

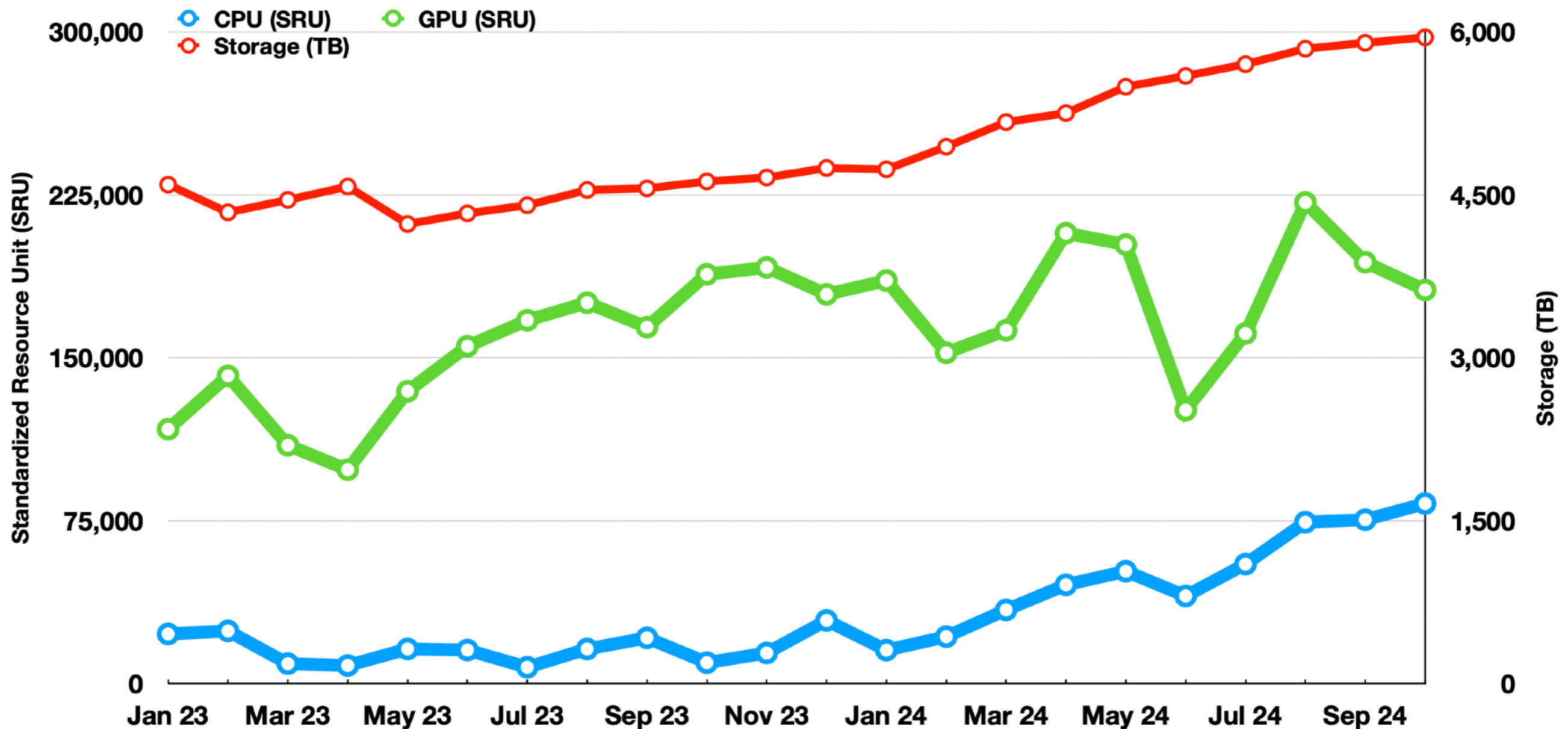


NSTC Core Facility for Scientific Computing and Big Data Analysis

- **Services are provided by Academia Sinica Grid Computing Centre (ASGC)**
 - Core Facility of big data and scientific computing for Taiwan funded by AS and NSTC
- **Reliability and efficiency are top priority**
- **User-oriented approach**
 - Flexible collaboration model; Ease-of-use; Workflow Integration
 - Services of infrastructure, platform and software keep improving
- **Capacity building & User Community Engagement**
 - 4x training events a year
 - Thematic, GPU, ML/AI, and application-specific topics
 - Supporting User Community/Institute-based training
- **Thanks for the great support from AI pioneers in AS**

Collaboration for Improved Services and Supports

- Flexible collaboration models
- 97%+ reliability
- CPU usage keeps growing; GPU demanding trend remains
- Data services are also our key focus



Accelerating Discovery and Innovation With Advanced Computing Services

- **Service: 24x7**
 - Computing, storage & long-term backup, data transmission, analysis facility, machine learning (ML) environment, performance tuning
 - Software deployment and integration: ML application framework; making good use of available resources; virtualization and containerization; service collocation
 - User support: Training and promotion; technical and usage consultation; Weekly user meeting on Wed (13:30)
- **Resource: 3,000 CPU Cores (2024), 5,100 (2025), 7,200 (2026)**
 - Able to support 1,000 CPU Core parallel computing; 384GB RAM in a work node; 8xA100 GPU (80GB RAM) per node; 10PB+ disk storage space
 - CPU: AMD Genoa 1,920 Cores; AMD Rome 768 Cores; Intel Xeon G4 256 Cores
 - GPU: NVIDIA A100 (24), V100 (48), 4090 (16), 3090 (24)
 - Storage System : Ceph filesystem 10+ Petabyte; Tape storage 12 Petabyte
 - **Data backup and archive services will be online by Dec 2024**
- **Resource plan in 2024**
 - New Intel computing servers: Intel Xeon Gold 6448Hx2 /WN (256 Cores)
 - New NVIDIA GPU: L40S or similar
 - More storage for Ceph: +3PB
 - New WN: +2,000 CPU Cores
 - Migration to AlmaLinux 9 by end of 2024

9:30 AM → 9:40 AM **一: 高效能計算服務教育訓練工作坊介紹 Opening & Introduction**

- 運算資源、服務內容和計價模式 (Resource, Service & Pricing)
- 計算服務架構 (Introduction of Computing Service)

9:40 AM → 10:00 AM **二: 高效能科學運算服務 Computing Service Hands-On**

- 科學運算服務平台(Computing Service Platform)介紹：SLURM & DiCOSApp
- DiCOSApp Computing Service：虛擬化SaaS計算服務
- SLURM計算服務
- 資料服務

10:00 AM → 10:40 AM **三: SLURM計算服務**

- SLURM執行工作操作
- SLURM參數介紹
- 多核心程式編程及操作 Multi-Core Jobs

Convener: Yi-Ru Chen

10:40 AM → 11:00 AM

休息 Break

🕒 20m

11:00 AM → 11:30 AM **四: 虛擬化SaaS雲端計算服務 - DiCOSApp**

- 計算資源
- 服務架構
- 軟體部署

Convener: Zong-Tsung Wu

11:30 AM → 12:00 PM **五: 資料服務 (Data Service)**

- 資料傳輸
- 資料操作

Convener: Siang-Yu Yang

1:30 PM → 2:00 PM **六: AI Application I**

生成式AI運用於高能物理領域的可能性

Convener: Dr Hsin-Yi Chou (Institute of Physics, Academia Sinica)

2:00 PM → 2:30 PM **七: AI Application II**

基於AI語音技術及溝通輔具上及科學運算研究分享

Convener: Dr You-Ji Li (The Research Center for Information Technology Innovation (CITI) at Academia Sinica)

2:30 PM → 3:00 PM

休息 Break

🕒 30m

3:00 PM → 3:30 PM **八: AI Application III**

如何評估一個語言模型的各項能力，如何對大型語言模型進行continual pretraining, finetuning 的細節及研究及對於高效能科學計算的需求

Convener: Mr Nike Yang (Institute of Informaiton Science, Academia Sinica)

3:30 PM → 4:00 PM **九: AI Application IV**

以AlphaFold應用於藥物開發研究，及高效能計算資源使用經驗分享

Convener: Prof. Kuen-Phon Wu (Institute of Biological Chemistry, Academia Sinica)

4:00 PM → 4:20 PM **十: Q & A**

4:20 PM → 4:30 PM **問卷調查 Questionnaire**



中研院網格中心 聯絡資訊

- **Core Facility Services**
 - <https://nstccore.twgrid.org>
 - <https://scale.grid.sinica.edu.tw/index.php>
- **ASGC Web Site: <https://www.twgrid.org>**
- **Access to ASGC Resources**
 - <https://dicos.grid.sinica.edu.tw/>
- **Contact point: DiCOS-Support@twgrid.org**