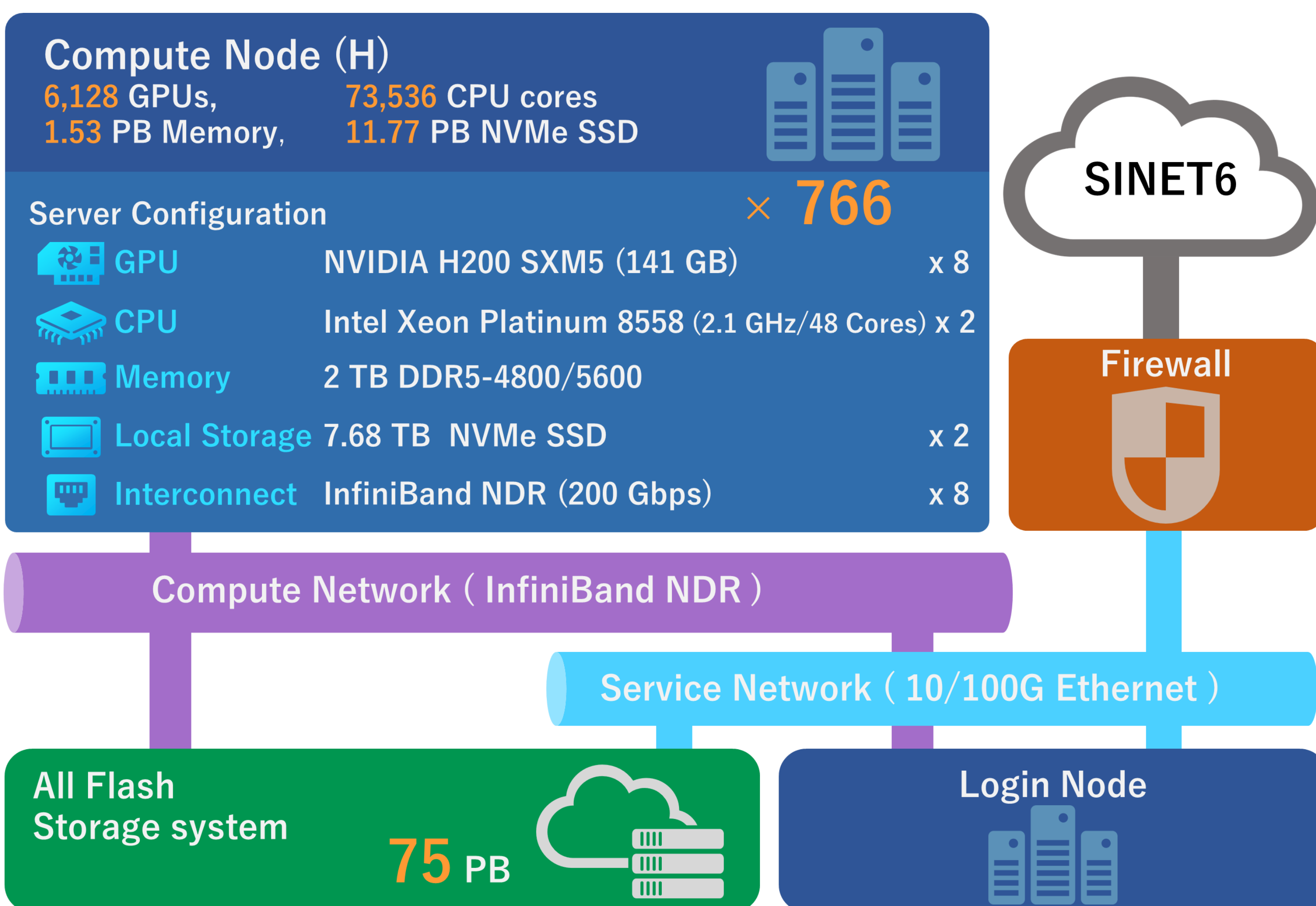# AIST

ABCI
AI Bridging Cloud Infrastructure

ABCI 3.0:
Japan's Leading Computing Infrastructure for Generative AI

Since its launch in 2018, it was reborn as "ABCI 3.0" in January 2025, achieving a dramatic leap in performance. With an AI processing performance of 6.22 EFLOPS, ABCI 3.0 empowers cutting-edge research and development of generative AI in Japan.

System Overview

Compute Node (H)
6,128 GPUs,   73,536 CPU cores
1.53 PB Memory, 11.77 PB NVMe SSD

× 766

Server Configuration		
GPU	NVIDIA H200 SXM5 (141 GB)	x 8
CPU	Intel Xeon Platinum 8558 (2.1 GHz/48 Cores)	x 2
Memory	2 TB DDR5-4800/5600	
Local Storage	7.68 TB NVMe SSD	x 2
Interconnect	InfiniBand NDR (200 Gbps)	x 8

Compute Network (InfiniBand NDR)

Service Network (10/100G Ethernet)

All Flash Storage system   75 PB

Login Node

SINET6

Firewall

Features
- 766 compute nodes equipped with a total of 6,128 NVIDIA H200 GPUs
- An all-flash storage system with a physical capacity of 75 PB

Peak Performance
- AI Performance (FP16)   : 6.22 EFLOPS
- FP64 Performance   : 415 PFLOPS
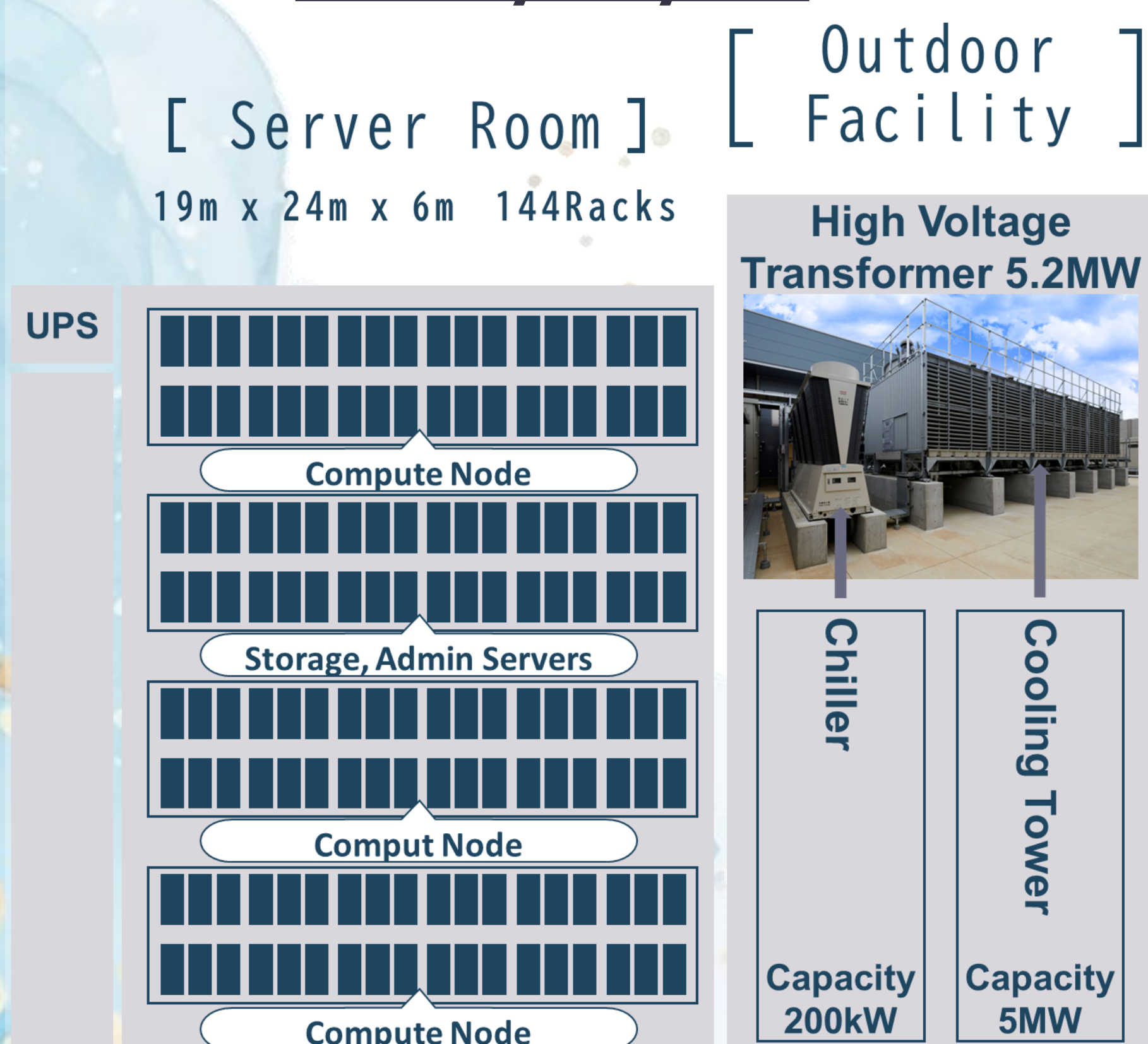
Benchmark Performance
- TOP500   : 145.10 PFLOPS (#15 in June 2025)
- HPL-MxP : 2.363 EFLOPS   (#4 in June 2025)
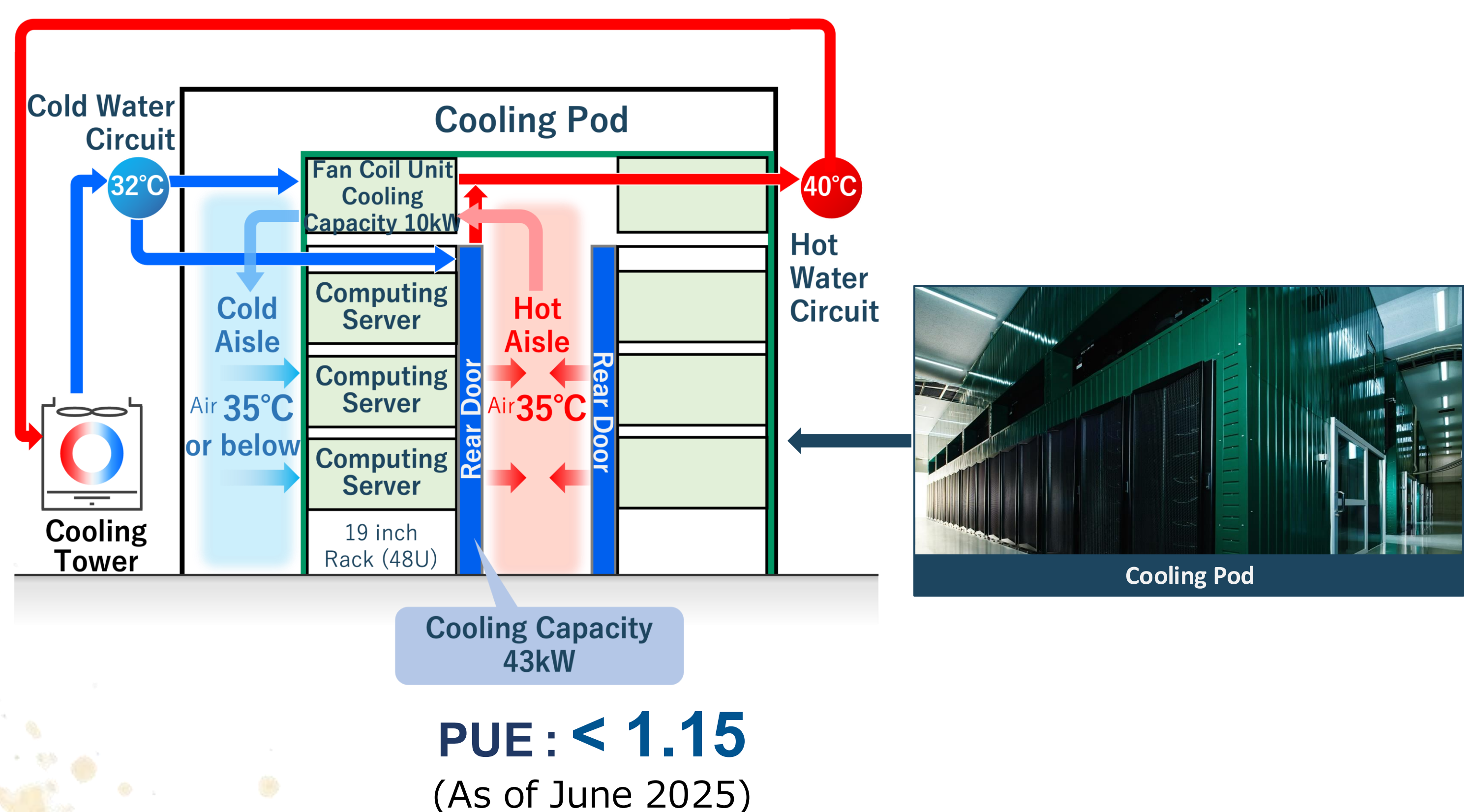- HPCG   : 2.446 PFLOPS   (#8 in June 2025)

Storage System
- Lustre-based shared filesystem   : 74 PB
- Lustre-based object storage   : 1PB

Datacenter Facility

Facility Layout

[Server Room]   [Outdoor Facility]

19m x 24m x 6m   144Racks

UPS

High Voltage Transformer 5.2MW

Compute Node

Storage, Admin Servers

Comput Node

Compute Node

Chiller — Capacity 200kW

Cooling Tower — Capacity 5MW

Cooling System

Cold Water Circuit

32°C

Cooling Pod

Fan Coil Unit Cooling Capacity 10kW

40°C

Hot Water Circuit

Cold Aisle

Computing Server

Hot Aisle

Rear Door

Rear Door

Air 35°C

Computing Server

Air 35°C or below

Computing Server

19 inch Rack (48U)

Cooling Tower

Cooling Capacity 43kW

Cooling Pod

PUE : < 1.15
(As of June 2025)

- The 19m × 24m server room, comparable in size to a basketball court, accommodates 144 high-density racks
- A high-temperature cooling system is employed, using 32°C (90°F) water cooled by a cooling tower to chill the servers
- AIST's custom-designed cooling pods efficiently dissipate the enormous heat generated by the high-density servers

AIST SC25 Website