

Unshackling PCIe SSDs using NVMe

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FlashMe
SUMMER



NAND Flash Ubiquity

NAND is now an integral part of virtually every consumer device



Memory at the Center



Smart Phone



Tablet/Slate



Notebook PC



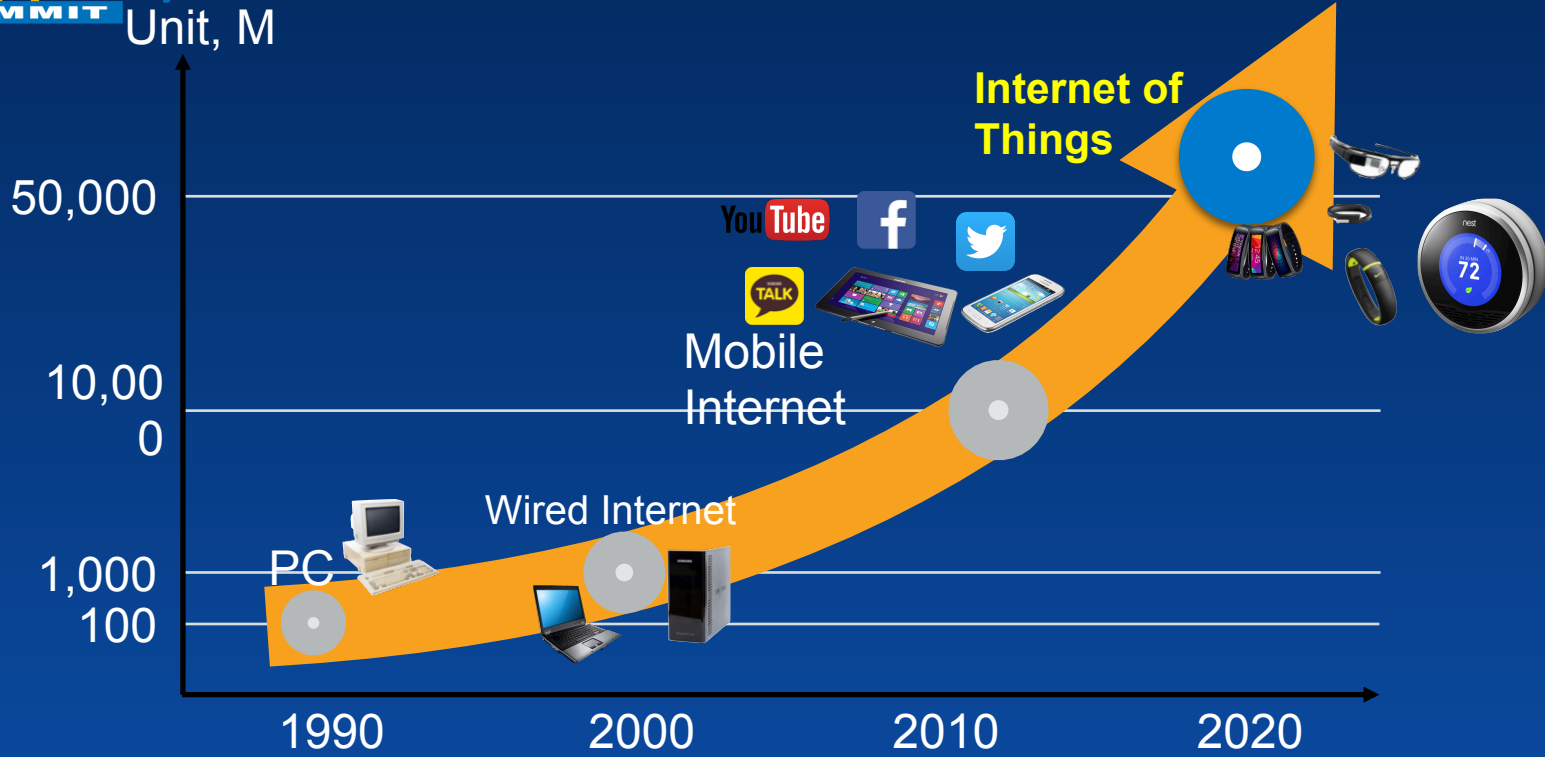
Large Format Displays



Desktop Virtualization



IT Growth Drivers: PC → Mobile → IOT

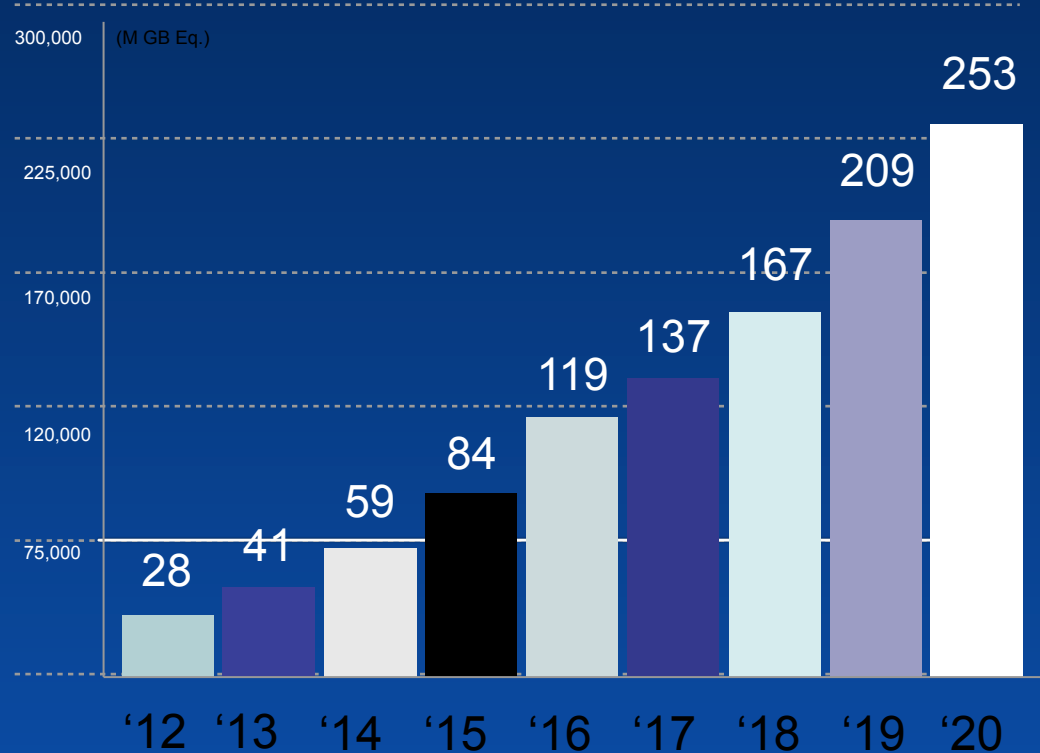


50 Billion Devices by 2020

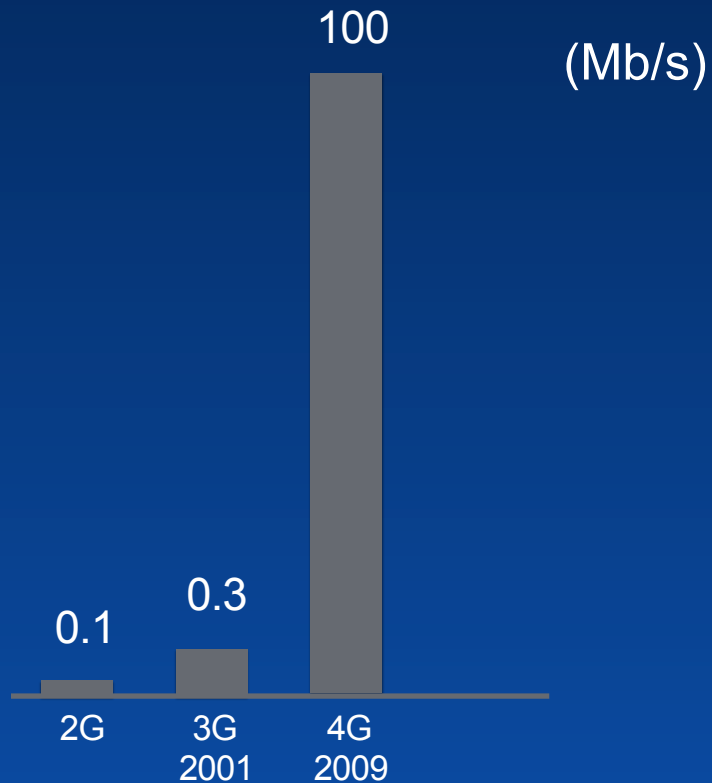


NAND flash Market Forecast (Billion GB)

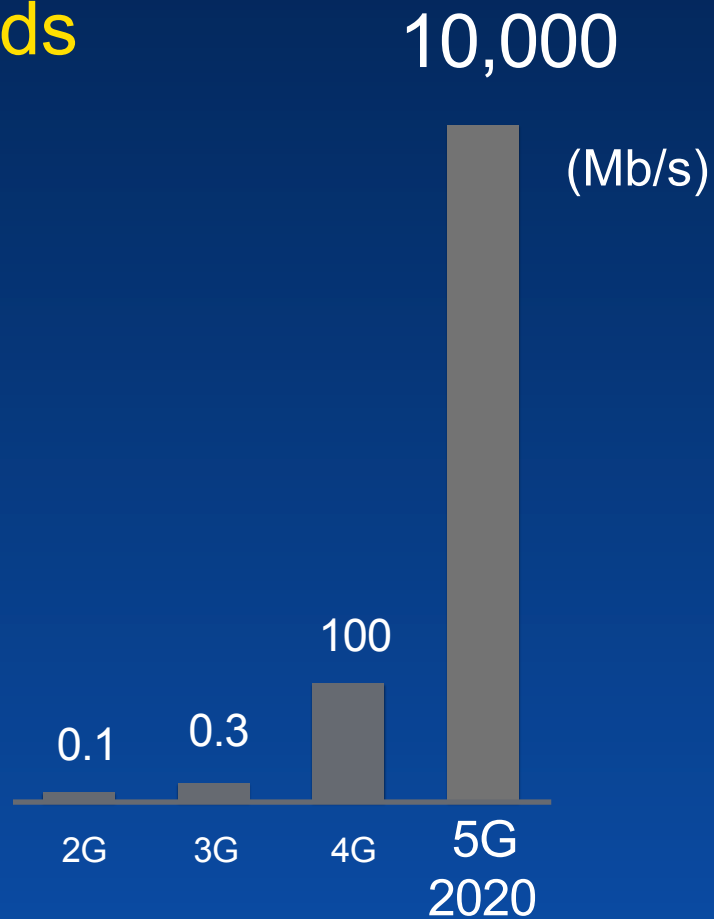
* Data Source : Samsung Estimation



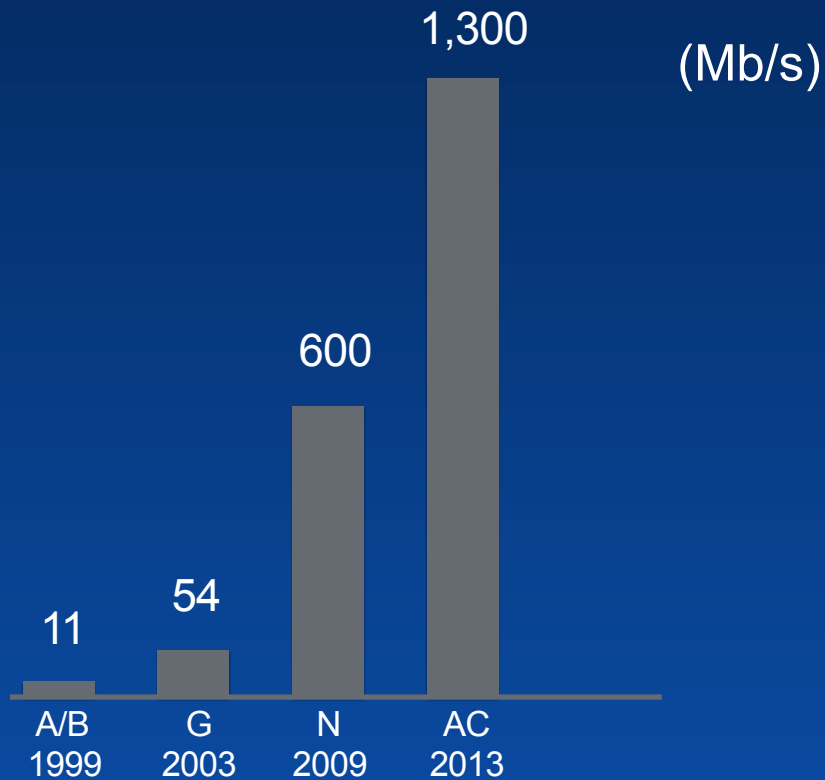
Mobile Data Speeds



Mobile Data Speeds

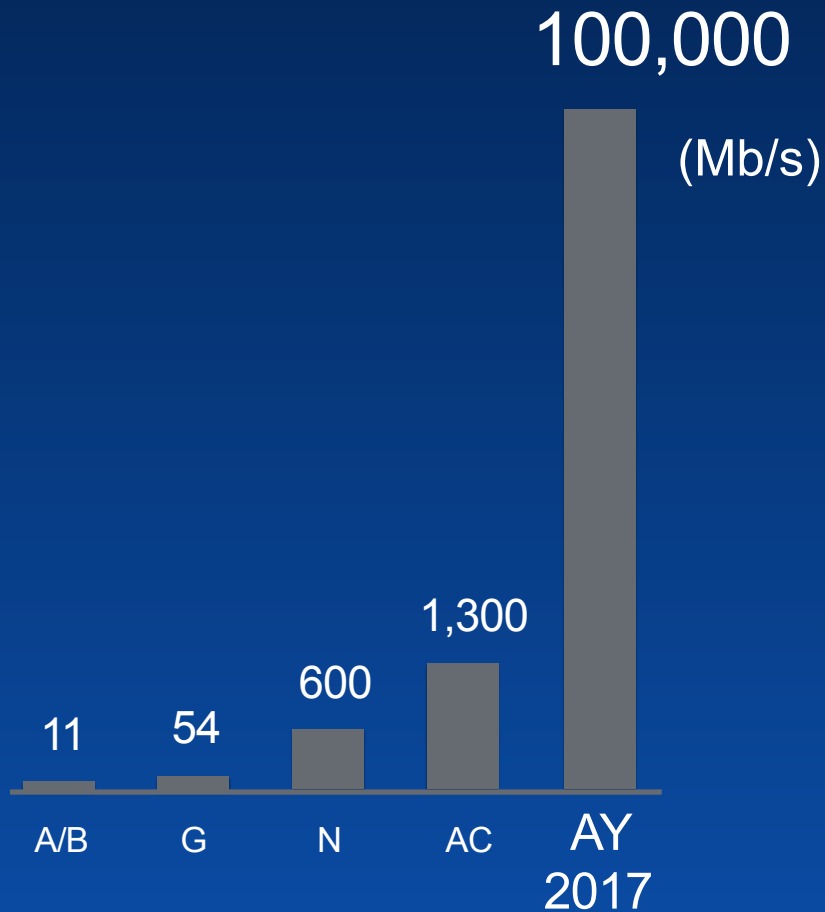


WiFi Speeds

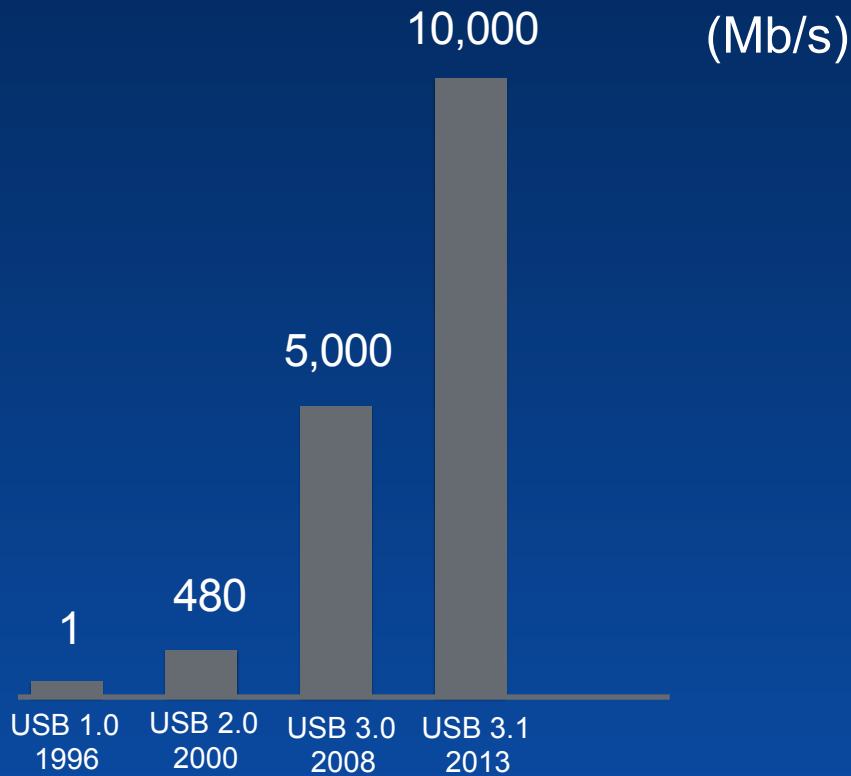




WiFi Speeds

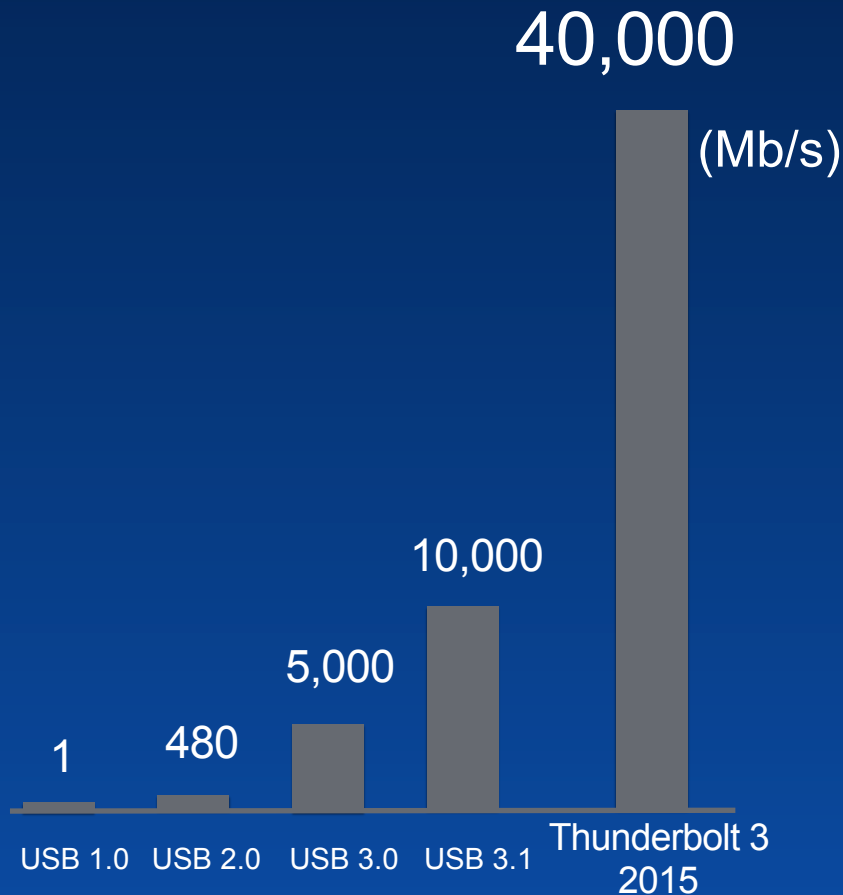


Wired Speeds





Wired Speeds



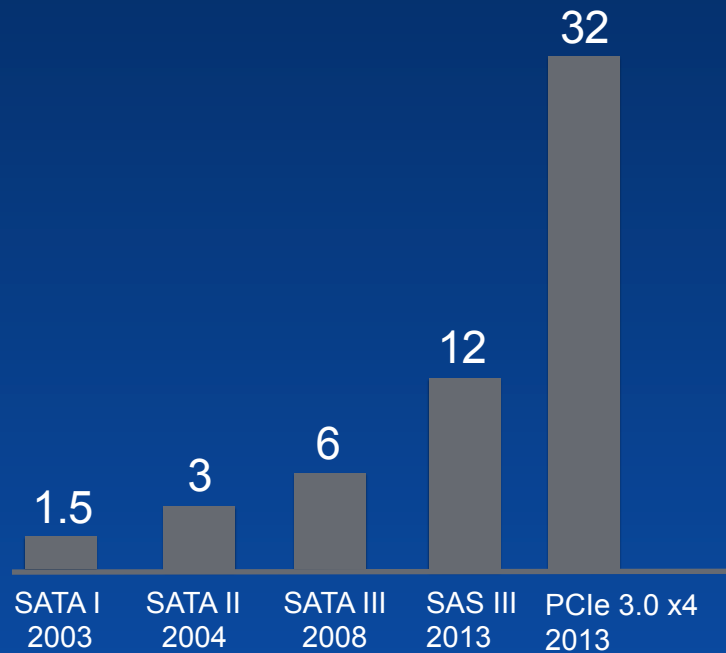


Non-Volatile Memory Express

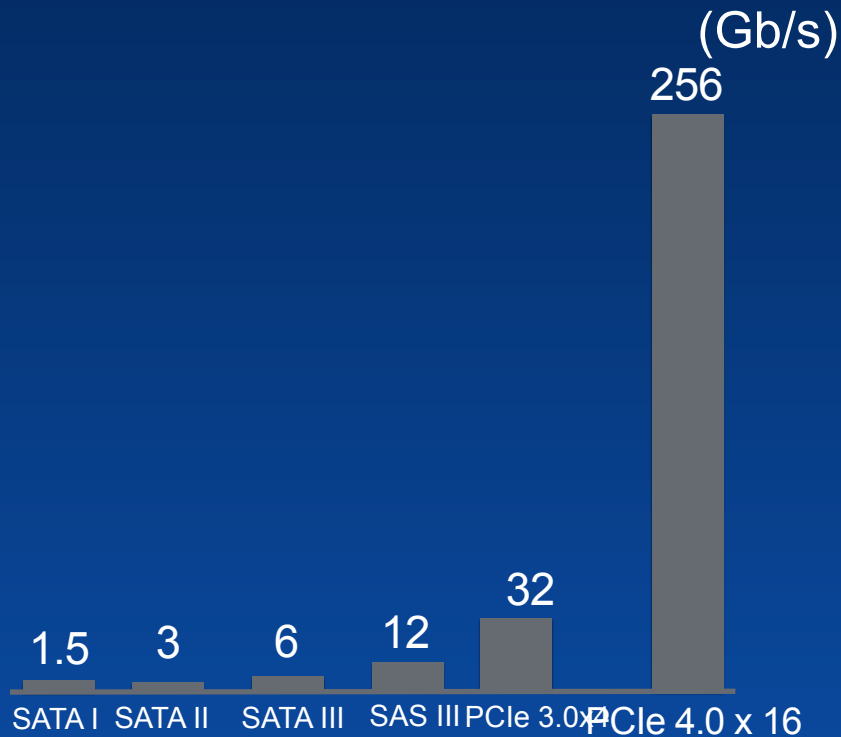
NAND Flash Optimized Storage Protocol

Storage Speeds

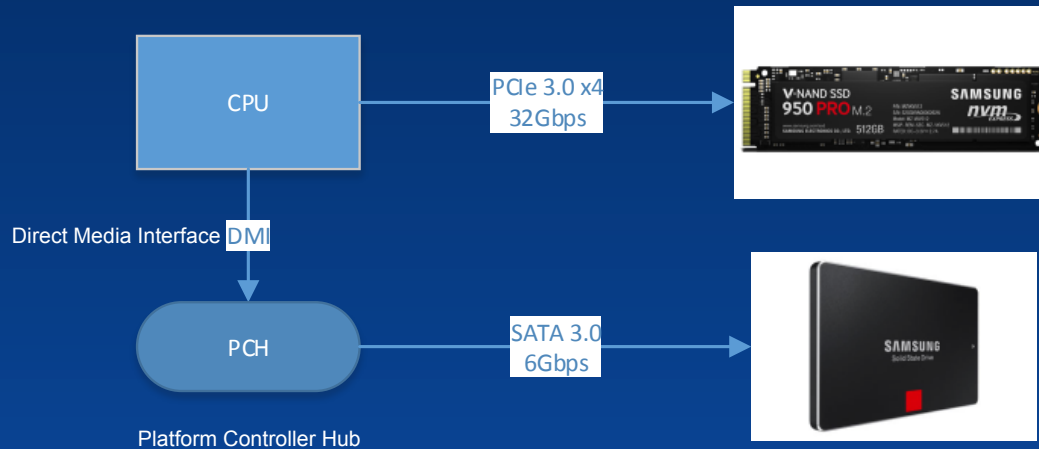
(Gb/s)



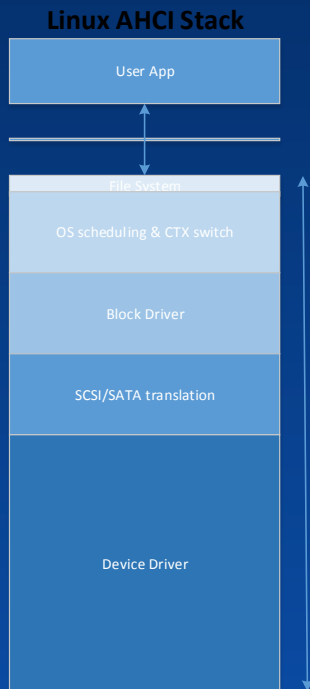
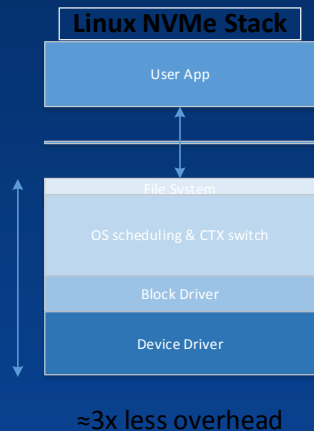
Storage Speeds



SATA Vs PCIe



AHCI vs NVMe



#of Queues

#of CMD/Queue

AHCI

1

32

NVMe

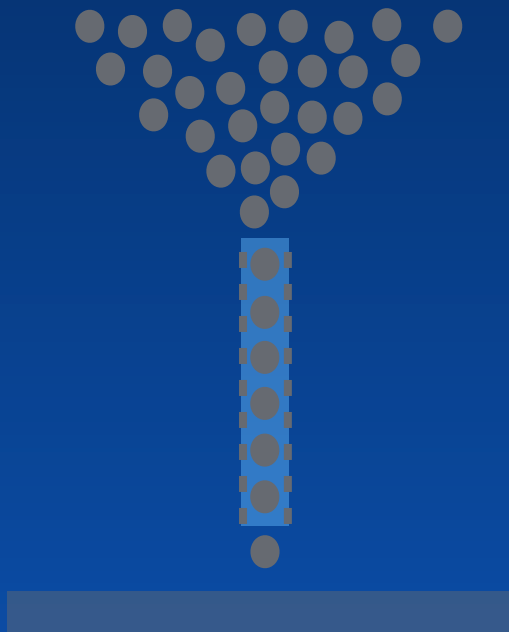
64,000

64,000

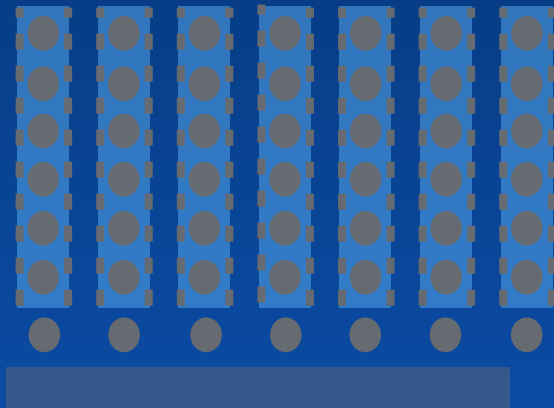
AHCI vs NVMe

- Lower Latency
- Multicore support
- 4K efficiency

AHCI



PCIe NVMe





Thank You