AVAYA AND VIRTUALIZATION
Avaya - VMware Comparison

VMware
- vCenter
- ESXi
- Host
- Guest

Avaya
- System Manager
- System Platform
- Common Server
- Template

- Administration Tool
- Hypervisor Application
- Physical Server
- Virtual Server
Avaya Aura 6.2 & 6.3

- Communication Manager (includes Call Center Elite)
- Session Manager
- Presence Services
- System Manager
- Secure Access Link
- WebLM
- Application Enablement Server
- Utility Services

VMware vCenter Server

- VMware vSphere
- VMware vSphere
- VMware vSphere

Avaya Aura applications supporting virtualization with VMware ACE
Additional Avaya Virtualized Applications

Avaya Aura applications supporting virtualization with VMware

- Aura Messaging 6.3
- Aura Conferencing 8.0
- Sipera SBC 6.2 FP2
- Scopia Management
- Experience Portal
- Elite Multi-Channel
- CMS R17
- CMM 6.2 FP4
- IP Office 9.0

VMware vCenter Server

- VMware vSphere
- VMware vSphere
- VMware vSphere
Flexible Footprints

- Adjust requirements of VMs based on User Count
- Introduced in Feature Pack 3
- Applies to AES, PS, and SM
- No more wasted resources
What does flexible resource mean?

<table>
<thead>
<tr>
<th></th>
<th>500 users</th>
<th>Max resource</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>vCPU</td>
<td>RAM (GB)</td>
</tr>
<tr>
<td>Communication Manager</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Session Manager</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>System Manager</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>AES</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Totals</td>
<td>7</td>
<td>17</td>
</tr>
</tbody>
</table>

Comparing base OVA resource vs. flexible resource specification

1. Host server
dual processor, 4 core

2. Host servers
dual processor, 6 core

#CONVERGE2014
Advantages of Virtualizing Avaya Aura

- Continues to provide existing Avaya application level availability
  - Communication Manager Software Duplication for transparent instantaneous failover
  - Communication Manager Survivable Core and Survivable Remote
  - Session Manager active-active clustering, N+M routing
- And adds VMware availability methods
  - vMotion
  - vMotion Storage
  - VMware High Availability
  - VMware Snapshot
  - DRS*
Reliability & Availability with VMware

- **Geo Redundancy:**
  - Achieved through deployment of the necessary duplicated Avaya product instances at different data centers (residing on but independent of VMware).
  - Examples: CM (SC), SM, SMGR, (AES FP4)

- **“Zero Dropped Calls”, ”Real Time Failover”:**
  - Achieved through current Avaya fail-over mechanisms on Avaya VE.
  - Examples: CM (SW dup), SM

- **Avaya “Fast Reboot High Availability” (FRHA): replaced**
  - Brief pause in operations associated with a node switchover/failover event, plus the time it takes for all virtual machines to boot on the new active server.
  - Provided by System Platform on Server appliances. No System Platform on VMware.
  - Avaya FRHA mechanisms are replaced by VMware HA, similar pause of operations.
  - Examples: AES, SMGR

- **Avaya “Machine Preserving High Availability” (MPHA): not available**
  - Provided by System Platform, non-service affecting failover, zero delay.
  - Not available for Avaya applications on VMware (no System Platform)
  - To be replaced by VMware Fault Tolerance in the future.
  - Example: AES
**Description:**
- Enables the live migration of virtual machines from one host to another with continuous service availability.

**Benefits:**
- Revolutionary technology that is the basis for automated virtual machine movement
- Meets service level and performance goals
Goal is to perform maintenance on the host ESXi2. We will move the VM called SM02 to another hypervisor.
vMotion - Operation

Cluster 1

- ESXi1
  - CM01a and US
  - SM02
  - CM01a - Communication Manager 01a
  - US - Utility Server
  - SM02 - Session Manager 02

Cluster 2

- ESXi4
  - AES - Application Enablement Services
  - SM01 - Session Manager 01

Remote Storage

Base VM files transferred from storage

Network

vCenter Server

Legend

- CM Duplication Link
- Customer Network
- Storage Network
- VMware Management

Other VMs

#CONVERGE2014
Active memory and precise execution state of the virtual machine is rapidly transferred over a high speed network, allowing the virtual machine to instantaneously switch from running on the source ESX host to the destination ESX host.
**Description**
- Live migration of virtual disks from one storage location to another without disruption to users

**Benefits**
- Minimizes the need to schedule application downtime due to storage maintenance, upgrades, or migration
**Description:**

- Enables the high availability of virtual machines by restarting them on a different vSphere host in the event of a failure.

**Benefits:**

- Minimizes downtime and IT service disruption.
- Reduce cost and complexity compared to traditional clustering.
ESXi1 Host Fails
- Communication Manager detects the CM01a is offline and CM01b goes ACTIVE.
- Utility Server is now offline
ESXi1 Host Offline - VMware HA

VMware detects the Host failure and moves applications to the other host server in the cluster (ESXi2).

- CM01a comes back online as the STANDBY server for the CM pair. Utility Server back online.
- Faster testing
- More accurate testing on exact production copy
- Lower cost testing infrastructure
DEPLOYMENT BEST PRACTICES
Flexible Resource Deployments

- Ensure resource requirements are adjusted prior to Powering On Virtual Machine
- Adjusting resources afterwards will cause errors shown to the right

Error message for inadequate resources available
Design Considerations

- CMM not included in Simplex OVA
  - CMM will have its own OVA with Feature Pack 4
- You can mix physical Avaya appliances with VE guests
  - Example: CM 6.2 Duplex VE with 1 Physical SMGR and 1 Physical SM at Core. Duplex VE Survivable Core with 1 VE SM at DR location
- S8300 LSPs are supported to register against a CM VE core, however there is no S8300 CM vAppliance
- ESS or Survivable Core servers are supported
**Design Recommendations**

- **CM Duplex Pair**
  - Customer to provide 2 new or existing ESX hosts to provide service to Avaya CM based on the requirements Avaya has put forth
    - VMWare HA is not supported by Avaya with “Server A” and “Server B” running in the same cluster. If customer would like to use HA, multiple clusters would need to be available to support CM-Duplex.
  - Having both CM guests running on the same host is **NOT** recommended and not supported
  - VMWare HA is **NOT** a replacement for Duplex CM servers
  - Customer should provide a Physical NIC on every host that would support a CM Duplex server for SW-Dup Link
System Manager Geographic Redundancy

- Both SMGR servers must be on VMware with the same Service Pack levels
- Must have synchronized network time
- Ensure proper ports are open for both servers to communicate to each other
- Requires 1.54 MB of available bandwidth between both SMGR servers for replication
- Latency must be under 500 ms
Using VMware HA for AES does have an outage window

- All links between AES and CM will go down while virtual AES is being migrated to its new host

- If AES connectivity is critical you may want to leverage Avaya AES MPHA. No disruption in service. Additional licensing required
AES Geo Redundancy VMware HA

DC1: Main site

AES VM Active

Active VMware host

DC2: DR site

AES VM Standby (AE Services are restarted)

Active VMware host

GRHA

LAN/WAN < 100ms RTT

Active datacenter

Standby datacenter

Note: AE Services servers can have virtual IP address
Note: not using System Platform. Using VMware instead
Only supported in 6.3.3

DMCC states are reconstructed upon failover
WebLM Recommendations

- CM and AES vAppliances do not have an internal WebLM instance running.

Licensing Deployment Options

- Install licenses on an existing or newly deployed System Manager (Preferred method for CM)
- Install licenses on an existing WebLM server (Preferred for AES)
- Deploy the WebLM vAppliance (Preferred for AES)
DEPLOYMENTS, UPGRADES, AND PATCH MANAGEMENT
Upgrading from 6.2 to 6.3 vAppliance

- Plan upgrade for a maintenance window
- Perform current release backup data
- Install new release through VMware deployment.
  - Ensure any duplicate networking is network isolated
- Restore the backed-up data into the new release.
  - Validate operation
- Suspend service of the application appropriately
- Take a VMware snapshot and save for revert to current version in case issues arise
- Operationalize new release VM and retire older VM.
### Patch Management

- Use the latest service-packs on each product
- May be applied differently

<table>
<thead>
<tr>
<th>Product</th>
<th>Server / Appliance patch process</th>
<th>VMware patch process</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM</td>
<td>System Platform (SP) Console</td>
<td>CM SMI / Web pages</td>
</tr>
<tr>
<td>SM</td>
<td>SM cli-command</td>
<td>SM cli-command</td>
</tr>
<tr>
<td>SMGR</td>
<td>SP Console</td>
<td>SMGR cli-command</td>
</tr>
<tr>
<td>PS 6.1</td>
<td>SP Console, PS cli-command</td>
<td>PS cli-command</td>
</tr>
<tr>
<td>AES</td>
<td>SP Console, AES cli-command</td>
<td>AES cli-command</td>
</tr>
<tr>
<td>ACE</td>
<td>ACE cli-command</td>
<td>ACE cli-command</td>
</tr>
<tr>
<td>US</td>
<td>SP Console</td>
<td>US cli-command</td>
</tr>
<tr>
<td>WebLM</td>
<td>NA (WebLM not a separate product)</td>
<td>WebLM cli-command</td>
</tr>
<tr>
<td>SAL</td>
<td>SAL cli-commands</td>
<td>SAL cli-commands</td>
</tr>
</tbody>
</table>
Avaya Virtualized Application Manager

- For engineers who are not comfortable with vSphere
- Deployment Only Tool
- Simplify deployment of Avaya virtualized applications into VMware environments
- Supported on VMware 5.0, 5.1 & 5.5

AVAM 1.0 has support for the 10 VE1.0 & FP4 Applications
Add a Deployment

Enter the critical details for the Application deployment.

NOTE: Values are inherited from the Location.

Select “Deploy on Submit” or “Schedule Deployment” for the application to be installed.
Feature Pack & Flexible Footprint

**Feature Pack**
Select the Feature Pack you will deploy post-install.

**Flexible Footprint**
Choose the proper footprint based on your install.

The Feature Pack is NOT installed with the OVA.
Add a Deployment

AVAM validates application required resources are available.

Accept the EULA when prompted.
REAL WORLD DEPLOYMENT
Large Entertainment Management Firm

- CM 5.2.1 deployment in Southern California
- Survivable Core Location in New York
- LSP locations in Miami, Nashville, London, Plano, TX
- Large Digital Endpoint Deployment
- Wanted softclient for Boss/Admin relationship to escalate calls to ad hoc conferencing to exceed the 6 party Meet-Me Limit
Proposed Solution

- Beverly Hills Datacenter
  - 3 ESX Hosts (CM Duplex, AES, SMGR, SM)
  - 1 EMC VNXe SAN
  - 1 vCenter Server

- New York Datacenter
  - 2 ESX Hosts (CM Duplex SC, AES, Geo-SMGR, SM)
  - 1 EMC VNXe SAN
  - 1 vCenter Server (Licensed for Heartbeat)

- Avaya Aura Conferencing 7.2
- Flare Experience for Windows*
- Integrate Polycom Video Solutions to Aura
- Carousel Managed Services - Smartpoint
Deployment completed in 30 days

Customer required two quotes for project

- Other Business Partner proposed an Avaya appliance solution

- Customer saved $500,000.00 for going with Carousel Industries Virtualized Proposal

- Customer used some of the savings for Enterprise Video Solution Projects
### What else can I Virtualize?

- Polycom RealPresence Collaboration (RMX)
- Polycom RealPresence DMA
- Polycom RealPresence Resource Manager
- Polycom RealPresence Access Director
- Polycom RealPresence Capture Server
- Polycom RealPresence Platform Director
- Oracle (Acme) SBC
- Audiocodes SBC
- Sonus SBC
- NIC E
- Verint
- And Many More.....
Virtualization Roadmap

• **Avaya Aura R7.0**
  - Avaya appliance with VMware hypervisor
  - Expanded management options
  - Flexibility in terms of applications and scale of appliance (Midmarket vs. Enterprise)

• **VMware features**
  - Support for DRS (multiple applications)
  - Reservation specification flexibility
  - Processor support
THANK YOU