Avaya Virtualization Provisioning Service
Delivering visibility, validation, automation and reporting across applications, servers and network devices for the next-generation Virtualized Data Center

It’s a Virtual World
It’s a fact. Server virtualization is already well adopted. The savings, both through consolidation of multiple servers and dramatic reductions in power and cooling requirements, have been significant. The next step for many enterprises is mobilization of Virtual Machines - where VMs migrate from server-to-server, from corporate data center to data center, and from private to public clouds. These moves can be triggered by maintenance schedules, failures in the underlying server, exceeding server performance thresholds or for disaster avoidance (i.e. hurricane forecasted near a data center).

While VM mobility offers a number of benefits, it can create a number of challenges on the networking side:

Inconsistent application performance. While Virtual Machines can dynamically move between servers, corresponding network configuration on the edge device cannot. Without appropriate configuration of the edge port that is connected to the new server there can be inconsistency in application performance, a reduced or complete lack of connectivity, and security and compliance challenges.

Inefficient troubleshooting. Typically server administrators have a view of the virtualized server topology and network administrators have a view into network topology. When these two worlds remain separate in a dynamic virtualized environment, troubleshooting application performance and network connectivity issues can be a lengthy, inefficient process.

Avaya Virtualization Provisioning Service
Virtualization Provisioning Service is a management tool that provides automatic network synchronization and provisioning optimization for network devices, servers and virtualized applications within a highly dynamic data center environment.

Virtualization Provisioning Service, a plug-in to Avaya Configuration and Orchestration Management, can be co-located on the same server as Configuration and Orchestration Management and, once installed, looks like any other Configuration and Orchestration Management manager. Virtualization Provisioning Service utilizes Configuration and Orchestration Management for network device inventory and topology, device configuration features (VLAN, ACL and port setting features) and for setting device credentials, roles and permissions.

Virtualization Provisioning Service delivers a complete view of the end-to-end virtualized Data Center by providing a relay mechanism between Configuration and Orchestration Management and server virtualization management tools.
Delivers a complete Virtualized Data Center View

Virtualization Provisioning Service connects with VMware’s vCenter and registers for real-time updates. Synchronization between Virtualization Provisioning Service and VMware vCenter can be configured to occur automatically (in set time intervals) or can be initiated by the end user manually. VMware vCenter provides the virtualized server topology (VMs and vSwitches) with information on which VMs are active, where they reside (switch, port, time), which VLANs they are associated to and which QoS/QoE parameters have been assigned. By stitching this information to network topology information (automatically discovered through Configuration and Orchestration Management), Virtualization Provisioning Service provides an invaluable end-to-end view of the virtualized data center, enabling network operators to more effectively manage and troubleshoot the network.

Provisions network devices to “follow” VMs as they migrate between servers

Using its insight into the entire VM lifecycle including creation, migration, cloning and deleting of VMs, Virtualization Provisioning Service updates Avaya devices, as needed, to react to lifecycle changes. As lifecycle changes occur, Virtualization Provisioning Service can apply predefined templates to switch ports when a defined set of rules is matched. Port templates include the connectivity services (VLAN and iSIDs for SPB enabled devices) as well as, QoS, ACLs, port shaping, and bandwidth limiting parameters that can be applied (at a VM level) to the port of the edge device connected to the server.

Users can establish rules and create templates within the Virtualization Provisioning Service rule and template manager. Rules can include a type of VM and lifecycle trigger and an associated action. Users have the flexibility to set up Virtualization Provisioning Service to identify VMs by application type, by IP address, or by which port group it is assigned to so that, when a specified change (such as a move) occurs, a specified action executes. For example, a user could create a rule saying that if a new Microsoft® Outlook VM is created, VLAN ID 100 should automatically be assigned to it, giving that new VM connectivity without any user intervention.

Provisioning changes can be set to occur automatically or manually. In automated mode, changes are applied based on rules that, when applicable, are implemented automatically. In manual mode, an action is proposed to a network operator who can execute the change manually through an intuitive guided workflow.

Key Benefits

• Increases IT efficiency
  - Synchronizes network to changes made in the virtualized server environment.
  - Resolves network issues faster through an end-to-end view of the virtualized network, spanning applications, servers and network devices across both physical and virtual environments.
  - Streamlines data center provisioning processes, helping ensure freedom from error and delay.
  - Provides historical reporting and tracking on Virtual Machine (VM) moves and network provisioning.
  - Enables network and server teams to work more efficiently and smarter together.

• Reduces time to service for deploying new and updated virtualized applications
  - Automates network edge provisioning based on changes to the application / server environment.
  - Applies connectivity services and port profiles (QoS, ACLs) to edge devices at an individual VM level.
  - Avaya VENA Fabric Connect technology limits network provisioning to the edge

• Delivers consistent application performance in a highly dynamic, virtualized environment
  - Alleviates connectivity and/or performance issues by ensuring that corresponding network devices are appropriately provisioned before VMs are activated and moved.
  - Allows for the provisioning of network devices to “follow” VMs as they migrate between servers.

Ensures network is ready before a VM move takes place

Virtualization Provisioning Service can be configured to receive planning triggers from VMware vCenter, which alerts Virtualization Provisioning Service of pending changes on the VM side. Virtualization Provisioning Service validates whether or not the proposed change requires a change to the network configuration. If a network configuration change is required, Virtualization Provisioning Service makes the change automatically or requests action by
the operator before the VM change is implemented. This ensures that network configuration is in place before VMs migrate from one server to another, avoiding potential connectivity and/or performance issues.

**Avaya Virtualization Provisioning Service key attributes**

**Operational choice**
Providing flexibility to network operators, Virtualization Provisioning Service can operate in a variety of modes: view and reporting mode, auto-validation mode, or auto-provisioning mode.

View and reporting mode provides an up-to-date, complete physical and virtual, end-to-end topology. In this mode, Virtualization Provisioning Service sends notification and/or alerts on VM changes and provides an updated VM inventory view in Configuration and Orchestration Management and Virtualization Provisioning Service.

In the auto-validation mode, virtual server changes are correlated to the network devices so that required provisioning changes can be detected. Virtualization Provisioning Service alerts the network administrator as to whether or not network ports conform to predefined templates but does not apply a configuration template automatically. Instead, changes can be applied manually, by the operator, through a guided workflow.

In auto-provisioning mode, where configuration templates are applied automatically, Virtualization Provisioning Service alerts the network administrator as to whether or not network ports conform. If ports do not conform, Virtualization Provisioning Service applies the configuration automatically.

**Flexible dashboard**
The Virtualization Provisioning Service dashboard provides a real-time view of different aspects of the virtualized data center including: (1) a view of the server environment from vCenter only, providing an active inventory of all VMs, (2) a monitoring view, showing which rules are being applied to which devices, (3) an applied configuration view, showing all successful configuration changes on the various devices, and (4) a pending and failed action view, including all VMware vCenter triggers that were not applied. The Virtualization Provisioning Service dashboard gives end users the flexibility to customize their own layout such as number of panes and which components appear in those panes.

**Seamless integration into existing VMware vCenter environment**
Virtualization Provisioning Service is an out-of-band management solution that integrates directly into an existing Data Center environment. Unlike competitive solutions requiring replacement of the VMware vCenter vSwitch (performs switching functions for multiple VMs on and between servers), Virtualization Provisioning Service works in conjunction with the VMware vSwitch and does not require its removal. This ensures that Virtualization Provisioning Service installation is completely transparent to the virtualized server environment.

**Service bundles**
To help ensure flawless deployment of Virtualization Provisioning Service, Avaya offers both basic and advanced service bundles. The basic service bundle covers Virtualization Provisioning Service installation, integration and operation. The advanced service bundle adds a complete network and server analysis, the creation of a set number of rules and templates specifically tailored to the customer’s environment and a full demonstration of the entire Virtualization Provisioning Service workflow in a live network environment.

**Workflow Example: Activation of a new Virtual Machine**

1) A new Microsoft Exchange VM is requested

2) A “Microsoft Exchange-profile” for the Microsoft Exchange-VM is created in Virtualization Provisioning Service with the required connectivity attributes (VLAN, IP subnet, QoS level, and security filters) filled in by the network operator.

3) The system administrator creates the Microsoft Exchange VM on VMware ESX server

4) Virtualization Provisioning Service ties the Microsoft Exchange VM with the Microsoft Exchange-profile and matches the proper network configuration to the edge device attached to the VMware ESX server either automatically or manually through a guided workflow.
Supported devices

- Ethernet Routing Switch 4xxx
- Ethernet Routing Switch 5xxx
- Ethernet Routing Switch 86xx/88xx
- Virtual Services Platform 4xxx
- Virtual Services Platform 7xxx
- Virtual Services Platform 82xx
- Virtual Services Platform 9xxx

VMware ESXi and vCenter support - v5.1

Learn More

To learn more about Avaya Virtualization Provisioning Service, contact your Avaya Account Manager or Avaya Authorized Partner. Or, visit us online at avaya.com.

About Avaya

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