



# Tier-2 Evolution

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## Tier-2 Evolution activity

- Begun at GridPP35
- Terms of reference:

*Starting from the plan in the GridPP5 proposal, we will develop specific advice for Tier-2 sites with the goal of being able to provide experiments with the ability to run jobs and access grid storage, within an effort budget of 0.5 FTE at the site. The routine operation of a site should be possible with general Linux system administration expertise, with ongoing expertise beyond that provided externally by GridPP or experiment staff. The advice given to sites will be developed by a continuous process of deployment and evaluation involving Tier-2 sites and experiments.*



## Progress since GridPP35

- Have mapped out tasks and been tracking progress in GridPP JIRA
- Have mostly focussed on job execution side
- Outcomes so far
  - Vacuum Platform specification
  - Vac ready for 01.00 release
  - Updated/generalised GridPP VMs
  - ATLAS VMs now on production basis
  - Brought a new Vac site (Liverpool) up to hundreds of VMs in production

## Basing Tier-2s on Vac checklist

Production version of Vac (01.00)	Done
Demonstration at scale ~500 VMs	Done
LHCb VMs on production basis	Done
ATLAS VMs on production basis	Testing
CMS VMs on production basis	Planned
GridPP DIRAC VMs on production basis	Testing
Mixed VM sizes operation	Planned
Ganglia-style monitoring of Vac sites	Testing

# Observations

- Simplification is “in the air”
  - Information System,
  - WLCG Lightweight Tier-2 TF starting in ?May?
- People are finding that setting up and maintaining OpenStack is at least as hard as batch+grid middleware
- Vac is a lot more straightforward, either with Puppet etc, or with Vac-in-a-Box installations
- Picture surrounding storage simplification is still a lot less clear than job execution side

## So first T2evo recommendation

- If you think you may not be able to continue running / updating your current set up ...
- **Then you should convert some of your capacity to Vac now**
  - Will gain you experience
  - If your GridPP-funded effort is going to reduce, then you want to do this before then
  - Straightforward to scale Vac up from 2 machines to 200 later since no headnodes etc
    - Assuming you used Puppet, Ansible, Vac-in-a-Box ... to install them



## An aside about complementarity

- Bohr introduced this idea into physics
  - e.g. wave vs particle
- But applied it outside physics too
  - e.g. precision vs clarity of statements
- We see complementarity in computing too
  
- For T2Evo, this one is especially important:  
**simplicity vs generality**



# Discussion ....