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A (*rock and*) rolling ecosystem for next-gen DaaS



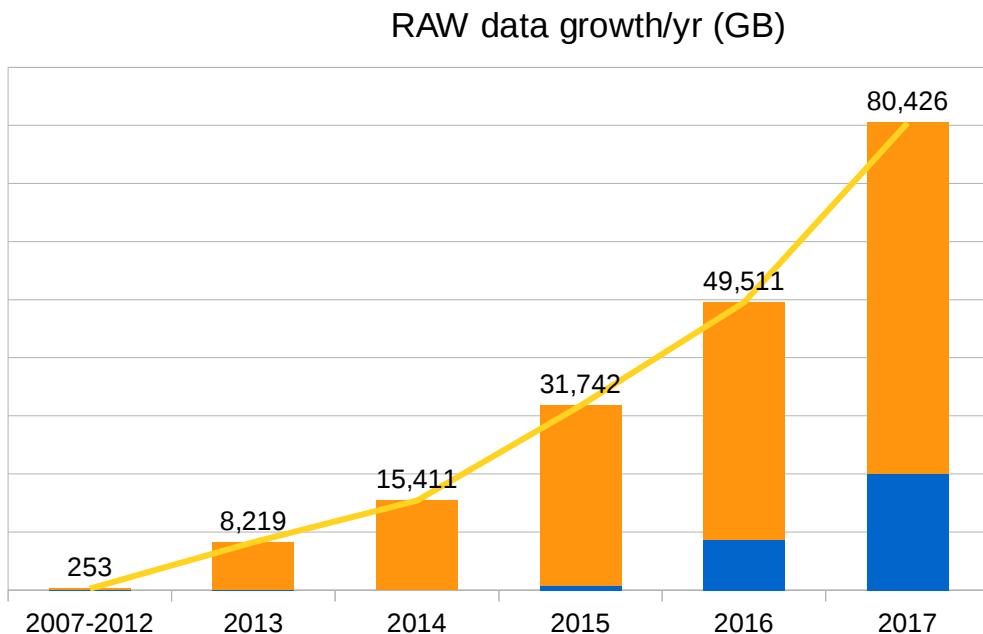
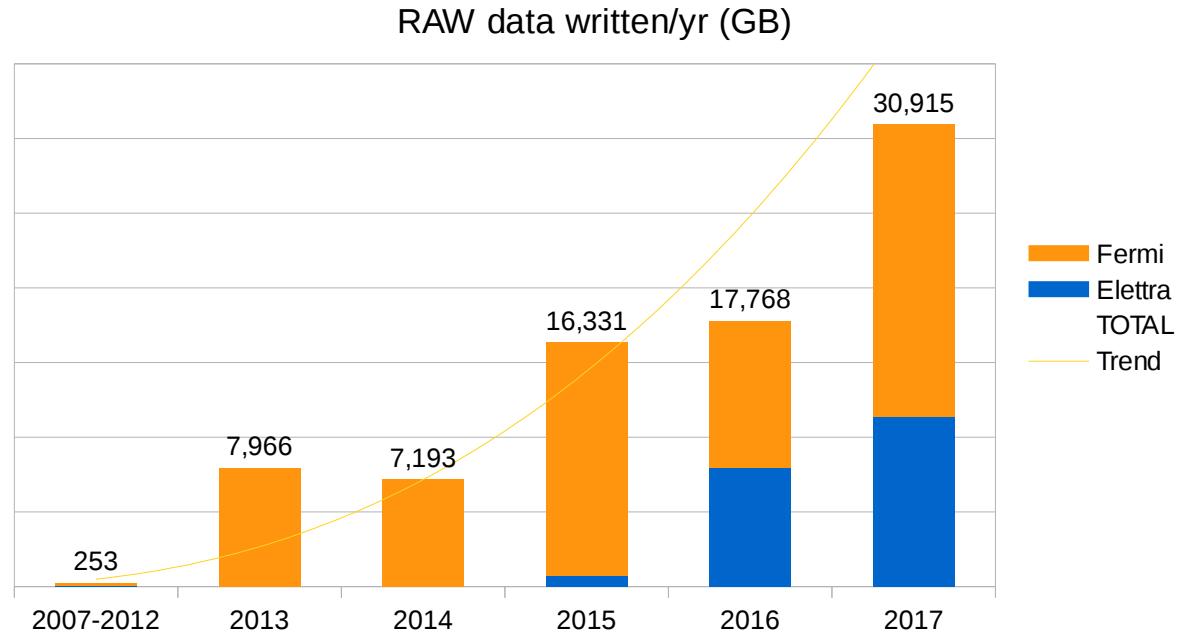
GARR Conference 2018, Cagliari

Ivan Andrian – 2018.10.04

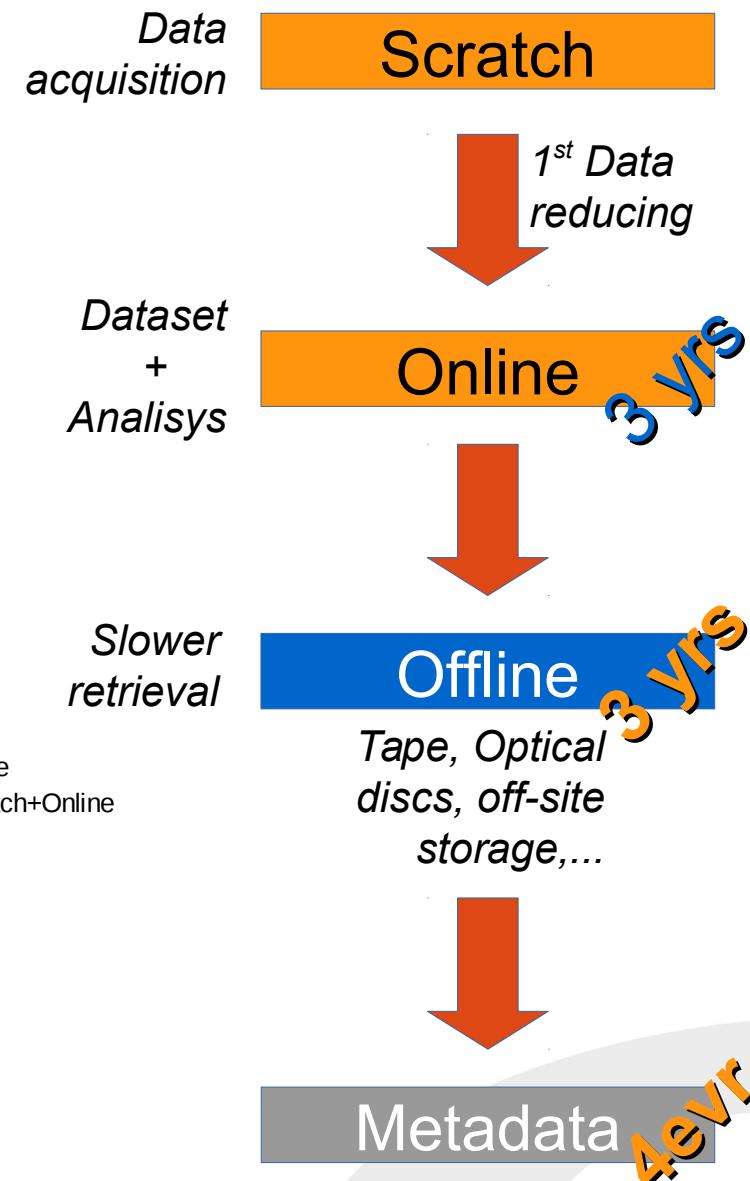
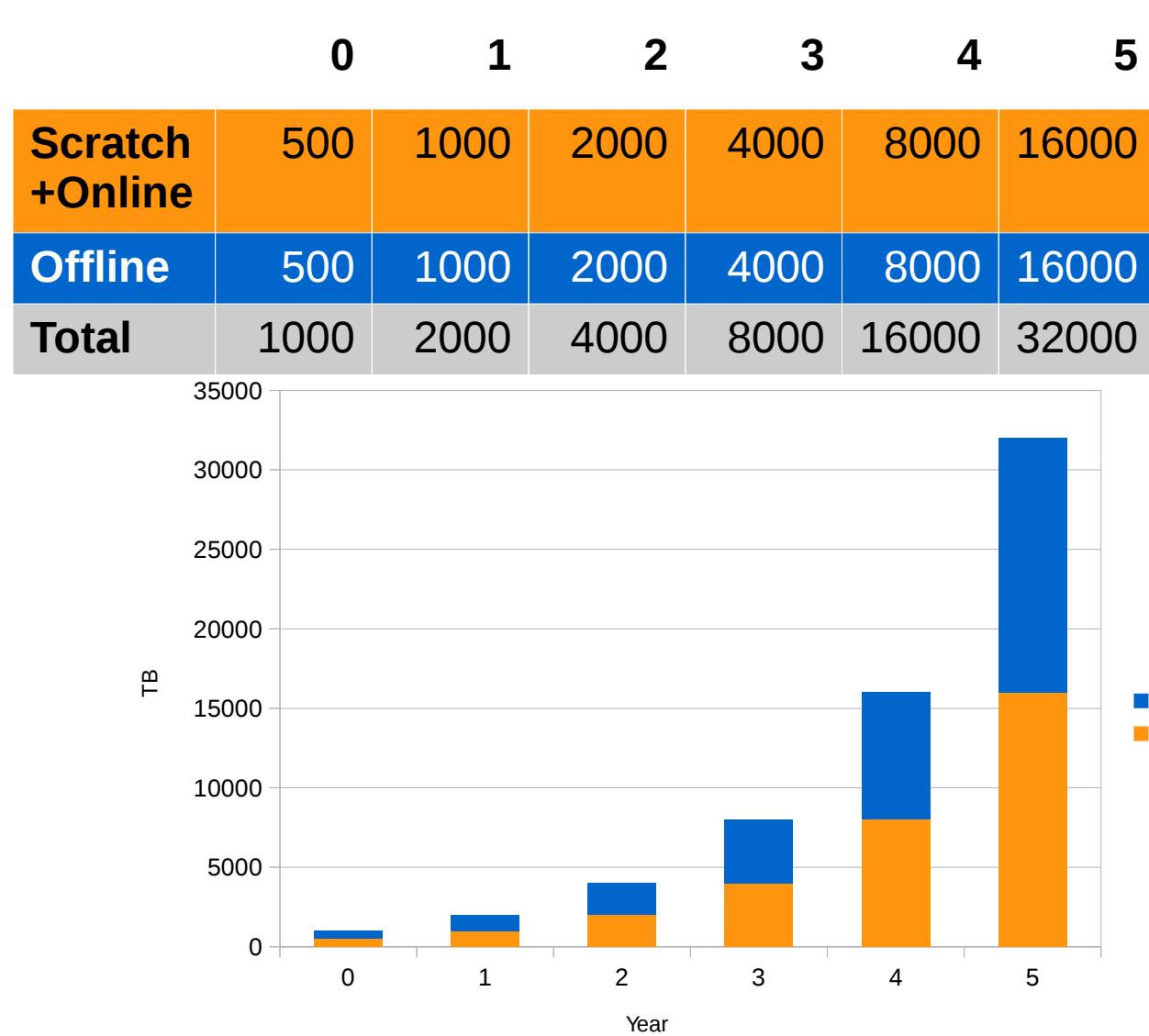


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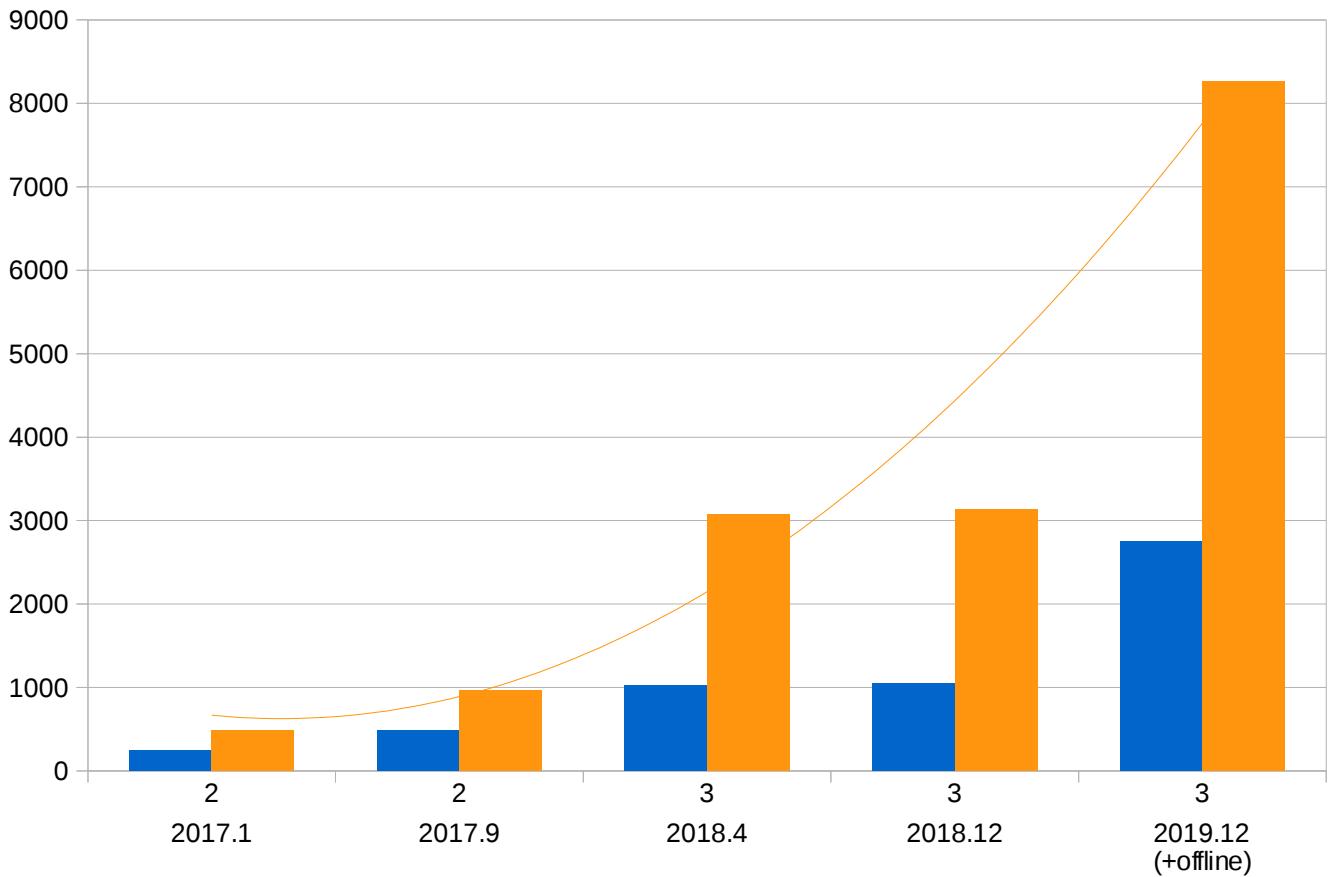
Past data counts ("online")



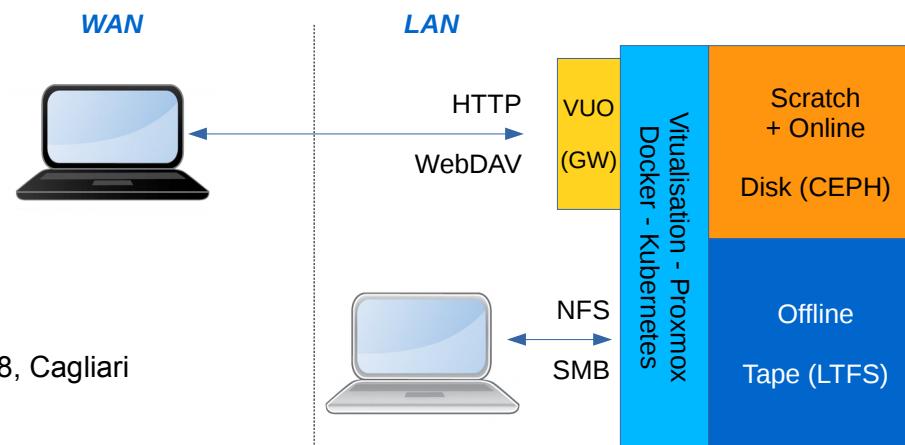
Data growth – projection now on



SOFA Storage cluster rolling expansion



- New space expected every year
- Alternating capacity and performance (spinning disks / Solid State memories)
- New tier in 2019: offline (tape)
- Increasing power in virtualisation “clients”



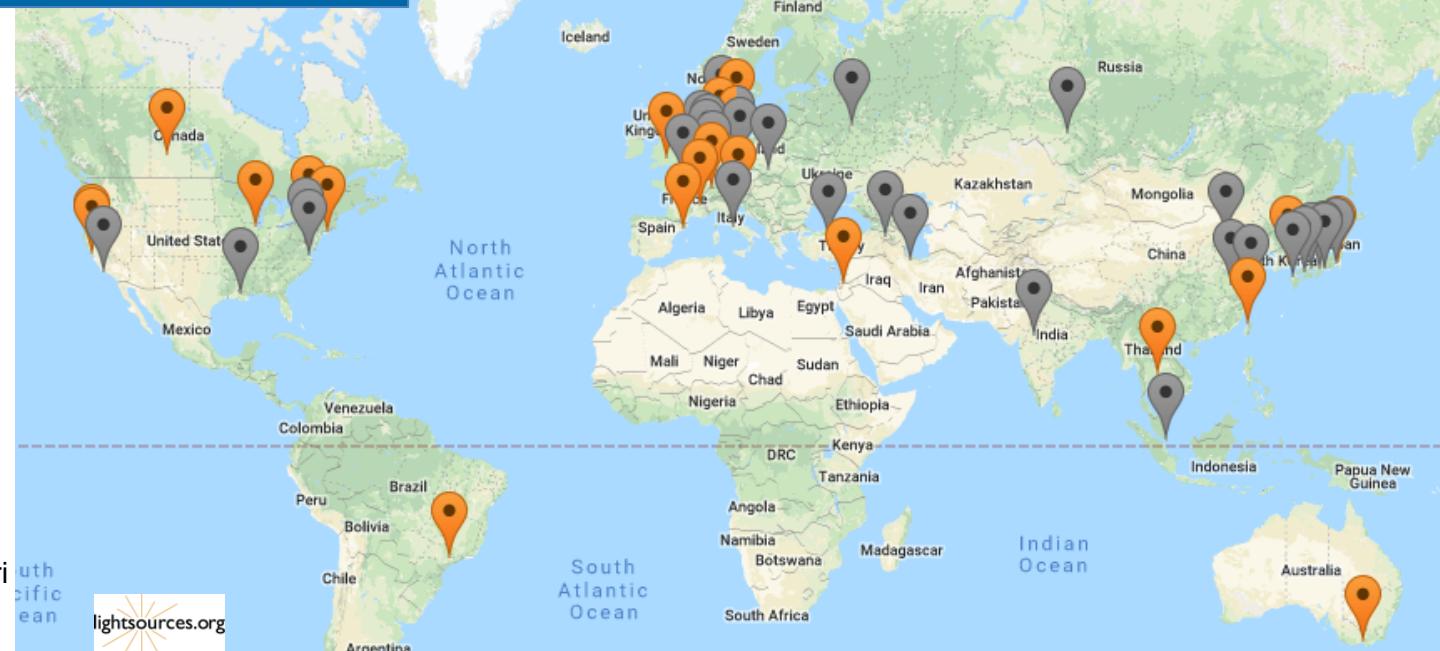
Big data, high analysis requirements, “gypsy” scientists: **Data gravity**

Use case: Ptychography

- ✓ Better detectors: more pixels,
higher Dynamic Range, faster I/O
- ✓ 50GB dataset
- ✓ 5-days experiment = 100 datasets
- ✓ Double time for analysis
- ✓ Double space for final archiving

Transfer costs

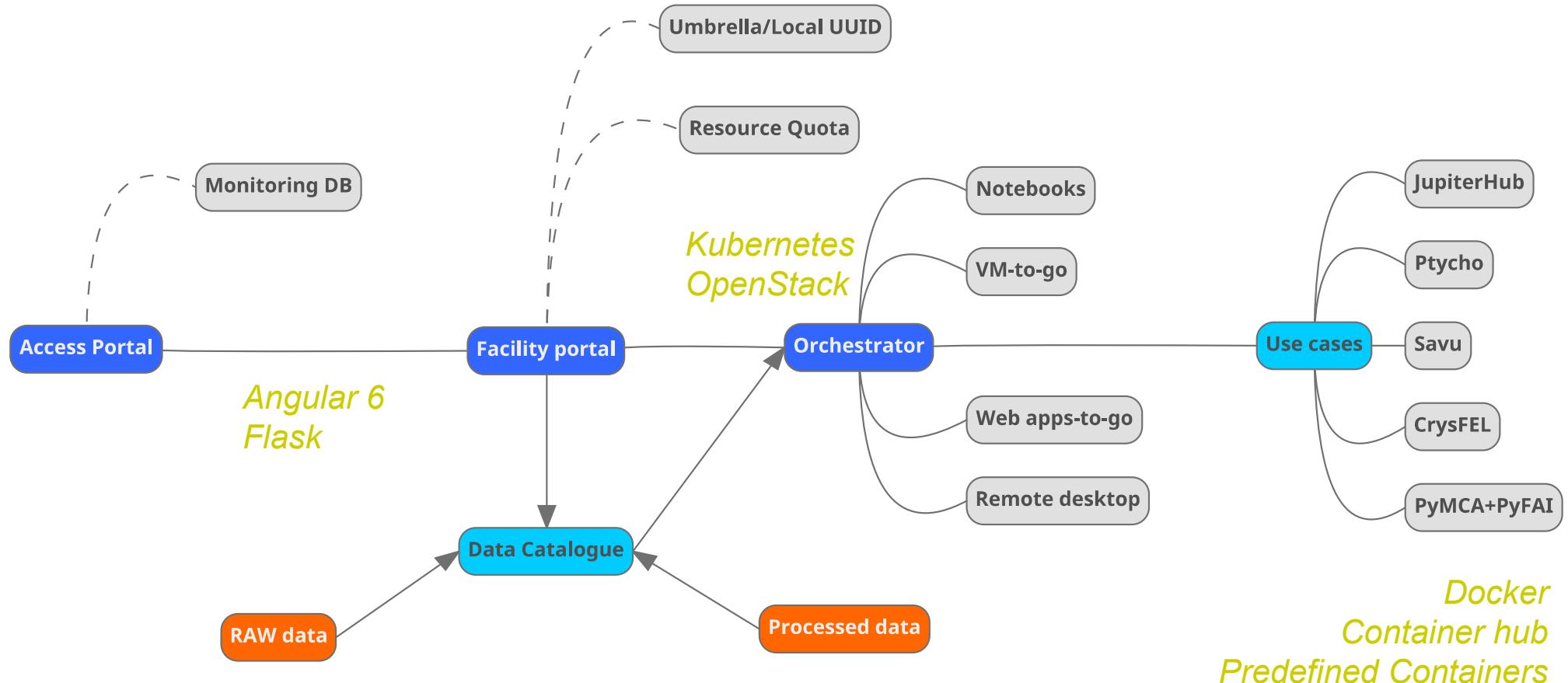
- ➔ 5TB@1Gb/s = 14h one way
- ➔ To and fro ~ 2 days
- ➔ Non standard transfer methods



Data analysis tools

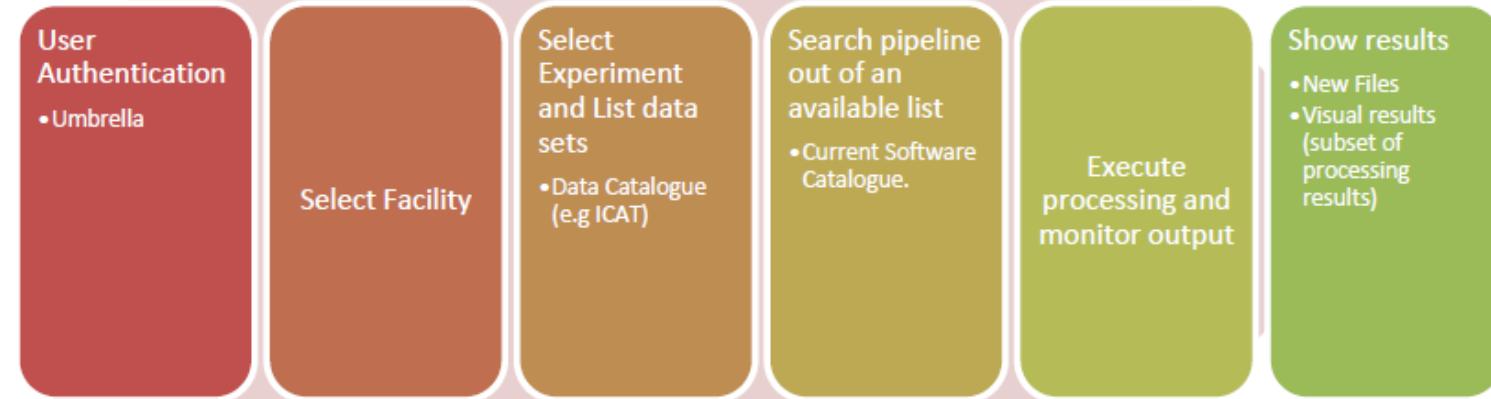
- ➔ Different data formats
- ➔ Different tools
- ➔ Interactive

HPC to HPSSDataC: DaaS





User workflow



High Network performances

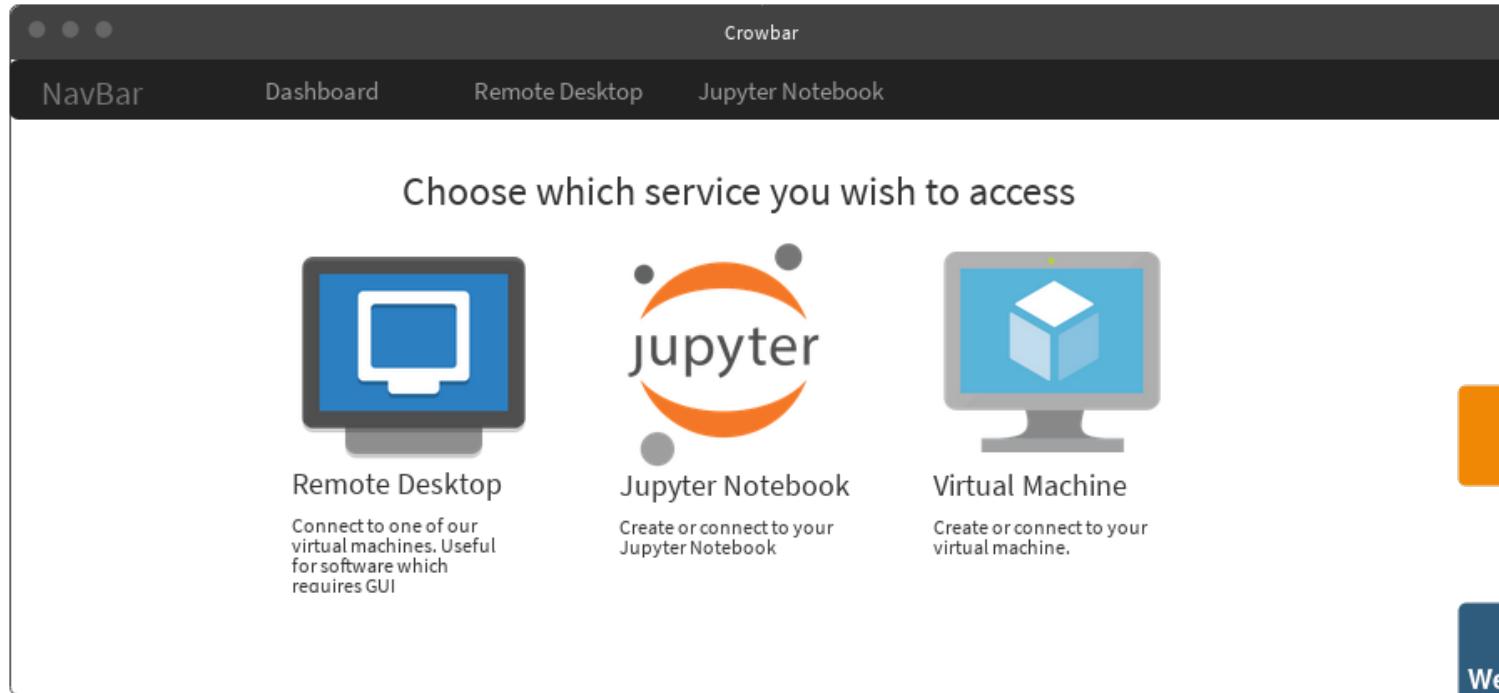
- ✓ 10Gbps workstation-cluster
- ✓ 10Gbps to WAN for multiple (shared) flows
- ✓ 40Gbps inside the HPSC
- ✓ Soon upgrading to 100Gbps

Self-service DaaS

- Less operator intervention
- Consistent environment
- No data moving

- Standard user procedures
- Controllable from anywhere
- Implementing EOSC

Current prototype



Crowbar

NavBar Dashboard Remote Desktop Jupyter Notebook

Choose which service you wish to access

Remote Desktop

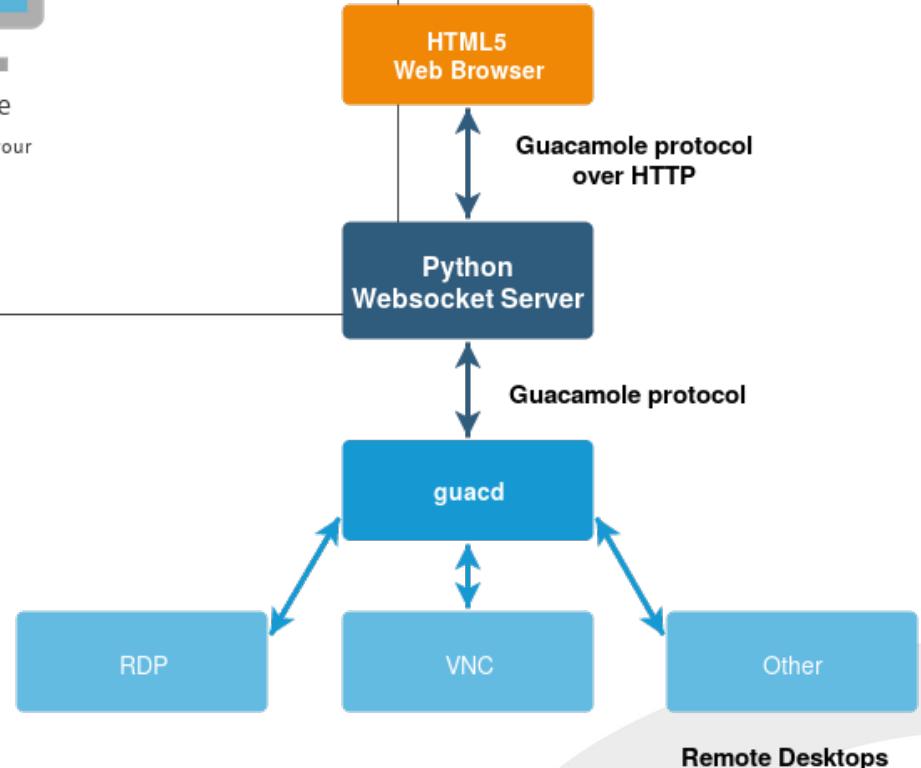
Connect to one of our virtual machines. Useful for software which requires GUI

Jupyter Notebook

Create or connect to your Jupyter Notebook

Virtual Machine

Create or connect to your virtual machine.



Next steps

- VM/Containers coming next months
- Kubernetes deployment where absent
- Link to data storage (iCAT)



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Thank you!

