

CXS1887BCN

vmware® EXPLORE

Extending the Capabilities of VMware Aria Automation

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#vmwareexplore #CXS1887BCN



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- This overview of new technology represents no commitment from VMware to deliver these features in any generally available product.
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Presenter



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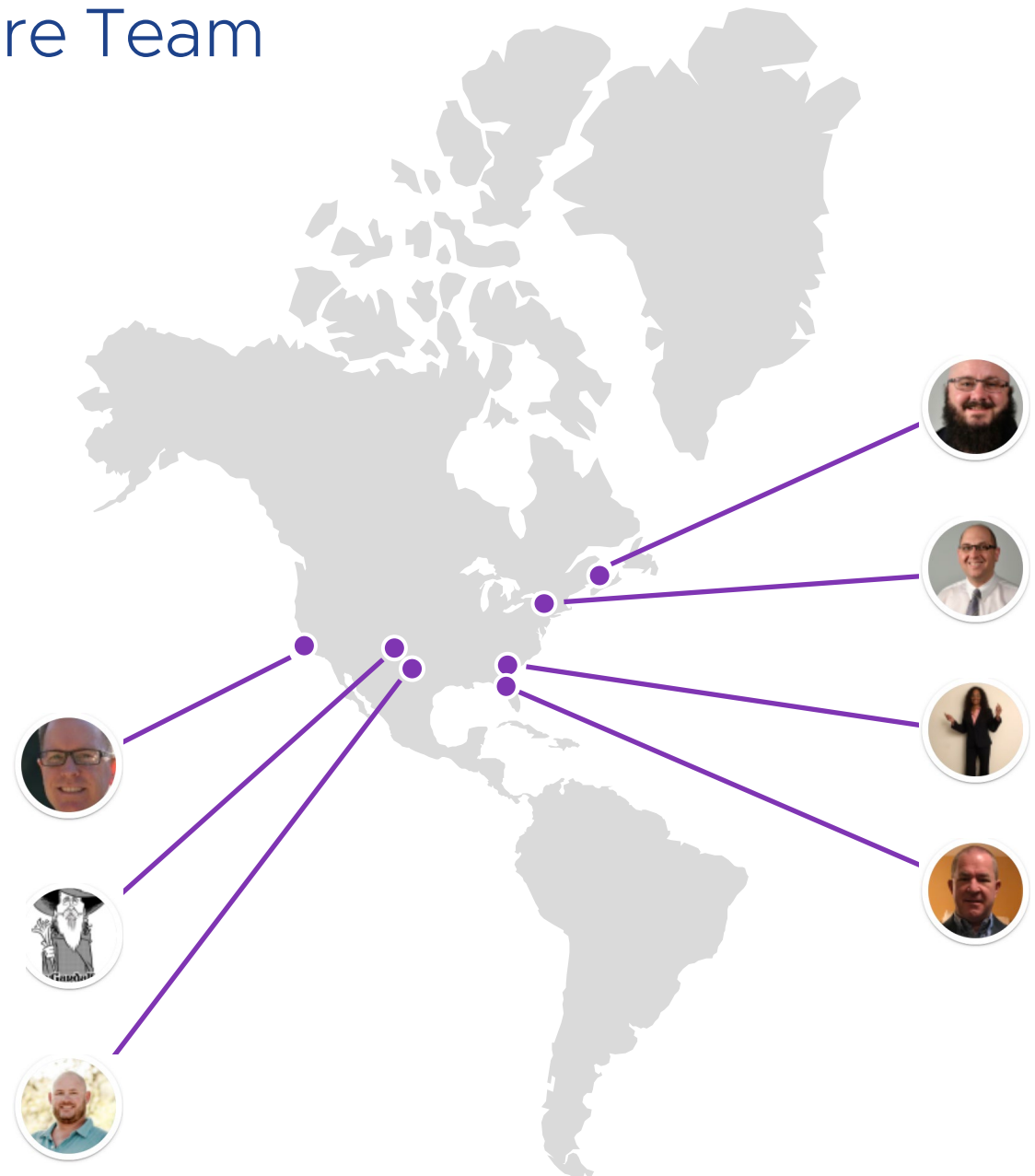
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Agenda

- Aria Automation
- What is “Extensibility”?
- Action Based Extensibility (ABX)
- Aria Automation Orchestrator
- Event Broker Service
- Q & A

Aria Automation

Aria Automation (1)


Quickstart

For VMware Aria Automation





Get up and running fast. Quickstart will help you set up your on-prem SDDC for provisioning with VMware Aria Automation, populate the self-service catalog and deploy your first Template.

Time to complete: Approx. 10 minutes

[LAUNCH QUICKSTART](#)



My Services

 Assembler	 Orchestrator
 Pipelines	 Service Broker

Aria Automation (2)

The screenshot displays the VMware Aria Automation Assembler interface. The top navigation bar includes the VMware logo, the product name "VMware Aria Automation Assembler", and user information for "John Smith" with ID "SA-VIDM-01". The main navigation menu contains "Resources", "Design", "Infrastructure", "Extensibility", "Tenant Management", and "Migration". The current view is for a template named "Nginx-Beacon-Cloud-Template", with sub-menus for "SETTINGS", "VERSION HISTORY", and "ACTIONS".

The central workspace shows a visual configuration diagram on a grid. It includes three main components: "Cloud_SaltStack_1" (top right), "Cloud_Machine_1" (middle right), and "Cloud_Network_1" (bottom left). The "Cloud_Network_1" component has a sub-property "net:production" highlighted. Lines connect "Cloud_SaltStack_1" to "Cloud_Machine_1" and "Cloud_Network_1" to "Cloud_Machine_1".

On the left, a sidebar lists various resource categories: "Cloud Agnostic", "Machine", "Load Balancer", "Network", "Security Group", "Volume", "Allocation Helpers", "Kubernetes", "vSphere", "NSX", "AWS", "Config", "Configuration Management", "GCP", "Microsoft Azure", and "Terraform Configuration".

On the right, a code editor shows the JSON configuration for the selected "Cloud_Machine_1" resource. The code is as follows:

```
1 formatVersion: 1
2 inputs: {}
3 resources:
4   Cloud_SaltStack_1:
5     type: Cloud.SaltStack
6     properties:
7       hosts:
8         - ${resource.Cloud_Machine_1.id}
9       masterId: saltstack_enterprise_installer
10      stateFiles:
11        - /nginx/init.sls
12        - /webConfig/init.sls
13        - /webProtect/files/beacons.sls
14      saltEnvironment: base
15   Cloud_Machine_1:
16     type: Cloud.Machine
17     properties:
18       image: VMW-Ubuntu-Cloud
19       flavor: VMW-Small
20       customizationSpec: Lin-Cust
21       remoteAccess:
22         authentication: usernamePassword
23         username: root
24         password: VMware1!
25       networks:
26         - network: ${resource.Cloud_Network_1.id}
27           address: 172.20.11.187
28           assignment: static
29   Cloud_Network_1:
30     type: Cloud.Network
31     properties:
32       networkType: existing
33       constraints:
34         - tag: net:production
35
```

What is “Extensibility”?

What is “Extensibility”?

Extensibility enables you to extend the capabilities to tightly integrate VMware Aria Automation with your IT infrastructure.

Machine lifecycle extensibility examples include integrating with external systems such as:

- IP Address Management (IPAM) systems
- Active Directory
- Configuration Management Databases (CMDB)
- Trouble ticketing systems

Action Based Extensibility (ABX)

Action Based Extensibility (ABX)

ABX leverages FaaS to execute code:

- Amazon Web Services
- Microsoft Azure
- VMware vSphere

ABX is polyglot:

- Node.js
- Python
- Powershell

The screenshot displays the VMware Aria Automation Assembler interface. The top navigation bar includes 'Resources', 'Design', 'Infrastructure', 'Extensibility', 'Tenant Management', and 'Migration'. The user is logged in as John Smith (SA-VIDM-01). The main content area is titled 'Set Custom Hostname *' and shows a Python script for a handler function. The script is as follows:

```
1 def handler(context, inputs):
2     """Set a name for a machine
3
4     :param inputs
5     :param inputs.resourceNames: Contains the original name of the machine.
6     It is supplied from the event data during actual provisioning
7     or from user input for testing purposes.
8     :param inputs.newName: The new machine name to be set.
9     :return The desired machine name.
10    """
11    old_name = inputs["resourceNames"][0]
12    new_name = inputs["newName"]
13
14    outputs = {}
15    outputs["resourceNames"] = inputs["resourceNames"]
16    outputs["resourceNames"][0] = new_name
17
18    print("Setting machine name from {0} to {1}".format(old_name, new_name))
19
20    return outputs
21
```

On the right side of the interface, there are configuration options for the action:

- Main function ***: handler
- Dependency**: (empty field)
- FaaS provider**: A dropdown menu with 'Auto Select' selected. Other options include Amazon Web Services, Microsoft Azure, and On Prem.
- Default inputs**: A table with the following entries:

Type	Name	Value
Def. ▾	newName	new-machine-name
Def. ▾	resourceNames	["machine-name"]

Code Sample

```
PYTHON ▾ WRITE SCRIPT ▾ LOAD TEMPLATE

1 ▾ def handler(context, inputs):
2     """Set a name for a machine
3
4     :param inputs
5     :param inputs.resourceNames: Contains the original name of the machine.
6     | It is supplied from the event data during actual provisioning
7     | or from user input for testing purposes.
8     :param inputs.newName: The new machine name to be set.
9     :return The desired machine name.
10    """
11    old_name = inputs["resourceNames"][0]
12    new_name = inputs["newName"]
13
14    outputs = {}
15    outputs["resourceNames"] = inputs["resourceNames"]
16    outputs["resourceNames"][0] = new_name
17
18    print("Setting machine name from {0} to {1}".format(old_name, new_name))
19
20    return outputs
21
```

Aria Automation Orchestrator

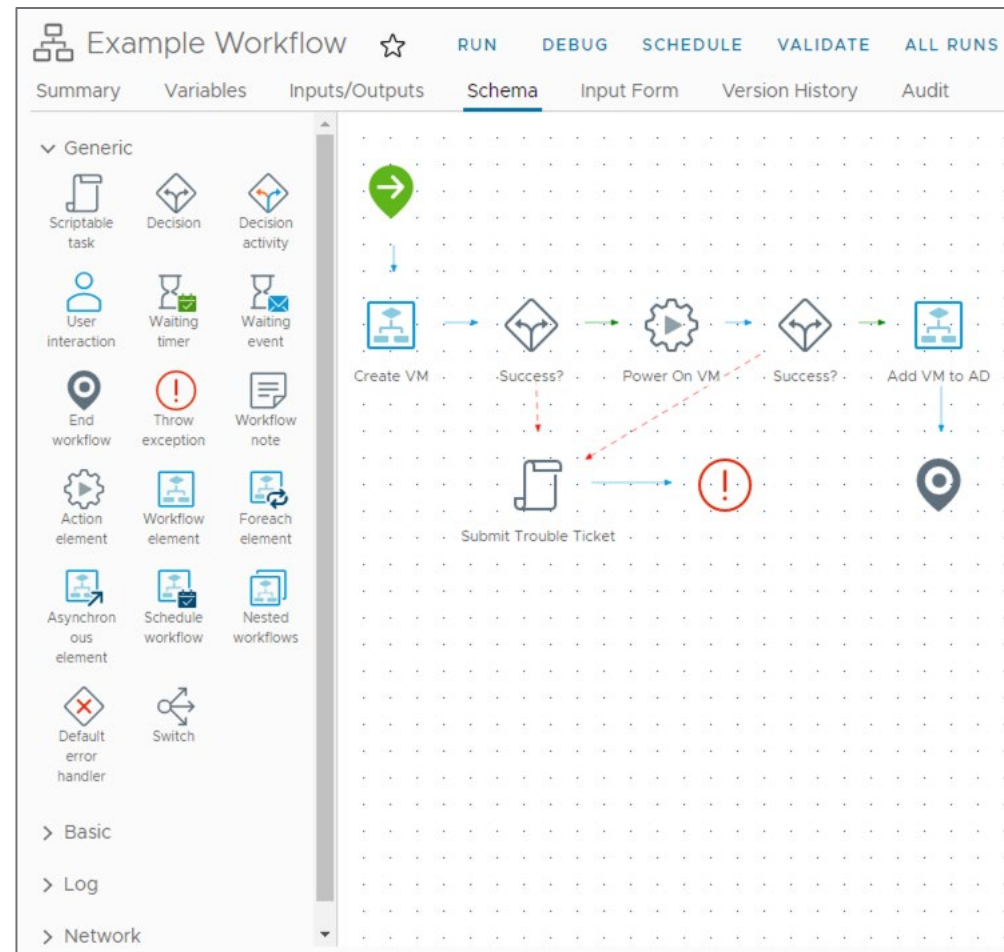
Creating an Aria Automation Orchestrator Workflow

The vRO server is available:

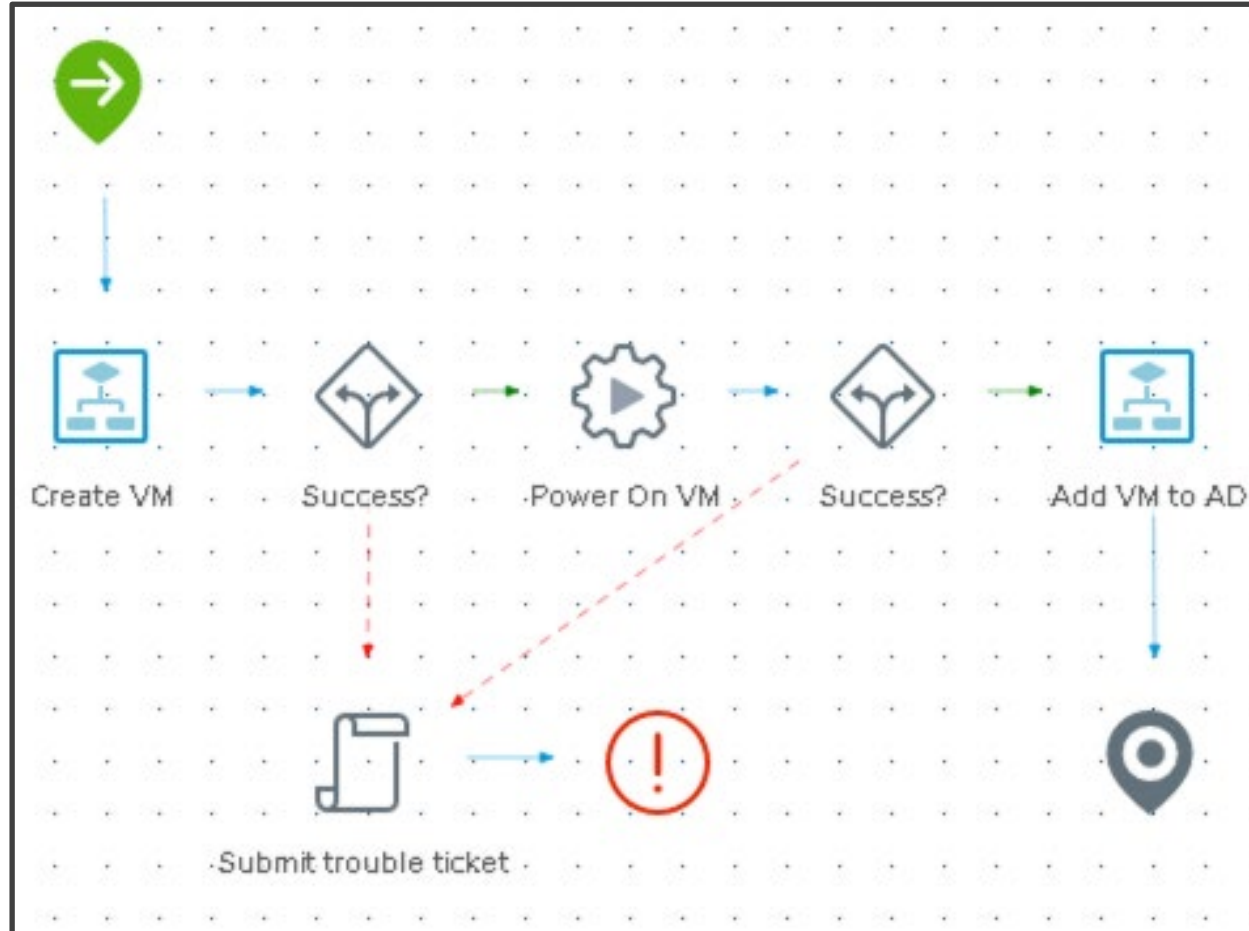
- Embedded in Aria Automation
- Stand-alone

vRO is polyglot:

- JavaScript
- Node.js
- Python
- Powershell

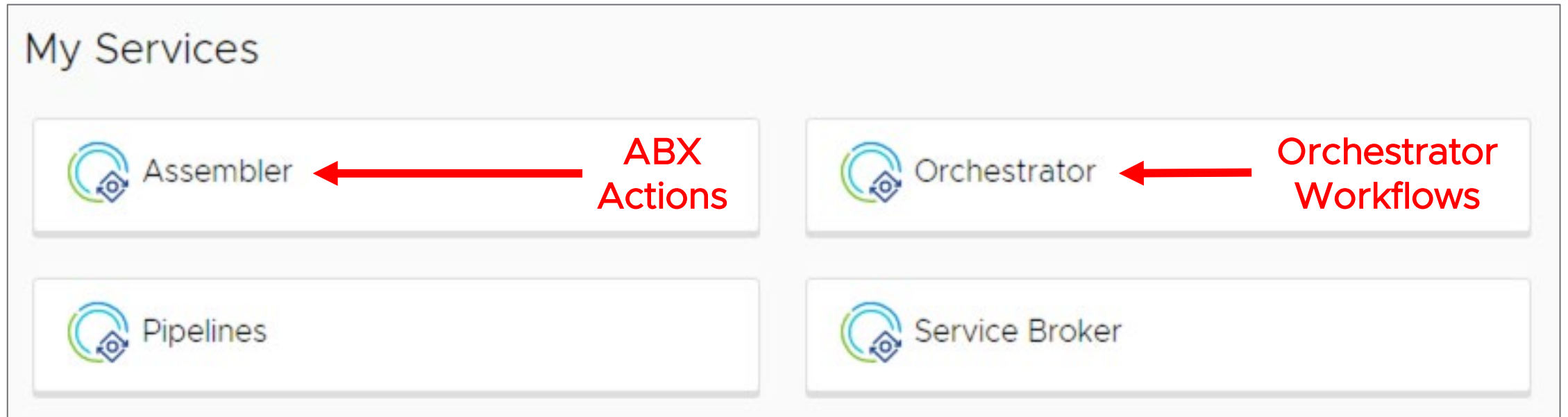


Workflow Sample



Event Broker Service

Before Using Event Broker Service



Event Topics (1)

VMware Aria Automation Assembler

Resources Design Infrastructure **Extensibility** Tenant Management Migration

John Smith SA-VIDM-01

GUIDED SETUP

Event Topics 64 items

Filter...

Name	Blockable	Publisher	Description
Compute allocation	✓ Yes	Provisioning	Pre allocation for compute resources. Fired once for a cluster of machines
Compute gateway post provisioning	✓ Yes	Provisioning	Fired after a Compute gateway resource is provisioned successfully
Compute gateway post removal	✓ Yes	Provisioning	Compute gateway post removal event topic
Compute gateway provisioning	✓ Yes	Provisioning	Fired before a Compute gateway is being provisioned
Compute gateway removal	✓ Yes	Provisioning	Compute gateway removal event topic
Compute initial power on	✓ Yes	Provisioning	Fired before a compute is powered on for the first time. Currently supported for vSphere. Events are sent for each machine in a cluster.
Compute nat post provisioning	✓ Yes	Provisioning	Fired after a compute nat resource is provisioned successfully
Compute nat post removal	✓ Yes	Provisioning	Fired after a compute nat resource is removed successfully
Compute nat provisioning	✓ Yes	Provisioning	Fired before a compute nat is being provisioned
Compute nat removal	✓ Yes	Provisioning	Fired before a compute nat is being removed
Compute post provision	✓ Yes	Provisioning	Fired after a compute resource gets provisioned. Events are sent for each machine in a cluster.
Compute post removal	✓ Yes	Provisioning	Fired after a compute resource destroyed successfully. Events are sent for each machine in a cluster.

Manage Columns

1 - 20 of 64 event topics | 1 / 4

Event Topics (2)

Name	Description
Compute allocation	Pre allocation for compute resources. Fired once for a cluster of machines
Compute gateway post provisioning	Fired after a Compute gateway resource is provisioned successfully
Compute gateway post removal	Compute gateway post removal event topic
Compute gateway provisioning	Fired before a Compute gateway is being provisioned
Compute gateway removal	Compute gateway removal event topic
Compute initial power on	Fired before a compute is powered on for the first time. Currently supported for vSphere. Events are sent for each machine in a cluster.
Compute nat post provisioning	Fired after a compute nat resource is provisioned successfully
Compute nat post removal	Fired after a compute nat resource is removed successfully
Compute nat provisioning	Fired before a compute nat is being provisioned
Compute nat removal	Fired before a compute nat is being removed

Event Topics (3)

Name	Description
Compute post provision	Fired after a compute resource gets provisioned. Events are sent for each machine in a cluster.
Compute post removal	Fired after a compute resource destroyed successfully. Events are sent for each machine in a cluster.
Compute provision	Fired before a compute resource is being provisioned. Events are sent for each machine in a cluster.
Compute removal	Fired before a compute resource is being destroyed. Events are sent for each machine in a cluster.
Compute reservation	Pre reservation for compute resources. Fired once for a cluster of machines
Custom resource post provision	Custom resource topic for post provision events
Custom resource pre provision	Custom resource topic for pre provision events
Deployment action completed	Event is fired after a deployment Day 2 action is executed
Deployment action requested	Event is fired before a deployment Day 2 action is executed
Deployment completed	Event is fired after a deployment is provisioned for both template and catalog requests

Event Topics (4)

Name	Description
Deployment onboarded	Emitted when a new deployment is onboarded.
Deployment requested	Event is fired before a deployment is provisioned for both template and catalog requests
Deployment resource action completed	Event is fired after a deployment resource Day 2 action is executed. Sent for each resource in a cluster.
Deployment resource action requested	Event is fired before a deployment resource Day 2 action is executed. Sent for each resource in a cluster.
Deployment resource completed	Event is fired after a deployment resource is provisioned. Sent for each resource in a cluster.
Deployment resource requested	Event is fired before a deployment resource is provisioned after allocation. Sent for each resource in a cluster.
Disk allocation	Pre allocation for disk resources
Disk attach	Fired before a disk is attached to a machine and is a read/write event. Disk Properties supported for write back are: [1] diskFullPaths
Disk detach	Fired after a disk is detached from a machine and is a read-only event.
Disk post Removal	Fired after a disk resource is deleted successfully

Event Topics (5)

Name	Description
Disk post resize	Fired after a disk resources is resized successfully
Idem Service task post event	Emitted when idem task completed or failed
Kubernetes cluster allocation	Pre allocation for kubernetes cluster resources
Kubernetes cluster post provision	Fired after a kubernetes cluster resource gets provisioned
Kubernetes cluster post removal	Fired after a kubernetes cluster resource is destroyed successfully
Kubernetes cluster provision	Fired before a kubernetes cluster is being provisioned
Kubernetes cluster removal	Fired before a kubernetes cluster resource is being destroyed
Kubernetes namespace allocation	Pre allocation for kubernetes namespace resources
Kubernetes namespace post provision	Fired after a kubernetes namespace resource gets provisioned
Kubernetes namespace post removal	Fired after a kubernetes namespace resource is destroyed successfully

Event Topics (6)

Name	Description
Kubernetes namespace provision	Fired before a kubernetes namespace is being provisioned
Kubernetes namespace removal	Fired before a namespace cluster resource is being destroyed
Kubernetes supervisor namespace allocation	Pre allocation for kubernetes supervisor namespace resources
Kubernetes supervisor namespace post provision	Fired after a supervisor namespace is being provisioned
Kubernetes supervisor namespace post removal	Fired after a supervisor namespace resource is being destroyed
Kubernetes supervisor namespace provision	Fired before a supervisor namespace is being provisioned
Kubernetes supervisor namespace removal	Fired before a supervisor namespace resource is being destroyed
Load balancer post provision	Load balancer post provisioning event topic
Load balancer post removal	Load balancer post removal event topic
Load balancer provision	Load balancer pre provisioning event topic

Event Topics (7)

Name	Description
Load balancer removal	Load balancer pre removal event topic
Network Configure	Network configuration during compute allocation. Fired once for a cluster of machines.
Network post provisioning	Fired after a network resource is provisioned successfully
Network post removal	Fired after a network resource is removed successfully
Network provisioning	Fired before a compute network is being provisioned
Network removal	Fired before a network resource is being destroyed
Project Lifecycle Event Topic	Emitted when a project is created
Provisioning request	Fired when a request comes into provisioning service. That may be a request to allocate
Security group post provision	Fired after a security group gets provisioned
Security group post removal	Fired after a security group is deleted

Event Topics (8)

Name	Description
Security group provision	Fired before a security group is being provisioned
Security group removal	Fired before a security group is being deleted
Template configuration	Topic for template configuration events like create / delete
Template version configuration	Topic for template versioning events like create / release / un-release / restore

Sample Event Topic

Compute provision SUBSCRIBE

Description Fired before a compute resource is being provisioned. Events are sent for each machine in a cluster.

Topic ID compute.provision.pre

Publisher Provisioning

Blockable Yes

Parameters

The following parameters will be defined on Compute provision stage of Provisioning service.

Key	Data Type	Read Only	Description
addresses	string[]	<input checked="" type="checkbox"/> Yes	2-dimensional array of static ip addresses(for each compute and each NIC)
blueprintId	string	<input checked="" type="checkbox"/> Yes	Blueprint Id
componentId	string	<input checked="" type="checkbox"/> Yes	Component Id
componentTypeId	string	<input checked="" type="checkbox"/> Yes	Component type Id
customProperties	complex	<input type="checkbox"/> No	Resource Properties.
deploymentId	string	<input checked="" type="checkbox"/> Yes	Deployment Id
endpointId	string	<input checked="" type="checkbox"/> Yes	The Id of the endpoint

Creating a Subscription (1)

Name *	Example Subscription
Description	<input type="text" value="This is an example subscription"/>
Status	<input checked="" type="checkbox"/> Enable subscription
Organization scope	SA-VIDM-01 (provider) ▾
Event Topic	<div><p> Compute allocation</p><p>Blockable ✓ Yes</p><p>Publisher Provisioning</p><p>> Parameters</p><p>Pre allocation for compute resources. Fired once for a cluster of machines</p><p>CHANGE</p></div>
Condition	<input checked="" type="checkbox"/> Filter events in topic ⓘ <pre>1 event.userName == "username@example.com"</pre> <p>See example expressions</p>
Action/workflow	<div><p> Set Custom Hostname</p><p>Type Action based extensibility</p><p>Projects 1</p><p>CHANGE</p></div>
Blocking	<input type="checkbox"/> Block execution of events in topic ⓘ
Project scope	<input checked="" type="checkbox"/> Any project Subscription will start the runnable item for events coming from any project, where the runnable item is available.

Creating a Subscription (2)

Name *	Example Subscription
Description	<input type="text" value="This is an example subscription"/>
Status	<input checked="" type="checkbox"/> Enable subscription
Organization scope	SA-VIDM-01 (provider) ▾

Creating a Subscription (3)

The screenshot shows the configuration for an event topic. On the left, the 'Event Topic' section is visible. The main content area displays the 'Compute allocation' topic, which is blockable and published by 'Provisioning'. It includes a 'Parameters' section and a description: 'Pre allocation for compute resources. Fired once for a cluster of machines'. A 'CHANGE' button is located below the topic details. In the 'Condition' section, a toggle switch is turned on, and a filter expression is entered: '1 event.userName == "username@example.com"'. A link for 'See example expressions' is at the bottom.

Event Topic

Compute allocation

Blockable ✓ Yes

Publisher Provisioning

> Parameters

Pre allocation for compute resources. Fired once for a cluster of machines

[CHANGE](#)

Condition

Filter events in topic ⓘ

```
1 event.userName == "username@example.com"
```

[See example expressions](#)

Creating a Subscription (4)

The screenshot displays the configuration interface for a subscription in VMware vRealize Operations. The interface is divided into several sections:

- Action/workflow:** A card titled "Set Custom Hostname" with a document icon. It lists the following details:

Type	Action based extensibility
Projects	1

A "CHANGE" button is located below this card.
- Blocking:** A toggle switch is currently turned off, labeled "Block execution of events in topic" with an information icon.
- Project scope:** A toggle switch is currently turned on, labeled "Any project". Below this, a descriptive text reads: "Subscription will start the runnable item for events coming from any project, where the runnable item is available."

Q & A

Thank You

