



Vera Rubin Observatory

SA3CC Network Update

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U.S. DEPARTMENT OF
ENERGY



CHARLES AND LISA SIMONYI FUND
••• FOR ARTS AND SCIENCES •••

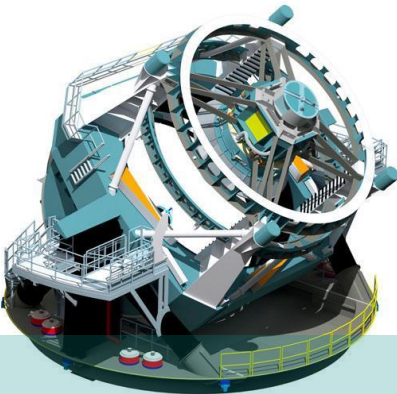


Data Production System Vision

Raw Data: 20TB/night



Sequential 30s images covering the entire visible sky every few days



Prompt Data Products

Alerts: up to 10 million per night

Results of Difference Image Analysis (DIA): transient and variable sources

Solar System Objects: ~ 6 million

Data Release Data Products

Final 10yr Data Release:

- Images: 5.5 million x 3.2 Gpx
- Catalog: 15PB, 37 billion objects



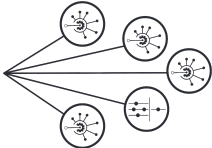
via nightly alert streams



via Prompt Products Database



via Data Releases



Community Brokers
Alert Filtering Service

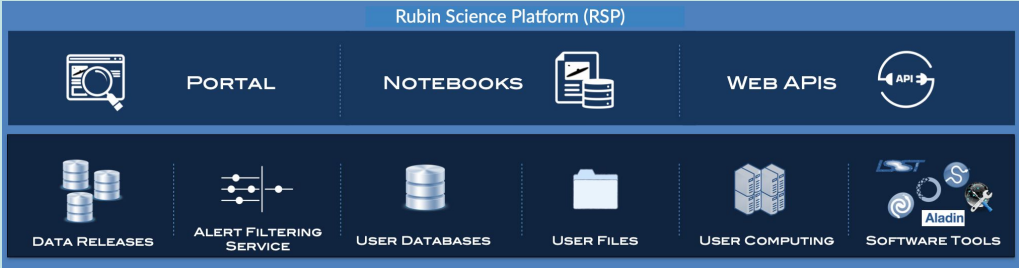


Rubin DACs (DFs & Chile)
Independent DACs (iDACs)

Access to proprietary data and the Science Platform require Rubin data rights

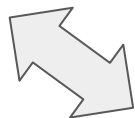
Rubin Science Platform

Provides access to Rubin Data Products and services for all science users and project staff

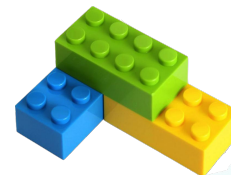


The Infrastructure

Software Licensing Cost = \$0



Simple Network

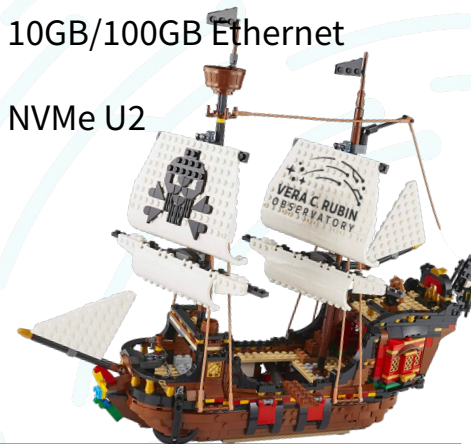


Supermicro Servers

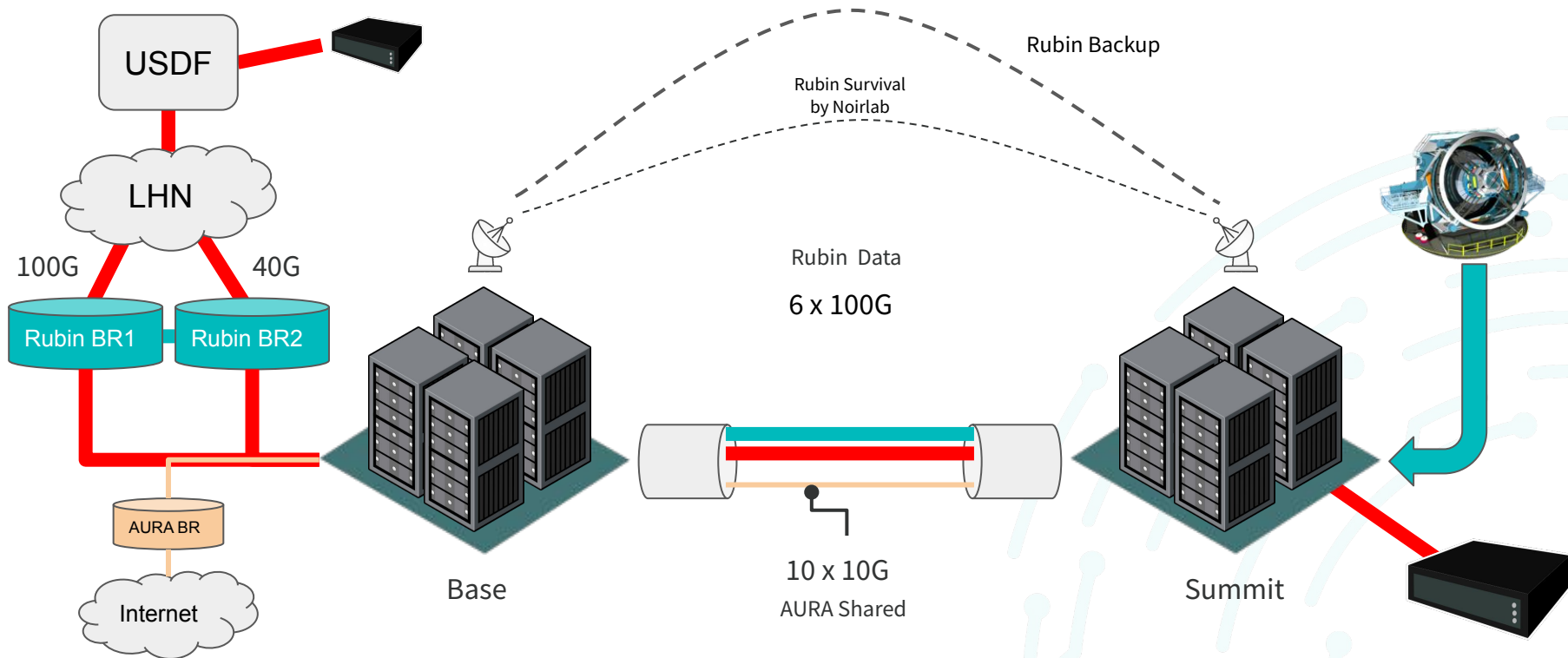
256gb+ RAM

10GB/100GB Ethernet

NVMe U2



Vera Rubin Observatory Network - Topology



Vera Rubin Observatory Network - Map

~105.000 KMs of Fiber

~46.000 KMs of Fiber are
underwater

Fiber crosses 6 countries

16 PoPs in the primary path

~15 Engineers from different
R&E Orgs.



Huawei Avoidance
ETA 1st Jan 2024

Network ACI Removed

- Removed 10g Bottleneck
- Vendor Neutral
- Highly Scalable
- Easier to troubleshoot
- Cost Effective
- Simplify the network



ACI - Monitoring Stack



- Base Test Stand (BTS) ready at the base - hooked to the LHN
- Summit Production cluster - hooked to the LHN
- Commissioning cluster at the summit
- Wireless Backup Link Summit - Base Enabled
- Summit to Base link 40x10gb replaced by 4x100gb

- Summit to USDF replication enabled in several workloads
 - LFA - Large File Annex
 - EFD - Engineering Facilities Database
 - Postgres
 - Kubernetes resources
 - Single streams
 - Low bandwidth (~6MB/s)

Vera Rubin Observatory Network - Pending

- End to End Testing
- Encryption and Security tasks
- Huawei Avoidance
- Observability
- Keep building legos (LFA, Comm Cluster, etc)

arrrrr!

