



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



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

Community Partners



redhat.

BBVA

Booz | Allen | Hamilton



CHEF



cirba

cloudsoft

COX AUTOMOTIVE™



gandi.net

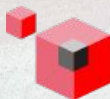
I|C|E™
systems



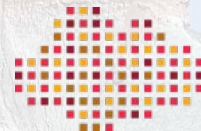
Navteca

synnefo
TECHNOLOGY SOLUTIONS
A Forsythe Company

VM TURBO



produban



nuagenetworks



ManageIQ



redhat

ManageIQ Extensions Depot

Sample Contributions:

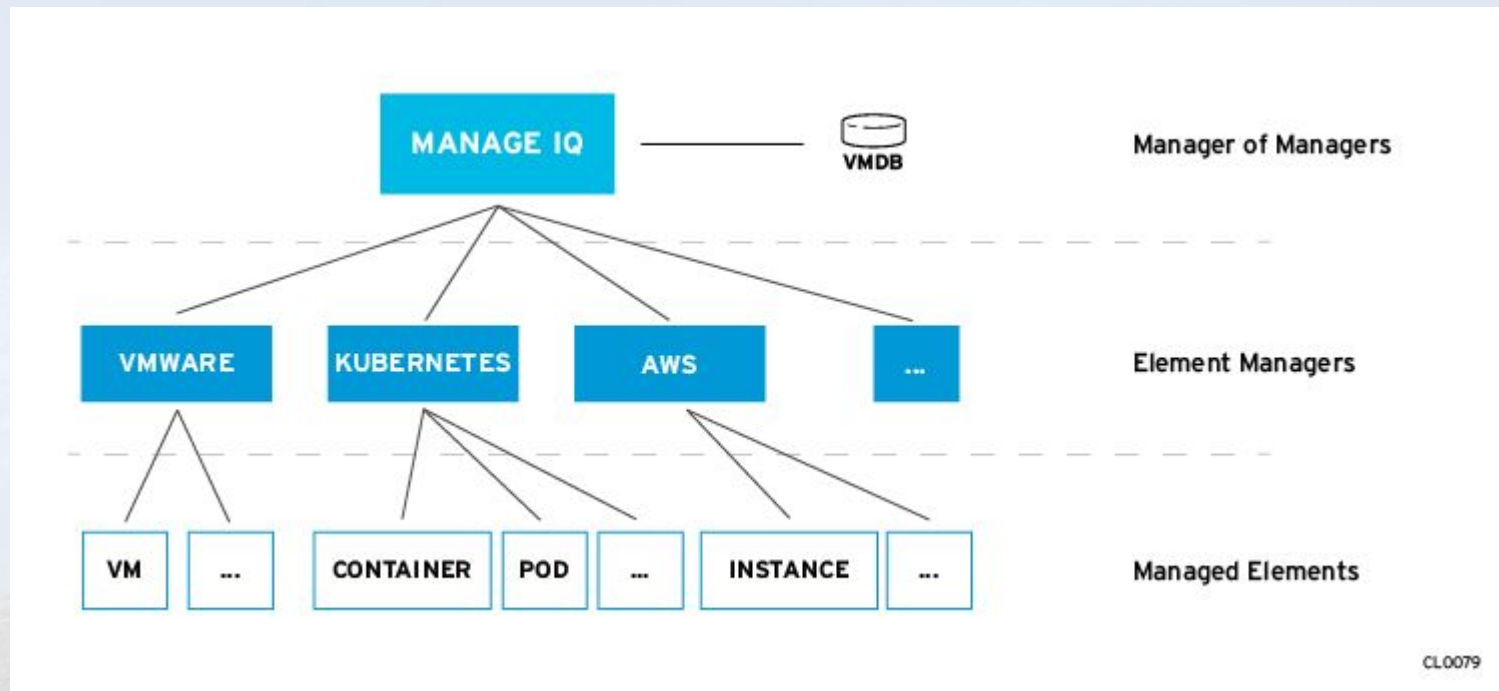
Activity reports
IPAM implementation
NetApp extension
InfoBlox extension
LDAP extension
F5 extension
Chef extension
Jenkins extension
Oracle extension
ServiceNow extension
BlueCat extension
BlueCat Proteus IPAM ext.
Citrix Extension
BMC Extension
HP Server Automation ext.
HP Operations Manager ext.
Men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

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

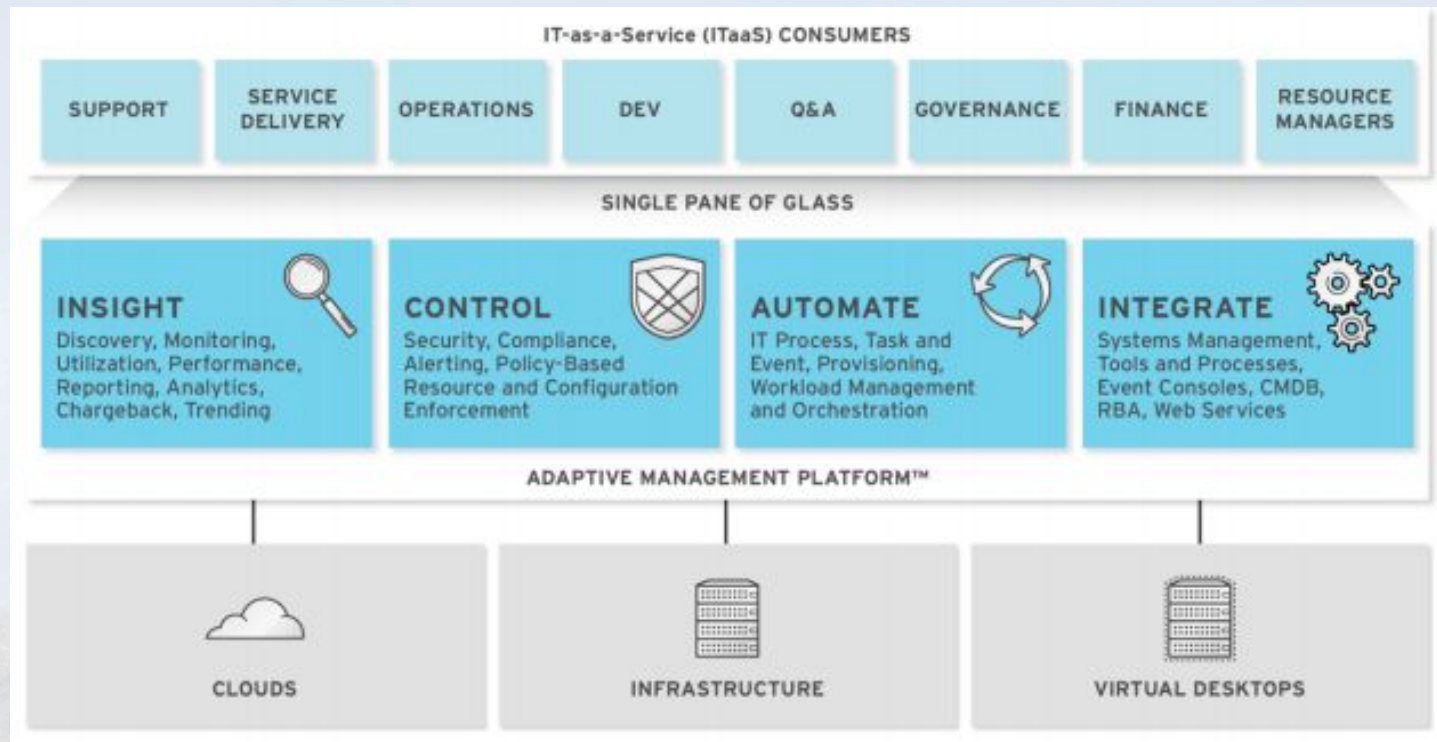


The screenshot shows the ManageIQ Depot homepage. At the top is the ManageIQ logo and a user profile. Below is a search bar with the placeholder text 'Add-ons, tags, authors...'. A navigation bar contains 'All releases' and a 'Search' button. The main content area is divided into three columns: 'New & updated', 'Noteworthy', and 'Categories'. The 'New & updated' column features a 'Provisioning Activity Report Pack 1.1' with a description and a 'View All...' link. The 'Noteworthy' column lists several extensions: 'miq-InfoBlox', 'PHPIPAM11010', 'Enhanced IPAM', and 'BlueCat', each with a brief description and a 'View All...' link. The 'Categories' column lists various categories like 'automate', 'bluecat', 'infoblox', etc. At the bottom, there is a section titled 'Share your creations!' with links to 'Read the documentation' and 'Upload your extension'.

High-Level Architecture



High-Level Architecture



Some of ManageIQ Features

Inventory Management via Smart State Analysis

Self-Service Provisioning & Service Catalog

Capacity and Utilization

Quotas and Showback/Chargeback

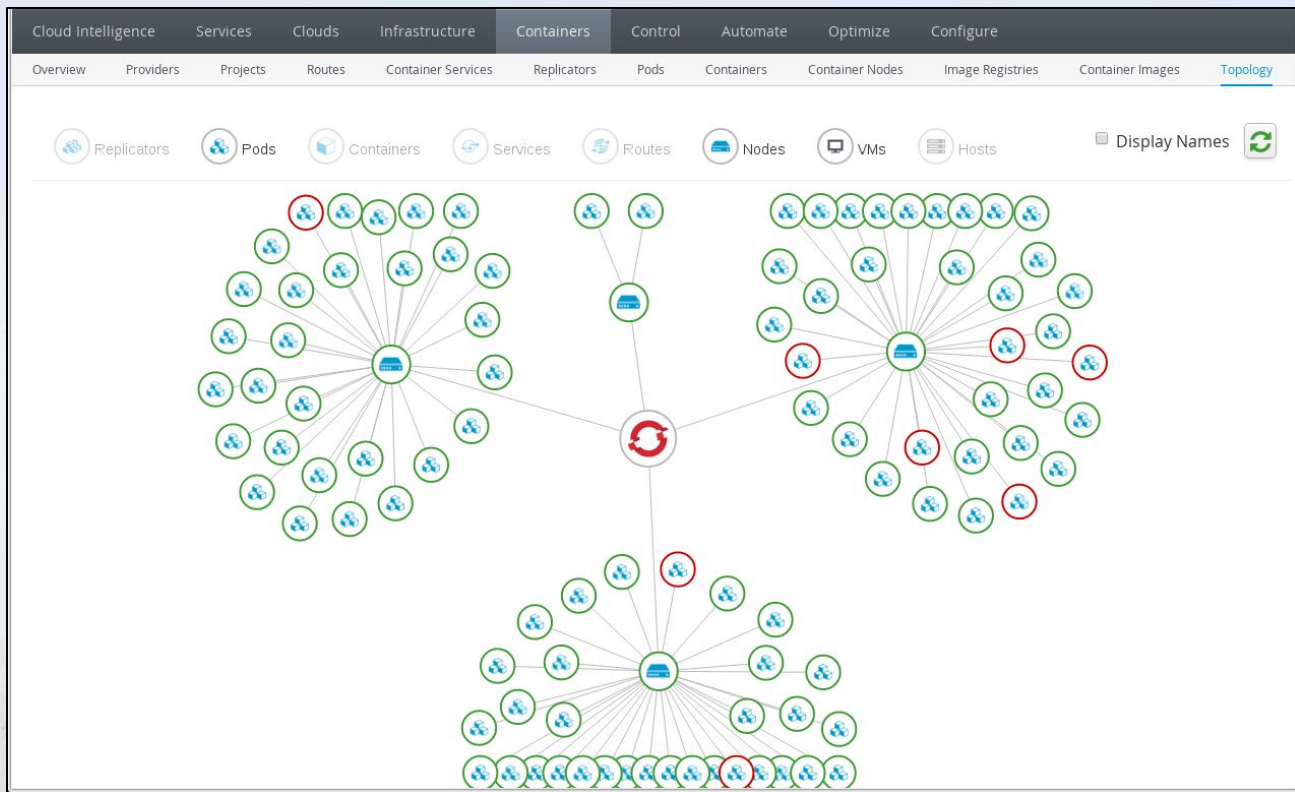
Configuration and Change Management

Policy Engine and Management

Automation and Orchestration

Reporting

Demo - Discovered Topology



Demo - Operational Management

The screenshot displays the Red Hat CloudForms interface for managing Virtual Machines. The left sidebar shows a tree view of VMs and Templates, with '32DemoMaster' selected under 'vCntr-London'. The main panel shows the 'VM and Instance "32DemoMaster"' details, including Properties, Lifecycle, Power Management, Security, Configuration, and Datastore Allocation Summary. A context menu is open over the 'Lifecycle' tab, showing options like 'Clone this VM', 'Publish this VM to a Template', 'Migrate this VM', 'Set Retirement Date', and 'Retire this VM'.

Cloud Intelligence Services Clouds **Infrastructure** Containers Control Automate Optimize Configure

Providers Clusters / Deployment Roles Hosts / Nodes **Virtual Machines** Resource Pools Datastores Repositories PXE Requests Configuration Management

VMs & Templates

- All VMs & Templates
 - RHEVM-Raleigh
 - SCVMM Phoenix
 - UnderCloud1
 - vCntr-London
 - London
 - brad
 - CoreServices
 - Marius
 - OfficialDemo
 - 32DemoMaster**
 - 40DemoMaster
 - DemoMaster
 - DevTeam-Bill
 - Fed18-Apache
 - odm1
 - Offline2
 - offline3
 - rhel6
 - rhel6-test2
 - test2
 - Old CF Templates
 - TestWorkloads

Operations Configuration Policy Lifecycle Monitoring Power

VM and Instance "32DemoMaster"

Properties	
Name	32DemoMaster
Hostname	32DemoMaster
IP Address	10.3.59.209
Container	VMware: 4 CPUs (4 sockets x 1 core), 10240 MB
Parent Host / Node Platform	ESXi
Platform Tools	toolsOk
Operating System	Red Hat Enterprise Linux 6 (64-bit)
CPU Affinity	
Snapshots	3
Advanced Settings	0
Resources	Available
Management Engine GUID	0562fba2-1364-11e5-a2ef-005056a9cf2c

Lifecycle	
Discovered	Mon Jun 15 13:40:01 UTC 2015
Last Analyzed	Never
Retirement Date	Never

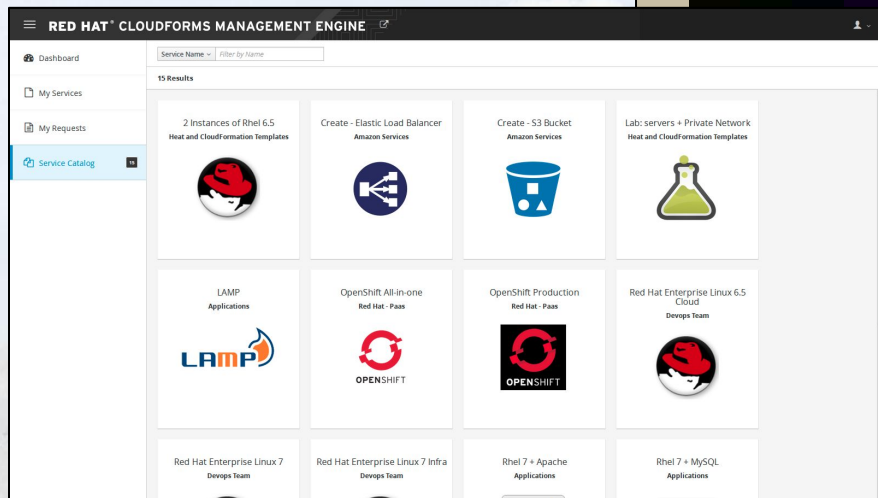
Power Management	
Power State	on
Last Boot Time	Wed Dec 02 13:48:51 UTC 2015
State Changed On	Mon Jun 15 13:40:01 UTC 2015

Security	
Users	0
Groups	0

Configuration	
Packages	0
Init Processes	0
Files	0

Datastore Allocation Summary	
Number of Disks	2
Disks Aligned	1 Unknown

Demo - Service Catalog



Demo - Policy Engine

The screenshot displays the ManageIQ Policy Engine interface. The top navigation bar includes links for Cloud Intelligence, Services, Clouds, Infrastructure, Containers, Control, Automate, Optimize, and Configure. The left sidebar shows a tree view of Policy Profiles, with the 'Vm Compliance Policy \"Shell-Shock Vulnerability\"' selected. The main content area displays the configuration for this policy, including its basic information, scope, conditions, events, and notes.

Policy Profiles

- Policy Profiles
 - Simulation
 - Import / Export
 - Log
- > Policy Profiles
 - Policies
 - All Policies
 - Compliance Policies
 - Host Compliance Policies
 - Vm Compliance Policies
 - Heart-Bleed Vulnerability
 - Matches Corp Std Gold
 - Permit Root Login Disabled
 - Shell-Shock Vulnerability**
 - Vulnerable bash Package (ShellShock)
 - VM Compliance Check
 - Control Policies

- > Events
- > Conditions
- > Actions
- > Alert Profiles
- > Alerts

Vm Compliance Policy "Shell-Shock Vulnerability"

Basic Information

Active	Yes
Created	By Username admin on 01/26/15 at 19:55:02 UTC
Last Updated	By Username admin on 12/02/15 at 14:06:32 UTC

Scope

VM and Instance : OS Name INCLUDES "linux"

Conditions

Description	Scopes / Expressions
Vulnerable bash Package (ShellShock)	Expre(VM and Instance.Guest Applications : Name CONTAINS "bash" AND FIND VM and Instance.Guest Applications : Version = "4.1. sion 2" CHECK ALL Release REGULAR EXPRESSION MATCHES "[15]([el6_5.2 b el6_5.1.s s.2(7 .) el6_4.2)"])

Events

Description	Actions
VM Compliance Check	<ul style="list-style-type: none">Generate log messageMark as Non-CompliantSend Email to Security Team

Notes

This policy is based on <https://access.redhat.com/articles/1200223>.
Red Hat Enterprise Linux 6
bash-4.1.2-15.el6_5.2

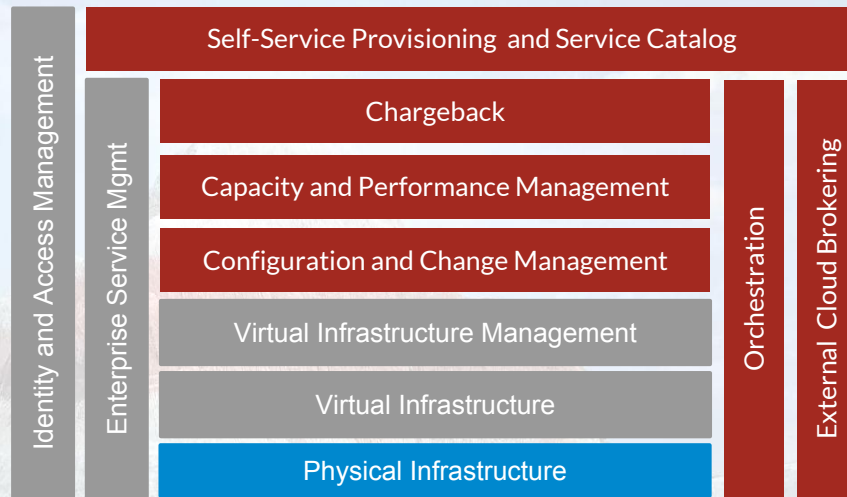


as a Cloud Management Platform (CMP)

Cloud Management Platform Definition



“ 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. ”



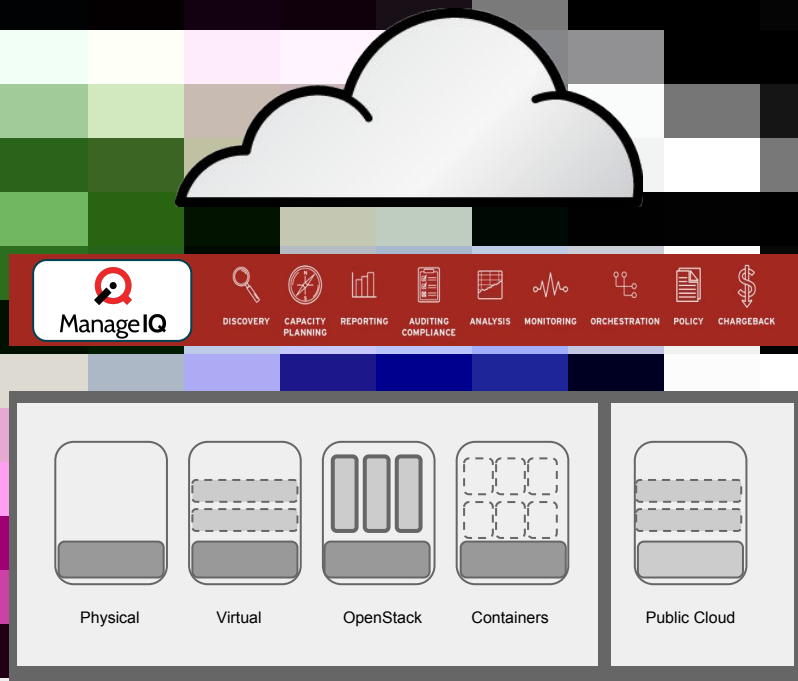
■ Cloud Management Platform

Why do we need a Cloud Management Platform?

Build Private IaaS

Deliver IT resources as
Infrastructure as a Service

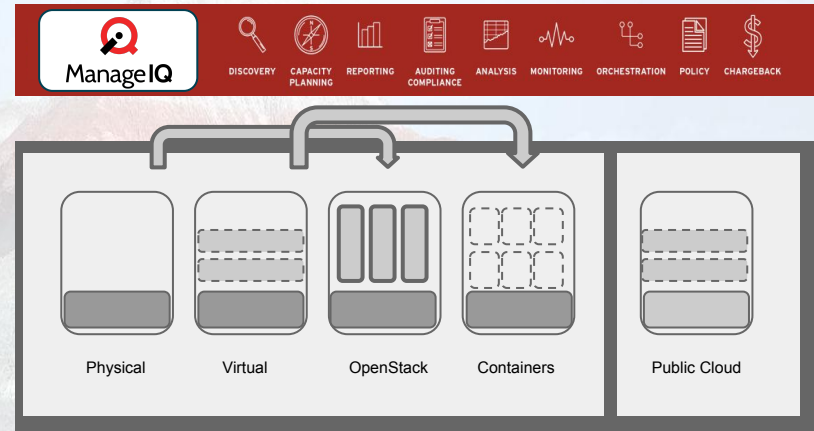
- Remove cause for Shadow IT
- Self Service Portal
- Use VMware, OpenStack, Hyper-V, RHEV where appropriate, but hide complexity
- Multi-Tenancy, Chargeback, Reporting



Modernization

Management across source and target technologies offers an incremental migration path

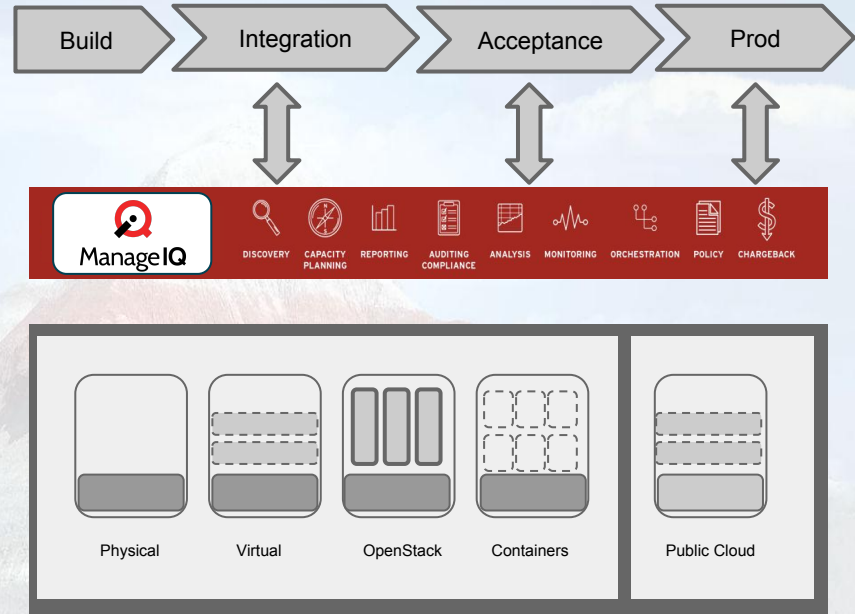
- V2V Migration
 - Legacy to Modern Hypervisor
 - Private to Public Cloud
- Right Sizing
- Transition to new Cloud Technologies



DevOps and Agile IT

Use Continuous Integration Tools to Deploy Workloads and Services

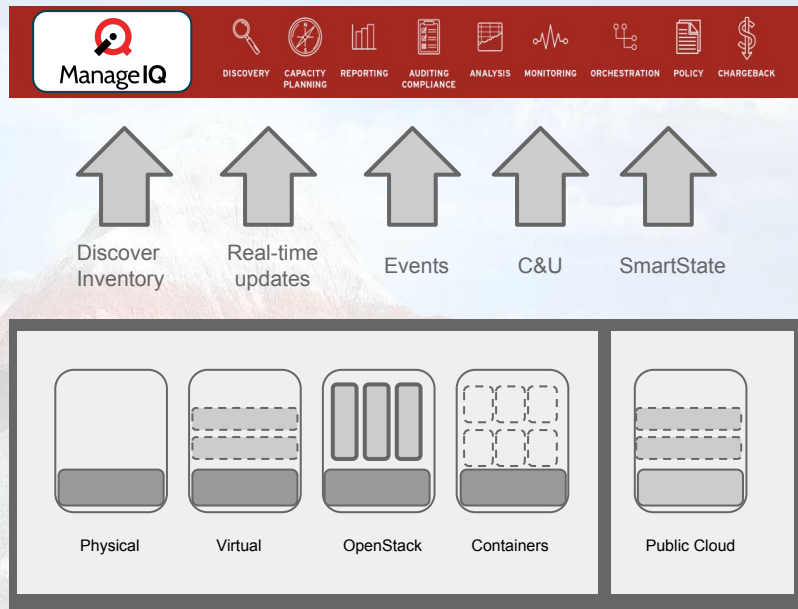
- Provision and retire test setups
- Drive consistency between different lifecycle stages
- Automated tests ensure Compliance and Governance



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

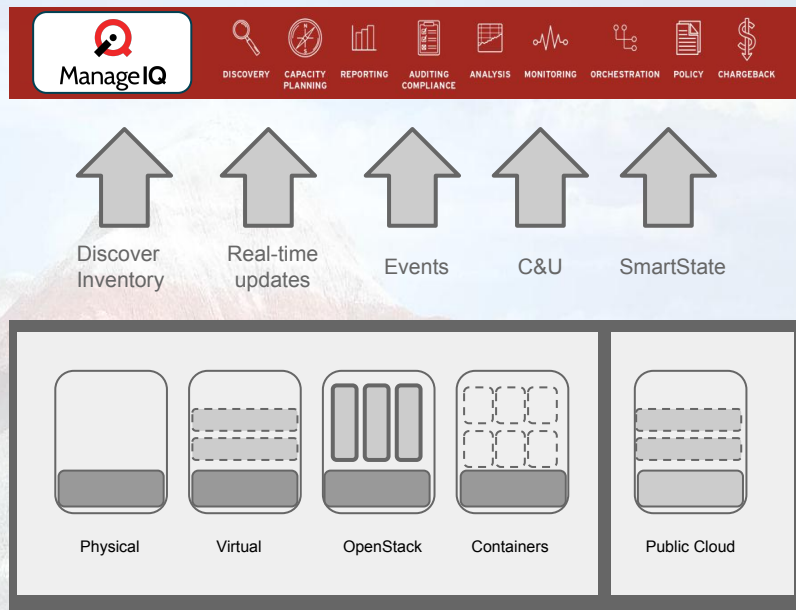


Why ManageIQ?

Discovery and Inventory

Discovers existing infrastructure and provide unified UI

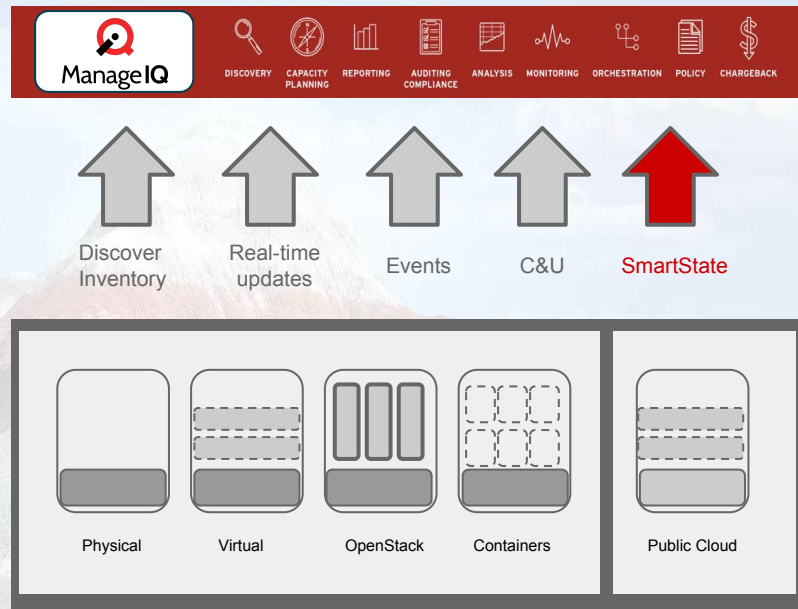
- Discover existing infrastructure and workloads
- Reports and Dashboards provide unified visibility and abstract underlying providers
- Chargeback and Capacity & Utilization allow cost control and planning information



Smart State Analysis

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

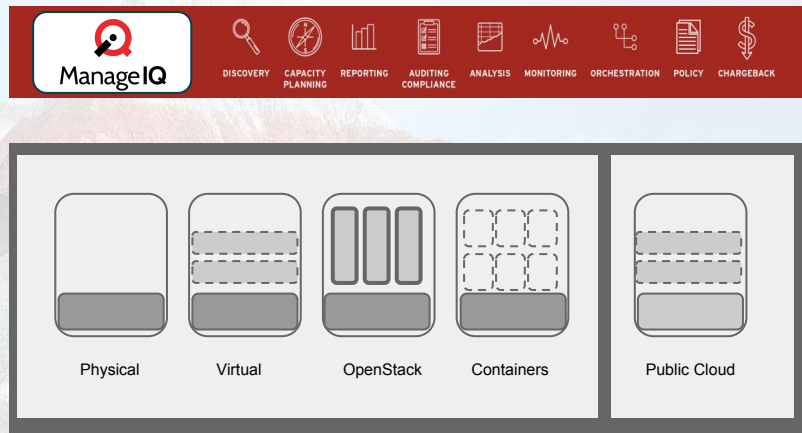
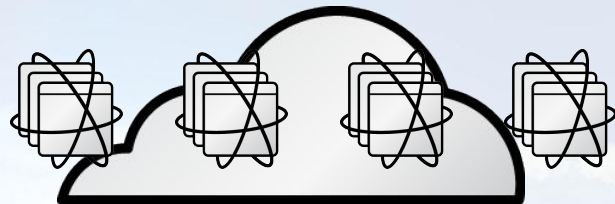
- For VMs and Instances discovers Operating System, Installed Software, Users & Groups, Files and Registry Keys
- Works agentless and regardless of power state
- Control policies can validate conditions and execute actions based on retrieved information



Container Support

Discovery and Inventory for Operations

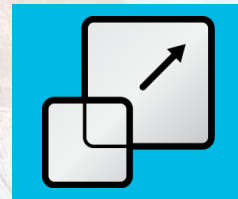
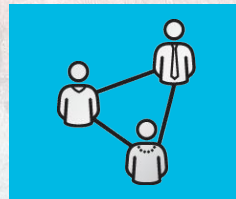
- Discover Infrastructure including Containers, Pods, Routers, Services and Image Registry
- Detect relationships between objects, e.g. Datastore \Rightarrow VM \Rightarrow Container \Rightarrow Service
- Build topology map to visualize logical network diagram
- Developer User Experience provided by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



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



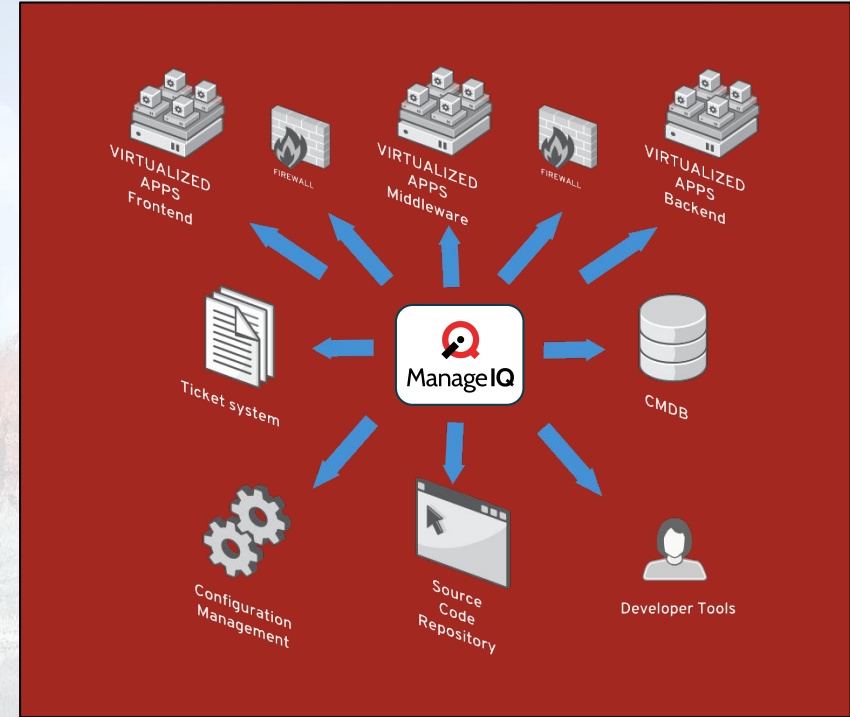
Example Use Cases

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

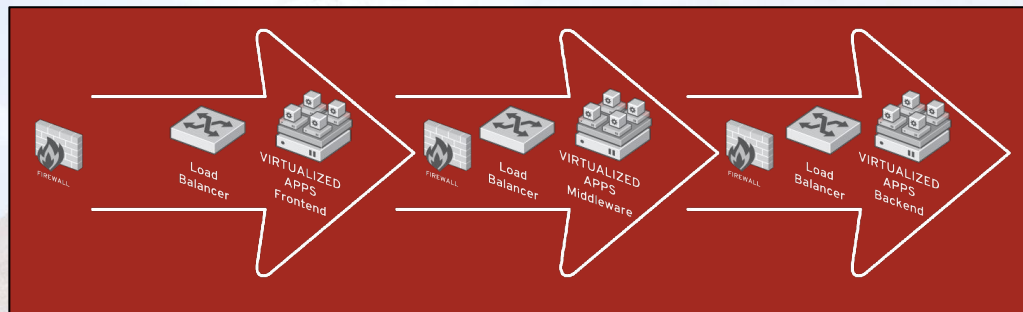
Result: Ready to use developer system



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

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**

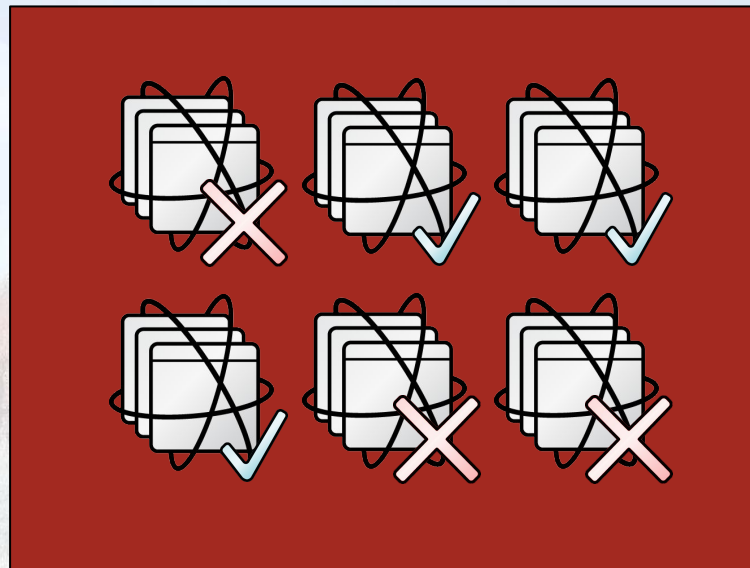


Compliance

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



Sessions on  **ManageIQ** including:

OpenStack Infrastructure Management with ManageIQ

John Hardy

Demo 1: Power, Provisioning & Console

Demo 2: Capacity & Utilization Under & Over Cloud

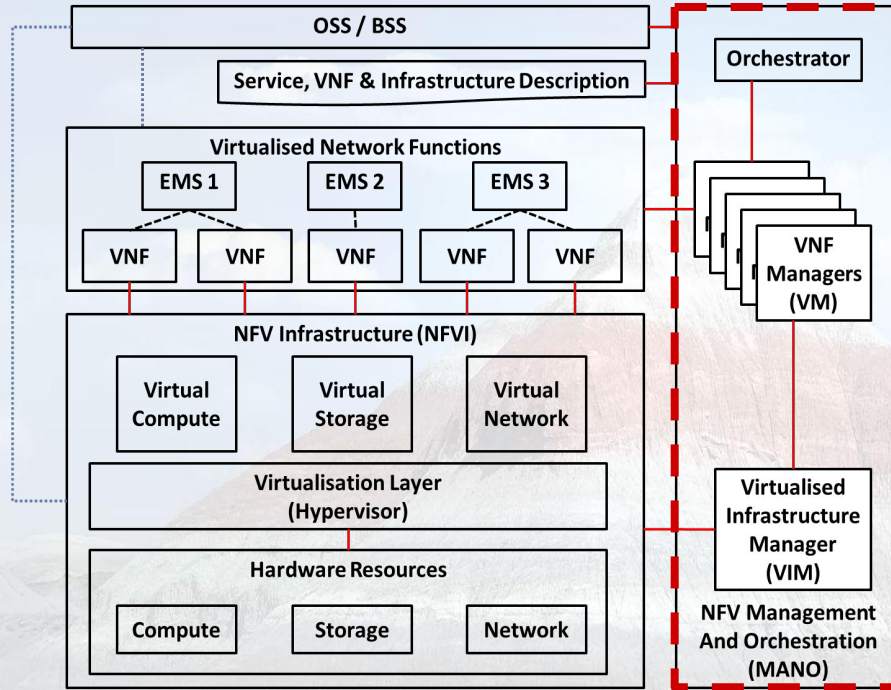
Demo 3: Smart-State Analysis & Genealogy

Demo 4: Manual & Automatic Infrastructure Scaling

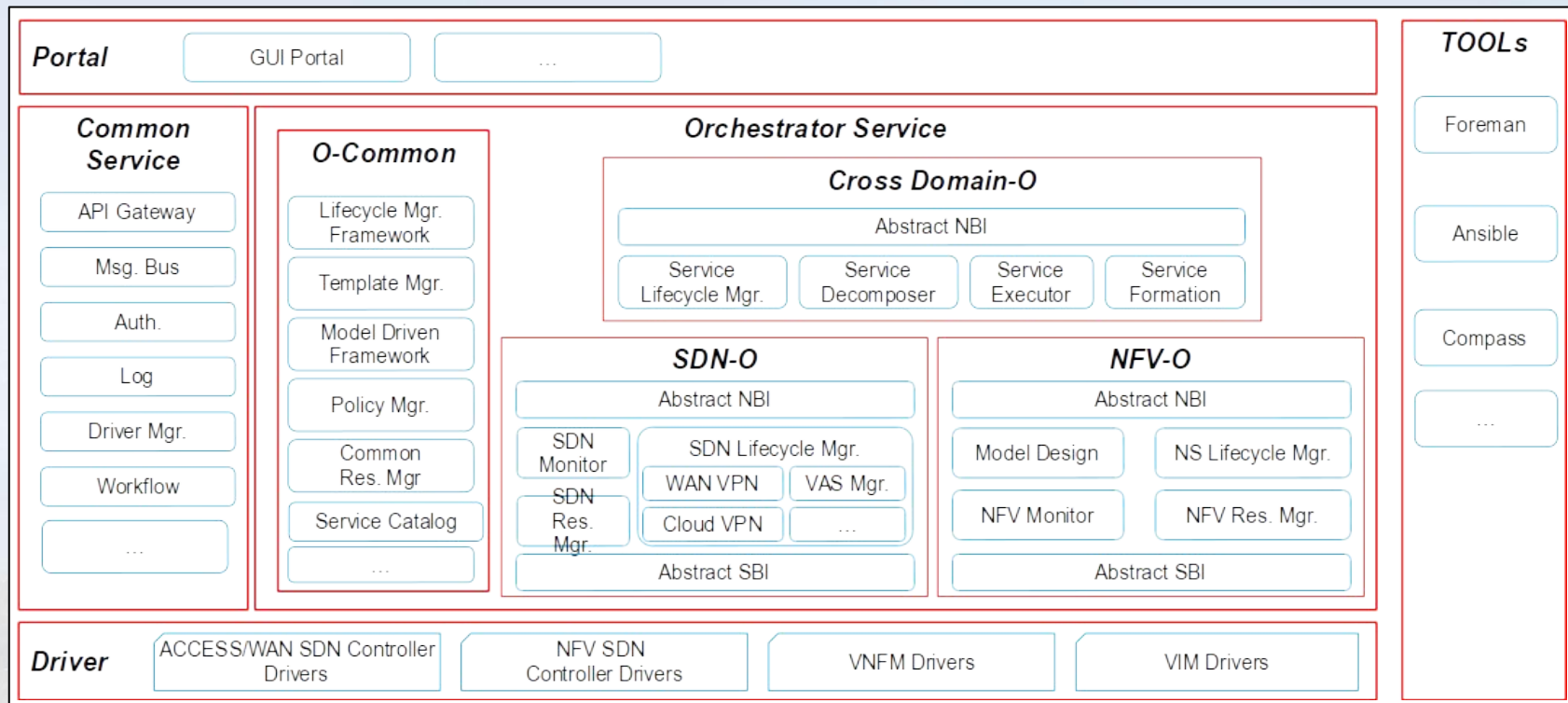


**as an Open Source Solution
for VNFM or NFVO Use Cases?**

ETSI NFV Reference Architecture



OPEN-O Draft Architecture



Managing OpenStack

b

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

Discussion, Q&A



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

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Technical Marketing Engineer @ Red Hat
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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>