTIVE NATIVE NVMeoF/TCP SSD

Present any NVMe SSD as
native NVMeoF / NVMeTCP

Standalone device or
integrated into the SSD

Most Efficient

750 KIOPS / 25Gbps Eth

Low Latency <1us TAT



Shared and Accessible

100's of parallel service
queues (QPs) to support
100's of VMs



SSDs & Queues

Management

Configuration

Diagnostics



Reliability

Built in dual ports for
redundancy



Come and discuss more
about *Automotive
Storage Over Fabrics*
at the Marvell
booth



Requirements

Automotive Storage Over Fabrics

Capacity



Simultaneous Access
by dozens of VMs



Low Latency



Availability and
Reliability



Virtualized



Scalable



