Control All the Things

automate, optimize, and control your cloud and virtualization services

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A Brief History of ManageIQ

2006 ManageIQ Inc. was founded

2008 First Enterprise Virtualization Manager (EVM)

2012 Red Hat acquired ManageIQ Inc.

2013 OpenStack Cloud provider added

2014 ManageIQ became Open Source*

2015 OpenStack Infrastructure provider added

* http://www.manageiq.org

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ManageIQ Numbers

15,802 commits

171 developers

8,664 tickets

Code Developers		
171		
Core	Regular	Casual
30	24	116

Code Submitters
167
Accepted Contributions
6,207

Ticket Participants	
416	
Fixers	Submitters
113	253

Ask Participants
371
Questions
759

Total downloads
41,532
Unique downloads
10,886

From http://projects.bitergia.com/redhat-manageiq-dashboard/ on March 18, 2016

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Community Partners

BBVA

Booz | Allen | Hamilton

COX AUTOMOTIVE™

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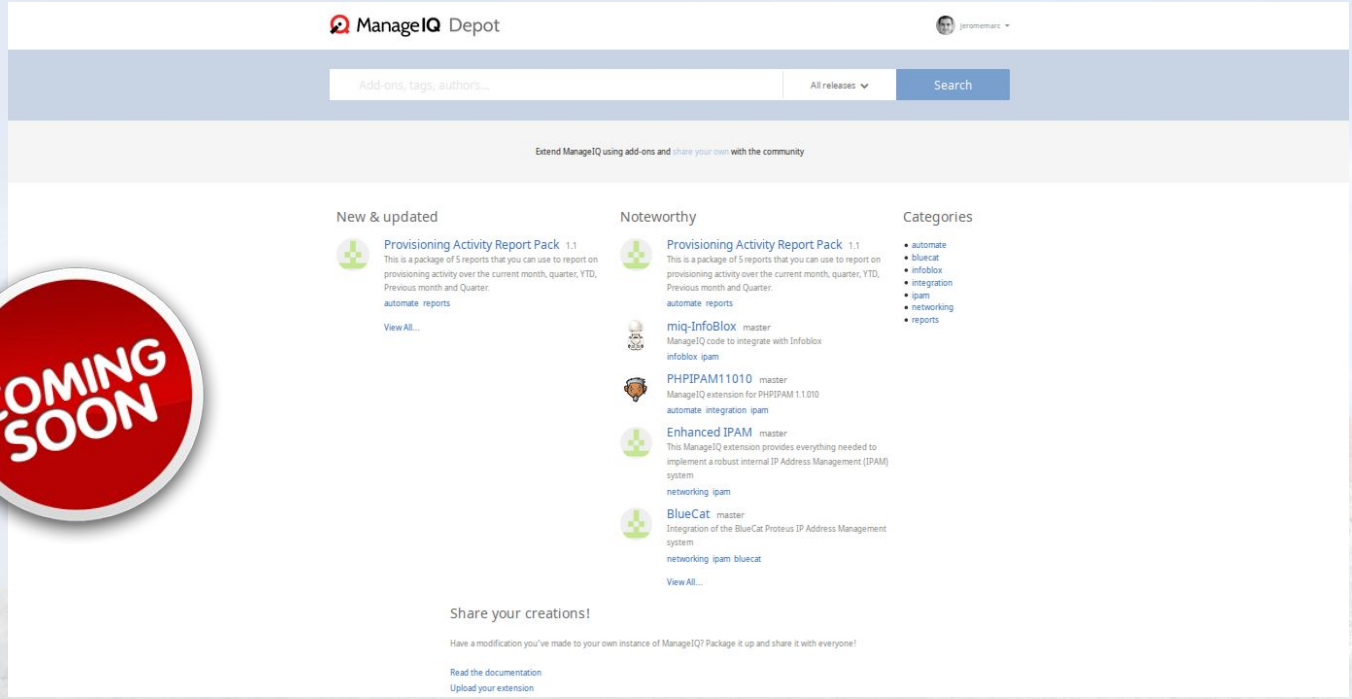
ManageIQ Extensions Depot



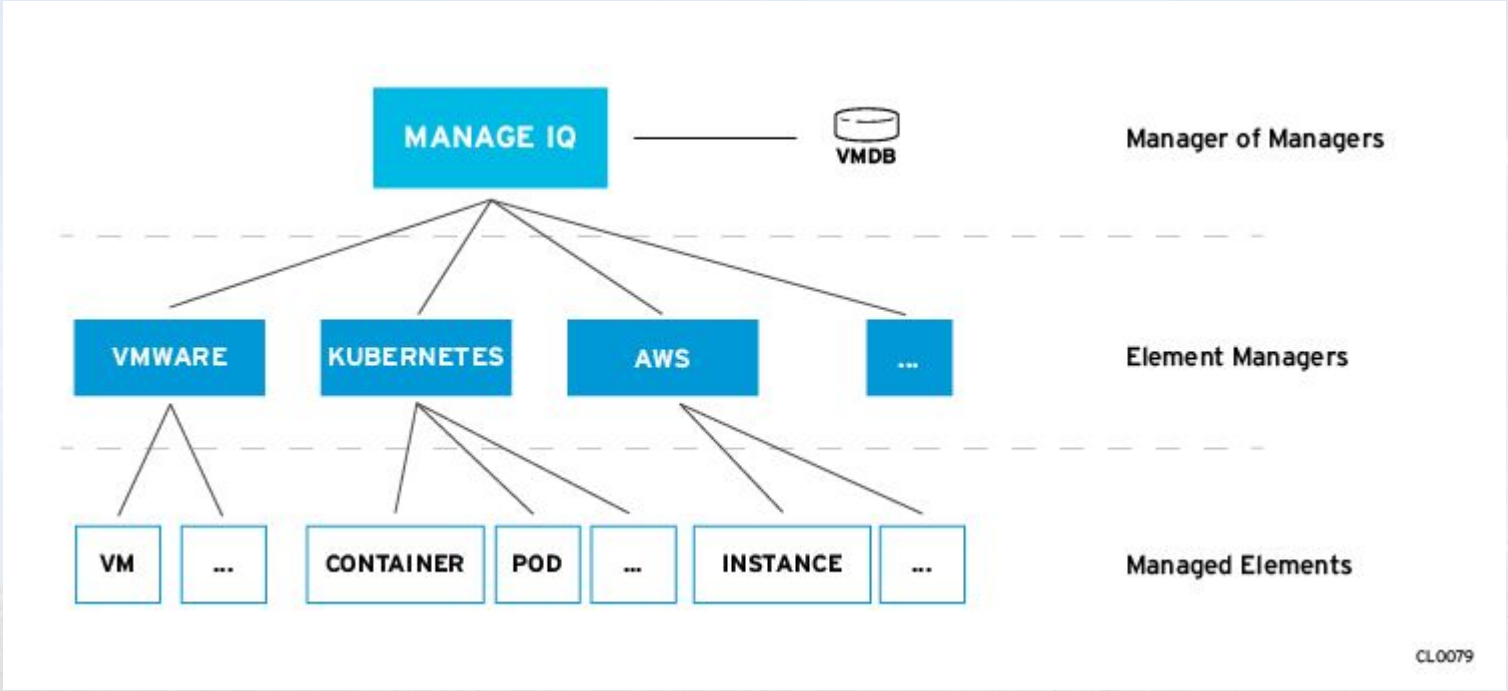
Sample Contributions:

Activity reports
IPAM implementation
NetApp extension
InfoBlox extension
LDAP extension
F5 extension
Chef extension
Jenkins extension
Oracle extension
ServiceNow extension
BlueCat extension
BlueCat Proteus IPAM ext.
Citrix Extension
BMC Extension
HP Server Automation ext.
HP Operations Manager ext.
Men and Mice extension
PHPIPAM 1.1.010 extension
Networking extension

OpenStack extension
VMware extension
RHEV extension
Satellite 5 & 6 extension
Amazon extension

ManageIQ Extensions Depot: http://depot.manageiq.org

High-Level Architecture



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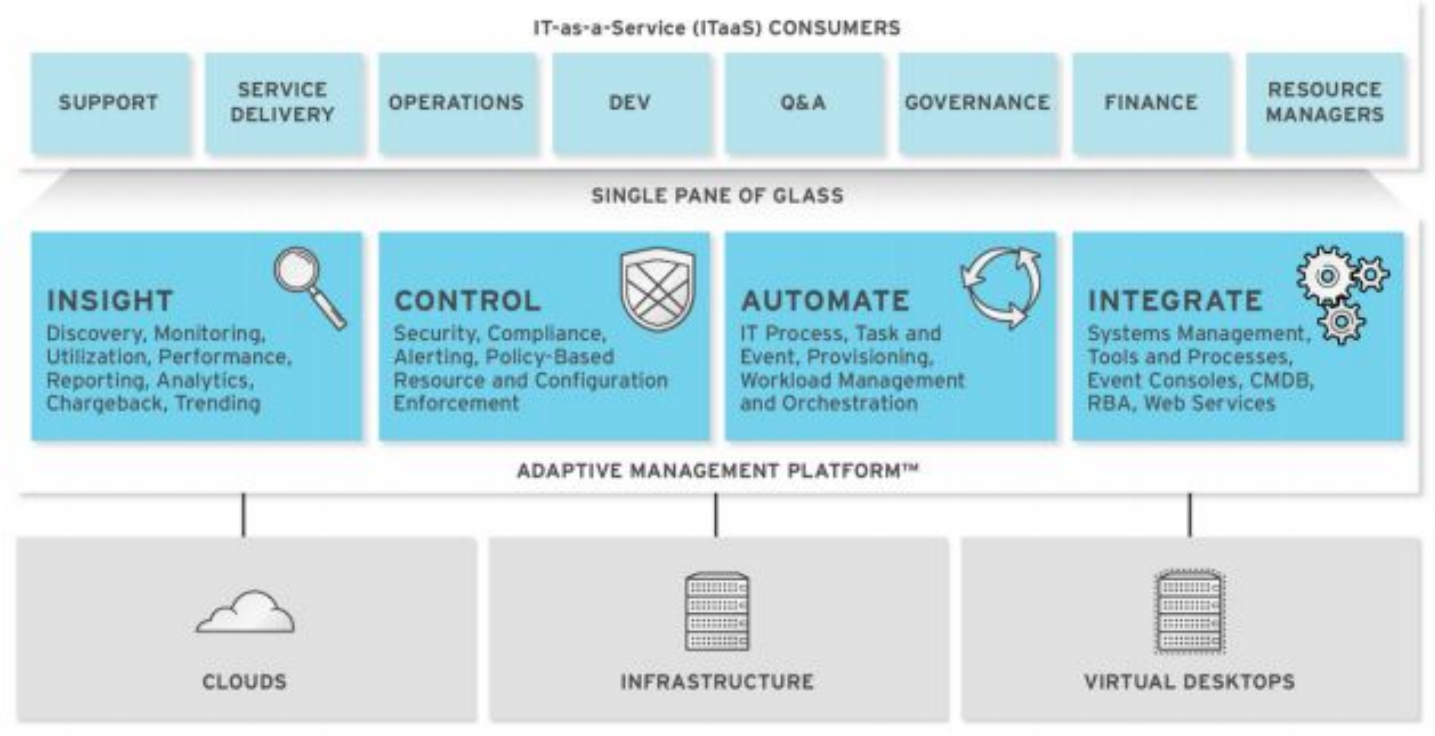
High-Level Architecture



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Some of ManageIQ Features

Inventory Management via Smart State Analysis

Self-Service Provisioning & Service Catalog

Capacity and Utilization

Quotas and Showback/Chargeback

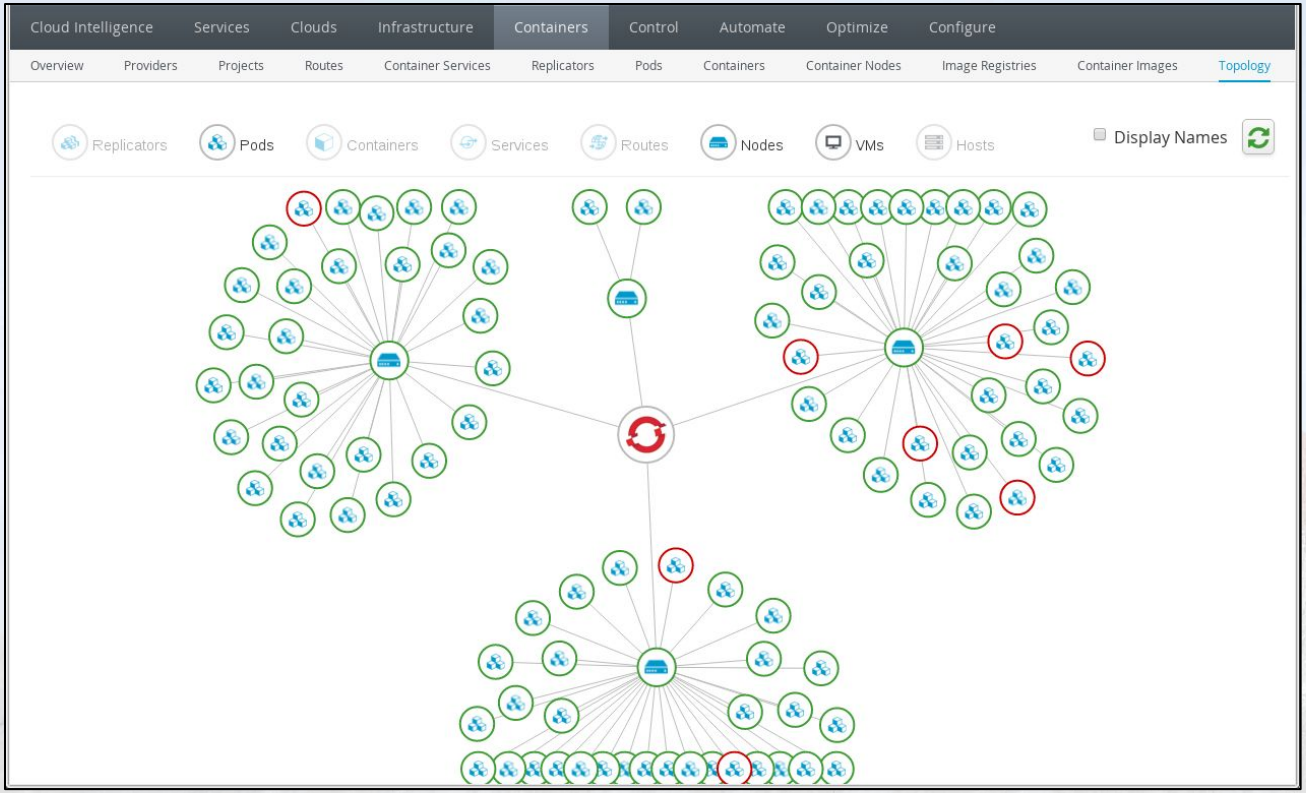
Configuration and Change Management

Policy Engine and Management

Automation and Orchestration

Reporting

Demo - Discovered Topology



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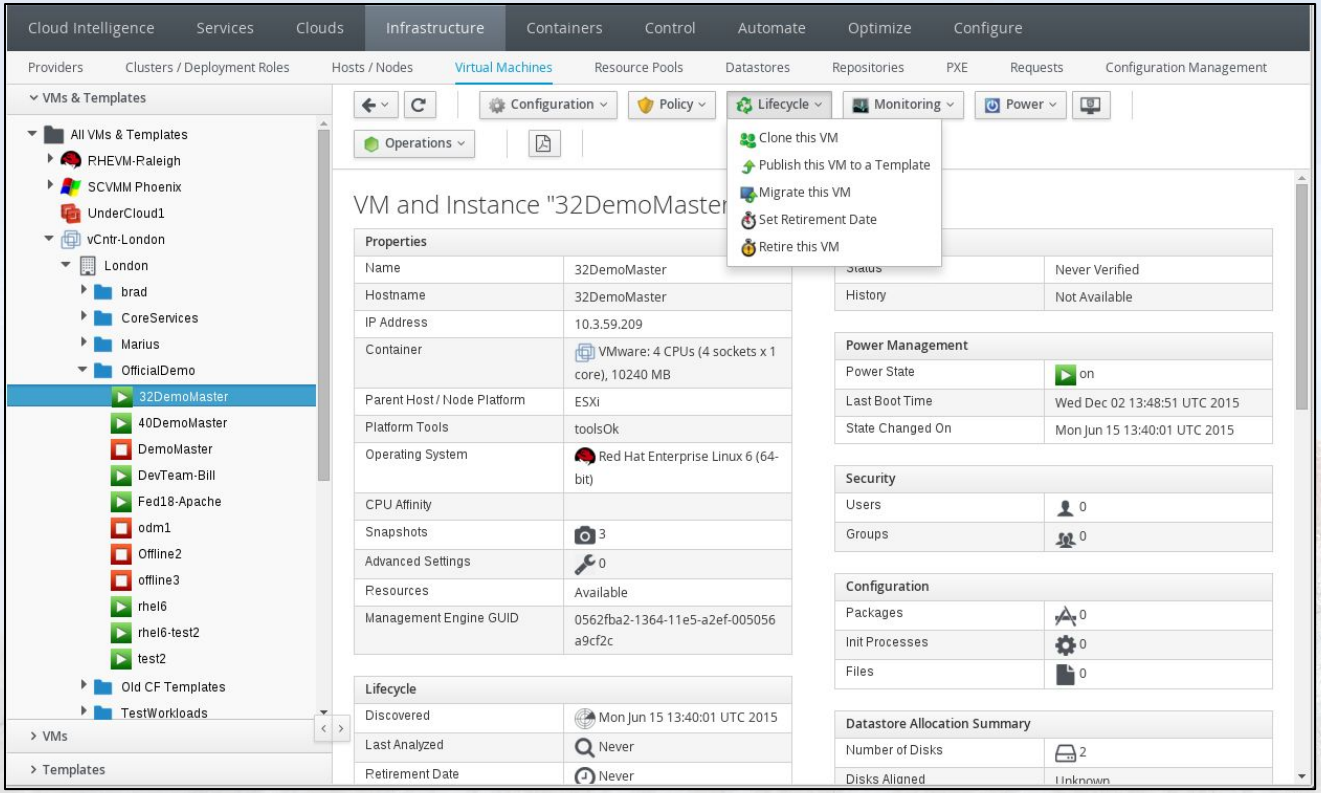
Demo - Operational Management



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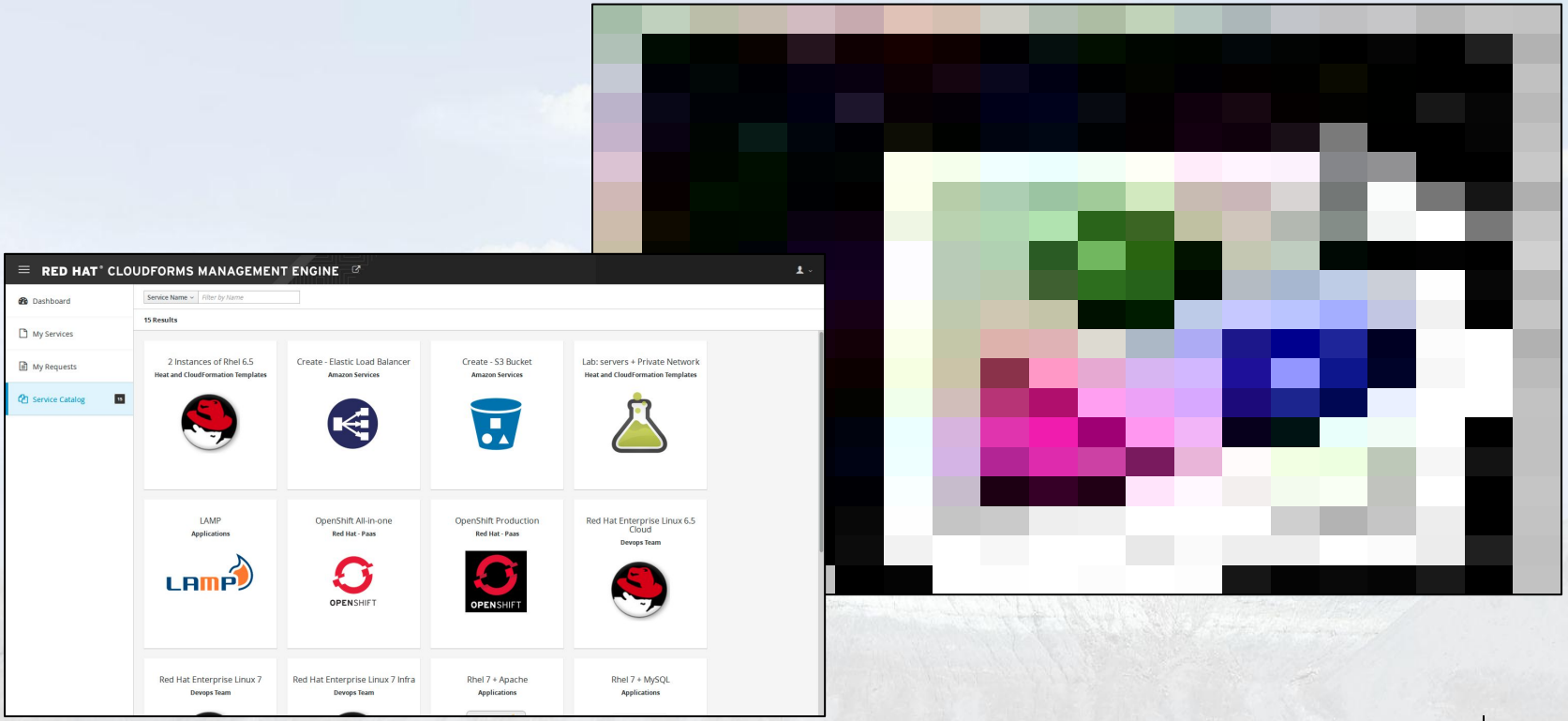
Demo - Service Catalog



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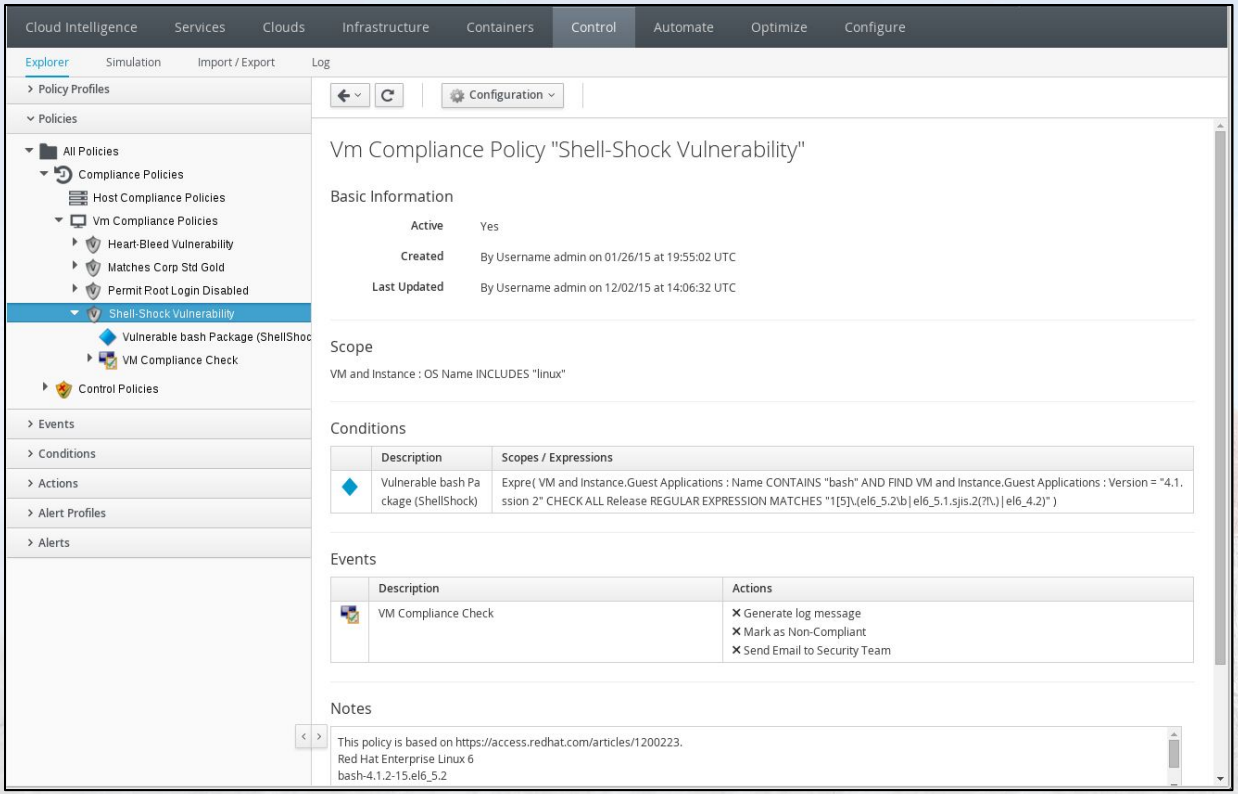
Demo - Policy Engine



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as a Cloud Management Platform (CMP)

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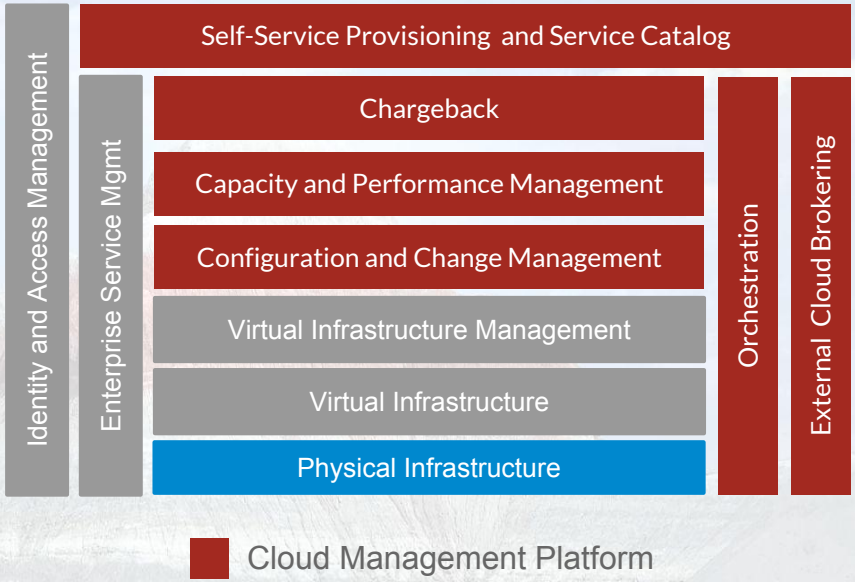
Cloud Management Platform Definition

Gartner®

“ Integrated products that provide for the management of public, private and hybrid cloud environments. The minimum requirements to be included in this category are products that incorporate self-service interfaces, provision system images, enable metering and billing, and provide for some degree of workload optimization through established policies. ”



http://www.gartner.com/it-glossary/cloud-management-platforms/

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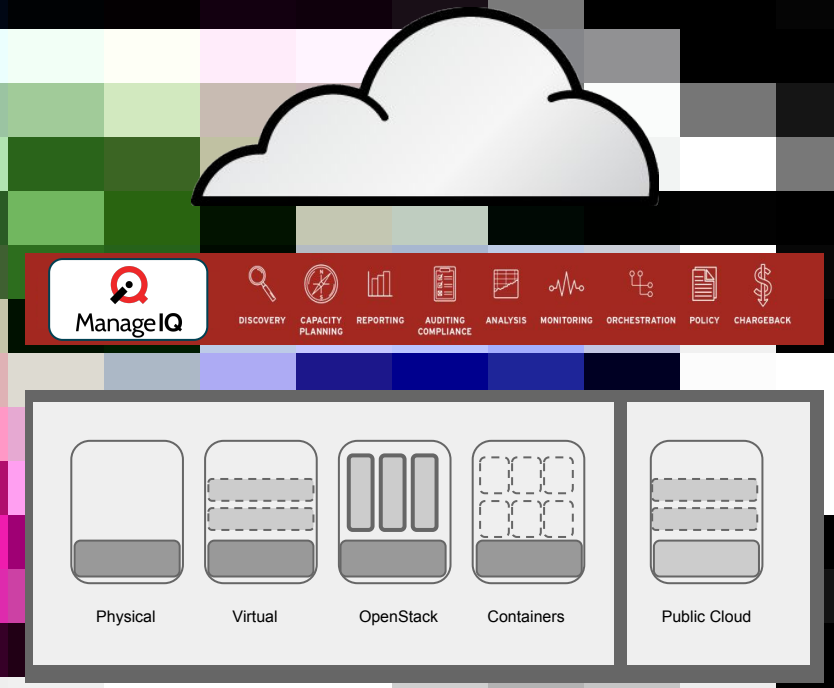
Why do we need a Cloud Management Platform?

Build Private IaaS

Deliver IT resources as Infrastructure as a Service

- Remove cause for Shadow IT
- Self Service Portal
- Use VMware, OpenStack, Hyper-V, RHEV where appropriate, but hide complexity
- Multi-Tenancy, Chargeback, Reporting



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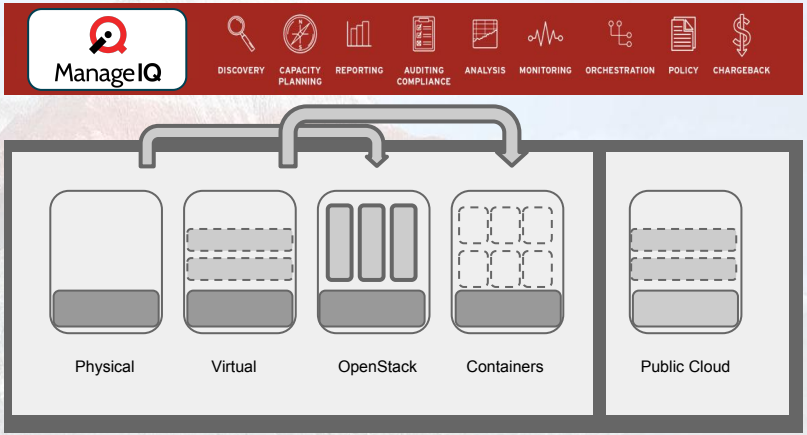
Modernization

Management across source and target technologies offers an incremental migration path

- V2V Migration
  - Legacy to Modern Hypervisor
  - Private to Public Cloud
- Right Sizing
- Transition to new Cloud Technologies



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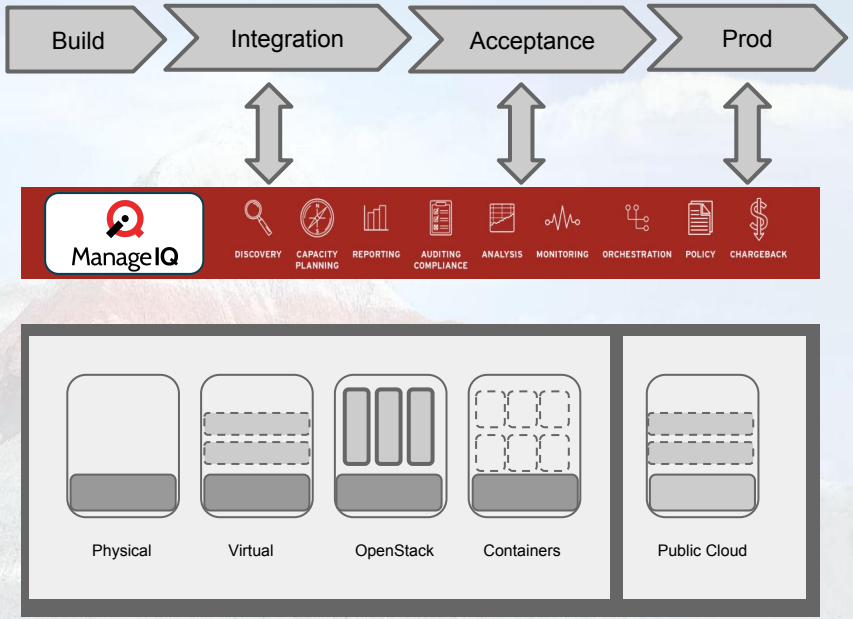
DevOps and Agile IT

Use Continuous Integration Tools to Deploy Workloads and Services

- Provision and retire test setups
- Drive consistency between different lifecycle stages
- Automated tests ensure Compliance and Governance



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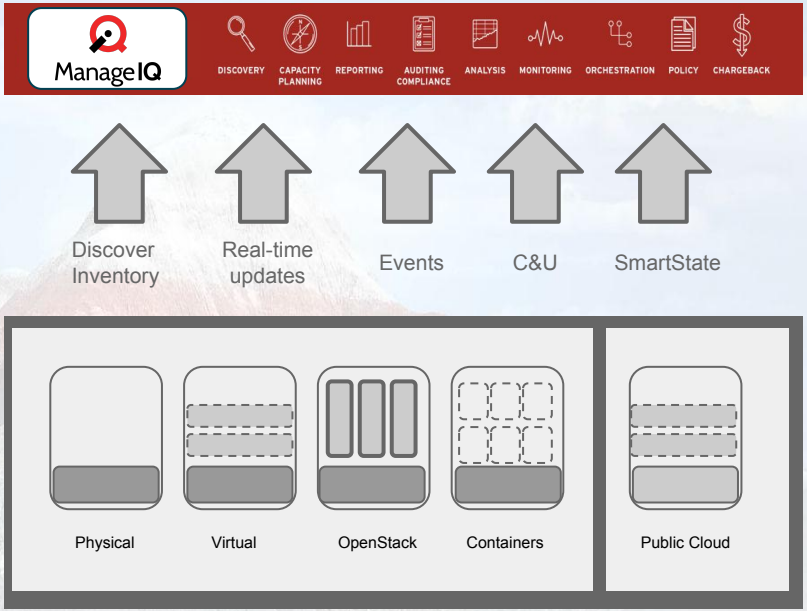
Governance and Compliance

Normalize Compliance Checks across different Cloud Technologies

- Define Compliance checks for Hosts, Virtual Machines and Cloud Instances
- Smart State Analysis allows to retrieve information agentless and regardless of power state
- Enforce Compliance by triggering Alerts and Actions
- Drift Analysis allows comparison with previous states



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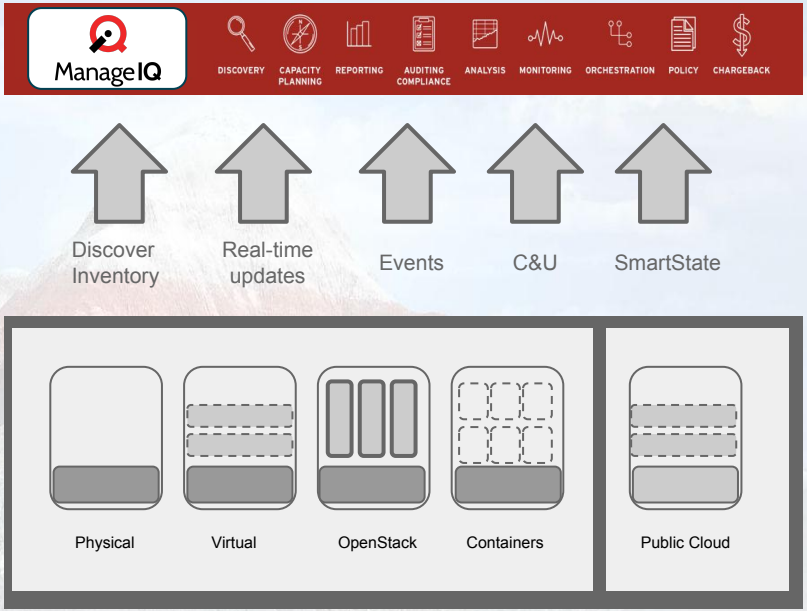
Why ManageIQ?

Discovery and Inventory

Discovers existing infrastructure and provide unified UI

- Discover existing infrastructure and workloads
- Reports and Dashboards provide unified visibility and abstract underlying providers
- Chargeback and Capacity & Utilization allow cost control and planning information



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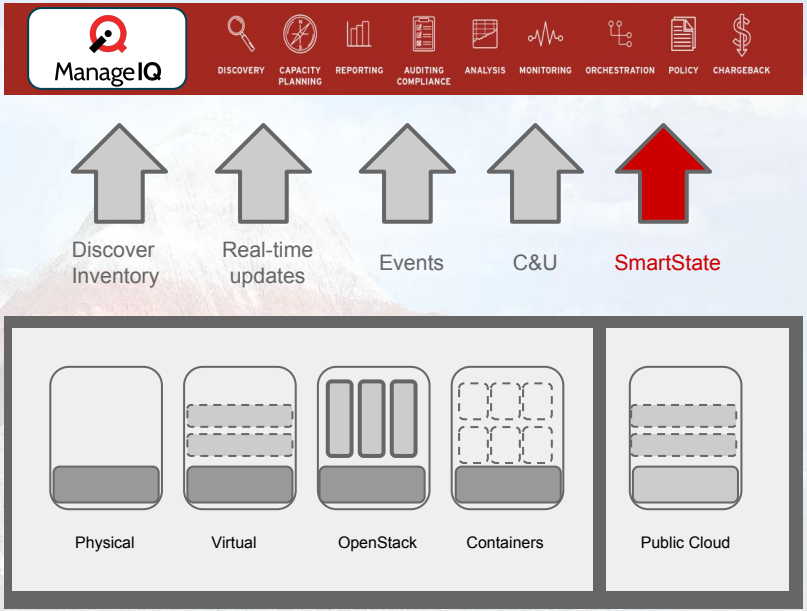
Smart State Analysis

Forensic introspection of contents of VMs, instances, hosts, data stores and containers.

- For VMs and Instances discovers Operating System, Installed Software, Users & Groups, Files and Registry Keys
- Works agentless and regardless of power state
- Control policies can validate conditions and execute actions based on retrieved information



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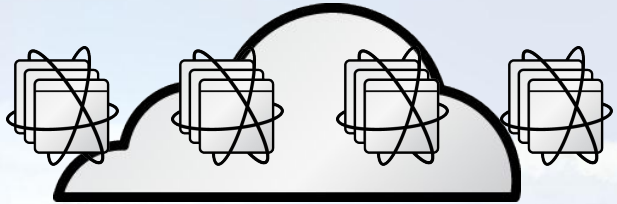
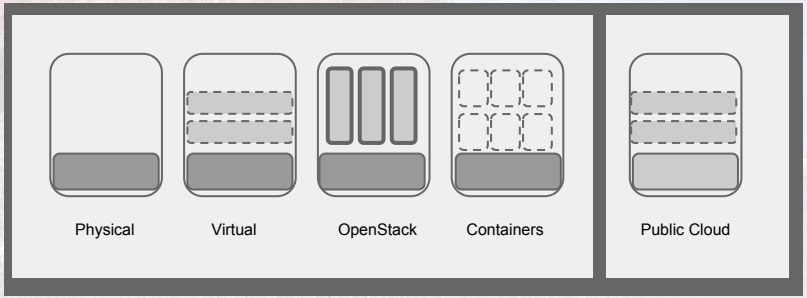
Container Support

Discovery and Inventory for Operations

- Discover Infrastructure including Containers, Pods, Routers, Services and Image Registry
- Detect relationships between objects, e.g. Datastore ⇒ VM ⇒ Container ⇒ Service
- Build topology map to visualize logical network diagram
- Developer User Experience provided by OpenShift Enterprise Portal





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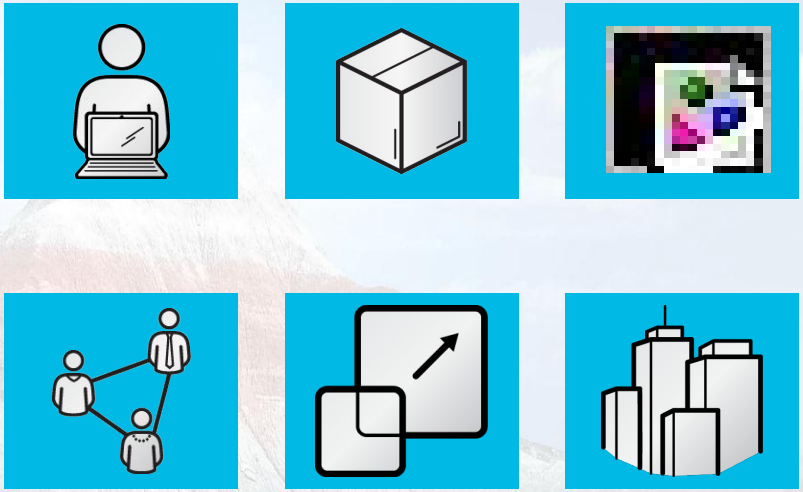
Enterprise Ready

Built for Enterprise Scale Cloud Operations Management

- Web-based Admin and Self-Service Portal
- Agent-Free Virtual Appliance
- Enterprise Directory Support
- Multi Tenancy
- Horizontal Scaling and Load Balancing
- Management of Multiple Locations



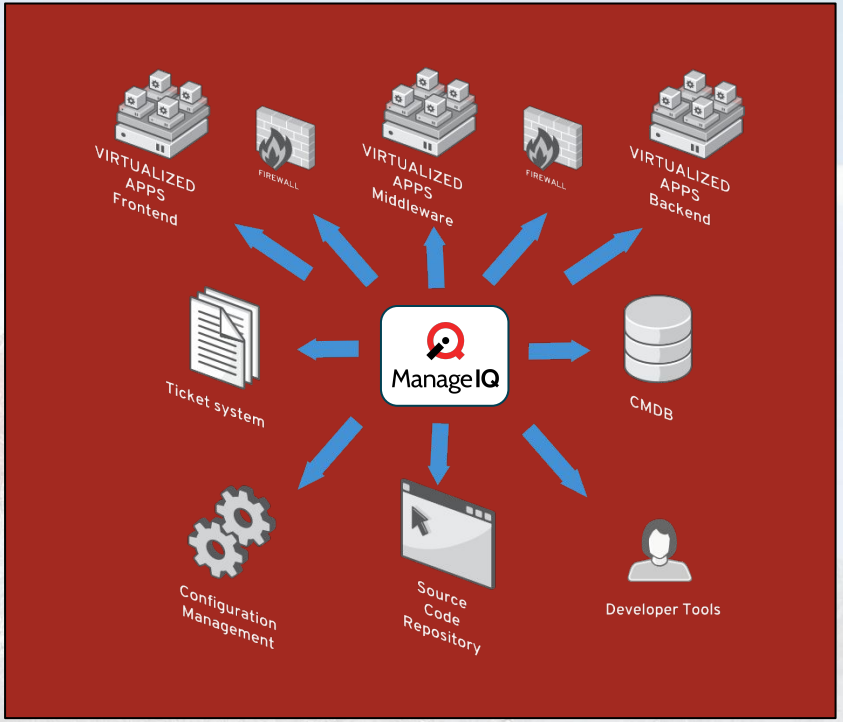
Example Use Cases

Deep Integration

Order Developer Instance from Self-Service Catalog

- Integration to build systems like Jenkins
- Backup, monitoring, Compliance Checks
- Developer tools like GCC, Java, IDE
- IT takes care of security updates and fixes
- App will work in production without modifications

Result: Ready to use developer system



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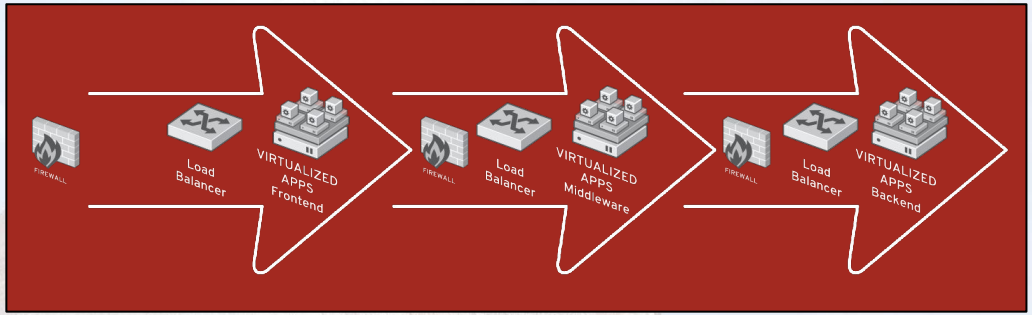
Multi-Tier Deployment

Service Manager orders Deployment of Multi-Tier Application

- Orchestrates complete stack deployment including firewalls and load balancers
- Except front-end firewall
- Only after QA approval, service goes live



Result: Multi-Tier Application Deployment without human interaction

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Best Fit Placement

Users deploy services from catalog unaware of low level technology

- “Not Near” Policy for clustered applications
- Spread load evenly or increase density
- Different Platforms for Dev, QA and Prod
- Fully customizable logic

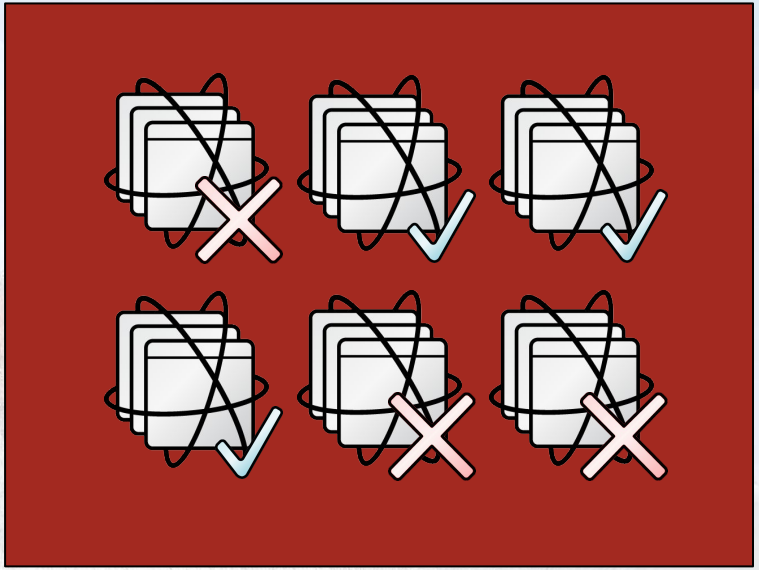
Result: Better Utilization and more control over pool of available resources

Compliance

Define Compliance Checks and verify across platform

- Define Policy Profiles and apply them to specific VMs, Hosts, Cluster or Providers
- Verify Compliance for VMs and Instances even if powered off
- Define Actions which are automatically executed in case of non compliance

Result: Enforce Compliance regardless of Technology and Power States



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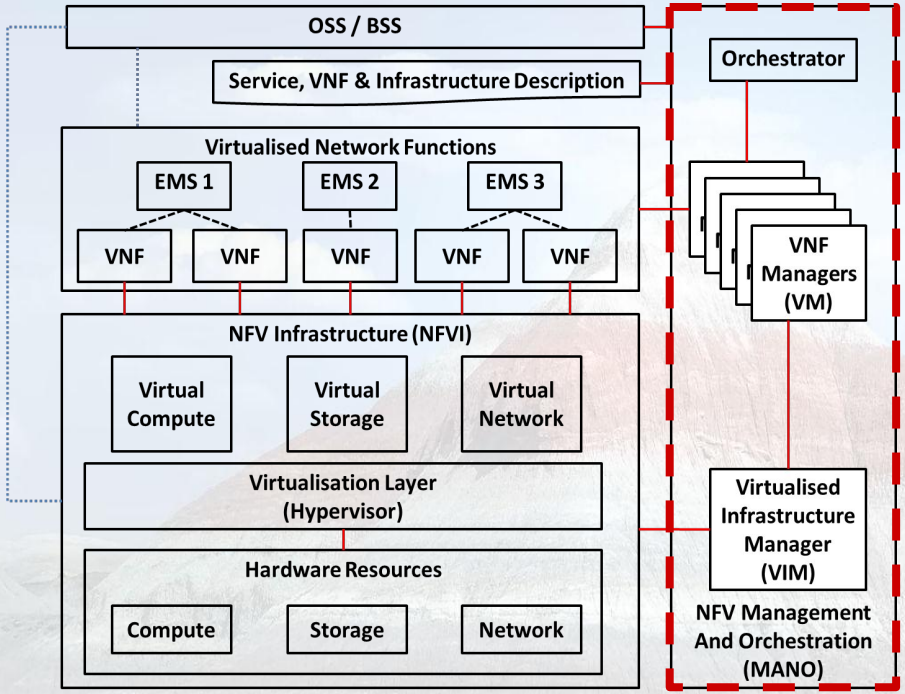
as an Open Source Solution for VNFM or NFVO Use Cases?

ETSI NFV Reference Architecture



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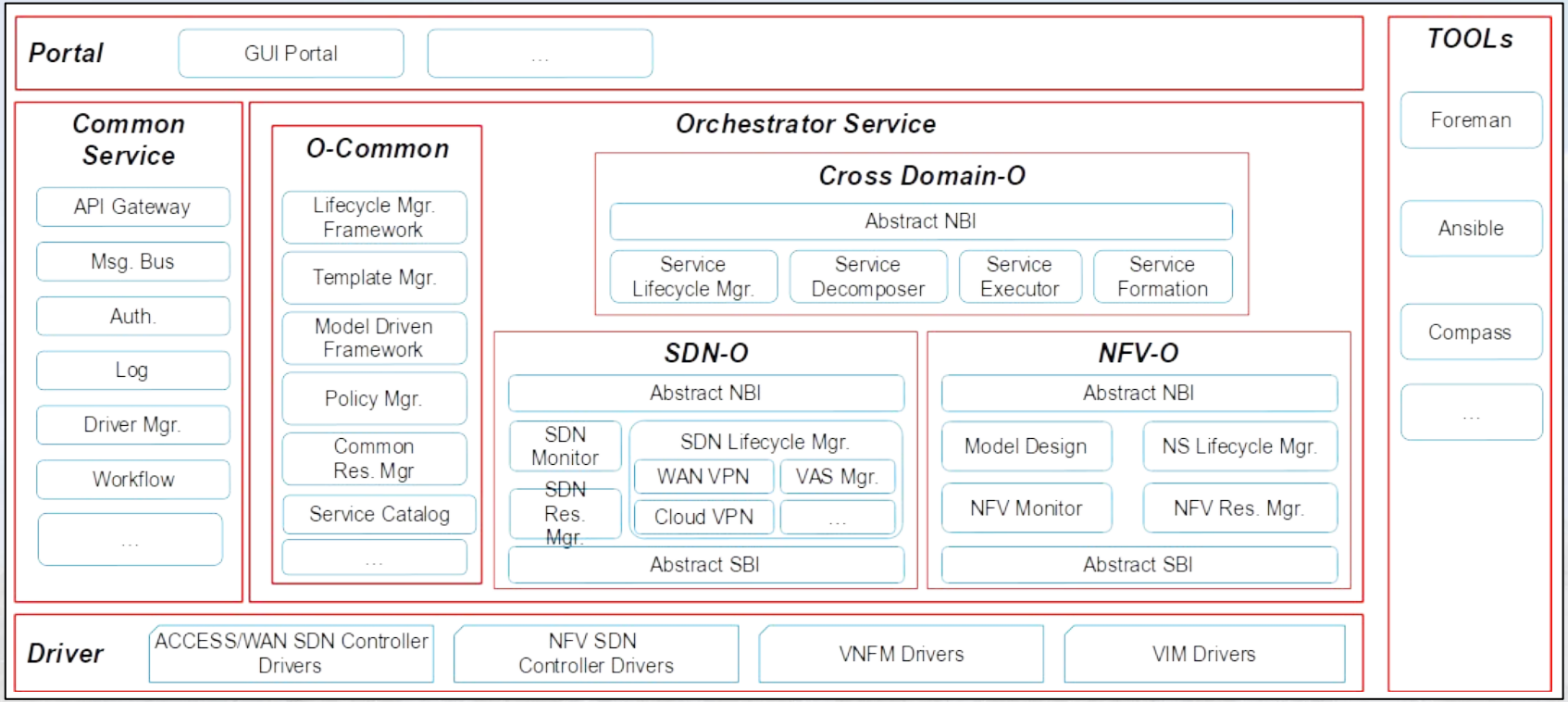
OPEN-O Draft Architecture



OPEN-O draft architecture 1.2 (March 2016)

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Managing OpenStack

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Complementing OpenStack

- Service Catalog & Orchestration
- Smart-State, Drift Analysis and Genealogy
- Right-Sizing of Resources
- Capacity & Utilization Management
- Events & Alerts
- Compliance & Policy Enforcement Validation

ManageIQ fit for MANO

- North & Southbound interfaces / REST APIs
- Service Catalog / Service Orchestration
- Import/Export & Parsing of multiple formats (XML & Tuskar)
- Event-Condition-Action model for Event & Alert handling
- UI re-branding (e.g. Jellyfish)
- Enterprise Scalability & Reliability
- Extensions Depot & Community

Next ManageIQ Design Summit

June 6-7, 2016

Sheraton Mahwah Hotel
1 International Blvd, Mahwah, NJ 07495

What to expect?

- **User Stories**: achievements and challenges with ManageIQ
- **Demos**: showcase scenarios exemplifying features and capabilities
- **New Features** & **Roadmap** discussions
- **Integration**: deploying ManageIQ with various tools and platforms

Eventbrite https://www.eventbrite.com/e/manageiq-design-summit-2016-tickets-22114445903

Discussion, Q&A

as an Open Source NFV Management And Orchestration (MANO)?

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Additional Resources

ManageIQ.org
http://www.manageiq.org

Development & Roadmap - ManageIQ Sprint Videos https://www.youtube.com/user/ManageIQVideo

Discussions about ManageIQ:
http://talk.manageiq.org/ & #manageiq (Freenode)

OpenStack Infrastructure Management with ManageIQ
John Hardy @ OpenStack Summit in Vancouver, BC, May 2015

Red Hat CloudForms Blog
http://cloudformsblog.redhat.com