knowledge14®

April 27–May 1, 2014 • Moscone Center • San Francisco, CA

Orchestration 204: Configuration Automation with Puppet

Jimmy Yuan
Senior Developer
ServiceNow

Ben Yukich
Senior Solution Consultant
ServiceNow

servicenow®

© 2014 ServiceNow All Rights Reserved

About Us



Jimmy Yuan

- ServiceNow since 2010
- Contributions to:
  - Orchestration Core
  - Cloud Provisioning
  - Configuration Automation
  - Discovery
- 5th Knowledge Conference
- Other stuff:
  - Flying planes, scuba diving, chasing a toddler



Ben Yukich

- ServiceNow since 2011
- Contributions to:
  - ←Those things over there
- Other stuff:
  - Motorcycle history
    - Kawasaki Ninja 250
    - Yamaha FZR 600
    - Yamaha R6
    - Triumph Speed Triple
    - Aprilia Tuono

© 2014 ServiceNow All Rights Reserved

Lab Overview

By the end of this lab, you will understand how ServiceNow implements change governance before Puppet changes your operational infrastructure, and how ServiceNow can utilize Puppet to provision new services in your infrastructure.

Helpful knowledge for this lab:

- Basic understanding of Puppet

© 2014 ServiceNow All Rights Reserved

Agenda

ServiceNow/Puppet Integration Overview

Hands-on Lab

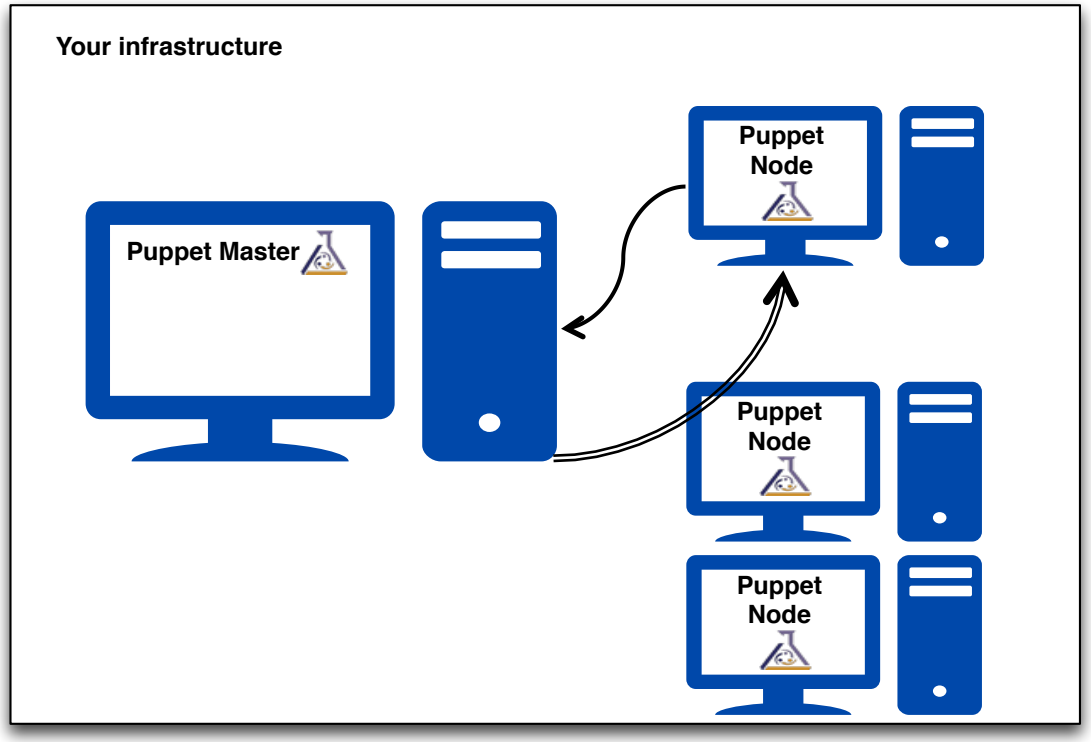
Recap

Q & A

© 2014 ServiceNow All Rights Reserved

What is Puppet?

- Configuration Management tool to configure computers to a desired state
- Over-simplified diagram of Puppet Master (server) relationship with its nodes (clients)



1. Node queries Puppet Master for configuration – passes its fully qualified domain name (FQDN).
2. Puppet Master looks up and returns configuration for node.
3. Node is configured.

© 2013 Cisco and/or its affiliates. All rights reserved.
© 2014 Cisco and/or its affiliates. All rights reserved.

How does the integration work?

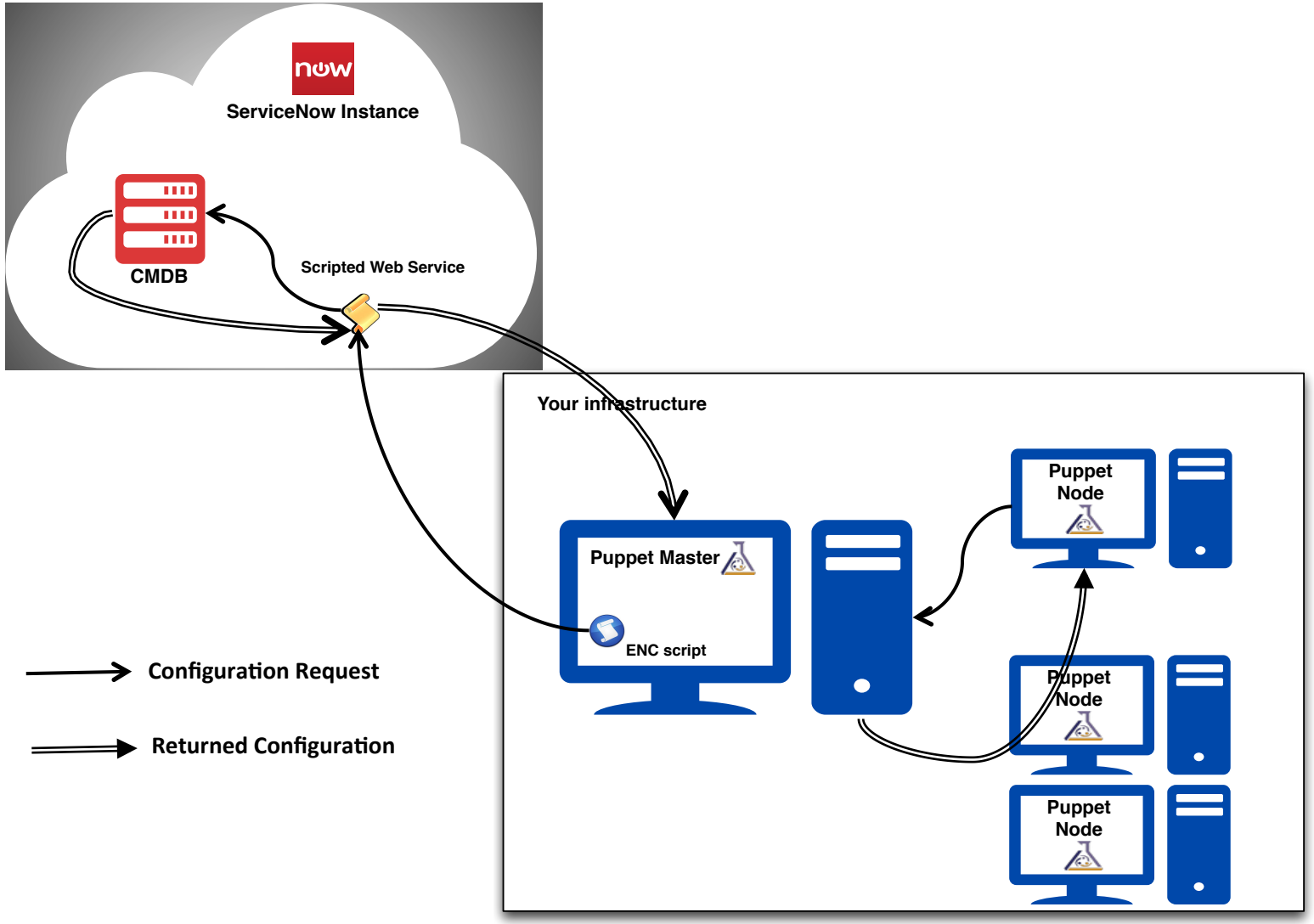
1. Discover Puppet Master

Discovered Puppet Artifact	Definition
Modules	Self-contained bundles of code and data
Manifests	File in a module containing a class
Classes	Named blocks of Puppet code

2. Create Node Definitions
   - ServiceNow named collection of **classes** and **parameters**
3. Assign Node Definitions to Configuration Items (CI) in Configuration Management Database (CMDB)
   - Apply Change Governance – changes node's configuration
4. Modifications to Node Definitions
   - Apply Change Governance – potential impact to many nodes

© 2013-2014 ServiceNow. All Rights Reserved
© 2013-2014 ServiceNow. All Rights Reserved

Interaction between ServiceNow and Puppet



4. Node queries Puppet Master for configuration – passes its fully qualified domain name.
5. Puppet Master invokes External Node Classifier (ENC) script to make web services call to ServiceNow, passing node's FQDN.
6. Configuration is returned to the querying node, and the node is configured.
3. ServiceNow looks in CMDB for Configuration Item (CI) with matching FQDN.
2. Collection of classes and parameters defining node's configuration found (Node definition).
1. Configuration is returned to Puppet Master.

© 2014 ServiceNow All Rights Reserved

ServiceNow – Puppet Integration Details

- Requirements
  - At least one Puppet Master (and nodes)
  - Orchestration
- Contents
  - Orchestration activities to interact with the Puppet Master
    - Module management (Install, Uninstall)
    - Puppet Master discovery (Modules, Manifests, Classes)
    - Certificate Management (Listing from Puppet Master, Signing certificate for requesting node)
  - External Node Classifier (ENC) script

© 2014 ServiceNow All Rights Reserved

Hands-on Lab: Scenario

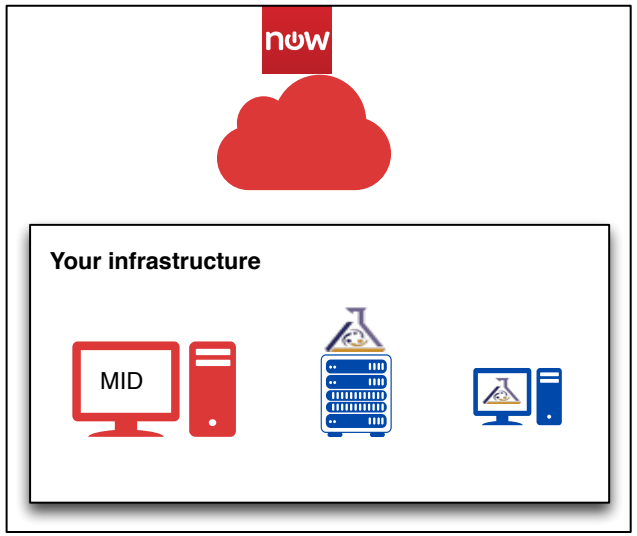
- Deploy a web application to an existing Linux node
- Deploy a new node for the web application
- Upgrade the web application
- Tasks will be performed by different people, with differing roles in the organization

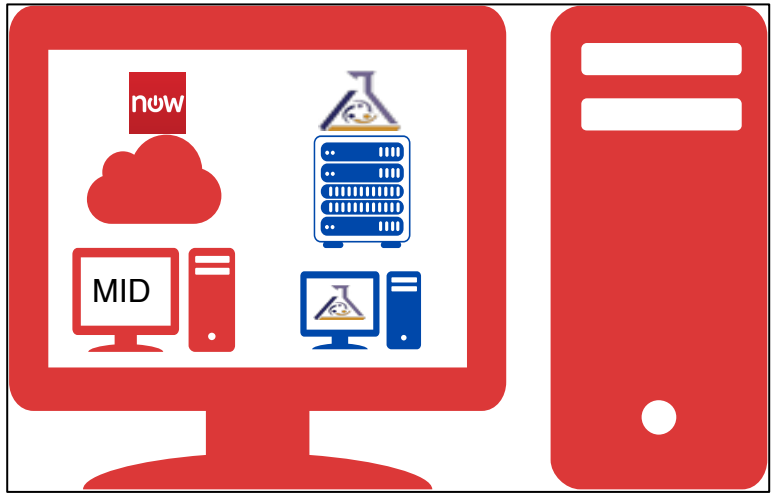
User	Role
Mike Hopkins	Puppet and Cloud Administrator – administers infrastructure components
Kim Larsen	Puppet and Cloud User – owns web application
Cass Montgomery	Mike and Kim's manager – approves requests for infrastructure changes

We will use the Lab Guide to walk through the hands on portion of the lab.

© 2014 ServiceNow All Rights Reserved

Hands-on Lab: How is your lab instance configured?





Logical

- Cloud:
  - ServiceNow Instance
- Your infrastructure (separate machines):
  - MID Server
  - Puppet Master
  - Puppet Node

Actual

- Single Linux Server hosting:
  - ServiceNow Instance
  - MID Server
  - Puppet Master
  - Puppet Node

© 2014 ServiceNow All Rights Reserved

Top Takeaways

1 ServiceNow applies change governance over changes Puppet makes to your operational infrastructure

2 Driving configuration from CMDB

3 ServiceNow can utilize Puppet to deploy new services into your infrastructure

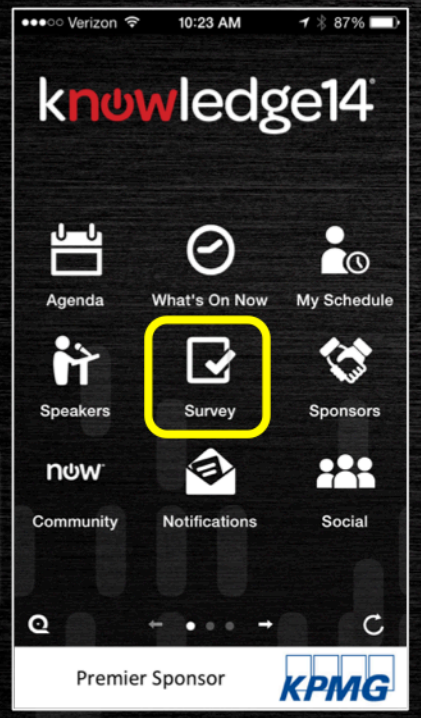
© 2014 ServiceNow All Rights Reserved

More information about ServiceNow's Puppet integration

- ServiceNow wiki:
  - http://wiki.servicenow.com/index.php?title=Puppet_Configuration_Automation

© 2014 ServiceNow All Rights Reserved

Tell us what you think!



Click on the survey link in your Knowledge14 mobile app. Help us make Knowledge 15 even more valuable!

Thank You

Jimmy Yuan

Senior Developer

ServiceNow

jimmy.yuan@servicenow.com

Ben Yukich

Senior Solution Consultant

ServiceNow

ben.yukich@servicenow.com

Want a copy of this deck?

Sign into the BuzzHub to unlock all the slides and lab guides from Knowledge14 sessions

