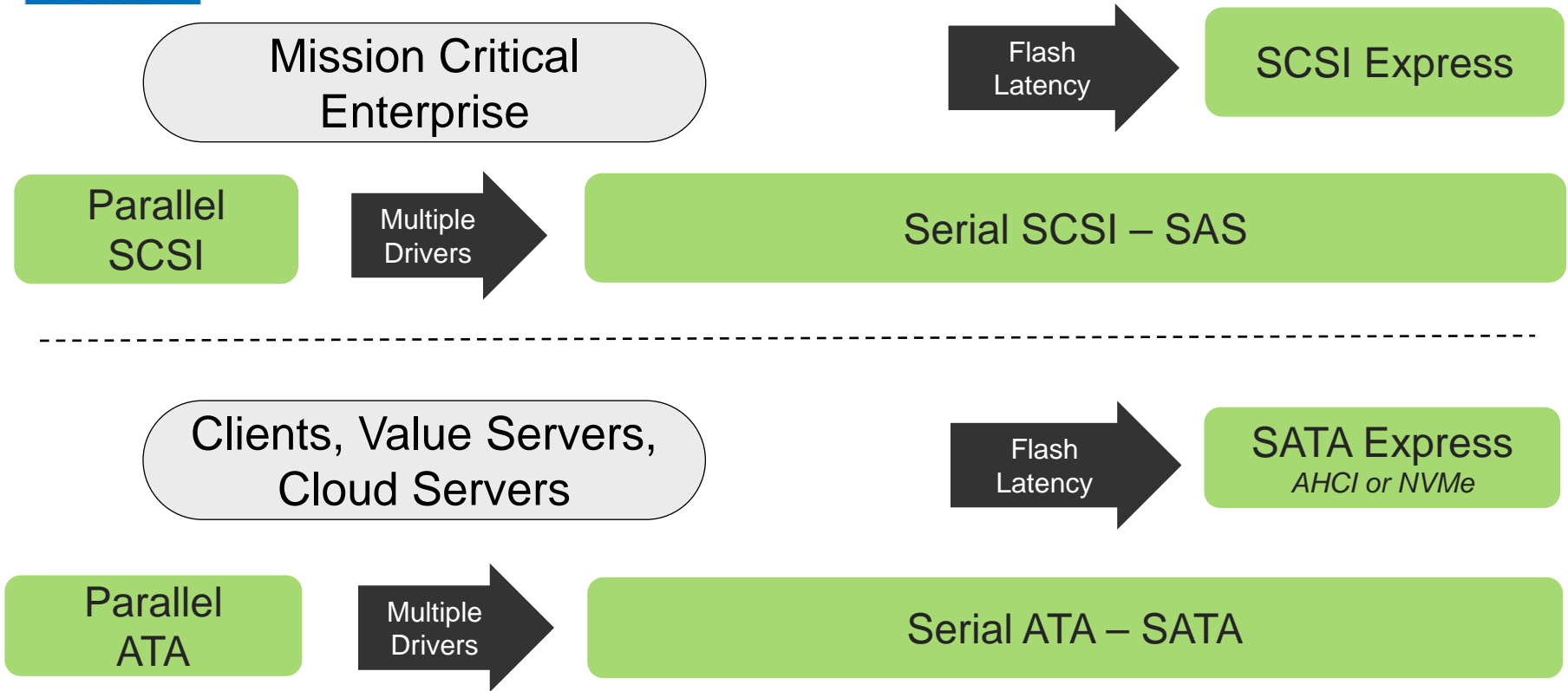




Storage Device Interface Evolution

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Historical Perspective



Flash-enabled latency reduction is **THE** catalyst driving PCIe storage emergence

PCIe vs. SAS/SATA for Storage

	PCIe	SAS/SATA
Latency	Advantage	
IOPs / BW / Capacity <i>per Watt</i>		
IOPs / BW / Capacity <i>per Slot</i>		Slot can host 10's to 100's of devices
Scalability	Limited Scalability w/PCIe switches	100's of devices
RAS (Reliability, Availability, Serviceability)	Efforts to Close Gaps Underway	
Maturity (for Storage Devices)		

Key Takeaways

- PCIe flash ideal for latency-sensitive applications
 - NVMe overcomes AHCI limitations
 - SCSIe unleashes flash performance in enterprise
- Long SAS/SATA SSD role in less latency sensitive apps
 - Accelerate existing infrastructures
- SAS/SATA dominates rotating media through decade
 - 12G SAS has headroom for multiple HDD generations
 - 6G SATA adequate for low-cost, hi-capacity storage

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