vRealize Orchestrator Workshop

May 12th 2017 – Viktor van den Berg (PQR)

Agenda

- **Introduction**
- **vRealize Orchestrator introduction**
- **Workflow development basics**
  - Lab 1: My first workflow
- **Actions & configuration elements**
  - Lab 2: Using acitons in workflows
- **Integration with vCenter Server & vRealize Automation**

Introduction

Me, myself and I

- **Viktor van den Berg**
- **Solution Architect / Technology Officer**
- **Focus: SDDC + Hybrid Cloud**
- **A&O projects**

PQR

- **Recent merger with 2ML**
- **System Integrator + Managed Services**
- **VMware Premier Solutions Provider**
- **Activities**
  - IT Strategy
  - Projects
  - Managed services

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Introduction

- Please do a short introduction
- What's your experience with vRO?
- What's your scripting (PS, python, javascript) experience?
- What are your expectiation for this workshop?

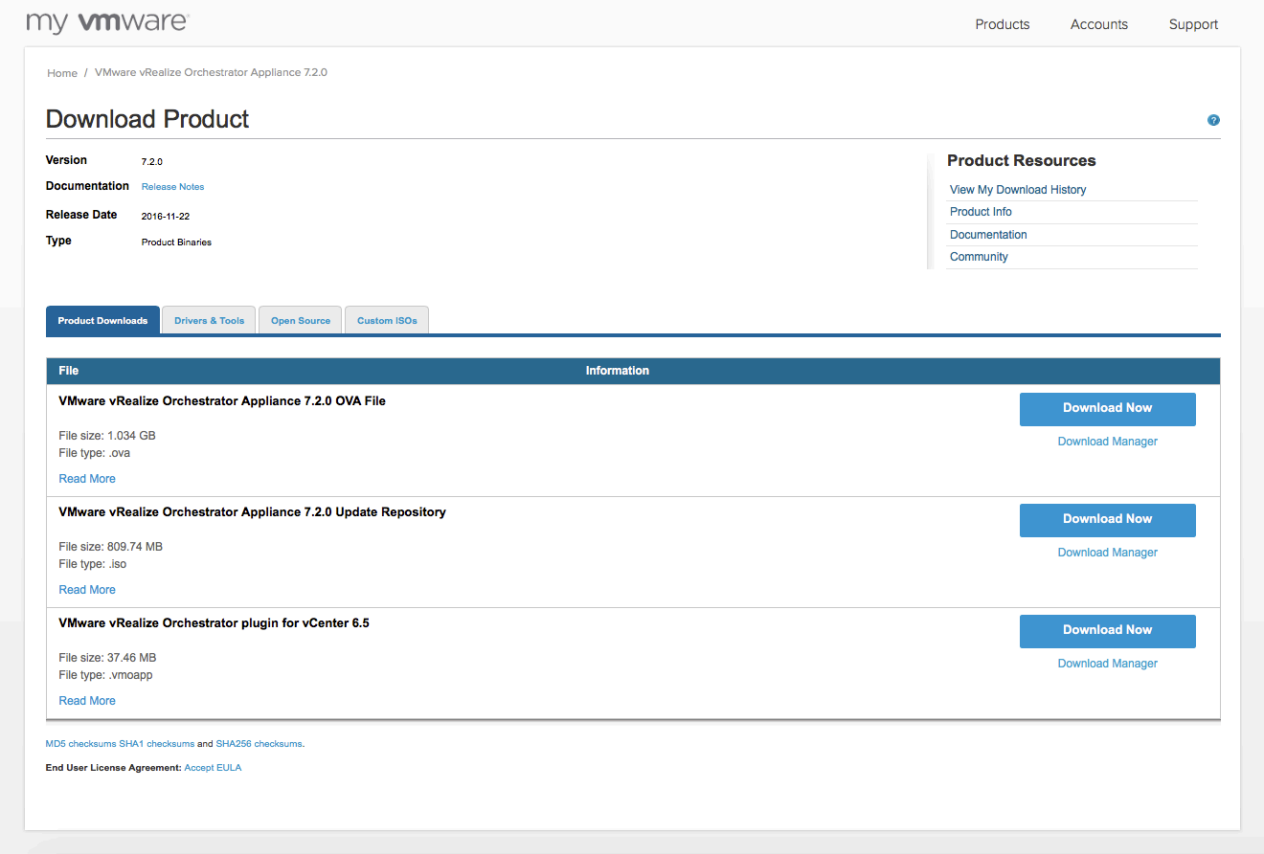
vRealize Orchestrator Introduction

Introducing vRealize Orchestrator

- **vRealize Orchestrator is an IT process automation tool**
  - Makes IT operations faster and less error-prone
  - Provides a graphical integrated development environment
  - Facilitates the development of workflows
  - Enables workflow to be exported and imported through packages
- **IT processes must be followed in an organization**
  - Create VM
  - Register VM in AD
  - Update a Change Management Database (CMDB)
  - Optain an IP address for an IP Address Management (IPAM) tool
  - Send out notifications

Introducing vRealize Orchestrator

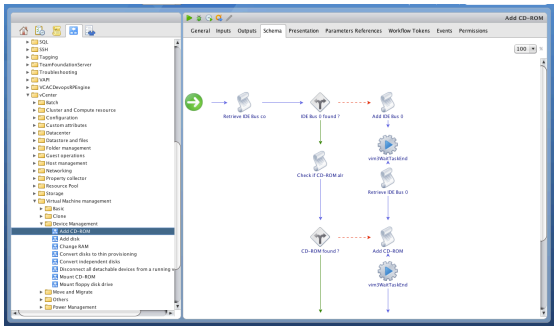
- **vRealize Orchestrator (latest version is 7.2)**
  - Comes as a stand-alone virtual appliance
  - Is included in vRealize Automation

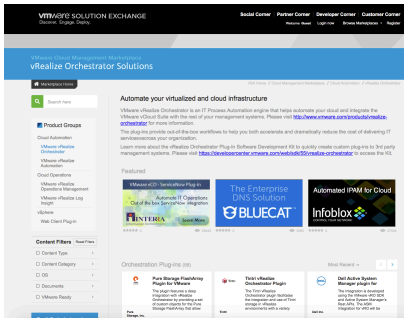


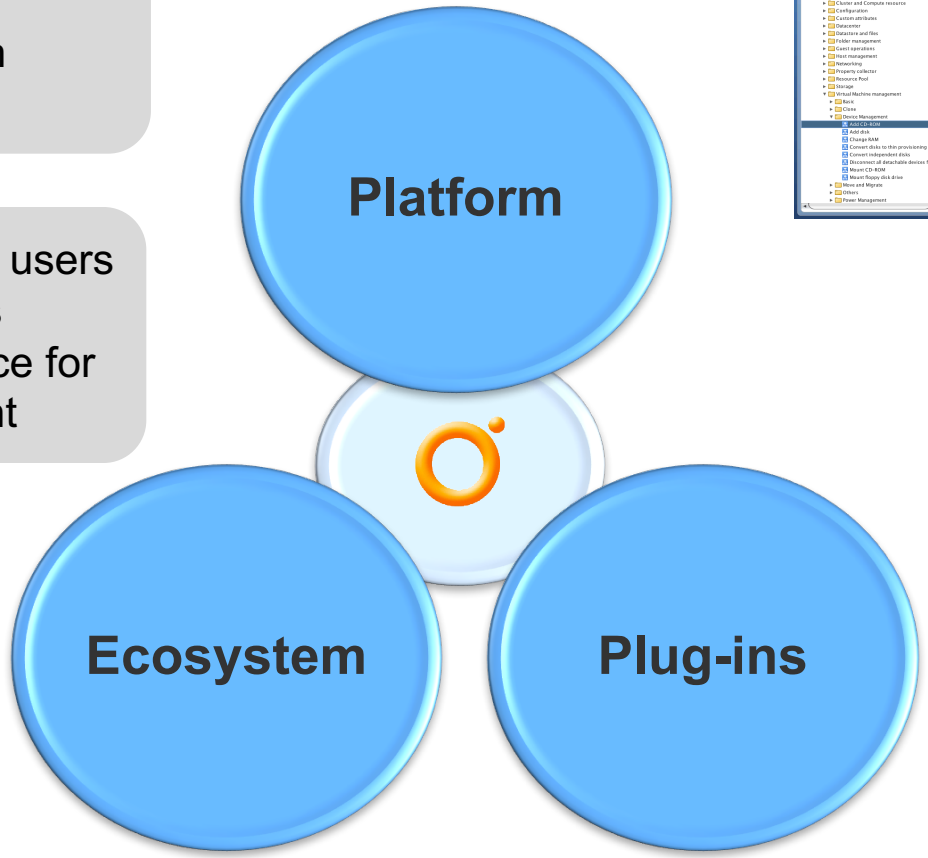
What is VMware vRealize Orchestrator?

- Create, edit, and execute workflows
- Administer solution
- Virtual Appliance

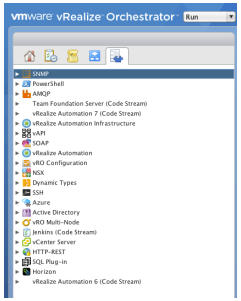
- Allow partners and users to develop plug-ins
- Provide marketplace for hosting that content



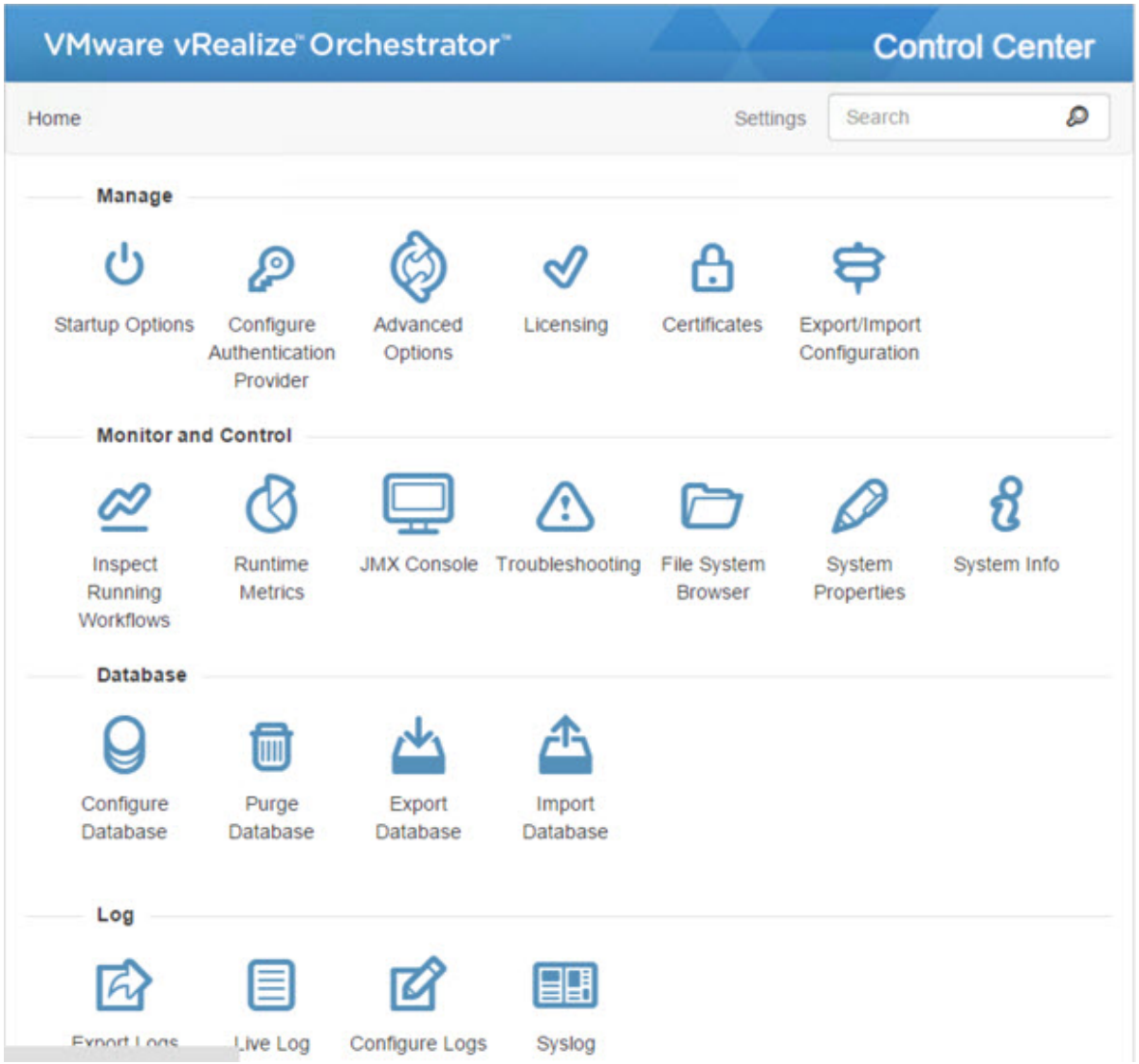




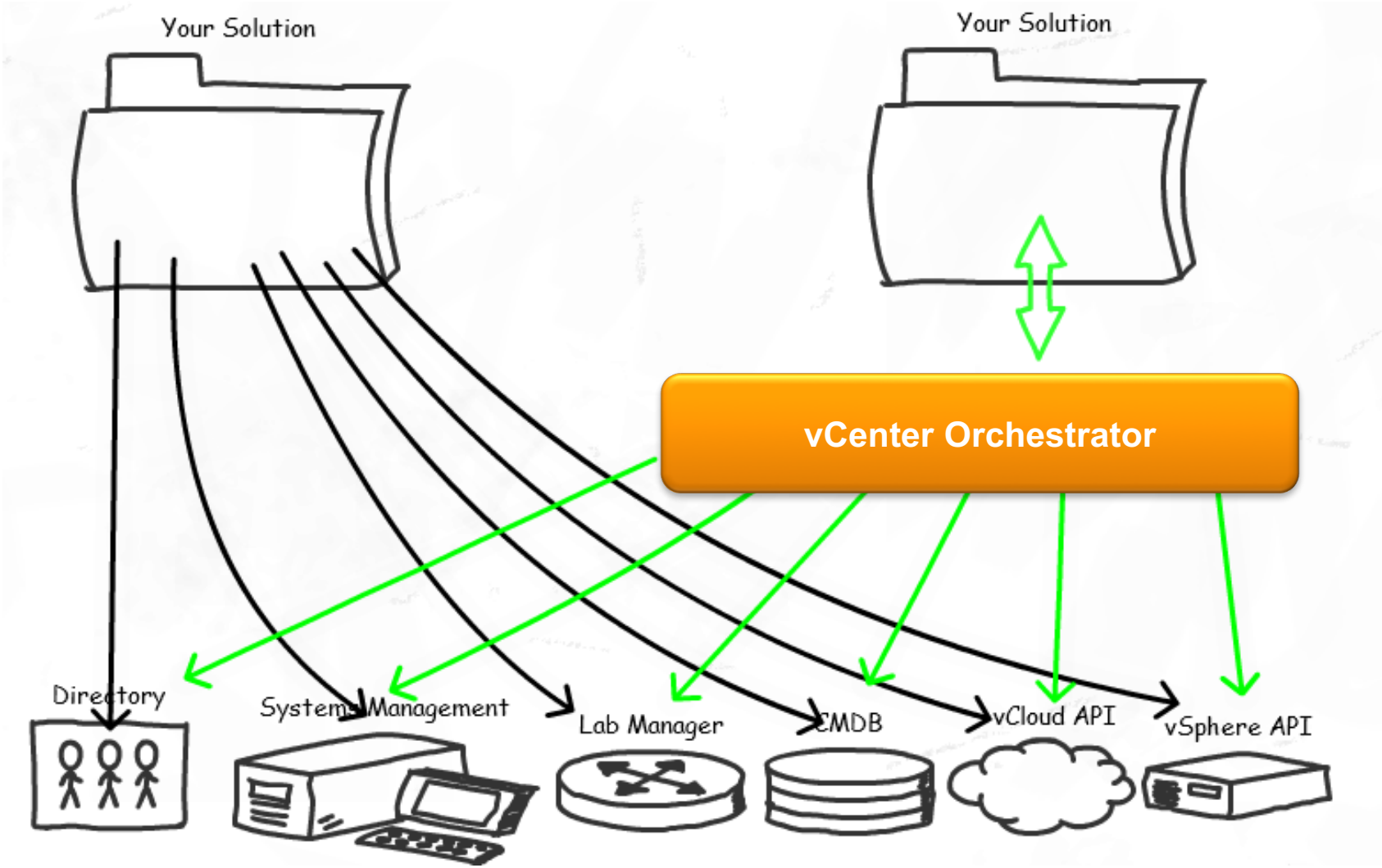
- Integrate VMware stack in your environment
- Prebuilt workflows
- Decoupled from vCO platform releases



vRO Control Center

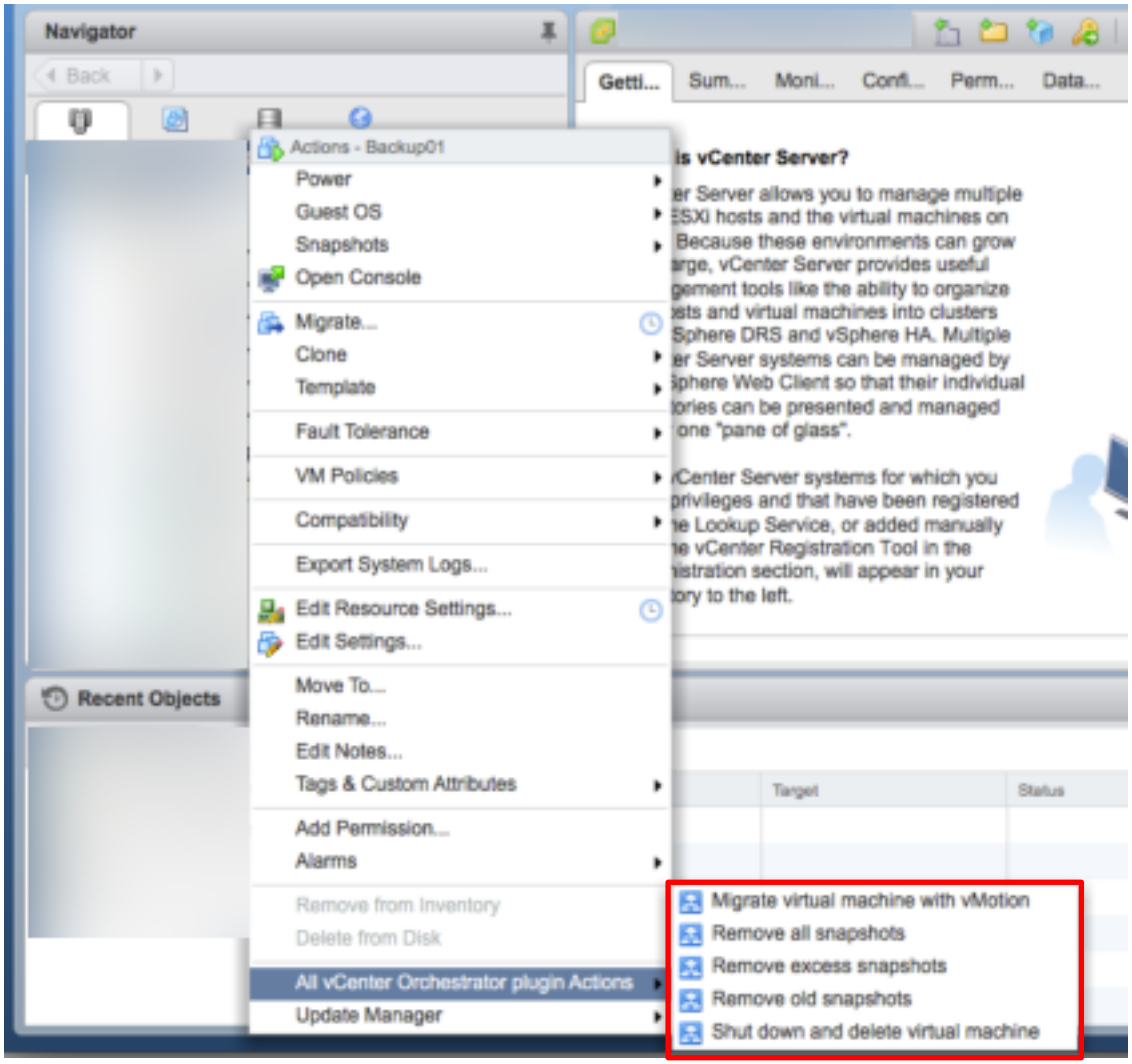


vRO use cases



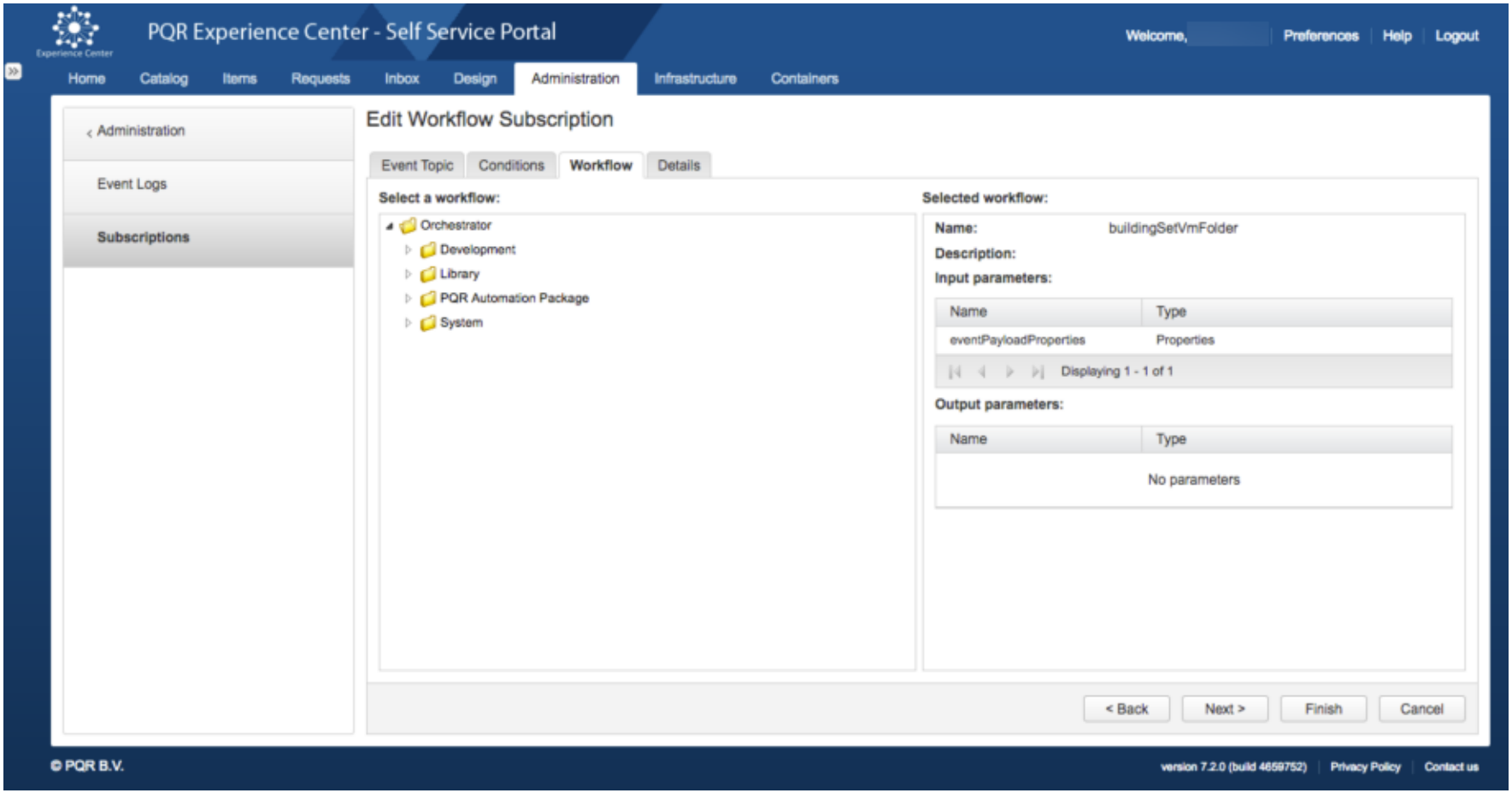
Integration with…

- vCenter Server



Integration with…

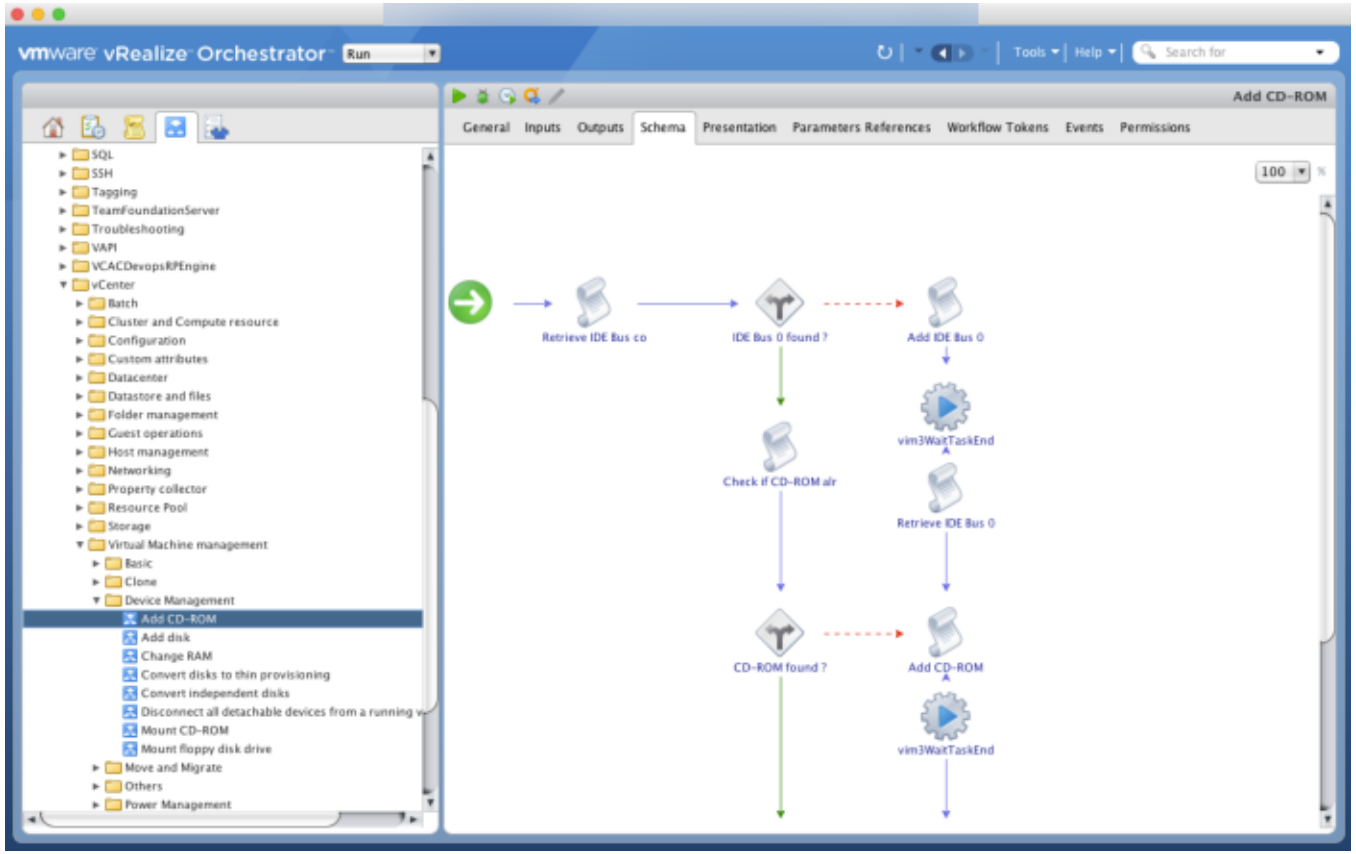
- vCenter Server
- vRealize Automation



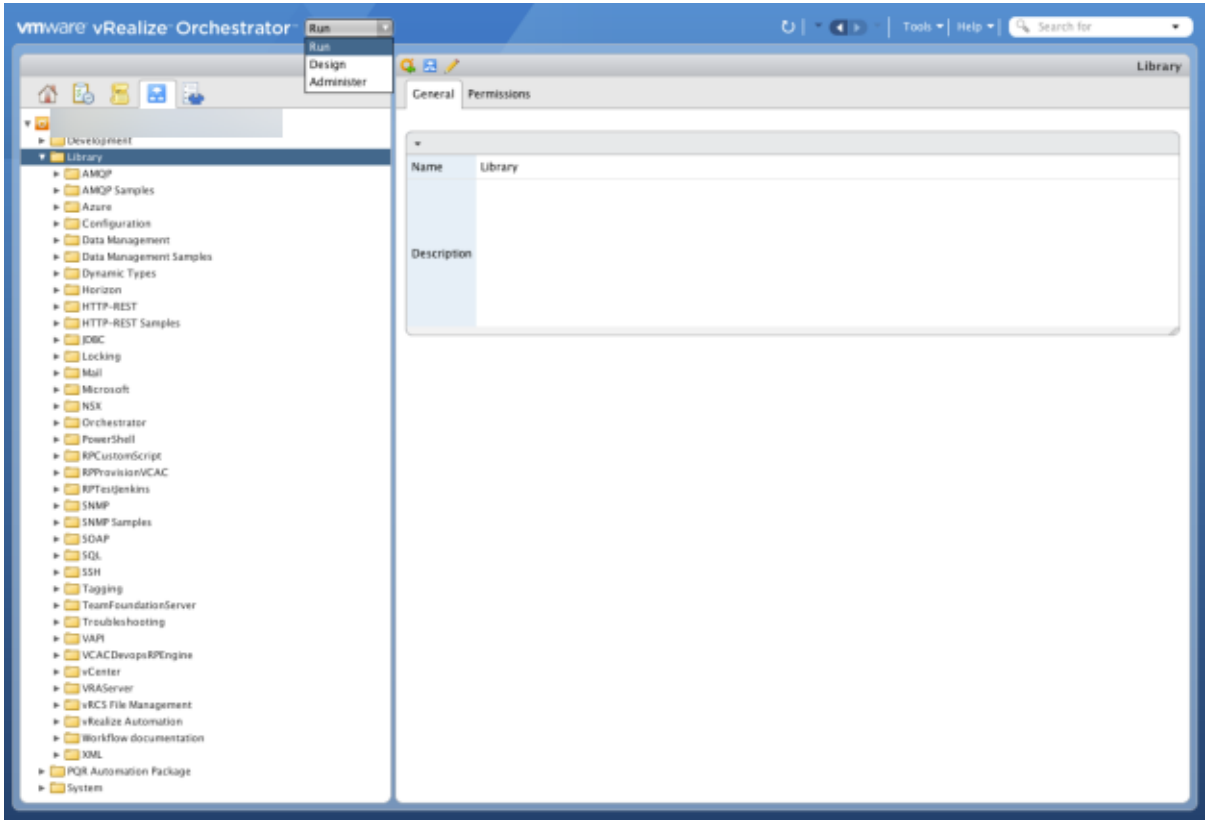
Workflow Development Basics

vRO Client

- Standalone Java client
- Execute and monitor workflows
- Create and develop workflows/actions/etc.

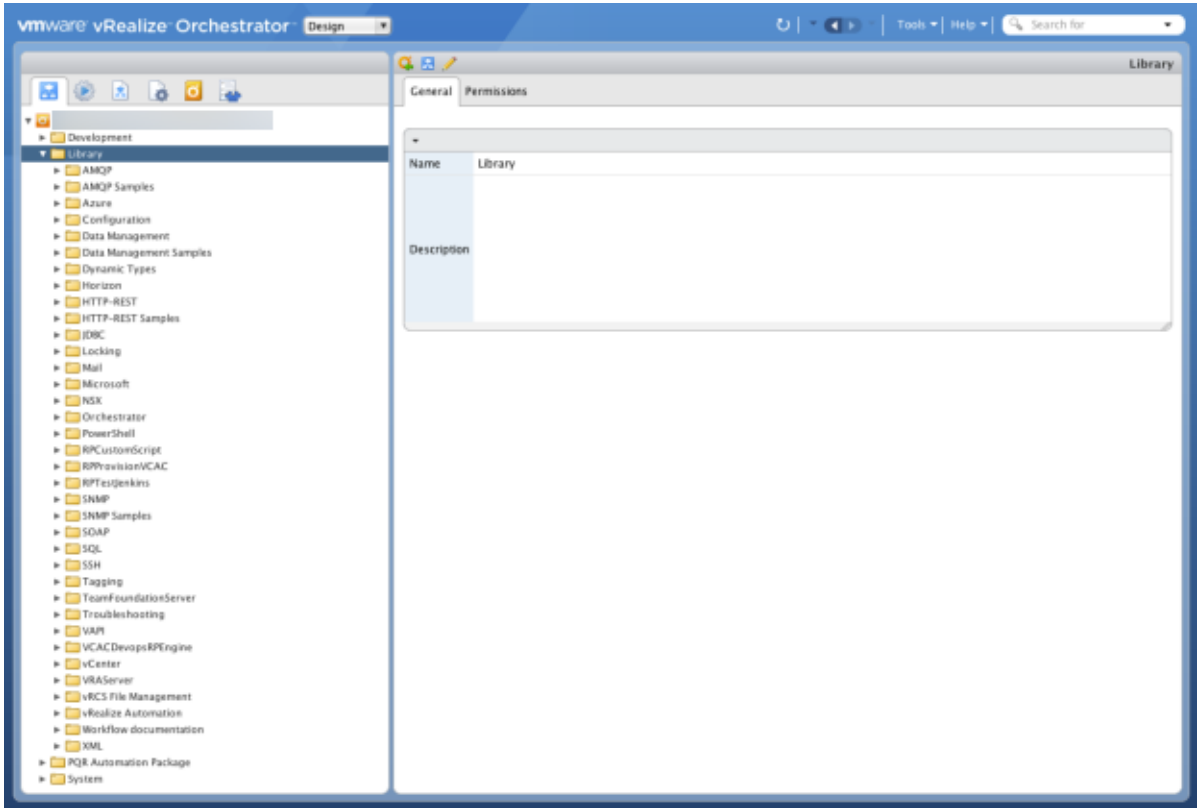


Exploring the Graphical Integrated Development Environment



- **Run**
  - vRO Overview
  - Schedules
  - Policies
  - Workflows
  - Plugins

Exploring the Graphical Integrated Development Environment

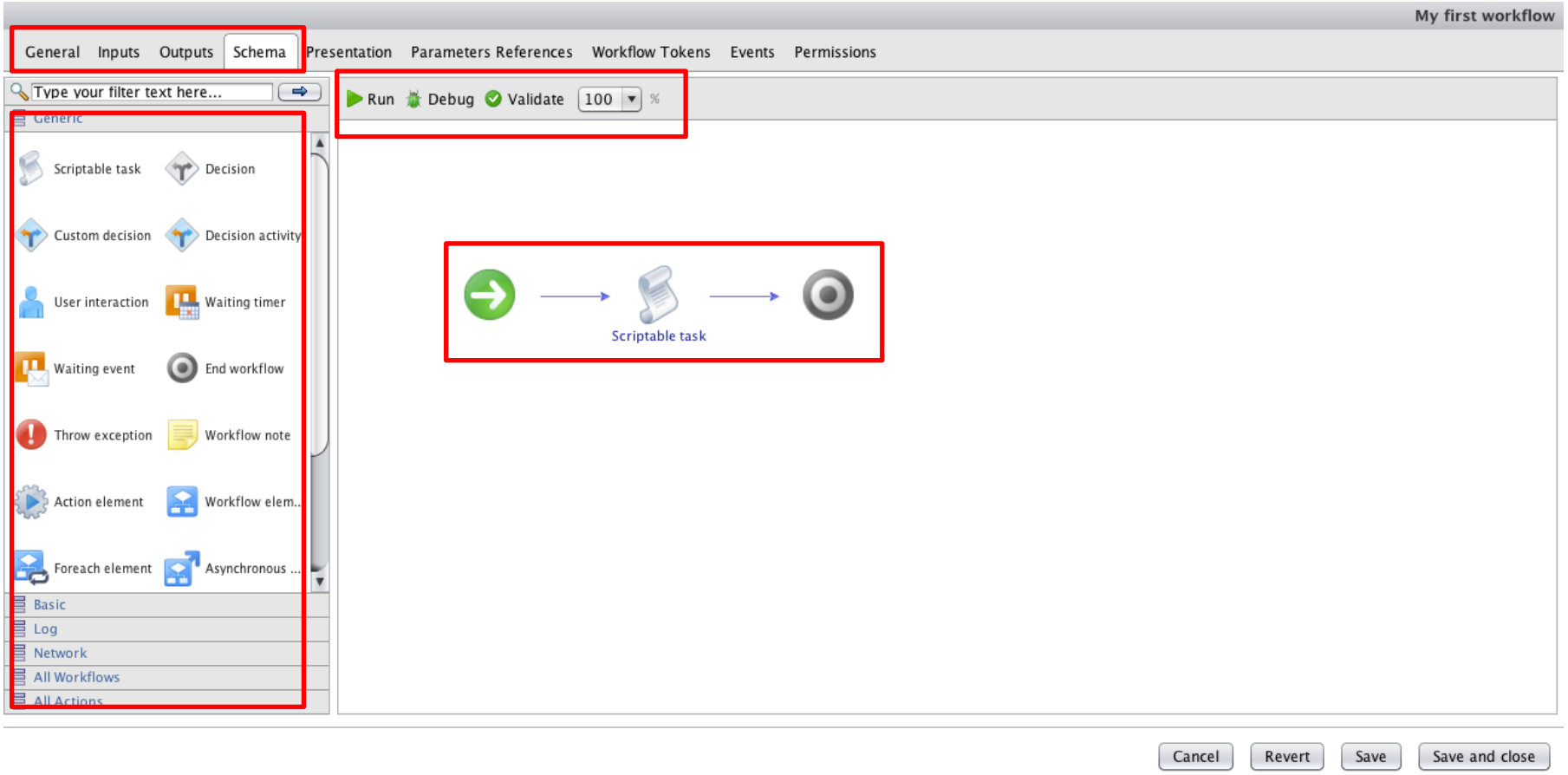


- **Design**
  - Workflows
  - Actions
  - Resources
  - Configurations
  - Packages
  - Plugins

Workflow structure

- Defines how to perform an automated task
- Include ready to run workflows/actions
- You can build your own workflows, or reuse exisiting workflows

My first workflow - Schema



My first workflow - Elements

Workflow elements

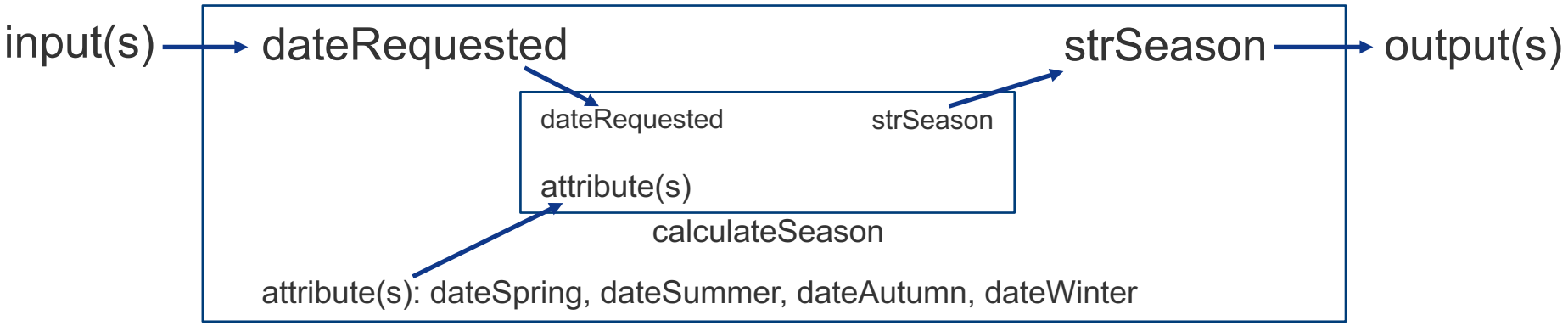
- Start/end
- Scriptable task – Execute a piece of (JavaScript) code
- (Nested) Workflow – Run a nested workflow
- Actions – JavaScript function with inputs and outputs
- Decisions – if (x==y) {do this} else {do that}
- Sleep – Just wait
- Counter – n = n + 1 (n++)
- Notes - Comments

My first workflow – Input, output, attributes

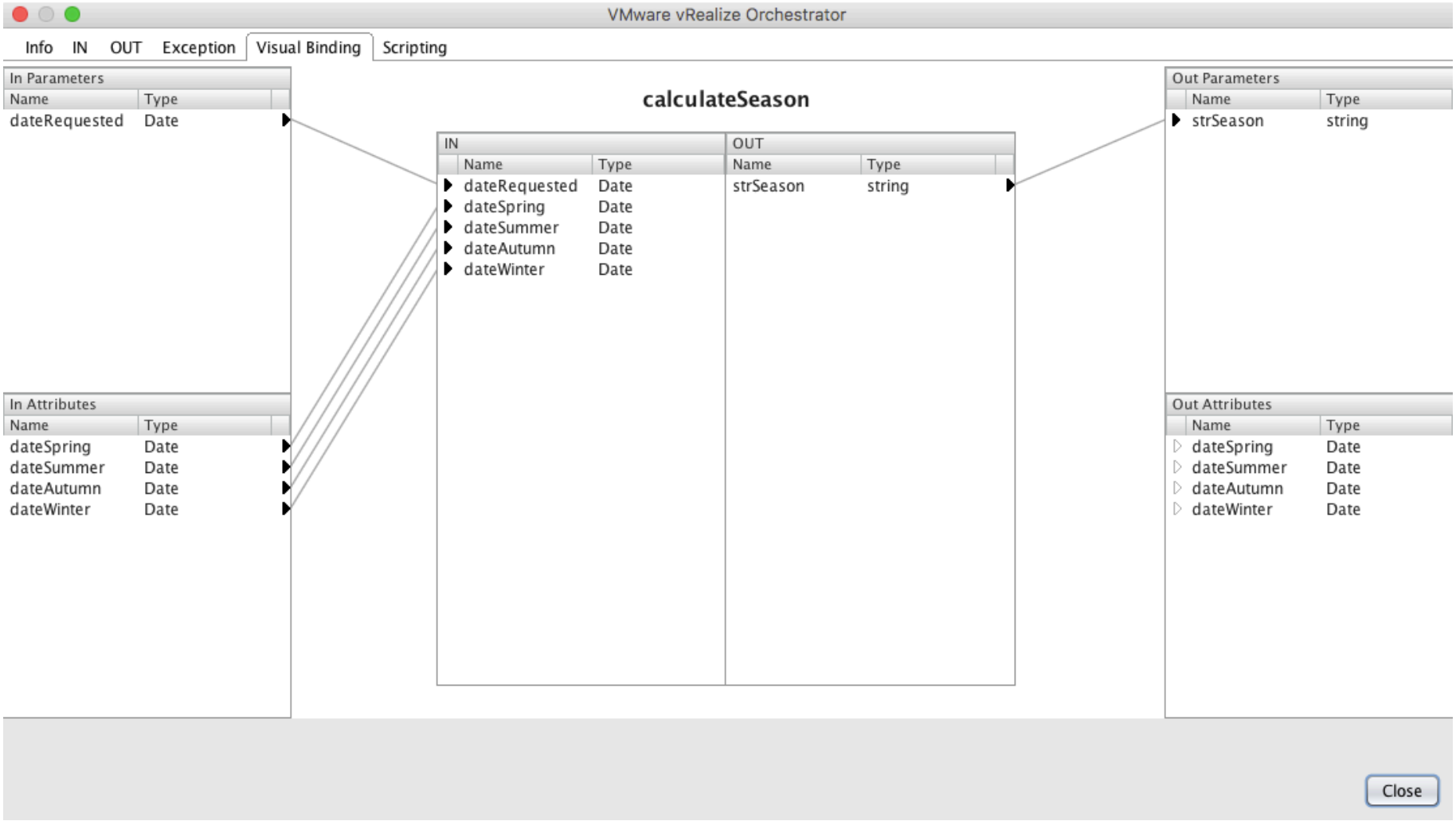
Input, output and attribute

- **Input – input variable for a WF/element;**
- **Output – output variable for a WF/element;**
- **Attribute – variable for a WF/element.**

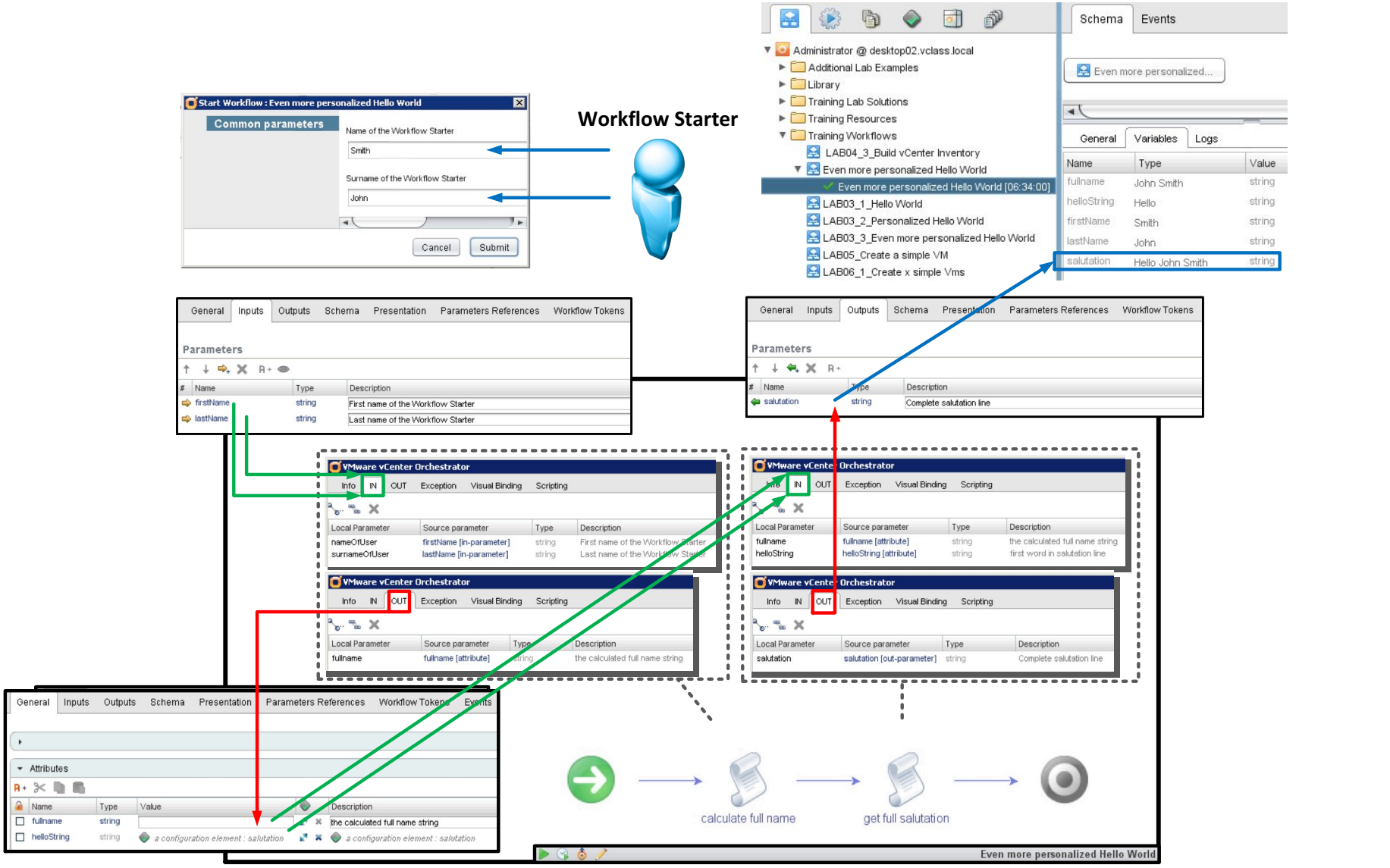
All these variables are ”local” for a WF/element



My first workflow – Input, output, attributes



My first workflow – Information flow



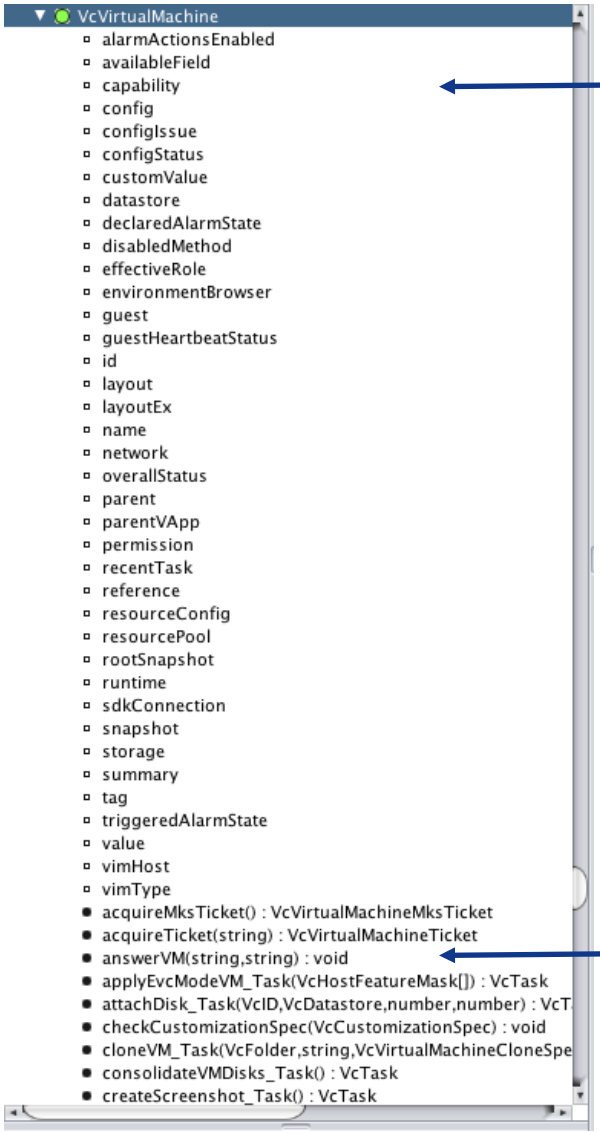
My first workflow – Data types (I/II)

- string – For text;
- number – For numbers;
- boolean – True or false;
- Array of string, number, boolean

- Objects:
  - Properties (key/value)
  - VC:VirtualMachine (VM)
  - VC:ClusterComputeResource (Cluster)
  - AD:User (Active Directory user)
  - NSX:VirtualWire (NSX VXLAN network)
  - Azure:VirtualMachine (Azure VM)

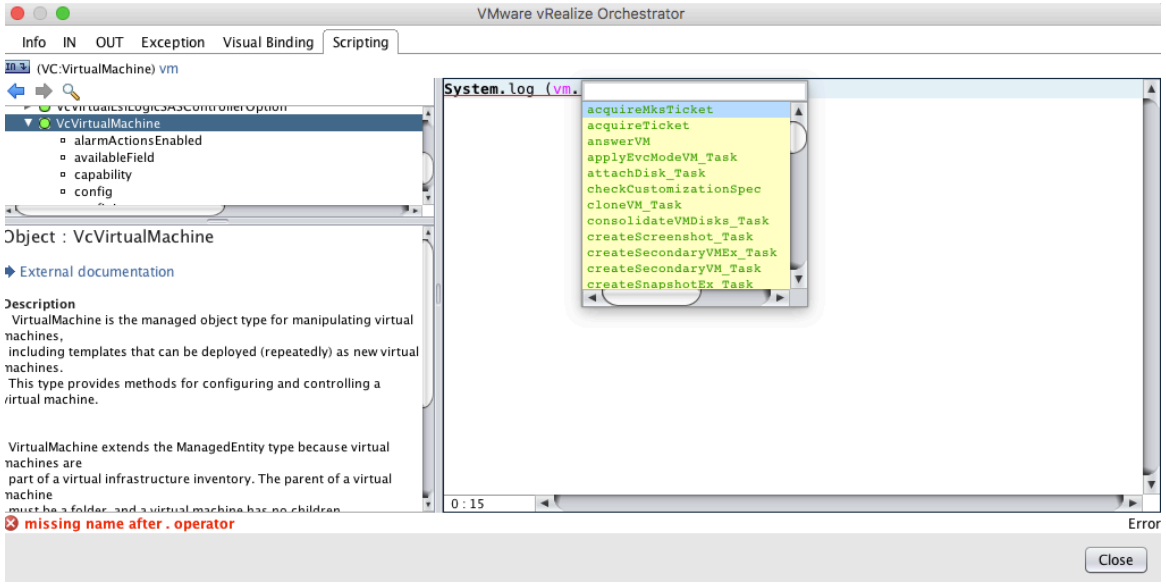
- Composite type (define yourself)

My first workflow – Data types (II/II)



Properties

Methods



Lab: My first workflow

- Lab: HOL-1721-SDC-5 - Introduction to vRealize Orchestrator
- Module 2: Creating your first workflow (15-20 minutes)
- http://labs.hol.vmware.com/HOL/catalogs/

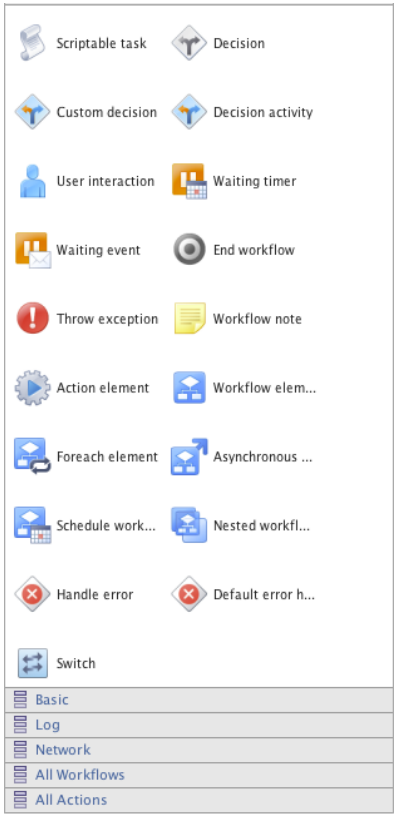
Starting the lab

- Open the VMUG LABS icon
- Open VMware View to connect to the Arrow labs
- User: vmug1-15
- Password: Vmug@2017!
- → Mind the Azerty keyboard ☺
- Open chrome browser
  - http://labs.hol.vmware.com/HOL/catalogs/

- Login using your HOL account
- Lab: HOL-1721-SDC-5 - Introduction to vRealize Orchestrator
- Module 2: Creating your first workflow (15-20 minutes)

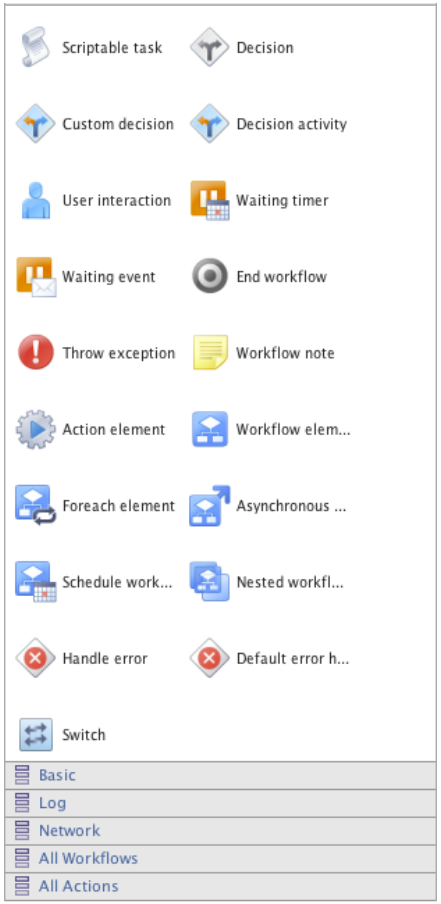
Actions & Configuration Elements

Some guidelines



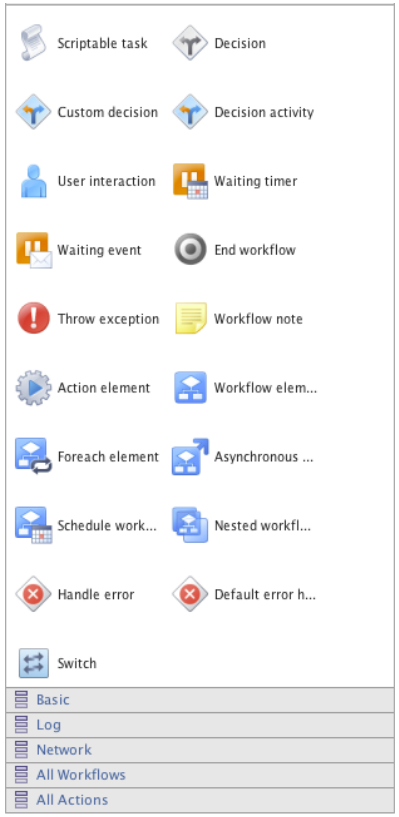
- Workflows can run other workflows.
- In/out parameters are used when calling another workflow.

Some guidelines – Workflow elements



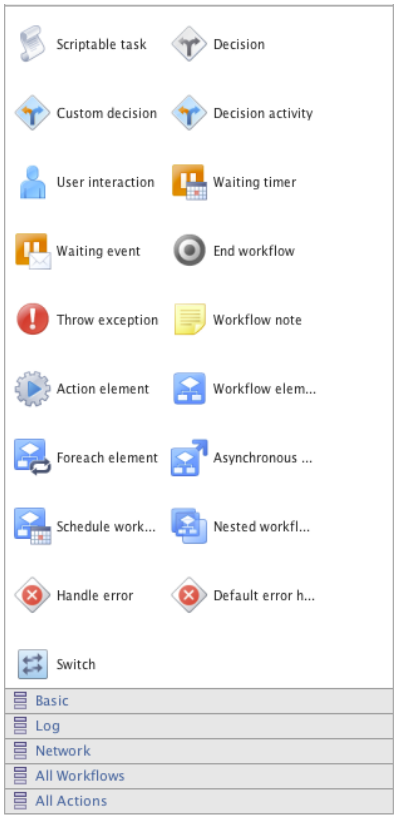
- Action elements are reusable scripts with just one return value.
- Action elements can only contain a script

Some guidelines – Workflow elements



- Decision elements check a bound Boolean parameter directly.
- Custom decisions require a script that returns a Boolean value.
- Decisions have two outgoing connections:
  - Green for true
  - Red for false

Some guidelines – Workflow elements



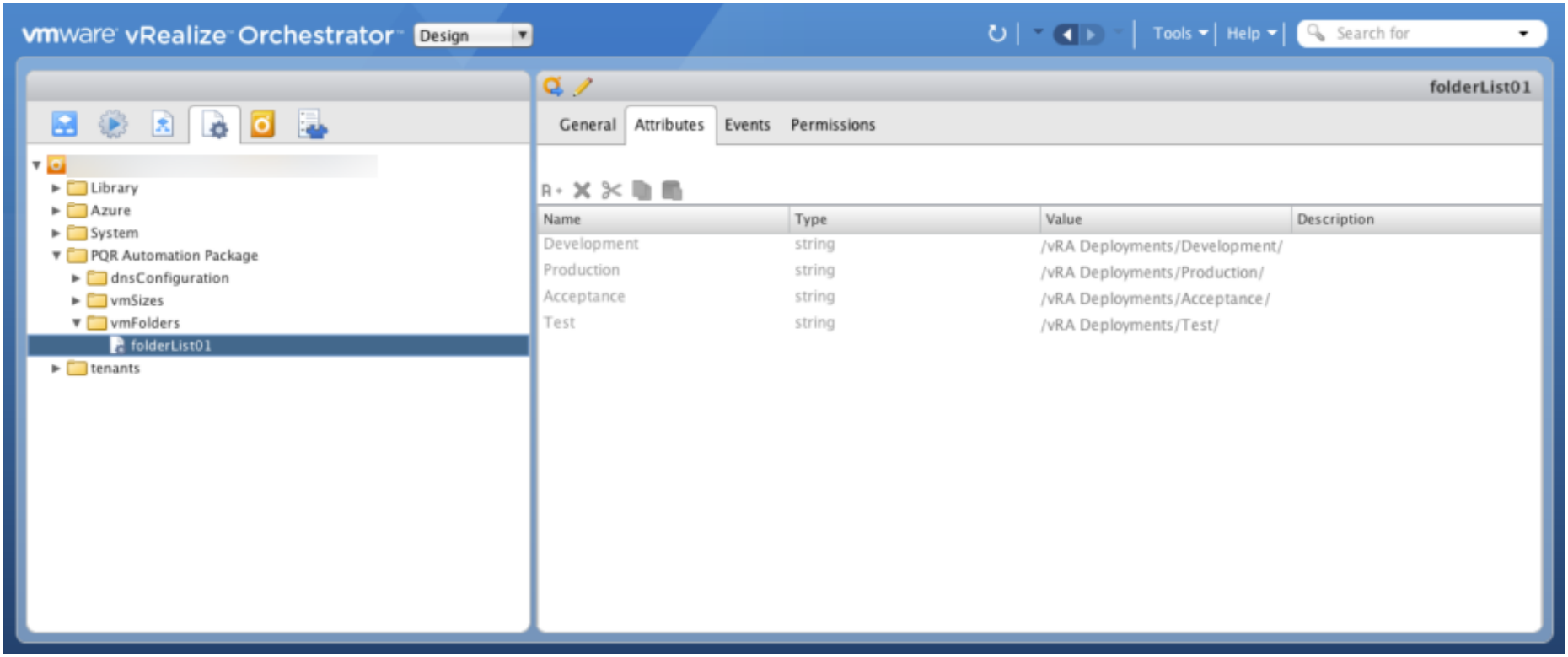
Scriptable tasks:

- Contain JavaScript code that implements a certain functionality
- Can have multiple IN and OUT parameters, available as JavaScript variables in the script.

Give all the elements a descriptive name.

Some guidelines – Configuration elements

- **Configuration elements store variables throughout the server.**
- **A configuration element can have multiple attributes with:**
  - [Array] Name Type Value Description

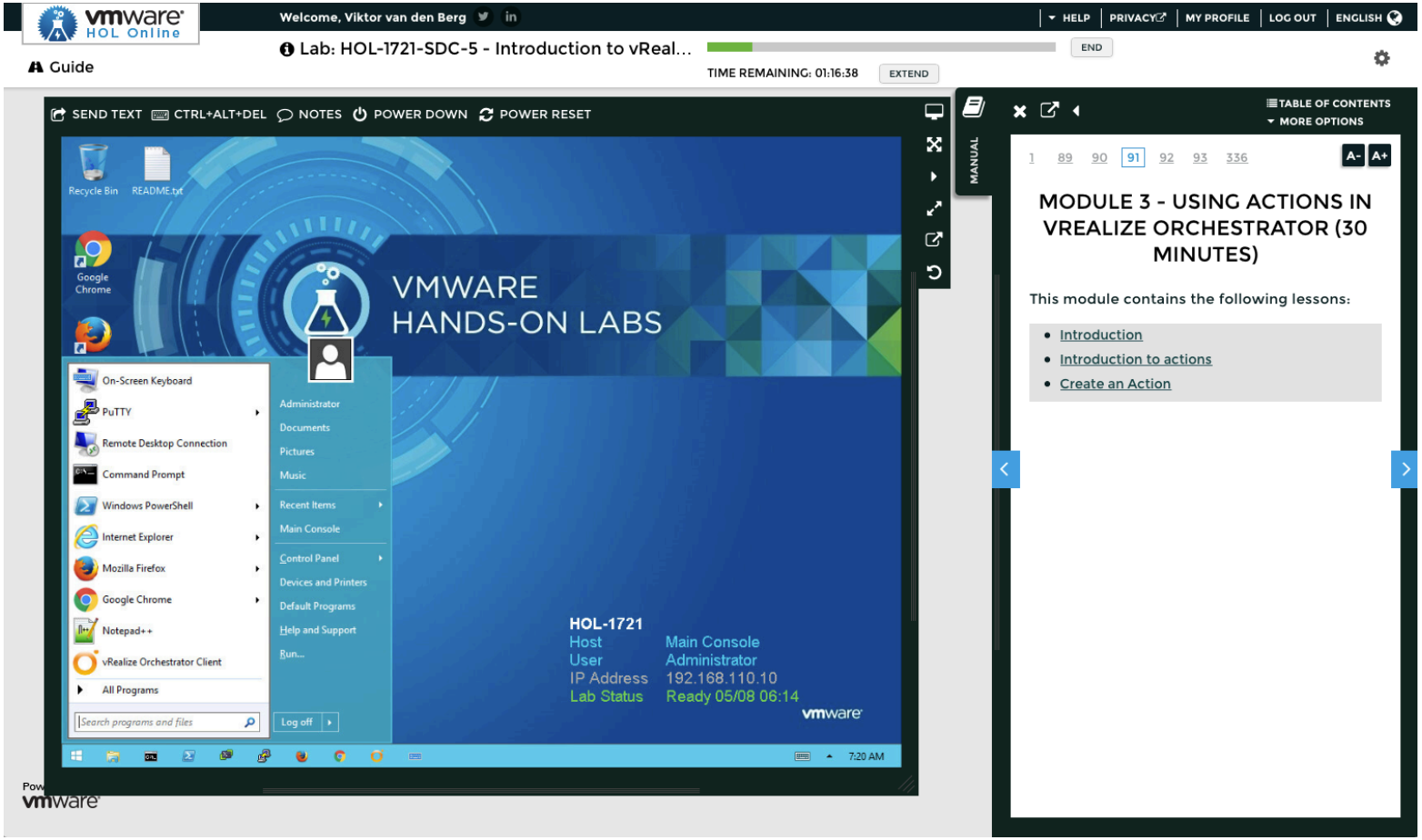


Some guidelines – Configuration elements

- The attributes of a workflow can then be linked to an attribute contained in a configuration element.
- The configuration element can also be used in JavaScript code.

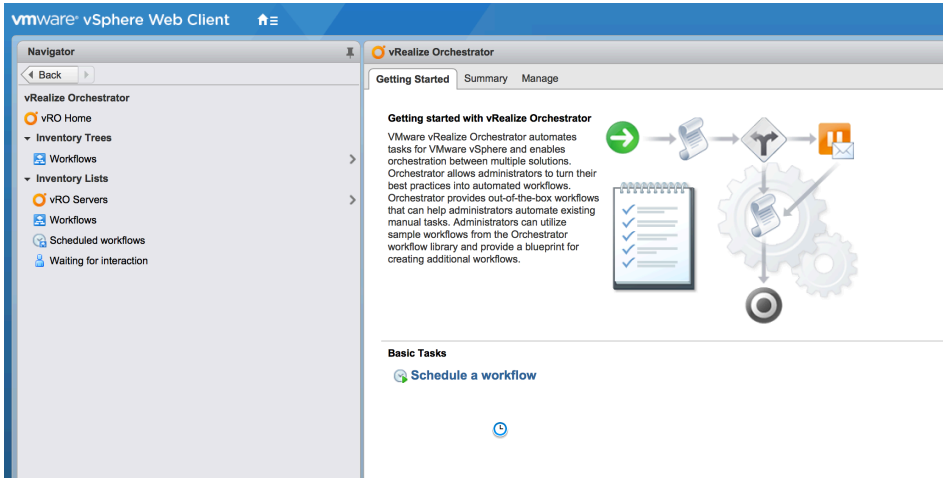
Lab: My first workflow

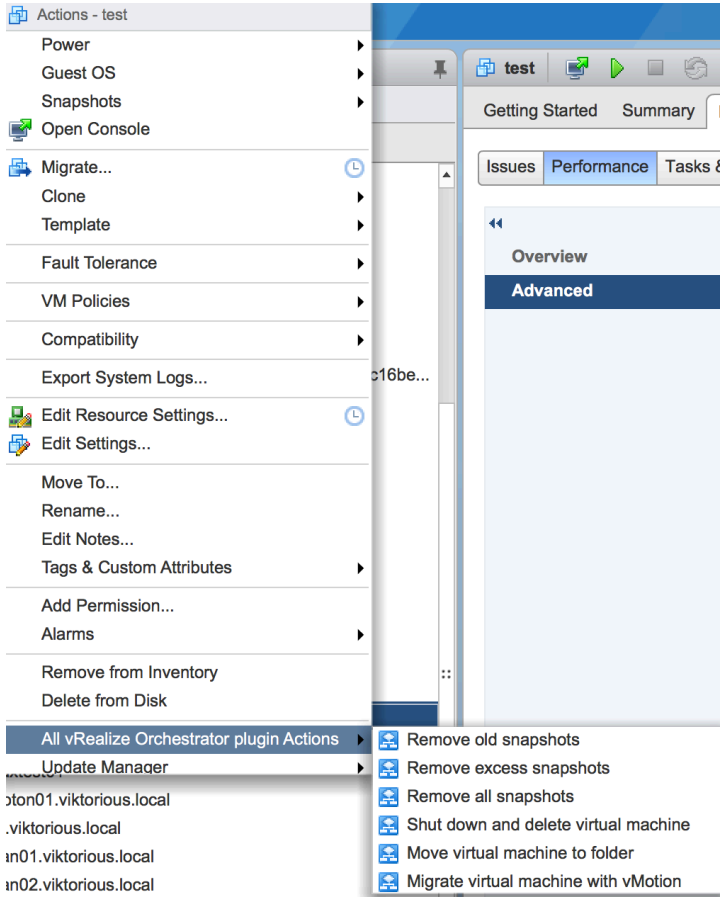
- Lab: HOL-1721-SDC-5 - Introduction to vRealize Orchestrator
- Module 2: Using actions in vRealize Orchestrator (25 minutes)



Integration with vCenter Server and vRealize Automation

vCenter Integration

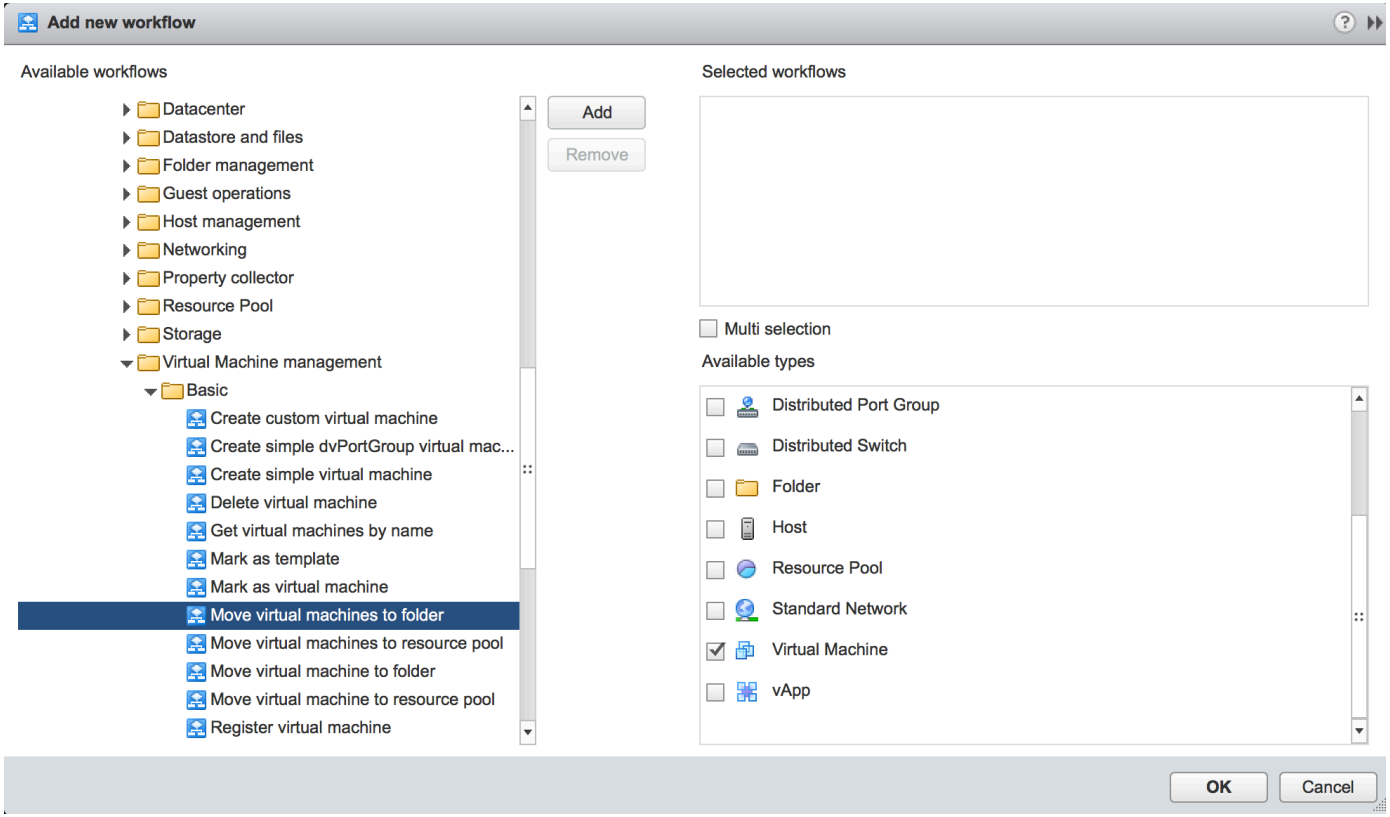




vRO + vCenter Server

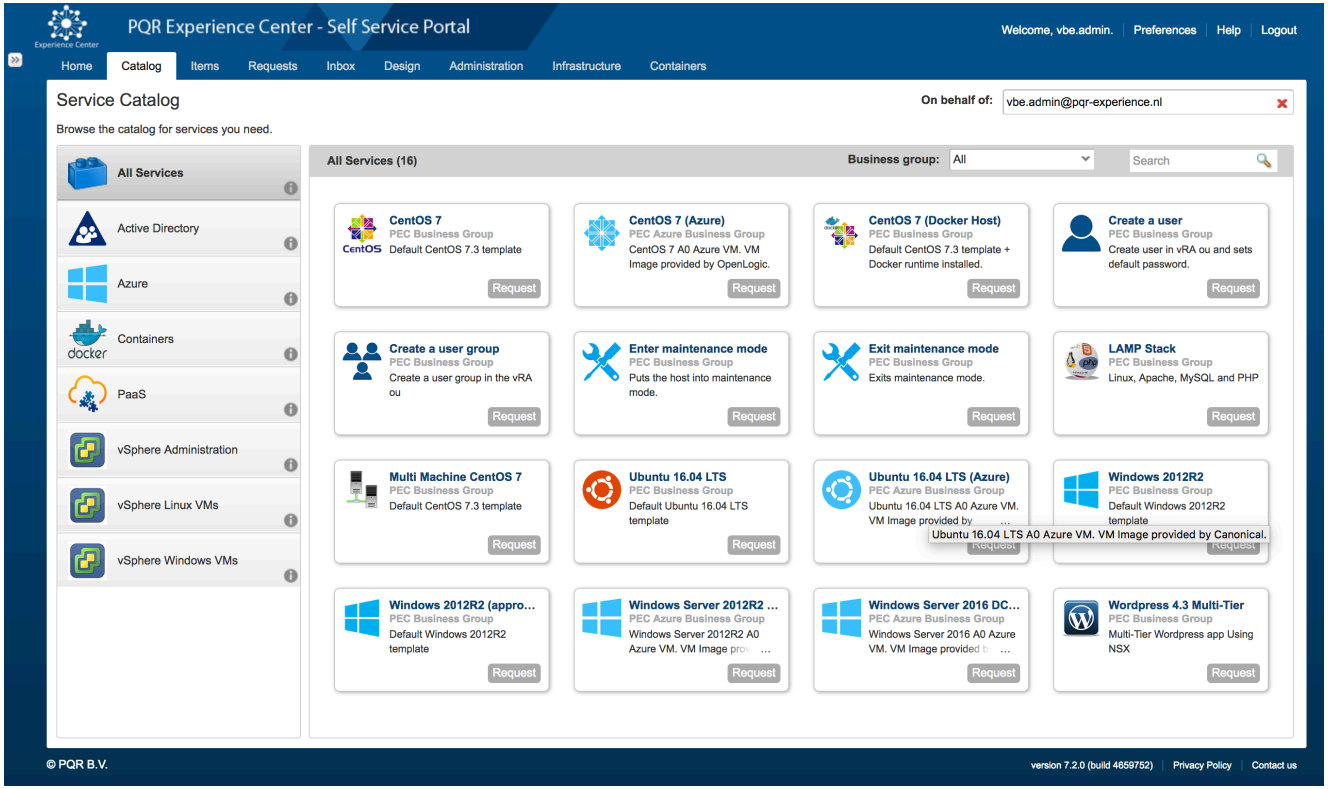
- Seamless integration is provided
- vRO workflows executed on objects

vCenter Integration - Example



- Add a workflow to the WebClient
- Configure the context
- Restart the WebClient

What is vRealize Automation?



vRealize Automation is a tool to implementes a self-service catalog that provides IT services:

- Virtual machine LCM;
- Application LCM;
- Anything as a service.

vRealize Automation deployment process

Request
Request form
Enter options
Start request

Deployment
Deploy VM
First time boot
Initial OS configuraiton

Managing
VM ready
Day 2 operations

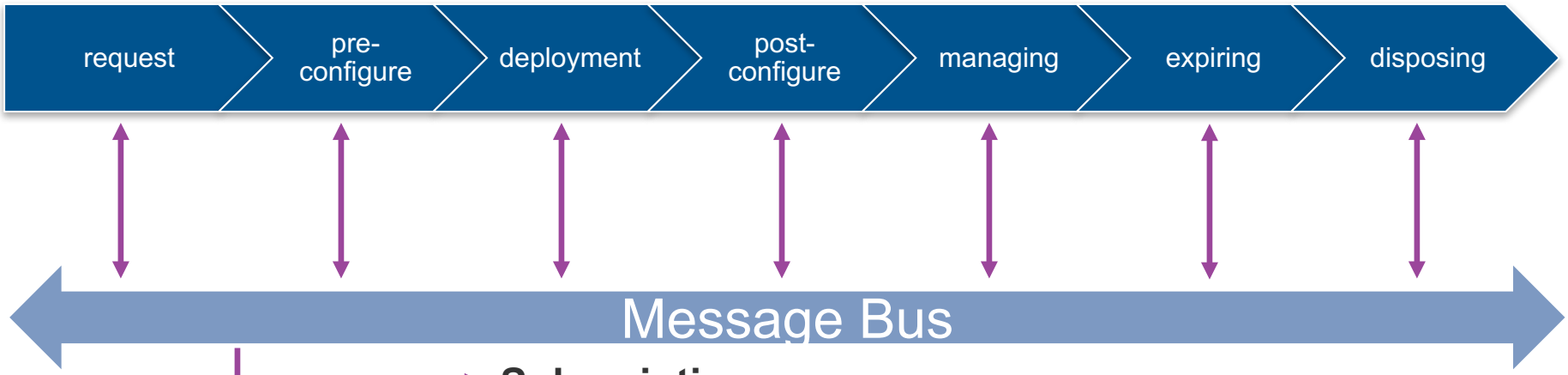
Disposing
Delete VM
Remove objects
Update CMDB

Pre-configure
Prepatory steps
Generate hostname
Create computer account
Request IP address
CMDB registration

Post-configure
Configure VM
Install software
Prepare for use

Expiring
Lease expires
Expire VM
Archive VM

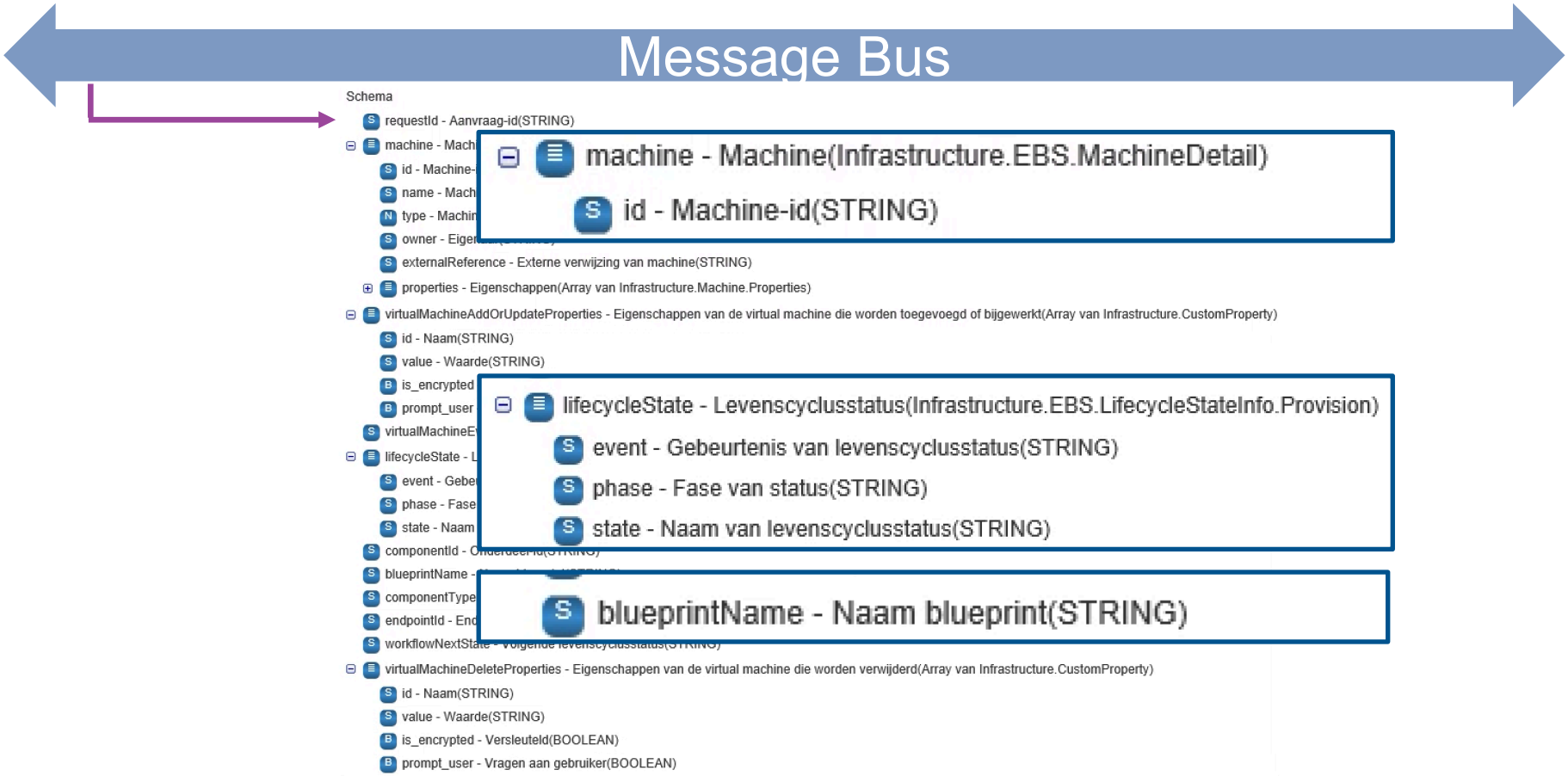
vRealize Automation – Event broker & message bus (I/III)



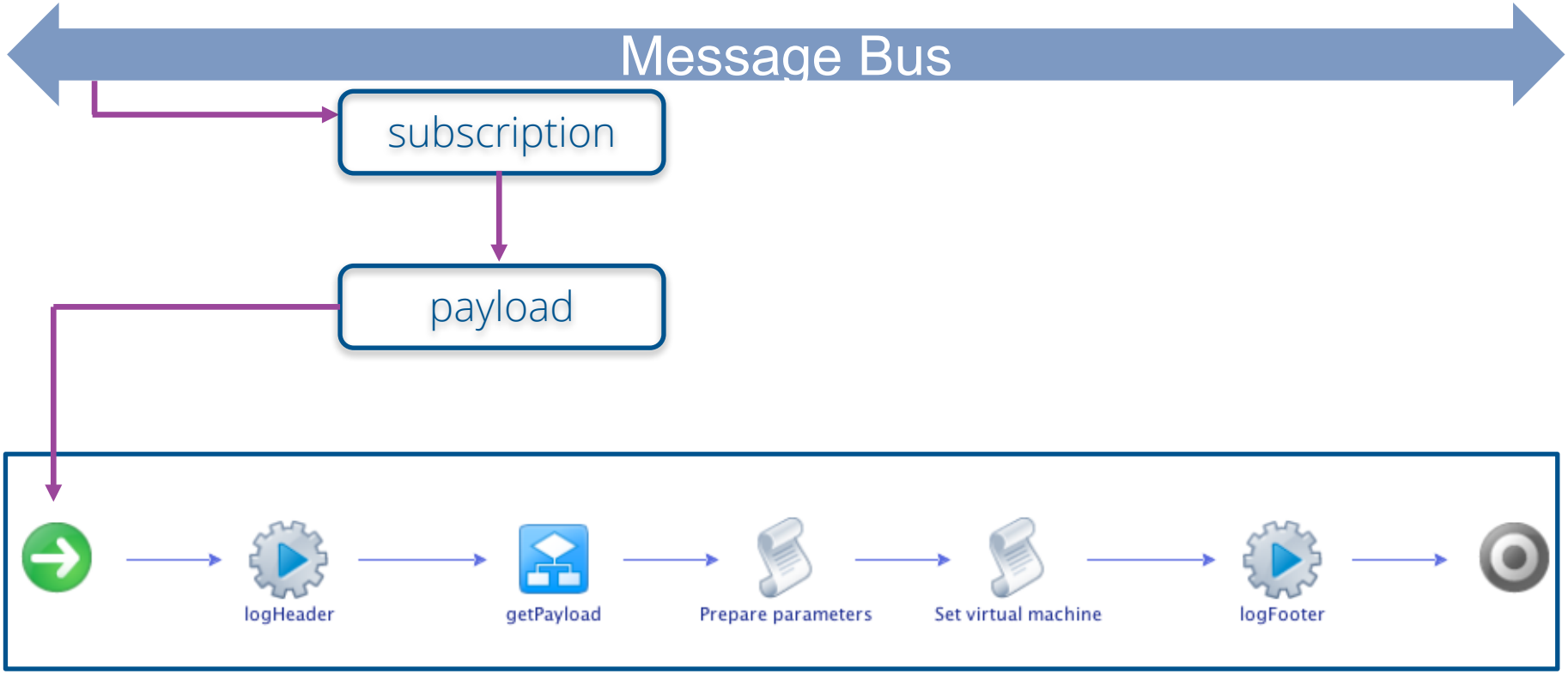
Subscription

- **Condition**
  - Lifecycle state name
  - Lifecycle state phase
  - …
- **Actie: start vRO workflow**
- **Blocking/non-blocking**
- **Priority**

vRealize Automation – Event broker & message bus (II/III)



vRealize Automation – Event broker & message bus (III/III)



Thank you!