

# **HPE Compute – Tech Refresh**

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# What's New on Gen12



# HPE ProLiant Gen11: What “was” New

## CPU



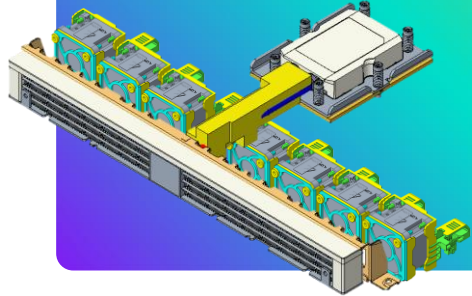
## DDR5



## PCI 5.0



Smart  
**COOLING**  
Module



## EDSFF



Hot-Plug  
**BOOT-DEVICE**



# HPE ProLiant Gen11: What “was” New

## 50% more CPU cores

- 64 Cores (Gen5) Intel Emerald Rapids
- 96 Cores (AMD AMD EPYC 4th generation – Genoa)
- 112 + 128 Cores (AMD EPYC 4th generation – Bergamo)
- 128 Cores (ARM Ampere Altra)

### Advantages:

- Better performance/watt
- More workloads for each server TCO savings

## delivers at least 125% higher memory performance

- 4800 MT/s & 5600 MT/s (Gen5 Intel® Xeon® Scalable Processor)
- Up to 20% lower power consumption
- Improved data integrity through On-Die ECC

## 2X more I/O Bandwidth for even faster connection to NVMe, NICs and GPUs

- up to 3.9 GB/s per Lane
- Double the performance from NVMe delivers direct benefit for storage sensitive workloads like e.g. VMware vSAN
- PCI lanes with support for CXL offers a new open standard to connect resources directly to the CPU.

## Smart Cooling for Special TDP CPUs

- Liquid assisted air-cooling (Closed Loop) solution for highest TDP\* CPUs.
  - Intel >270W, AMD > 320W.
- Must be installed by HPE Factory
- Platform specific kit includes all required components
- Currently planned for 1U & DL560 Gen11 platforms:
- Not required on DL38x Gen11 systems.
  - Passive air cooled still enough.

## EDSFF is a new modular disk form factor that supports higher density NVMe drives

- 1U server bis zu 20 E3.S
- 2U server bis zu 36 E3.S
- Synergy bis zu 8 E3.S (1T) drives.

## with 2 x M.2 2280 NVMe drives (480GB) in physical HW Raid1

- Online/Hot-Plug maintainable
- No requirement for any PCI riser or drive slot
- automatic configuration & recovery
- No specific drivers for OS necessary

# HPE ProLiant Gen12: What “is” New

## Intel Gen6 CPU & faster DIMMs

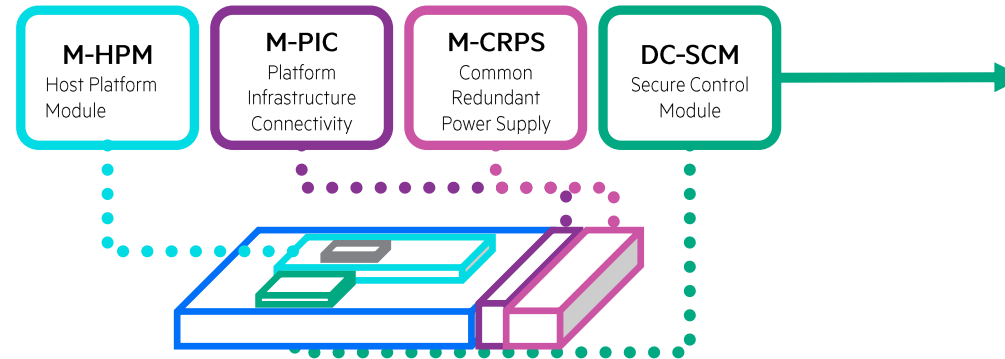
- Sierra Forest & Granite Rapids CPUs
- SP (65xx,67xx) and AP (69xx) Version
- Cores & Higher Clock Rate
- Up to 6400 @ 1DPC
- Up to 5200 @ 2DPC

## Design & Systems

- Modular Design for selected Systems
- DL340 Server
- 4U DL580
- 4U DL380a
- DL325 + DL345

## Enhanced Security with iLO 7

- Multi-layered protection
- Meets FIPS 140-3 Level 3 requirements
- Quantum resistant support

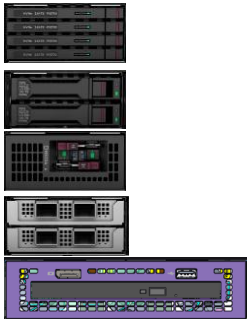


# 1U HPE ProLiant Gen12 CTO server with Multi-Purpose Cage

SFF/EDSFF Base only



|           | Box1 | Box2 | Box3 | Box4 | Box5 |
|-----------|------|------|------|------|------|
| 4EDSFF    | X    | X    | X    | X    | X    |
| 2SFF      | X    | X    | X    | X    | X    |
| NS204i-u  |      |      | X    |      |      |
| Front OCP |      |      | X    |      |      |
| Media Bay |      |      |      | X    | X    |

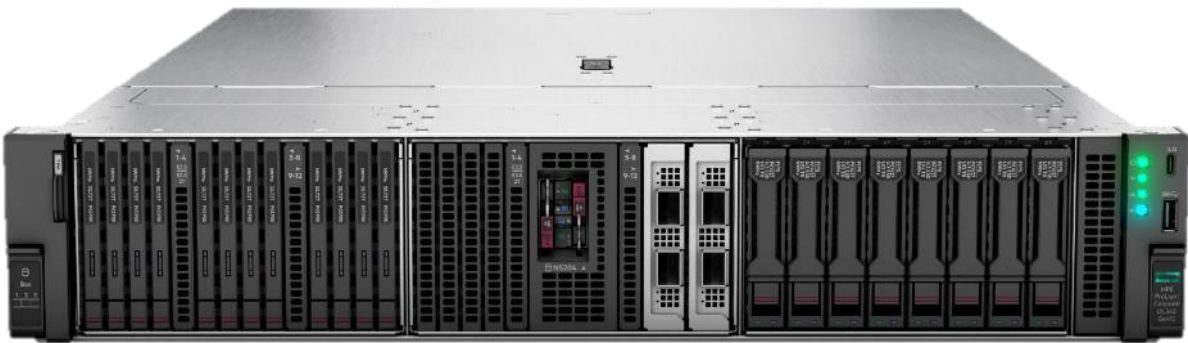


Modular design at the front for greater flexibility



# 2U HPE ProLiant Gen12 CTO server with Multi-Purpose Cage

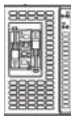
SFF/EDSFF Base only



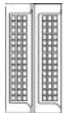
|              | Box1        | Box2                | Box3        |
|--------------|-------------|---------------------|-------------|
| 4EDSFF       | X (up to 3) | X (up to 3)         | X (up to 3) |
| 8SFF (x1/x4) | X           | X                   | X           |
| NS204i-u     |             | X (Bay 5-8 or 9-12) |             |
| Front OCP    |             | X (Bay 9-12)        |             |
| Media Bay    | X           |                     |             |



Media Bay  
(Box1)



Front NS204  
(Box2 Bay5-8)



Front OCP  
(Box2 Bay9-12)



8SFF  
(Box1-3)



4EDSFF  
(Box1-3, up to 3/box)





# HPE Core Compute Portfolio



# Hewlett Packard Enterprise Core Compute Portfolio



Compute power and control.  
Resource agility across your infrastructure.  
Ready to converge and ready for the cloud.



| HPE<br>MicroServer     | HPE<br>Edgeline                   | HPE<br>ProLiant DL/ML                 | HPE<br>Cray XD                              | HPE<br>Synergy                                                   | HPE<br>Superdome Flex                                                                                                                                 | HPE<br>Superdome Flex 280<br>Scale-up Server<br>3200                                                                                                | HPE<br>Integrity<br>NonStop                     |
|------------------------|-----------------------------------|---------------------------------------|---------------------------------------------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| Your Just Right Server | Gateway to the Internet of Things | Worlds most popular universal servers | Highest density, performance and efficiency | World's first platform architected for Composable Infrastructure | Modular device architecture 4-32 sockets in 2-socket increments<br>768 GB to 48 TB of shared memory<br>Comprehensive RAS capabilities - unlimited I/O | Modular device architecture<br>2-8 sockets in 2-socket increments<br>64 GB to 24 TB shared memory<br>Comprehensive RAS capabilities - unlimited I/O | Never stops. Integrated and 100% fault-tolerant |



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# HPE ProLiant Portfolio 2026

## Entry

Tower, 1P

HPE ProLiant MicroServer Gen11



1U, 1P

HPE ProLiant DL20 Gen11



## Blade

Blade, 2P

HPE Synergy 480 Gen12



## Edge

2U, 1P

HPE ProLiant DL145 Gen11



5U 1/2W, 4P  
HPE Edgeline  
EL8000

## Tower

HPE Tower, 1P  
ProLiant ML30 Gen11



Tower, 1P  
HPE ProLiant ML 110 Gen11



Tower, 1P  
HPE ProLiant ML350 Gen12



## TCO/ Power Optimized

1U, 1P

HPE ProLiant DL320 Gen12



1U, 1P

HPE ProLiant DL325 Gen12



2U, 1P

HPE ProLiant DL340 Gen12



## Cloud Optimized

1U, 1P

HPE ProLiant RL300 Gen11



## Storage

2U, 1P

HPE ProLiant DL345 Gen12



## Density

1U, 2P

HPE ProLiant DL360 Gen12



1U, 2P

HPE ProLiant DL365 Gen11



2U, 2P

HPE ProLiant DL380 Gen12



2U, 2P

HPE ProLiant DL385 Gen11



## Accelerator

4U, 2P

HPE ProLiant DL380a Gen12



2U, 2P

HPE ProLiant DL384 Gen12



2U, 2P

HPE ProLiant DL385 Gen11



## Big Data

HPE ProLiant DL580 Gen12



4U, 4P

HPE Superdome Scale-Up Server



## High End Accelerator / High Performance Computing

8U, 2P / 8x GPU  
HPE Cray XD675



5U, 2P / 8x GPU  
HPE Cray XD670



5U, 2P / 8x GPU  
HPE ProLiant XD685



intel

AMD

AMPERE

nvidia

# HPE ProLiant Compute Gen12

## AI optimized



**4U, 2P**  
**HPE ProLiant Compute**  
**DL380a Gen12**  
Ten NVIDIA RTX PRO™ 6000  
or H200 NVL



**2U, 2P**  
**HPE ProLiant Compute**  
**DL384 Gen12**  
NVIDIA GH200 NVL2

## TCO/Power optimized



**1U, 1P**  
**HPE ProLiant Compute**  
**DL320 Gen12**  
Intel Xeon 6 processor



**2U, 1P**  
**HPE ProLiant Compute**  
**DL340 Gen12**  
Intel Xeon 6 processor

## Density optimized



**1U, 2P**  
**HPE ProLiant Compute**  
**DL360 Gen12**  
Intel Xeon 6 processor



**2U, 2P**  
**HPE ProLiant Compute**  
**DL380 Gen12**  
Intel Xeon 6 processor

## SMB/Edge optimized



**2P Tower**  
**HPE ProLiant Compute**  
**ML350 Gen12**  
Intel Xeon 6 processor

## Blade optimized



**HPE Synergy**  
**SY480 Gen12**  
Intel Xeon 6 processor

## Big Data optimized



**4U, 4P**  
**HPE ProLiant Compute**  
**DL580 Gen12**  
Intel Xeon 6 processor

## VM/Data optimized



**1U, 1P**  
**HPE ProLiant Compute**  
**DL325 Gen12**  
5<sup>th</sup> Gen AMD EPYC processor



**2U, 1P**  
**HPE ProLiant Compute**  
**DL345 Gen12**  
5<sup>th</sup> Gen AMD EPYC processor

# Why are only 1U1P and 2U2P of HPE ProLiant DL3x5 Gen12 available?

## Processor

- 500W CPU SKUs (128C and 192C) will not be supported on HPE DL3x5 Gen11 servers
- 400W is the maximum supported CPU TDP per socket

## Memory

- DDR5 6400MT/s memory modules will run at 6000MT/s on DL3x5 Gen11 servers, without changing hardware or additional cost

## Memory

- DDR5 4800MT/s memory modules are not supported with Turin processors

## Platform

- No change in the product name (Gen11)
- No change in the platform CTO server and platform-specific options

## FW

- New ROM required to support Turin processors on the DL3x5 Gen11 servers

## NS204i

- NS204i v2 needed for Turin based **dual-Socket** DL3x5 Gen11 servers.



# DL3X5 Gen11 Turin CPU Drop-in

## SKU-Stack

|      |                      |                         |
|------|----------------------|-------------------------|
| 128C | 360W                 | 9754                    |
| 112C | 340W                 | 9734                    |
| 96C  | 360W                 | 9654/P                  |
| 84C  | 290W                 | 9634                    |
| 64C  | 360W<br>280W         | 9554/P<br>9534          |
| 48C  | 360W<br>290W         | 9474F<br>9454/P         |
| 32C  | 320W<br>280W<br>210W | 9374F<br>9354/P<br>9334 |
| 24C  | 320W<br>200W<br>200W | 9274F<br>9254<br>9224   |
| 16C  | 320W<br>200W         | 9174F<br>9124           |

Genoa/Bergamo



## DL3x5 Gen11 family

SP5 Socket CPU Stack

\*NEW SKUs

|      |      |      |
|------|------|------|
| 160C | 400W | 9845 |
| 144C | 400W | 9825 |
| 128C | 400W | 9745 |

New >128 Core SKUs  
Up to 160 Core per socket

|     |              |                |
|-----|--------------|----------------|
| 96C | 400W<br>320W | 9655/P<br>9645 |
|-----|--------------|----------------|

|     |                      |                                      |
|-----|----------------------|--------------------------------------|
| 72C | 400W                 | 9565                                 |
| 64C | 360W<br>320W<br>300W | 9555/P<br>9575F <sup>1</sup><br>9535 |

### New 64 Core SKU, Optimized for GPU head node on AI platforms

- Highest Fmax (~5GHz) to help boost performance on multiple single threaded processes (ex: python runtime) for AI workloads.
- 320W-400W, up to 512MB L3 Cache.
- Speed up execution time for the slowest process in GPU system workflow

|     |                      |                         |
|-----|----------------------|-------------------------|
| 48C | 360W<br>300W         | 9475F<br>9445/P         |
| 36C | 300W                 | 9365                    |
| 32C | 320W<br>280W<br>210W | 9375F<br>9355/P<br>9335 |
| 24C | 320W<br>200W         | 9275F<br>9255           |

|     |                      |                       |
|-----|----------------------|-----------------------|
| 16C | 320W<br>200W<br>155W | 9175F<br>9135<br>9115 |
| 8C  | 155W                 | 9015                  |

Turin

New 8C/16C low TDP entry SKUs

<sup>1</sup> Tentative model number, subject to change

# DL3X5 Gen<sup>12</sup> Turin

## SKU-Stack

|      |                      |                         |
|------|----------------------|-------------------------|
| 128C | 360W                 | 9754                    |
| 112C | 340W                 | 9734                    |
| 96C  | 360W                 | 9654/P                  |
| 84C  | 290W                 | 9634                    |
| 64C  | 360W<br>280W         | 9554/P<br>9534          |
| 48C  | 360W<br>290W         | 9474F<br>9454/P         |
| 32C  | 320W<br>280W<br>210W | 9374F<br>9354/P<br>9334 |
| 24C  | 320W<br>200W<br>200W | 9274F<br>9254<br>9224   |
| 16C  | 320W<br>200W         | 9174F<br>9124           |



## DL3x5 Gen<sup>11</sup> family

Genoa/Bergamo

SP5 Socket CPU Stack

\*NEW SKUs

|             |             |             |
|-------------|-------------|-------------|
| <b>192C</b> | <b>500W</b> | <b>9965</b> |
| 160C        | 400W        | 9845        |
| 144C        | 400W        | 9825        |
| <b>128C</b> | <b>500W</b> | <b>9755</b> |
| 128C        | 400W        | 9745        |

New 128 Core SKU  
Up to 192 Core per socket

New >128 Core SKUs  
Up to 160C per socket

|     |              |                |
|-----|--------------|----------------|
| 96C | 400W<br>320W | 9655/P<br>9645 |
|-----|--------------|----------------|

|     |      |      |
|-----|------|------|
| 72C | 400W | 9565 |
|-----|------|------|

|     |                      |                                           |
|-----|----------------------|-------------------------------------------|
| 64C | 360W<br>320W<br>300W | 9555/P<br><b>9575<sup>1</sup></b><br>9535 |
|-----|----------------------|-------------------------------------------|

|     |              |                 |
|-----|--------------|-----------------|
| 48C | 360W<br>300W | 9475F<br>9445/P |
|-----|--------------|-----------------|

|     |      |      |
|-----|------|------|
| 36C | 300W | 9365 |
|-----|------|------|

|     |                      |                         |
|-----|----------------------|-------------------------|
| 32C | 320W<br>280W<br>210W | 9375F<br>9355/P<br>9335 |
|-----|----------------------|-------------------------|

|     |              |               |
|-----|--------------|---------------|
| 24C | 320W<br>200W | 9275F<br>9255 |
|-----|--------------|---------------|

|     |                      |                              |
|-----|----------------------|------------------------------|
| 16C | 320W<br>200W<br>155W | 9175F<br>9135<br><b>9115</b> |
|-----|----------------------|------------------------------|

|    |      |      |
|----|------|------|
| 8C | 155W | 9015 |
|----|------|------|

Turin

### New 64 Core SKU, Optimized for GPU head node on AI platforms

- Highest Fmax (~5GHz) to help boost performance on multiple single threaded processes (ex: python runtime) for AI workloads.
- 320W-400W, up to 512MB L3 Cache.
- Speed up execution time for the slowest process in GPU system workflow

New 8C/16C low TDP entry SKUs

<sup>1</sup> Tentative model number, subject to change

# HPE ProLiant Gen12: What's New

- **Intel Xeon 6 “e-core” & “p-core” Xeon Scalable Performance processors**
  - Faster Memory, more cores, increased system performance
  - P-Cores for traditional enterprise workloads and virtualization
  - E-cores better fit for Service Providers and cloud-native workloads/bare-metal provisioning with more cores and higher energy-efficiency
- **New generation HPE iLO 7 Management controller chip**
  - New HPE iLO7 ASIC for Gen12
    - HPE is the only server OEM that designs their management ASIC, ensuring supply chain confidence in the silicon
  - Secure Root of Trust 2.0 with Secure Enclave
  - Servers report additional telemetry data on power consumption
- **Energy Efficiency improvements**
  - Energy Star 4.0
  - Choice of Air cooling and Liquid Cooling options



# Intel® Xeon® 6 Processors & HPE ProLiant Compute platforms

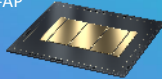
## Workload Optimized Processors



### Intel Xeon 6 CPUs

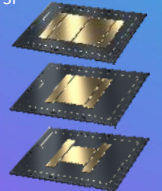
Xeon 6 with P-cores  
(Granite Rapids)

GNR-AP



For HPC, Host-CPU  
12 mem channels  
72 to 128 cores

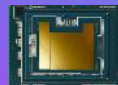
GNR-SP



Mainstream EMR Successor  
Flexible for Cloud/Enterprise WLS  
Rich IS for Storage  
8 to 86 Cores

Xeon 6 with E-cores  
(Sierra Forest)

SRF-SP



Perf/W, High Density  
Up to 144

6900P Series

6700P Series

6500P Series

6700E Series

HPE ProLiant XD Compute

HPE ProLiant Compute Gen12

- DL 3X0 & 380a & 580
- SY & ML

HPE ProLiant Compute Gen12

- DL 3X0 & 380a

# HPE ProLiant DL320/DL340 – Rich I/O option with R1S CPU

## “Right Sized” Compute

- Advantages of R1S CPU in DL320/DL340
  - PCIe lane count for I/O increased from 88 to 136 lanes
  - R1S supports “enough I/O” + enough cores
  - R1S not available for 2S systems
  - Single socket platform is less costly; more power efficient when extra I/O

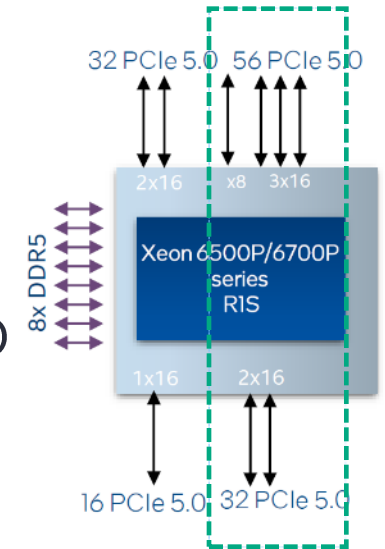
Example: 6740P 24C vs 6741P (R1S) 24C

| CPU   | Qty | Speed      | Energy Consumption | PCIe Lanes | Accelerators |
|-------|-----|------------|--------------------|------------|--------------|
| 6740P | 1   | 2.1 GHz    | 270W               | 88         | 2/2/2/2      |
| 6740P | 2   | 2 x 2.1GHz | 540W               | 176        | 2/2/2/2      |
| 6741P | 1   | 2.5GHz     | 300W               | 136        | 3/3/3/3      |

### Accelerators\*

- Intel QuickAssist Technology
- Intel Dynamic Load Balancer
- Intel Data Streaming Accelerator
- Intel In-memory Analytics Accelerator

- Purchase a 2S system where extra cores are not required:  
Higher capex, higher energy usage, higher cooling cost



### R1S

88 standard PCIe 5.0  
Lanes +  
48 extra PCIe 5.0  
Lanes (former UPI2)

# HPE ProLiant Compute Gen12

## AI optimized



**4U, 2P**  
**HPE ProLiant Compute DL380a Gen12**  
Ten NVIDIA RTX PRO™ 6000 or H200 NVL



**2U, 2P**  
**HPE ProLiant Compute DL384 Gen12**  
NVIDIA GH200 NVL2



**2U, 2P**  
**HPE ProLiant Compute DL385 Gen11**  
Two NVIDIA RTX PRO™ 6000 or H200 NVL

## TCO/Power optimized



**1U, 1P**  
**HPE ProLiant Compute DL320 Gen12**  
Intel Xeon 6 processor



**2U, 1P**  
**HPE ProLiant Compute DL340 Gen12**  
Intel Xeon 6 processor

## Density optimized



**1U, 2P**  
**HPE ProLiant Compute DL360 Gen12**  
Intel Xeon 6 processor



**2U, 2P**  
**HPE ProLiant Compute DL380 Gen12**  
Intel Xeon 6 processor



## SMB/Edge optimized

**2P Tower**  
**HPE ProLiant Compute ML350 Gen12**  
Intel Xeon 6 processor

## Blade optimized



**HPE Synergy SY480 Gen12**  
Intel Xeon 6 processor

## Big Data optimized



**4U, 4P**  
**HPE ProLiant Compute DL580 Gen12**  
Intel Xeon 6 processor

## VM/Data optimized



**1U, 1P**  
**HPE ProLiant Compute DL325 Gen12**  
5th Gen AMD EPYC processor



**2U, 1P**  
**HPE ProLiant Compute DL345 Gen12**  
5th Gen AMD EPYC processor

# Datacenter PCIe Accelerators for Gen12 Server



NVIDIA L40S  
S2L70C



NVIDIA L4  
S0K89C



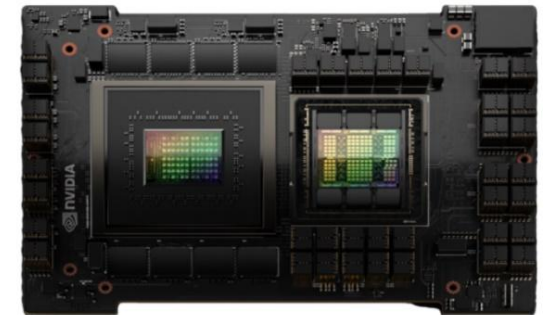
NVIDIA RTX PRO 4500  
Blackwell Server Edition  
S6W30C



NVIDIA RTX Pro 6000  
Blackwell Server Edition  
S6A73C (S6W21C)



NVIDIA H200 NVL  
S3U30C



NVIDIA GH200



# NVIDIA RTX PRO 4500 Blackwell Server Edition

## Some high-level technical aspects

- Easy to scale - single-wide, 32GB, 165W, passively cooled
- Ideal for 1U/2U edge deployments
- where RTX PRO 6000 is limited due to power and thermals
- Broad support across HPE ProLiant Compute Servers
  - EL8000 e930t Gen11
  - DL145 Gen11
  - ML350 Gen12
  - DL365 Gen11
  - DL345 Gen12
  - DL385 Gen11
  - DL380 Gen12



**EL8000s**



**DL145**



**ML350**



**DL365**



**DL345/DL380/DL385**



# NVIDIA RTX PRO 4500 Blackwell Server Edition

Technical Specifications compared with Nvidia L4

|                       | L4                                 | RTX PRO 4500<br>Blackwell Server Edition   |
|-----------------------|------------------------------------|--------------------------------------------|
| GPU Architecture      | Ada Lovelace                       | Blackwell RTX                              |
| FP8   FP4 Tensor core | Yes   --                           | <b>Yes   Yes</b>                           |
| Memory                | 24GB                               | <b>32 GB</b>                               |
| Memory Bandwidth      | 300 GB/s                           | <b>800 GB/s</b>                            |
| MIG Capability        | N/A                                | <b>Up to 2 MIG</b>                         |
| Media Engines         | 2 Video Encoder<br>4 Video Decoder | <b>3 Video Encoder<br/>3 Video Decoder</b> |
| Confidential Compute  | N/A                                | <b>Yes</b>                                 |
| Interconnect          | PCIe Gen4 x16                      | PCIe Gen5 x16                              |
| Form Factor           | 1 Slot HHHL                        | 1 Slot FHFL                                |
| Power                 | 72W                                | <b>165W</b>                                |

Key differentiators

Runs faster AI calculations  
Real-time analytics, operations

Advancing Edge AI, 3D  
rendering, simulation

Multiple instances, mixed  
workloads simultaneously

Advance video processing  
(Video Search Summarization)

Data encrypted and protected,  
isolated environment on  
hardware level

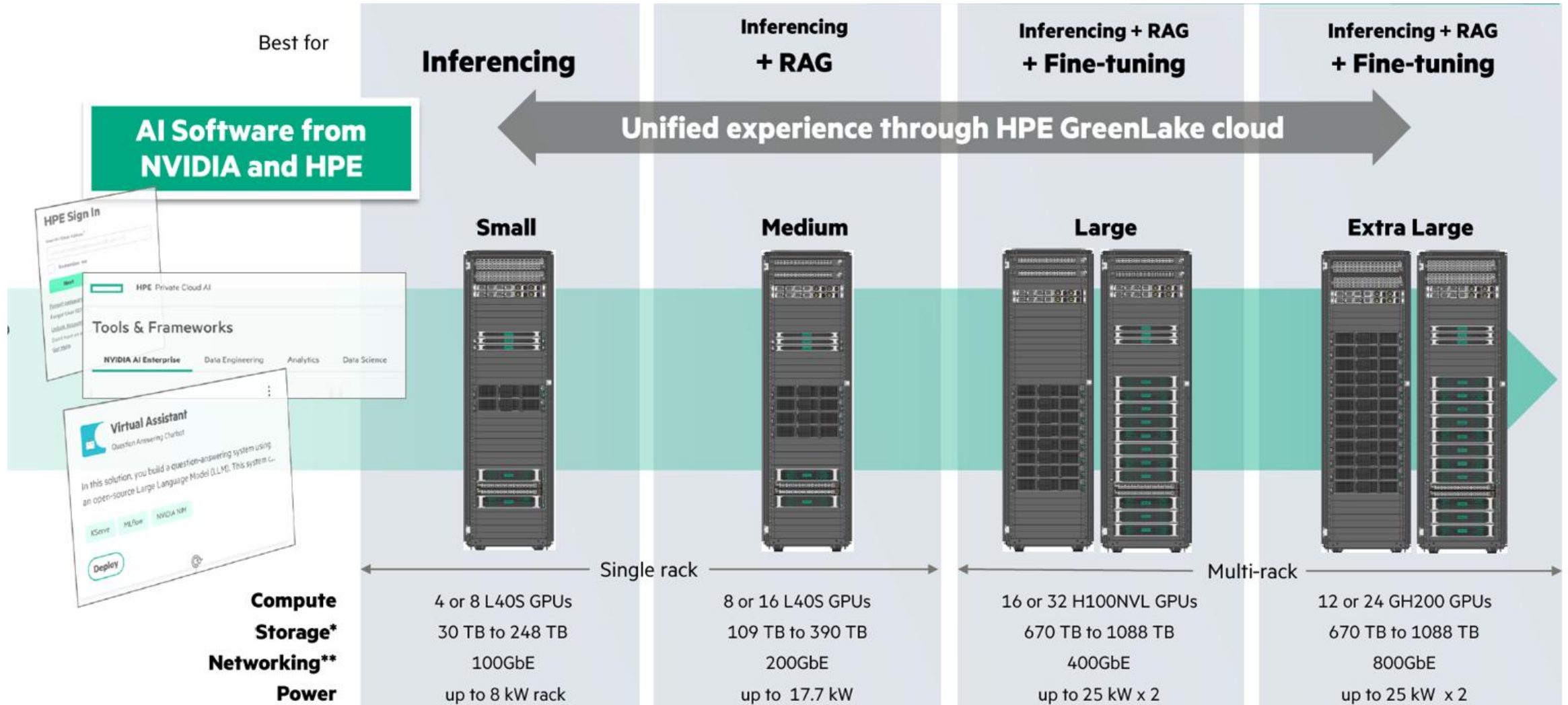


# Unified platform for Data Center and at the Edge

| <b>NVIDIA RTX PRO 6000</b><br>600W   96GB   2S FHFL                                                                 | <b>BEST Performance</b><br><b>Universal</b><br><b>Compute + Graphics</b>                                       | <b>NVIDIA RTX PRO 4500</b><br>165W   32GB   1S FHFL                                                          | <b>Developer / Edge</b><br><b>Universal</b><br><b>Compute + Graphics</b>                                        |
|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <br>Omniverse Physical AI          | <br>vWS                       | <br>GenAI Dev             | <br>vWS                      |
| <br>GenAI Image/Video              | <br>LLM Fine Tuning           | <br>Small Model Inference | <br>Video Analytics          |
| <br>Inference                     | <br>FP32 HPC                | <br>Data Analytics        | <br>Video AI FX              |
| <br><b>DL380a</b>                  | <br><b>DL345/DL380/DL385</b> | <br><b>EL8000s</b>        | <br><b>DL345/DL380/DL385</b> |
|                                                                                                                     |                                                                                                                | <br><b>DL145</b>          | <br><b>DL365</b>             |
|                                                                                                                     |                                                                                                                | <br><b>ML350</b>          |                                                                                                                 |
| <b>HPE ProLiant Compute</b><br>Secure from chip to cloud. Automated by AI. <b>At the Edge or in the Data Center</b> |                                                                                                                |                                                                                                              |                                                                                                                 |

# HPE Private Cloud AI portfolio

NVIDIA AI Computing by HPE



\* Storage Includes 10+ TB Data Fabric Lakehouse capacity in addition to File storage

\*\* Networking based on NVIDIA Spectrum networking technology

Upgraded configurations shown



# HPE Alletra Storage Server 4000 family

4210, 4120, 4140



# HPE Compute Storage-Optimized Server Portfolio

**Performance-focused**



**HPE Alletra Storage Server  
4210**

**Balanced**



**HPE ProLiant Compute  
DL340e Gen12**



**HPE Alletra Storage Server  
4120**

**Capacity-focused**



**HPE Alletra Storage Server  
4140**

**Models differ by:**

- CPU-to-storage capacity ratio
- Rack density
- Physical media used
- \$/GB economics
- Performance/capacity ratios

# HPE ProLiant Compute DL340e Gen12

## New 2U 1P hybrid-NVMe data storage server

For the **broadest range** of data storage-centric workloads including:

- General-purpose SDS
- Converged data protection
- Medium active archives
- Mid-range converged analytics

### Specifications

**Configurable front FIO 24 or 16 LFF bays;**  
Rear options for **8+2 E3.S EDSFF and 4 PCIe Slots** or **all 6 PCIe slots;**  
**External hot-pluggable M.2 for boot**

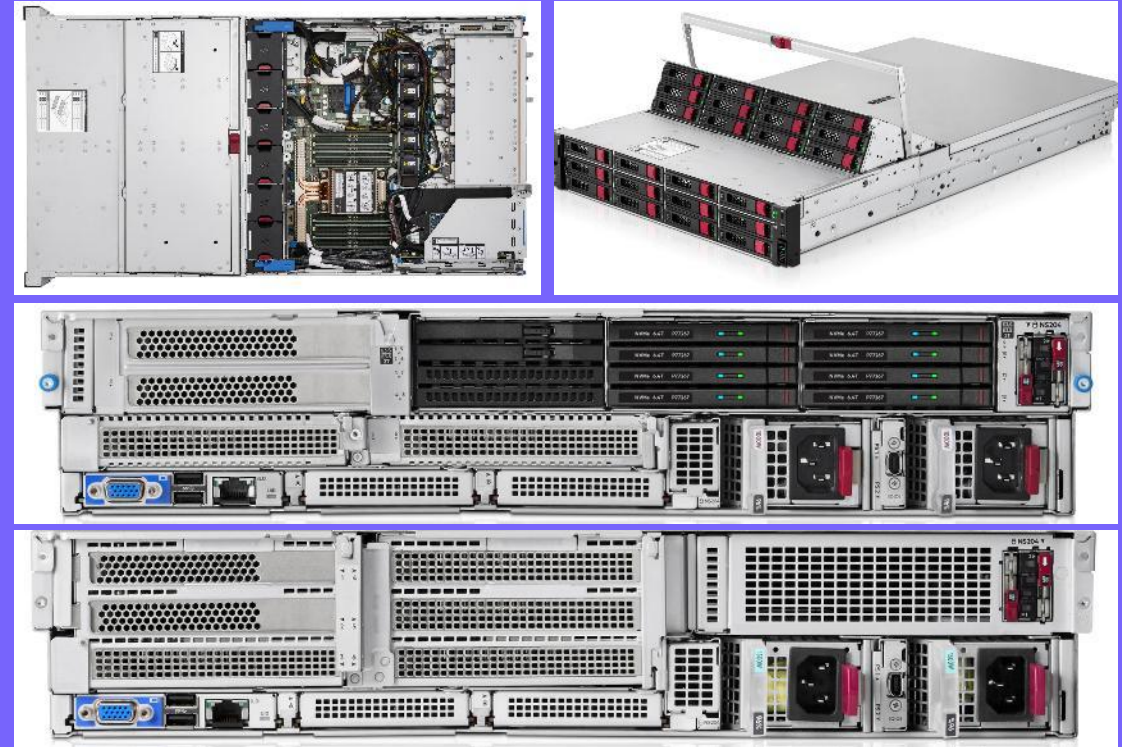
**Up to 2 OCP 3.0 and up to 6 PCIe Gen5 slots;**  
**Up to 2 under 75W GPU/FPGA support**

**Single Intel Xeon 6 Processors with E-cores or P-cores;** up to **2 TB**  
DDR5 memory

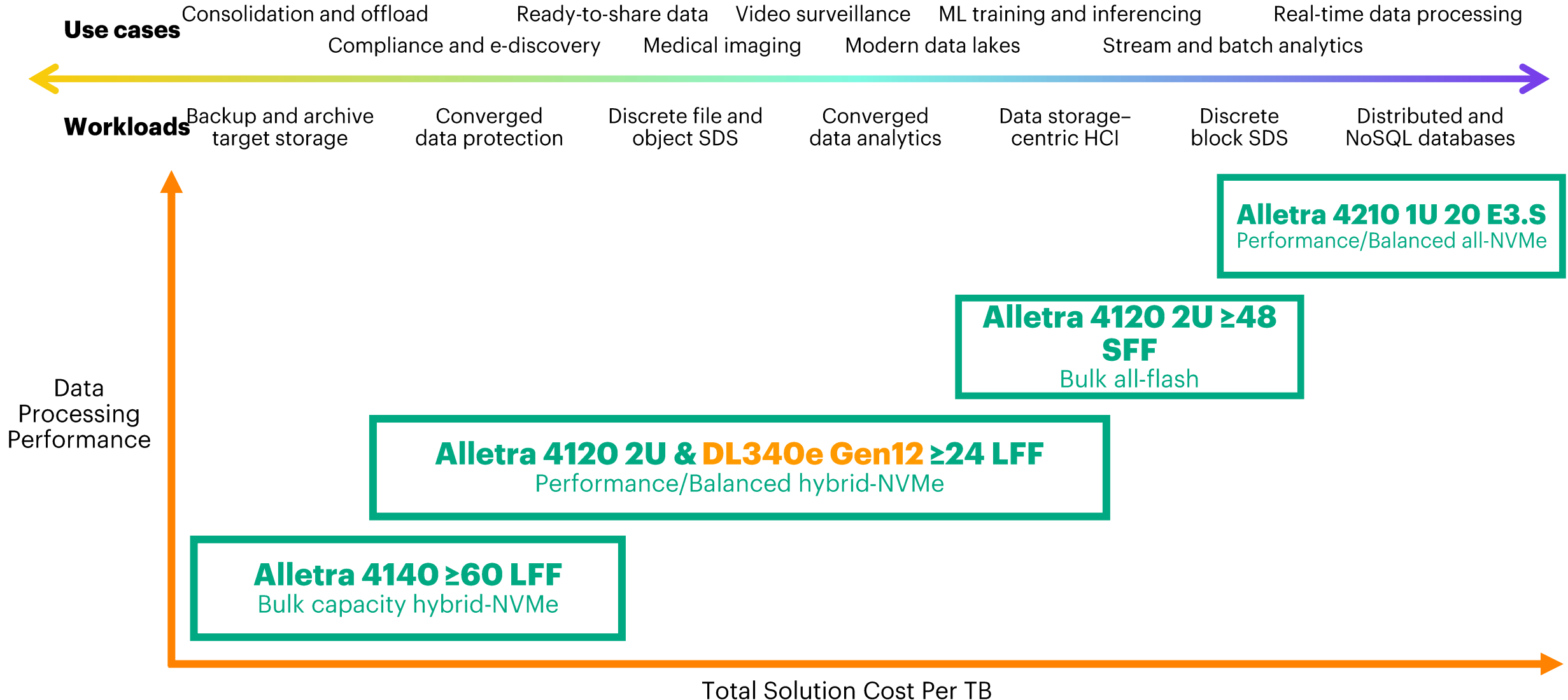
HPE GreenLake for **Compute Ops Management** and **HPE iLO 7** standard

**Tech Care** or **Complete Care** recommended

**Configurable chassis:**  
**Front 24/16 LFF pop-up and**  
**Rear 8+2 E3.S EDSFF or all PCIe**



# HPE Compute storage-optimized portfolio positioning



# Liquid Cooling & HPE Compute

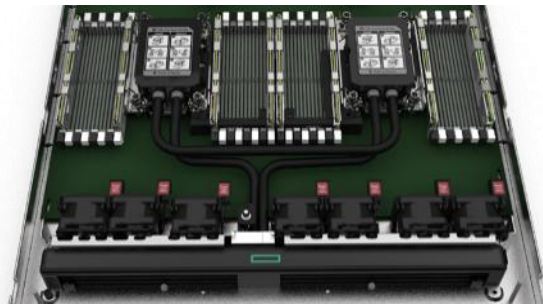


# HPE Servers Available with Liquid Cooling

Liquid cooling available across the entire portfolio

## 8x HPE ProLiant Compute

- DL320
- DL325
- DL360
- DL365
- DL380
- DL380a
- DL385
- DL560



## 3x HPE Cray XD

- XD2000
- XD685
- XD670



## 2x HPE Cray EX

- EX2500
- EX4000



# HPE Liquid-cooled computing solutions

|                                   |         | HPE ProLiant   |       |       |                 |       |       | HPE Cray XD |       |       |       | HPE Cray Supercomputing EX |        |
|-----------------------------------|---------|----------------|-------|-------|-----------------|-------|-------|-------------|-------|-------|-------|----------------------------|--------|
|                                   |         | DL320<br>DL325 | DL360 | DL365 | DL380<br>DL380a | DL385 | DL560 | XD2000      | XD685 | XD670 | XD690 | EX2500                     | EX4000 |
| Direct Liquid Cooling (DLC)       | 100%    |                |       |       |                 |       |       |             |       |       |       |                            |        |
|                                   | ~70-80% |                |       |       |                 |       |       |             |       |       |       |                            |        |
| DLC + ARCS                        |         |                |       |       |                 |       |       |             |       |       |       |                            |        |
| Liquid to air Cooling (ARCS)      |         |                |       |       |                 |       |       |             |       |       |       |                            |        |
| Exhaust air liquid cooling (RDHX) |         |                |       |       |                 |       |       |             |       |       |       |                            |        |
| Closed-loop liquid cooling        |         |                |       |       |                 |       |       |             |       |       |       |                            |        |



# Liquid cooling solutions snapshot by HPE

## Liquid to Air Cooling



**RDHx**  
Rear Door  
Heat Exchanger



**ARCS**  
Adaptive Rack  
Cooling Solution

## Hybrid Cooling



**Cray XD -  
Proliant**

## Fanless Direct Liquid Cooling



**Cray EX  
Lite**

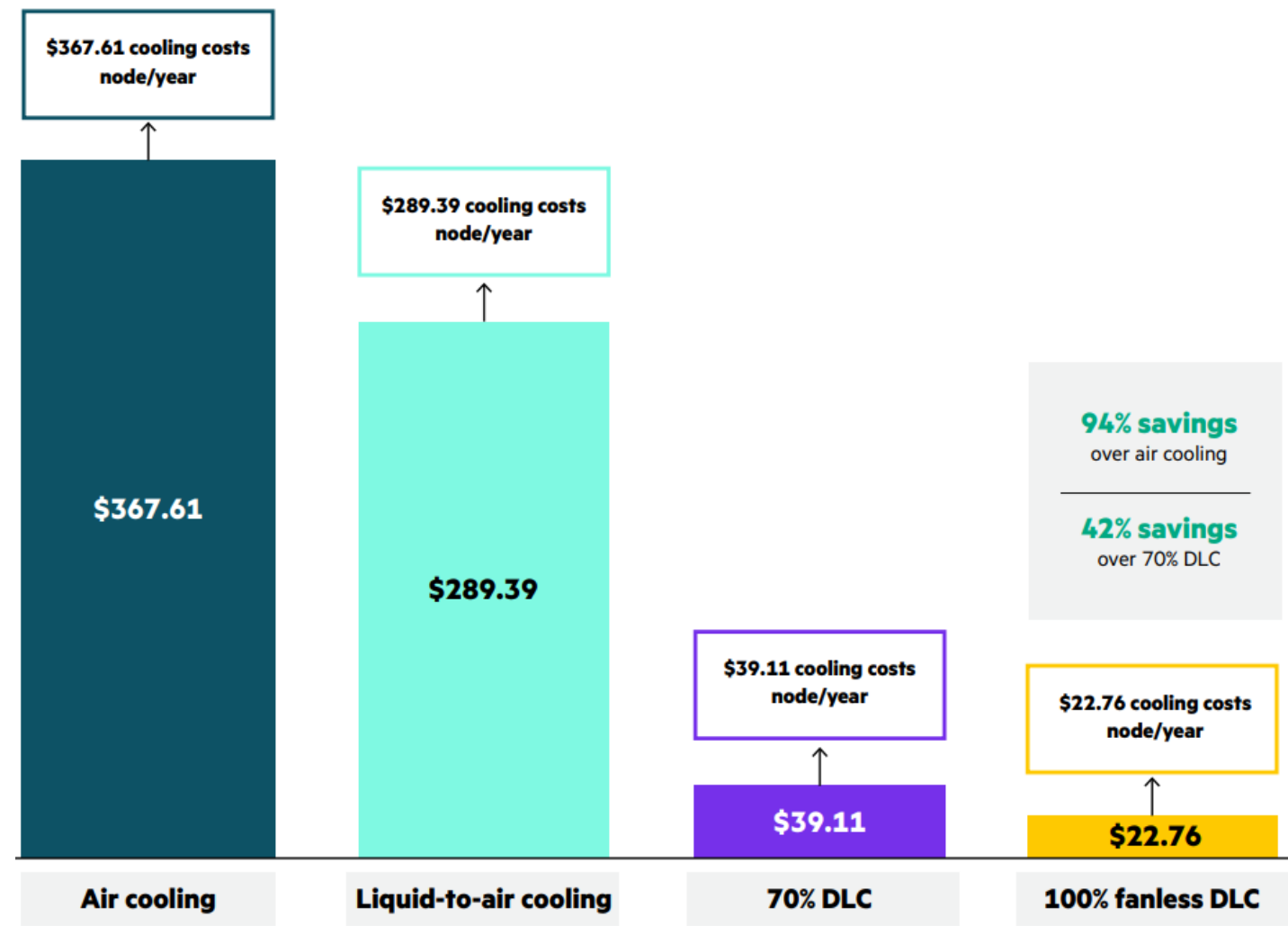


**Cray EX**

Cooling Efficiency and capacity (kW/rack) increases from left to right

<https://www.hpe.com/us/en/solutions/direct-liquid-cooling.html>

# Power cost and savings comparison

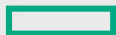


\*Modeling based upon deployed HPE systems; data compiled in April 2023. These data also reflect optimizations to the data center cooling infrastructure and compute performance as part of a holistic cooling upgrade.



# HPE Edge Solutions

focus on HPE ProLiant DL145 Gen11



# Edge is a unique location



## Data Center

Controlled environment

Cooled, powered, filtration, IT is central / easily accessible



## Edge IT

Uncontrolled environment, lacking on-site IT support

Space constraints, site security, temperature challenges, dust particles, noise restrictions

# Edge computing is essential to future of every enterprise



## Retail

Loss & fraud prevention



Better top line



## Manufacturing

Quality assurance



Better product



## Logistics

Fleet management



Faster services



## Healthcare

Patient Care



Faster diagnosis

More use out of more data more accurately | ROI for more ambitious initiatives | Predictive intelligence | Automation

# Overview of edge portfolio

## Compact

## General

## Compact Ruggedized

### HPE ProLiant MicroServer Gen11



Up to **8 VMs\*** &  
**32 Containers\***

No GPU

**Optimized For**  
Desk,  
Wall mounting

**Use Cases**  
SMB, Remote Office

### HPE ProLiant Tower Servers



Up to **256 VMs\*** &  
**1024 Containers\***

Up to **2 SW/1 DW** GPU

**Optimized For**  
Desk,  
Rack mounting (ML350)

**Use Cases**  
SMB, Remote Office, POS

### HPE ProLiant DL145 Gen11



Up to **128 VMs\*** &  
**512 Containers\***

Up to **3 SW** GPU

**Optimized for**  
Cabinet, Wall mounting,  
Rack mounting, Greater  
environmental tolerances

**Use Cases**  
Enterprise, Growing SMBs  
and Mid-Enterprise, Edge AI

### HPE ProLiant DL32x/DL20 Gen11



Up to **120 VMs\*** &  
**480 Containers\***

Up to **4 SW/2 DW** GPU

**Optimized for**  
Rack mounting

**Use Cases**  
Enterprise, CDN, Edge AI

### HPE Edgeline



Up to **320 VMs\*** &  
**1280 Containers\***

Up to **8 SW/2 DW** GPU

**Optimized for**  
Rack mounting,  
Ruggedized deployment

**Use Cases**  
Oil&Gas, Defense, Telco,  
Utilities

Secure, cloud management with HPE GreenLake for Compute Ops Management

\*Estimated based on typical resource requirement. Actual number will depend on workload and application

# HPE ProLiant DL145 Gen11

Ideal for Retail, Manufacturing, Healthcare, Logistics...

Performance needs



## ML350

- Dual CPU
- Large memory
- Full GPUs



## DL320/DL325

- Single CPU
- Full GPU



## DL20

- Single CPU
- No GPU



## MicroServer

- Entry CPU
- No GPU

## New DL145



Single CPU, up to 64 cores  
Up to 3 single-wide GPUs

Edge demands

Future ready

Loss and fraud prevention  
Quality assurance  
Patient Care  
Fleet management...

# Meet the new HPE ProLiant DL145 Gen11



Powered by the  
AMD EPYC™ 8004  
Series Processor

## Compact

~50%  
smaller<sup>2</sup>  
than DL385  
16" vs 32"

## Quiet

~ Less noise<sup>3</sup>  
than a library

## Resilient

-5°C to 55°C  
High vibration  
High dust

## Manageable

75% less time<sup>1</sup>  
for remote servers

## Secure

HPE Silicon Root of Trust,  
iDevID, Platform certificates,  
TPM 2.0,  
Self-encrypting drives  
Chassis intrusion kit,  
Bezel / Kensington lock

## Adaptable

Edge ready  
tabletop,  
wall and  
cabinet



### Dimensions with air filter

3.44 in X 15.13 in X 19.98 in  
8.75 cm X 38.44 cm X 50.74 cm



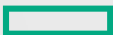
<sup>1</sup> Depth of DL145 vs DL365 (excl. air-filtration bezel).

<sup>2</sup> 35db at 50% CPU load

<sup>3</sup> Select configurations



# Compute Management



# HPE Compute Management Portfolio

HPE Compute Ops Management Advanced  
includes iLO Advanced

## HPE Compute Ops Management

Cloud-based lifecycle management to  
monitor, manage, and view your distributed  
environment

## HPE OneView

On-prem management to automate IT  
operations of your dark-site and Synergy  
environments

## HPE COM-OVE

Cloud-based extension to manage and view your OneView environments from COM

## HPE Integrated Lights Out

Embedded management to support, optimize, and monitor your servers

# HPE Compute Ops Management

Cloud-based compute management for the distributed enterprise

## Do more

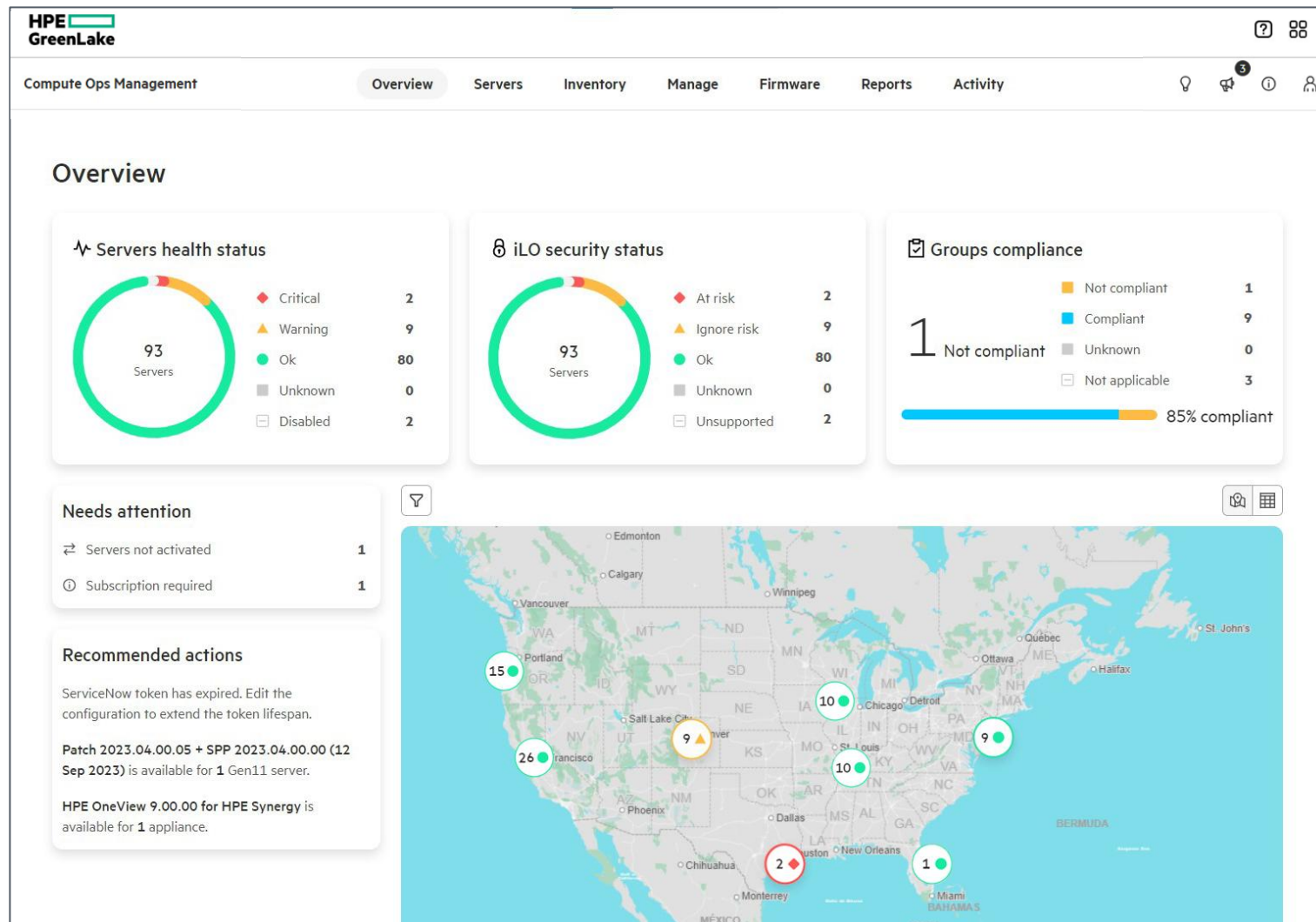
Deploy and manage with ease—  
automated operations replace  
manual tasks

## Move faster

Get your evenings and weekends  
back with efficient server updates

## Set and protect

Reduce risk with faster continuous  
patching, policies, and secure  
connections



# HPE Compute Ops Management

Industry's best management

**Secure** servers proactively with policies & best practices

**Automate** tasks globally with AI-driven insights & operations

Up to

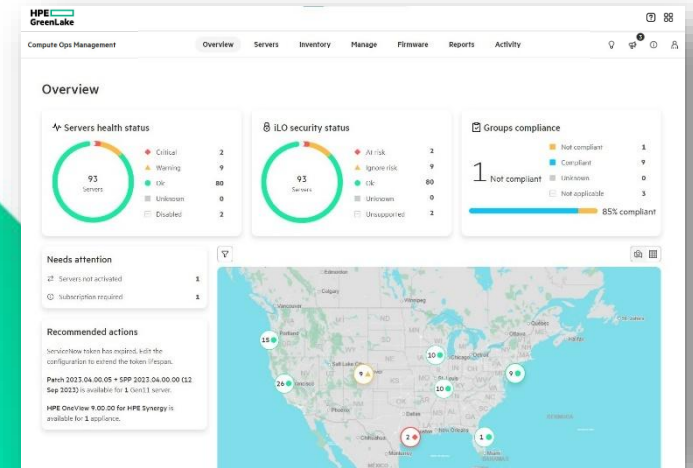
**4.8 hours**

less downtime  
per server per year<sup>2</sup>

Up to

**\$152K**

travel and software  
costs saved over 3  
years<sup>2</sup>



**Secure connection to servers without extra complexity**

**Single console for robust cloud operations management**

**Enterprise-grade distributed management**

**Managed Service Provider mode**



Faster access to  
specialized expertise  
**HPE TECH CARE &  
COMPLETE CARE**

<sup>2</sup> A commissioned study conducted by **Forrester Research**, New Technology: The Projected Total Economic Impact™ of HPE Compute Ops Management, June 2024. Results are for a composite organization.

# New Features Across All Categories



## Server deployment

- OS image deployment
- Server tagging, grouping, and search

## Lifecycle management

- iLO remote console
- Enhanced firmware update automation

## Analytics & sustainability

- Enhanced carbon footprint reports

## Governance & policy

- IAM
- Scope-based access controls

## Monitoring & support

- Auto case creation
- Email notifications for critical alerts
- Server health status report

## Security

- Secure mTLS connections from iLO to cloud
- End-to-end security from device to application

## Integrations

- VMware vCenter\*
- ServiceNow
- REST APIs

HPE ProLiant DL/ML servers | HPE Alletra 4000 storage system | HPE Edgeline EL8000+

*\*Monitoring support available now*

# Evolution of AIOps within Compute Ops Management



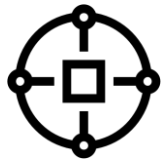
## Inventory Insights

Equipment | Software | Notifications  
EOS/EOD Lifecycle Management + Planning



## Intelligent alerting

Threshold monitoring  
automated incident creation



## Case requests & tracking

Automated case routing  
ServiceNow integration



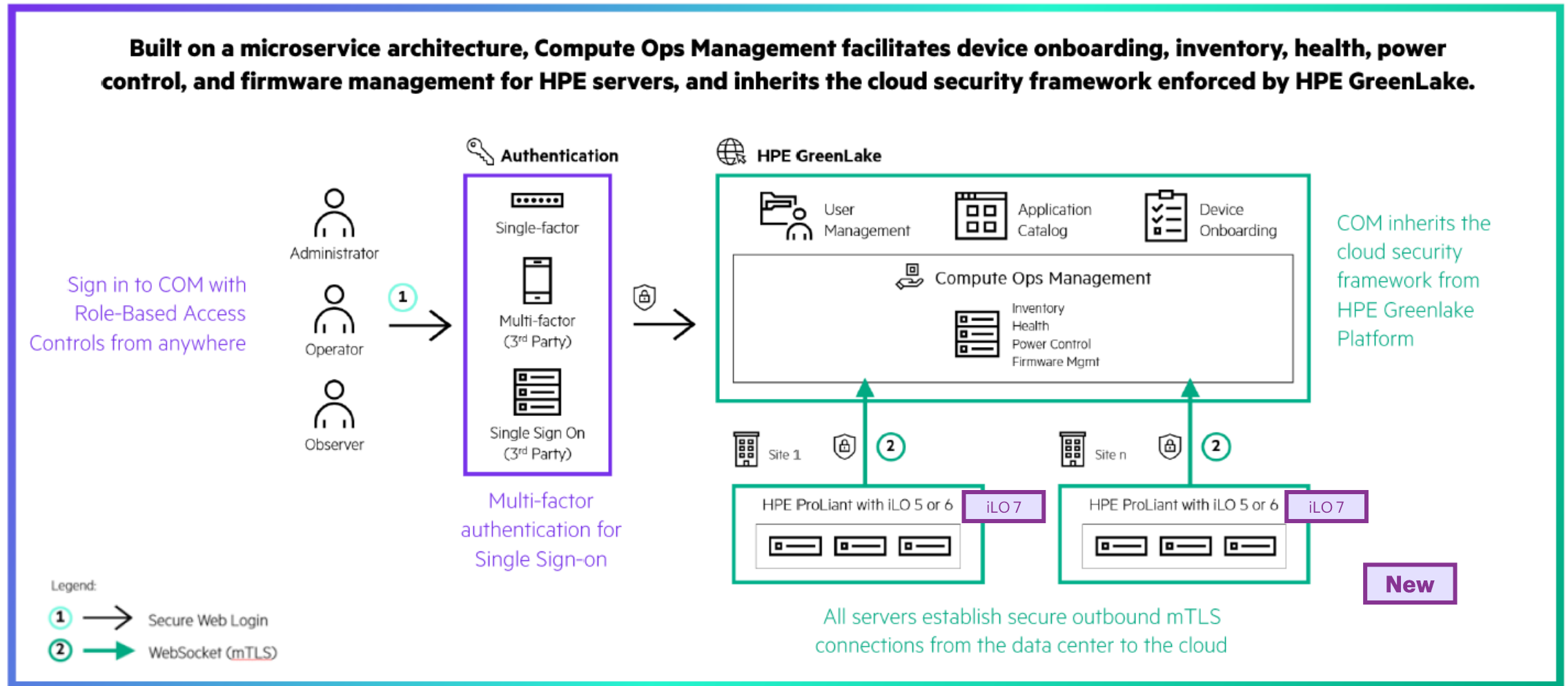
## Smarter insights

Root Problem Diagnosis | Reporting  
On-going Communication | AI/ML Capability

## Customers benefit from:

- **Effortless asset management** through automated compute inventory tracking
- **Faster incident detection** and resolution with AI/ML driven correlation and aggregation
- Proactive incident notifications creates **more efficient IT Service Management (ITSM)**
- Reduced help desk calls enhances efficiency and **speeds Mean Time to Resolution (MTTR)**

# COM direct connect – Enhanced security



[Technical White Paper: HPE GreenLake for Compute Ops Management security guide](#)

[HPE Compute: Secure cloud connections explained \(YouTube 2:40 Min\)](#)

# Enhance data center security with Secure Gateway

Avoid exposing servers to security vulnerabilities, data breaches, and compliance violations

- **Centralize security management** by routing all iLO traffic through a secure gateway, simplifying administration
- **Enhanced security** by reducing the attack surface available to external threats
- **Improve bandwidth efficiency** and reduce network strain by streamlining iLO traffic
- **Reduce update time** with firmware caching feature



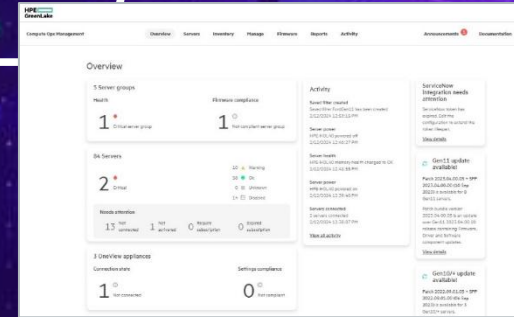
HPE ProLiant  
servers with HPE  
iLO 5/6/7



Secure Gateway



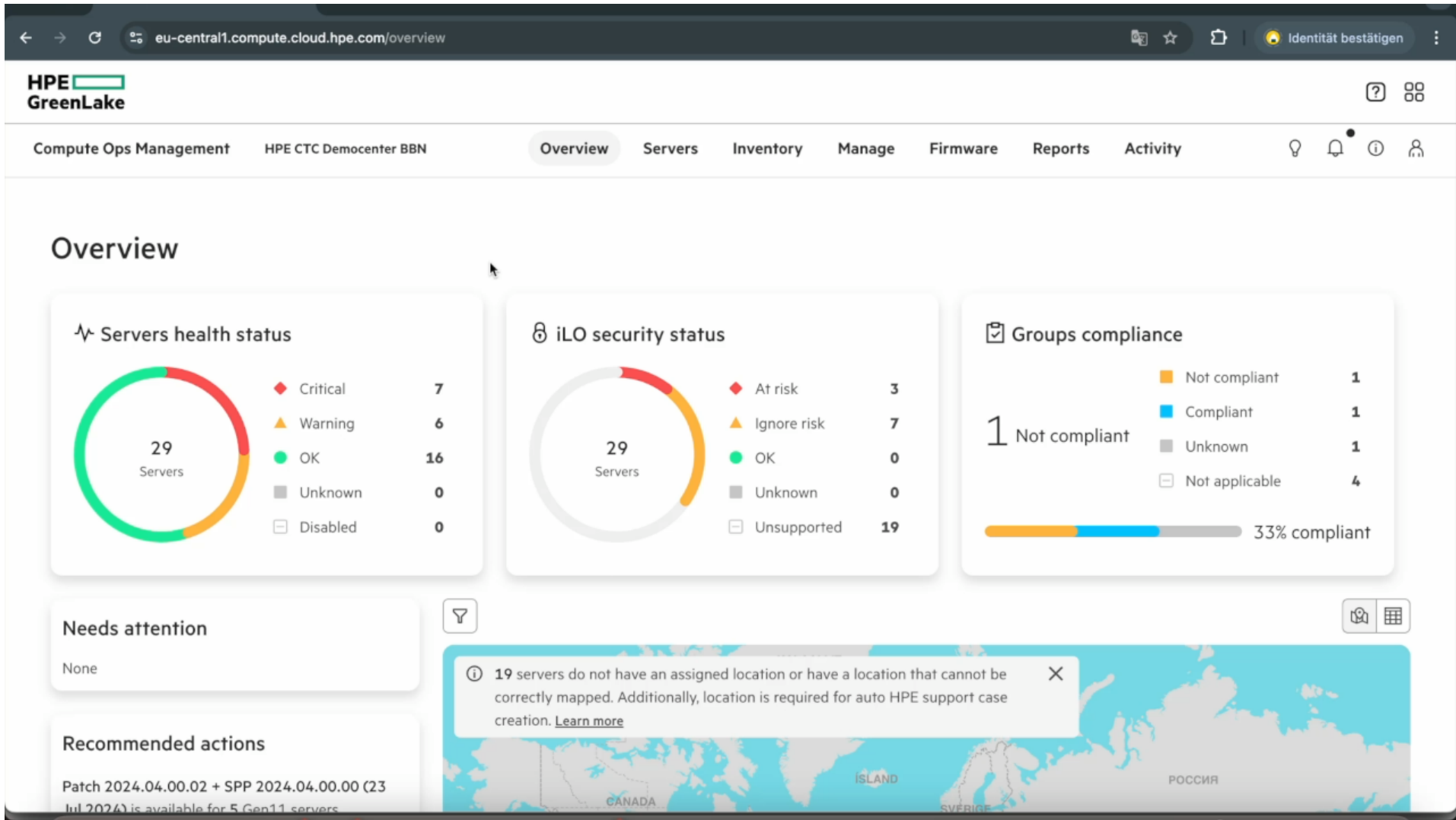
HPE Compute Ops  
Management



Possible now: third party monitoring with Secure Gateway

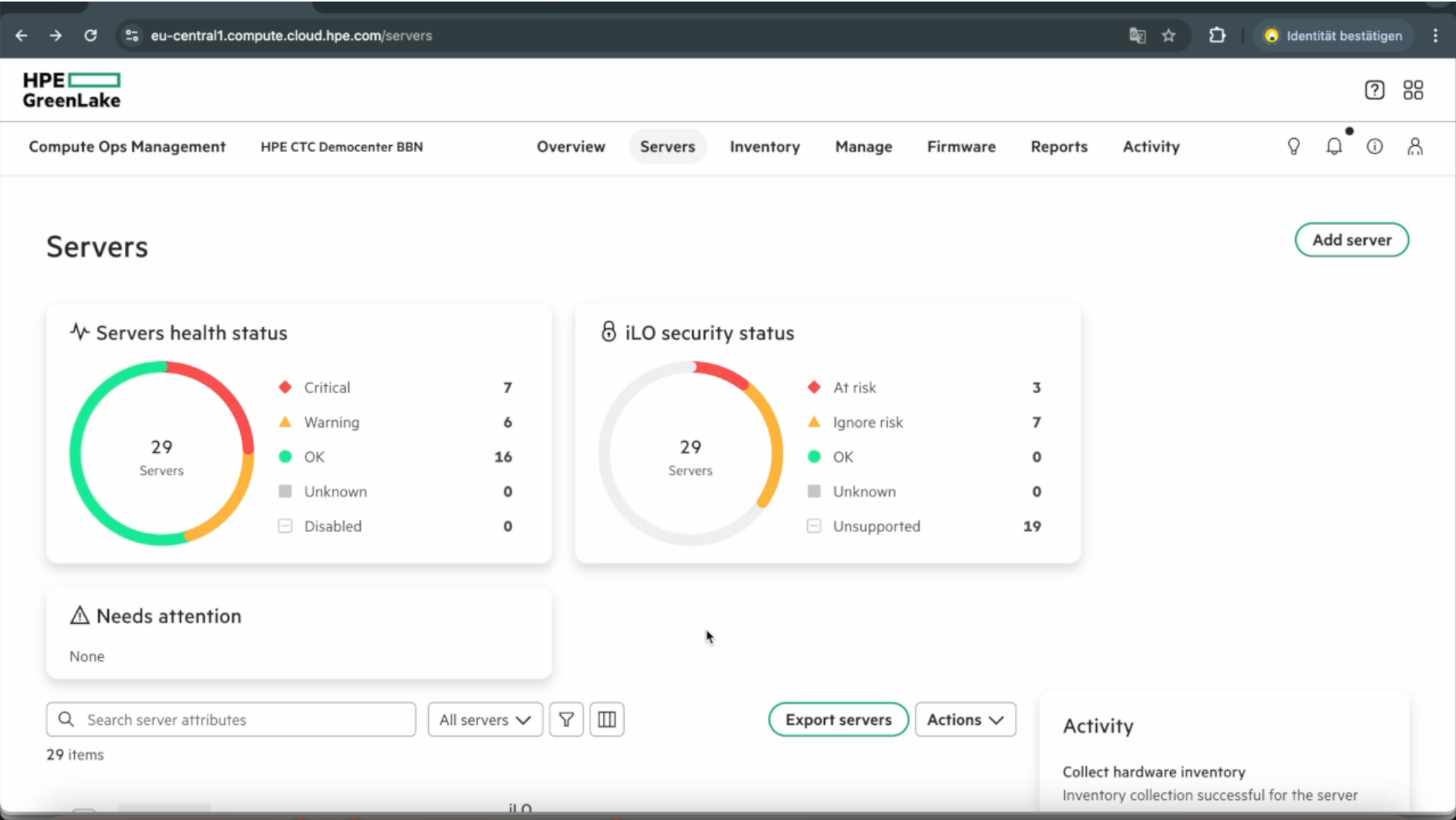
# Live Demo

## Enhanced Map

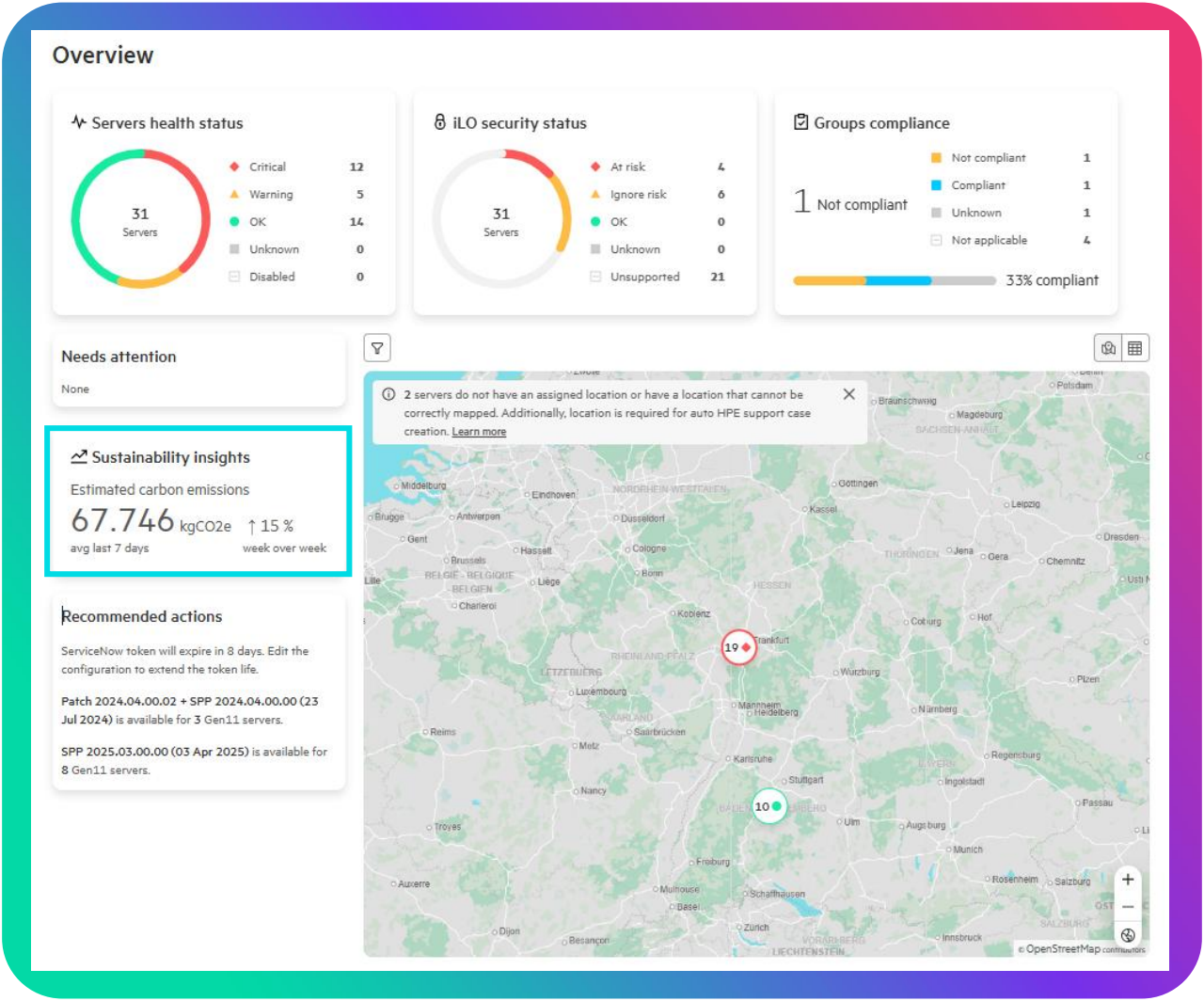


# Live Demo

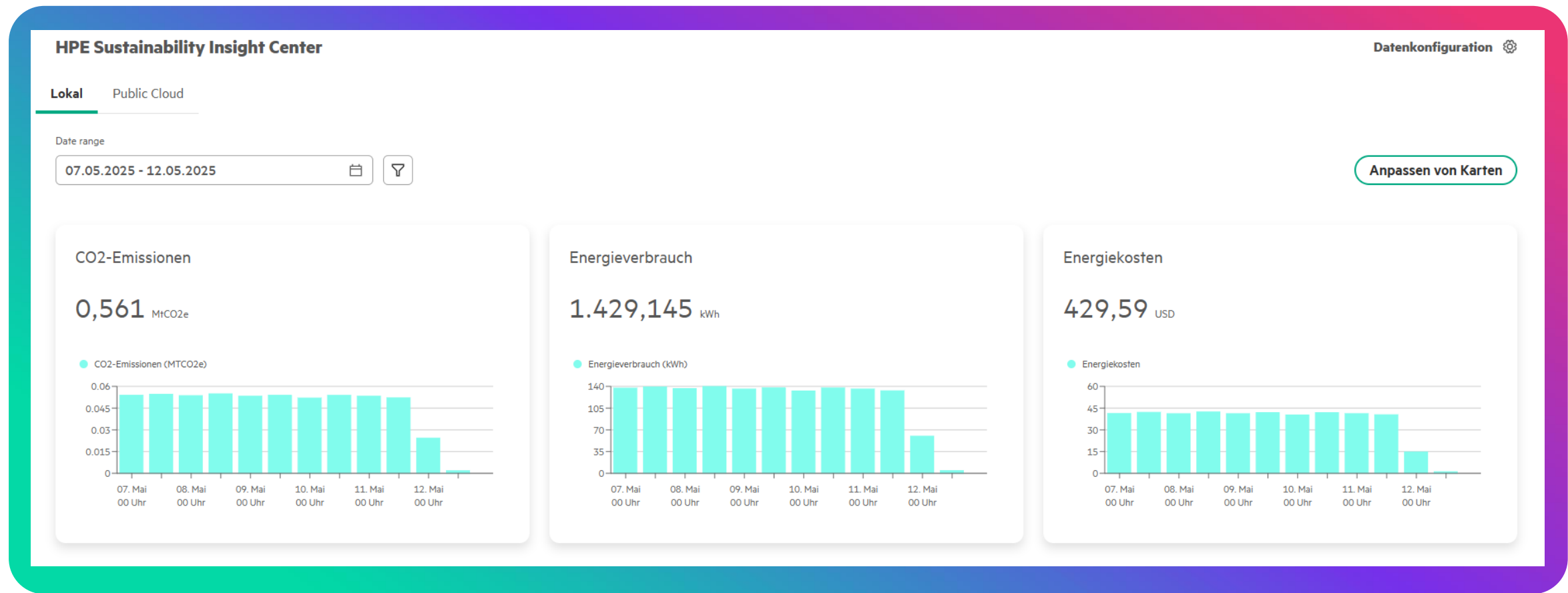
## COM Firmware Update



# Example: HPE COM Dashboard



# Example: HPE Sustainability Insight Center



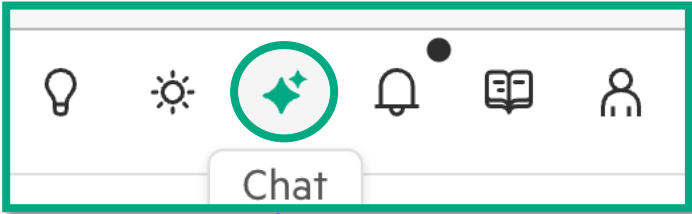
# HPE Compute Ops Management Updates

- Compute Copilot
- HPE OpsRamp Integration
- Simplified Onboarding
- Other updates
  - Integration
  - Firmware
  - Supportability



# Compute Copilot: Re-imagining Server Management

powered by Compute Copilot<sup>beta</sup>



NEW!



⋮

Compute Copilot<sup>beta</sup>

×

Hello, Ganesh!

You can ask me something about HPE Compute Ops Management documentation, server details or server inventory, such as:

How do I add a server to manage in Compute Ops Management?

How many DL380 servers do I have?

Show me server that have HP Ethernet 1Gb 4-port 331FLR Adapter in them

Provide feedback to help improve the experience.



Reimagine Documentation

What are the ports I need to open to connect my iLO to COM ?



- ◆ To connect your iLO to Compute Ops Management, you need to open port 443 on your firewall for outbound TCP connections. This is the only port required for all communications between your iLO and the COM cloud service.  
The outbound connections from your iLO will need to reach several endpoints, including:



Reimagine Dashboards

⋮

Compute Copilot<sup>beta</sup>

×

Can you tell me which servers show critical health status ?

◆ There are 3 servers with critical health status.

| Hostname / Serial number     | Health Status |
|------------------------------|---------------|
| <u>localhost.com.lab</u>     | CRITICAL      |
| <u>localhost.localdomain</u> | CRITICAL      |
| <u>localhost</u>             | CRITICAL      |

Provide feedback to help improve the experience.

# HPE Compute Ops Management Resources

## Seismic Briefcase

[HPE Core Compute Management Portfolio – Briefcase](#)

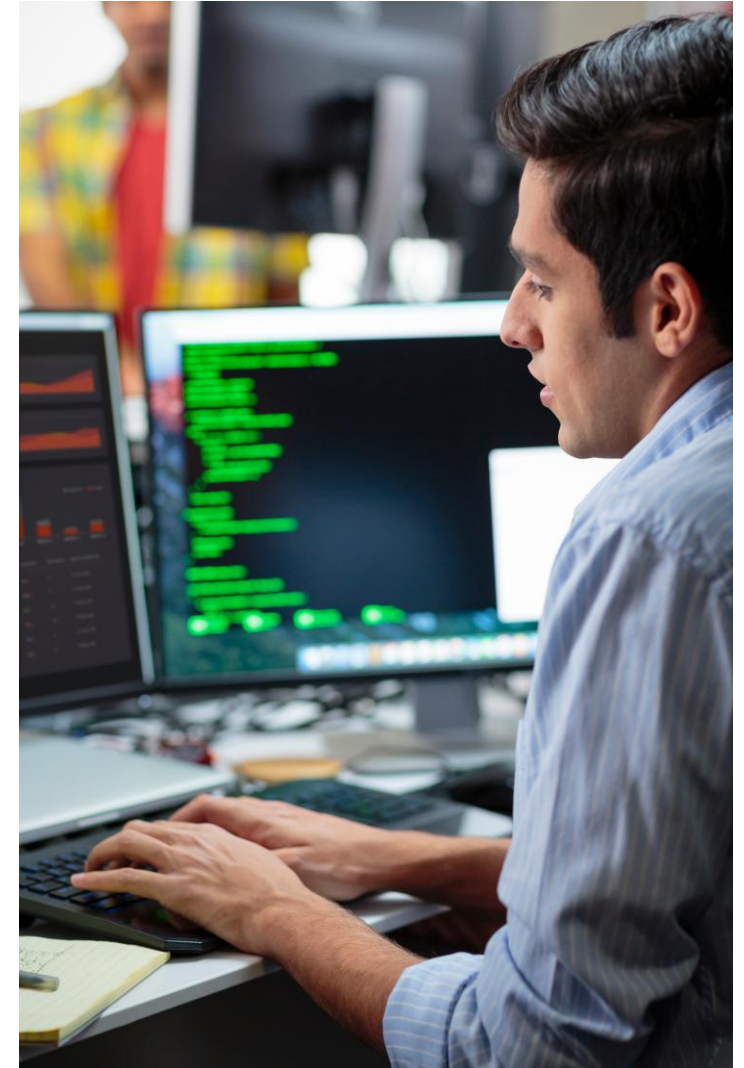
## Demos

[Compute Ops Management Live and Recorded Demos](#)

[Try the interactive demo](#)

## TCO Tools

[HPE Compute Ops Management ROI Estimator \(Forrester\)](#)





# iLO7 & Gen12 Security

# The Server Threat Landscape Still Exists



## Digital Attacks

- Distributed Denial of Services
- Brute force password attacks
- Malware infections
- Social engineering
- Insider attacks



## Physical Attacks

- Supply chain transitions
- Chassis intrusion
- Chip clipping
- At edge locations



## Future threats

- Quantum computer
- Third-party risks
- Artificial Intelligence

# Only HPE enables next-level security where your data lives

## Physical threats

Supply chain transitions

Chassis intrusion

Chip clipping

Unsecured edge locations

## Future threats

Quantum computing

Third-party risks

Artificial intelligence

Centralized, cloud experience to automate lifecycle tasks

New- Proactive security management

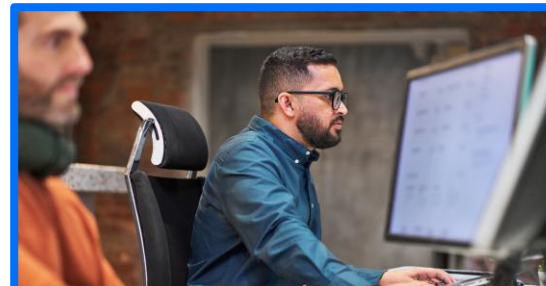
New- Industry-first top-tier security  
FIPS 140-3 Level 3 certification

New- Industry-first future-proof quantum threat protection

New- Tamper-resistant Secure Enclave

Advanced silicon security  
Immutable silicon-based boot

New- Trusted supply chain



Next level software security



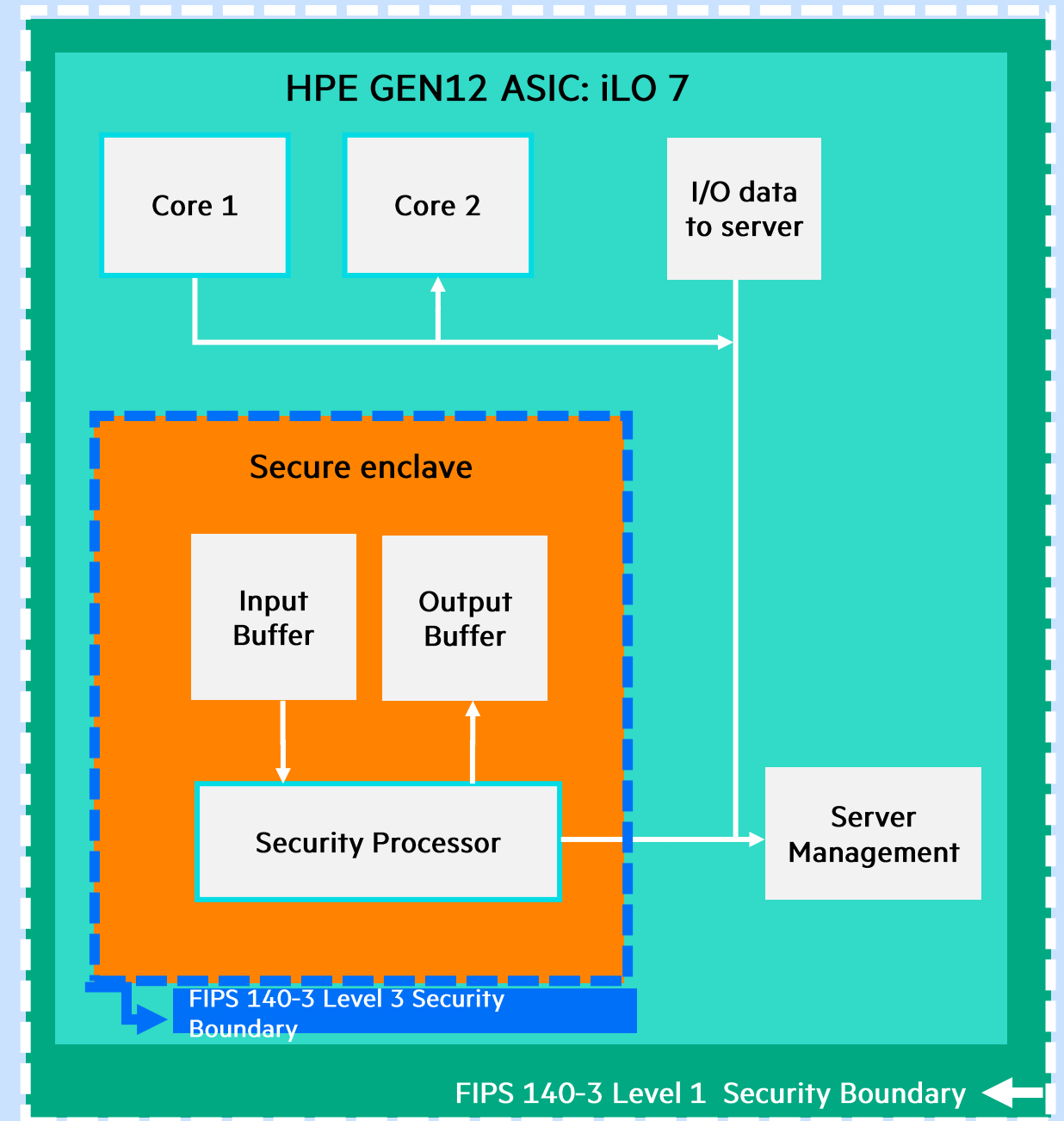
Next level hardware security



Security starts at the factory

# Deep Dive: Secure enclave

- Ensures a highly controlled, tamper-resistant environment (especially important at the edge).
- Eliminates vulnerabilities associated with external EEPROM storage.
- Autonomously performs Silicon Root of Trust and recovery.
- Realizes Advanced Key Management by providing a secure repository for keys, certificates and other server security assets. The security enclave is the trusted broker.
- Enables transfer of ownership without external hardware again by being the trusted broker.
- Provides TPM-like services to iLO.



# Saving admins time with a new workflow-oriented design of Web UI with iLO7

New Search Bar – allows for instant access to management tasks, logs, and key server info

Updated menu bar Streamlined with 6 key function areas

New Quick Glance Drop-down menu with server info, health and security status

The screenshot displays the HPE iLO 7 Web UI dashboard. At the top, there is a search bar containing the text 'certif' and a 'Quick Glance' dropdown menu. The dashboard is divided into several sections: 'Host Overview' with status indicators for Server Power (On), UID Indicator (Off), and AMS (Not Available); 'Host Health' with status indicators for Health LED (OK), Aggregated Hardware Status (OK), Fans (OK), Fan Redundancy (Redundant), Temperatures (OK), Power Supplies (OK), Power Supply Redundancy (Redundant), Storage (OK), Network (Unknown), Processors (OK), and Memory (OK); 'HPE Compute Ops Management' with a 'Not Enabled' status; 'General Information' with details like Server Name (host is unnamed), System ROM (U71 v1.20), Server Serial Number (TWA25340A5), Product ID (P75728-B21), and UUID (37353750-3832-5754-4132-353334304135); 'iLO Overview' with status indicators for iLO Health (Warning), iLO Security (Risk), Remote Support (Not Registered), iLO Event Log (Warning), Integrated Management Log (Warning), and Security Log (Critical); and 'Virtual Media & Remote Console' with status indicators for Virtual Media (Not Connected) and Remote Console (Enabled). A sidebar on the left contains a menu bar with 6 key function areas: Dashboard, Firmware, Host, Security, HPE Apps, and iLO Settings.

The Quick Glance drop-down menu displays server information and status indicators. It includes fields for Server Name (host is unnamed), iLO Hostname (ILOTTWA25340A5), and iLO Date/Time (Jan 27, 2025, 5:44:39 PM UTC). On the right, there are status indicators for Power (On), UID (Off), Health LED (OK), iLO Health (Warning), and Security (Risk).

The iLO Repository section shows 1 component with 8.4% capacity in use. The Security Log section shows 34 event(s) present, with 4 Critical events.

New Modern card layout on each menu screen provides additional details at a glance, reducing clicks



# HPE Tools & Resources

- Product Bulletin
- OneConfig Advanced – OCA
- PowerAdvisor
- Resource Library
- Demonstration Portal
- HPE Support Center



# Resources

## Support / Resources

- [HPE Resource Library](#)
- [HPE QuickSpecs](#)
  - [Download HPE Product Bulletin](#)
- [HPE Support Center](#)
  - [Browse All Products](#)
- [HPE Community](#)

## Training / Education

- [HPE Knowledge Club](#)

## Demo

- [HPE Demonstration Portal](#)

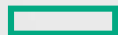
## Tools

- [HPE ProLiant Compute SSD Selector Tool](#)
- [HPE Partsurfer](#)
- [HPE Power Advisor](#)
- [HPE One Config Simple \(OCS\)](#)
- [HPE One Config Advanced \(OCA\)](#)





# Q & A





# Thank You

Dirk Albrecht, Senior Technology Architect Compute

