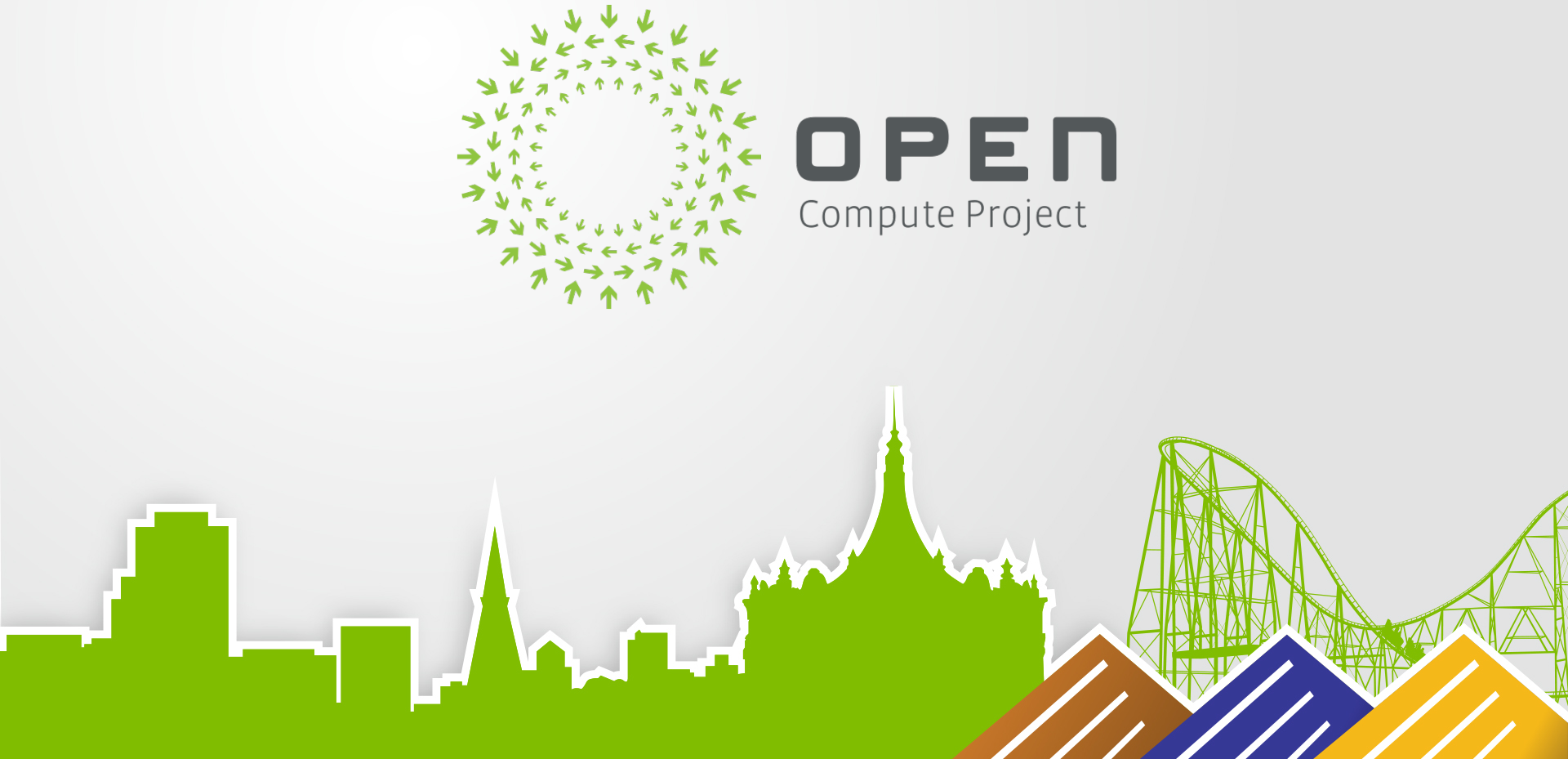
OPEN
Compute Project

OCP Solutions Accelerating the Digital Transformation

Jason Waxman

Corporate Vice President, Data Center Group

Intel Corporation

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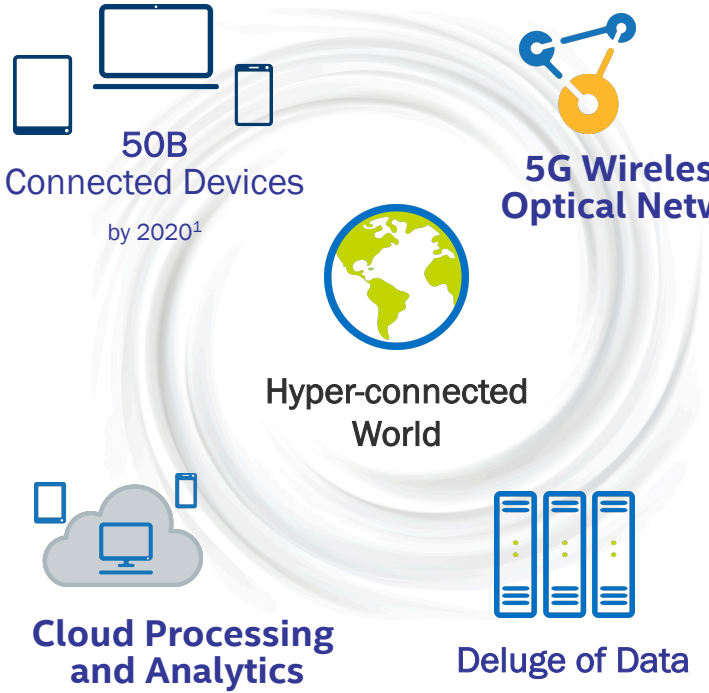
Digital Transformation Driving Datacenter Scale



Rack Scale Design

Deploy at scale:

- Storage
- Network
- Compute

Ecosystem

Open Solutions accelerating the pace of innovation

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[1]Source: Intel 2017 Investor Meeting

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Intel® Rack Scale Design (RSD): Foundation for the Modern Scalable Data Center

Intel® RSD Vision:

Flexible | Manageable | Economic | Open

Becoming a reality…

1st Generation

2016: Established the standard, racks available

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2nd Generation

2017: Pooling with storage
v2.1 released in February '17

Future

2018+: Extend pooled resources

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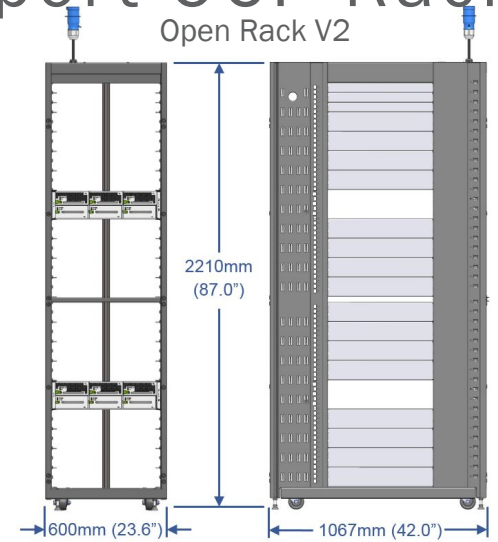
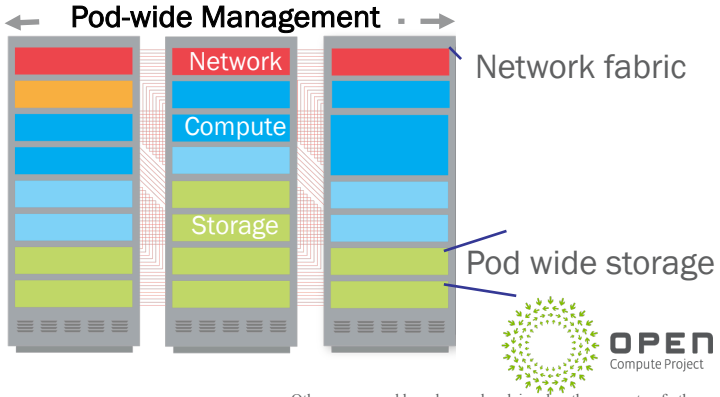
Intel® RSD: Open APIs to Support OCP Racks

- Logical Architecture & Hardware Management Software at the Data Center level
- Open industry standard Redfish™ APIs
- Intel® RSD 2.1 released to partners, available on GitHub by end of month





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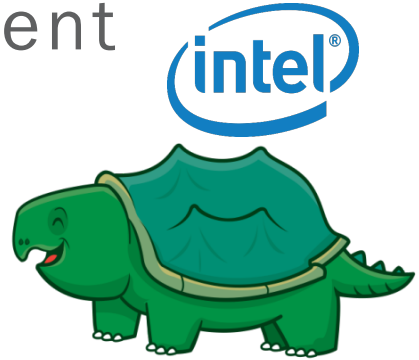
Enabling Efficient Workload Management

- **Snap: Open source for telemetry**
  - 80+ plugins w/ libraries for C++, Python, Go
- **Intel® HPC Orchestrator**
  - Intel supported Open HPC
  - Integrates 60+ open source components
  - Easing HPC system installation, management and maintenance
- **Open source SDI**
  - Kubernetes* enterprise readiness
  - OpenStack* easy to deploy at scale
  - Cloud native architecture to the mainstream



Snap
THE OPEN TELEMETRY FRAMEWORK
http://snap-telemetry.io

openstack™

kubernetes

OpenHPC
A Linux Foundation Community with 30 members
http://openhpc.community

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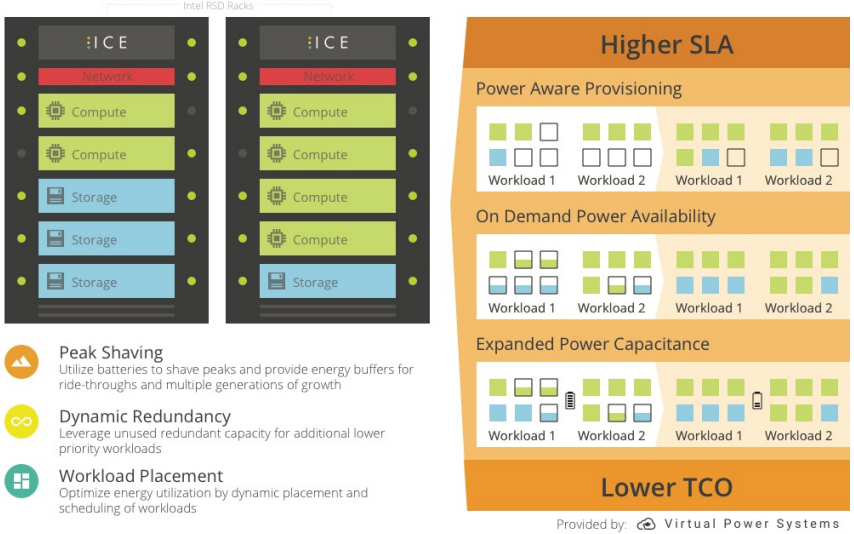
Efficiency at Scale: Software Defined Power Monitoring

- Power available where needed on-demand through a system of software and hardware
- Intelligently managed power capacitance to ride through heavy use and short duration failures
- Powered by Virtual Power Systems*

Software Defined Power® monitoring & control with ICE® Power API



VPS committed to integration with RSD management APIs

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Storage: Project Lightning*

- NVMe* JBOF open and scalable
- Enables hot and warm storage
- Flexible form factors: 2.5inx7mm, 2.5inx15mm
- PCIe 3.0 x4 speeds under 10W
- 60x PCIe 3.0 NVMe* drive expander

Source: https://code.facebook.com/posts/989638804458007/introducing-lightning-a-flexible-nvme-jbof/

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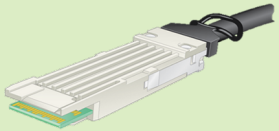
Connectivity: Intel® Silicon Photonics

- Open standard optical hardware leveraging wafer scale manufacturing
- 100G PSM4 in volume production Aug ’16
- 100G CWDM4 ramping now
- Showcasing Silicon Photonic Optics with Barefoot Networks 6.5T Wedge 100B Switch

Driving to Future Optical IC Integration

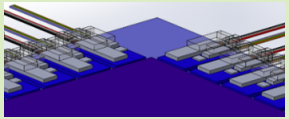
Today

100G



Tomorrow

400G



The Future

Integration

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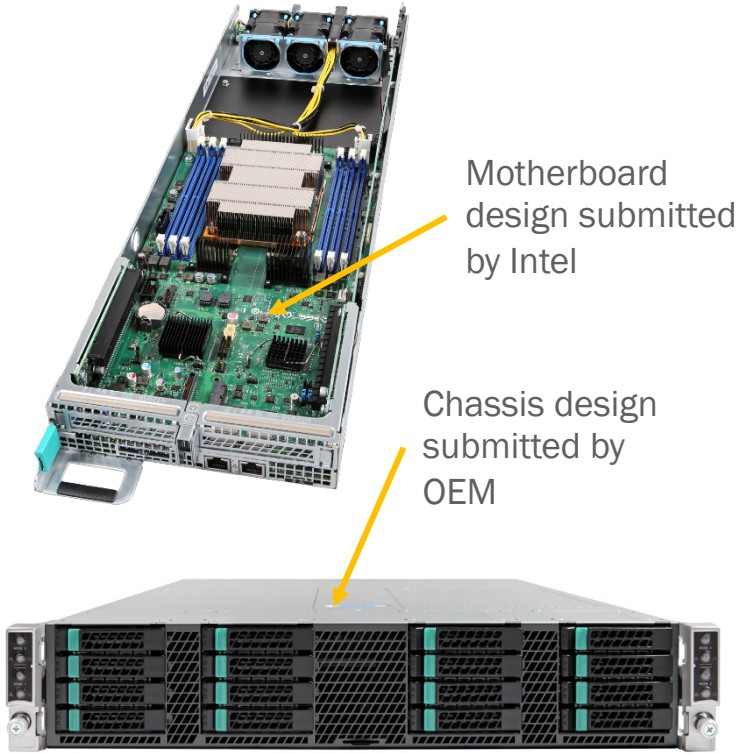
Compute: Intel® Server Board S7200AP (Adams Pass)

- Designed for highly parallelized workflows
- Support for Intel® Xeon Phi™ processors with 6 DIMMs and optional support for Intel® Omni-Path Architecture (Fabric)
- Customizable as a 2U, four node system
- Submitted Adams Pass to the OCP foundation
- Enabled Penguin chassis submitted to OCP foundation

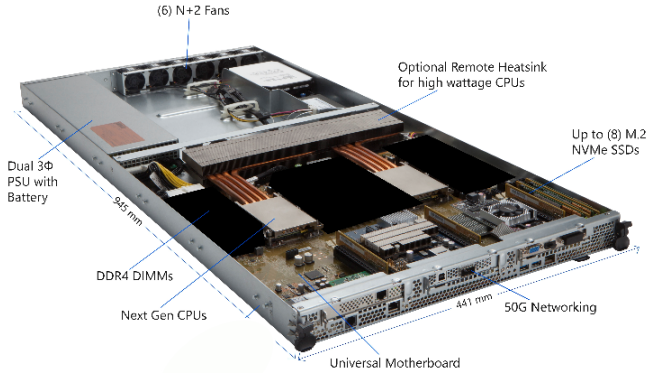


Compute: Microsoft* Project Olympus

Next generation Universal Motherboard for Hyperscale Cloud

Microsoft

- Based on next generation Intel® Xeon® processor (codenamed Skylake)
- Intel® AVX512: Up to 2X FLOP/sec peak performance versus prior gen[1]
- Intel® Arria 10® FPGAs provide a configurable framework



https://azure.microsoft.com/en-us/blog/microsoft-reimagines-open-source-cloud-hardware/

High-performance platform with hardware-optimized workloads

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1 Refer to https://software.intel.com/en-us/blogs/2013/avx-512-instructions

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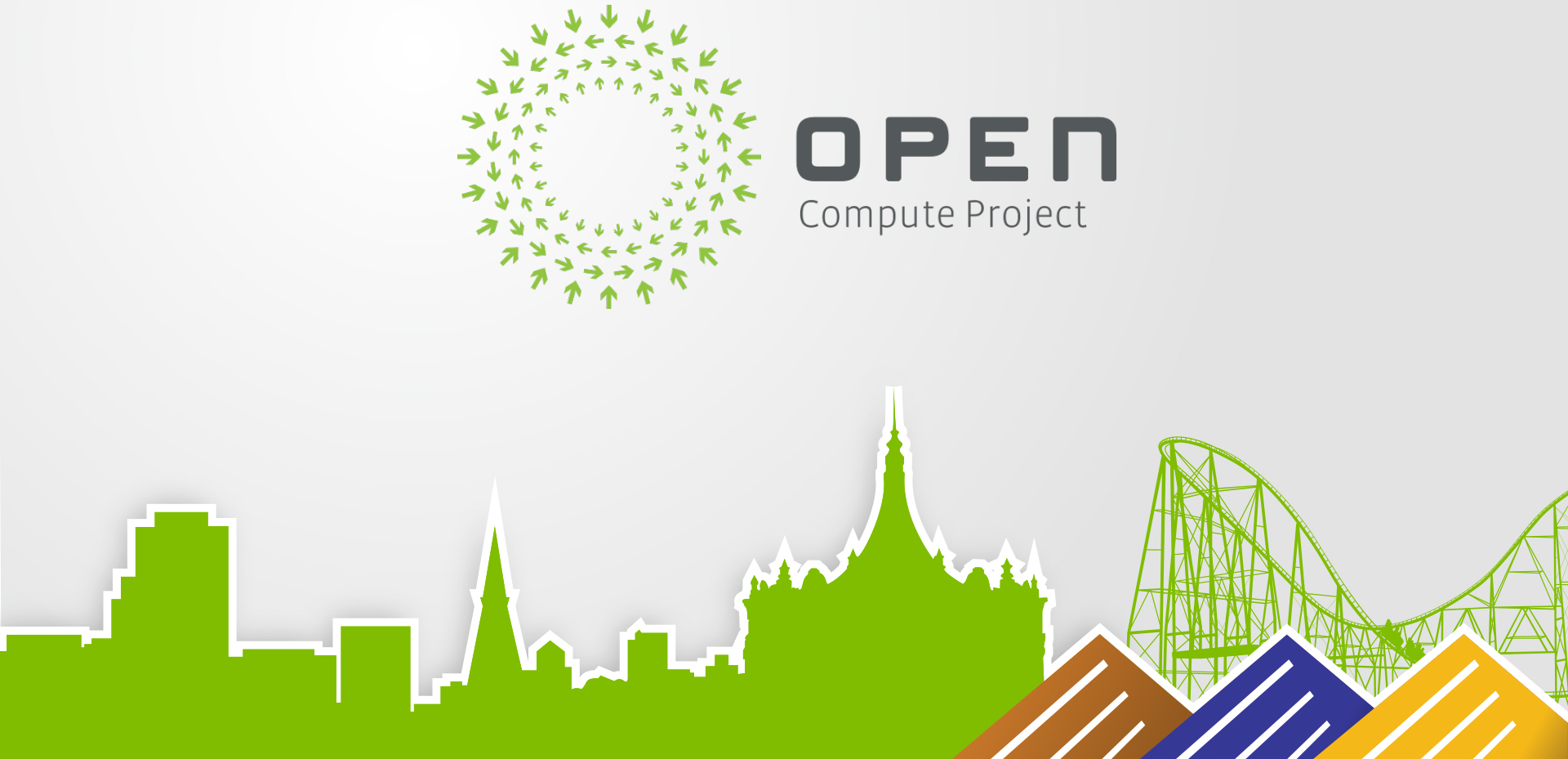
Intel + OCP: Accelerating the Data Transformation

- Intel® RSD for scale compute, storage, and network in the Data Center for the future
- Open source orchestration and telemetry
- Visit the Intel demo showcase (booth A5) to learn more
- Mark Seager session 3/8 2pm - Intel and OCP: Collaboration and Innovation
- Mohan Kumar session 3/8 4:55 – Intel RSD: A Deeper Perspective on Software Manageability for OCP Community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