



WBS 2.3.2.4

Southwest Tier-2 (SWT2)

University of Texas at Arlington

University of Oklahoma

Patrick McGuigan (on behalf of the SWT2 Collaboration)



2.3.2.4 FTE Summary

| | FY22 US ATLAS Funded | FY22 Other Funding | FY23 US ATLAS Funded | FY23 Other Funding | Job description |
|------------------|----------------------|--------------------|----------------------|--------------------|-----------------|
| Patrick McGuigan | 1.0 | | 1.0 | | UTA sys admin |
| Mark Sosebee | 0.5 | | 0.5 | | UTA sys admin |
| Horst Severini | | 0.5 | | 0.5 | OU sys admin |
| Chris Walker | 0.5 | | 0.5 | | OU sys admin |
| Kaushik De | | 0.2 | | 0.1 | Management |
| Total | 2.0 | 0.7 | 2.0 | 0.6 | |

- Other activities:
 - Patrick, Mark, and Chris - none
 - Horst - Oklahoma supercomputer system administrator
 - Kaushik - faculty / NSF



SWT2: Summary of Current Capacities

❖ SWT2 Resources

- SWT2_CPB_K8
- OU_OSCER
- SWT2_CPB

❖ CPU with imminent deployments and removals:

- Job slots (threads): 22+ k
- Total HEP-SPEC06: 300+ k (Required: 98 k / 190 k)
- Additional opportunistic slots (OU): typically 500-1500 / 10.9 k

❖ Disk storage deployed:

- ~ 13.8 PB (Required: 10.3 PB)
- ~ 3.5 PB beyond requirements available to ATLAS as needed



SWT2: Retirements & Procurement

❖ Retirements Planned in the coming year:

- 2.9 - 3.3 PB of MD3460 based storage
- Up to 3,000 slots 24 kHS06 R410 based compute nodes

❖ Procurement Plan [LINK](#)

- \$420K with carry-over and this year's funds
- ~\$60K set aside for UPS refurbishment
- split 70/30 on Storage/Compute for remaining funds
 - Based on Last purchases, we expect to buy:
 - 4 PB storage
 - 14.5 kHS06



SWT2: Milestones

❖ Milestones:

| Ordinal | Title | Date | Status | Notes |
|---------|--|------------|-------------|-------------|
| 66 | SWT2 procurement plans | 12/30/2022 | Completed | |
| 71 | SWT2 Operation and milestones plan drafted | 2/28/2023 | On Schedule | |
| 90 | SWT2 identifies next OS | 6/30/2023 | On Schedule | New Mgmt sw |
| 98 | SWT2 completed FY23 procurement plans | 9/30/2023 | On Schedule | |
| 109 | SWT2 LAN upgrade | 12/31/2022 | On Schedule | Tight |
| 110 | SWT2 rack power balance | 1/31/2023 | On Schedule | |
| 111 | SWT2 pledge deployment | 3/31/2023 | Completed | |
| 112 | SWT2 FY23 equipment order | 7/31/0203 | On Schedule | |
| 126 | Kubernetes cluster development | 3/31/2023 | On Schedule | see 109/110 |



SWT2: Benefits to Facility/ATLAS

❖ ATLAS Benefits:

- 2nd Largest Tier 2 Storage Site
- 3rd Largest Tier 2 CPU seconds producer for successful jobs
- 4th Largest Tier 2 processor of bytes

❖ Facility Benefits

- Provides alternate solutions for storage and local scheduling
 - XRootD
 - SLURM
- Provides testbed for Pilot development
- Tends to push ahead with new OS before rest of facility



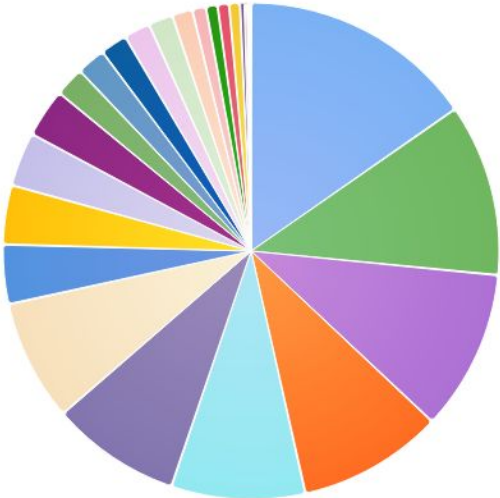
SWT2 DDM Volume

← DDM Monitoring / DDM Site Accounting

Last 2 years UTC 🔍 ↻ ⌵ 📄

Volume by federation

🕒 Last 24 hours



| | Value | Percent |
|-------------------|---------|---------|
| US-MWT2 | 16.9 PB | 16% |
| US-SWT2 | 12.4 PB | 11% |
| UK-NorthGrid | 11.5 PB | 11% |
| US-AGLT2 | 10.4 PB | 10% |
| IT-INFN-T2 | 9.60 PB | 9% |
| UK-London-Tier2 | 9.30 PB | 9% |
| JP-Tokyo-ATLAS-T2 | 8.69 PB | 8% |
| UK-ScotGrid | 4.20 PB | 4% |
| US-NET2 | 4.18 PB | 4% |

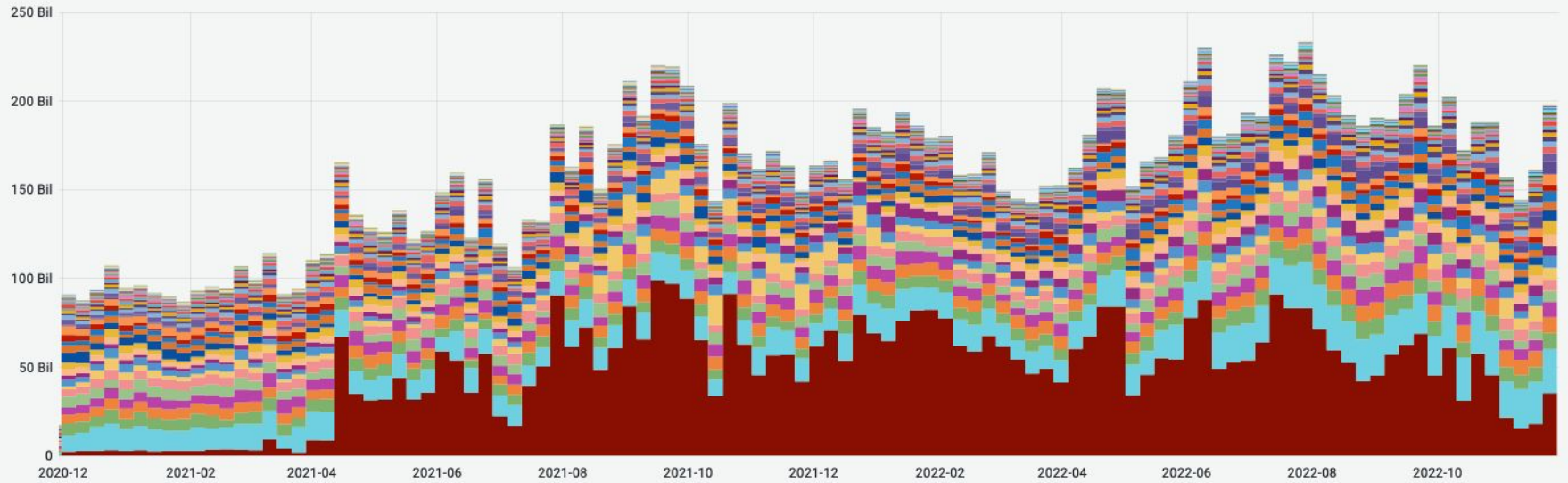


SWT2 CPU Consumption

← Jobs Monitoring / Job Accounting (Historical data)

🕒 Last 2 years UTC 🔍 ↻ 📄

CPU Consumption: Successful jobs in Seconds



- SI-SIGNET
- US-MWT2
- US-SWT2
- US-AGLT2
- UK-NorthGrid
- DE-DESY-ATLAS-T2
- IT-INFN-T2
- CZ-Praae-T2

| | min | max | avg | total |
|------------------|----------|----------|----------|----------|
| SI-SIGNET | 330 Mil | 98.6 Bil | 47.0 Bil | 4.98 Tri |
| US-MWT2 | 1.36 Bil | 26.1 Bil | 15.9 Bil | 1.68 Tri |
| US-SWT2 | 847 Mil | 10.1 Bil | 6.93 Bil | 734 Bil |
| US-AGLT2 | 788 Mil | 9.44 Bil | 6.74 Bil | 714 Bil |
| UK-NorthGrid | 1.09 Bil | 10.4 Bil | 6.56 Bil | 696 Bil |
| DE-DESY-ATLAS-T2 | 645 Mil | 9.48 Bil | 5.70 Bil | 604 Bil |
| IT-INFN-T2 | 680 Mil | 7.48 Bil | 5.50 Bil | 582 Bil |
| CZ-Praae-T2 | 541 Mil | 16.7 Bil | 5.32 Bil | 564 Bil |

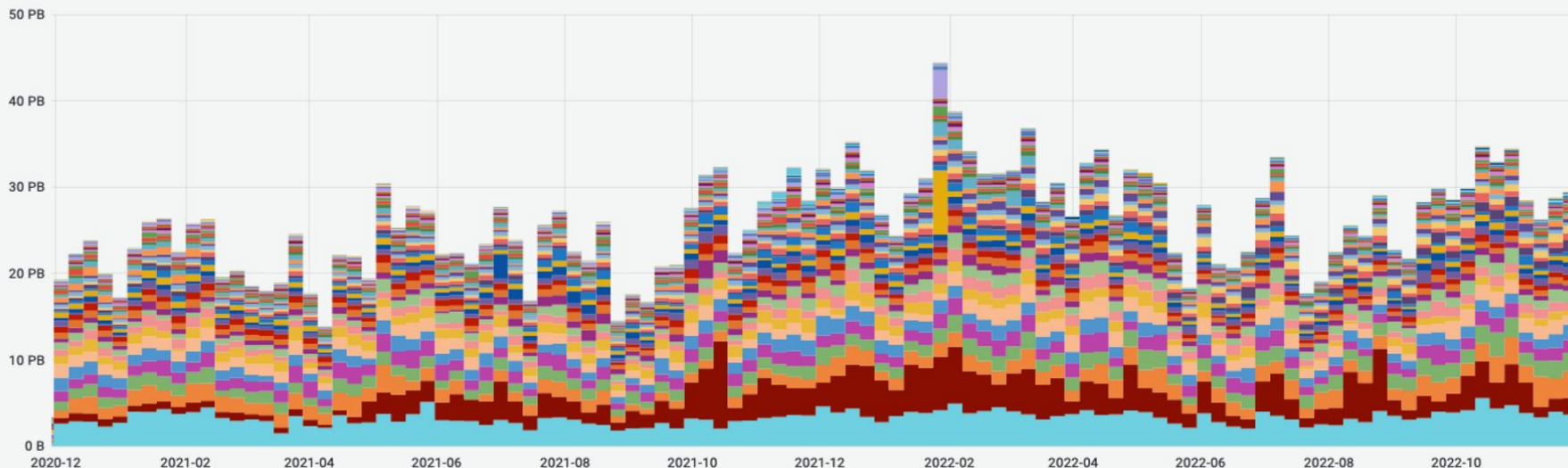


SWT2 Bytes Processed

← Jobs Monitoring / Job Accounting (Historical data)

Last 2 years UTC 🔍 ↻ ⌵ 🖨

Bytes processed



- US-MWT2
- SI-SIGNET
- US-AGLT2
- US-SWT2
- UK-NorthGrid
- CA-WEST-T2
- JP-Tokyo-ATLAS-T2
- US-NET2

| | min | max | avg | total |
|-------------------|---------|---------|---------|--------|
| US-MWT2 | 217 TB | 5.56 PB | 3.24 PB | 343 PB |
| SI-SIGNET | 71.2 TB | 10.1 PB | 2.71 PB | 288 PB |
| US-AGLT2 | 33.4 TB | 3.51 PB | 1.63 PB | 172 PB |
| US-SWT2 | 148 TB | 2.77 PB | 1.42 PB | 150 PB |
| UK-NorthGrid | 152 TB | 2.31 PB | 1.41 PB | 150 PB |
| CA-WEST-T2 | 120 TB | 2.23 PB | 1.27 PB | 134 PB |
| JP-Tokyo-ATLAS-T2 | 136 TB | 2.31 PB | 1.23 PB | 131 PB |
| US-NET2 | 4.19 TB | 2.14 PB | 1.05 PB | 111 PB |



SWT2 Concerns/Issues

- ❖ Power/Cooling consumption by rack / by facility
- ❖ Moving to new provisioning/management layer
- ❖ Replacing RR-DNS based I/O hosts with XRootD redirector based solution