

Kushagra Vaid

General Manager & Distinguished Engineer

Azure Infrastructure

Microsoft Corporation

OPEN. FOR BUSINESS.



Microsoft & OCP

2015

Local Energy Storage – Server UPS
Switch Abstraction Interface (SAI)

2017

Project Olympus expansion –
Intel/AMD/ARM64, GPU, JBOD, JBOF
Project Cerberus Spec

2014

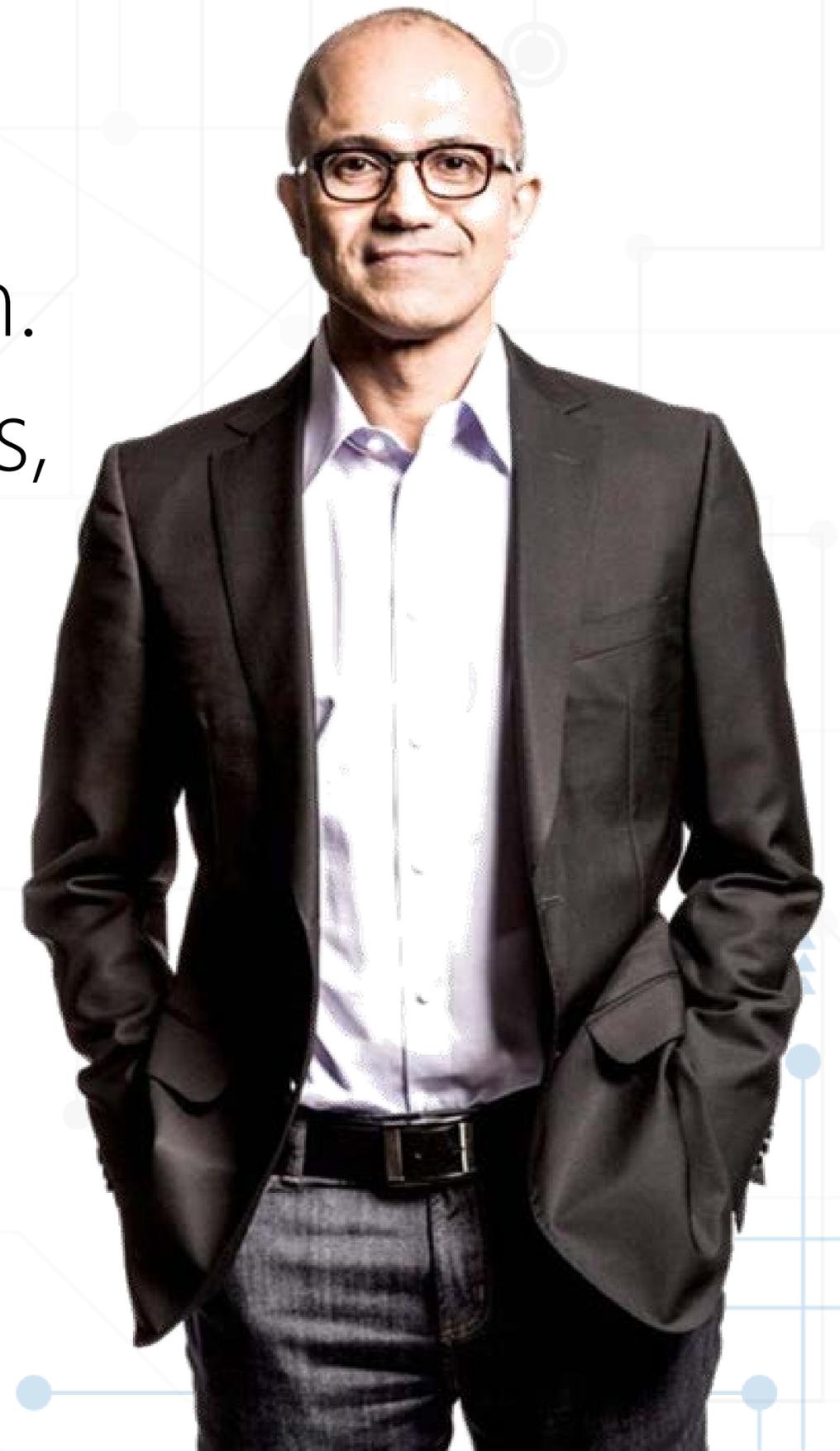
Joined Open Compute Foundation
Open Cloud Server (OCS) Spec
Cloud SSD M.2 Spec

2016

SONiC Network Switch Software
Project Olympus Spec

“Cybersecurity is like going to the gym. You can’t get better by watching others, you’ve got to get there every day.”

Satya Nadella
CEO, Microsoft



Securing the hardware platform



Security
Development
Lifecycle (SDL)



Hardware
Security



Infrastructure
security controls



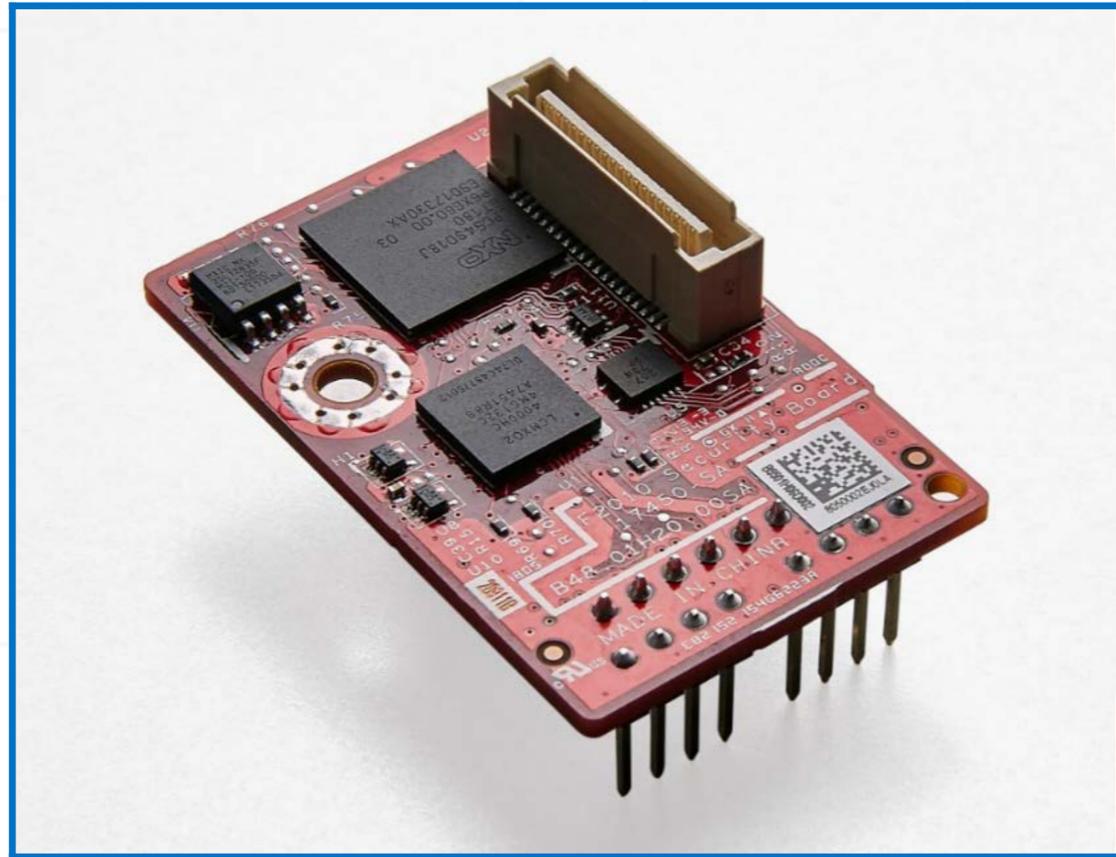
Operational
security controls



Compliance

Firmware Supply Chain
UEFI Secure & Measured Boot
Encryption at Rest
Code Integrity Policies
Secure Execution
Attestation

Project Cerberus | Hardware Root of Trust



Cerberus Riser Card



Tamperproof Cryptographic microcontroller enforces digital signatures on all firmware



Prevents unauthorized access pre-boot, boot-time, run-time



Protects against supply chain attacks



CPU and I/O vendor agnostic

Project Cerberus | Ecosystem partners





Announcing
Project Denali

Challenges with current SSDs

Every generation is completely new

- Requires monolithic approach
- New media, controller, and firmware

Enterprise SSDs aren't designed for the Cloud

- Not adaptable to changing workload patterns
- Data layout statically managed

Becoming too complex with new services

- Object based interfaces
- Integrated applications / accelerators

Industry fragmentation

- Limits innovation and adoption

Flash Controller

Address Mapping

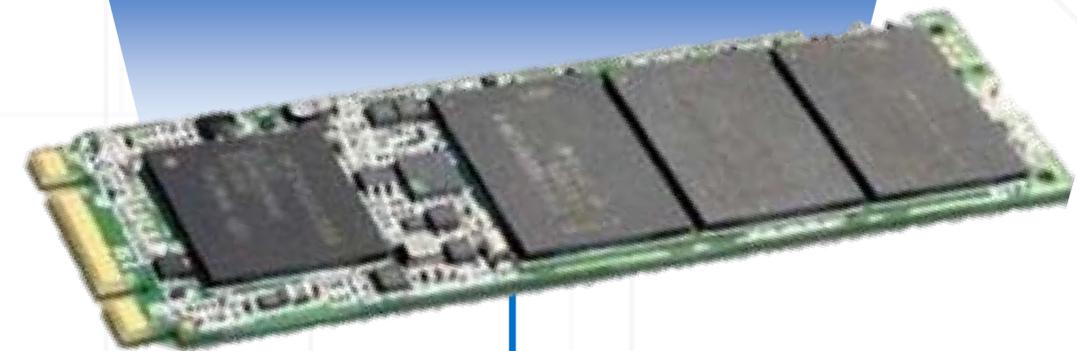
Garbage Collection

Wear Leveling

Manage Bad Blocks

Manage Media

Power Failure



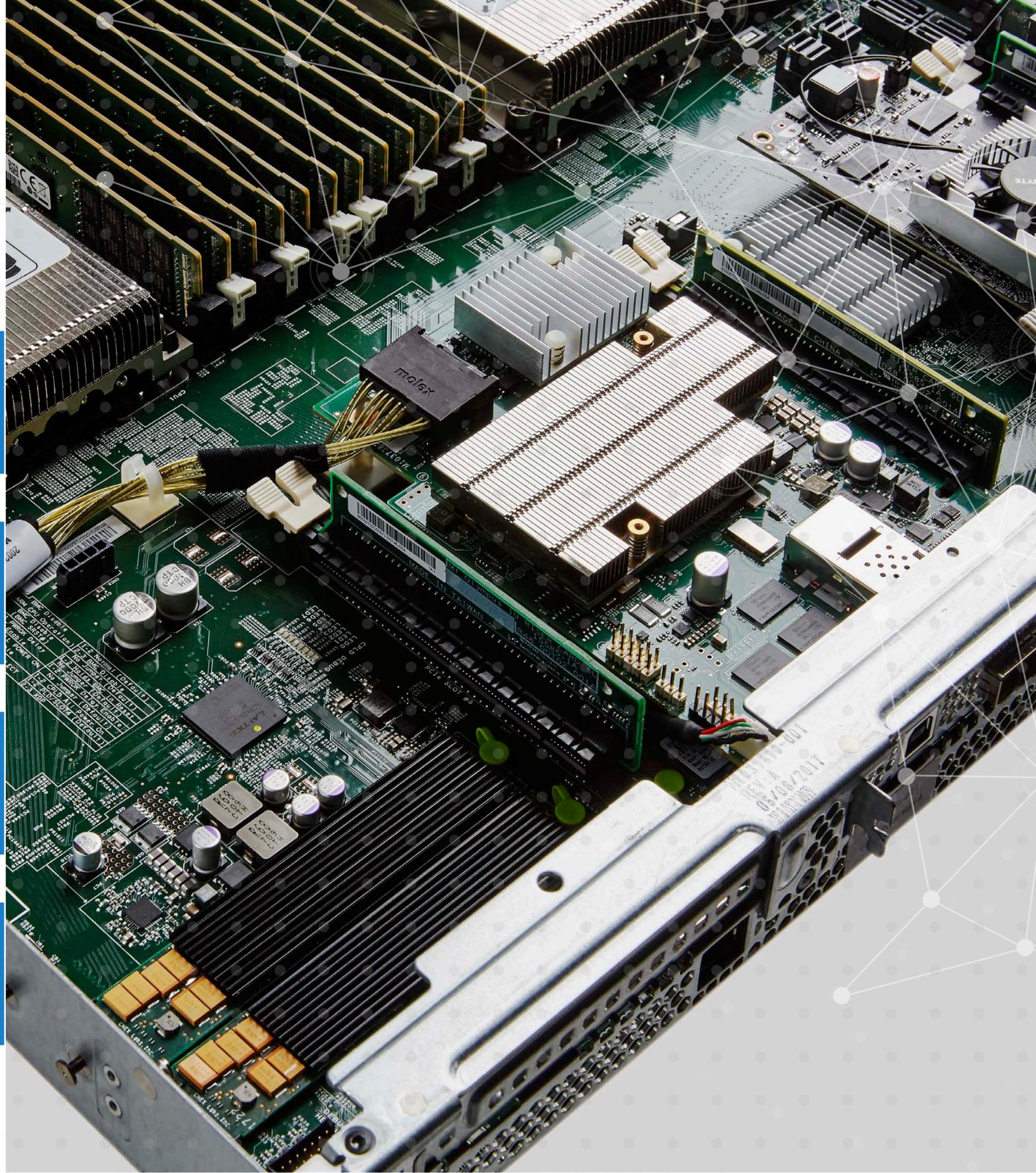
Project Denali

Next generation SSD standard
Cloud First

Disaggregated architecture
Choice and flexibility

Agility for new NAND and storage class
memory for the next decade

Software Defined SSD driven by
the application

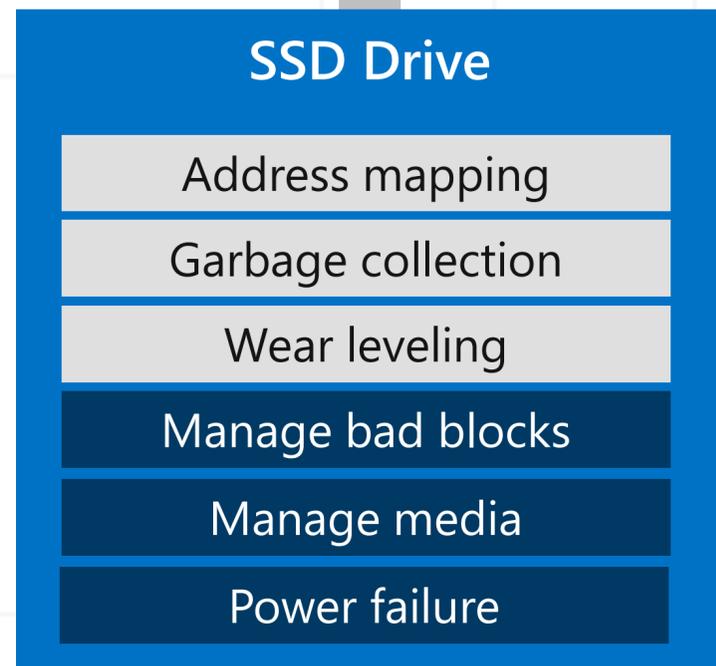


The disaggregation of flash storage

Today - Monolithic model

Hardware managed (SSD)

Host

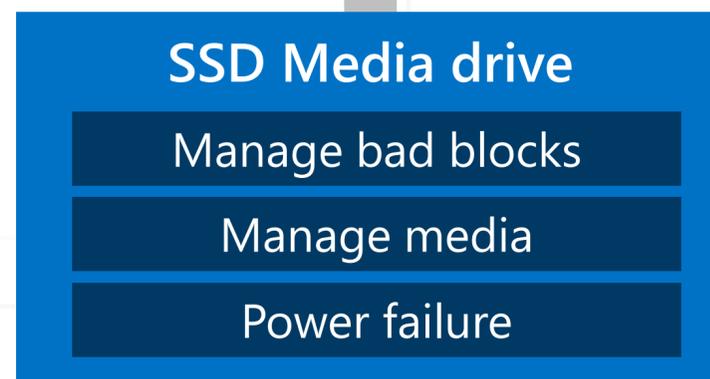


Denali model

Software defined (Direct)

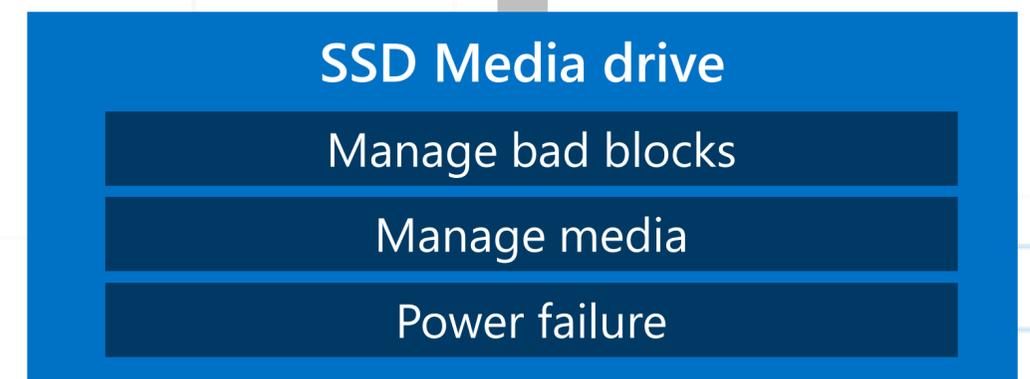
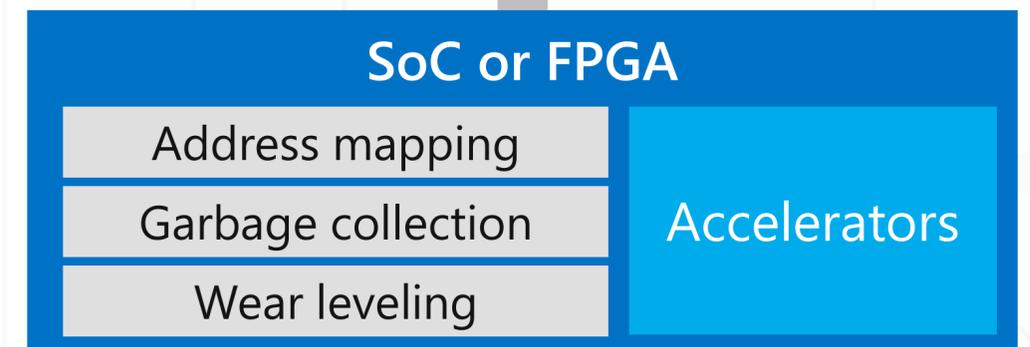


pBLK interface



Software defined (Offloaded)

Host



Project Denali | Ecosystem partners



CNEXLABS

Alan Armstrong
CEO



OPEN
Compute Project®

Andreas Bechtolsheim
Board Member

Video





Learn more

Tues March 20

1:30pm – 1:45pm
Expo Hall Stage Talk

2:00pm – 2:25pm
Project Olympus: Fulfilling the
Promise of Open Hardware

Weds March 21

9:00am – 9:30am
Project Olympus - Open Sourced
Systems Available Today

10:00am – 12:00pm
Security Team Work Session

10:30am – 10:50am
SONiC: Programmability,
Extensibility and Beyond

1:00pm – 2:00pm
Project Cerberus



OoCP SUMMIT

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