

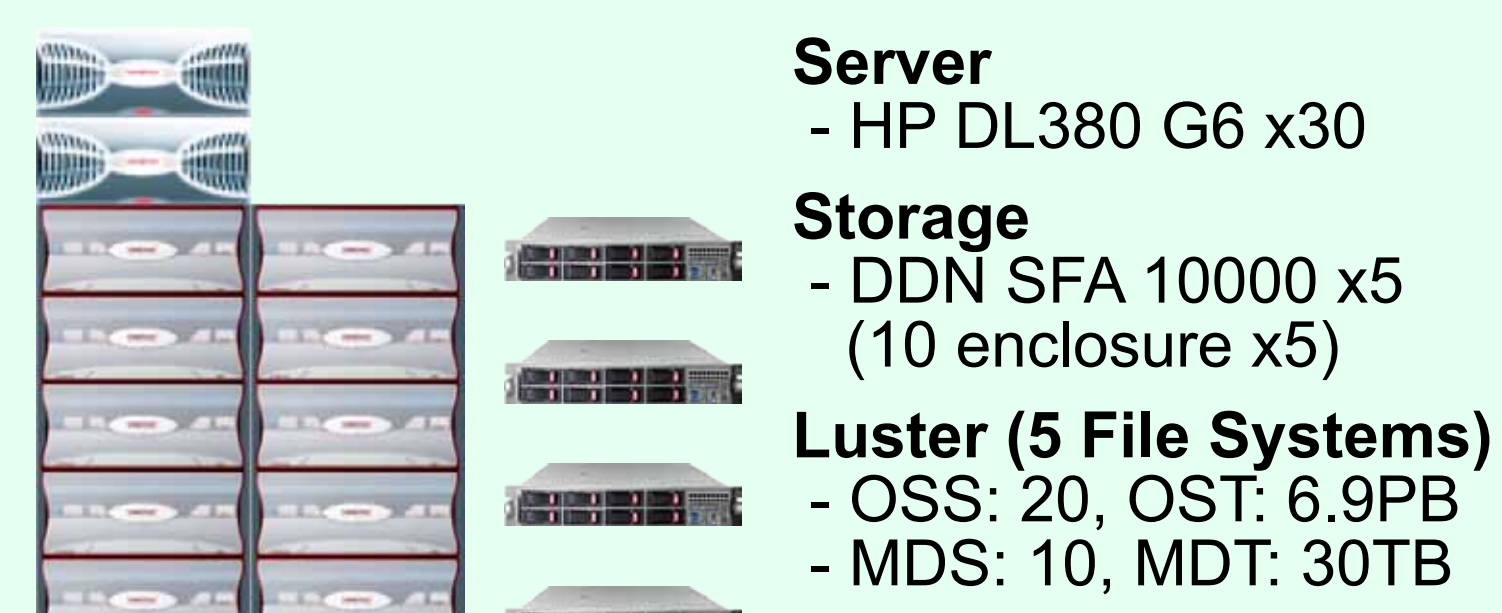


# TSUBAME 2.5 Architecture & Services

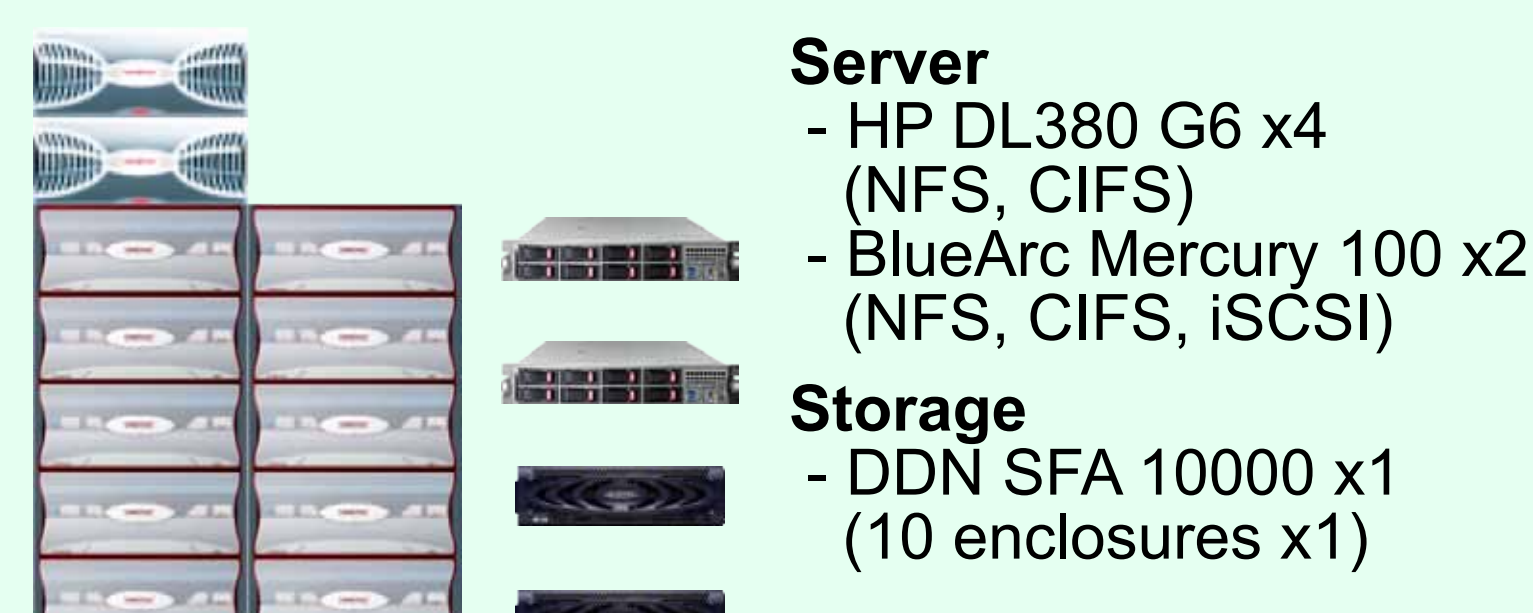
## Hardware

### Storage

#### Parallel file system area: 5.93 PB



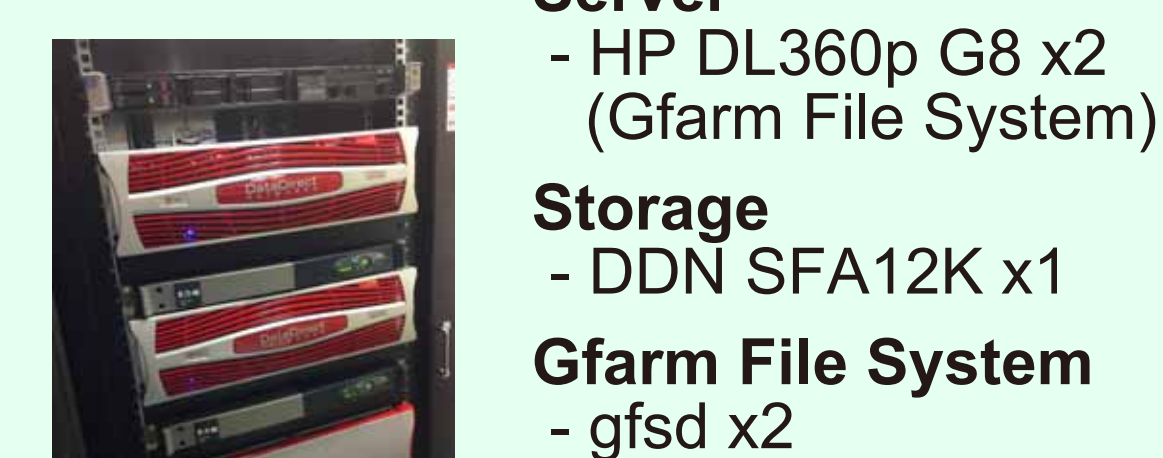
#### Users' home space: 1.2 PB



#### Archive Storage: 4 PB



#### HPCI Global Shared Storage: 600 TB



### Interconnect: Full bisection / Non-blocking

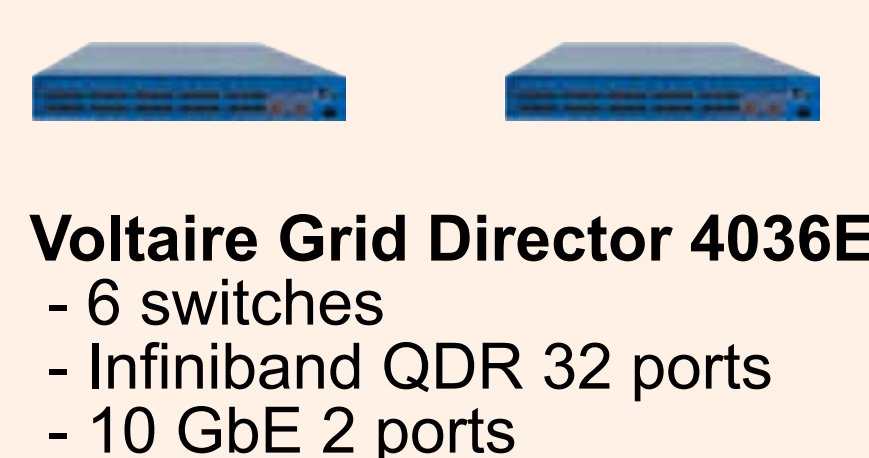
#### Edge Switch



#### Core Switch



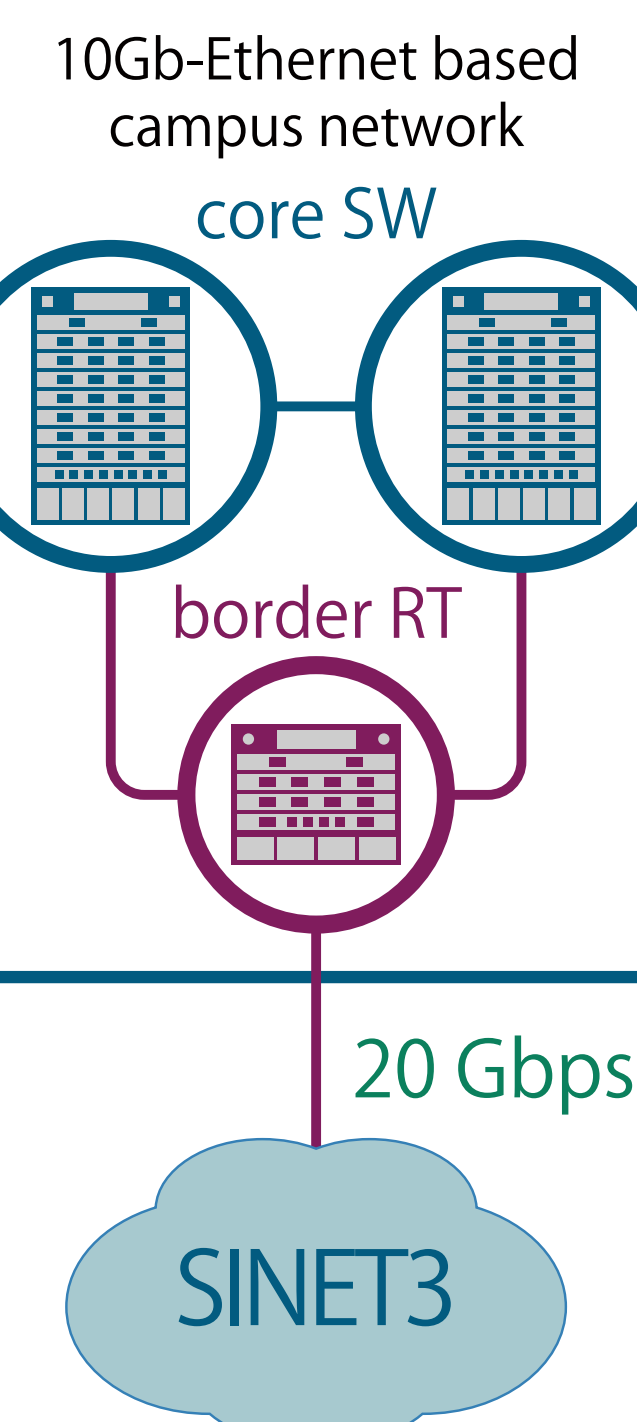
#### Edge Switch (w/10GbE)



### National Grid Federation

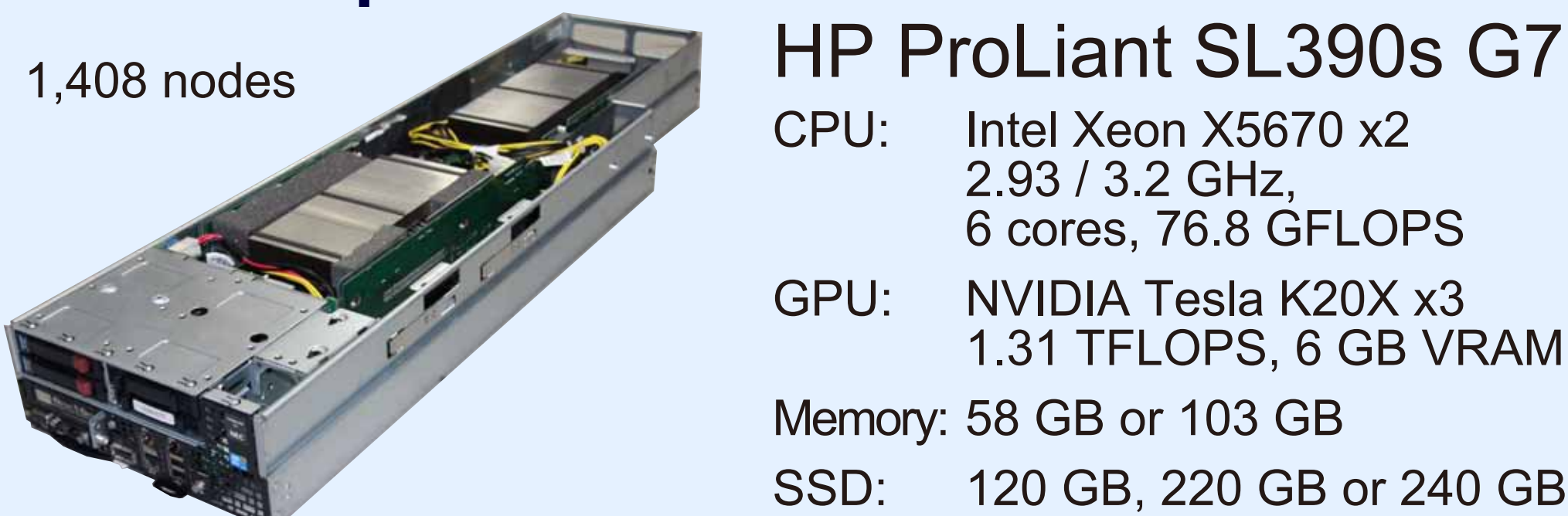


### Titanet 3

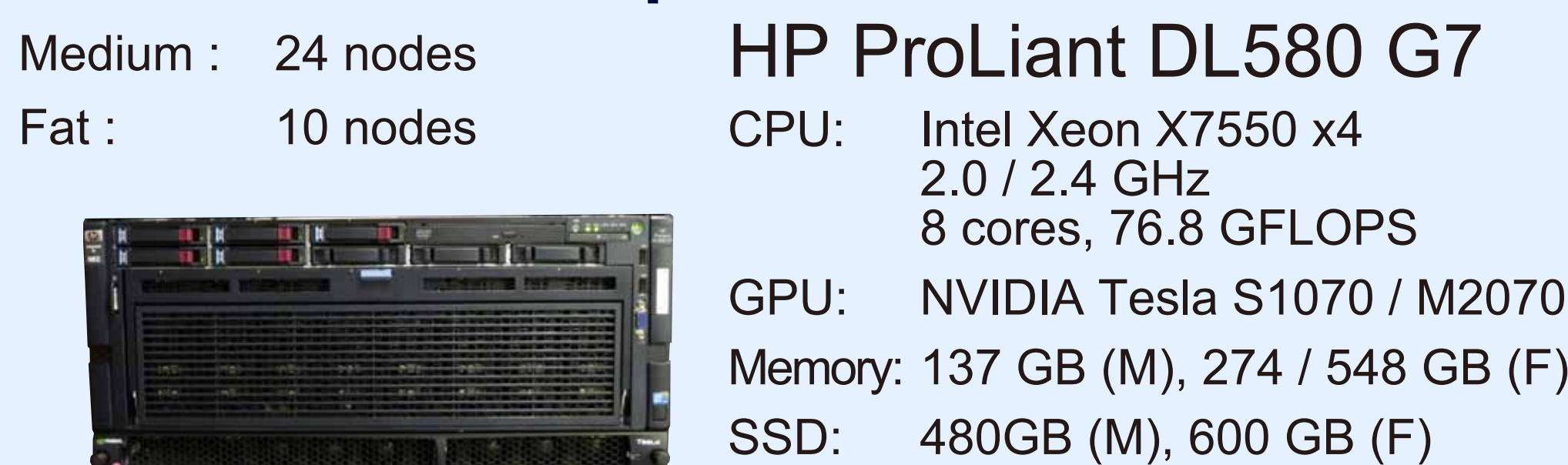


### Dual Rail Connection

#### Thin compute node



#### Medium / Fat compute node



Compute nodes: 5.787 PFLOPS (CPU + GPU) / 224.69 TFLOPS (CPU)

## Software

### System Software

- OS: SUSE Linux Enterprise Server, Windows HPC
- Job Scheduler: PBS Professional
- Compiler: Intel Compiler / PGI CDK / gcc
- MPI: OpenMPI / MVAPICH2 / MS-MPI

### Software for GPU Computing

- Computing Architecture: CUDA 5.0 / 4.1 / 3.2
- Automatic Parallelization: PGI Accerlator Compiler
- Linear Algebra Library: CULA

### ISV Applications (Frequently Used) :

ANSYS Fluent, **ABAQUS**, MD Nastran, Patran, **AMBER**,  
Marc & Mentat, Dytran, LS-DYNA, Gaussian, Materials Studio,  
Discovery Studio, **Mathematica**, **MATLAB**, AVS Express  
(Red: GPU Enabled)

## HPCI

### HPCI : High Performance Computing Infrastructure

- National grid infrastructure for HPC research

### Resources

- 9 supercomputers in Japan, including K computer & TSUBAME 2.5

### Services

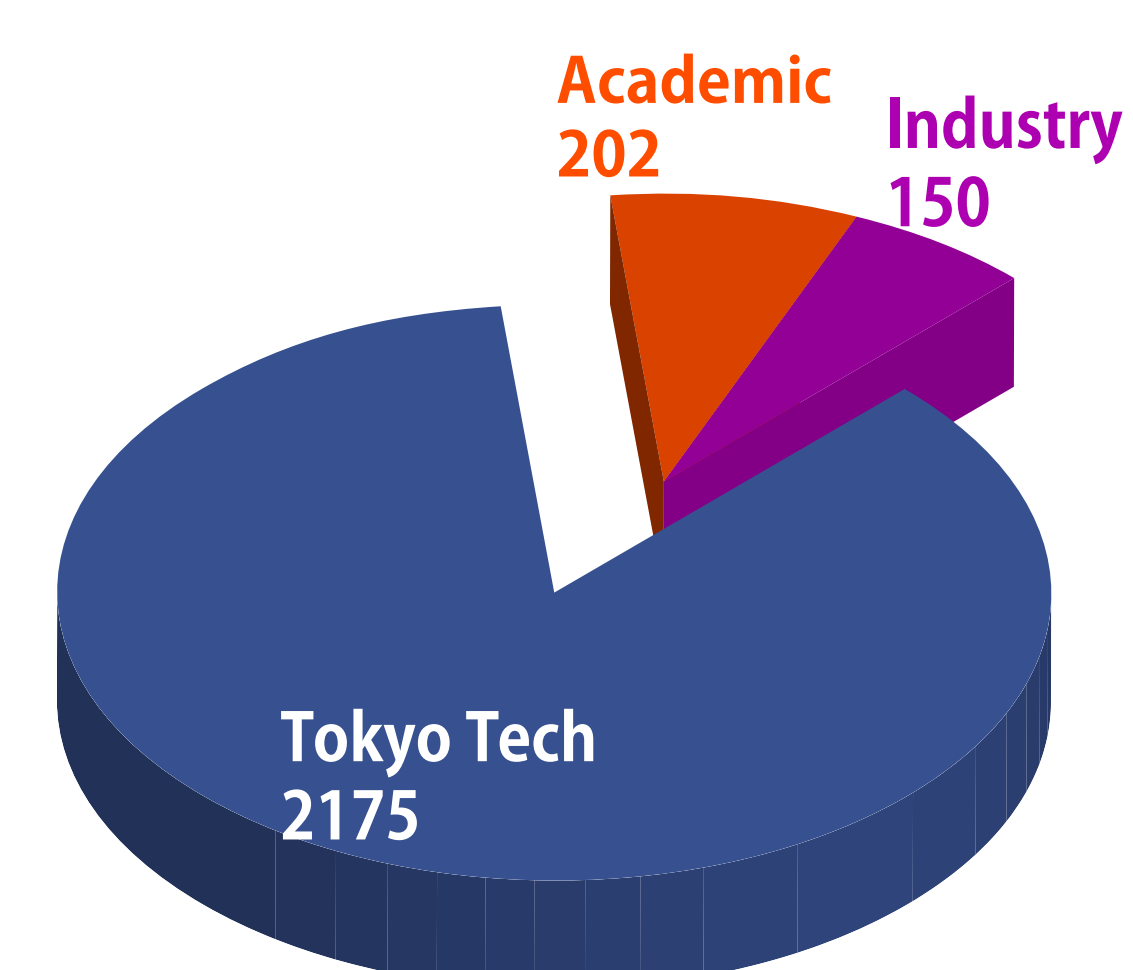
- One-stop signup to all resources
- Single sign on to all resources using Shibboleth & GSI
- 100PB global shared storage to share data
- Distributed VM hosting service to help developing network and distributed systems (PLAN, GSIC is leading the project)

### Status

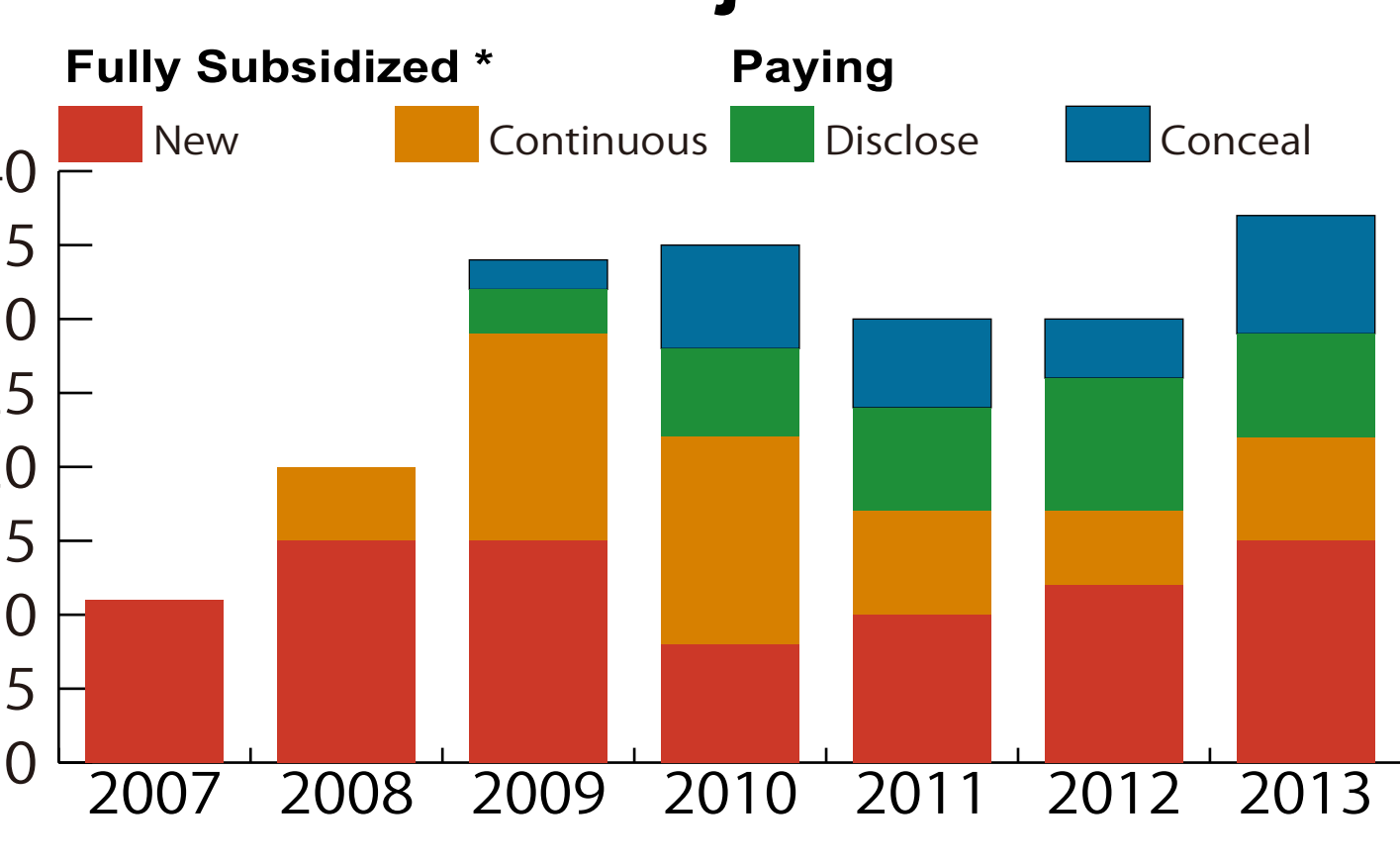
- Operation starts from Sep. 2012
- Deployment starts from Jan. 2011
- 227 proposals, 62 are accepted
- 11 projects and 98 users use TSUBAME for HPCI purpose

## TSUBAME Users

### TSUBAME Users



### Partnership Resource Allocations for Industrial Projects



TSUBAME is open to Academia and Industries. Industrial use starts since FY2007.

