



CCFE IRIS activity report

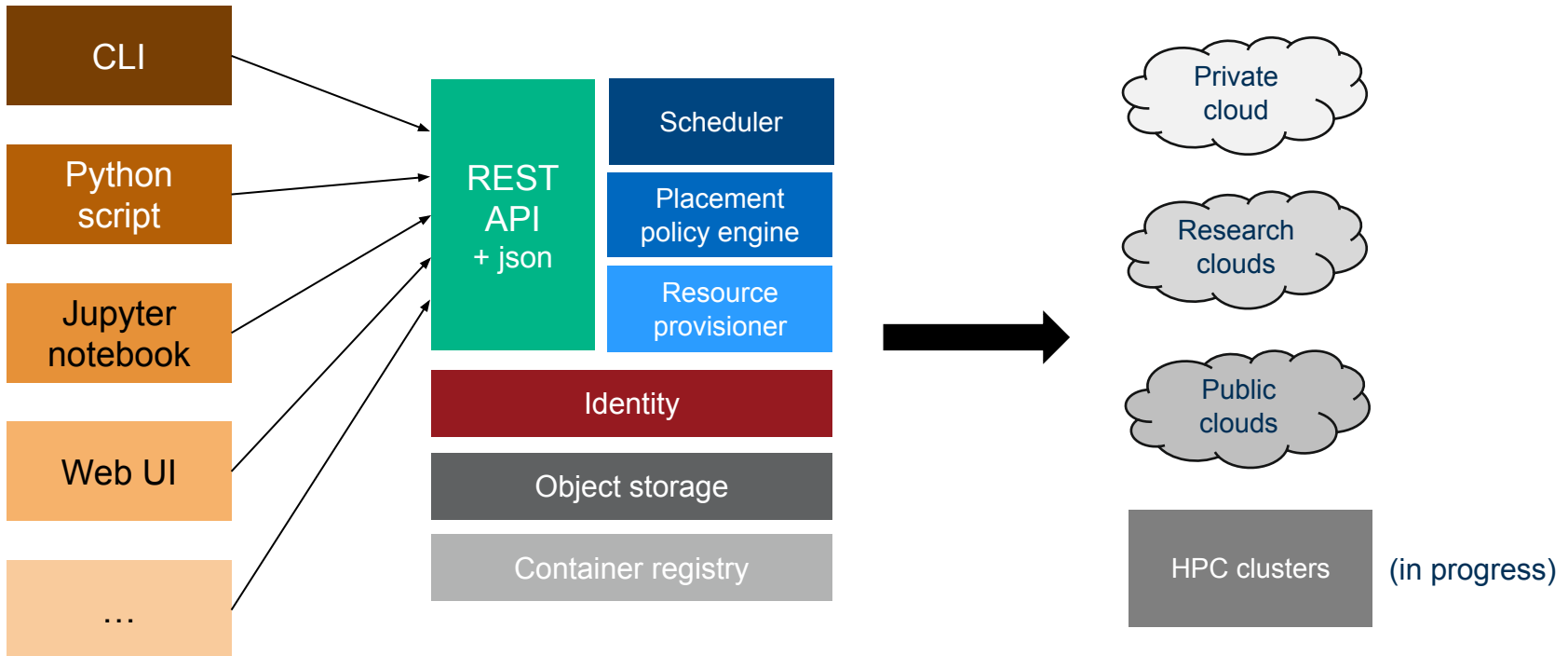
Andrew Lahiff

IRIS TWG f2f, 23rd Jan 2019

PROMINENCE

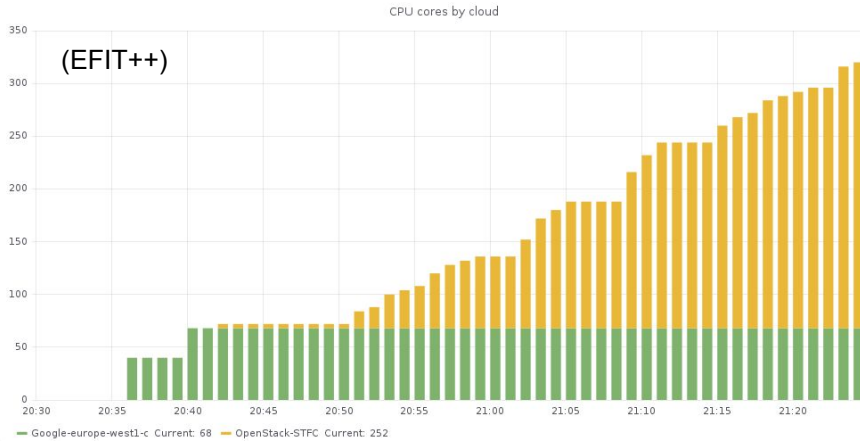
Platform developed in the EOSC-pilot Fusion Science Demonstrator

- “Submit globally, run globally”
- Run containerized HTC & HPC* applications opportunistically across private, academic and public clouds

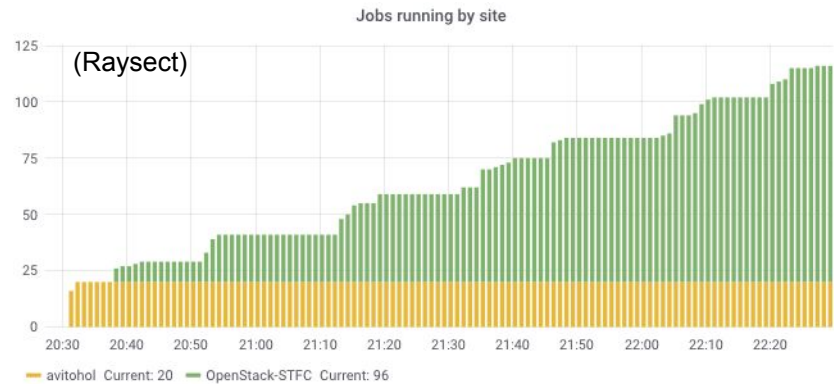


Examples

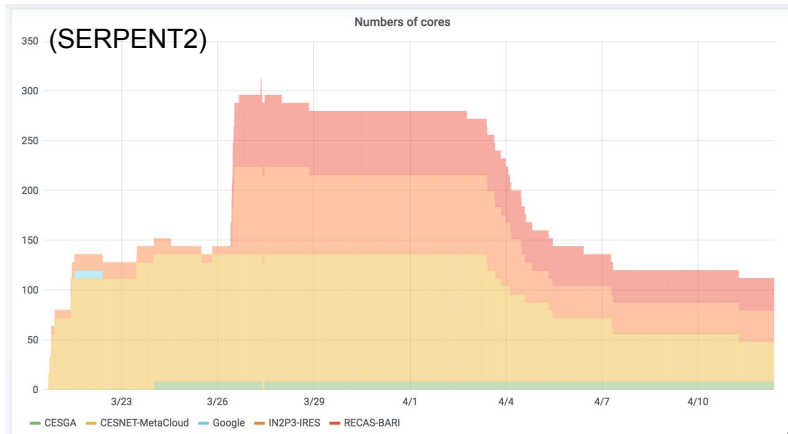
Bursting from Google to IRIS



Bursting from Bulgarian HPC to IRIS



Opportunistically using multiple EGI FedCloud sites



PROMINENCE status

Obtained additional funding from EOSC-pilot (until end March 2019)

- Scalability enhancements
- Includes OpenStack resources from IN2P3-IRES

This week gained access to “Avitohol”, a HPC system at ICT-BAS (EOSC-hub)

- Investigating use of traditional HPC resources within PROMINENCE

Last year applied to the EGI Strategic and Innovation Fund

- AAI
- Data movement

PROMINENCE is listed in the EOSC Marketplace

- Aim to make it available as a production service first half of this year

Workloads (Singularity or udocker)

- Jobs, groups of similar jobs, jobs containing sequences of tasks, jobs as CWL workflows, jobs with dependencies

Fusion applications

Using containers to make fusion applications useable on IRIS & other clouds

- Some have never been run before outside of 1 or 2 specific HPC clusters

Examples tested on IRIS:

- Rendering 3D CAD models using Intel OSPRay
- Modelling JET spectroscopic diagnostics using ray tracing
- ASCOT: Accelerated Simulation of Charged Particle Orbits in a Tokamak
- EFIT++ equilibrium reconstruction, using MAST data
 - Anticipate doing uncertainty quantification at scale on IRIS once MAST-U is running
- JINTRAC
 - A system of 25 codes for optimizing the design & operation of Tokamaks
 - Some codes run on a single node, other codes are multi-node MPI
 - Uses NAG libraries (container images cannot be made public)

Miscellaneous

Kubernetes on IRIS?

- An ALC project 5 task: developing on-demand Spark clusters
- This involves running Spark on Kubernetes

Private container registry?

- Some images cannot be made public
 - Use of commercial libraries
 - A lot of fusion software is not open source
- AAI integration
- An ALC project 5 task is investigating Harbor

CCFE OpenStack

- Moving away from Bright

Questions?

