Computing Platforms and Infrastructure Program Update

Swiss SKA Days 2023
Victor Holanda Rusu, CSCS
September 6th, 2023
Moving to ALPS
Moving to ALPS

The time is coming

- Gornergrat vCluster is being deployed
  - The system has no GPUs, yet
  - Migrate all non-GPUs projects to Gornergrat if the size of the system allows

- CSCS’ User Lab system should be available in Q2 2024
  - The system will have GPUs
  - GPU allocations will go to User Lab

Just accepted, rolling to gornergrat

Raw performance: ~ 10x faster than Piz Daint’s current storage
Moving to ALPS

The current plan

- Two stage move
- Move the non-GPU projects to gornegrat and eiger (Q3-Q4 2023)
- Move the GPU projects to the new system Q2 2024
- The GPU projects are expected to move in one month time window
SRCNet architecture implementation
SRCNet SKA Architecture Design

A SRCNet example component selection

- Compute provided by the ALPS infrastructure
  - Compute can be scheduled using Slurm workload manager
  - Compute can be potentially scheduled using a cloud orchestrator
- Resource management can be implemented using the CSCS developed manta software
- Services can be managed using Kubernetes
- Rucio can be the data manager
- Backends to Rucio can be dCache or XRootD
- The metadata server can be OpenCADC
- Identity and Access Management can use SKA IAM, federated to CSCS IAM system
CTA and SKA Synergies

What is our currently million swiss francs question?

- How to connect a JupyterHub service not managed by CSCS to spawn Jupyter notebooks inside CSCS?
- A solution can be FirecREST
- In the SKA architecture design, FirecREST is part of the SRCNet API implementation, which fits with the FirecREST API intended usage
- Synergy with CTAOCH and SKACH
IT Security of SKACH

What have we been doing in this aspect?
IT Security of SKACH

What’s the context

- Several telescopes and centers associated to them have been hacked in the past few months
- We need to work as a community to reduce the risks

- Strong password policies
- Multifactor authentication
- User Behaviour Analytics
IT Security of SKACH
But things are not that simple

- SKA is a global collaboration
- Individual users can/will be hacked
- We need to start developing security policies to help the SKA service designs
When the bad guys are in…
What can they do?

- Examples:
  - Data exfiltration
  - Lateral movement
  - Cryptojacking
  - Ransomware
  - Denial of Service
  - Privilege escalation
IT Security of SKACH

We are working on the SKACH security

- Incident Response Plan
- Vulnerability Management
- Tailored solutions to SKACH based on threat modelling
Thank you for your attention.

Questions?
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