The Genomics Virtual Laboratory 4.0

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EMBL Australia Bioinformatics Resource

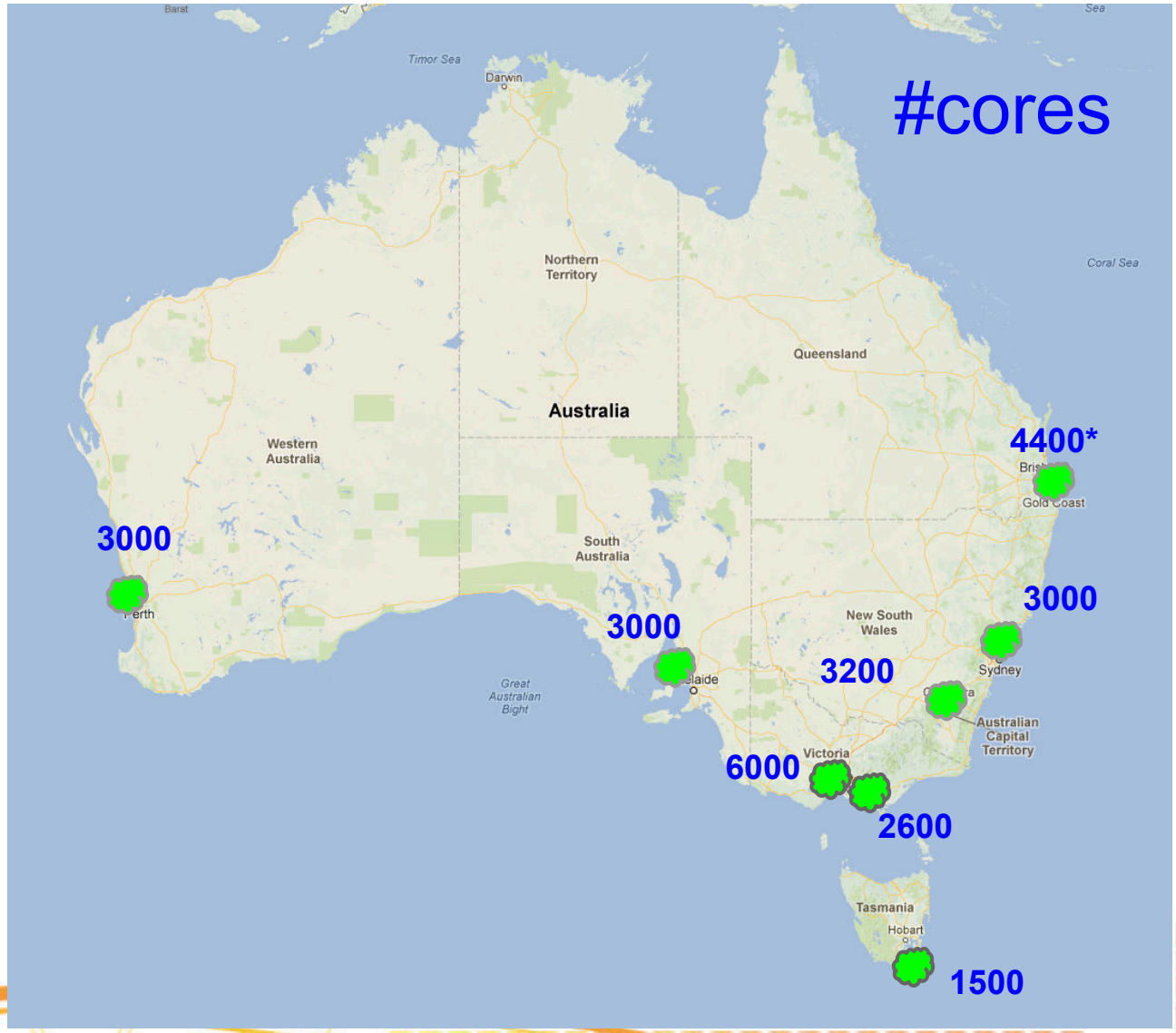
Australian Research Cloud

Government funded, free for researchers

30,000 cores + co-located object and NFS stores

OpenStack based

~$100m USD



The GVL Launch Portal

1. Goto www.genome.edu.au
2. Use the public galaxy servers
3. or get your own private instance
   a. Click Get -> Launch Your Own GVL
   b. Launch!

GVL: Design principles

Criteria	Design Implication
Accessible	Minimal client-side requirements
Reproducible	Workflow support + software & tool management process
Performance	User-managed scaling of compute resources + high availability resources
Flexible	User configurable + administrable Multiple interaction modes
Consistent	Single platform from training to analysis
Functional	Pre-populated with suite of tools for common use cases + required reference data + visualisation options

Resourcing

Managed service: objective

Resourcing

Managed service: objective

A short time later…

GVL: Philosophical assertion

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GVL: Philosophical assertion 2015

GET

USE

	Personal GVL	Server GVL	Cluster GVL
Suitable for	**Single user**	Single user Small group/lab	Large groups Institutions
Storage	**60GB**	100-5000GB	TBs
Compute	**2 cores**	8-64* cores	>50 cores
Requires	**NeCTAR account**	NeCTAR allocation: Compute and Volume storage	Large NeCTAR allocation of compute + user-provided fast storage
Runs on	**Any Research Cloud node**	RC nodes with volumes	RC nodes co-located with fast file system
Setup	**Automatic via website**	**Automatic via website**	Collaboration with GVL team
Configuration	**No configuration required**	Some configuration to tune analyses	Dedicated management

More information

GVL: http://genome.edu.au/

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GVL Flavours

1. Flavours are pre-built variations of the GVL
2. Built by extending the base GVL ansible scripts (The GVL ansible scripts will internally include the Galaxy and Cloudman scripts)
3. Only modifications need to be implemented - minimising redundancy

   Example: Microbial GVL
4. Made reproducible by defining exact component versions in launcher.

GVL Reproducibility

1. Each version of GVL has a fixed configuration so the software configuration is fully reproducible.
2. Since GVL 3.x, improvements have been made so that every single component is locked down.
3. Both automated testing and manual testing employed to make sure base functionality is correct.