Virtualisation Working Group Report

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HEPiX Spring 2011

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Organisation

- Slow start, mostly due to re-org @ CERN.
- 66 people on mailing list; core of ~10 regular participants, but many more join meetings on occasion.
  - Many thanks to Ian Gable for taking notes during meetings.
- Group identified 5 work areas
  - Image Generation Policy
    - » Dave Kelsey & Keith Chadwick
  - Image Exchange
    - » Owen Synge
  - Image Expiry/Revocation
    - » Later agreed to be part of policy & exchange area
  - Image Contextualisation
    - » Sebastien Goasguen
  - Multiple Hypervisor Support
    - » Andrea Chierici

Policy for Trusted Image Generation

- You recognise that VM base images, VO environments and VM complete images, must be generated according to current best practice, the details of which may be documented elsewhere by the Grid. These include but are not limited to:
  - any image generation tool used must be fully patched and up to date;
  - all operating system security patches must be applied to all images and be up to date;
  - images are assumed to be world-readable and as such must not contain any confidential information;
  - there should be no installed accounts, host/service certificates, ssh keys or user credentials of any form in an image;
  - images must be configured such that they do not prevent Sites from meeting the fine-grained monitoring and control requirements defined in the Grid Security Traceability and Logging policy to allow for security incident response;
  - the image must not prevent Sites from implementing local authorisation and/or policy decisions, e.g. blocking the running of Grid work for a particular user.
- http://www.jspg.org/wiki/Policy_Trusted_Virtual_Machines

Image Cataloguing and Exchange

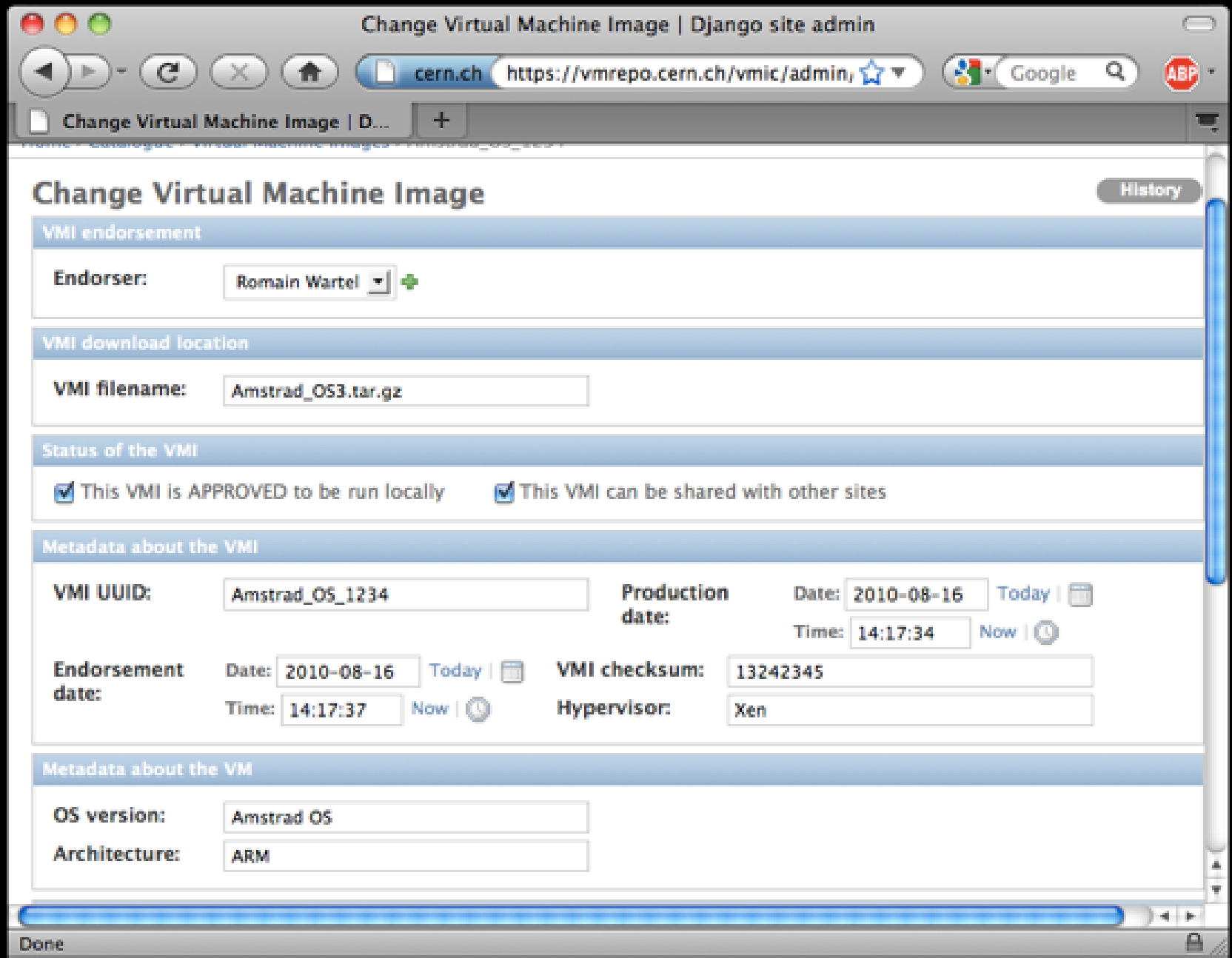


Image Contextualisation

- Contextualisation is needed so that sites can configure images to interface to local infrastructure
  - e.g. for syslog, monitoring & batch scheduler.
- Contextualisation is limited to these needs! Sites may not alter the image contents in any way.
  - Any site are concerned about security aspects of an image should refuse to instantiate it and notify the endorser.
- Contextualisation mechanism
  - Images should attempt to mount a CDROM image provided by the sites and, if successful, invoke two scripts from the CDROM image:
    - prolog.sh before network initialisation
    - epilog.sh after network initialisation

Multiple Hypervisor Support

- Andrea
  - Surveyed sites; results show that kvm and Xen dominate as hypervisors, especially in batch virtualisation area.
  - Documented method to produce VM image that can be used with both kvm and Xen
    - Method tested by Sebastien Goasguen and Abdeslem Djaoui (RAL)

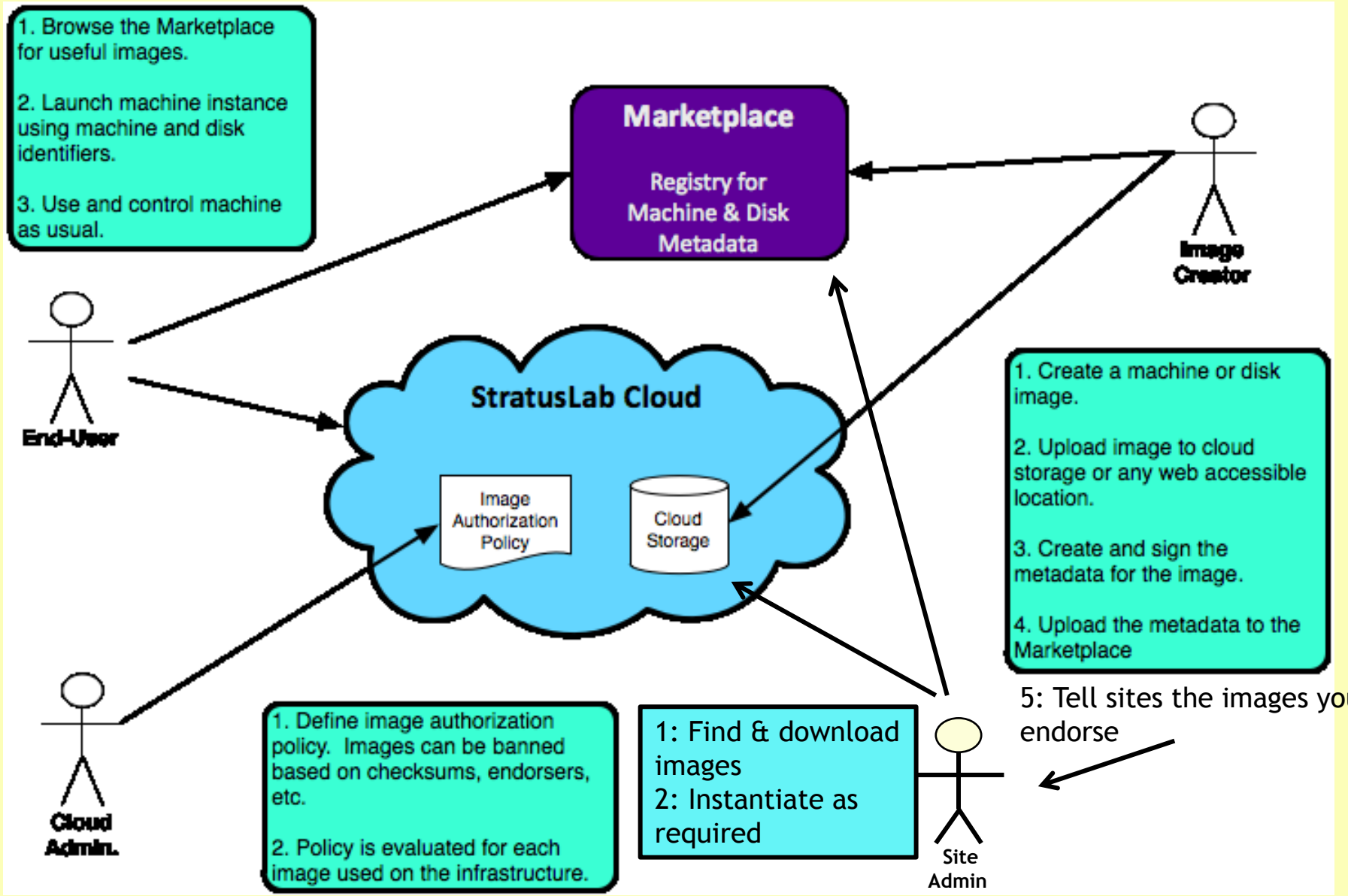
Current Status @ HEPiX in Cornell

- Generation policy
  - Clear, but probably needs to be formally approved by JSPG? DK: Wait until we have real experience
- Contextualisation & kvm/Xen support
  - Also clear. Interest in Xen waning

Progress in 2011

- Owen funded to work on virtualisation
- Stratus Lab discussion

Stratus Lab Workflows



Progress in 2011

- Owen funded to work on virtualisation
- Stratus Lab discussion
- Victoria->CERN image distribution

Other thoughts

Summary

- The working group has made good progress in establishing policies to allow the exchange of VM images… ✓
- … but not such good progress in delivering a distributed catalogue of endorsed images. Work in Progress!
- CVMFS is probably the neatest solution to the problem of VO software distribution… ✓
- … but VM exchange remains interesting
  - as an option for sites
  - automa
  - instantia
  - if the VM
  - simplify

  works directly,
  problems at sites.

There has been progress in this area over the past few months – c.f. talks by Owen Synge and Cal Loomis. Also, images created at one site (Victoria) have been instantiated and contextualised at 'RN). However, work is coupled at and more coher

This will be feasible by Fall HEPiX! Who is interested? Contact us now! Something I would like to see… Still trying to bring expt on board. ATLAS?

Video conference "days" planned to achieve this.