Information Session for Users of the Sauverny-Ecogia IT System

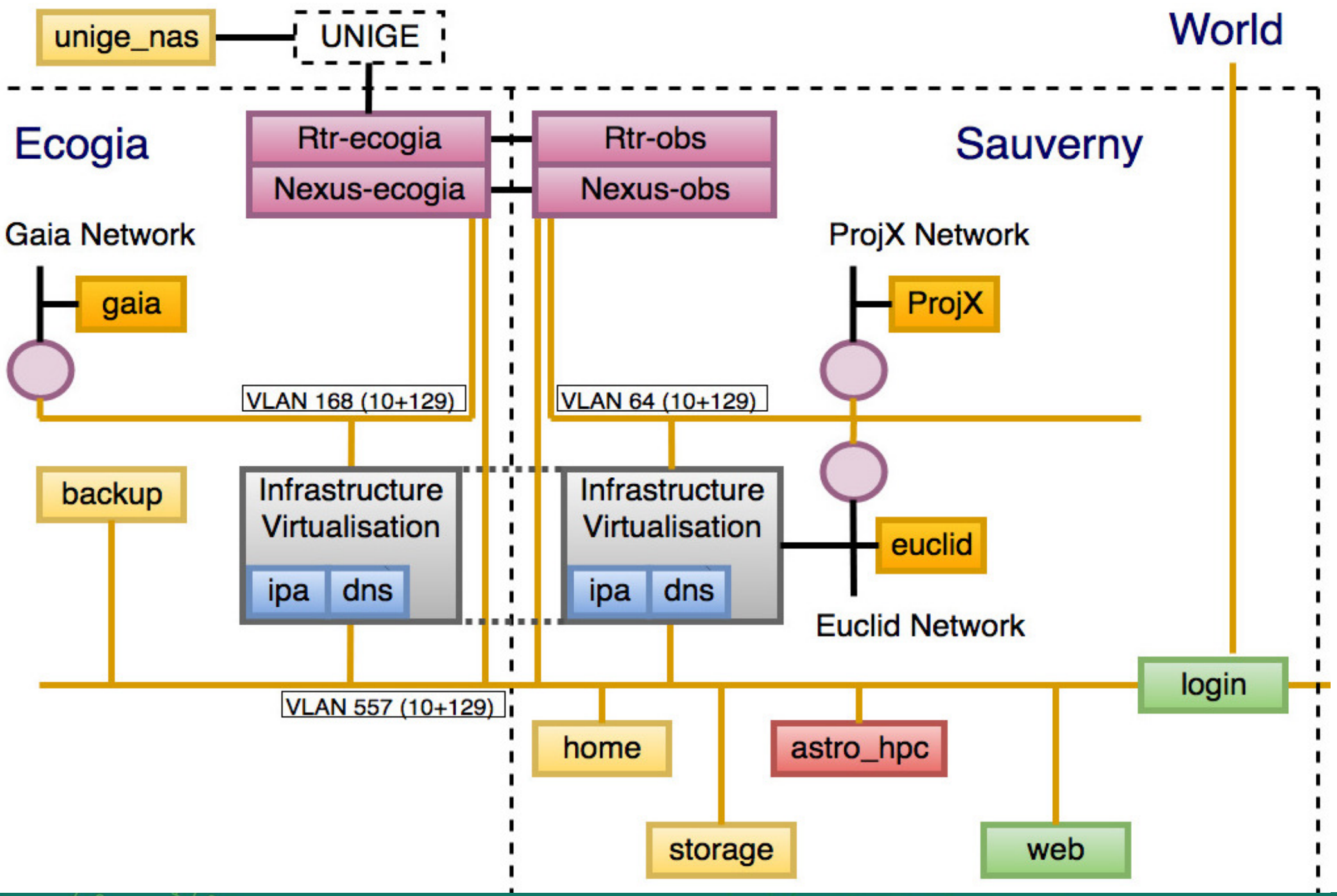
Presentation and Discussion

Which Sauverny computing facilities ?

- To support (your) science !
- Assumptions:
  - Laptops for daily task
  - Largest HPC (such as CSCS) for the largest science calculation
- Our computing system includes:
  - Services (SVN, GIT, Redmine, Mattermost…)
  - Sauverny HPC fits in intermediate scientific needs
    - Computing Cluster
    - Data Storage
  - Data processing projects support
- Constantly evolving – we need your inputs !

Current Main Objectives

- Standardization and simplification
  - Sauverny – Ecogia system merging
    - Moving most hardware to Sauverny !
  - Promote standard solution for
    - Cluster
    - Storage
  - Moving from Proxmox to oVirt (service support)
  - Minimized the number of project specific solutions
- Further develop our computing infrastructure


unige_nas
UNIGE
World
Ecogia
Rtr-ecogia
Nexus-ecogia
Rtr-obs
Nexus-obs
Sauverny
Gaia Network
gaia
ProjX Network
ProjX
VLAN 168 (10+129)
VLAN 64 (10+129)
backup
Infrastructure Virtualisation
ipa
dns
Infrastructure Virtualisation
ipa
dns
euclid
Euclid Network
login
VLAN 557 (10+129)
home
astro_hpc
storage
web

User Management Solution

- Replace Sauverny NIS and Ecogia LDAP by a unique FreeIPA solution
- Reproduce existing functionalities as much as possible first
- Look into FreeIPA additional functionalities later
  - Kerberos (kinit, klist)
  - User management delegation
  - sudo right handling
  - …

User Management Status

- A cluster of FreeIPA 4 server replicas (load balancing)
  - 700 users :
    - (213 astro, 23 etu, 202 guest, 136 nologin, 115 application)
  - 193 groups : cleaning would be very useful
- 298 passwords collected through the ssp application
- Clients and services migration almost completed !
- In a couple of weeks :
  - “Preserved” users who have not entered a password
  - “ssp” no longer accessible from outside (security issue)

Computing Cluster

- Current status (> 1000 cores)
  - Sauverny Regor : 760 cores (2015) SL6
  - “Ecogia” : 176 cores (2012, out of support) SL6
  - Euclid : 64 cores (2014) CentOS7
  - Ecogia Gaia : 420 cores (2016 et 2017) CentOS7
- Development of a CentOS7 + SLURM cluster started
- Transition phase with old and new clusters for compilation testing
  - April – May time scale
- Further development of the “new” cluster

Data Storage Status

- Current status (> 2 PB)
  - Sauverny : 66+146 TB BeeGFS on InfiniBand network
  - Sauverny : 300 TB ZFS
  - NAS académique 166 TB
  - “Ecogia” : 524 TB GPFS on InfiniBand network (2012)
  - Ecogia Gaia : 900 TB (2016 et 2017)

Data Storage Plans

Name	Properties	Users	Cluster Access	Security	Projects (some users)
/home	Long-term, small volume, no data	all	Read only Slow	High Backup	ZFS
/big_data	Big data, big files Short-term	Projects (Some users)	Fast R/W (InfiniBand)	Medium	BeeGFS
/archive	Big data, any file size Long-term	Projects (some users)	?? (slow)	High Medium	GlusterFS

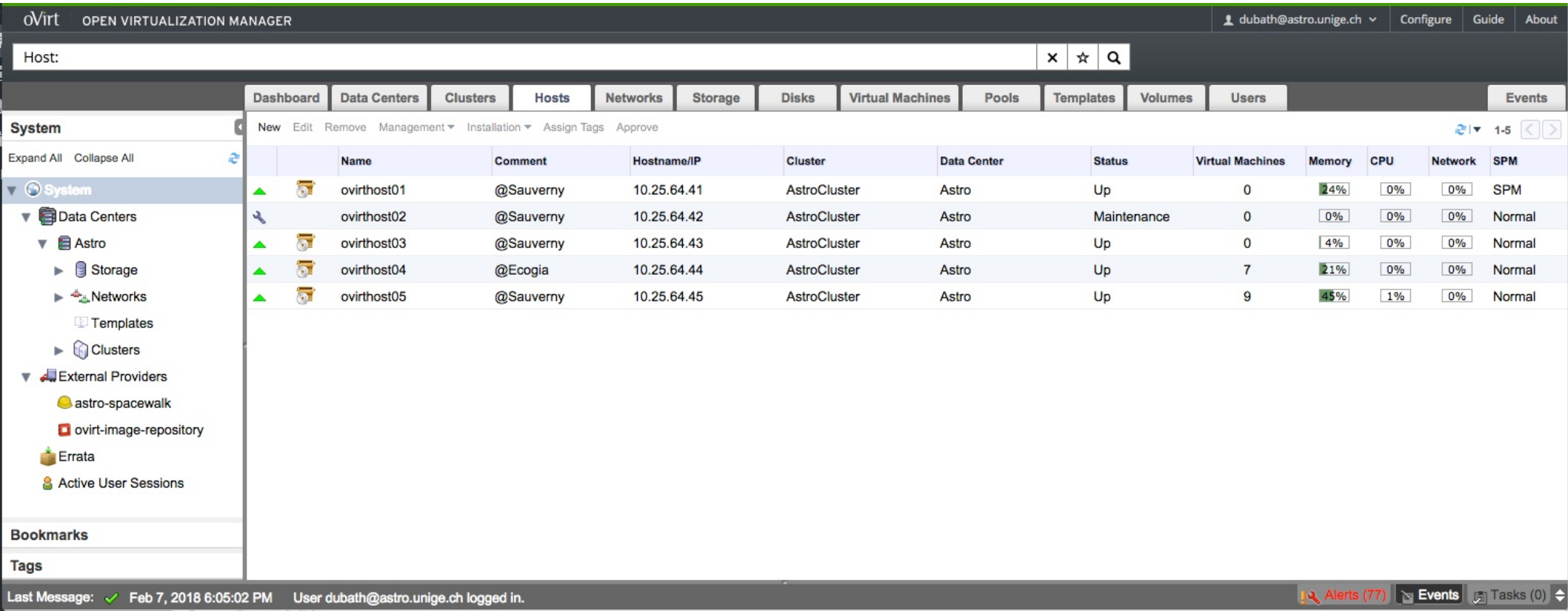
Additional storage for system (e.g. FreeIPA, oVirt) and backup

Data Storage Coming Soon

- Free space on GPFS (Fact data moving to CSCS)
- 500+ TB of additional “big_data” space BeeGFS
- Start of an “archive” GlusterFS storage (Nicolas B.)

Services implemented in VMs

- Moving from Proxmox to oVirt hypervisor
- oVirt mini-clusters



CDCI and Projects

- CDCI (Stéphane Paltani) as a common infrastructure for space data centers
  - INTEGRAL
  - Gaia
  - CHEOPS
  - Euclid
- Dace
- Telescope data handling and analysis

Website Rule

- “Astronomie” part of the UNIGE website
  - “concrete5” pages maintained by Gilles
- Nominate content responsible people

unige.ch/sciences/astro		Stéphane P.
	/news	?
	/recherche	Stéphane P.
	/projects	Stéphane P.
	/enseignement	?
	/seminaires	?
	/activitéspublic	?
	/services	?
Intranet		?

Website Exceptions

- Sauverny-Ecogia websites
  - Future sites developed in Drupal with help from Mohamed Meharga (CDCI)
  - Slowly decrease the number of sites and CMS ! The 60+ current sites probably include obvious security holes
  - Maintain a list of responsible people

- Website coordination meeting to be organized soon !

New Helpdesk Organization (soon)

- Submit requests via a dedicated email
  - astro-it-support@unige.ch

- A great help for SysAdmin work organization
- Provide an issue documentation and a follow up

User’s committee

- Ensure that IT system development meet (your) science needs
- Discuss strategies and solutions
- Includes representatives of the different groups (space projects, ground data analysis, numerical modeling and simulations, etc.)

- First meeting soon (April?)

Security Improvements

- Please use strong passwords !
  - Security rules : 8 (uppercase, lowercase, numbers, special) characters
  - Use a password manager (such as KeePassX)
- Removing deprecated users
- Websites cleaning
- Privileges (root+sudo right) centrally managed
- Firewall centrally managed (soon)
- Kerberos help (soon)

Connection From Outside

- Solutions:

Server	Client
FreeNX (free NoMachine)	NoMachine
X2Go	X2Go

- (Soon) to be deprecated
  - isdc-nx00 and 01 (NoMachine + ssh)
  - obslogin1 and 2 (ssh)
  - obsnx (NoMachine)
- Future: login01 and 02 (.astro.unige.ch) (ssh + X2Go)

Short Terms Future

- Be ready for changes : (email communication !)
  - Helpdesk and documentation
  - cluster, storage
  - websites
- Computing facility development
  - R'Equip 2018 proposal (help needed !)
- Much more to do:
  - Backup strategy
  - Tests Cloud solution (OpenStack)
  - Etc.

Long-Term Future…

- … is uncertain, but looks bright !
- Ongoing discussions with UNIGE
  - Sauverny computer facility to be developed as a part of the UNIGE computing system

- Please communicate early in case of
  - needs, suggestions, criticisms.