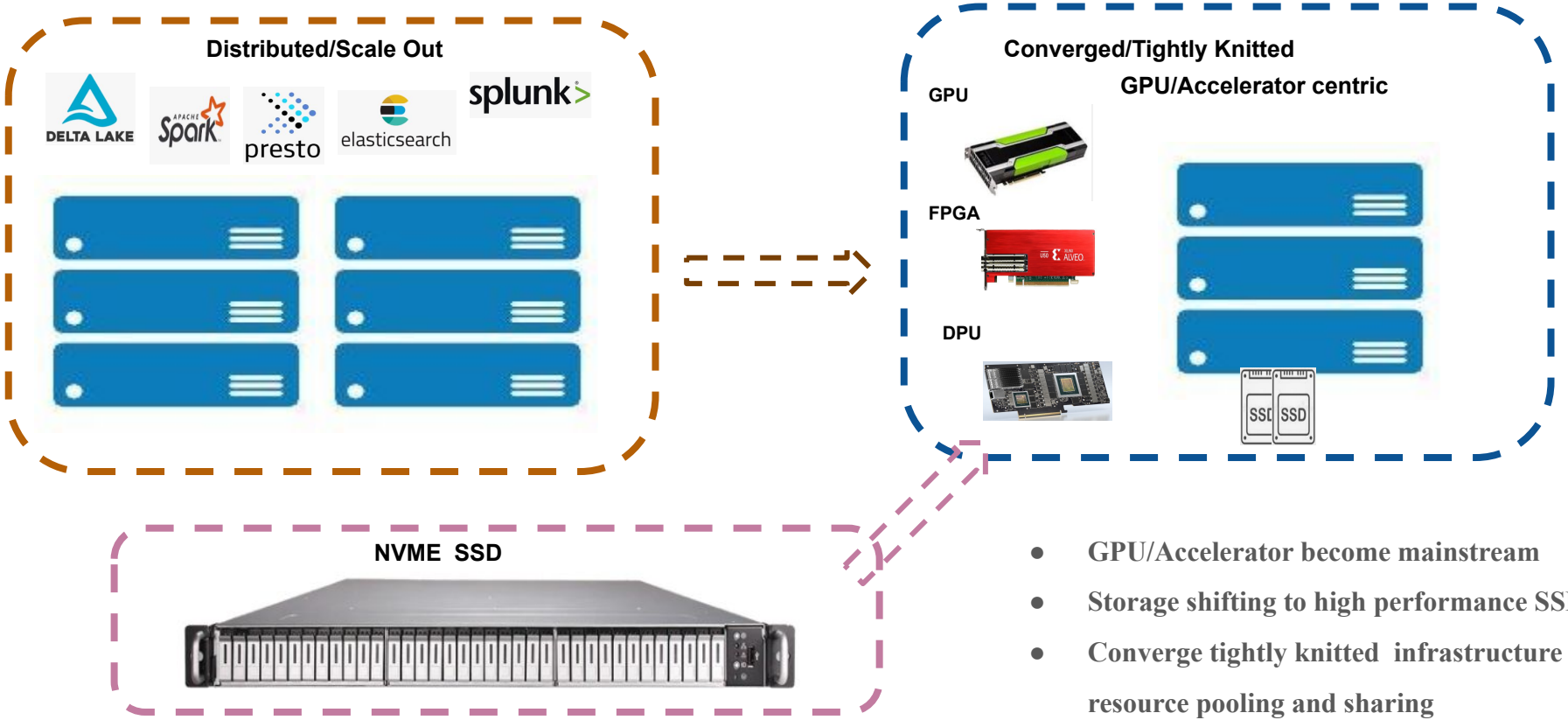
KubeFlash

Revolutionary All Flash Technology For HCI and Kubernetes

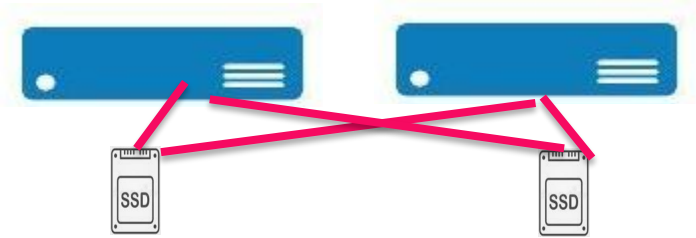
Computing infrastructure landscape evolving



- GPU/Accelerator become mainstream
- Storage shifting to high performance SSD
- Converge tightly knitted infrastructure for resource pooling and sharing

Pain Points in Computing Infrastructure

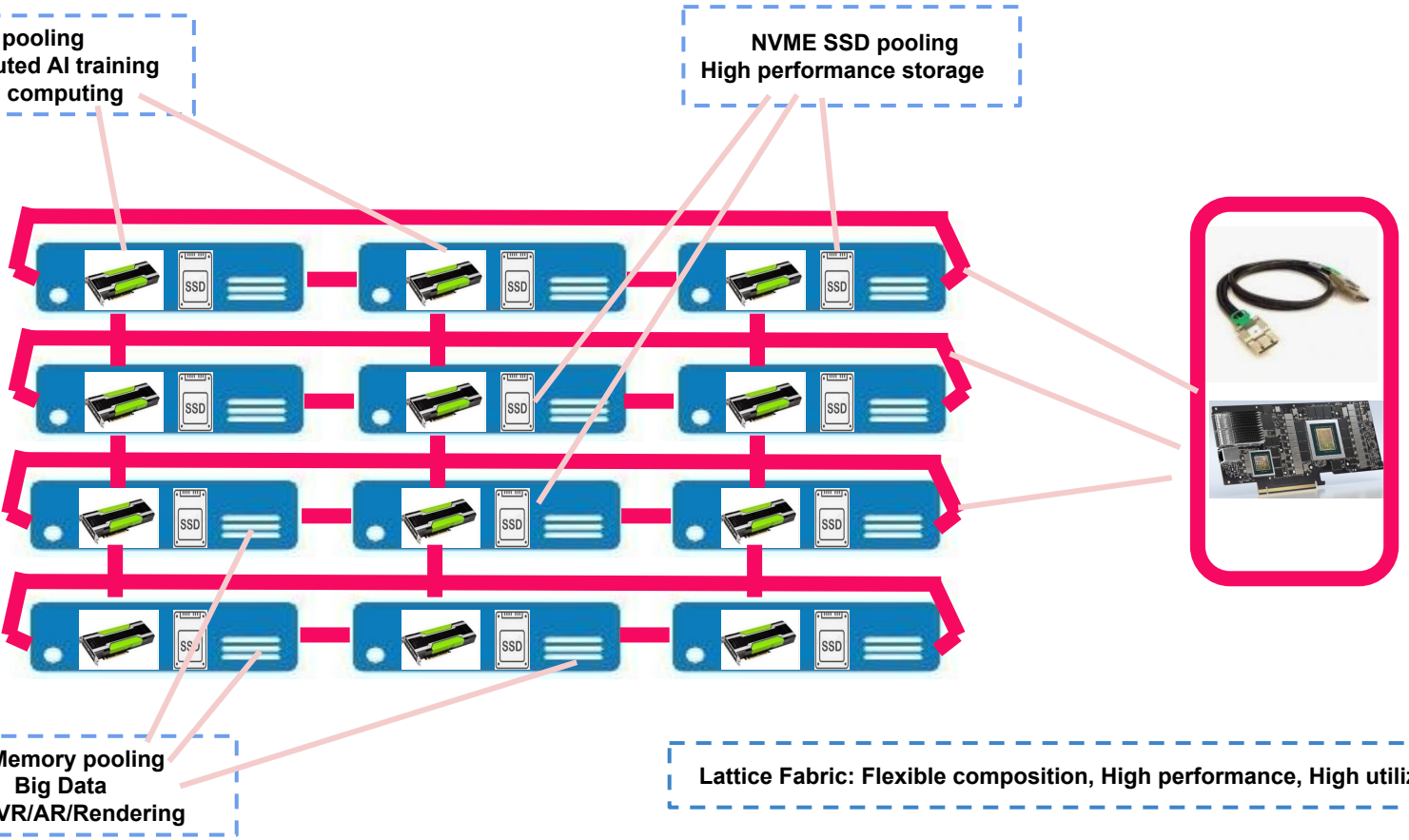
- **All Flash/Enterprise SSD have grown into tens of billions $ of market, the majority still relies on dual port SSD —- Expensive and very few vendors**



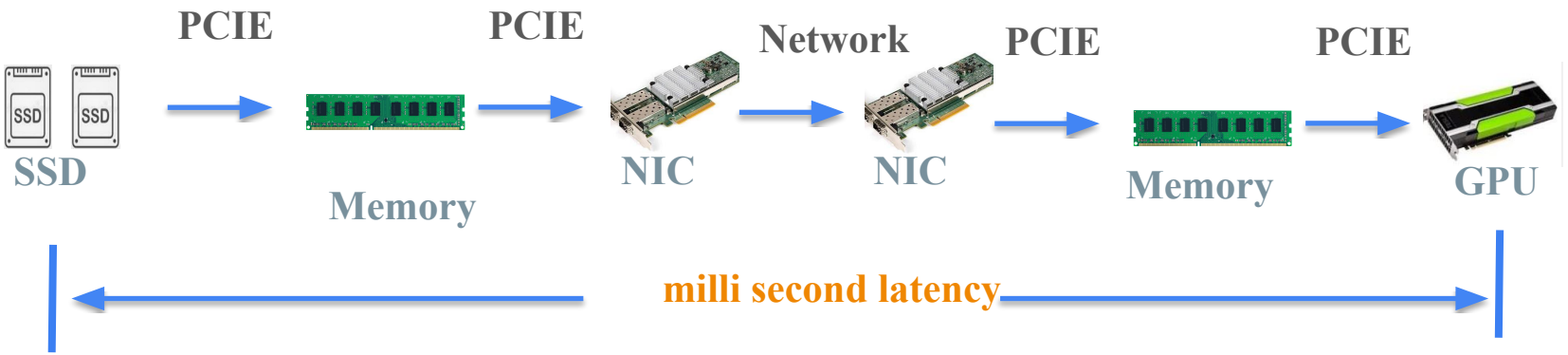
- **Kubernetes has become the mainstream computing framework, but even after 20 years development, Kubernetes lack high performance storage solution**

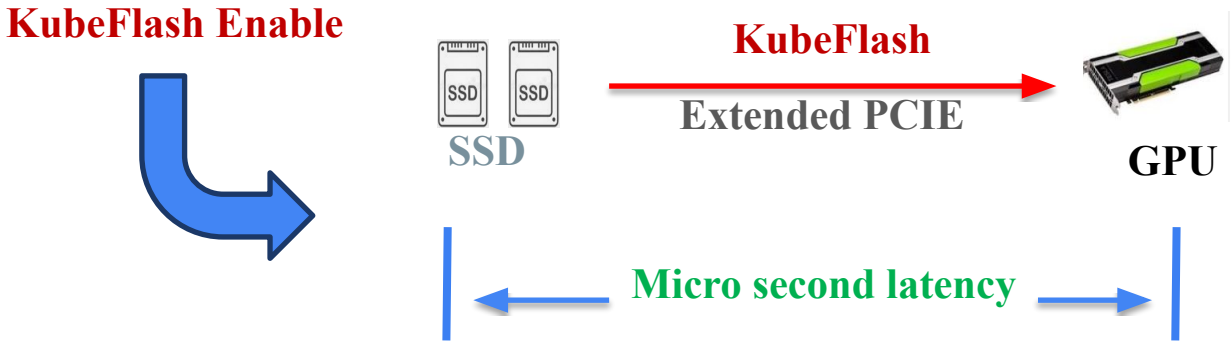
- **GPU/AI/LLM have high demand for high performance storage, yet current solution fall behind**

KubeFlash extends PCI Express for server interconnect

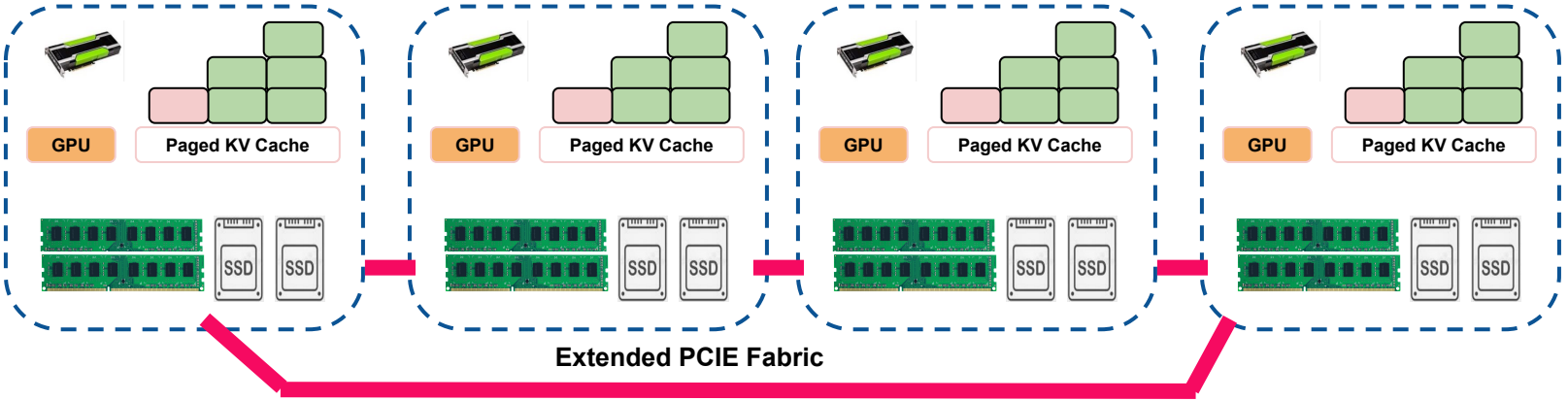


GPU/SSD Data Exchange



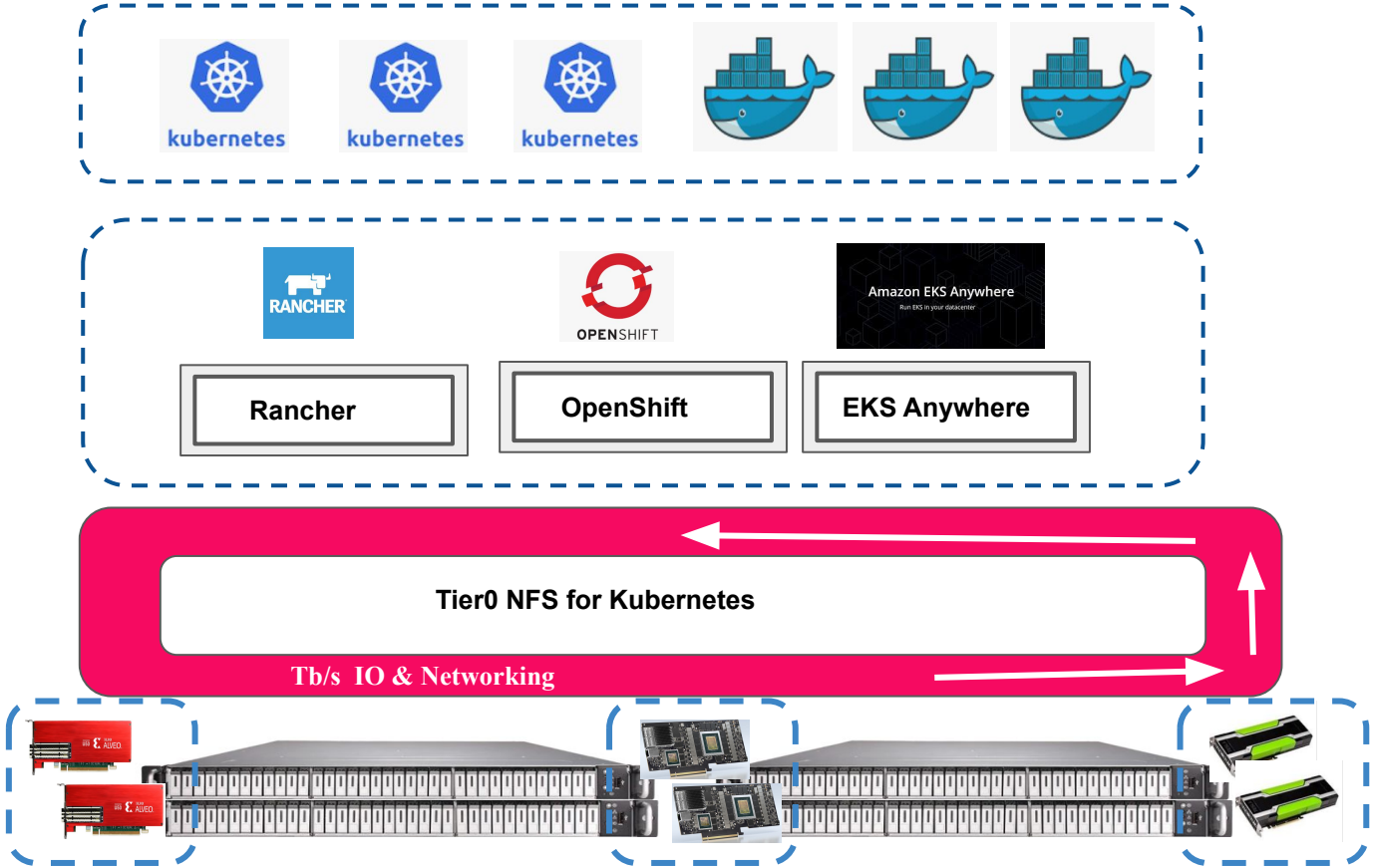


KubeFlash: Tightly coupled GPU/SSD KV Cache for LLM



- Extended PCIE fabric provide pooling for memory and SSD
- Data movement all in hardware, minimal driver/FW involvement
- Big improvement in bandwidth and latency compared with traditional RDMA

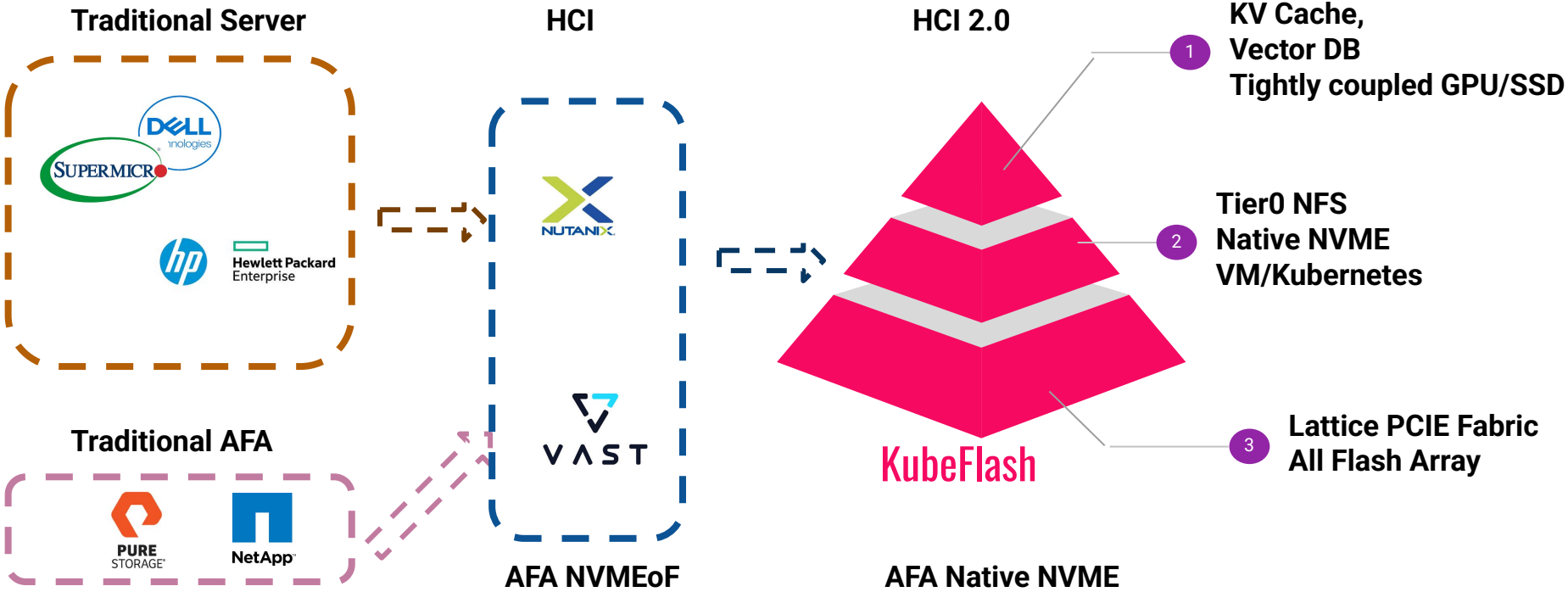
KubeFlash – Revolutionize Kubernetes Storage



KubeFlash integrating with any platform with ease

- **Extended PCIE fabric could turn any server platform into high performance cluster**
- **All Flash Array built from standard off shelf components**
- **Converged and native SSD performance across cluster**

KubeFlash Computing infrastructure evolving



Market Segments for KubeFlash

	All Flash Array	HCI	AI & Data Analytics
Market Size	~ 25B	~ 15B	Billions
Major Player	PURE STORAGE, NetApp, VAST	NUTANIX, VMware vSAN™	Many Players
KubeFlash Advantage	- Off-the-Shelf components - Utilizing server from any vendor - High performance and low CPU utilization	- Native local NVME performance - Power efficient - Revolutionary all flash solution for Kubernetes -	- Converged SSD/Memory Caching - Native NVME throughput for KV cach - Boosting data analytics with native flash storage

KubeFlash competitor comparison

All Flash Array	VAST	KubeFlash
Architecture	C-node  Switch NVME over Fabric D-node 	 Native PCIE Symmetric Optimized Architecture
Implementation	- NVME over Fabric as internal bus - Erasure coding across D-node - Eliminate Dual-port SSD	- Extended PCIE as internal bus - Erasure coding across symmetric nodes - Eliminate Dual-port SSD
App Extension	D-node Support big data analytics	HCI mode support any enterprise application

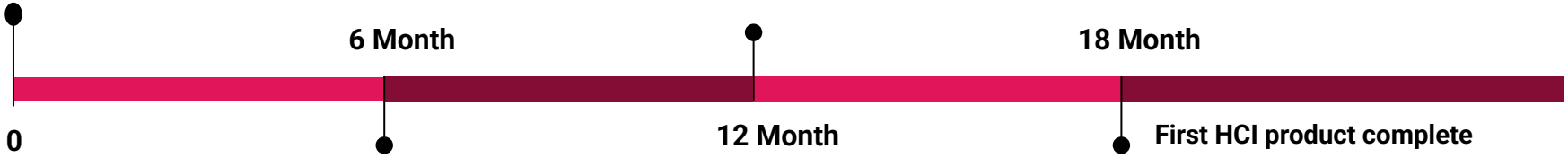
Development Phases

Building Team

Hire ~10 people team
HW/SW development
System integration
Performance tuning

Product sampling

HCI & Kubernetes Integration complete



HW development done
All Flash Array SW development in testing phase

PCIE Gen6 development

1.5M $ Seed Funding
~ 9 Months

Founding Team

- Wei Zhou, worked in Storage industry for over 20 years, have held senior management position at Marvell and SK hynix, leading teams in storage HW/FW/system engineering. Master degree of Applied Physics from Stanford.
- K. Wong, have worked in various fields in storage, have broad experience in SSD FW engineering and linux kernel engineering, have held principle engineer positions at Marvell and Sk Hynix
- X. Chen, 20 years plus experience in storage industry, strong kernel and OS engineering expertise, have held various engineering and management positions at Marvell and Startups