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Orchestration 201: Core Capability

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Orchestration 201 Lab Overview

By the end of this lab you will have implemented an Orchestration workflow that automates a handful of simple tasks and you will see how the steps involved can be extended to automate more complex tasks.

Skills needed for this lab:
Basic knowledge of Workflow in ServiceNow
Understanding of JavaScript in ServiceNow

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Agenda

Orchestration overview

Plan, Design, and Build an Orchestration workflow

Test Orchestration workflow

Integrate the Orchestration workflow into an existing Service Catalog request

Q & A

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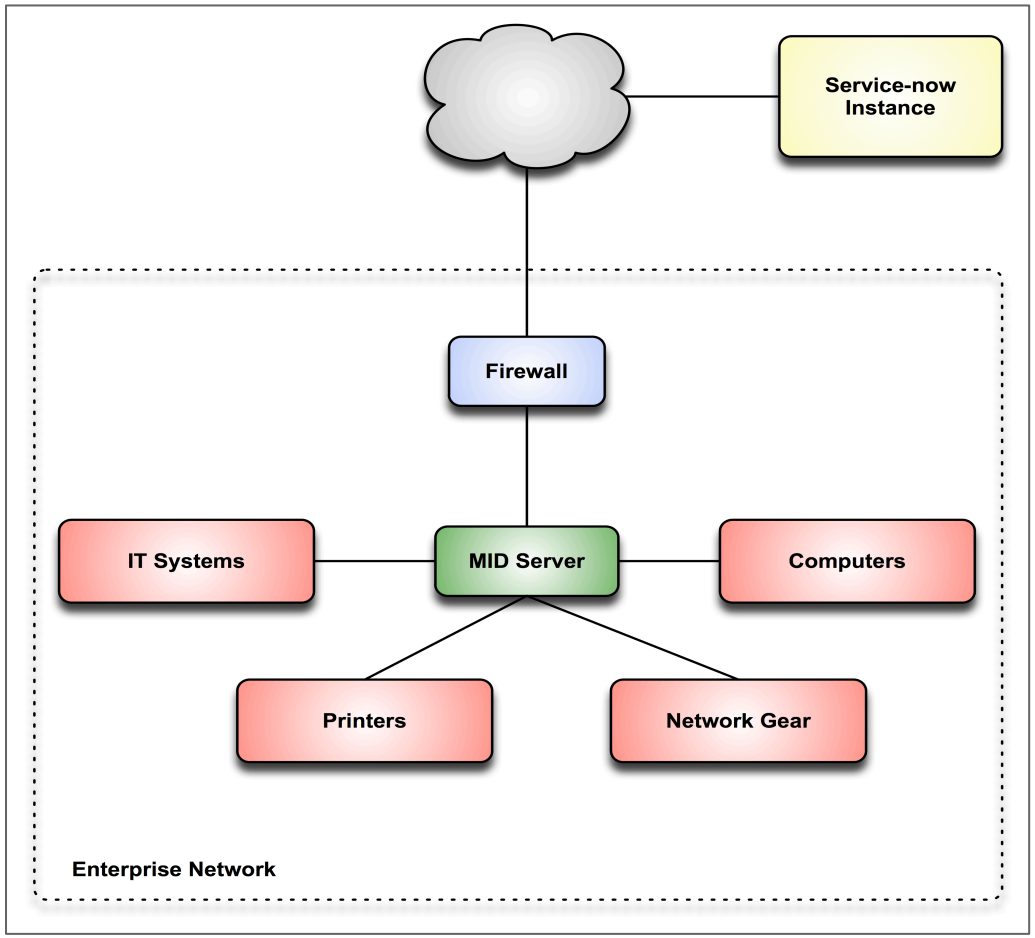
What is Orchestration?

- Orchestration is an extension of Workflow
- Orchestration extends the Workflow capabilities of the ServiceNow platform to communicate and perform tasks outside the ServiceNow instance
- Orchestration has activities that automate tasks in a company's network infrastructure (for example - provision and decommission virtual servers, restart servers, read and write configuration files, add users, etc.)

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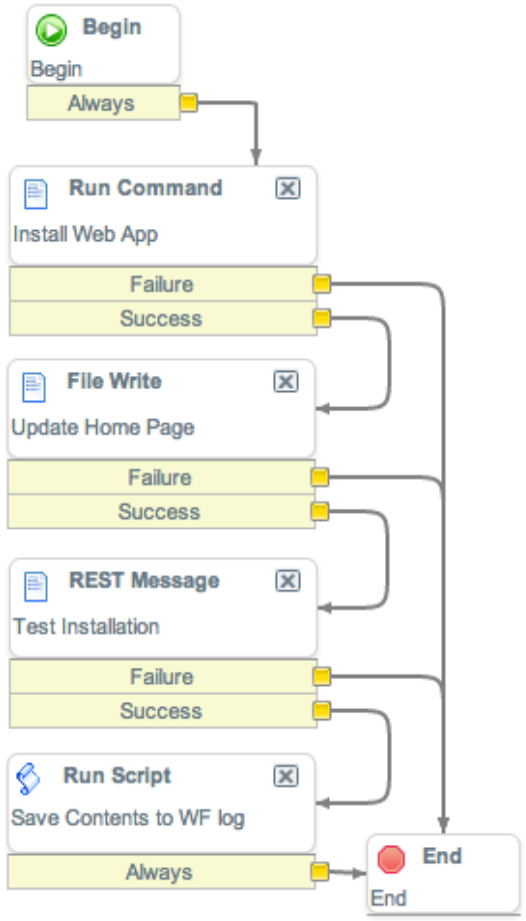
How does Orchestration achieve this?

- MID (Management, Instrumentation, and Discovery) Servers provide a point of presence on a company's network
- Orchestration activities issue commands that MID Servers pick up from the ServiceNow instance and execute against targets on a company's network



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Orchestration Architecture



Orchestration Workflow

ECC Output

gent	Topic	Name ▲
erver.lab_midserver	SSHCommand	/etc/init.d/iptables stop yum -y instal...
erver.lab_midserver	SSHCommand	/etc/init.d/iptables stop yum -y instal...

ECC Input



Query

Write Result



MID Server

Probe



Windows

Probe



Linux

Probe



VMware (vCenter)

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How Do Orchestration Activities Work?

- Under the covers, an Orchestration Activity…
  - Writes a message to the ECC (External Communication Channel) Queue
  - Waits while the Activity executes
- The MID server then…
  - Picks up the message and executes the commands contained in it
  - Sends the results back as an ECC input
- The Orchestration Activity…
  - Resumes and analyzes the result returned
  - Exits, possibly with a condition

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What can be automated?

- Orchestration provides activities that use these technologies to automate tasks on target systems.
- Protocols Supported:
  - SSH for Unix and Linux
  - PowerShell
  - SNMP
  - Web Services
    - REST
    - SOAP

The platform allows you to automate anything!

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What can be automated?

- We also provide the OOB automation solutions:
  - VMware (vCenter)
  - Amazon EC2
  - Active Directory
  - Exchange
  - Puppet
  - Chef

This is only the beginning!

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Orchestration Use Cases

- Infrastructure provisioning
- Employee Onboarding / Offboarding
- Automated Remediation of Infrastructure
- Etc.

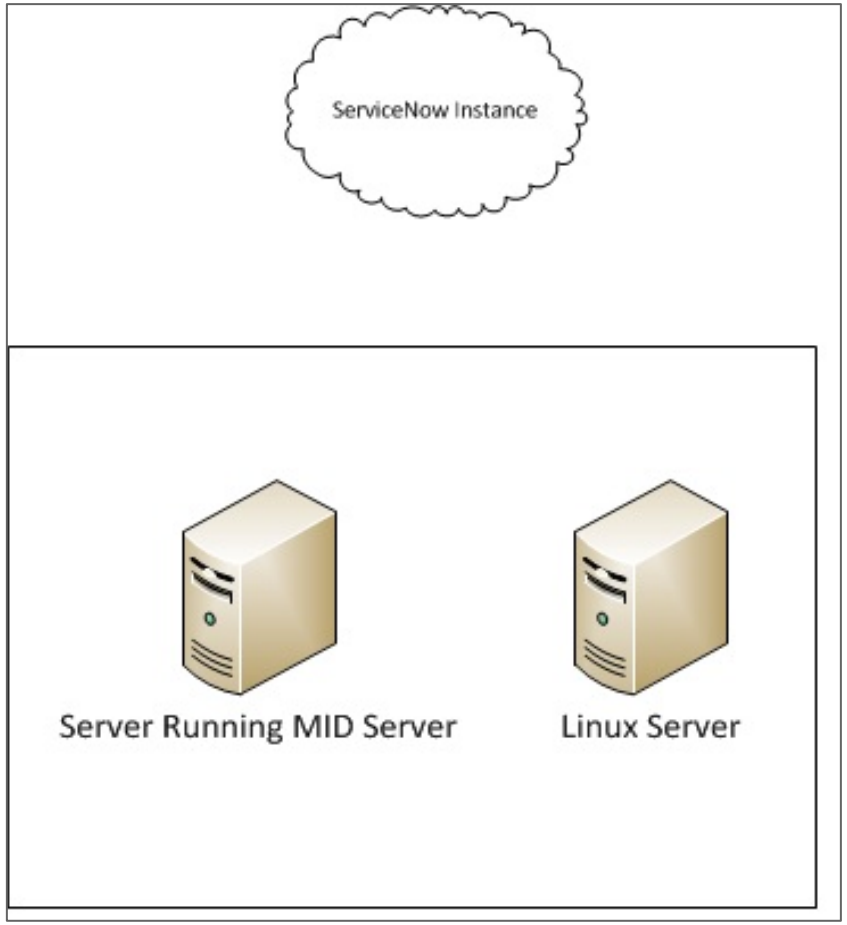
Orchestration demo video

- Add user to Active Directory: http://www.screencast.com/t/yuEUypKakZb9
- Provision VMware virtual machine: http://www.screencast.com/t/hgm17WYoRCJ

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How is the lab instance configured?

- Actual: Linux Server hosting the ServiceNow instance is also running a MID Server that queries the instance for instructions AND is running an Apache Web Server
- Logical: Think about it as the figure on the right
  - ServiceNow instance in the cloud
  - MID Server and a target Linux Server in the company's network that is hosting the Apache Web Server



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Hands-on Lab

- Overall goal
  - Allow an end user to request the installation of a “web application” from the service catalog and customize the home page
- Starting point
  - Your instance has a catalog item and workflow to do this using a manual task
- What we’re going to do
  - Turn a couple of manual tasks into a subflow that uses Orchestration to perform the tasks automatically

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Hands-on Lab

- We have an installation script that's made it onto the target system that we're going to run. The following are true about this install script:
  - It is called install_app_node.sh
  - It is located in /usr/local/bin
  - It takes a single parameter, the destination folder to create
  - When successful, writes a message to stdout
  - On failure, writes to stderr
  - Writes to a log file called logfile that ends up in /usr/local/bin
- We will use the Lab Guide to walk through the hands on portion of the lab

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START THE LAB

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Recap

- Built an Orchestration Workflow to automate the manual installation of an application to a web server and test that the install was successful
  - Created a subflow to execute an install script on a Linux server via SSH
  - Updated the web sever home page
  - Used a REST Message to verify a new web page is accessible after installation
  - On failure, used File Read to read contents of a log file to write to the workflow log
  - Tested the subflow to verify that it worked as desired
  - Replaced the manual tasks in the parent workflow with the newly created subflow

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Expand on the skills you've learned

- Orchestration can be also be launched from Business Rules, UI Actions, or anywhere you can write script
- All workflow activities are available (email, approvals, etc.)
- Use these activities as building blocks to put together automated solutions to more complex scenarios

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More information about Orchestration

- ServiceNow wiki:
  - http://wiki.servicenow.com
  - Search for Orchestration
- ServiceNow Training:
  - ServiceNow Orchestration course
  - See http://www.servicenow.com/training.do

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Top Takeaways

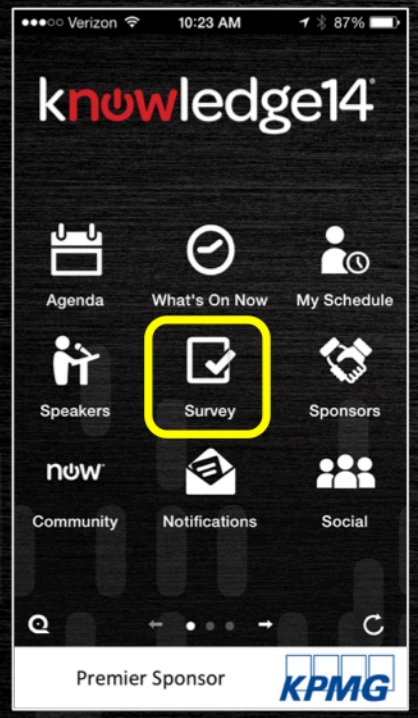
1. Orchestration is an extension of Workflow in the ServiceNow Automation Platform

2. ServiceNow provides Orchestration activities to help you manage your infrastructure

3. Use Orchestration to automate tasks

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Thank You

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