Energy Efficient (Green) Cloud !

The CompatibleOne Experience

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http://greencloud.ens-lyon.fr

- CompatibleOne : French Project on Cloud software stack design (Fonds Unique Interministériel (FUI) support : BULL Leader + Mix of SMEs and Academics)
- Integration project (OpenStack, OpenNebula)
- Development project : new software components

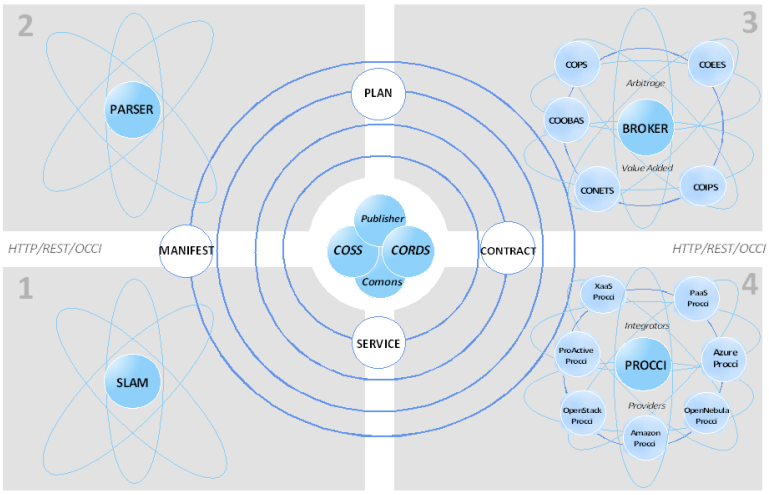

Fig 1 – CompatibleOne architecture

- Energy Monitoring of physical and virtual resources using hardware probes (PDU, IPMI cards)
- Energy usage exposing for users and cloud managers
- Energy monitoring streams for upper layers software

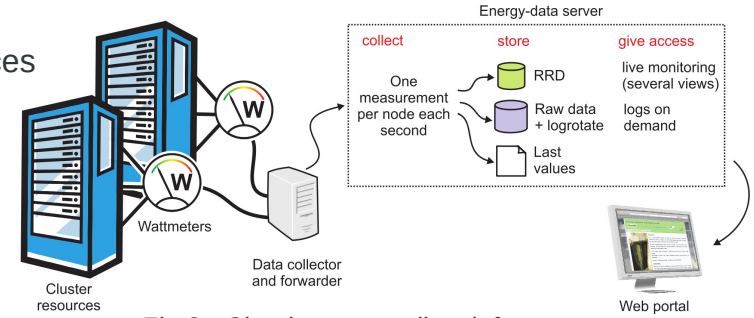

Fig 2 - Cloud energy collect infrastructure

- Design Energy aware software components
- Measures exploitation (Utility)
- Jobs/Tasks distribution / Virtual Machine placement
- Billing
- Infrastructure management
- Carbon footprint evaluation

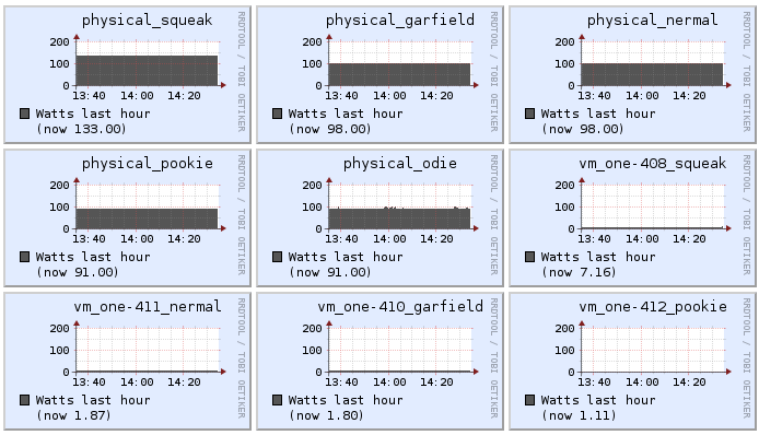

Fig 3 – Results graphs using Ganlgia

CompatibleOne: Designing an Energy Efficient Open Source Cloud Broker (CGC2012)