Vertiv™ 360AI

VERTIV.

NVIDIA Partner

High Density Reference Design for AI

AI Reference Design #027A

2.5MW PODs at up to 142kW per rack

A full data center environment designed for a 2.5MW solution with 4 to make 3 configuration, utilizing the latest NVIDIA DGX GB300 NVL72 architecture.

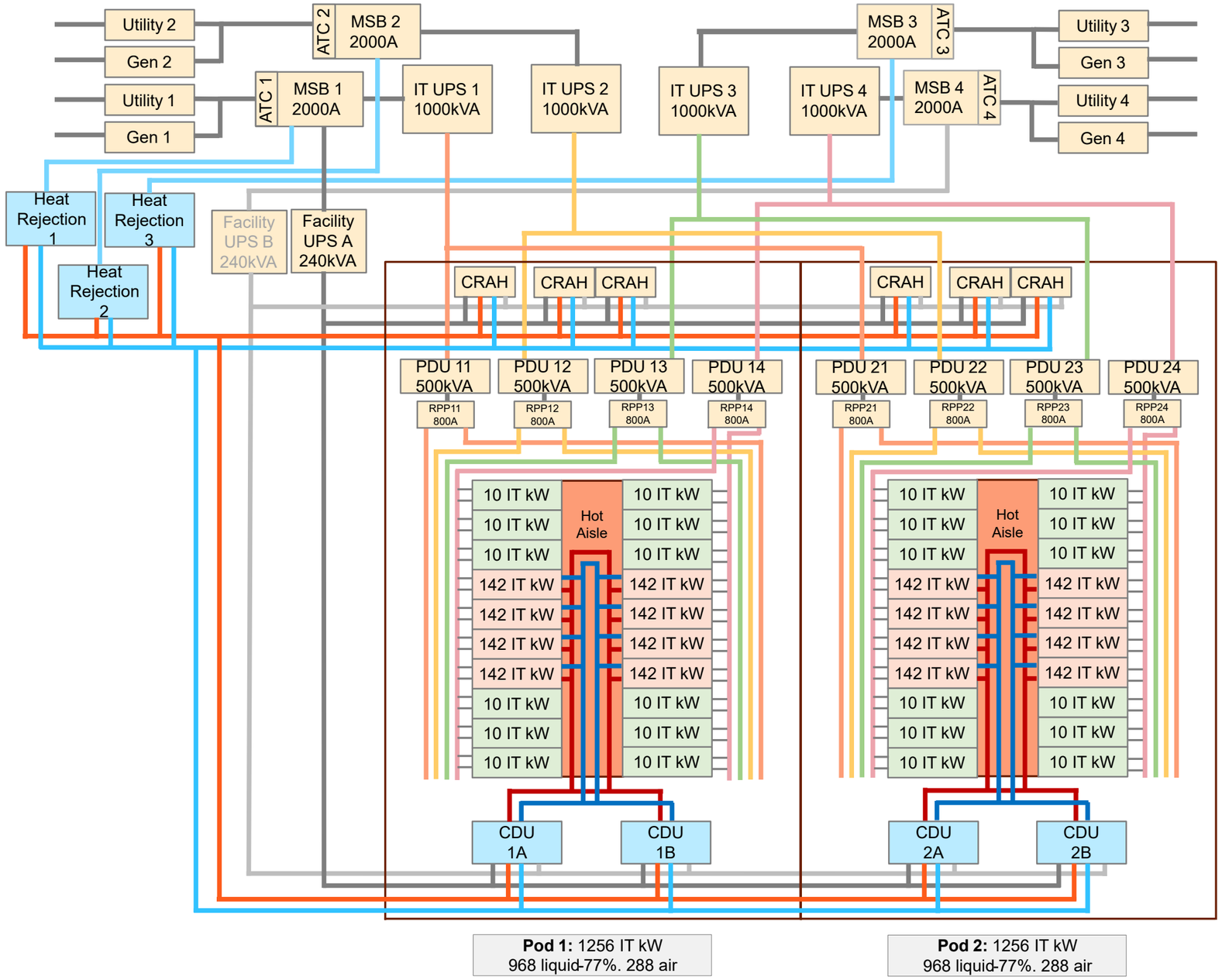
Design Principles

1. **Design both Power and Cooling** together to optimize AI infrastructure.
2. **Power is at a premium.** Eliminate stranded power by aligning AI clusters to data center 'capacity blocks.'
3. **Consider total cost of ownership, redundancy, and blast radius** in AI power and cooling designs, and the tradeoffs among them.
4. **Handle AI workload surges** through system-level controls and power and cooling buffers.
5. **Design for a mix of liquid and air cooling,** which have a combined and interdependent impact on the ability to remove heat.
6. **Design for the future.** Anticipate your needs by upgrading to the latest power and cooling technologies today.

Image is for representation only

Design Summary		
Solution Capacity	2.5 MW	
Redundancy	4 to make 3 for power, N+1 for cooling	
Total IT Load	2,512kW (1,256kW per POD)	
Rack Density (IT load)	16 racks at 142kW, 24 racks at 10kW	
Rack(s)	40	
Cooling Topology	77% liquid 23% air	
Liquid Cooling	XDU1350	
Air Cooling	PH250	
Heat Rejection	CIZ4140	
Power (Facility-level)	2000A MSB for IT and Facility 1000kVA UPS for IT 240kVA UPS for Facility 500kVA PDU for IT	
Power (POD-level)	***Option 1*** 400A 240/415V Busbar 60A TOB 33kVA DC power shelf	***Option 2*** 800A 240/415V RPP 60A Branch Breakers 33kVA DC power shelf

Reference Design Schematic



Configuration shown above: Power Option 2.
See next page for more configuration options.

Vertiv Components of the Design

Component	Details	
Main Switchboard (MSB)	4x 2000A MSB for IT and Facility	
UPS for IT	4x 1000kVA UPS for two PODs, 4 to make 3 redundancy	
UPS for Facility	2x 240kVA UPS for facility, 2N redundancy	
Power Distribution Unit	8x 500kVA PDU, 4 per POD	
Busbar and Tap-off Boxes (TOB) or RPP and Branch Breakers	**Option 1** 8x 400A 240/415V busbar per POD 2x 60A TOB per compute rack per busbar 2x 60A TOB per support rack	**Option 2** 4x 800A 240/415V RPP per POD 2x 60A branch breaker per compute rack per RPP 2x 60A branch breaker per support rack, 1 per every other RPP
Rack PDUs for compute racks	8x 33kVA DC power shelf, 4 to make 3 redundancy	
Rack PDUs for support racks	2x 33kVA DC power shelf, 2N redundancy	
Liquid Cooling	2x XDU1350 per POD @ 4°C ATD, N+1	
Air Cooling	3x PH250 per POD, N+2	
Heat Rejection	3x CIZ4140 with PG30, N+1	
Compute Racks	8x 48U racks per POD @ 142kW	
Support Racks	12x 48U racks per POD @ 10kW	

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