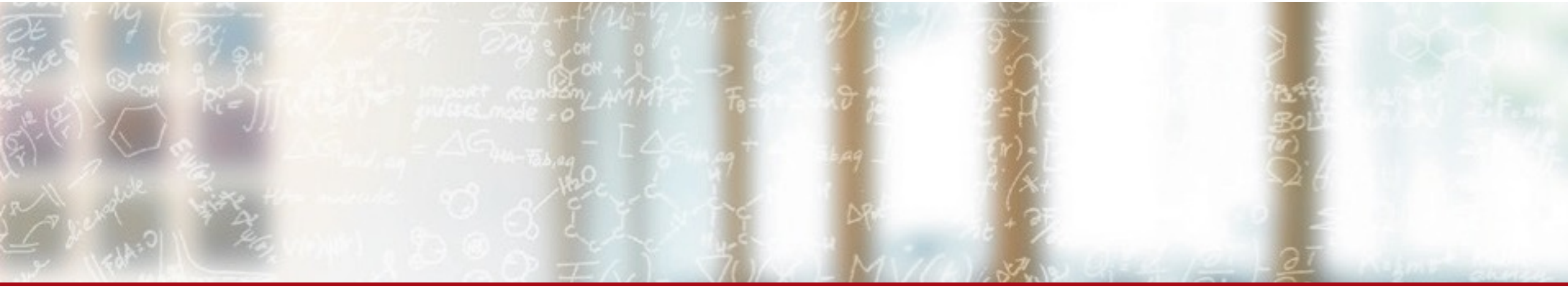
CSCS
Centro Svizzero di Calcolo Scientifico
Swiss National Supercomputing Centre

ETH zürich



Computing Platforms and Infrastructure Program Update

Swiss SKA Days 2023

Victor Holanda Rusu, CSCS

September 6th, 2023

SKACH

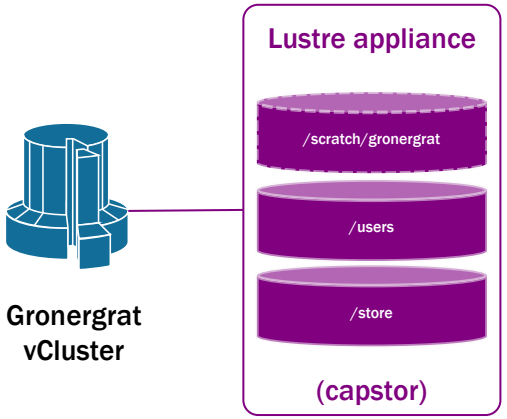
Moving to ALPS

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

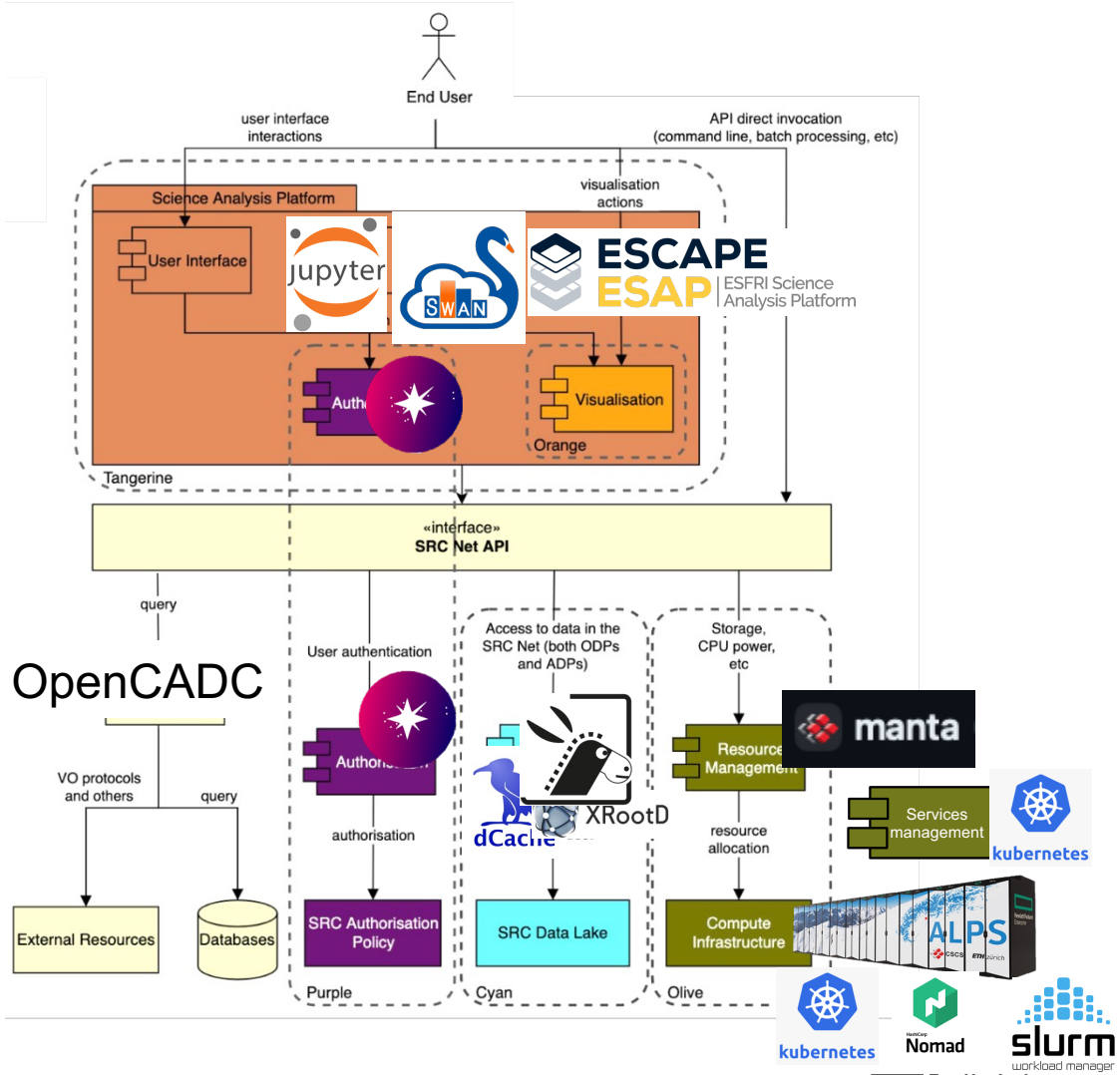
- Two stage move
- Move the non-GPU projects to gornegrat and eiger (Q3-Q4 2023)
- Move the GPU projects to the new system Q2 2024
- The GPU projects are expected to move in one month time window

SRCNet architecture implementation

SRCNet SKA Architecture Design

A SRCNet example component selection

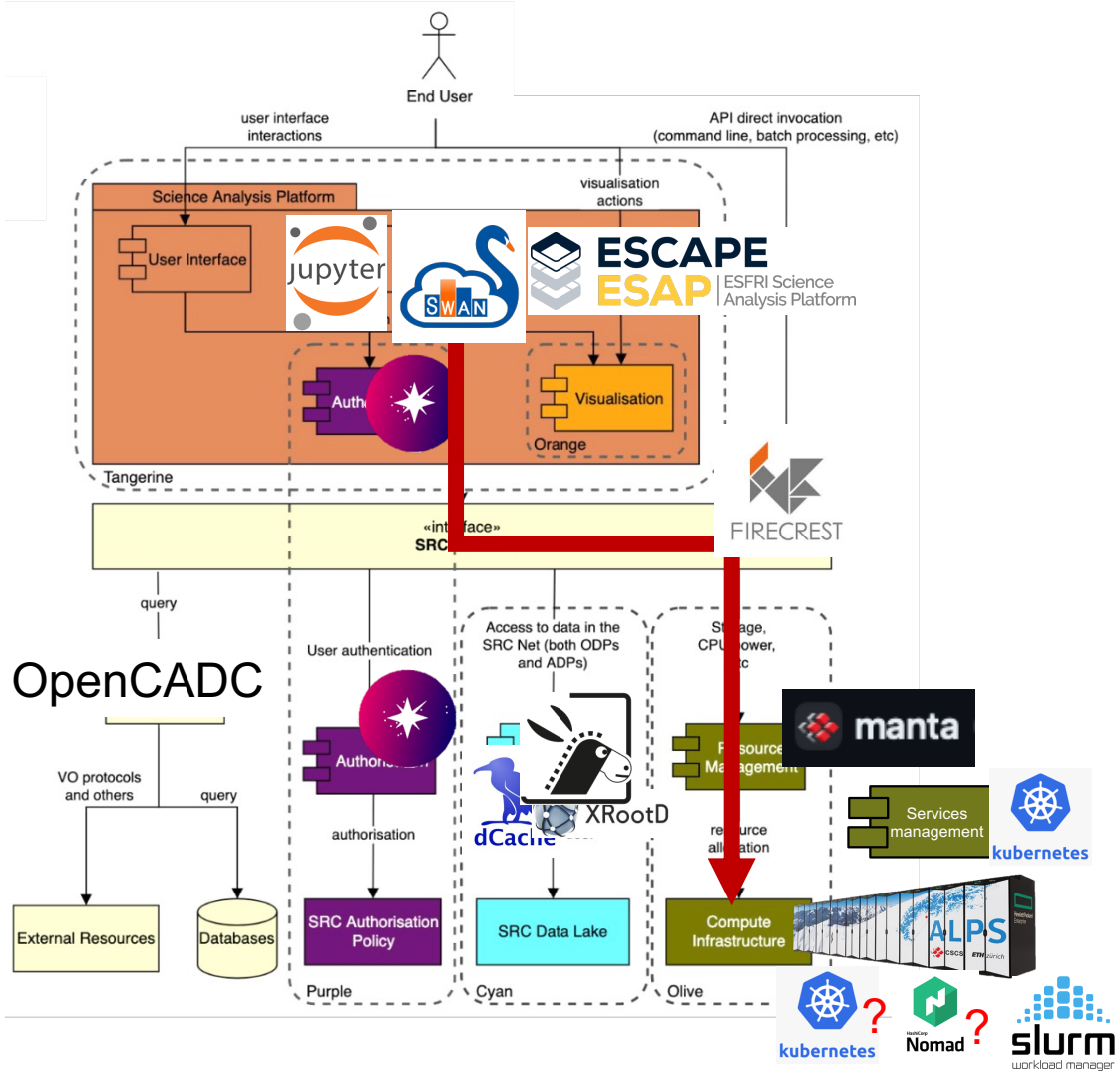
- Compute provided by the ALPS infrastructure
  - Compute can be scheduled using Slurm workload manager
  - Compute can be potentially scheduled using a cloud orchestrator
- Resource management can be implemented using the CSCS developed manta software
- Services can be managed using Kubernetes
- Rucio can 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 the FirecREST API intended usage
- Synergy with CTAOCH and SKACH



IT Security of SKACH

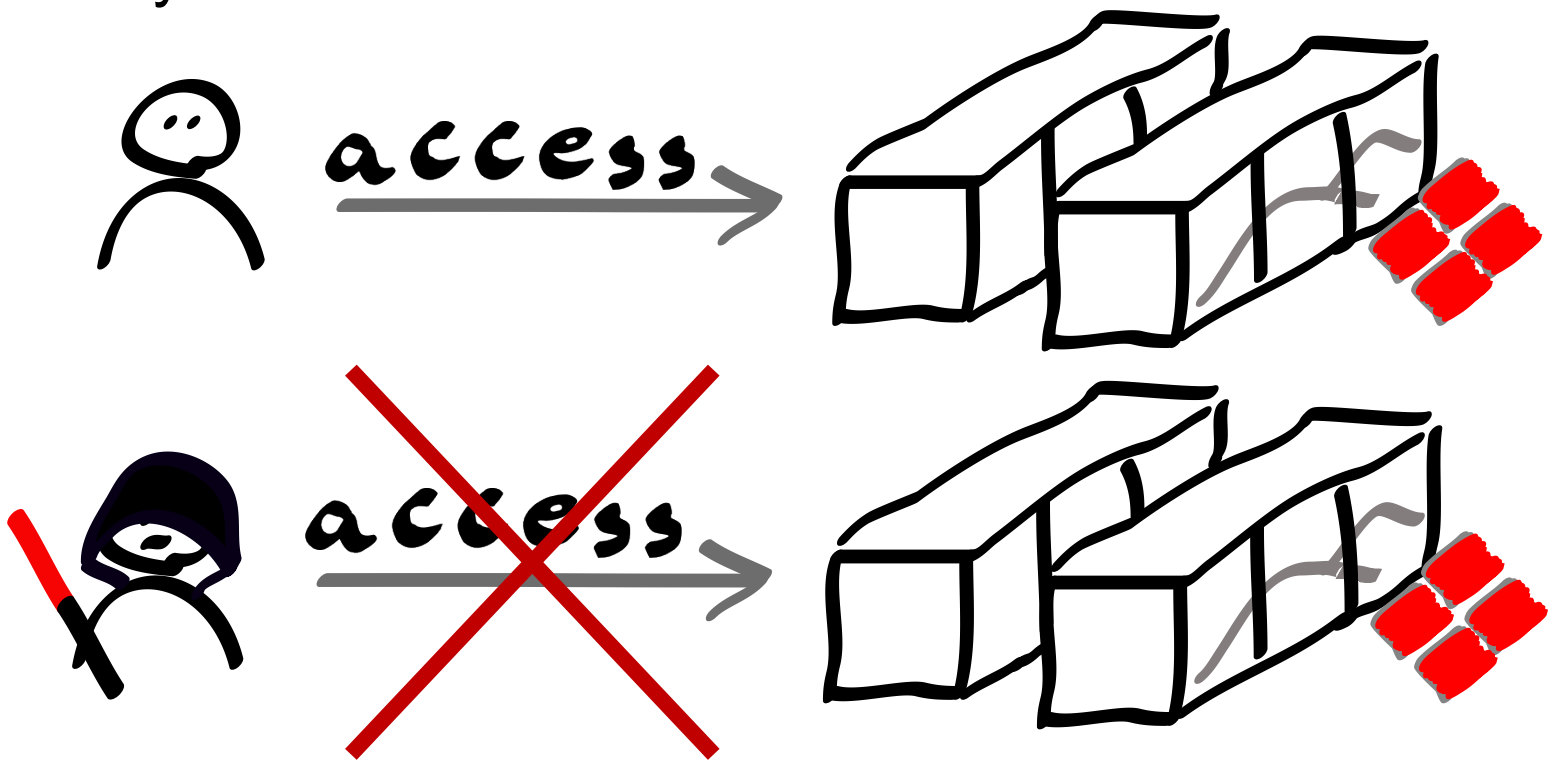
What have we been doing in this aspect?

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

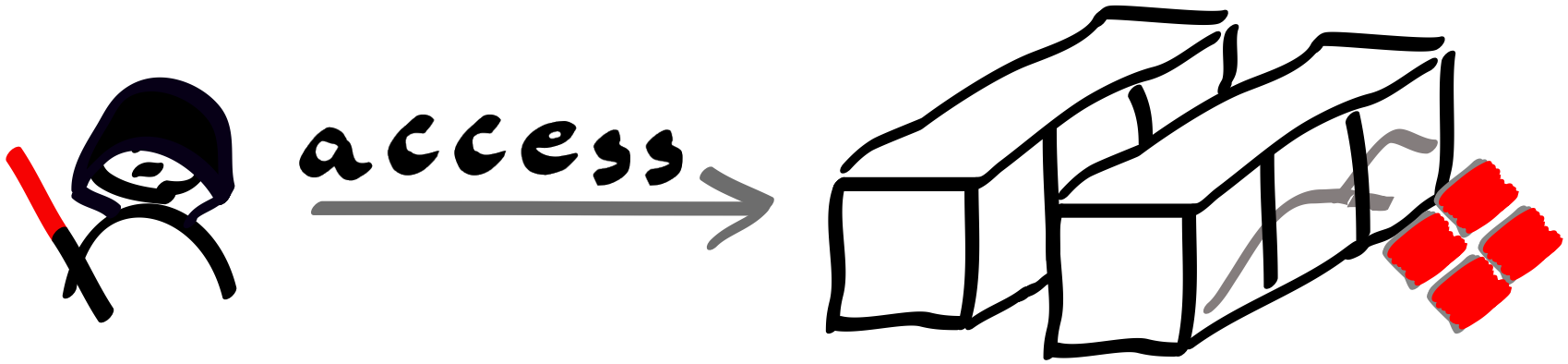
But things are not that simple

- 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?

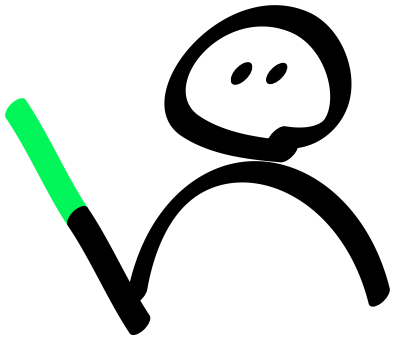
- Examples:
- Data exfiltration
- Lateral movement
- Cryptojacking
- Ransomware
- Denial of Service
- Privilege escalation

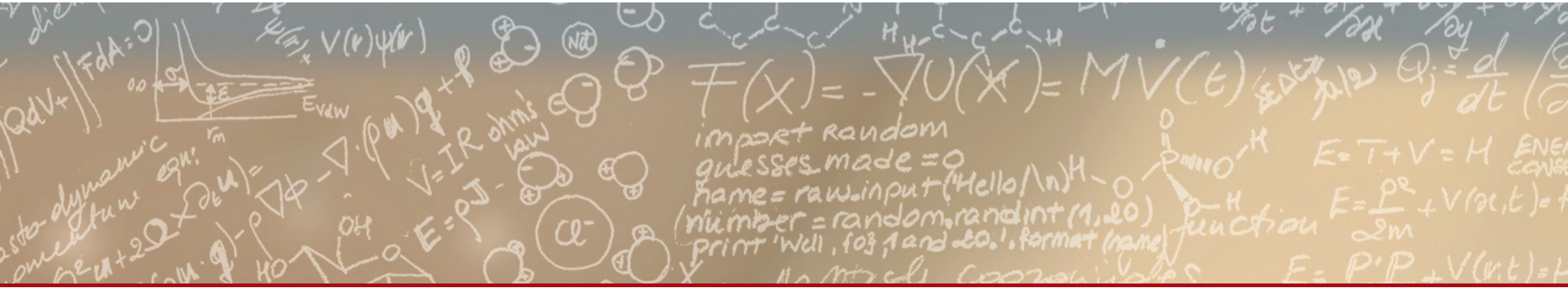


IT Security of SKACH

We working on the SKACH security

- Incident Response Plan
- Vulnerability Management
- Tailored solutions to SKACH based on threat modelling



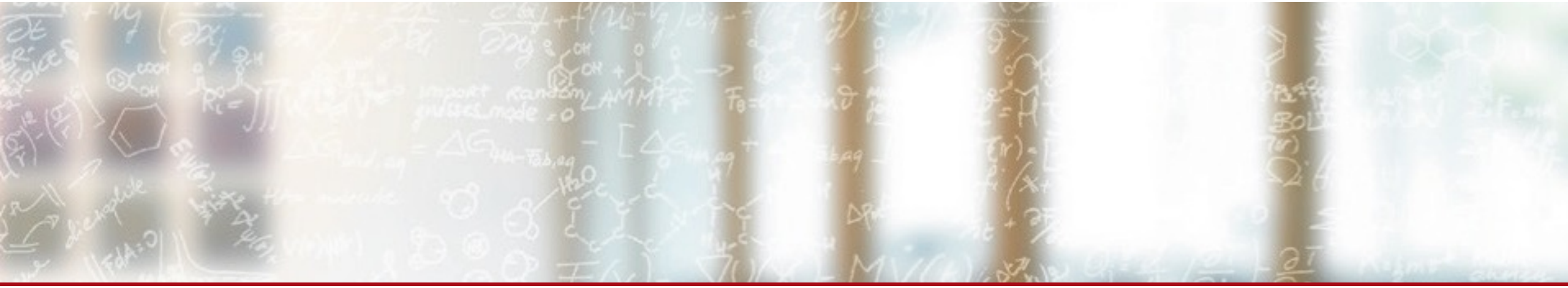


Thank you for your attention.

Questions?

CSCS
Centro Svizzero di Calcolo Scientifico
Swiss National Supercomputing Centre

ETH zürich



Computing Platforms and Infrastructure Program Update

Swiss SKA Days 2023

Victor Holanda Rusu, CSCS

September 6th, 2023

SKACH