

SUPERDOME FLEX / FLEX 280 – DEPLOYMENT RACK OPTIONS

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BUILDING BLOCKS AND REFERENCE CONFIGURATIONS



HPE SUPERDOME FLEX 280 SERVER

Product Overview



Scalability and performance

- 3rd generation Intel Xeon Scalable processors, gold or platinum, up to 28 cores
- Modular scale-up 5U building block, 2 or 4 sockets
- “Glueless” modular architecture with 6 UPI links per processor for faster data rates*
- Scale from 2-8 sockets in 2-socket increments, with 16-224 cores
- Designed to provide 64GB-24TB of shared memory; support for HPE Persistent Memory with next-gen Intel® Optane™ persistent memory

I/O flexibility

- Balanced I/O for extreme performance
 - Up to 32 PCIe 3.0 cards with choice of 16-slot (all low profile) or 12-slot (FH/FW)
 - 16-slot: each CPU has support for two x8 and two x16 PCIe cards
 - 12-slot: each CPU has support for one x16 PCIe slot and one 300w GPU
- Up to 20 SAS/SATA/NVMe drives with RAID & HW encryption; Optional DVD

Extreme Superdome RAS

- Advanced memory resiliency, Firmware First, analysis engine, self-healing
- HPE Serviceguard for Linux
- Enhanced security with Silicon Root of Trust

Simplified User Experience

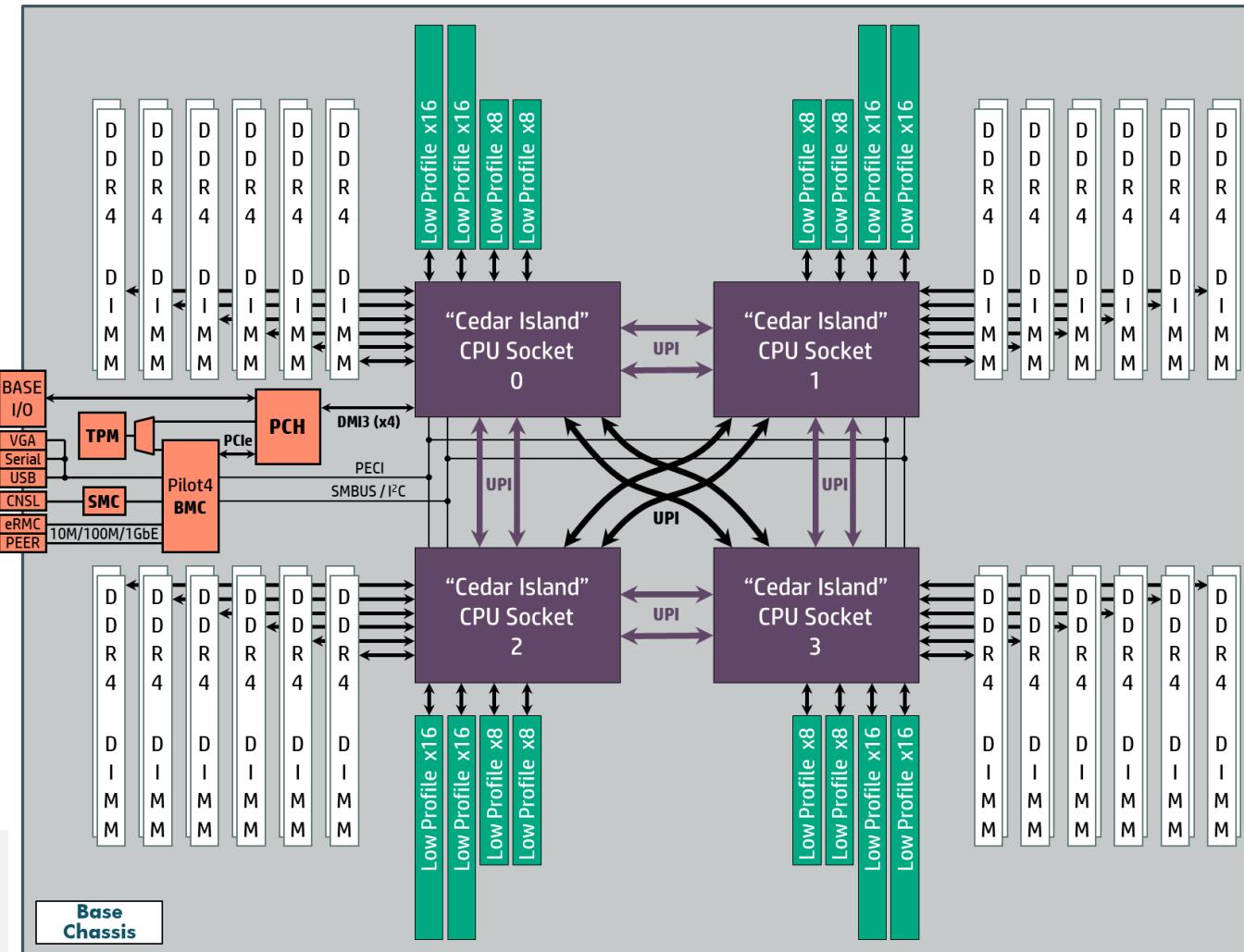
- HPE Infosight AI for optimum server performance
- Simplified management GUI
- HPE OneView, OpenStack, Redfish API
- Optional HPE GreenLake consumption model
- HPE Datacenter Care, HPE Proactive Care

HPE SUPERDOME FLEX 280 SERVER ARCHITECTURE

“Glueless” 4S/8S modular server designed for mission-critical workloads

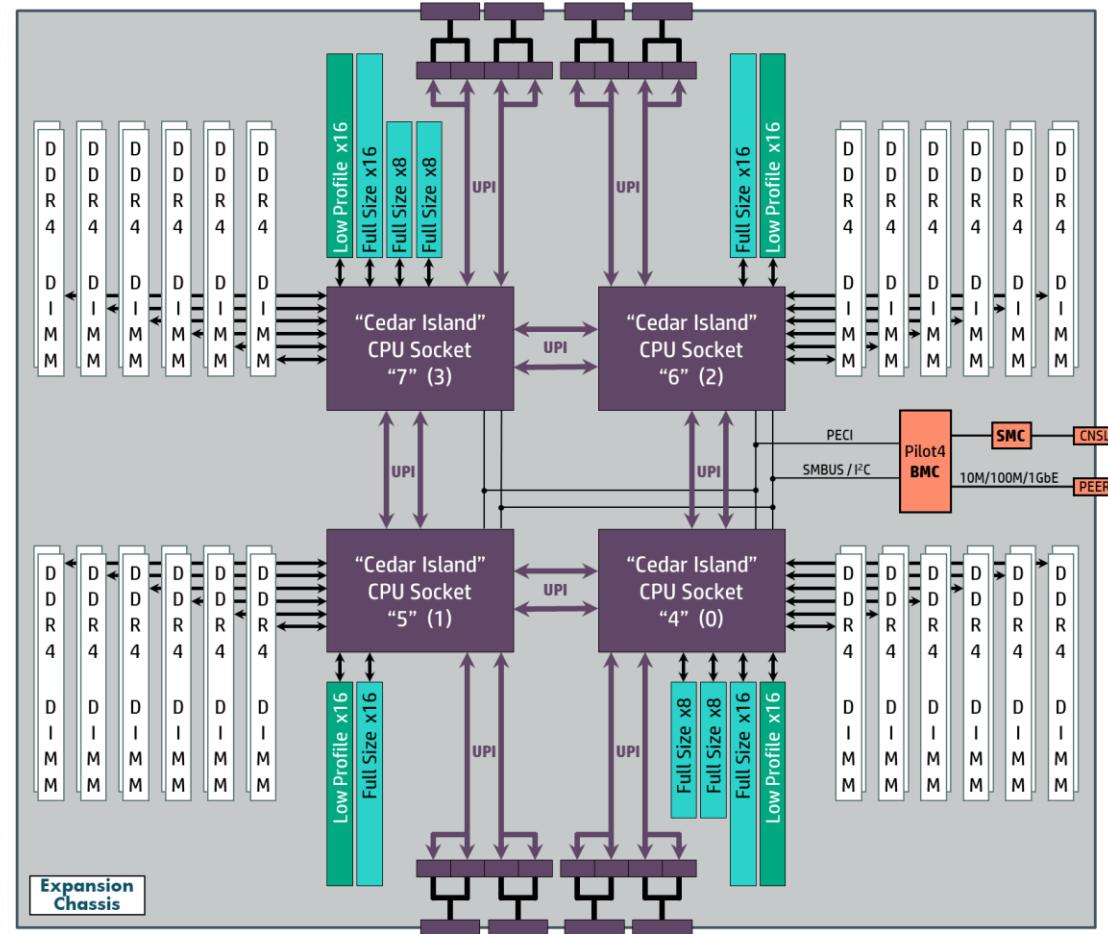
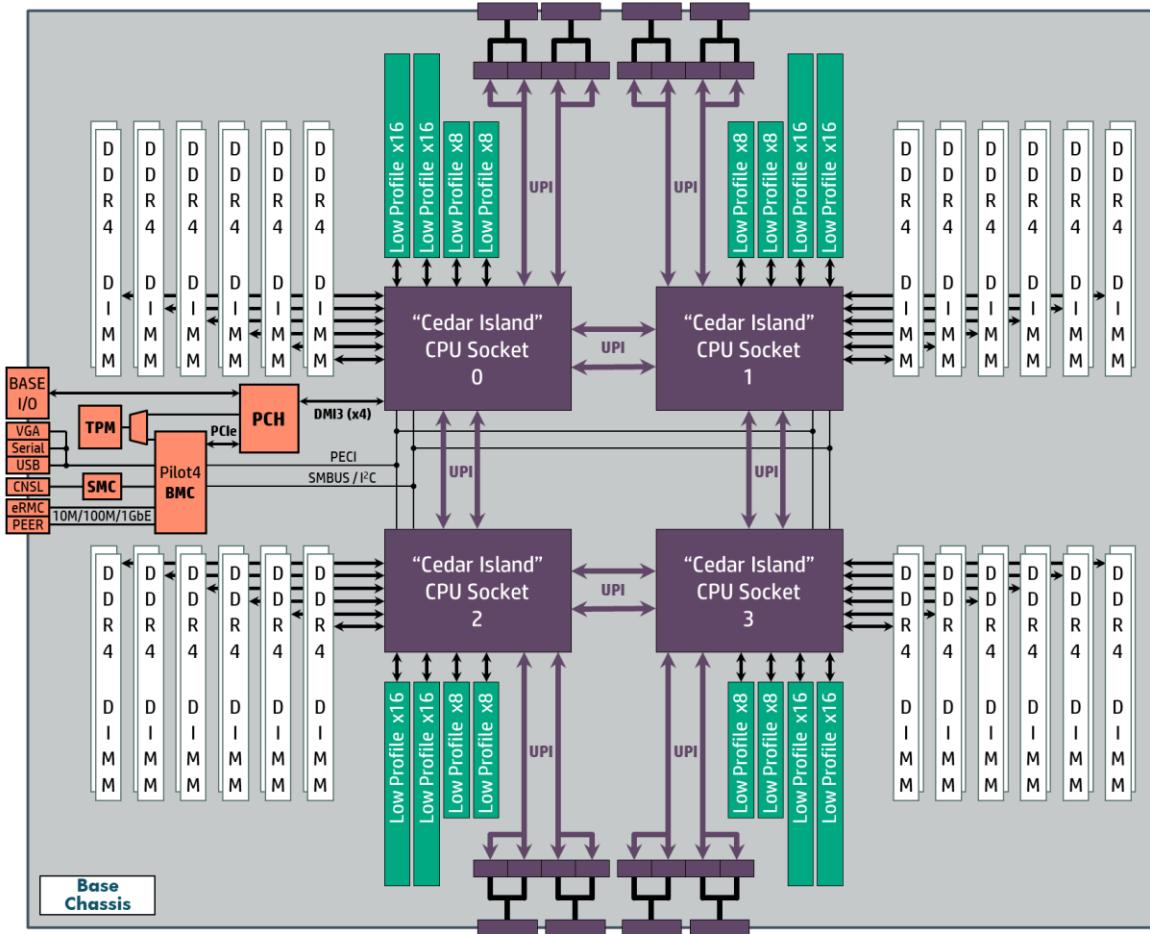
- Leveraged mechanical design with 5U 4-socket building block scales from 2S to 8S using only “glueless” UPI link fabric, based on the [“Cedar Island” processor family from Intel](#)
- The processor, sometimes called the [Cooper Lake 6 UPI](#) or [CPX6](#) provides 6 UPI links per processor at 10.4 GT/s data rates (**doubles the “glueless” fabric interconnect capacity**)
- One chassis supports 2S or 4S (CPU socket population option)
- Internal and external cabling routes UPI links to provide optimal interconnections between 4-8 processors at full data rates
 - 4S system (shown) uses 8 internal half-width UPI cables for CPU cross links
 - 8S option uses 8 internal “Y” bulkhead cables and 8 external full-width UPI cables in “twisted hypercube” fabric for maximum performance
- 6 independent memory channels provide slots for up to 12 DIMMs or 6 DIMM and 6 persistent memory modules
- 16-slot (shown) and 12-slot I/O options provide up to 16 x16 slots plus 16 x8 slots or support for full-height and double width GPUs
- Up to 10 2.5” form factor drives provide boot and limited data storage
- [New server management design includes a TPM v2.0 and even provides Silicor Root of Trust III](#)

Compute	Memory	I/O
4 CPUs	48 DIMMs	8 (x8) slots
112 cores	6 TB capacity (128 GB DIMMs)	8 (x16) slots
224 threads		10 2.5” drives



HPE SUPERDOME FLEX 280 SERVER ARCHITECTURE

Glueless 8S server configuration

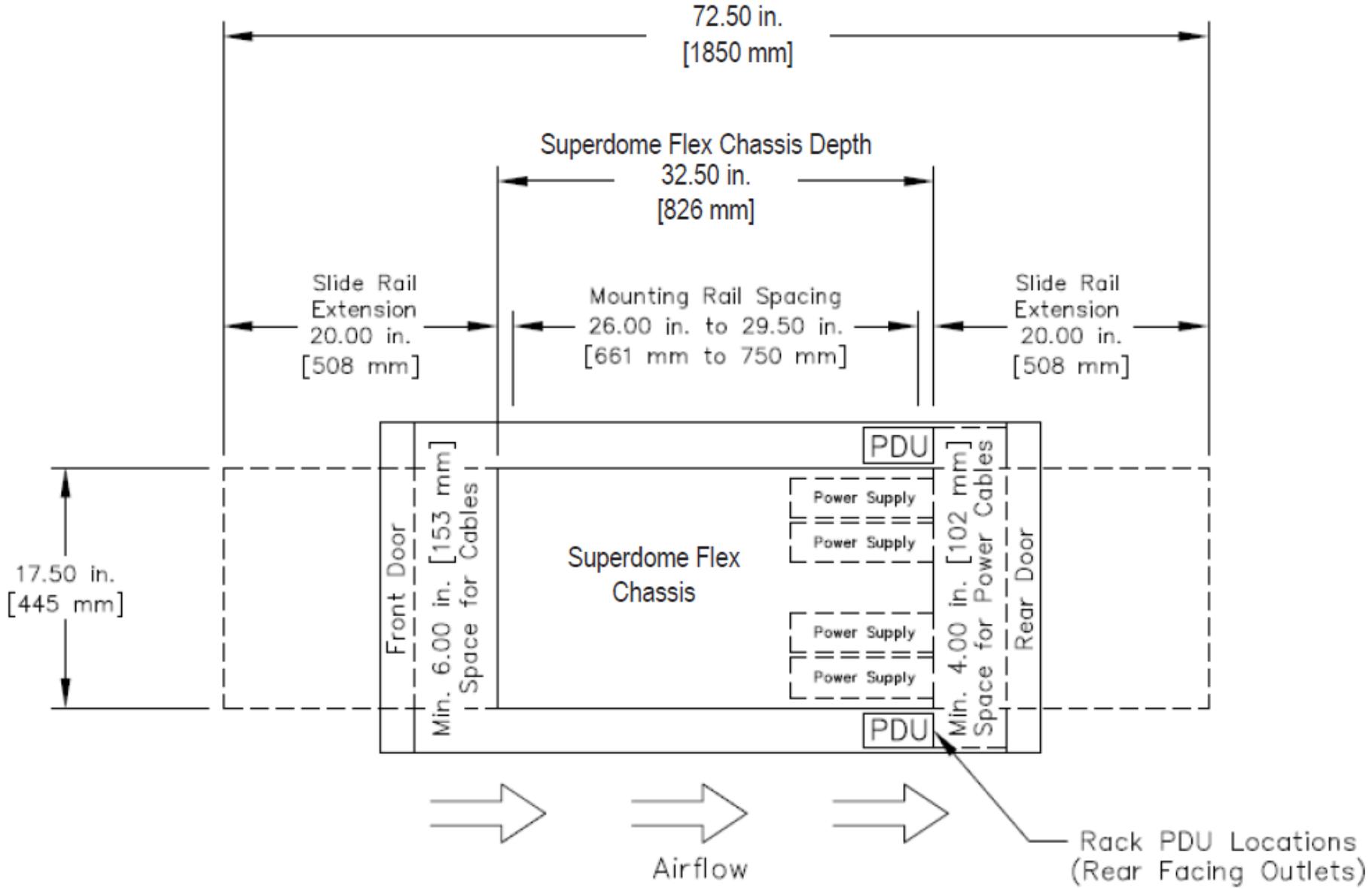


All Racks – SD Flex /
280 Requirements –

Front EIA Rails
Rear EIA Rails

Review recessed
requirements for the
FLEXgrid / UPI cables





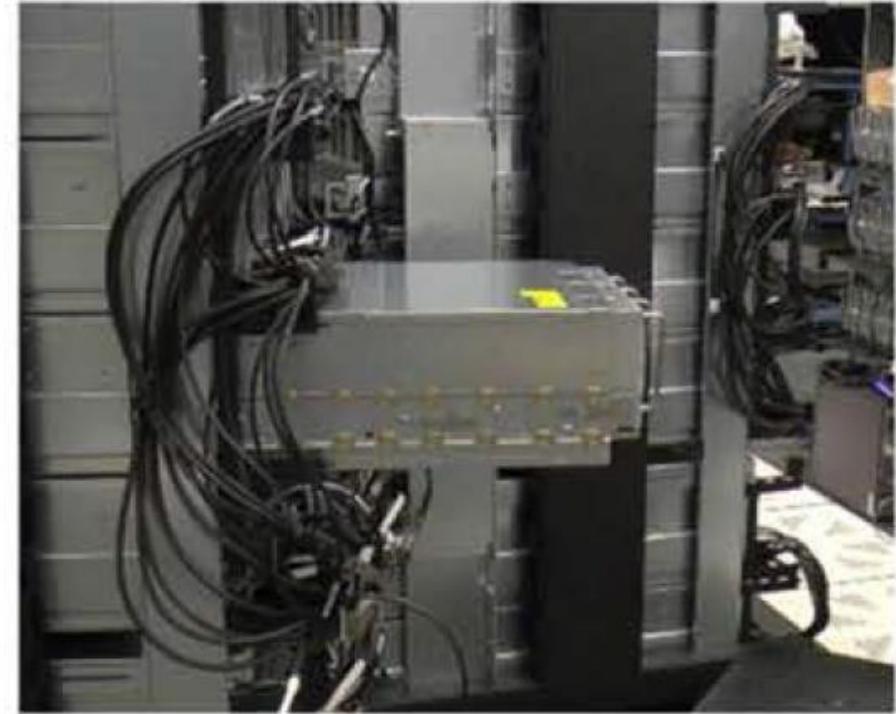
HOW MUCH ROOM IS NEEDED IN THE FRONT FOR CABLE DEPLOYMENT? 6.5 INCHES



ACCESSING COMPONENTS - CHASSIS NEEDS TO SLIDE - BOTH DIRECTIONS



Chassis slid backward



Chassis slid forward

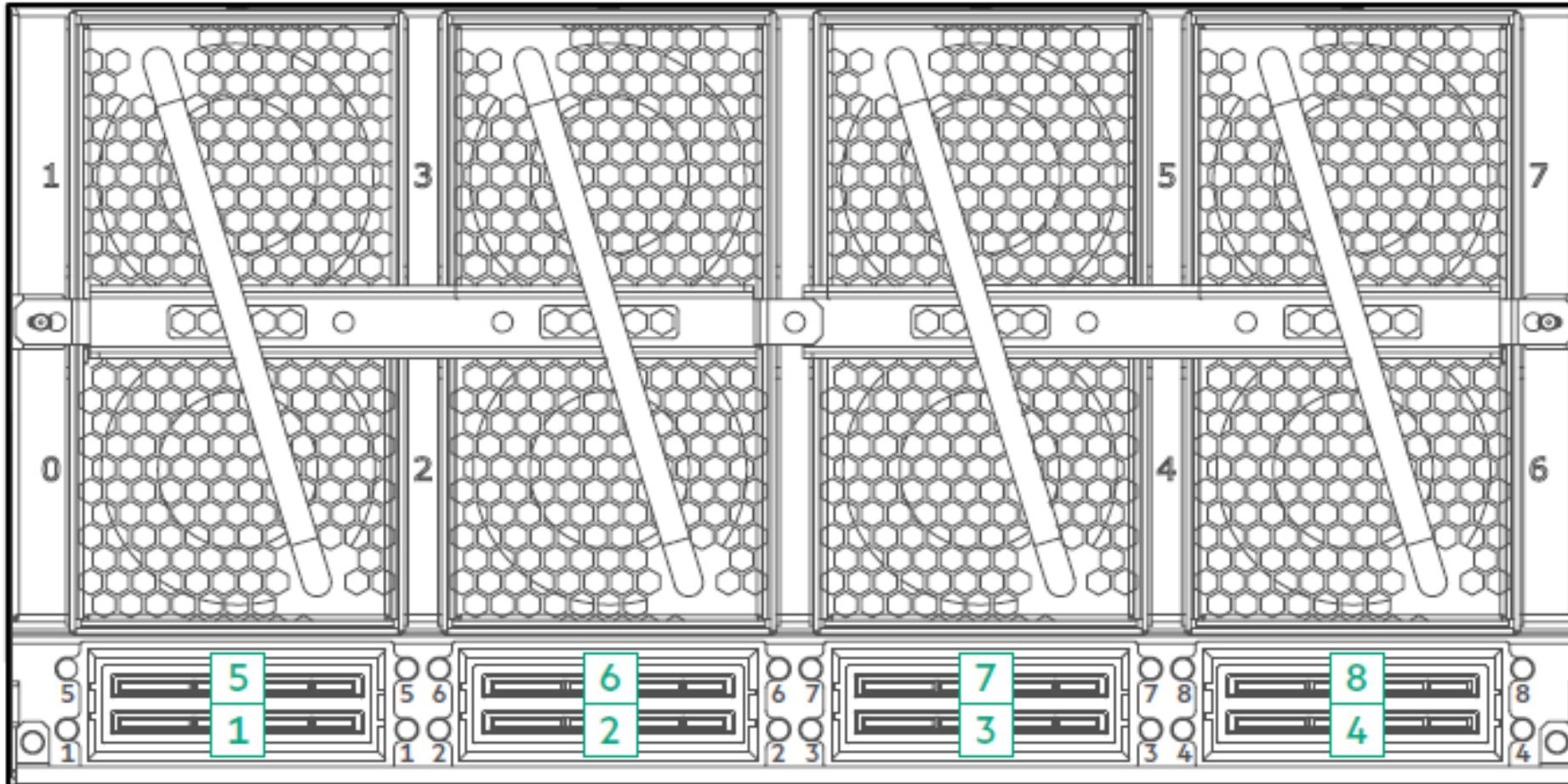
To provide proper clearance for the chassis to slide forward and backward in the rack, you must:

Disconnect the Superdome Flex Grid cables from the front of the chassis

Remove the power cables and any I/O cables from the rear of the chassis

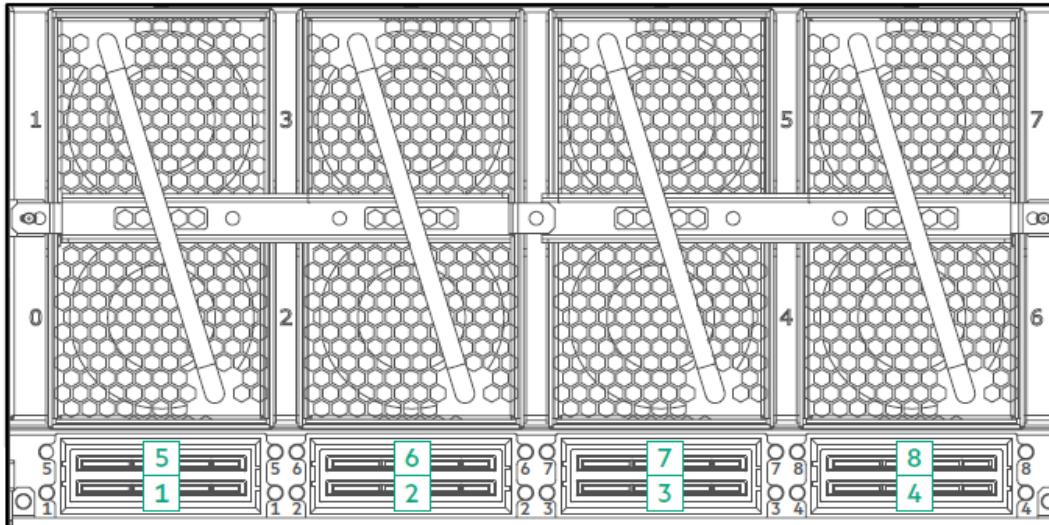
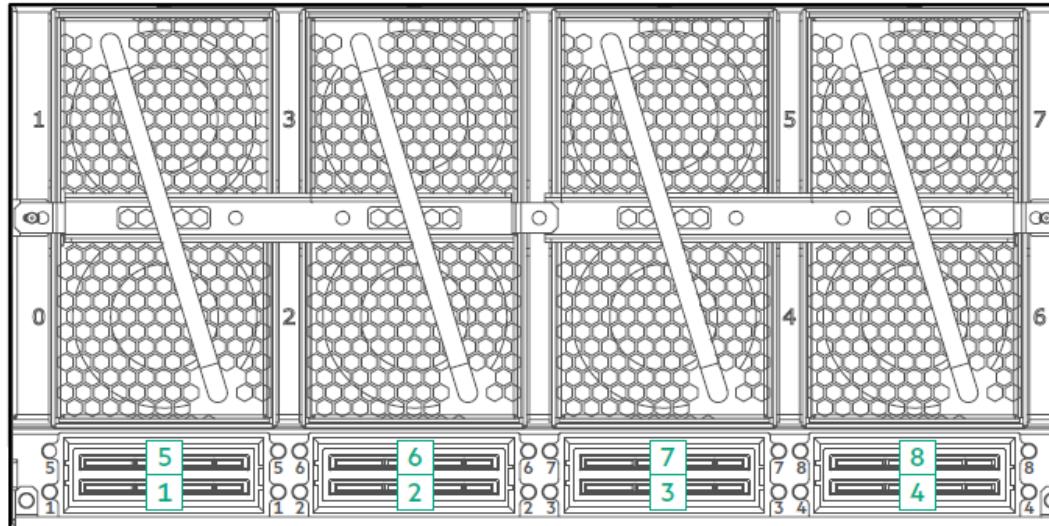
SD FLEX 280 UPI CABLES – 4 SOCKET FACTORY SHIP

No UPI Cables or Bulkhead connectors – shipped or installed

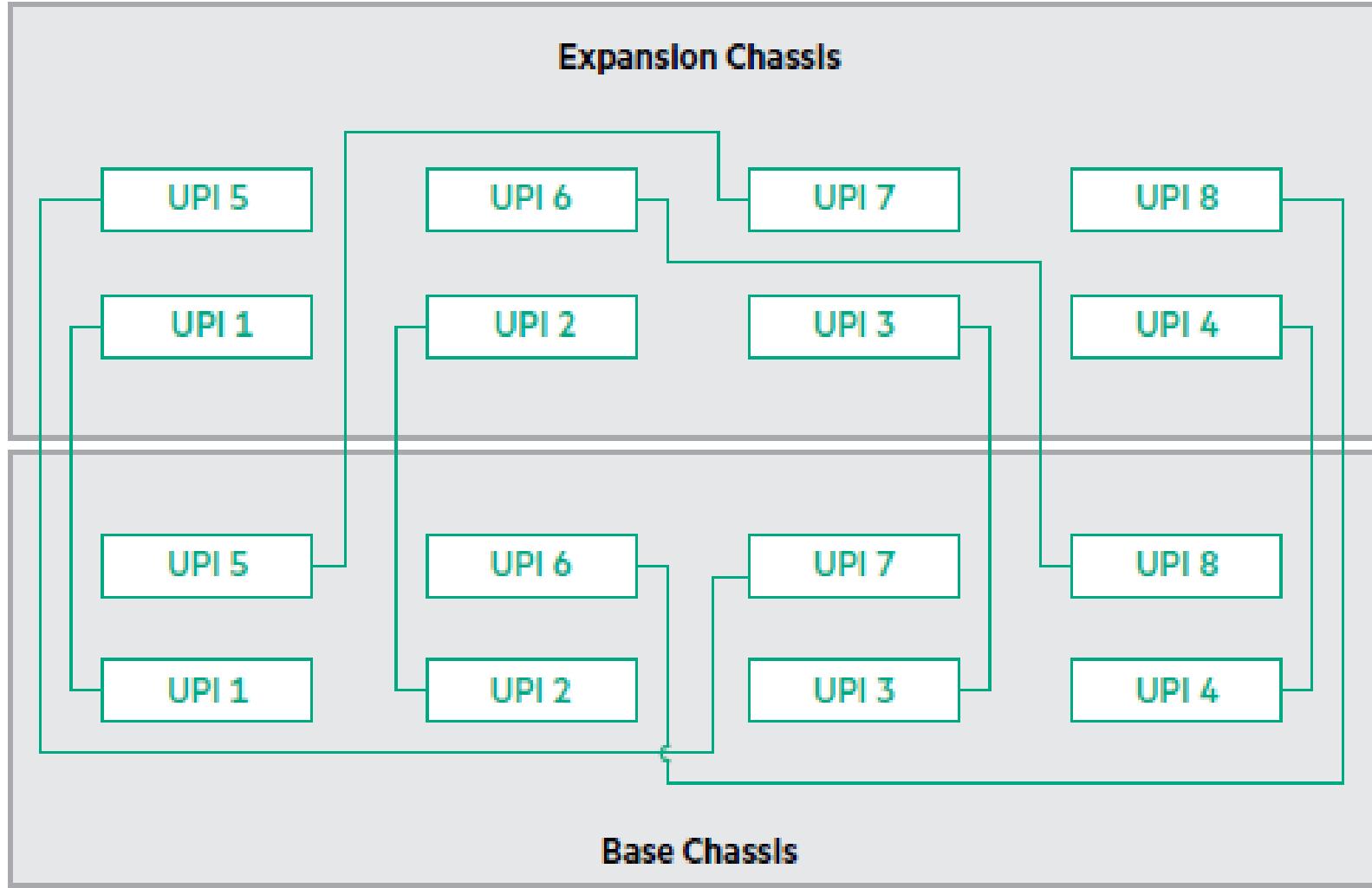


SD FLEX 280 UPI CABLES

16 UPI Cables Connections
8 UPI Cables



SD FLEX 280 UPI CABLES



SD FLEX 280 UPI CABLES

Base Chassis	CPU#	Ports	Expansion Chassis	CPU#	Ports
Base Chassis	CPU 1	UPI 1	Expansion Chassis	CPU 1	UPI 1
Base Chassis	CPU 1	UPI 2	Expansion Chassis	CPU 1	UPI 2
Base Chassis	CPU 3	UPI 3	Expansion Chassis	CPU 3	UPI 3
Base Chassis	CPU 3	UPI 4	Expansion Chassis	CPU 3	UPI 4
Base Chassis	CPU 0	UPI 5	Expansion Chassis	CPU 2	UPI 7
Base Chassis	CPU 0	UPI 6	Expansion Chassis	CPU 2	UPI 8
Base Chassis	CPU 2	UPI 7	Expansion Chassis	CPU 0	UPI 5
Base Chassis	CPU 2	UPI 8	Expansion Chassis	CPU 0	UPI 6

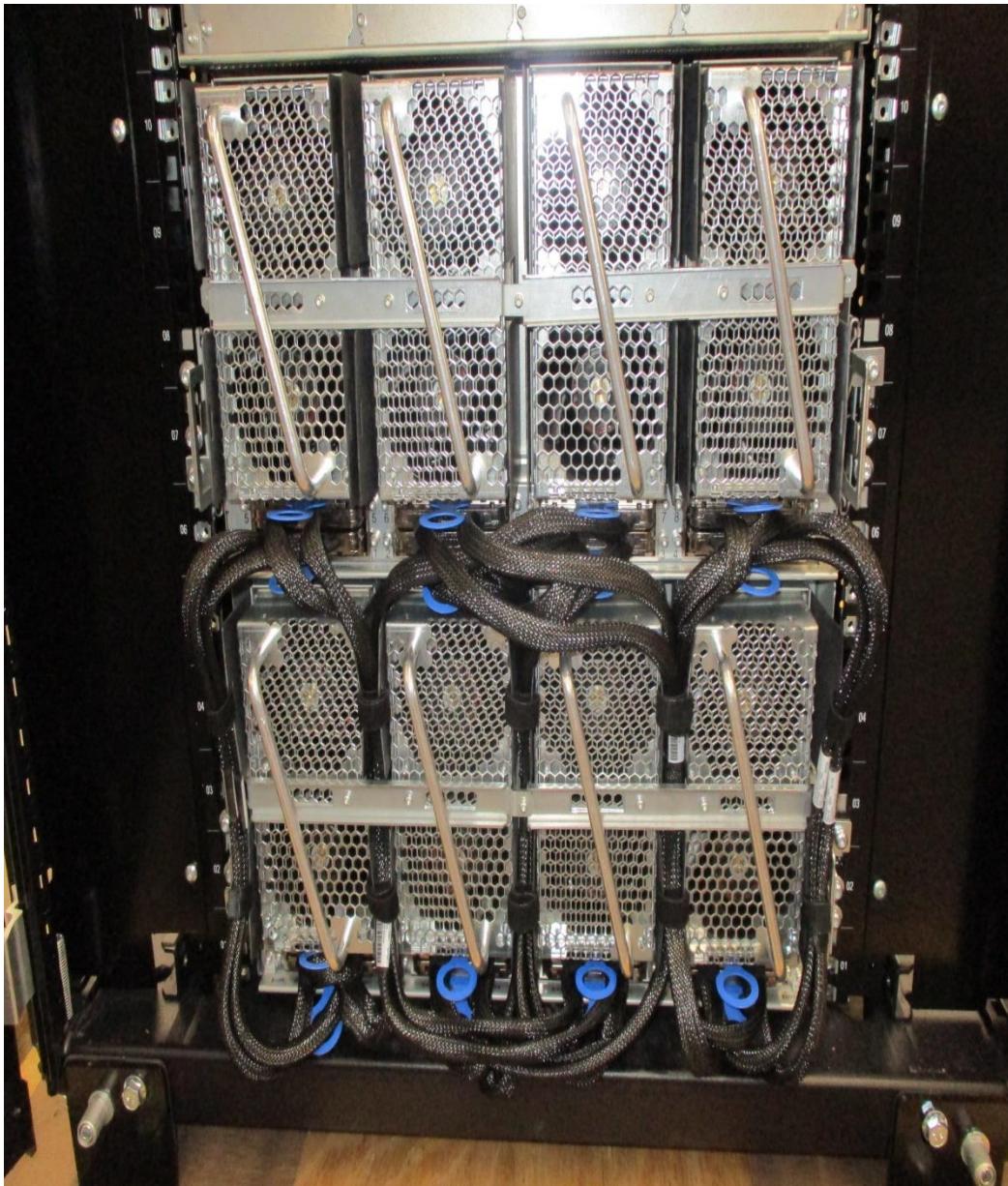


SD FLEX 280 UPI CABLES

Find the UPI cables kitted with the build and install short cables as per the reference diagram below. Note these will go from the same port to the same port of each chassis. 1 to 1, 2 to 2, 3 to 3, and 4 to 4.

Install long UPI cables as per the reference diagram above. Note these will go from the same port to the same port of each chassis. 5 to 7, 6 to 8, 7 to 5, and 8 to 6 between each chassis, see Cabling diagram above.

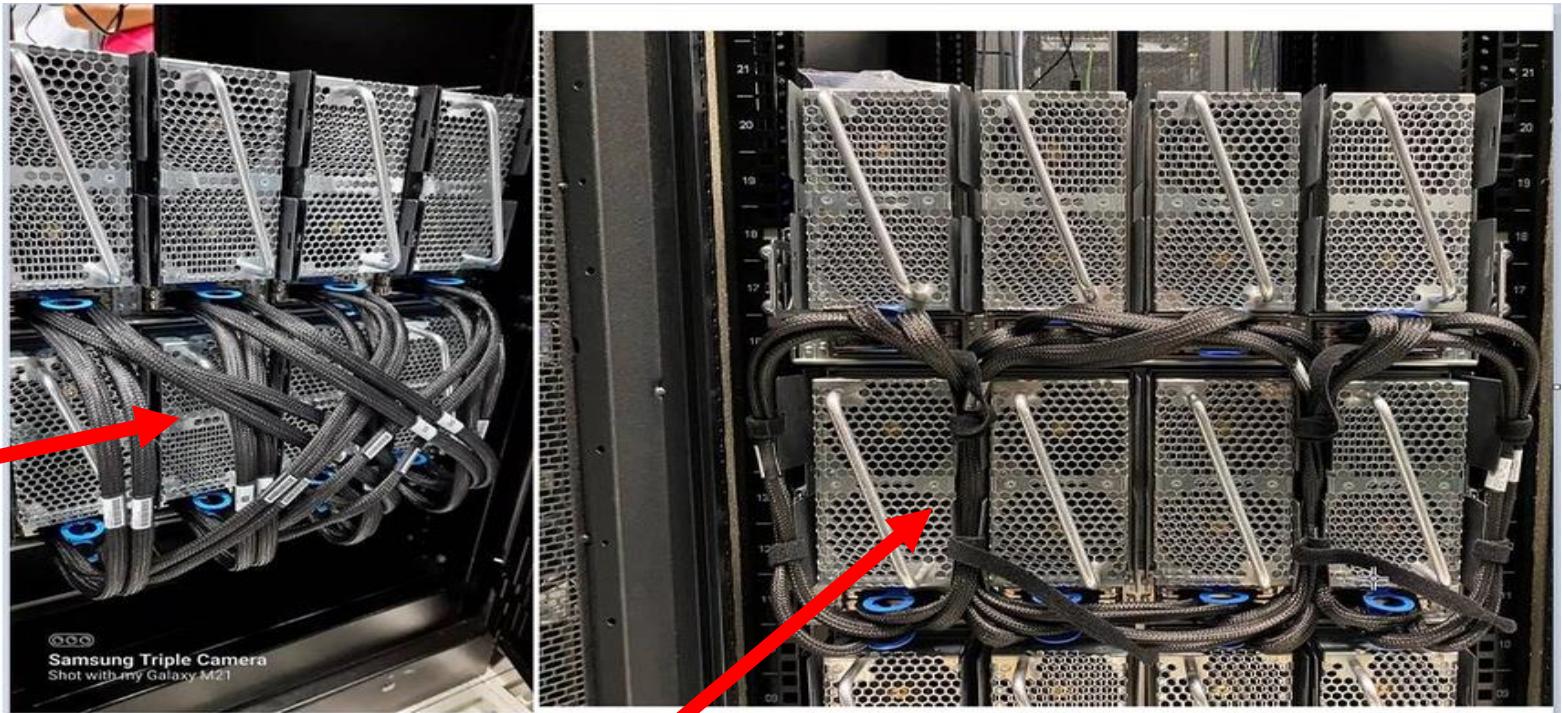
See photo for proper UPI cable routing between each fan assemblies.



WRONG VS RIGHT UPI CABLING --

Do not install UPI cabling – on the left
Blocks the fans and airflow

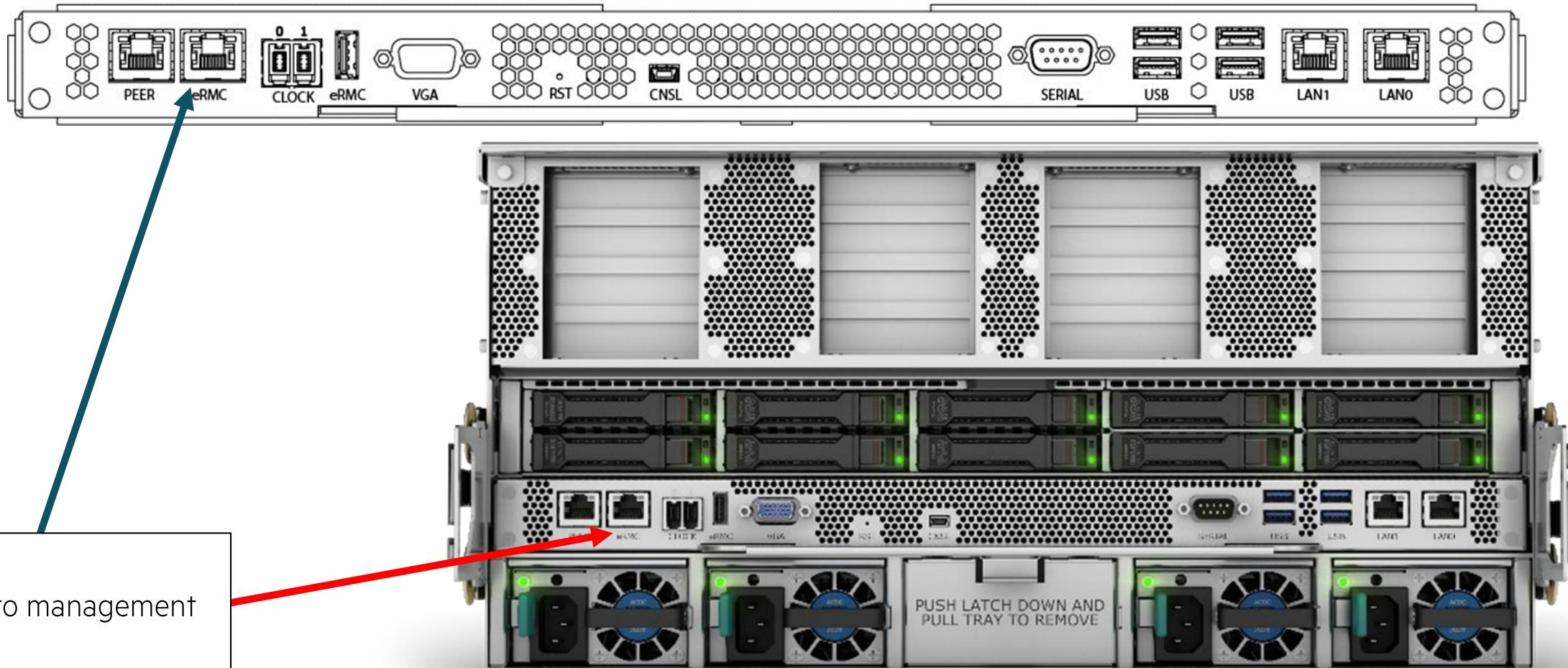
No Shocker, here – airflow BLOCKED
guess what happens –
yep you guessed it
CPUs over heat!!!



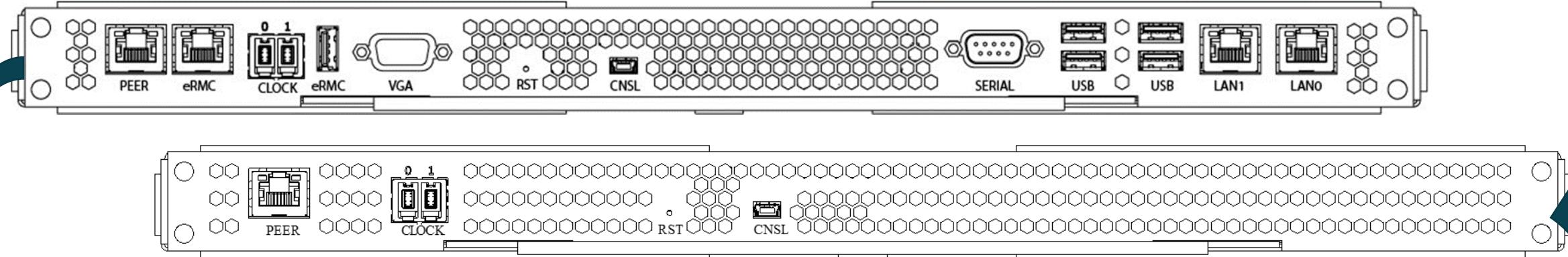
Correctly installed

Does NOT Block airflow

SD FLEX 280 – ERMC



SD FLEX 280 – ERMC – BASE IO – EXPANSION TRAY



Base Chassis Base I/O

- One RJ45 GigE management port (PEER)
- One Reset switch
- One RJ45 GigE eRMC port
- One BMC console (mini USB-B)
- Two RJ.5 Clock ports
- One serial port (9-pin Dsub)
- One eRMC USB port
- Four external USB 3.0 ports
- One VGA port (15-pin Dsub)
- Two 1GigE ports (LAN0 and LAN1)

Expansion Chassis BMC Tray

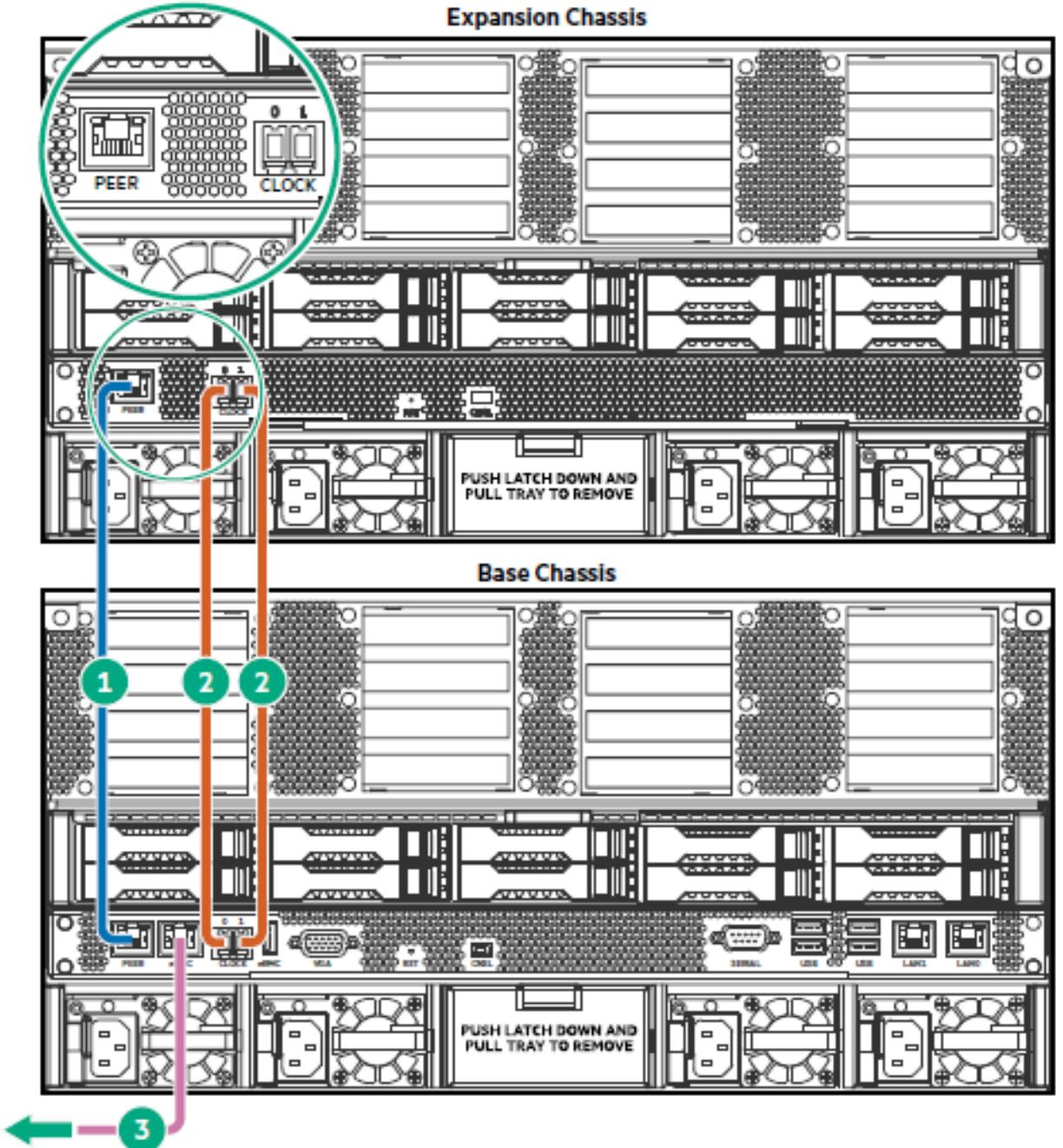
- One RJ45 RMC management port (PEER)
- One RST Port
- Two RJ.5 Clock ports
- One SMC/BMC console (mini USB-B)

SD FLEX 280 – eRMC

- ① Peer ports (RJ45 Cat6 cable)
- ② Clock ports (RJ.5 cable)
- ③ eRMC network port (RJ45 Cat6 cable) – connects to management network

Prerequisites

- 2 RJ45 Cat6 cables
- 2 RJ.5 shielded IM cables



SD FLEX 280 – ERMC

HOW TO CABLE/CONNECT THE RMC

- SDF280 RMC network setup via USB
 - Accessible via connection on SDF280 Base Chassis
 - Connect a Micro USB cable from CNSL to your laptop
 - Connect a management LAN connection to eRMC RJ45 port
- Login using the credentials on the information pull-tab
 - The pull-tab is located in the centre of the Base Chassis
- Run the “set network” command to allocate an IP Address
 - show network
 - set network addressing=METHOD gateway=GATEWAY_IP
hostname=HOSTNAME ipaddress=HOST_IP netmask=SUBNETMASK
- Now access the RMC GUI
 - <https://HOSTNAME/>
- Check and modify network settings in the RMC GUI

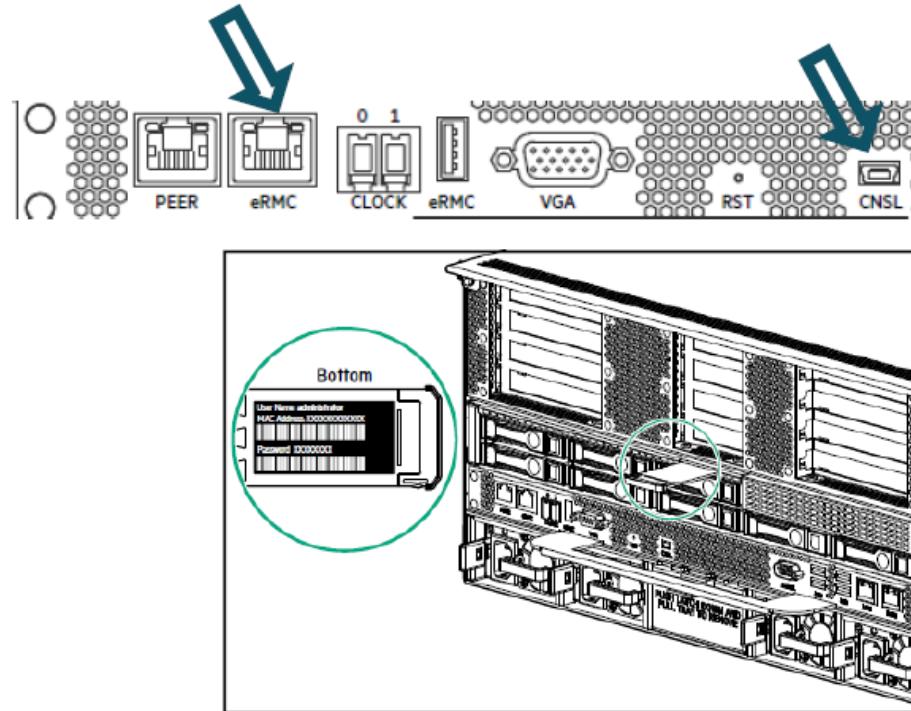
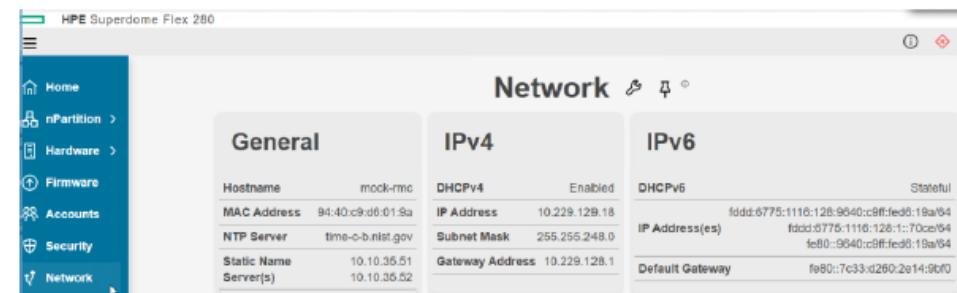


Figure 7: Information pull tab bottom: account, password, MAC address



RMC PORTS

RMC Ports	
Ingress RMC ports that are needed:	<p>SSH: 22</p> <p>HTTPS: 443 for Redfish and HTML5 web console, Remote Support (RS)</p> <p>HTTPS: 1443 for JViewer use (if desired)</p> <p>IPMI over LAN: 623</p>
Egress RMC network ports:	<p>NTP: 123</p> <p>DNS: 53</p> <p>LDAP: 389 or 636, or whatever they configure their LDAP server to listen on. Only if customer uses LDAP for RMC authentication.</p> <p>HTTPS: 443. This is needed to support FW update over HTTPS, OneView control, Redfish events, Server->RS connection</p> <p>SH: 22. Needed for FW update over scp/sftp</p> <p>SNMP: 161, 162, or whatever they configure their SNMP trap receiver to listen on. Only if they want to use SNMP</p> <p>Remote syslog: 514, or whatever they configure their Rsyslog server to listen on. This feature is not yet available until our upcoming 2.4 release comes out.</p>



OPEN MANAGEMENT FRAMEWORK SIMPLIFIES HYBRID IT ENVIRONMENTS

Choice and flexibility to manage your HPE Superdome Flex deployment

HPE management ecosystem

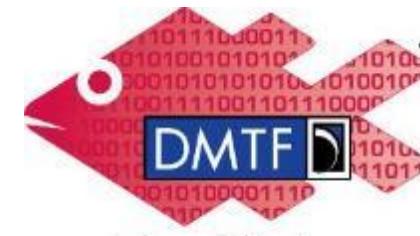
HPE OneView

HPE Insight
Remote Support

HPE SUM

HPE
POINTNEXT
SERVICES

Open source management



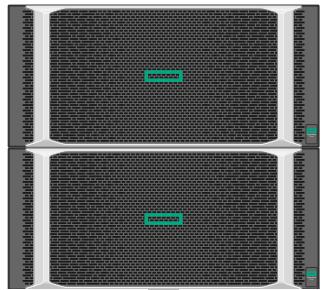
Redfish



openstack

To learn more about HPE Superdome Flex manageability, click [here](#)

SIMPLIFIED MANAGEMENT EXPERIENCE ON HPE SUPERDOME FLEX

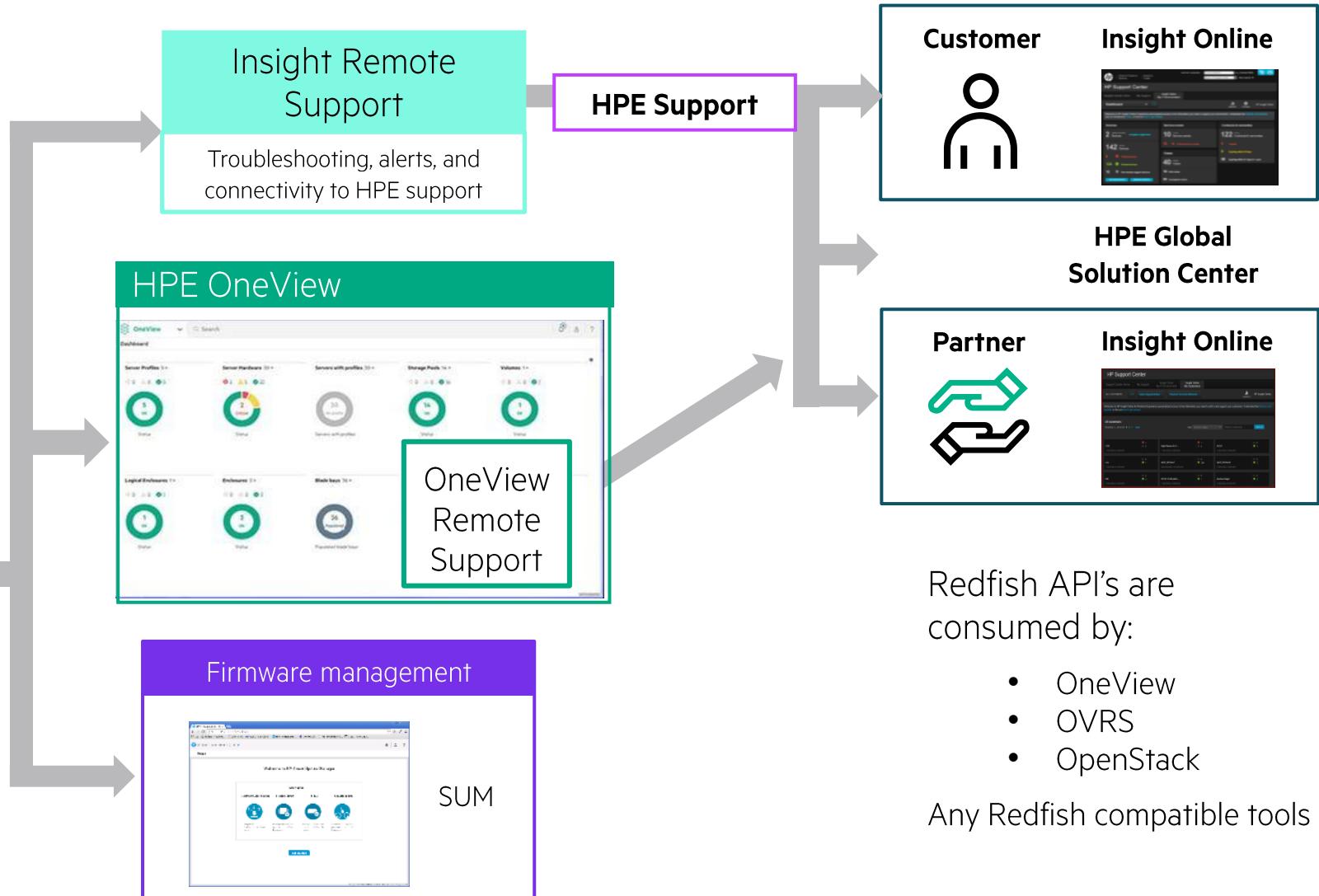


RMC

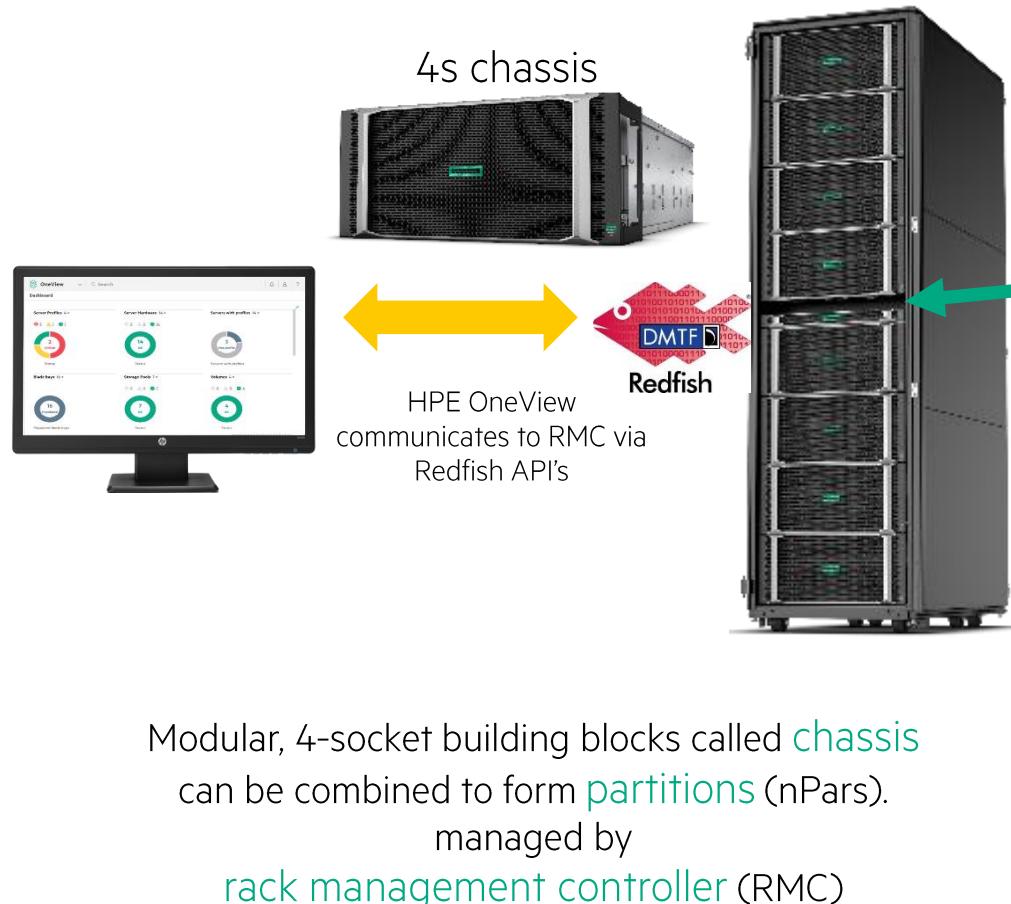


HPE Superdome Flex 280 Management

All remote access functionality +
server control + Analysis Engine for self-healing
and troubleshooting.



HPE ONEVIEW SUPPORT FOR HPE SUPERDOME FLEX



Rack manager resource

- Superdome Flex is monitored as rack manager (RM)
- RM supports Redfish multi-node devices

Inventory support—rack manager

- Individual chassis
- Rack management controller (**RMC**)
- HPE nPar (partitions)

Health Monitoring

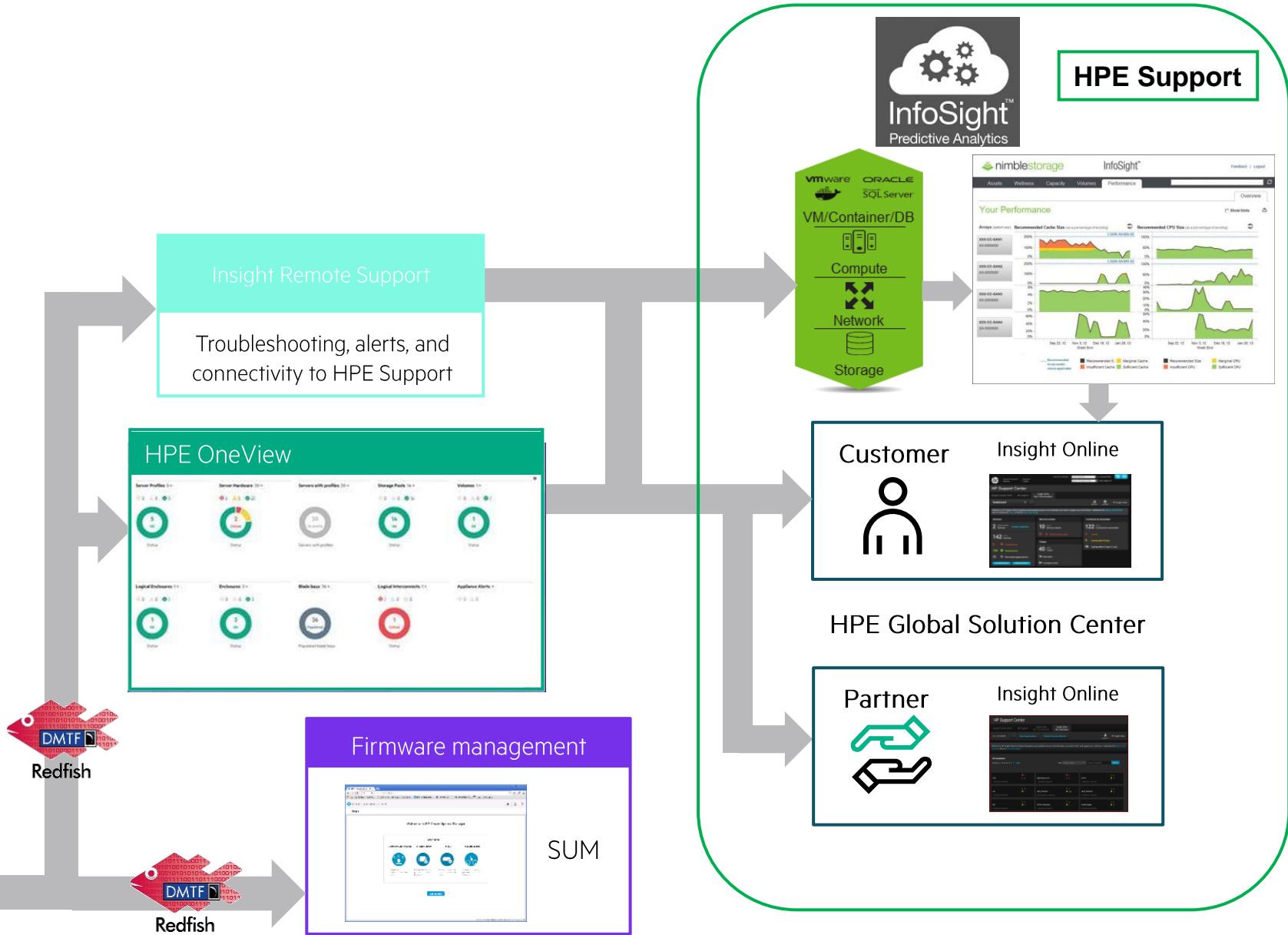
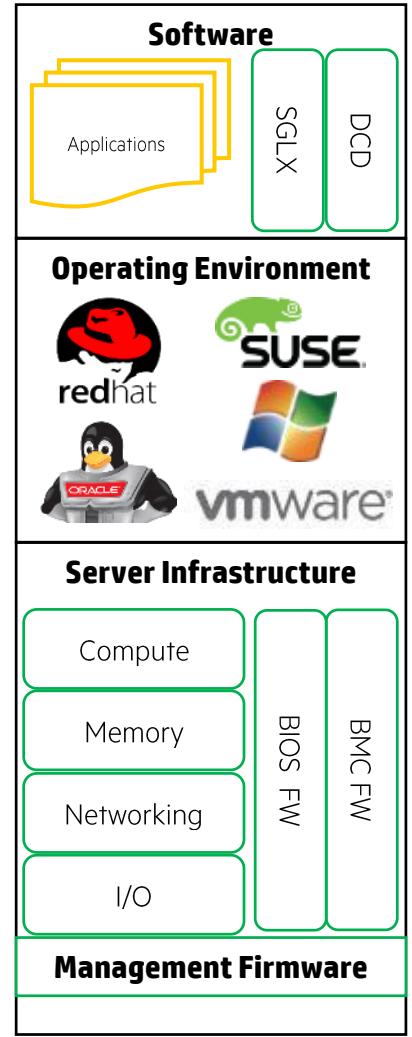
- Supports Redfish alerts related to fans, power supply, temperature, and chassis

HPE OneView support featuring managed mode

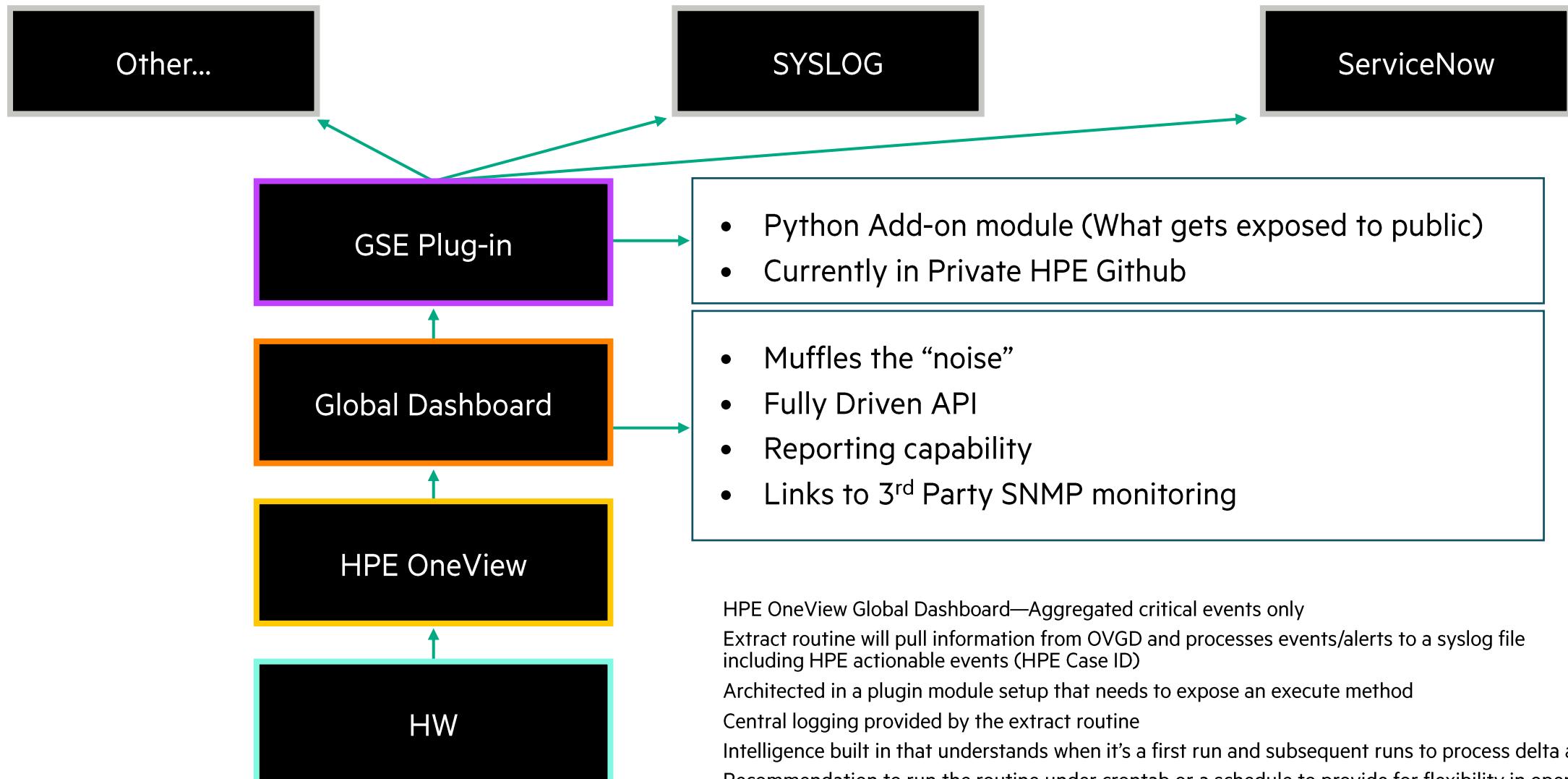
HPE OneView Remote Support (OVRS)

- 24x7 monitoring with pre-failure alerts
- Automated case creation
- Contracts' expiration alerts

DATA PATH – SERVICE EVENTS TO REMOTE SUPPORT



ServiceNow and HPE OneView integrated management



THE END

