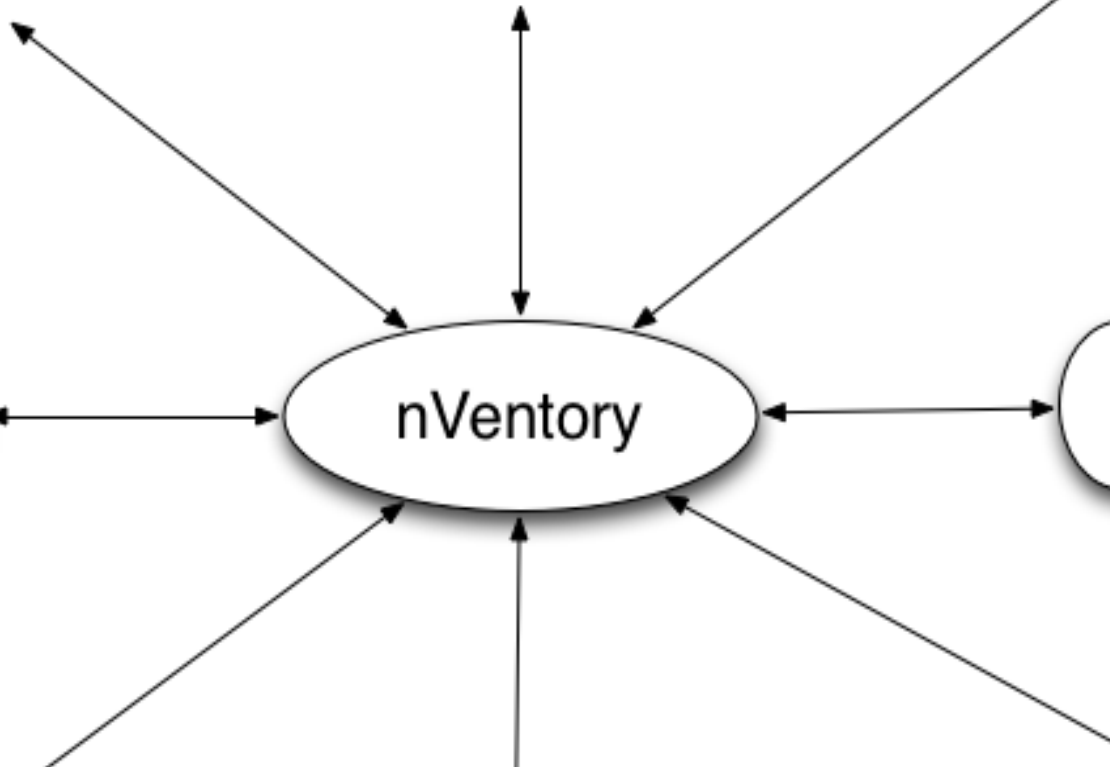
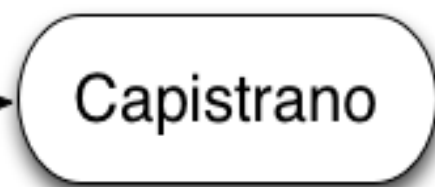


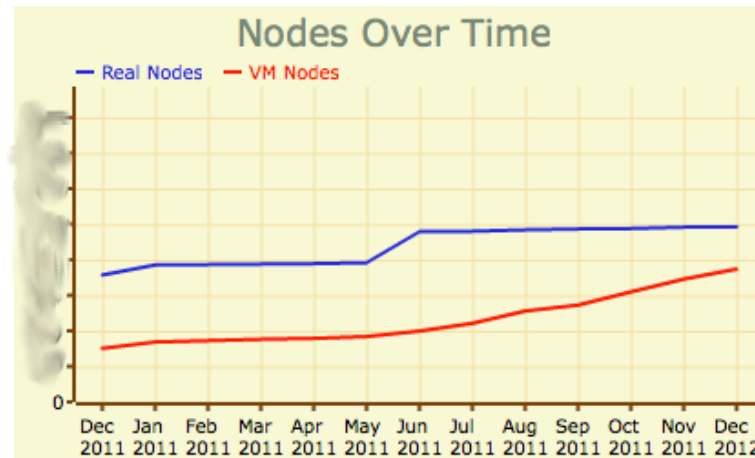
nVentory – The Source of Truth *

Christopher Nolan
Jeffrey Roberts
Darren Dao
eHarmony, Inc.

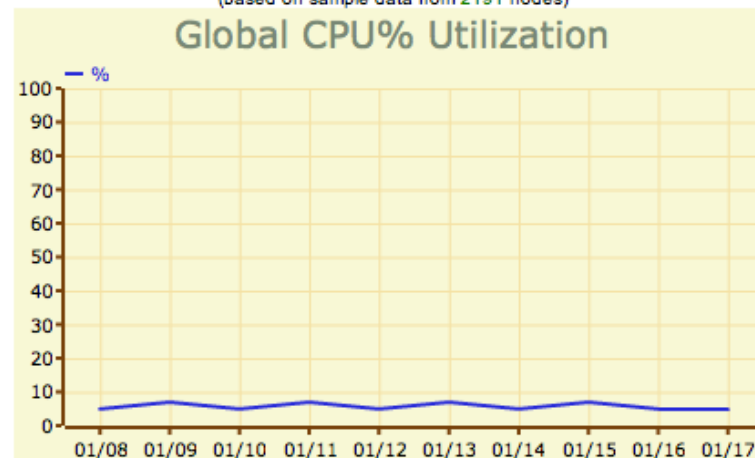


Jenkins



[Dashboard](#)**Manage**[N Datacenters](#)
[N Nodes](#)**Groups**[N Tags](#)
[N Graffiti's](#)
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[N Load Balancer Pools](#)**Network**[N VIPs](#)
[N Ip Addresses](#)
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[N Volumes](#)
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[N Operating Systems](#)
[N Statuses](#)
[N Racks](#)
[N Outlets](#)
[N Support Contracts](#)**Admin**[Audits](#)
[N Tool Tips](#)
[N Accounts](#)
[N Account Groups](#)**Network Summary**Datacenters:
Racks:
Nodes:
VIPs:

(based on sample data from 2191 nodes)

**Nodes**

Search by name:

 ☐ include aliases[Add New Node](#)[Add New Hardware Profile](#)[View All Nodes](#)

By: Hardware Profile

By: Operating System

By: Status

Datacenters[Add New Datacenter](#)[View All Datacenters](#)

View Datacenter:

Reports[Audits](#)

View Report:

nventory

<http://nventory.sourceforge.net>

Currently used and maintained by employees of
AT&T Interactive (yp.com) and eHarmony
(including Darren Dao)

Demo: <http://nventory.slacklabs.com>

Infrastructure growth and complexity

Traditional

Cloud

Rapid Growth and Scaling Problems

Other Sources of Truth

Spreadsheet

Static file

DNS

Hostname

MySQL/Postgres

Custom solution

A More Automated Approach (though we went a different route)

Puppet and Chef

Enterprise solutions

Roll your own

Why We Chose nVentory

Centralized

Detailed

Metadata

Multiple access methods

- API

- CLI

- Browser

History

Automated

Open Source

DevOps?

It's essential that all individual tools be considered part of a larger toolchain that spans the entire Development to Operations lifecycle...

Damon Edwards – President DTO Solutions

Your tools should all talk to a master

Everyone should know where to go for answers

***DISCLAIMER**

nVentory provides the foundation
You have to build the house

What/Who leverages inventory at eHarmony

Chef-solo (app config management)

Etch (system config management)

Jenkins (continuous integration and release)

Self service VMs (custom private cloud)

Monitoring and metrics (splunk)

Finance (audits)

QA, Operations, and Engineering

Got Objects?



node

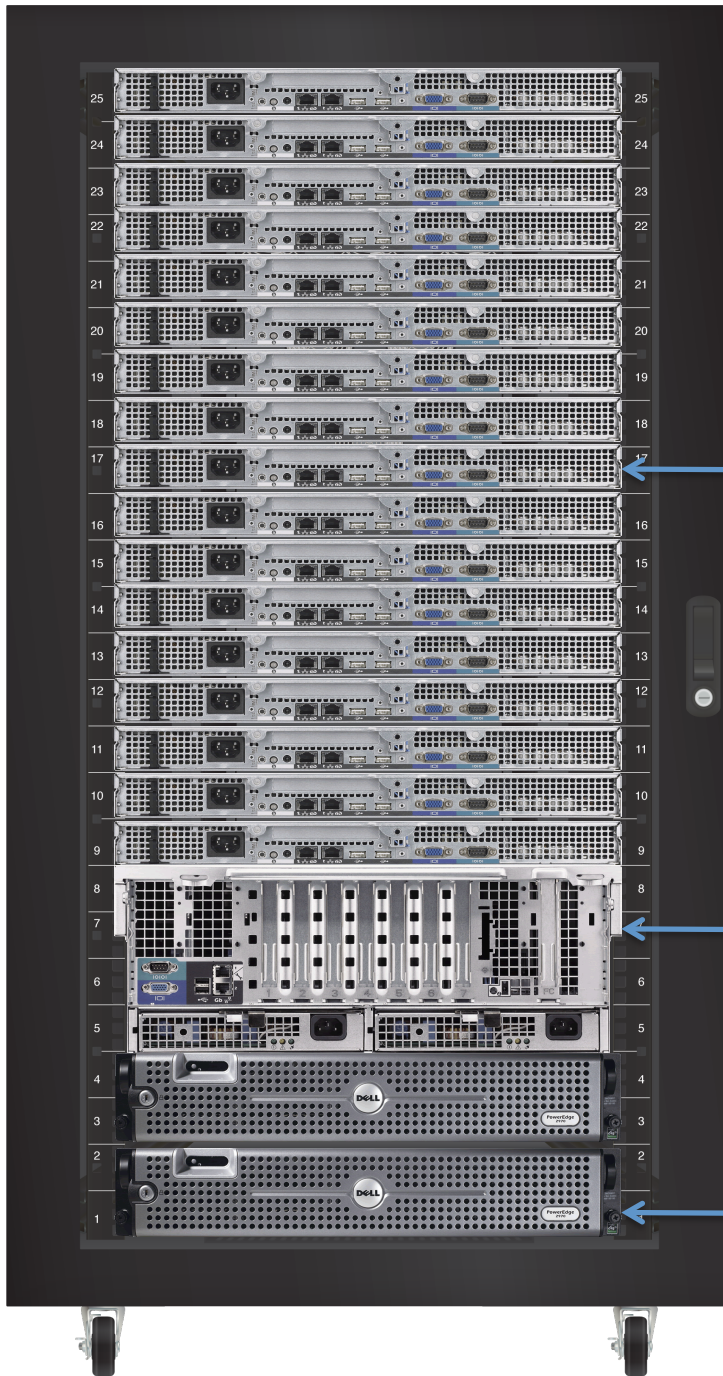


node

node



node

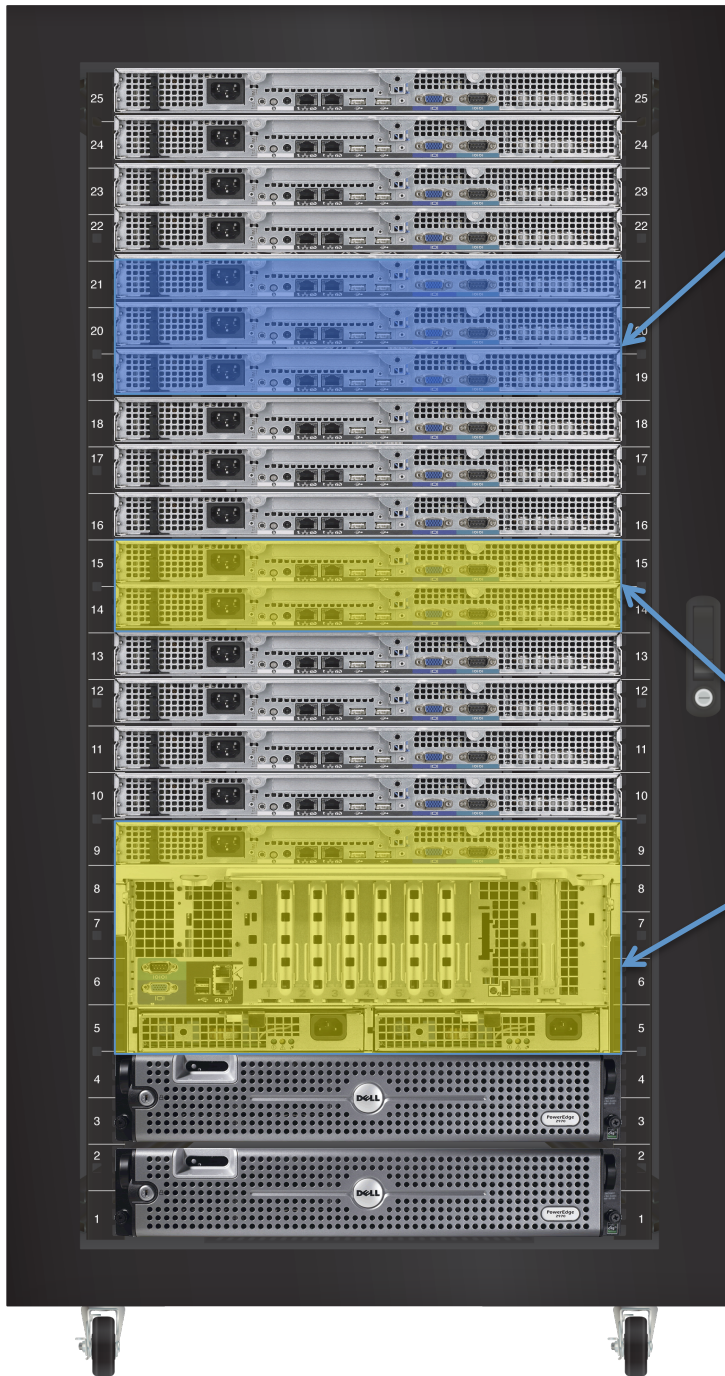


rack

node

node

node



node_group

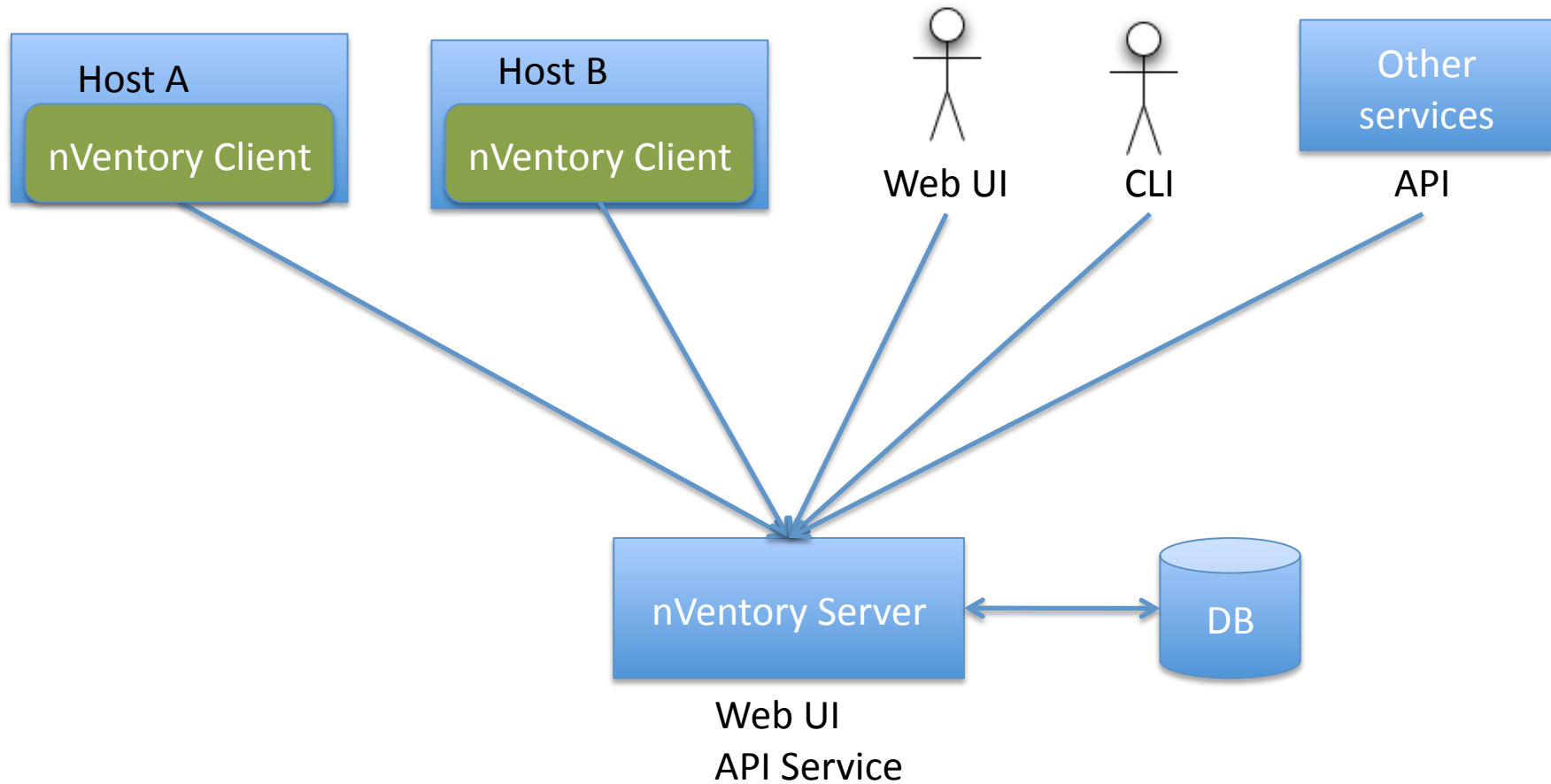
node_group



Other Objects

- status
- hardware_profile
- operating_system
- network_interface
- ip_address
- vip
- lb_pool
- tags & graffiti

High Level Design



nVentory Server

- Uses MVC pattern
- Heavy usage of ActiveRecord
- For each object, there are corresponding model, view and controller for it
- RESTful API

nVentory Server

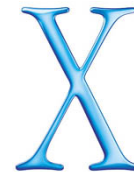
HTTP ACTION	URL
GET	http://mynventoryserver/nodes
POST	http://mynventoryserver/node
PUT	http://mynventoryserver/node/123
DESTROY	http://mynventoryserver/node/123

nVentory Server

- How do we set it up?
 - nginx
 - thin
 - mysql
 - Configured via Chef
 - Deployed via Jenkins

nVentory Client

Ruby & Perl clients for



.NET client available for Windows as well...

nVentory Client

Main purposes

- Collect data and send back to server
- CLI to query/update data

nVentory Client

Uses various tools to gather host/hardware info

- dmidecode
- sar
- facter Ruby gem (from Puppet Labs)
- racadm
- omreport
- virsh (libvirt)
- ethtool

nVentory Client

- `nv --register` command
 - HTTP GET to see if the node already exists
 - HTTP POST to create node if not
 - HTTP PUT to update node if existed

SCALE 10x - 2012 Southern

www.socallinuxexpo.org/scale10x



SCALE
10x

January 20-22, 2012

Hilton Los Angeles Airport Hotel

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What is SCALE?

The Southern California Linux Expo (SCALE) is an annual Linux, Open-Source, and Free Software conference held in Los Angeles. Now celebrating its tenth year, this community organized event will be held January 20-22, 2012 at the [Hilton Los Angeles Airport hotel](#). SCALE offers over 100 seminars and presentation sessions, and an exhibit hall where non-profit and commercial organizations will demonstrate the latest developments in the open-source and free software realm.

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GizMac_XRackPro.gste....zip

HP DL Series.gstencil.zip

Dell_Servers.gstencil.zip

42U&24U.RACK.gstencil.zip

Show All

How we set up the client?

- Install on each box at build time (kickstart)
- cronjob to auto-register hourly

Using nVentory Client

- `nv --name myhost`
- `nv --name myhost --fields operating_system`
- `nv --name myhost --allfields`
- `nv --get node_group[name]=hd-datanodes`
- `nv --name myhost --set status=outofservice`

Using nVentory API

```
require 'nventory'
```

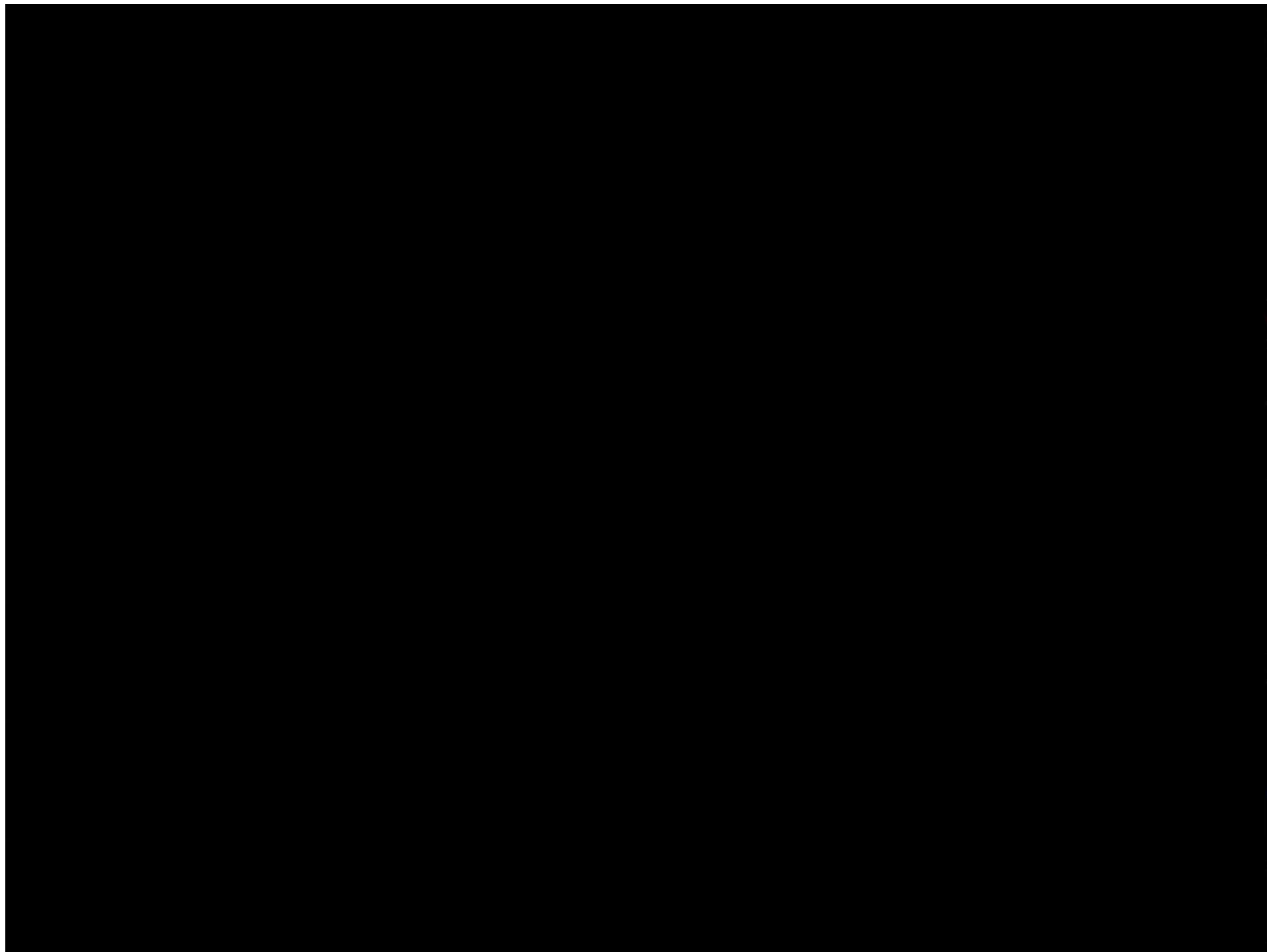
```
nvclient = NVentory::Client.new
```

```
# query nodes with hadoop in their hostnames
```

```
getdata = { :objecttype => 'nodes',  
            :get => { :name => 'hadoop' } }
```

```
result = nvclient.get_objects(getdata)
```

```
puts result.keys
```



Demonstration

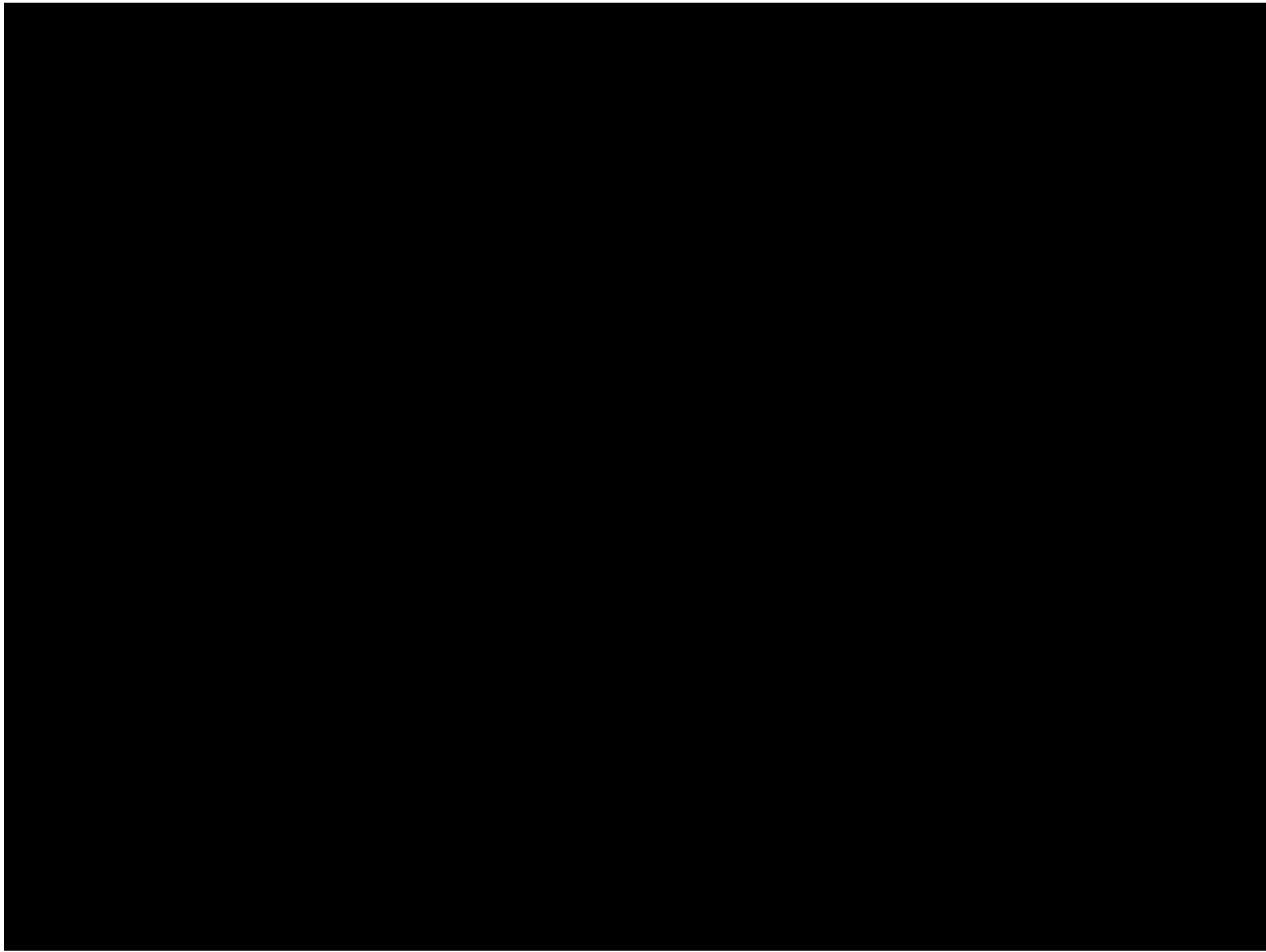
How does eHarmony's implementation of nVentory make my life better?

Hugely simplifies tasks that can be frustratingly
time consuming

- User Management
- Actions to a group of machines
- Configuration management
- Discovery of node related details such as hardware type, location information, etc

Integration with Configuration Mngt

- Changes can be made to a single machine or a large group of machines with the same amount of effort
- Changes are visible immediately or overtime via automated methods



/etc/etchserver/trunk/source/etc/passwd/config.xml

```
<config>
  <file>
    <perms>644</perms>
    <source>
      <plain group="demo-orig">passwd.orig</plain>
      <plain group="demo-users">passwd.demo</plain>
    </source>
  </file>
</config>
```

Tasks on multiple machines

- Using the API I can write scripts that can pull all the machine in a given node group and then act on them
- NV can be used from the command line to generate lists that can be used in *for loops*

[Dashboard](#)**Manage**[N Datacenters](#)[N Nodes](#)**Groups**[N Tags](#)[N Graffiti](#)[N Node Groups](#)[N Services](#)[N Load Balancer Pools](#)**Network**[N VIPs](#)[N Ip Addresses](#)[N Network Interfaces](#)[N Network Ports](#)[N Subnets](#)**Storage**[N Drive](#)[N Volumes](#)[N Storage Controllers](#)**Meta**[N Hardware Profiles](#)[N Operating Systems](#)[N Statuses](#)[N Racks](#)[N Outlets](#)[N Support Contracts](#)**Admin**[Audits](#)

Nodes

[New Node](#)Displaying **all 4** nodes[Advanced Search](#)

Search by name:

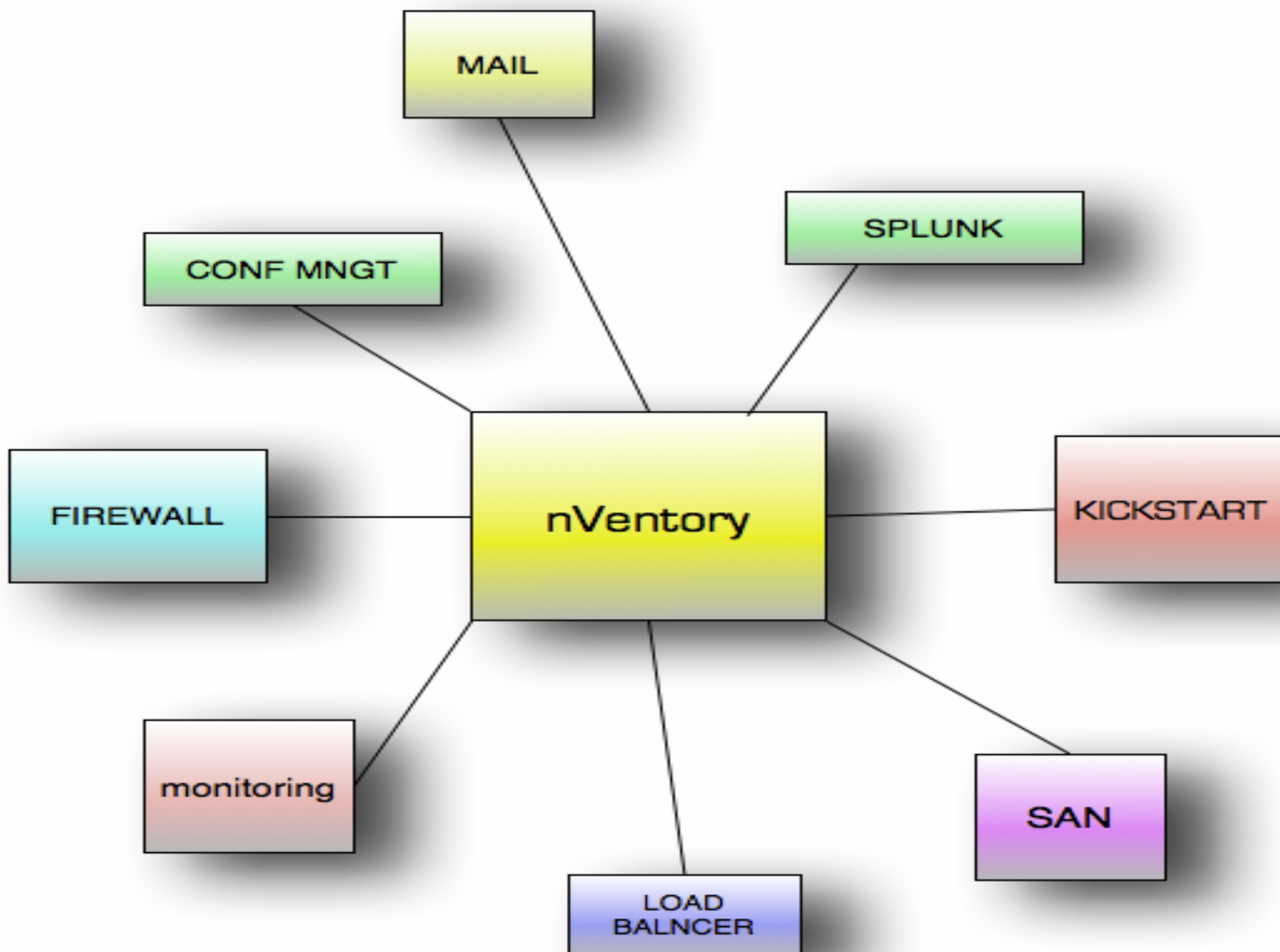
☐ include aliases

	Name	Aliases	Node Groups	Status	Hardware Profile	Operating System
View / Edit	host1.eharmony.com			inservice	Dell Inc. PowerEdge M610	CentOS (Final) 5.5 x86_64
View / Edit	scaledemo.np.dc1.eharmony.com		password-orig	setup	Red Hat KVM	CentOS (Final) 5.5 x86_64
View / Edit	scaleetch.np.dc1.eharmony.com			setup	Red Hat KVM	CentOS (Final) 5.5 x86_64
View / Edit	scalenv.np.dc1.eharmony.com			setup	Red Hat KVM	CentOS (Final) 5.5 x86_64

[Export CSV File](#)[Advanced CSV Export](#)[Permissions](#)

```
scaledemo.np.dc1.eharmony.com $ █
```

I



nVentory

<http://nventory.sourceforge.net>

Demo: <http://nventory.slacklabs.com>

Questions?