

Education Cloud

Open Source Junction 3

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What is the Education Cloud?

- compute and storage cloud for HE and FE
- infrastructure as a service (IaaS)
- designed to address the major concerns of HEIs
 - data remains in the UK at all times
 - operated for the long-term benefit of the UK academic sector
 - integrated with the JANET network
 - lower the costs associated with IT provisioning
- a 'community cloud' for education
- built on our Community Cloud Infrastructure and what we've learned from the UMF Cloud Pilot



What is the UMF?

- University Modernisation Fund
- £12.5 million from HEFCE to encourage uptake of shared services in HE
 - efficiency and value for money as key drivers
- channelled thru the JISC Shared Services and the Cloud programme
 - research and administrative computing
 - JANET Brokerage, DCC and Eduserv
 - 4 SaaS projects
 - RMAS, DARE and ESB
 - running until end of March 2012

JISC



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What is the UMF Cloud Pilot?

- pilot project, funded under the UMF
- to deliver a pilot cloud infrastructure
- compute and storage in the cloud
- primarily for use by the other projects and services funded under the UMF
- main focus on VMware vCloud
- scheduled to end 'real soon now'

JISC



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www.eduserv.org.uk/educationcloud

Delivered by Eduserv

- not-for-profit IT services company
- best known in HEIs for OpenAthens and CHEST
- web hosting and development for government
- 20 year sustainable track record of growth
 - >3.5m registered users of Eduserv-based services
 - 115 staff - turnover of £16.5m in 2009/10
 - new datacentre in Swindon specifically for education and the public sector
- charitable mission to encourage the effective use of ICT in ‘public good’ organisations



Delivered from

- our Swindon Data Centre
 - capacity and power for >600 racks of infrastructure
 - modular design
 - PUE efficiency design of <1.4
 - 10 Gbit/s JANET backbone connectivity via new JANET PoP



Hardware

- Cisco UCS blade infrastructure
 - dual 6-core 3.06GHz processors with 64GB RAM
 - initial deployment will scale to >1,500 cores, 8 TB of RAM
- Isilon storage
 - clustered NAS solution with near-SAN performance
 - initial deployment will scale to 10PB usable
- connectivity
 - 2-tier Cisco switched network (core and distribution)
 - fully resilient with no single point of failure (including dual path to JANET PoP)
 - all ports running at 10 Gbit/s



Our offer

- vCloud Compute
- OpenStack Compute (???)
- VM Storage
- File Storage
 - WebDav and SFTP... RESTful API (a la S3)
- JANET Connectivity

...all accessed via a self-service portal
with possibility of second-site DR
and long term tape archiving in
the future



Typical use-cases

- vCloud Compute
 - good fit with local vSphere provision
 - burst capacity at times of high demand
 - DR facility
- OpenStack Compute
 - research computing
 - undergraduate teaching



Timescales

- now
 - UMF Cloud Pilot infrastructure for use by UMF-funded SaaS projects
 - vCloud Compute general availability (25 orgs experimenting currently)
 - File Storage beta (WebDav - real soon now)
- mid-May 2012
 - self-service Web portal
 - full billing infrastructure
- ...beyond
 - storage 'preservation' tier
 - multiple datacentres for DR



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Pricing models

- 2 pricing models
 - PAYG (pay for what you provision/use)
 - Virtual Datacentre (pay for what you reserve)
- in mobile phone terms, PAYG vs. Pay Monthly
- why PAYG?
 - flexibility
- why Virtual Datacentre?
 - predictability



Billing

- PAYG billed monthly in arrears against pre-registered credit card
- Virtual Datacentre billed monthly or annually against pre-registered credit card or by invoice
 - annual tariff billed in advance
 - discounts of up to 30% for annual commitment
 - over-usage billed at PAYG rates



OSS

- VMware vCloud is not open source
- but it does have a good (and RESTful) API
- and it can export virtual machines as OVF
- OpenStack is open source... but we're not currently seeing big drivers for it from the education community (and we're waiting for next release)



and mobile...?

- Education Cloud provides flexible infrastructure for 'mobile' projects (but so does any IaaS)
- sign up now for 2-month free trial



Discussion

www.eduserv.org.uk/educationcloud