Galaxy Australia

Australian BioCommons

What is Galaxy?

- A web interface to a complex mixture of computing resources
- A launching site for analysis tool(s) with pre-determined and scalable resources keyed to a users dataset size
- A repository for reference data required to support analysis
- A workflow creation and run platform
- A data and results sharing platform

More examples of how Galaxy is used

28 JANUARY 2022

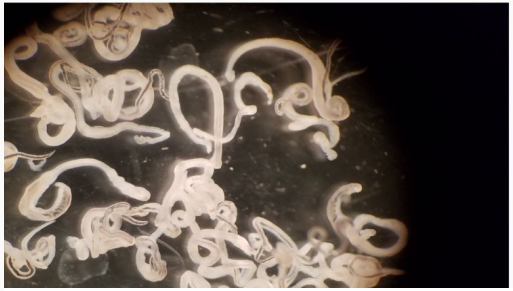
Virus research tips Galaxy Australia over 3 million jobs

31 AUGUST 2022

The Galaxy Australia service is being chos
to complete their bioinformatics analyses.
submitted across a broad spectrum of crit
real world.

10 million jobs - last week!

Uncovering the secrets of parasites through AI and Cloud computing



17 MARCH 2021

Better plant quarantine enabled by Galaxy Australia's two millionth job

To celebrate the broad uptake and diversity of their users, Galaxy Australia took the opportunity to spotlight the researcher who

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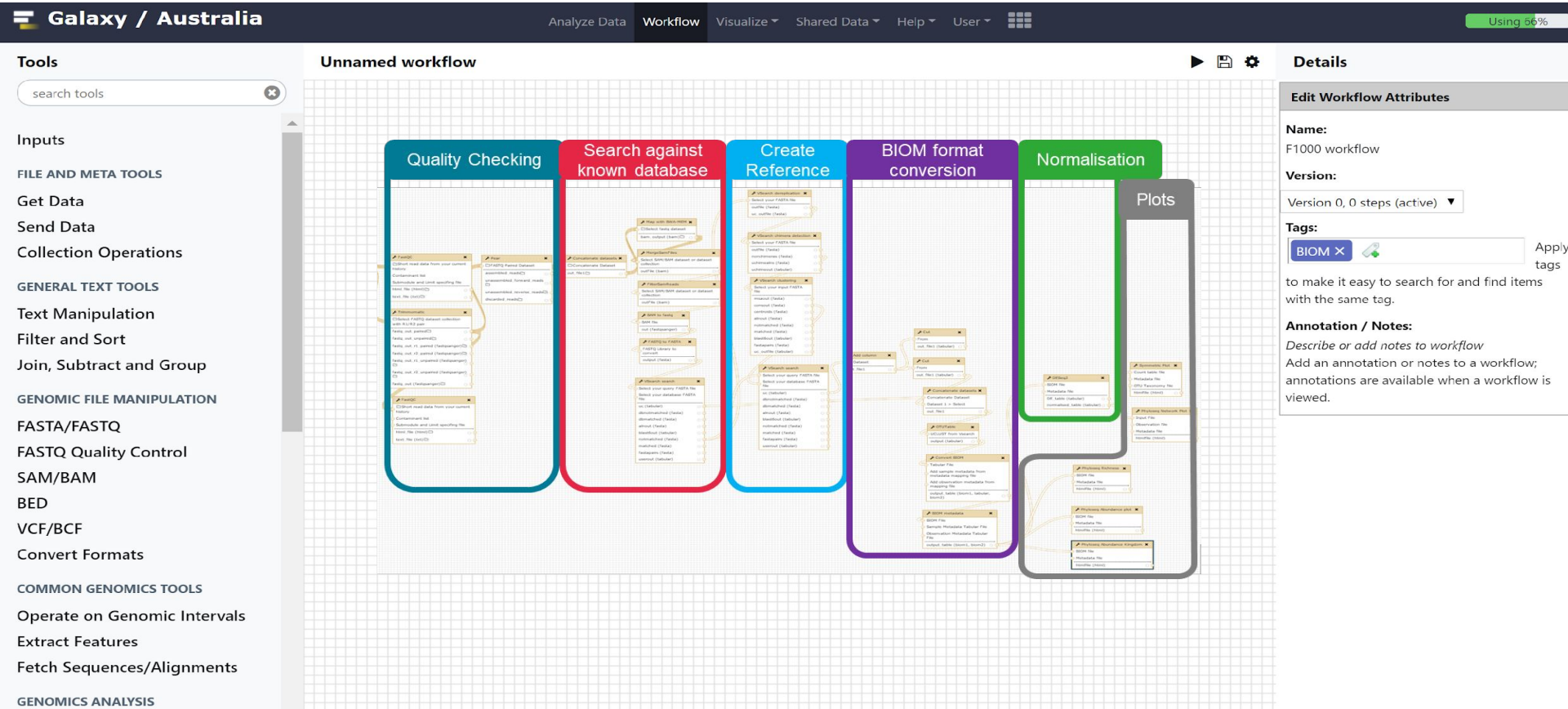
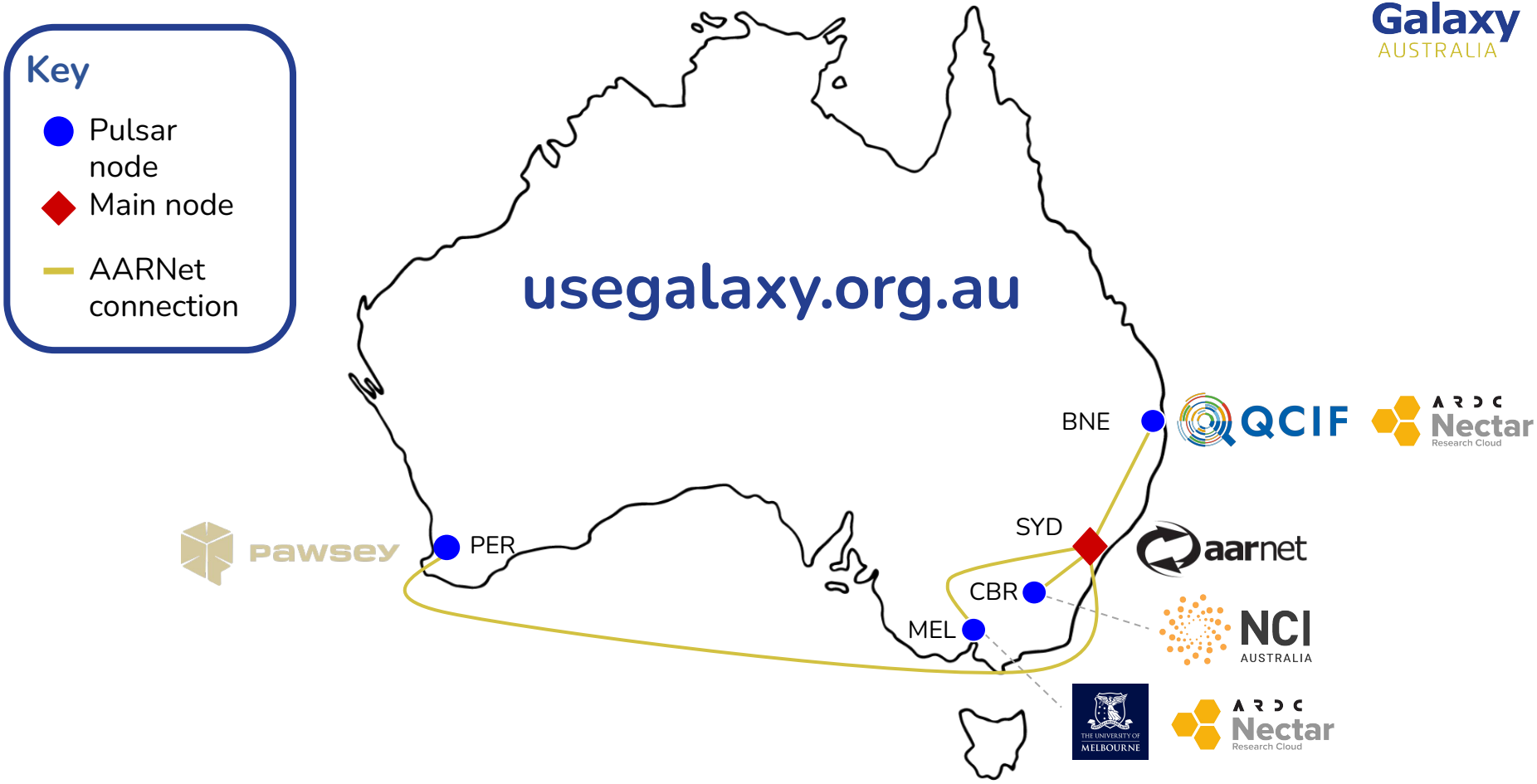
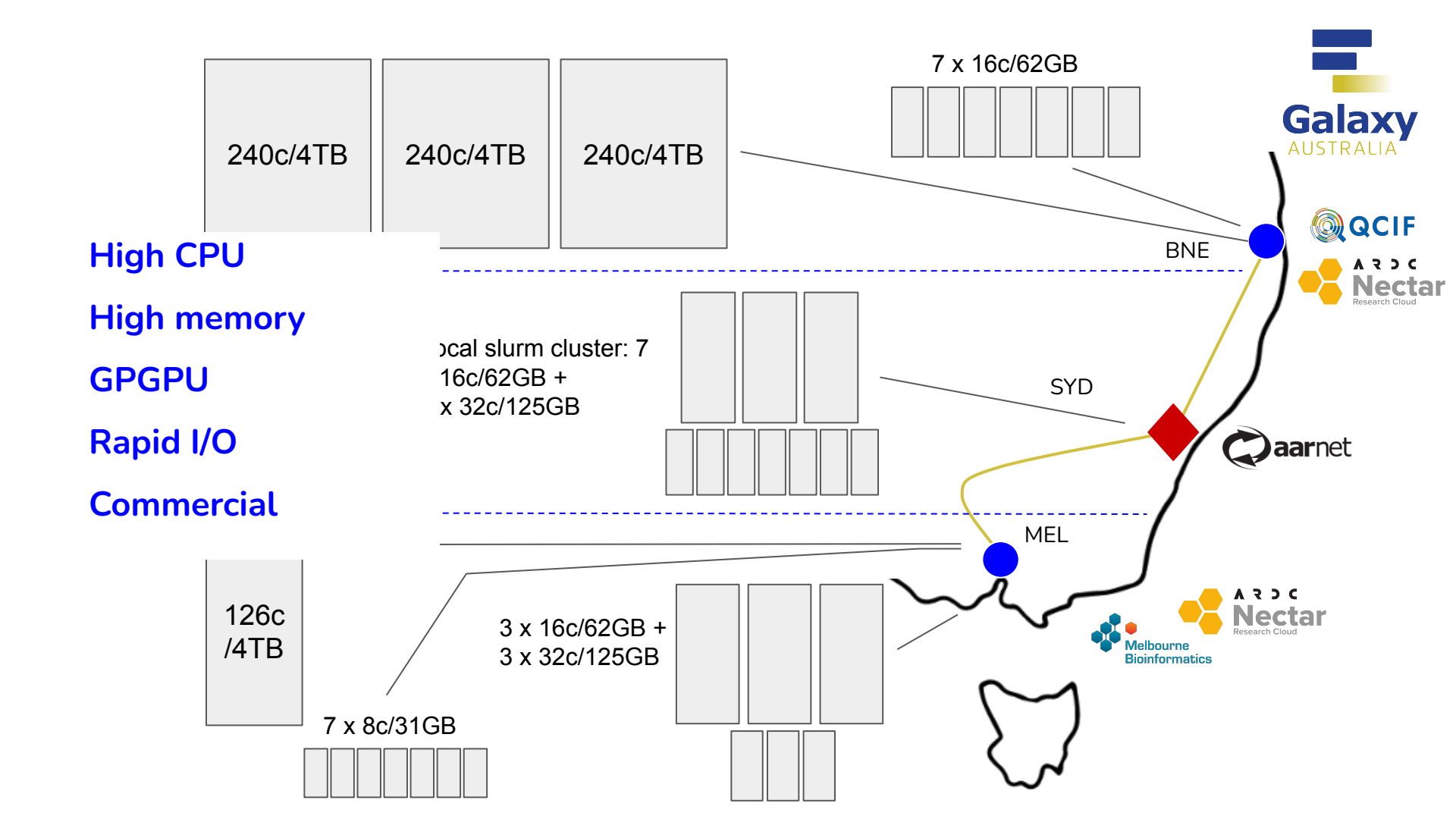
Efficiency through Galaxy controlled scheduling



Galaxy Australia deployment | 2024

Galaxy AUSTRALIA




240c/4TB
240c/4TB
240c/4TB
7 x 16c/62GB
Galaxy
AUSTRALIA
QCIF
ARDC
Nectar
Research Cloud
BNE
High CPU
High memory
GPGPU
Rapid I/O
Commercial
ocal slurm cluster: 7
16c/62GB +
x 32c/125GB
SYD
aarnet
MEL
126c
/4TB
3 x 16c/62GB +
3 x 32c/125GB
7 x 8c/31GB
Melbourne
Bioinformatics

TPV Job Dispatch Process for Galaxy Australia

Galaxy job

1

TPV dispatcher

2

TPV Resource Database

- Resource requirements
- Scheduling preferences
- Configuration

```
tools:
  spades:
    cores: 12
    mem: cores*4
    env: []
    scheduling:
      require: []
      prefer:
        - highmem
      accept:
      reject:
        - pulsar
    rules: []
```

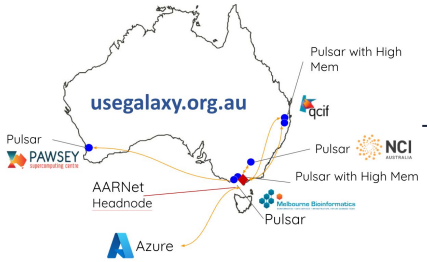
TPV config

3

Influxdb query for meta-scheduling

4

TPV determines destination with appropriate config



5

Real-time stats recorded in Influxdb & available via Grafana

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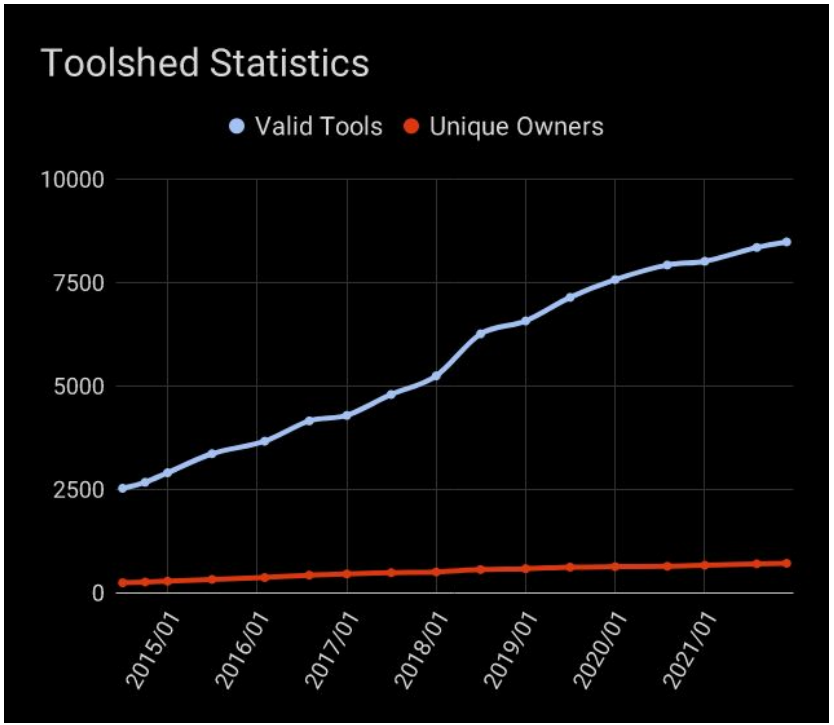
Galaxy Tools and References



Galaxy Tool Shed

- https://toolshed.g2.bx.psu.edu/
- 10,147 tools - October 22nd 2024
- 51 different tool categories
- Tool Shed Wiki: https://galaxyproject.org/toolshed/

Galaxy References

- http://datacache.galaxyproject.org/
- 100's of reference genomes - precomputed for rapid analysis
- Backed by the CernVM File System

Australian BioCommons

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Galaxy PROJECT