Overview of WebAdmin and UI Frameworks

oVirt Workshop - Bangalore
October 2012

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RedHat

Agenda

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- The heart of oVirt UI – GWT
- GWT Development Lifecycle
- Deferred Binding
- MVP Architecture
- Dependency Injection with GIN
- Modules in Frontend
- Search and Bookmarks
- GUI Prototyping using Pencil
- Q & A

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Google Web Toolkit (GWT)

“Productivity for developers, Performance for users”

Google Web Toolkit

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- Open source set of tools for building rich JavaScript web applications using Java programming language
  - Develop in Java
  - Compile into JavaScript
  - Run on Browser
- GWT is not a library nor framework
- Java to JavaScript Compiler
- Development time debugging

Why GWT?

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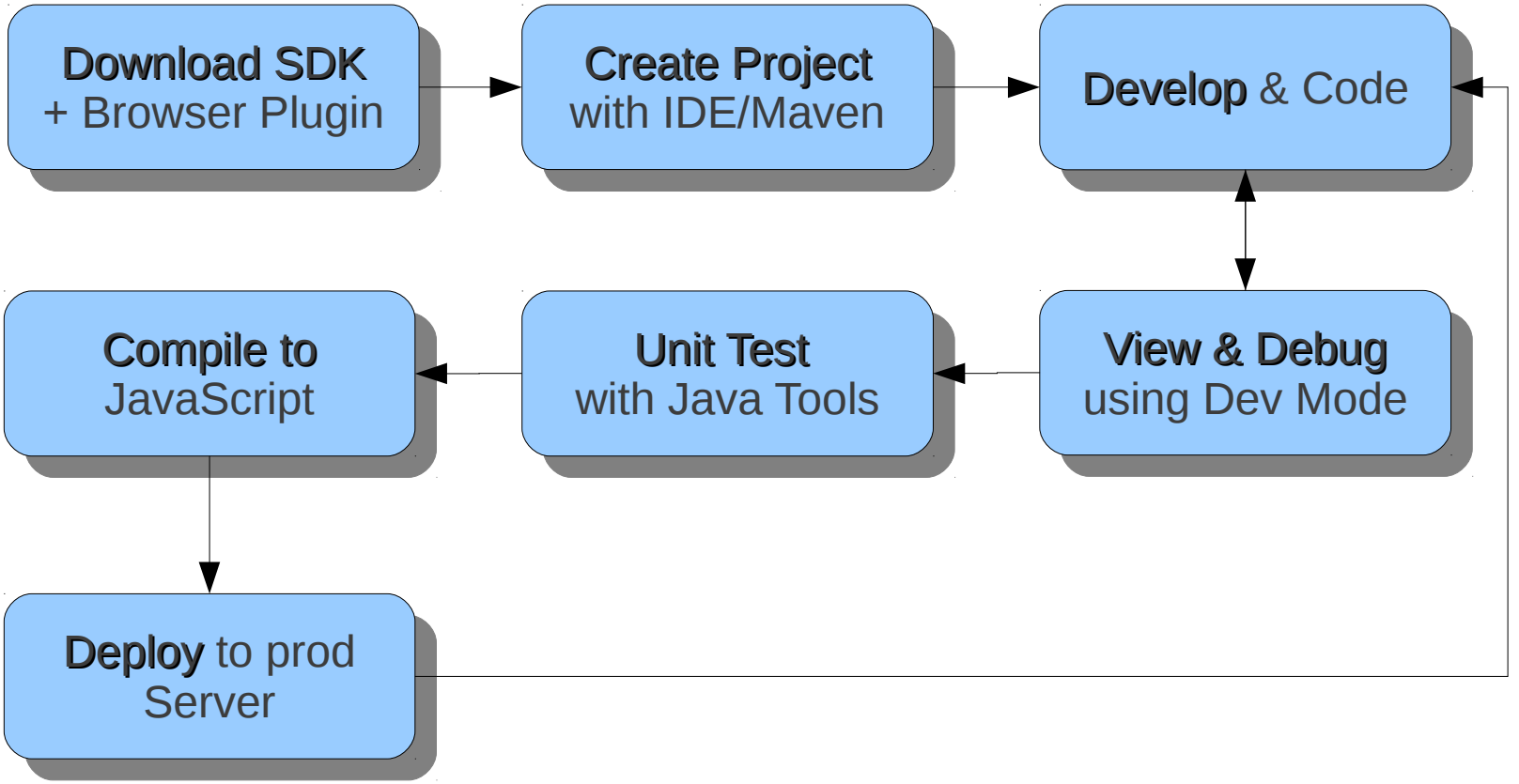
- Java's rich ecosystem of tools and libraries
- Runs natively on the browser, no plugins needed
- Cross browser compatible.
- Simple built-in Ajax/RPC mechanism
- Based on Sevlet architecture but can support php/python/etc
- Automatic serialization and de-serialization of java objects

GWT Development Lifecycle



GWT Compliation

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- Converts Java source to JavaScript
- Supports the vast majority of Java language
- Different compilation modes
  - OBF – obfuscated
  - PRETTY – human readable
  - DETAILED – even more detail

GWT Deferred Binding

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- GWT's answer to reflection
- Compile time dynamic binding
- Dynamic class loading at compile time instead of execution time (ex: Database drivers)
- Browser specific implementations
- Why Opera user download code specific to Firefox?
- 4 browsers, 3 languages = 12 permutations

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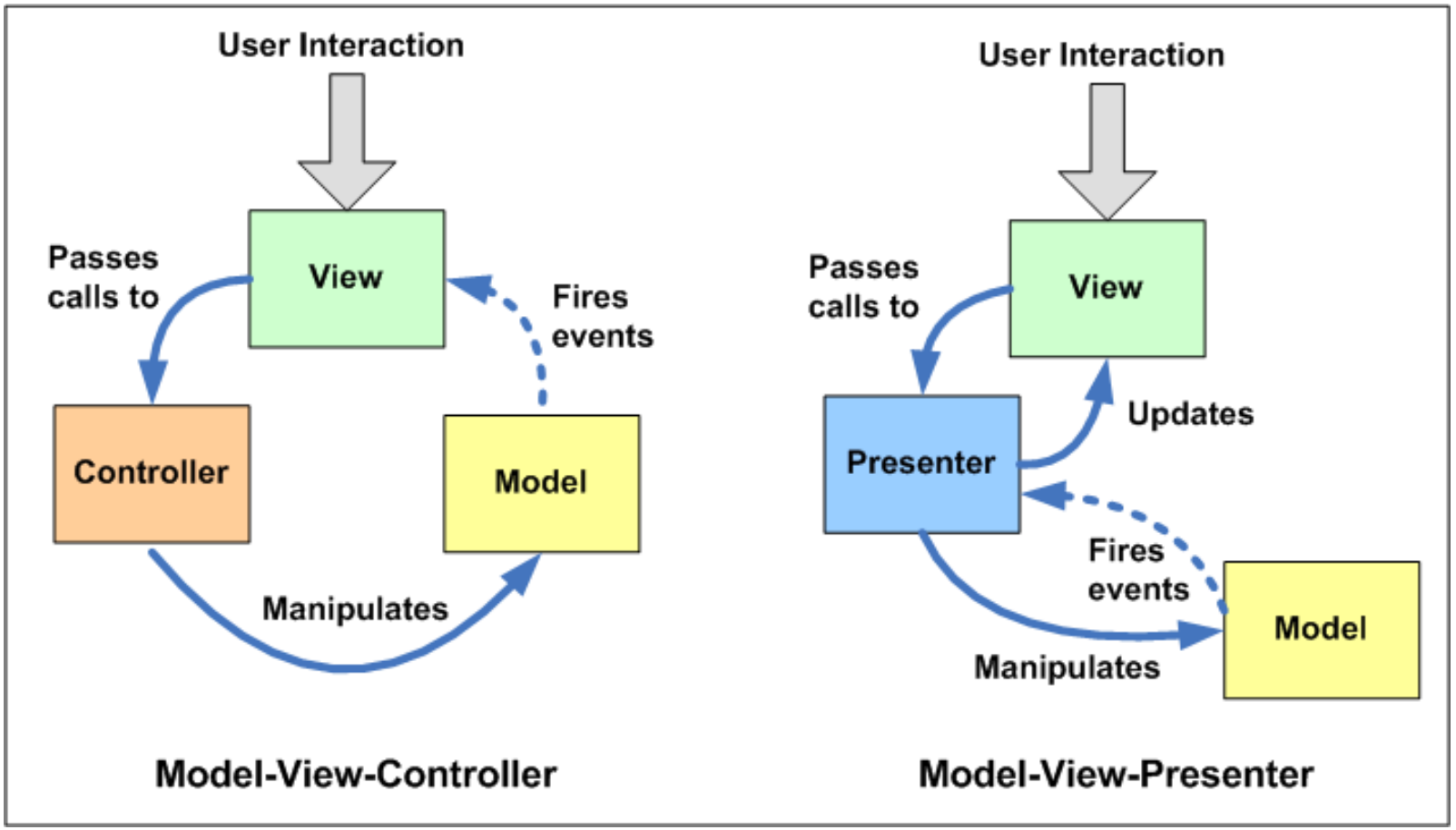
Model View Presenter

MVP Architecture



Advantages of MVP

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- Clear separation of UI and business logic
- JSNI – dependent “view” code kept minimal
- Logic we want to test goes into “presenters”
- Hook up the presenters with mock views
- Test runs faster (unlike GWTTestcase)

Dependency Injection

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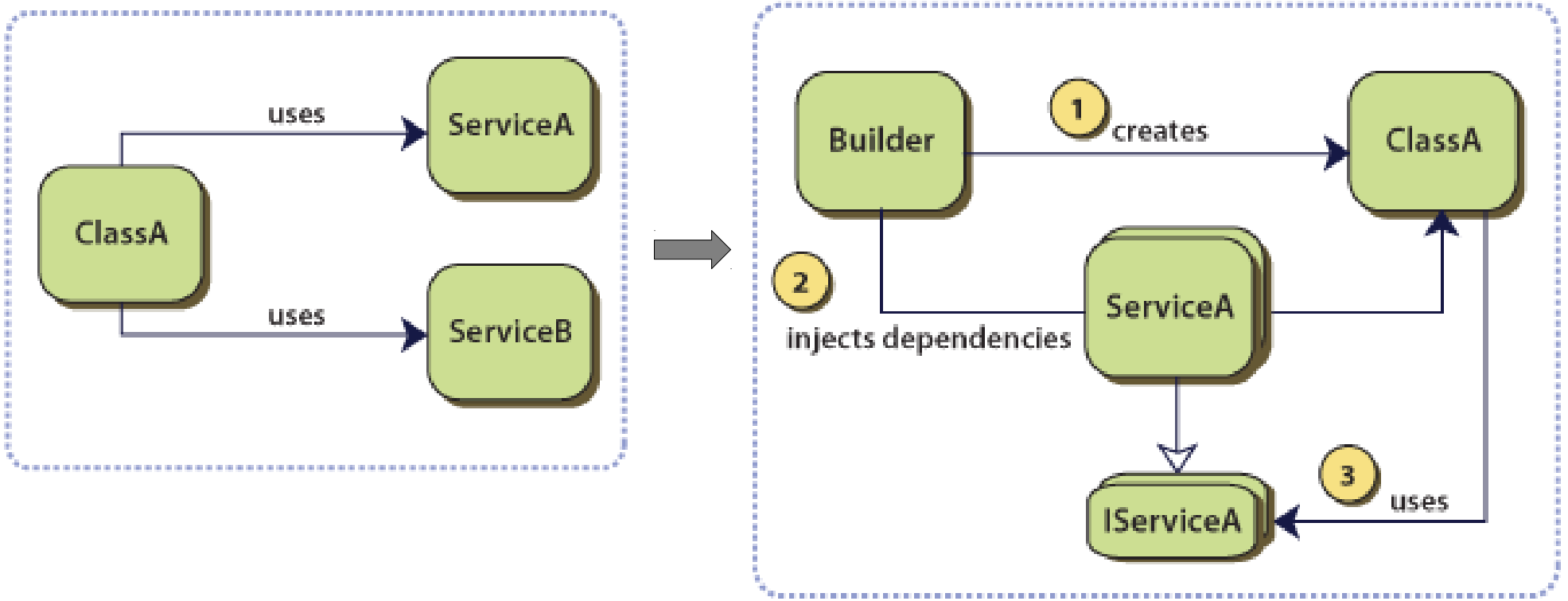
- Instead of a class creating its own dependencies, its dependencies are inserted into it
- Depend upon abstractions not implementations
- Unit-test and mocking friendly
- DI frameworks – object are managed, replacement for Factories
- @inject is the magic
- GIN – GWT INjection

Dependency Injection



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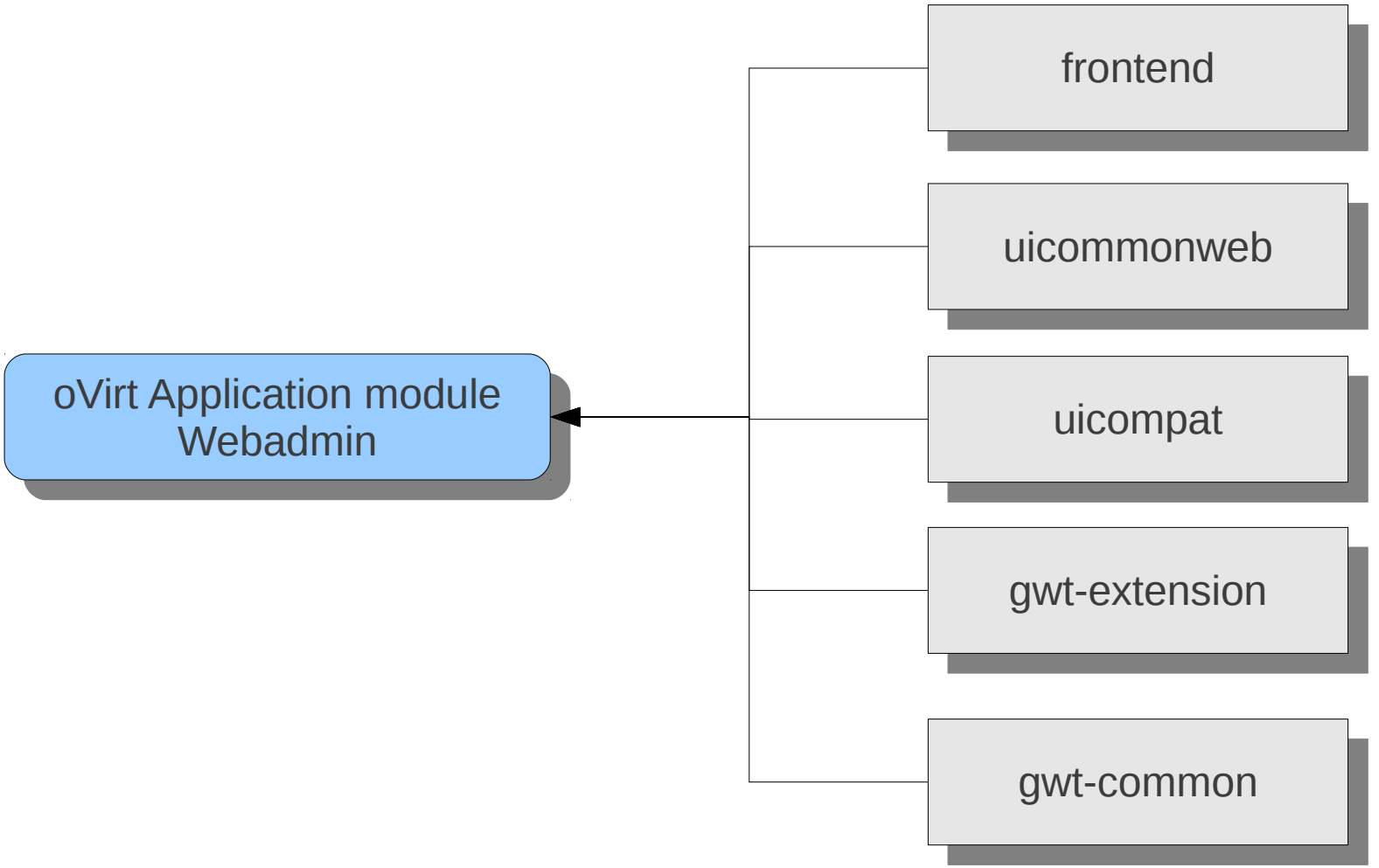
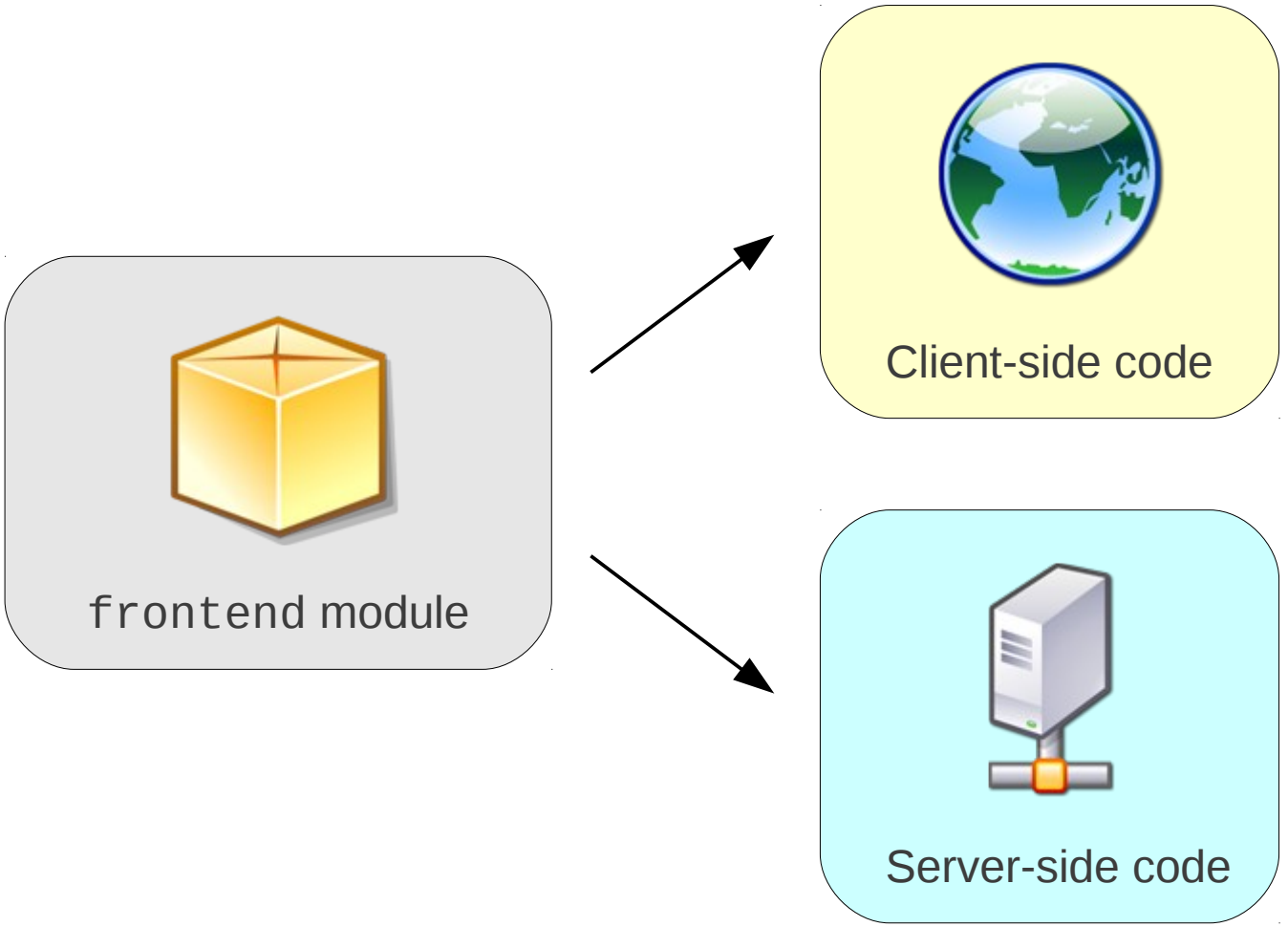
Frontend Modules

Frontend Modules



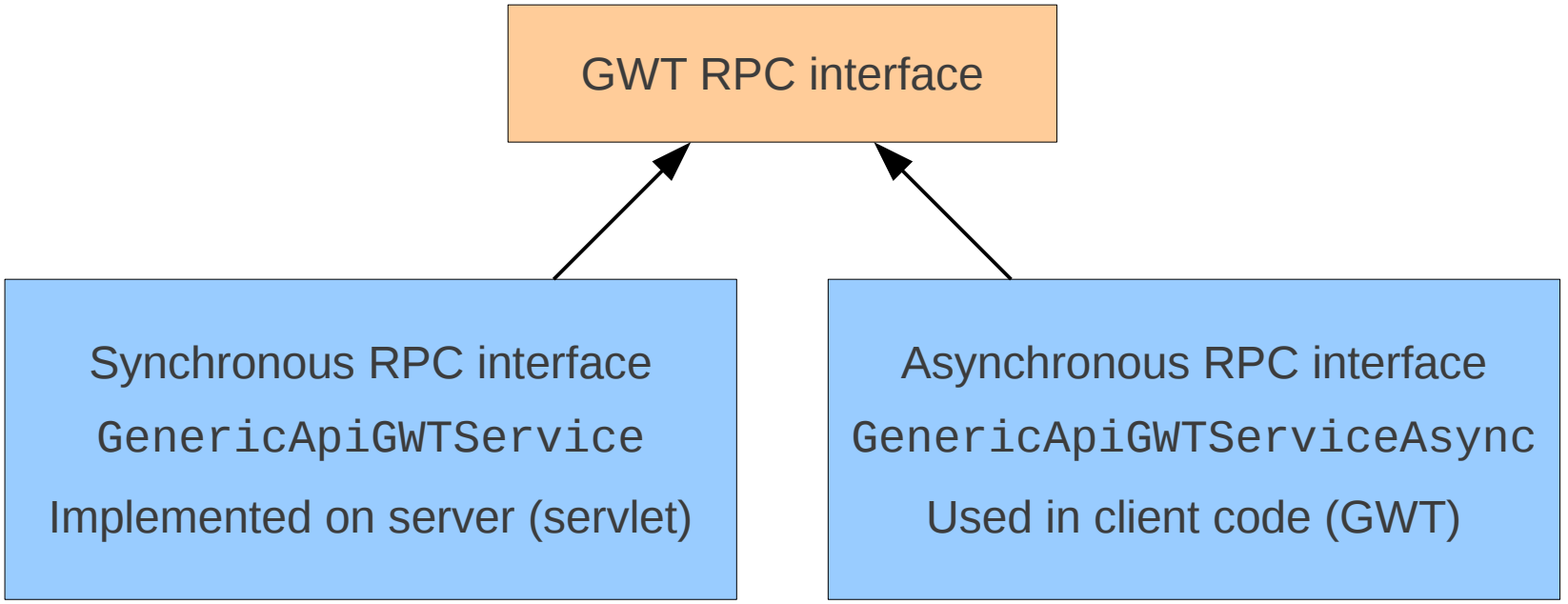
frontend module

- Bridge between client and server



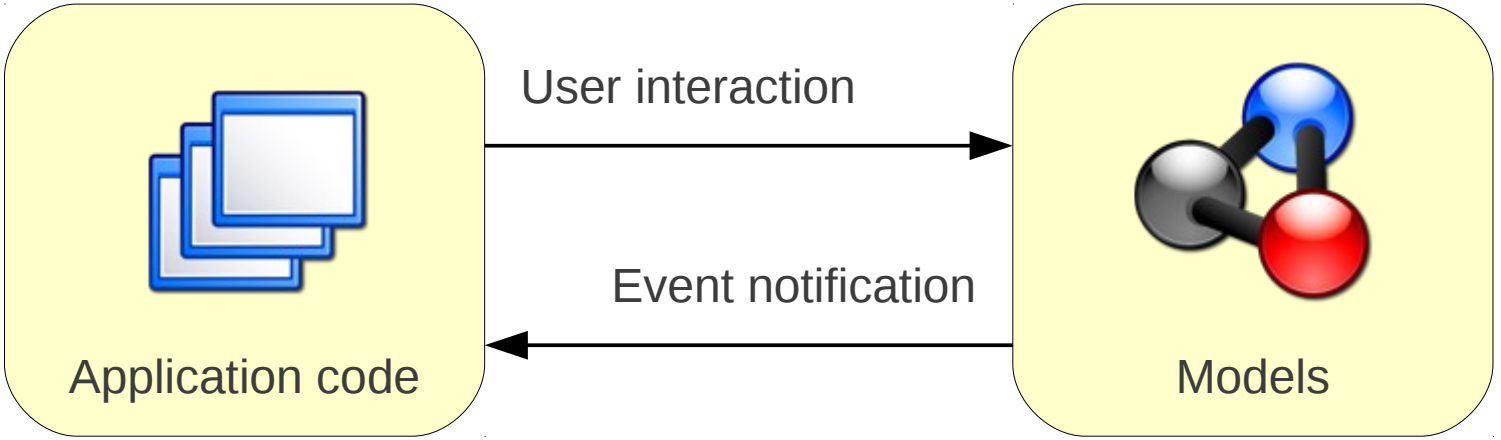
frontend module

- RPC interface for calling oVirt engine



uicommonweb module

- UI business logic
- Models with behavior and events



uicompat module

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- Inherits backend entities
- Compatibility for uicommonweb
- Shared by uicommonweb and frontend modules
- Contains some legacy code

gwt-extension module

- GWT RPC compatibility classes
- Emulation of specific JRE classes

gwt-common module

- Common UI infrastructure
- MVP pattern & Dependency Injection
- Application places
- Common features, widgets and resources

Frontend modules

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- Application modules
  - webadmin
  - userportal

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Search and Bookmarks

Search with Auto Completion

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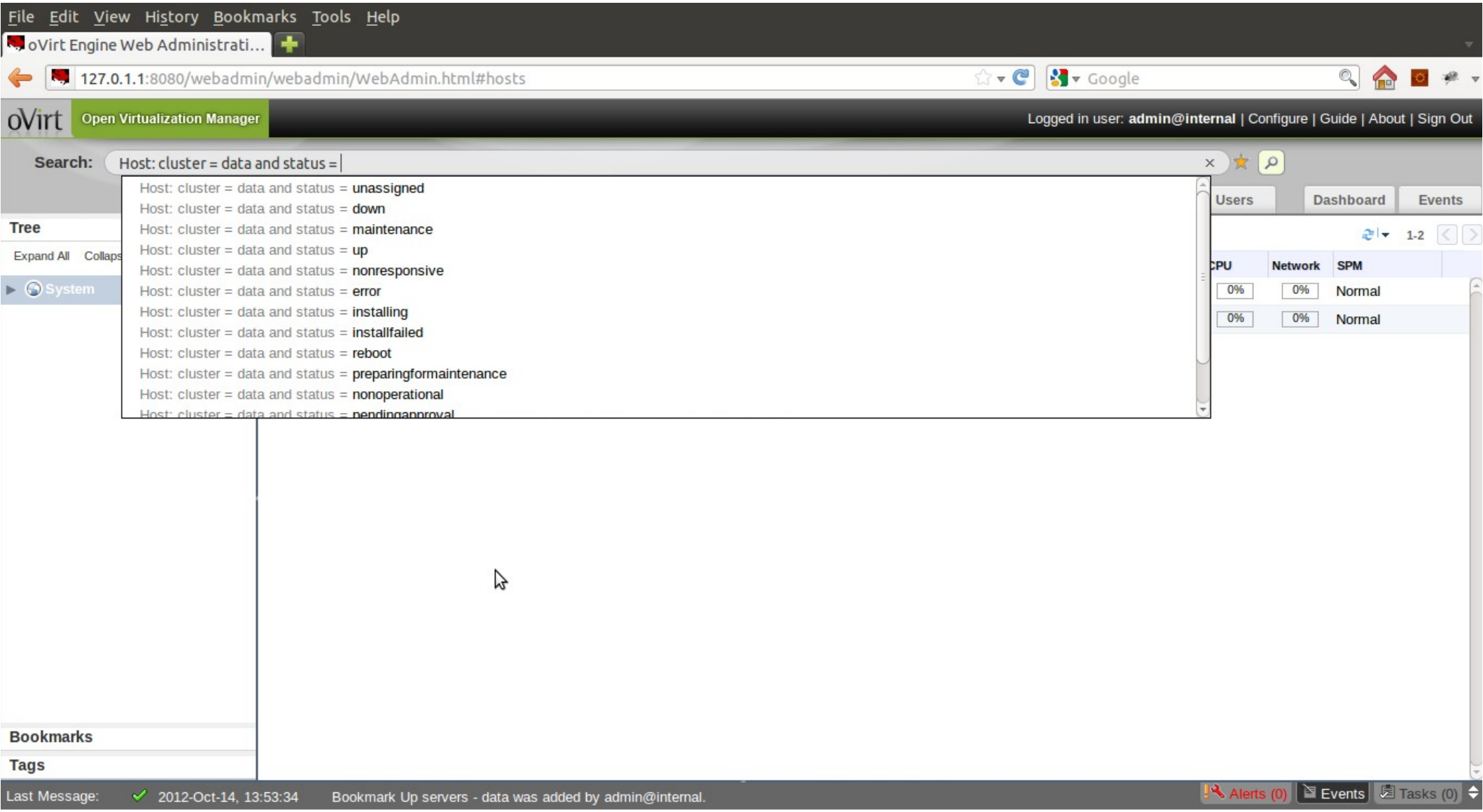
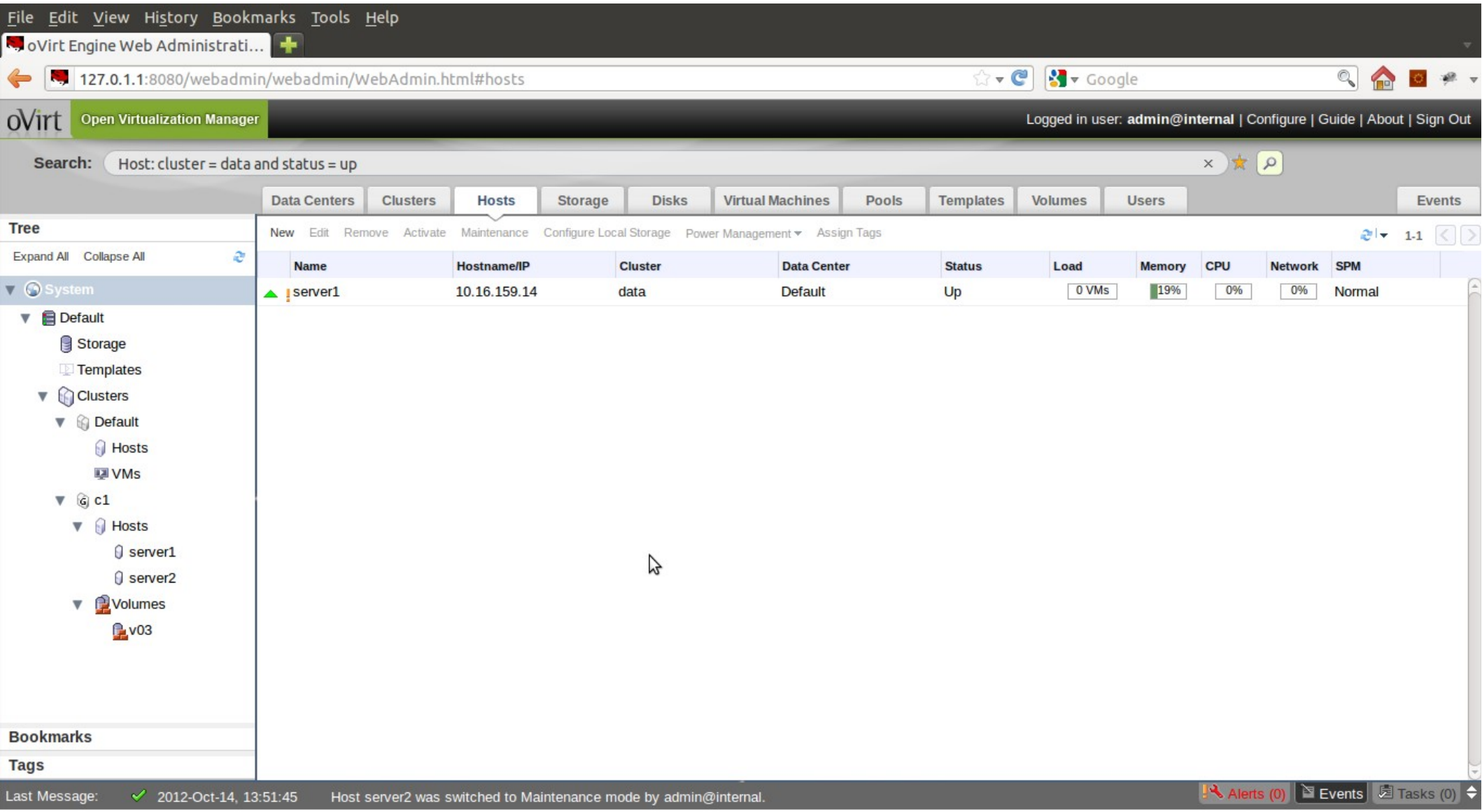
- Easy to search any entity in the system
- Context sensitive auto completion
- SQL-Injection filtering
- Indication of wrong/unavailable entity names

Search with Auto Completion



Search with Auto Completion



Bookmarks

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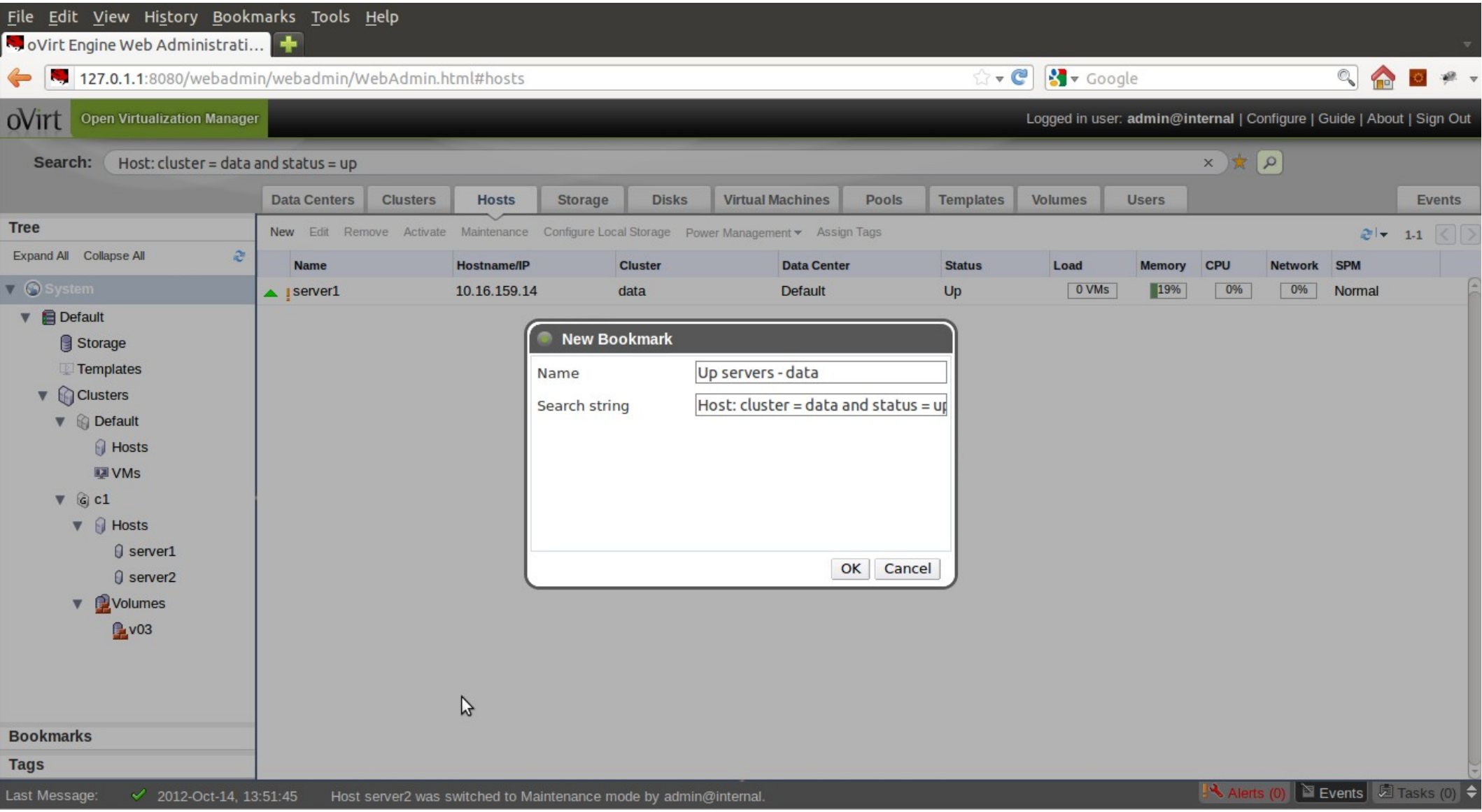
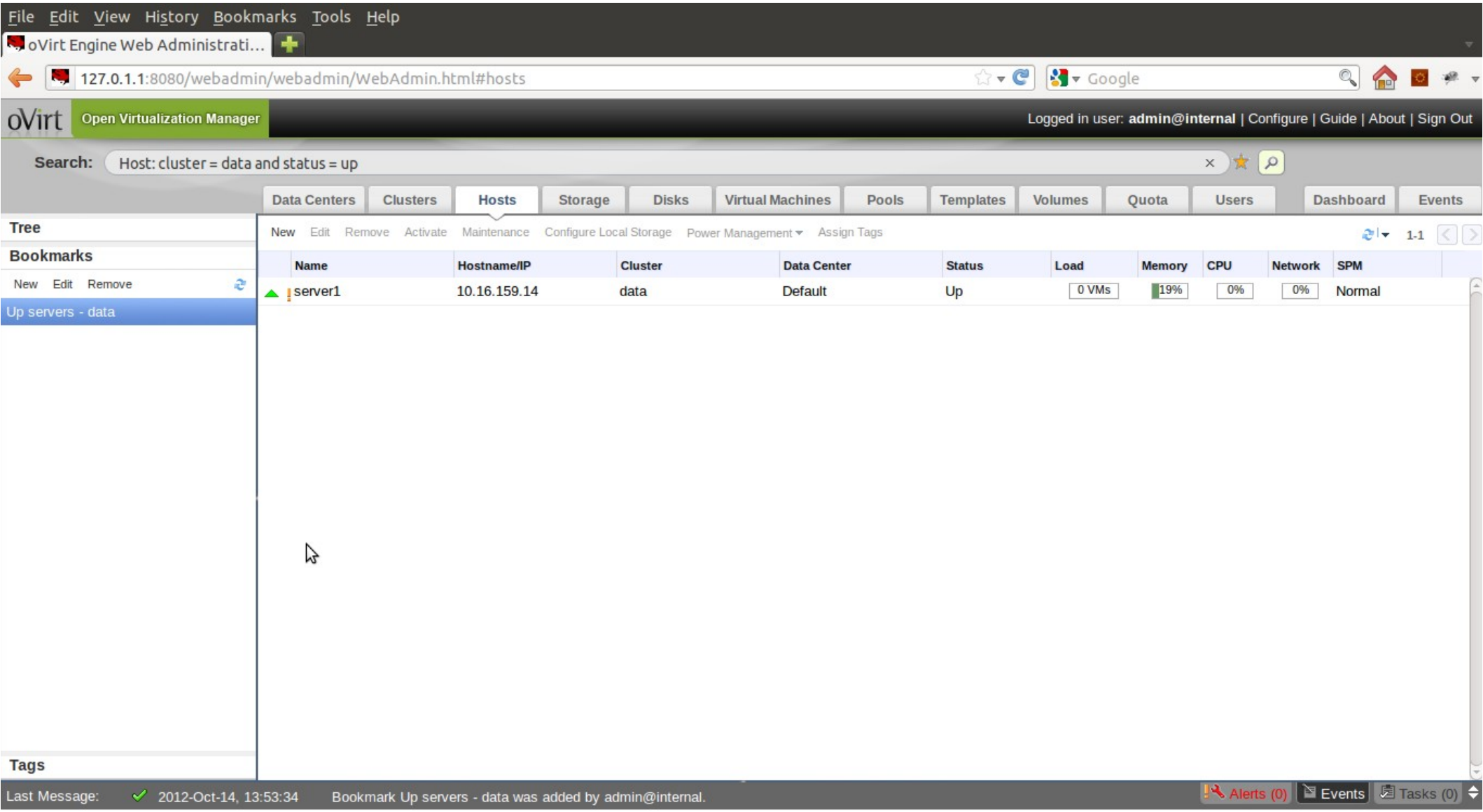
- Browser bookmarking not just enough
- Any search result/query can be bookmarked
- Existing bookmarks are available under the Bookmarks section

Bookmarks


File Edit View History Bookmarks Tools Help
oVirt Engine Web Administrati...
127.0.1.1:8080/webadmin/webadmin/WebAdmin.html#hosts
Google
oVirt
Open Virtualization Manager
Logged in user: admin@internal | Configure | Guide | About | Sign Out
Search:
Host: cluster = data and status = up
Data Centers
Clusters
Hosts
Storage
Disks
Virtual Machines
Pools
Templates
Volumes
Users
Events
Tree
Expand All
Collapse All
System
Default
Storage
Templates
Clusters
Default
Hosts
VMs
c1
Hosts
server1
server2
Volumes
v03
Bookmarks
Tags
New
Edit
Remove
Activate
Maintenance
Configure Local Storage
Power Management
Assign Tags
1-1
Name
Hostname/IP
Cluster
Data Center
Status
Load
Memory
CPU
Network
SPM
server1
10.16.159.14
data
Default
Up
0 VMs
19%
0%
0%
Normal
New Bookmark
Name
Up servers - data
Search string
Host: cluster = data and status = up
OK
Cancel
Last Message:
2012-Oct-14, 13:51:45
Host server2 was switched to Maintenance mode by admin@internal.
Alerts (0)
Events
Tasks (0)

Bookmarks


File Edit View History Bookmarks Tools Help
oVirt Engine Web Administrati...
127.0.1.1:8080/webadmin/webadmin/WebAdmin.html#hosts
Google
oVirt
Open Virtualization Manager
Logged in user: admin@internal | Configure | Guide | About | Sign Out
Search:
Host: cluster = data and status = up
Data Centers
Clusters
Hosts
Storage
Disks
Virtual Machines
Pools
Templates
Volumes
Quota
Users
Dashboard
Events
Tree
Bookmarks
New Edit Remove
Up servers - data
Tags
New Edit Remove Activate Maintenance Configure Local Storage Power Management Assign Tags
1-1
Name
Hostname/IP
Cluster
Data Center
Status
Load
Memory
CPU
Network
SPM
server1
10.16.159.14
data
Default
Up
0 VMs
19%
0%
0%
Normal
Last Message:
2012-Oct-14, 13:53:34
Bookmark Up servers - data was added by admin@internal.
Alerts (0)
Events
Tasks (0)

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GUI Prototyping

Pencil add-on for Firefox

How To Contribute

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- Git repository

  git://gerrit.ovirt.org/ovirt-engine

- Getting started wiki -
  - http://www.ovirt.org/wiki/Setting_Management_Development_Environment

- IRC Channel
  - #ovirt on oftc

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Q & A

THANK YOU !

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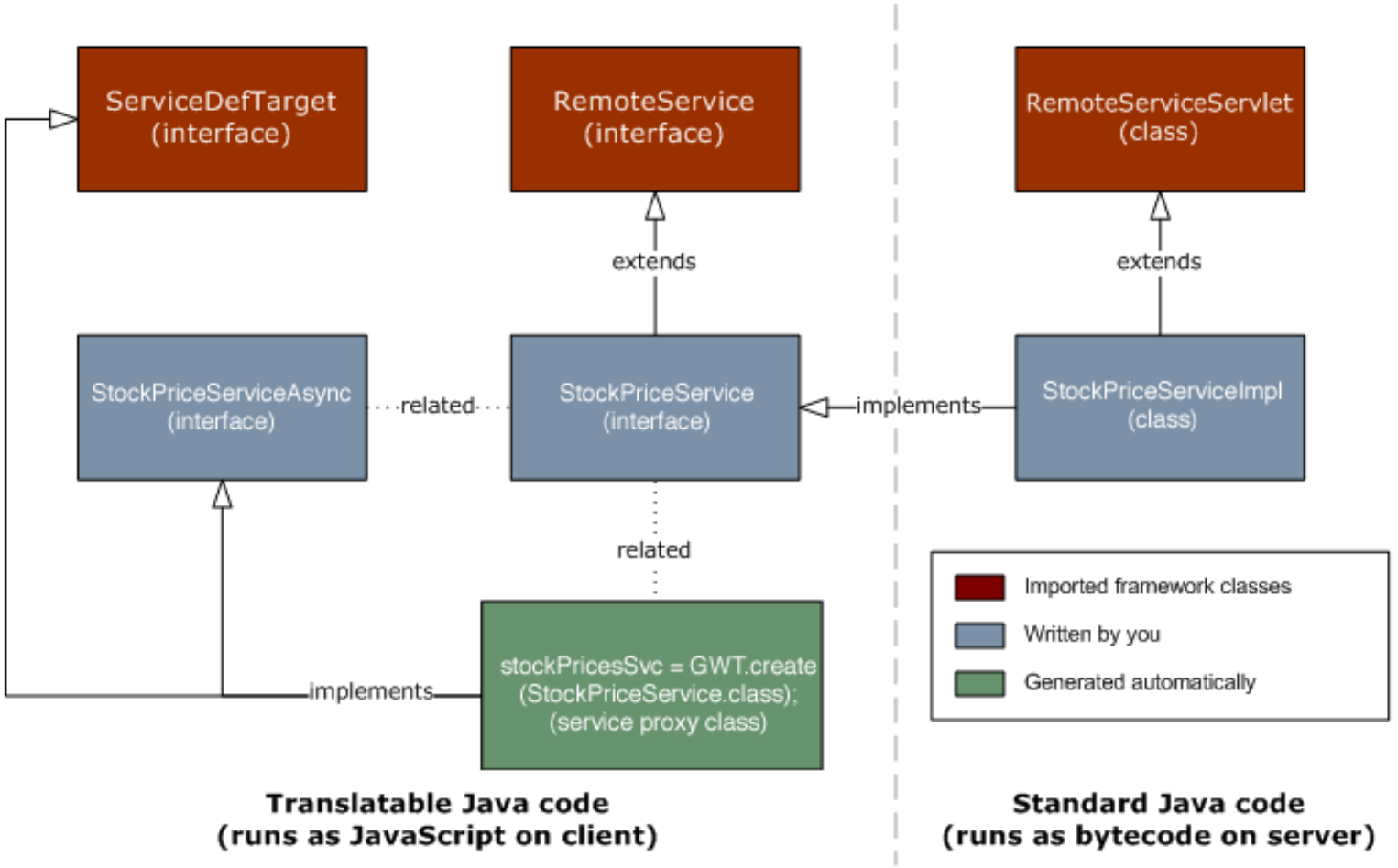
kmayilsa@redhat.com

GWT RPC Communication