# Open CloudServer – vNext Generation

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Microsoft Cloud + Enterprise

# Microsoft's Open CloudServer v1, v2, v3

## Three Generations of Contributions
- Specifications, Board Files & Gerbers
- Open Source Code: Management, operations
- Mechanical CAD: Full Chassis, Blade, Mezzanine

## Continue to Focus on 19" EIA Rack
- International deployments
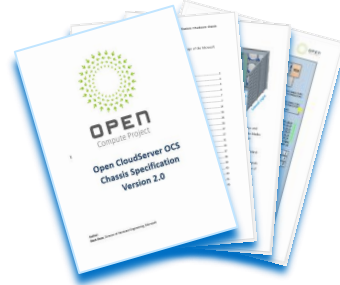- Flexible heights, multiple vendors

## Investigating the future of Open CloudServer
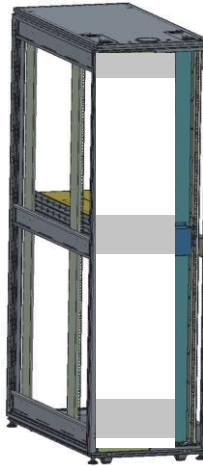
# OCS vNext – Design Principles

## One Design across Suppliers

- One motherboard
- One Firmware image
- One hardware design
- One qualification / certification
- Copy-exact for multi-sourcing

## Modular 19" EIA Rack

- Owned and leased data centers world-wide
- Tweaked standard Rack
- 42U & 48U

## Cost Reductions

- Simpler Hardware, less metal
- Lower management costs
- Very low cost without servers

## Supply Chain

- Enable Microsoft's multiple manufacturers
- Single parts locker
- Fast integration & deployment

# OCS vNext – Modular System

| Modules | Features |
|---------|----------|
| Rack / Enclosure | • 48U and 42U EIA 19", 1200mm depth<br>• 1U granularity, no 12U restrictions<br>• Dual A/C power feeds through PMDU |
| Management | • Rack Manager integrated into PMDU<br>• Same API as OCS v1 (RestFul or Redfish)<br>• Ethernet to each server's BMC, no serial |
| Server Blade | • Full-width side-by-side CPUs<br>• Front cabled I/O using standard PCI-e slots<br>• Local high-availability power and fans |
| Storage | • High density 88-HDD 4U JBOD<br>• Attaches to one, two, or four Servers |

TOR

GbE SWITCH
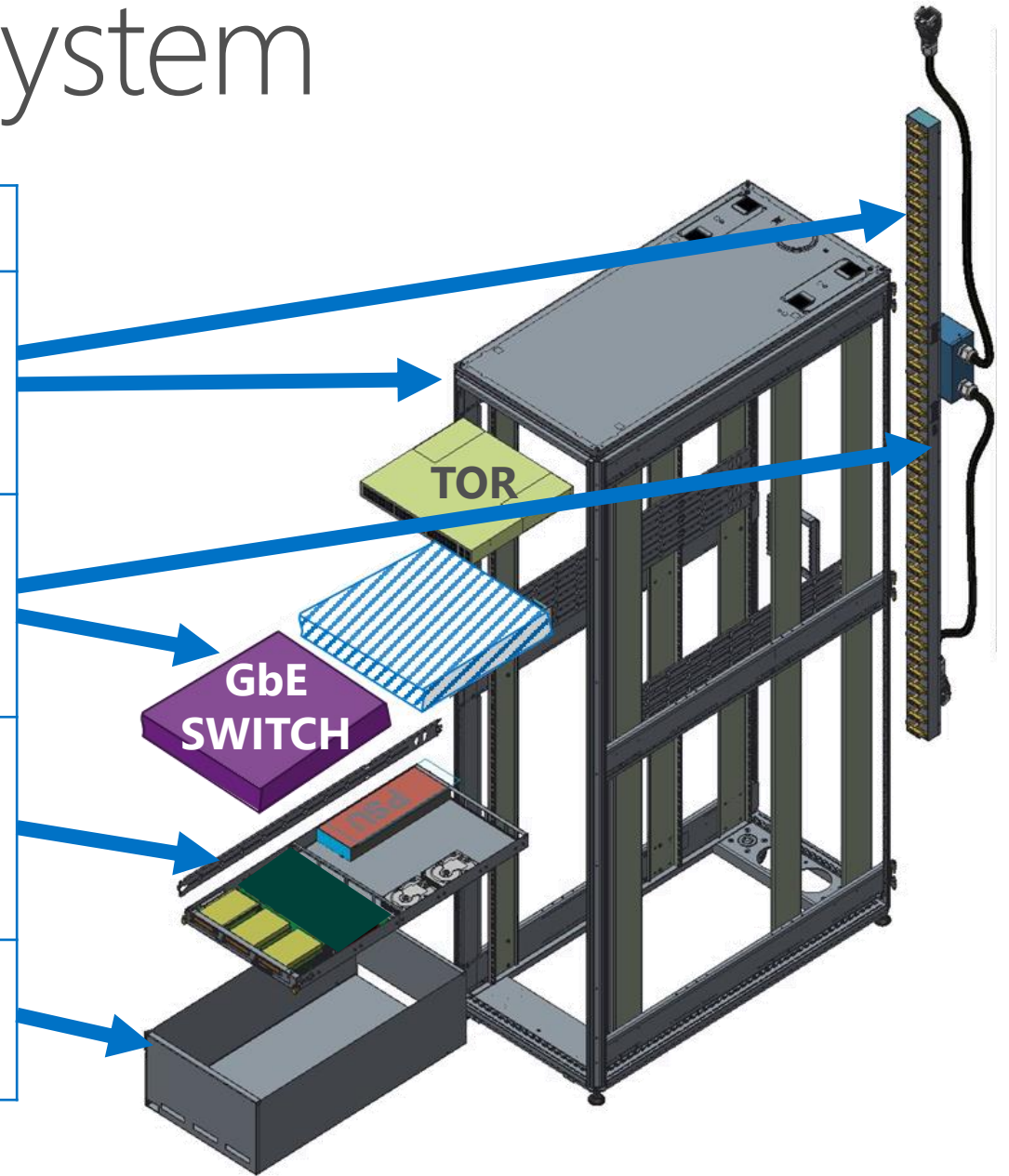
# OCS vNext – Server Blade

## Optimized for Performance, I/O flexibility

- Standard PCI-Express Gen3 slots, carrier card for OCP Mezzanine
- CloudSSD M.2 NVMe Flash slots on motherboard
- Side-by-side CPU layout lowers fan power

## Front Cabled I/O

- Blind mate rear power and management
- Latching at the chassis, pull to release
- Cold aisle service

## Embedded PSU and Fans

- PSU Dual-feed, three-phase, N+1 high availability solution
- Six N+2 fans for high-availability, lower per rack CFM

# Management Architecture

## Rack Management

- Restful API I/F – i.e. Redfish via external Ethernet
- Rack Manager (RM) ARM appliance

## Blade Management

- GbE I/F to each bade's BMC
- GbE Network switch – front cabled
- NCSI enabled on motherboard with cable to OpenRack Mezz Carrier
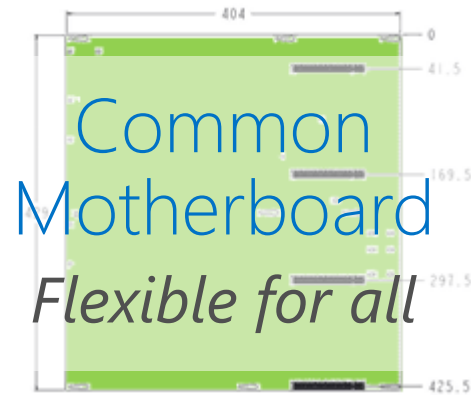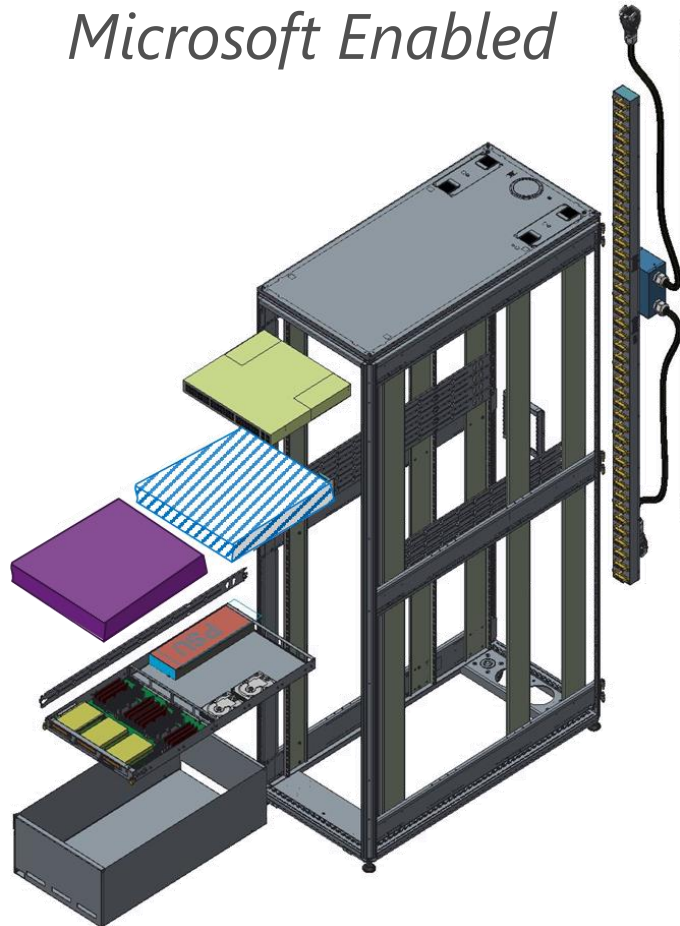- KVM enabled on motherboard

## Deployments

- Integrated into PMDU for rack scale deployments
- Standalone version for hardware that is not integrated into PMDU

**+**
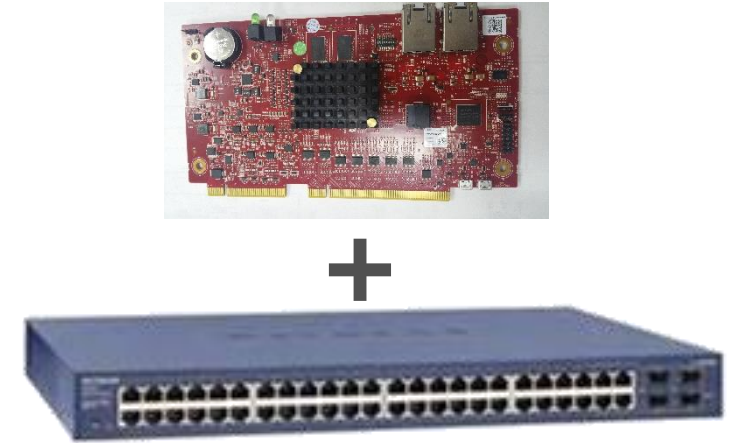
# OCS vNext Motherboard Flexibility

**OCS vNext EIA 19" Racks**

*Microsoft Enabled*

**Common Motherboard**

*Flexible for all*

**EIA 19" 1U/2U Chassis Open Rack**

*Community feedback?*