

ganetimgr

*A platform to simplify management of
Ganeti instances*

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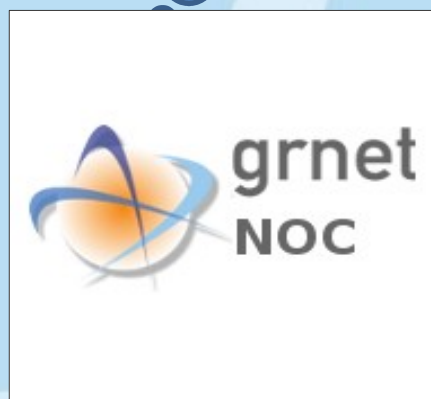
GRNET NOC ?

Servers Team aka SysAdmins

- Managing Servers + Services
- Depend on Virtualization (Ganeti)
- Currently:
 - 2 platforms (**ViMa**/ganetimgr & **~oceanos**/synnefo)
 - > 20 Ganeti clusters
 - > 230 HW nodes
 - > 6000 VMs
 - NOC & Client VMs run exclusively on Ganeti
- Debian 6/7
- Extensive use of puppet

Some history...

Ganeti has a REST API???
Neat!! Let's develop a web
platform



February 2010
GRNET NOC

ganetimgr



September 2010
OSU OSL

Ganeti Web Manager

okeanos

End of 2010
GRNET

~okeanos

<https://code.grnet.gr/ganetimgr>

Our Motivation

“Clients should be able to apply for instances and manage them through a simple environment”

+

“KISS Principle”

Ganetimgr @ GRNET NOC

Our deployment is called

VirtualMachines

Target audience are mainly our clients, not us!
Don't expose unneeded info for them, they get confused! (and ask questions you have to answer...)

Managing through CLI is always faster for us...
But some visualization is always nice to have :)

<https://vima.grnet.gr>

Development + Clients

Development:

- Demand driven development process
- Add features as clients ask for them

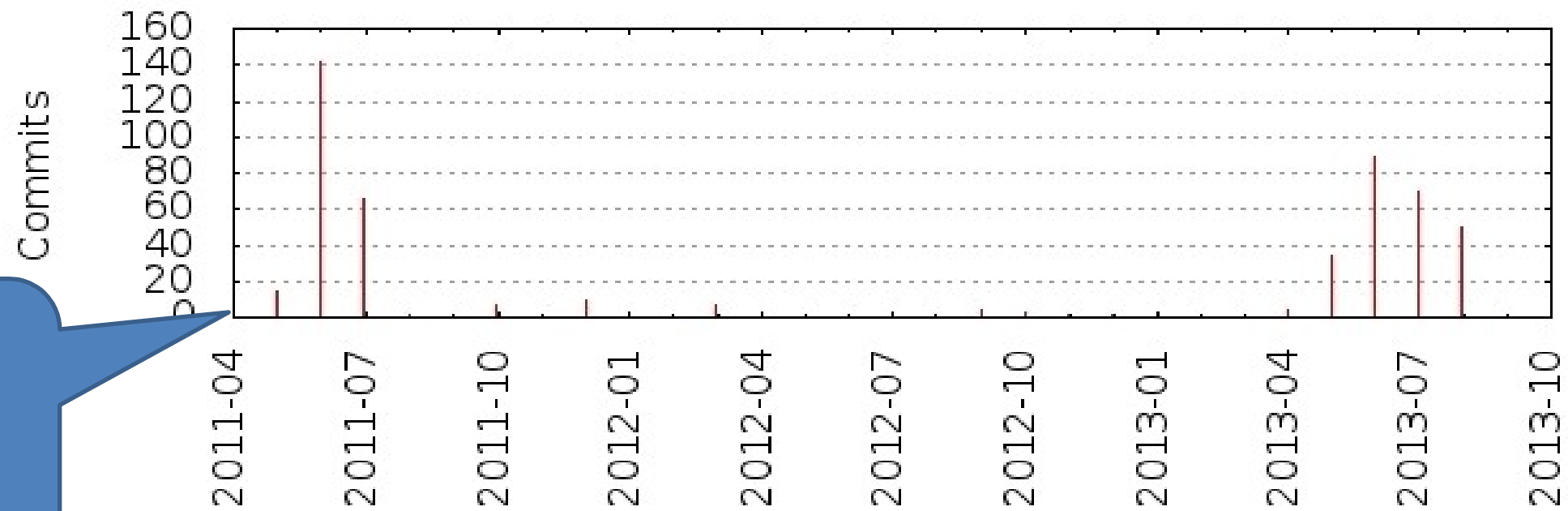
Clients:

- University NOCs/Labs
- Research institutions
- Governmental organizations
- Ministries
- European Projects
- Ourselves

Our clients need a VPS service that:

- is very stable
- provides long-running VMs
- is simple to use
- caters to different needs (science/services)

Commit Habits



Love to commit on **Thursdays** right *before* or *after* **lunch** :)

Weekday	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Mon											1	4	14	8	11	10	11	6	3	1	2			1
Tue		1									11	18	13	24	4	8	10	8	16	7	4			
Wed	1	5							3	3	1		12	12	3	16	9	8	10	9		1		
Thu											13	19	25	34	17	24	7	4	5	1	1			
Fri											2	12	7	10	9	3		1		6	2			
Sat	1	4																						
Sun											1					2								

Milestones

Mar 2010

- Simple Web GUI (instance info)
- Multi-cluster support
- Shutdown, Reboot, Console
- HTTP boot for instances
- RAPI calls via urllib

Began as Internal Admin Tool

Feb 2011

- GUI redesign, support for mobile view

Backend developer: **@apoikos**
Frontend developer: **@leopoul**

Milestones

Summer 2011

- Convert RAPI calls to ganeti's native client
- Switch to Django auth
- User Registration, User Profile
- Collect user instances from multiple clusters (user instance listing)
- Redis Caching – Cache cluster state and user access rights on Redis
- South support/migrations
- Async notifications for start/stop/reboot via beanstalk
- SSH key management
- Instance Applications
- Multi-network (link) support for clusters
- i18n support

HOT SUMMER OF CODE

Backend developer: **@apoikos**
Frontend developer: **@leopoul**

Milestones

Sep 2011 - Dec 2012

- Usability Fixes
- Code cleanup
- Minor UI Enhancements

Heavily used in production by our clients

Backend developers: **@faidonl, alex**
Frontend developer: **@leopoul**

Apr 2013

- Multi-Layered Caching mechanism (7-8x faster!)

Milestones

Summer 2013

- UI: Bootstrap Theme
- New instance actions: Reinstall, Destroy, Rename (via email confirmation)
- Per Instance CPU and Network graphs (via collectd)
- Statistics for: Users, Clusters, Nodes, Instances
- Information on Cluster Nodes (mem/disk usage, #VMs, role)
- Email Notifications mechanism
- Idle accounts management
- Modify Instance owners through UI (tagging)
- Admins can lock instance state (tagging)
- Integration with Jira + Internal Server Hardware informational tool ([ServerMon](#))

HOT SUMMER OF CODE

Whip holder: **@kargig**
* Developer (aka slave): **@leopoul**

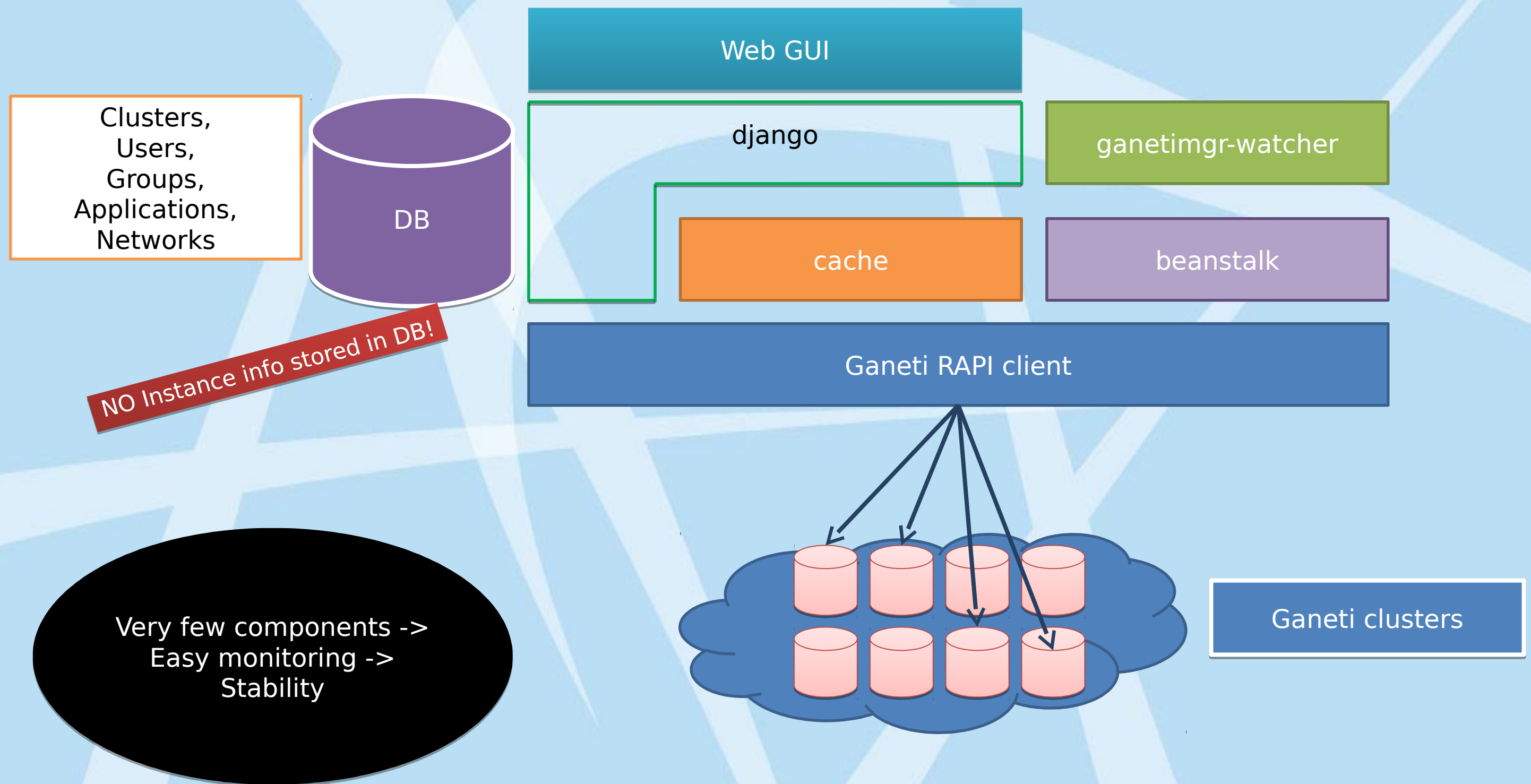
Interaction with Ganeti-Devel

- Several patches were sent upstream
 - Merged:
 - Shared block & file storage
 - Cluster-wide default iallocator
 - Passed-down to ~okeanos and merged upstream:
 - gnt-network support
 - IP Pool management
 - Still Unmerged:
 - Boot from HTTP



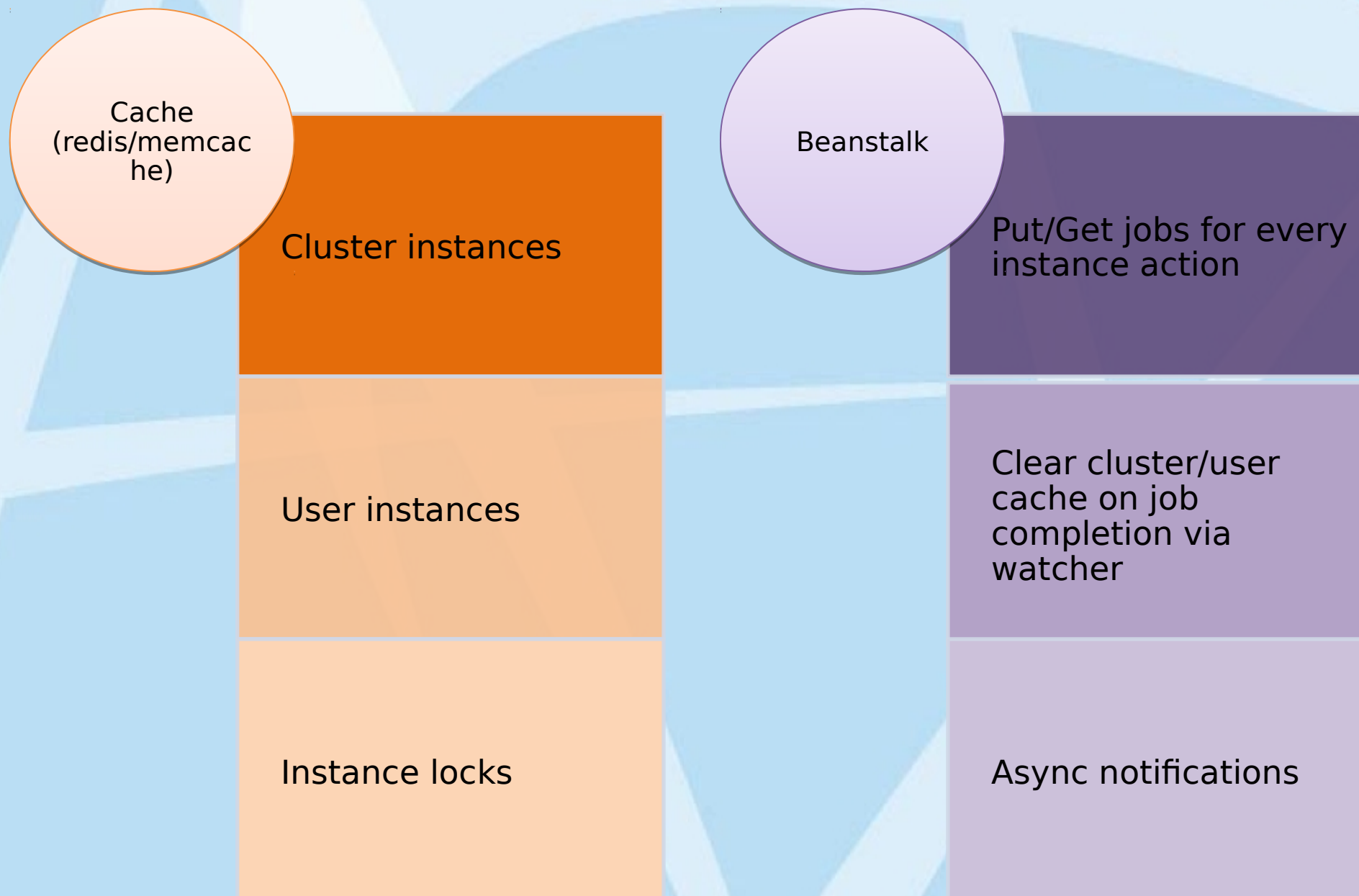
okeanos

Stateless Architecture

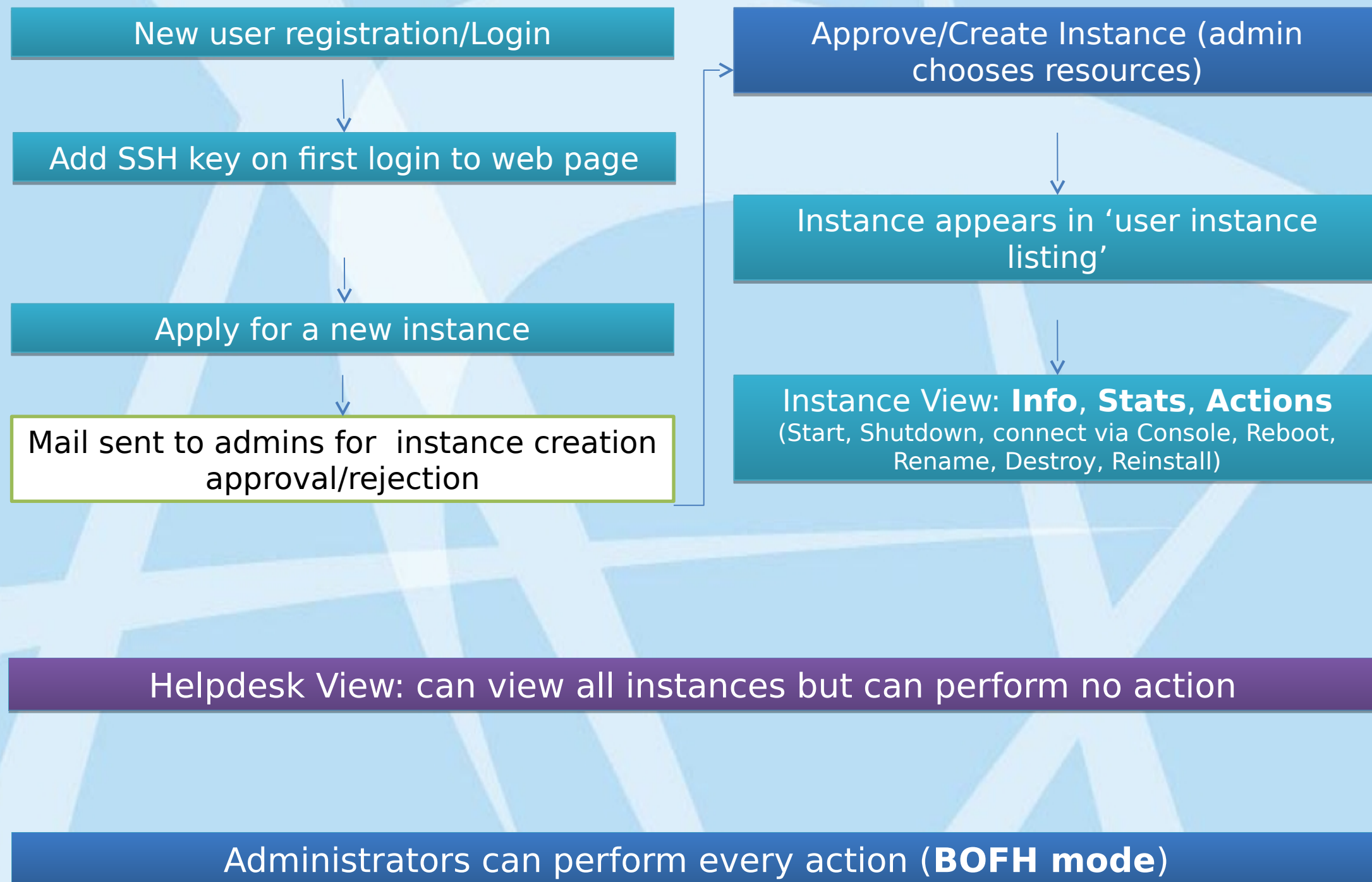


Key Components

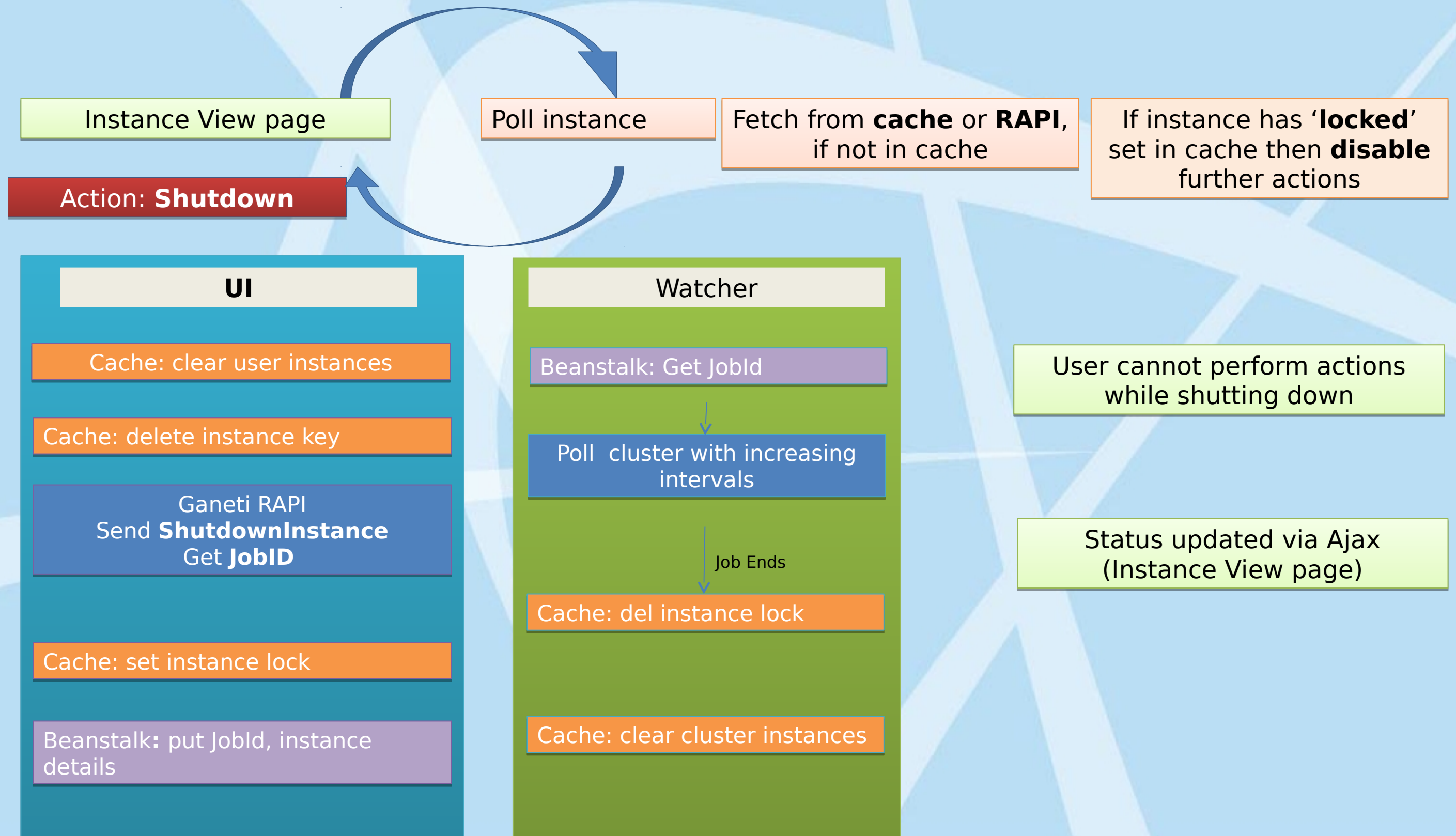
Usage of instance tags to determine user rights



Instance Lifecycle



WorkFlow Example

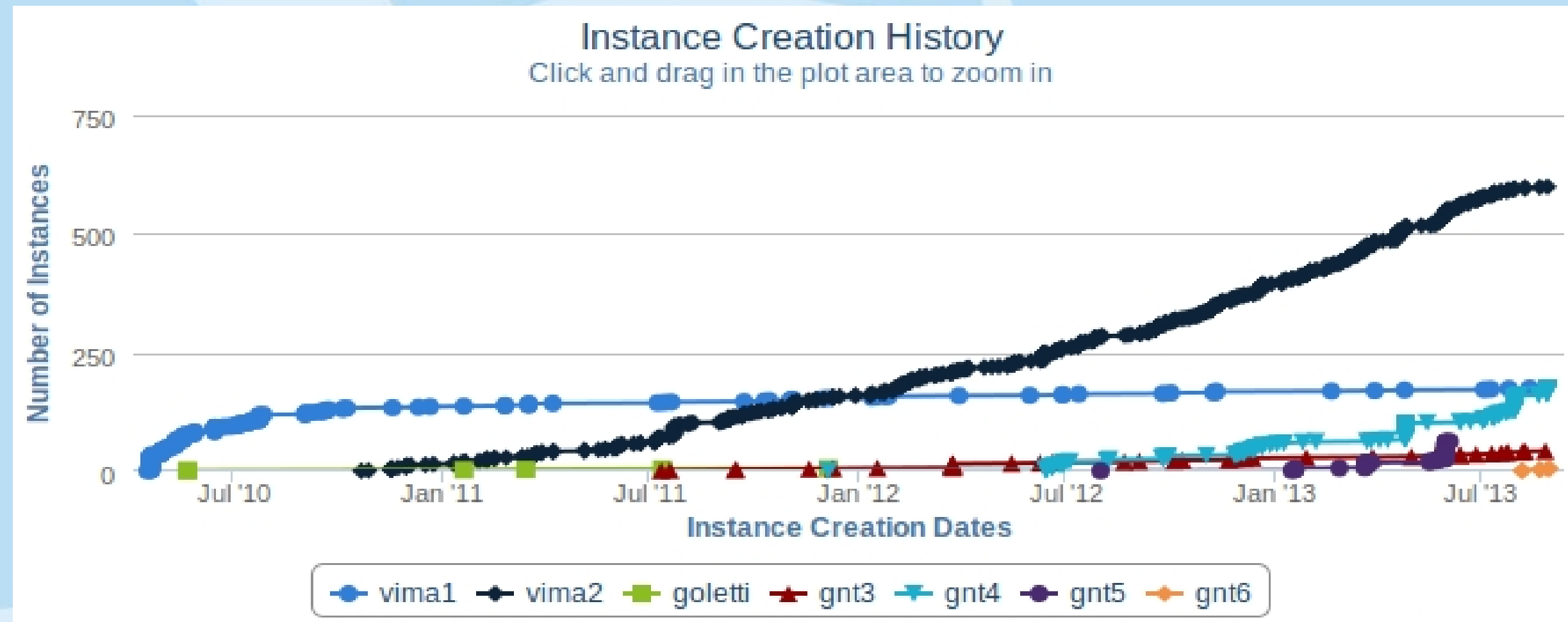


ViMa usage

Platform Statistics	
Clusters Managed by ViMa	7
Instances Created	1067
Applications Submitted	775
Users Registered	471
Groups of users	10
Organizations Participating	113



ViMa usage



We've got ~1100 VMs on it and we've tried adding clusters of >1000+ VMs
No slow down observed

Features

- Support
 - 2.4, 2.5, 2.6 ganeti versions (2.7+ still untested)
- Instances Listing Multi-cluster
- Notifications
- Statistics
- User Acti
- E

Yay!! Demo Time!!

Future Development

Hopefully before Q3 2014

- Instance Network Lockdown (almost done)
- Improve search, add filters (Q3 2013)
- NoVNC (Q3 2013)
- Selectable CDROM images to boot from (Q3 2013)
- Ownership transfer (through tags) (Q3 2013)
- Selectable OS on reinstall (Q4 2013)
- Add/Remove/Modify Instance NICs (Q4 2013)
- Batch actions on selected instances (Q4 2013)
- Resource quotas (Q1 2014)
- User editable VM resources following quotas (Q1 2014)
- Cluster classes based on storage backend, mem/cpu (Q1 2014)
- Custom KVM settings (Q1 2014)
- Multiple storage backends per cluster (Q2 2014)
- Admin view cluster status: cluster details & node status (Q2 2014)
- API access (Q2 2014)

Desirable Features from Ganeti

- OS params in instance (RAPI)
 - Would help us remain stateless (needed: img_id)
- Tag add/delete hook
 - Would ease network lockdown (abuse reports)

The end

Questions ?

Thank you (εἰχαριστό)

Get the code / Report problems / Ask for features

<https://code.grnet.gr/projects/ganetimgr>

<https://void.gr/kargig/>

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GRNET NOC