Powered by MBI Spirit

TERASKY

Building your Private Cloud with Red Hat OpenStack & Red Hat CEPH Storage from POC to Production deployment in 2 weeks

Daniel Vaknin
Cloud & Infrastructure Solutions Specialist
TeraSky

redhat.

Date: November 16 2016

Agenda

- TeraSky – Who and why?
- Software Defined Data Center
- OpenStack as SDDC
- Storage Technologies + Ceph

- Customer story – Red Hat OpenStack Platform + Red Hat Ceph Storage (and what's in the future)
- Summary, Q&A

Why TeraSky?

TeraSky is a highly-skilled and experienced Integrator with proven capabilities in designing, deploying and supporting complicated IT projects & solutions in the following areas:

- Cloud Solutions & Platforms (Private, Hybrid & Public Cloud/Openstack, SaaS, PaaS, IaaS)
- Software Defined IT (SDDC, SDS)
- Data Center Consolidations
- Virtualization & Automation
- Storage & Hyperconverged Solutions
- DevOps, IT Automation & Modernization
- And many more…

Powered by MBI Spirit

Certifications & Partnerships

- RED HAT Authorized & Professional Services Partner (CloudForms, Software Defined Storage, OpenStack & OpenShift)
- VMware Enterprise & Professional Services Partner
- EMC Professional Services Master Partner
- Cisco Metapod Private Cloud Professional Services Partner
- Google Cloud Platform Professional Services Partner
- Knowledge and experience in complex multi-vendor projects
- And many more…

Install Base

- We have performed hundreds of infrastructure projects in Israel & Abroad, in several fields:

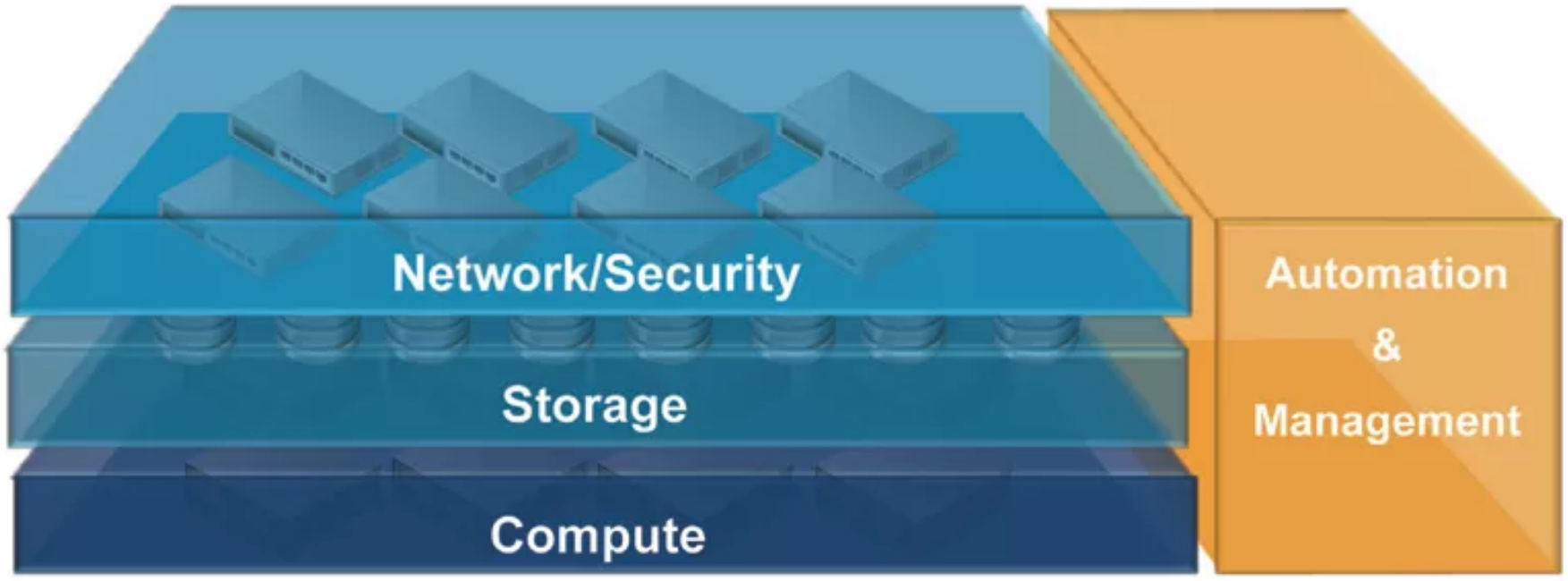
✓ High-Tech

✓ Banks, Insurance & Finance

✓ Government

✓ Others

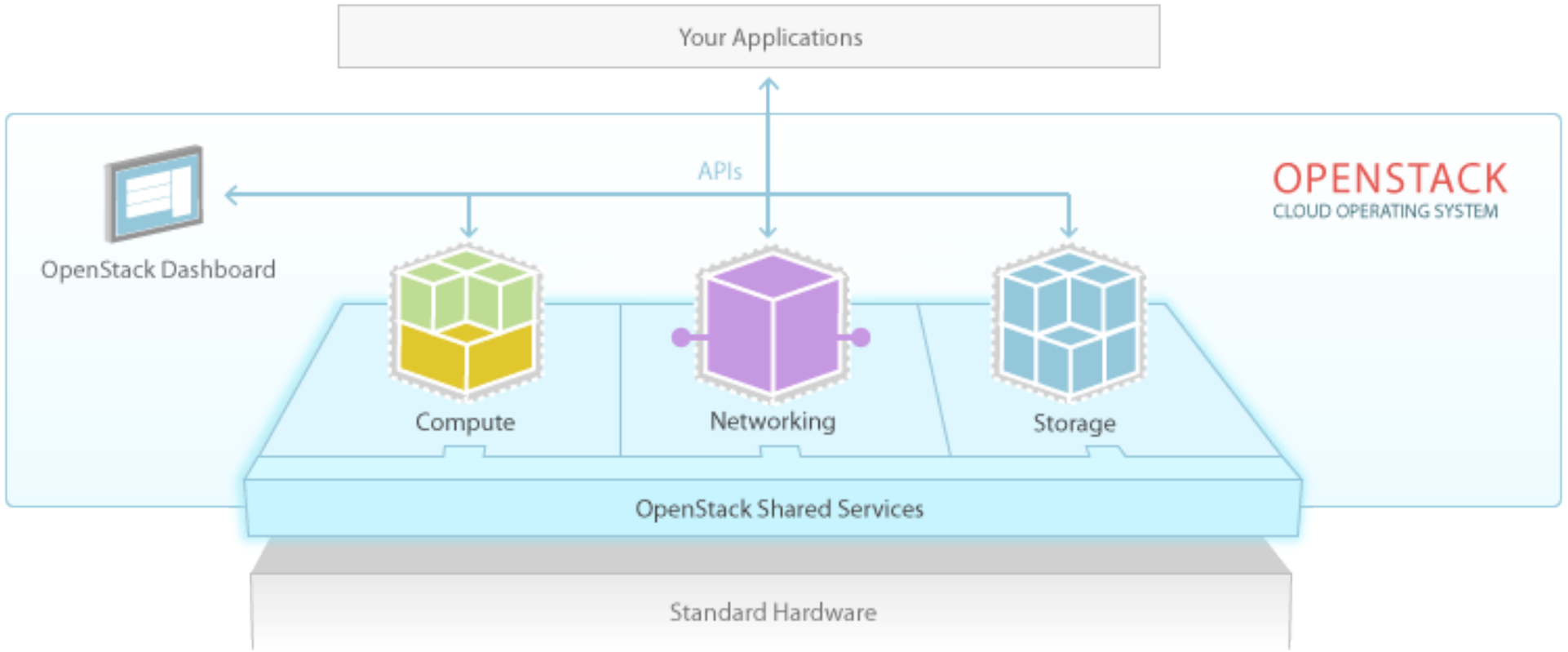
SDDC



-
-
-
-
- SDDC – Software Defined Data Center
- Building Block – Compute, Networking, Storage
- Separation between Control Plane and Data Plane
- Hardware replacement and upgrade

Powered by MBI Spirit

OpenStack as SDDC



-
-
-
- Basic components (Nova, Neutron, Keystone, Glance…)
- Cloud Operating System
- Future DataCenter – API based

redhat.

Why OpenStack?

- Agility
- Ability to innovate
- Cost savings
- Why not?

Storage Technologies

Block	File	Object
		
Specific location on disks / memory	Specific folder in fixed logical order	Flexible container size
Tracks	File path	Data and Metadata
Sectors	File name	Unique ID
	Date	

redhat.

Red Hat Ceph Storage

- Distributed object store and file system designed to provide excellent performance, reliability and scalability.
- Was made possible by a global community of passionate storage engineers and researchers
- Open source and freely-available, and it always will be
- Default backend for Red Hat OpenStack Platform
- RHOSP now comes with 64TB of Ceph Enterprise

Ceph Unified Storage

OpenStack Storage Interfaces

Cinder
block storage

Glance
image storage

Swift
object storage

Manila
file storage

RBD block storage

RGW objects

Ceph FS

- Object and Block Storage + File System (Ceph FS)

Customer Description and Challenges

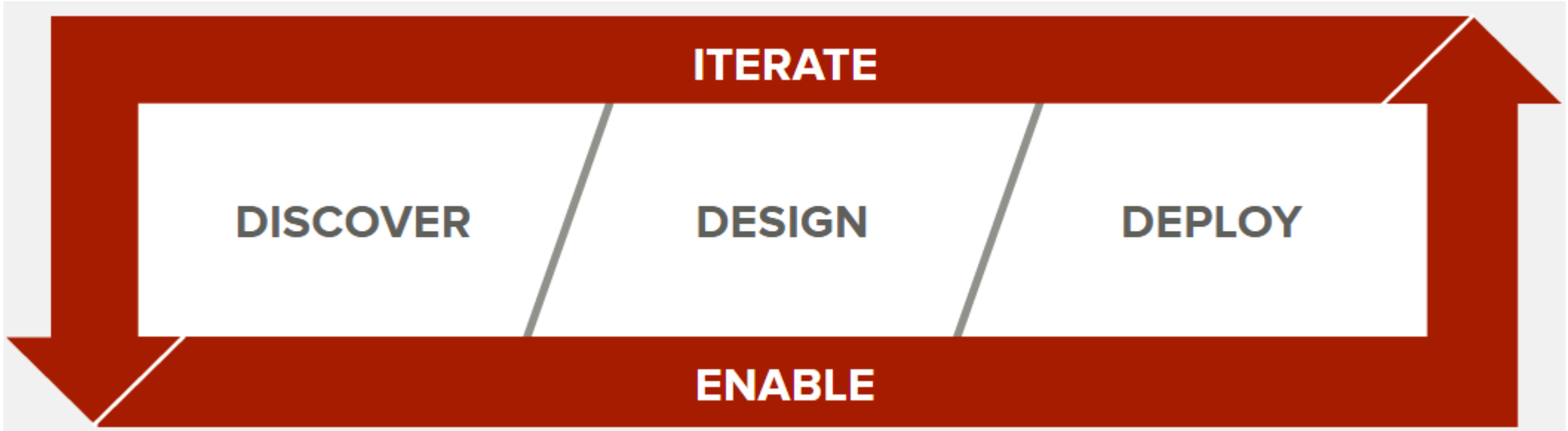
- Big media organization – creating media boxes and streaming TV application (“TV in the cloud”)
- Long time to market

- Rapid tenant deployment – ~270 instances per tenant
- Automatic deployments with Heat Templates (HOT)

Private cloud based on Red Hat OpenStack Platform and Red Hat Ceph Storage

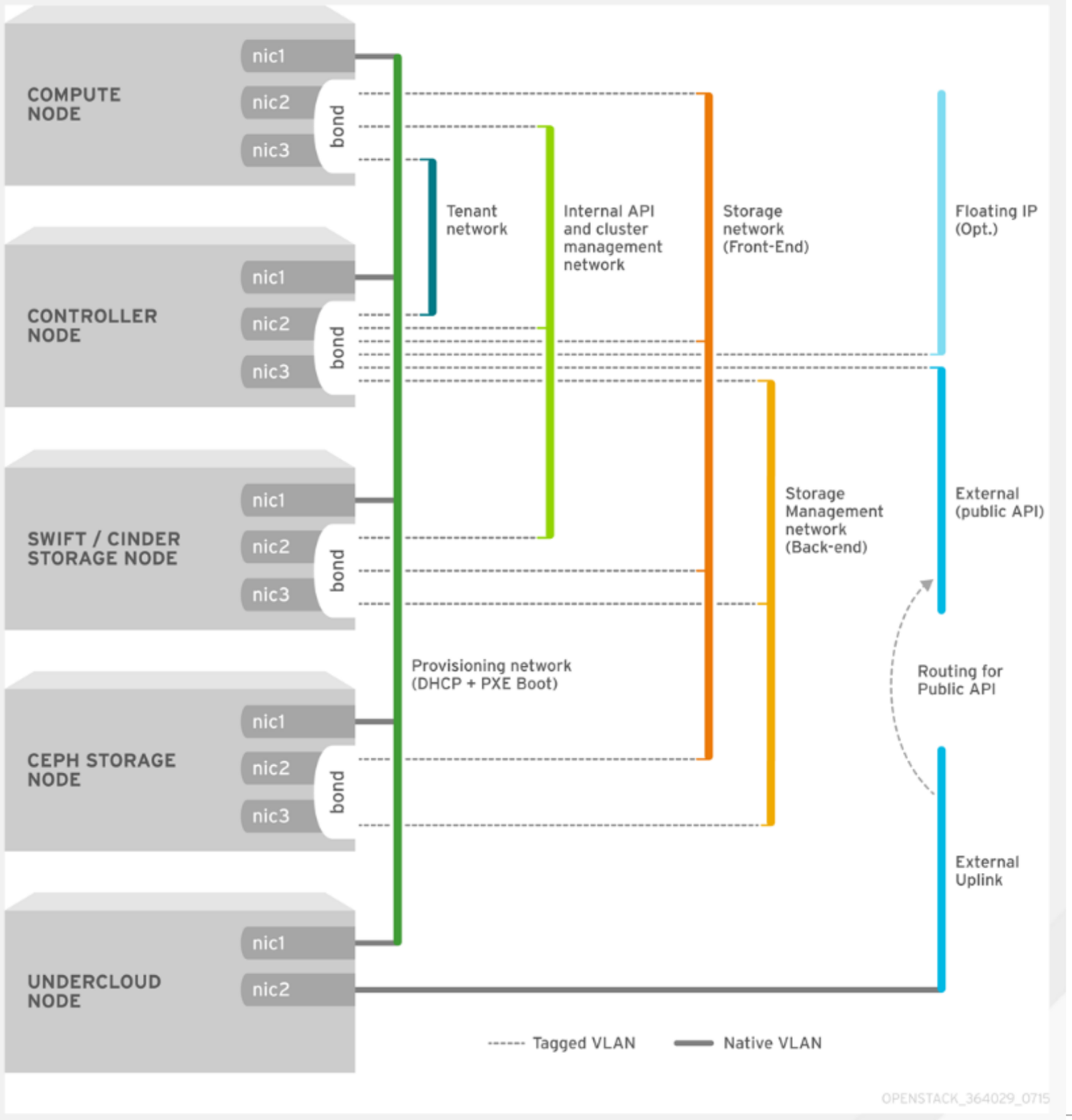
Project Methodology

- Delivery Framework



- Sprints:
  Hardware assurance / Infrastructure validation
  Basic deployment
  Adding CEPH, Swift, SSL
  Running post deployment tests

OpenStack Architecture

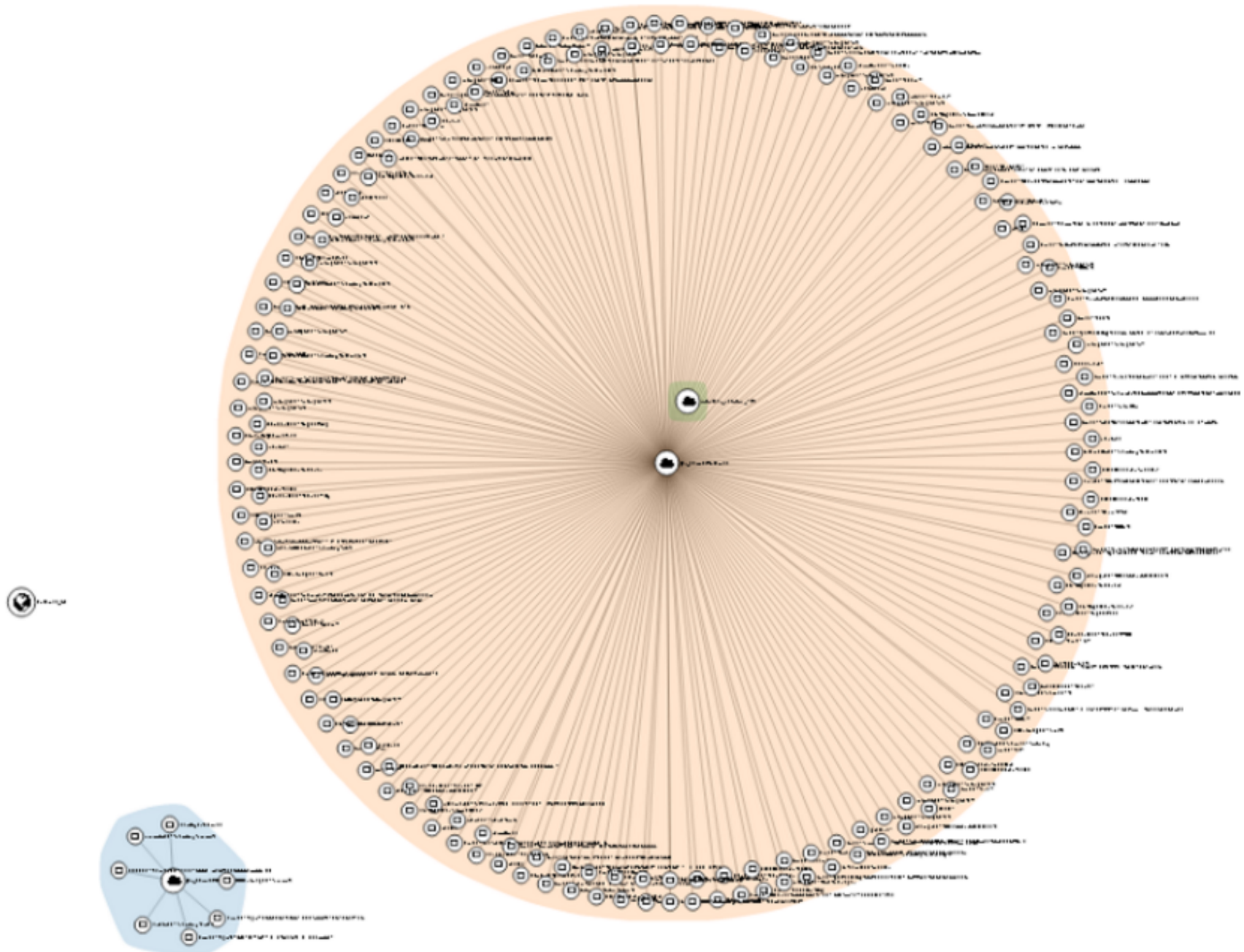


3 controllers, 6 compute, 5 Ceph (Mon + OSD), 3 Swift nodes, VLAN/VXLAN networks

redhat

Powered by MBI Spirit

From POC to Production



Other Aspects

- Centralized Logging – Fluentd, Elasticsearch, Kibana
- Performance Monitoring – collectd, Graphite, Grafana
- Ceph Monitoring and Administration – Calamari
- Cloud Management Platform – Red Hat CloudForms 4.0

RED HAT®
CLOUDFORMS

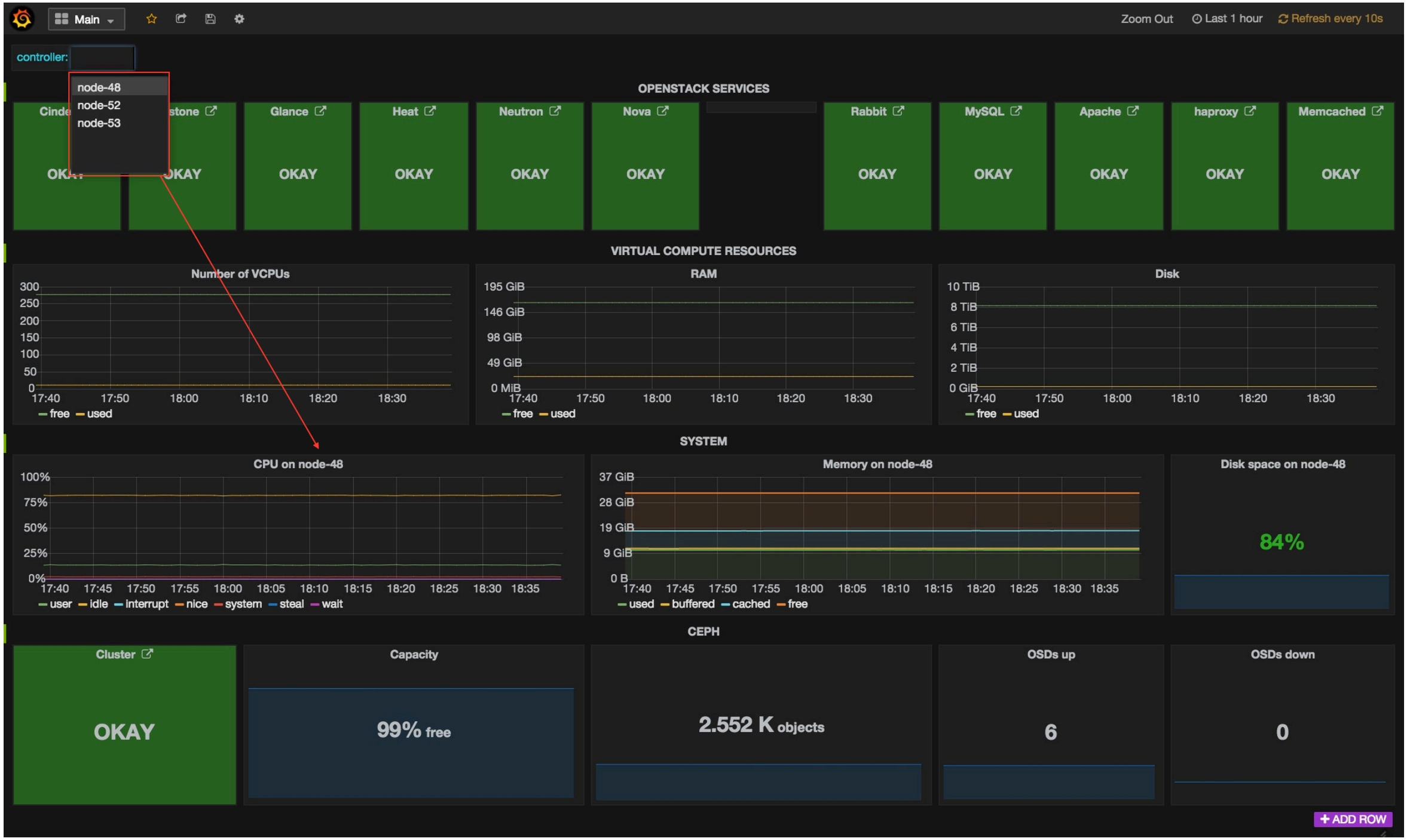
Powered by MBI Spirit

Centralized Logging via Kibana

redhat

Powered by MBI Spirit

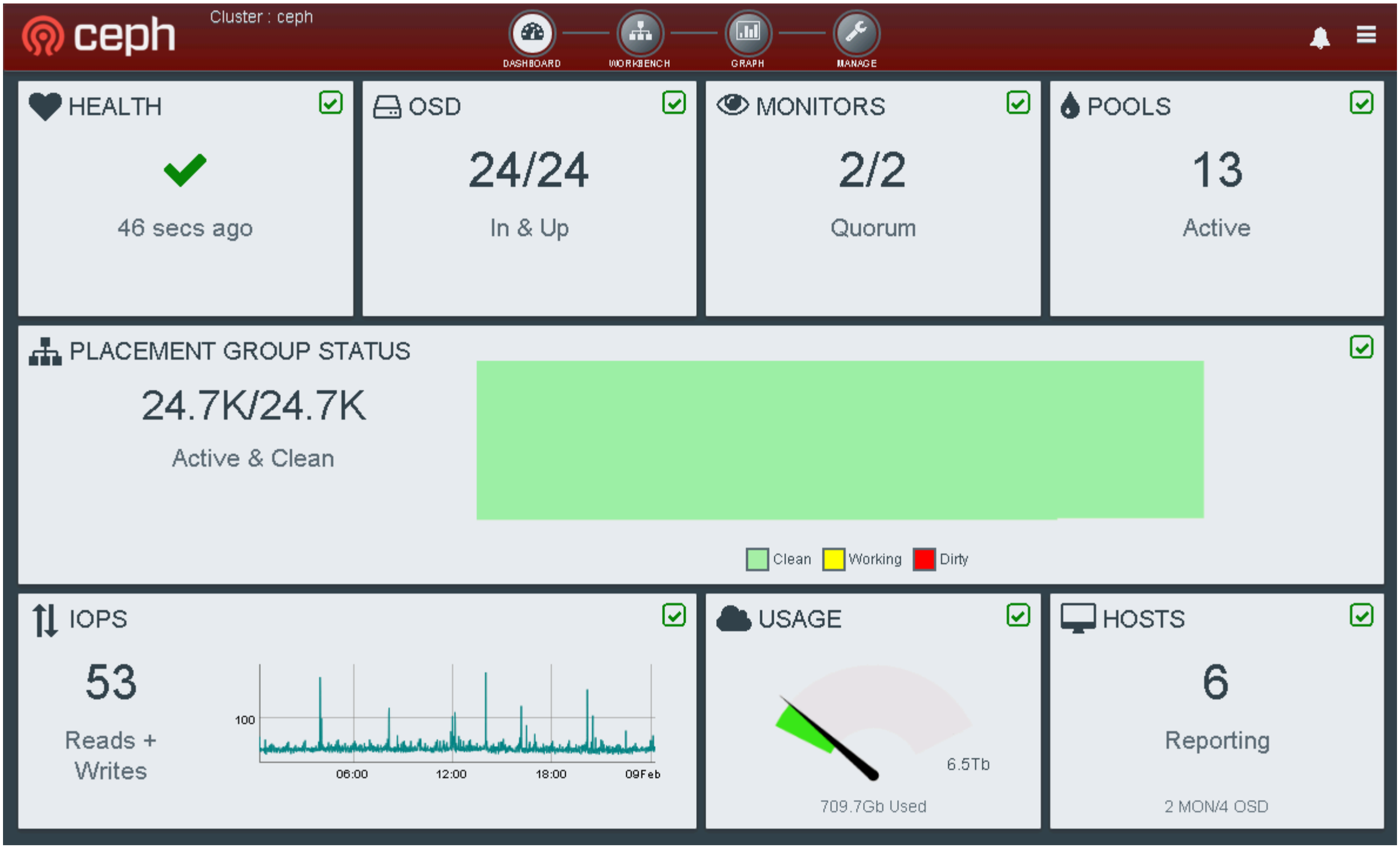
Performance Monitoring via Grafana



redhat

Powered by MBI Spirit

Ceph Management via Calamari



redhat

TERASKY

Powered by MBI Spirit

Management and operations via CloudForms

RED HAT® CLOUDFORMS MANAGEMENT ENGINE

Administrator | EVM

Cloud Intelligence | Services | Clouds | Infrastructure | Control | Automate | Optimize | Configure

Providers | Clusters | Hosts | Virtual Machines | Resource Pools | Datastores | Repositories | PXE | Requests

VMs & Templates

- All VMs & Templates
  - RHEV
  - Virtual Center (10.16.132.40)
    - London
    - NewYork
      - SA3-CFME-SME
      - Sample Workloads
        - Fedora 18 and Apache
        - Fedora 18 and MySQL
        - Fedora 18 and PostgreSQL
        - RHEL 6.3 and Apache
        - RHEL 63 and MySQL
        - RHEL 63 and PostgreSQL
        - RHEL 63 and PostgreSQL - 2
        - Windows 2008 and PostgreSQL
        - Windows 2008 and SQL 2005
        - Windows 2008 and SQL 2008
        - Windows 2008 IIS
        - Windows 2008 SQL Server 2005
      - Domain Controller 1
      - IPAMTest
      - James 183 OLD

VMs

Templates

Capacity & Utilization data for Virtual Machine "RHEL 6.3 and Apache"

Options

Interval: Daily | Date: 1/2/2014 | Show: 1 Week back

Time Zone: (GMT+00:00) UTC

Compare To: Parent Host

* Daily charts only include days for which all 24 hours of data has been collected.

VM "RHEL 6.3 and Apache"

CPU (Mhz)

Avg Used | Min Used | Max Used | Trend Max Used | High Oper Range | Low Oper Range

20

Host "rhc-03.rhc.lab.eng.bos.redhat.com"

CPU (Mhz)

Avg Used | Min Used | Max Used | Trend Max Used | Max Available | Max Reserved

30,000

0

Avg Running VMs

7

redhat

End-To-End Software Defined

- Why Red Hat OpenStack? **Biggest and mostly experienced contributor to the community**
- Red Hat OpenStack R&D in Israel
- With TeraSky you get: Wide infrastructure knowledge and skills, Professional Services and Support
- Red Hat is the **market standard**

Lessons learned from a successful deployment

- Flexible – Customer can change the architecture during the project…
- Hardware quality is very important
- Customer own infrastructure knowledge
- Cooperation between customer and integrator
- Working in a modular approach

Summary

- OpenStack **also for medium-size** customer
- Lack of experience and knowledge (still)
- IT usually overloaded with “Firefighting”
- **TeraSky** brings **knowledge** and **experience**

Powered by MBI Spirit

TERASKY

Thank You

Daniel@tera-sky.com

+972-54-6345042

www.linkedin.com/in/danielvaknin

redhat.