Agenda

01 Cloud and OCP
02 Intel Platforms and Solution Innovations
03 Edge Computing
04 Summary and Call to Action
Public Cloud Growth Drives Greater Infrastructure Needs

BY 2021

1. Digital Retail – eMarketer Jan/March 2018
2. Digital Ads – eMarketer May 2018
3. Digital video/media – Juniper Research, Subscription Video on Demand, Dec 2017
4. Cloud services – IDC Public Cloud Services Tracker Forecast 2017H2, May 2018
Cloud and OCP

Cloud requires not just hardware but solutions!

- Data Center
- Rack
- Management
- Firmware
- Platform
- Security

Mapping

- Data Center Facility
- Rack & Power
- Hardware Management
- Open System Firmware
- Security Project
- Server, Storage, Networking

OCP Project(s) well-positioned to satisfy Cloud Solution Requirements
Intel High-density, cloud-optimized platforms

- Intel is investing in architecting *reference designs* for the next generation of cloud-optimized platforms for greater cloud infrastructure capacity
- High core-count in a single 2U platform provides increased cloud service revenue opportunity
- Capital cost saving by consolidation
- Operational cost savings by efficiency
- Platform Innovations;
  - Features designed for cloud IaaS solutions, VM per core/mem.
  - Offset processor placement for efficient cooling
  - Front hot-swap accessibility U.2 drives, OCP 2.0/3.0 modules
First Cloud-Optimized Platform

- 2U 450mm x 780mm 4S Xeon® 6xxx VM optimized processors
- 48 DDR4 memory slots, SATA/SAS/NVMe 2.5” SSD drive bays
- Supply-line forming 1H 2019

*Other names and brands may be claimed as property of others.
Platform Runtime Mechanism (PRM)

Using SMM
- OS Level Software / Driver
  - ASL Methods
  - SMM SW
  - Broadcast: Stalling all threads, Blackbox – Hidden from OS
  - Privileged – Unfretted access to hardware resources and memory

Using PRM
- OS Level Software / Driver
  - ASL Methods
  - ACPI Tables
  - Opregion based h/w access
  - Page table based access restrictions
  - Readable and Auditable

Platform Hardware

Case Study
DC Cooling Based on Predicting Power

Adding power predictor into cooling control loop

Need to Mitigate DC Power Consumption
Cloud Edge: Offering Cloud Service to the Edge

- The emerging applications and exponential data growth have been driving cloud service extend to the edge.
- CSPs accelerating **Cloud-Edge-Device** deployment
Edge Computing

Edge requirements
• Integrated Solution
• Remote management
• Ease of maintenance
• Fail in place and Failure Resilience

Intel Innovations that benefit Edge
• Hardware ingredients, Open Frameworks
• Lights out Remote Management
• Open Firmware and firmware complexity reduction
• Firmware resilience
• Rack and Power Management
Advancing Cloud Innovations through OCP Projects

- Intel® High-Density, Cloud-Optimized Platform – Joint OCP contribution from Intel and Inspur
- Data Center Cooling based on Predicting Power - Plan to contribute Whitepaper and Redfish profile to OCP DCF Project
- OSF
  - Platform Runtime Mechanism
  - Multi-socket FSP & Coreboot
- Storage Disaggregation using NVMe over Fabrics (TCP/IP or RDMA)
Call to Action

Take advantage of Intel platform and solution contributions to OCP

Collaborate with Intel on Cloud & Edge Innovations

Participate and contribute to OCP Projects to enhance Server & DC solutions
Thank you