

OpenVMS Guest on Integrity VM

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Open VMS Engineering

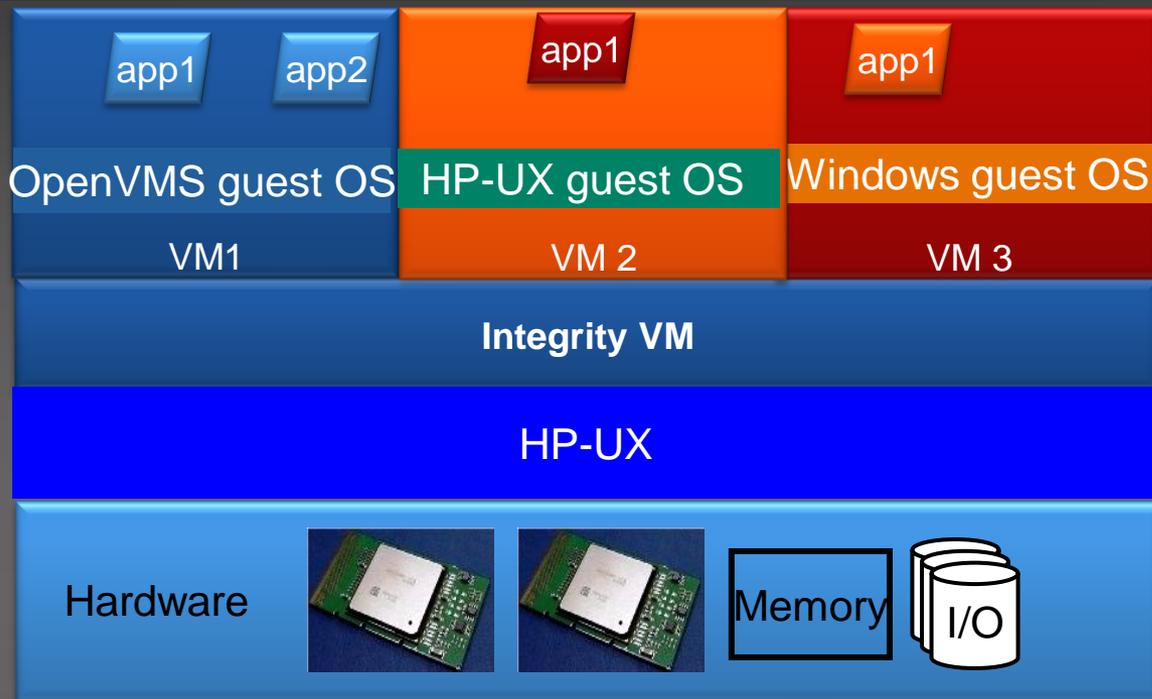


Agenda

- Integrity VM Overview
- Deployment Scenarios
- Features Supported / Restrictions
- Troubleshooting Tools
- Q&A



What is Integrity VM?



- Guest As Applications
- OS Fault & Security Isolation
- Any Integrity hardware, Blade or nPar
- Optimal Resource Usage
- Heterogeneous guests

Note: OpenVMS Guest runs only on Integrity Servers with VT-i enabled processors

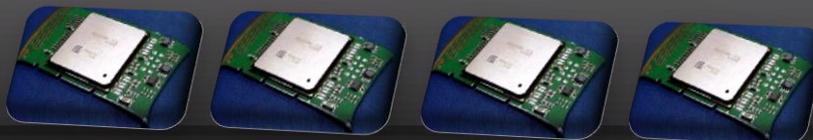
Dynamic CPU Allocation

Virtual machines automatically benefit from instant capacity on host.....



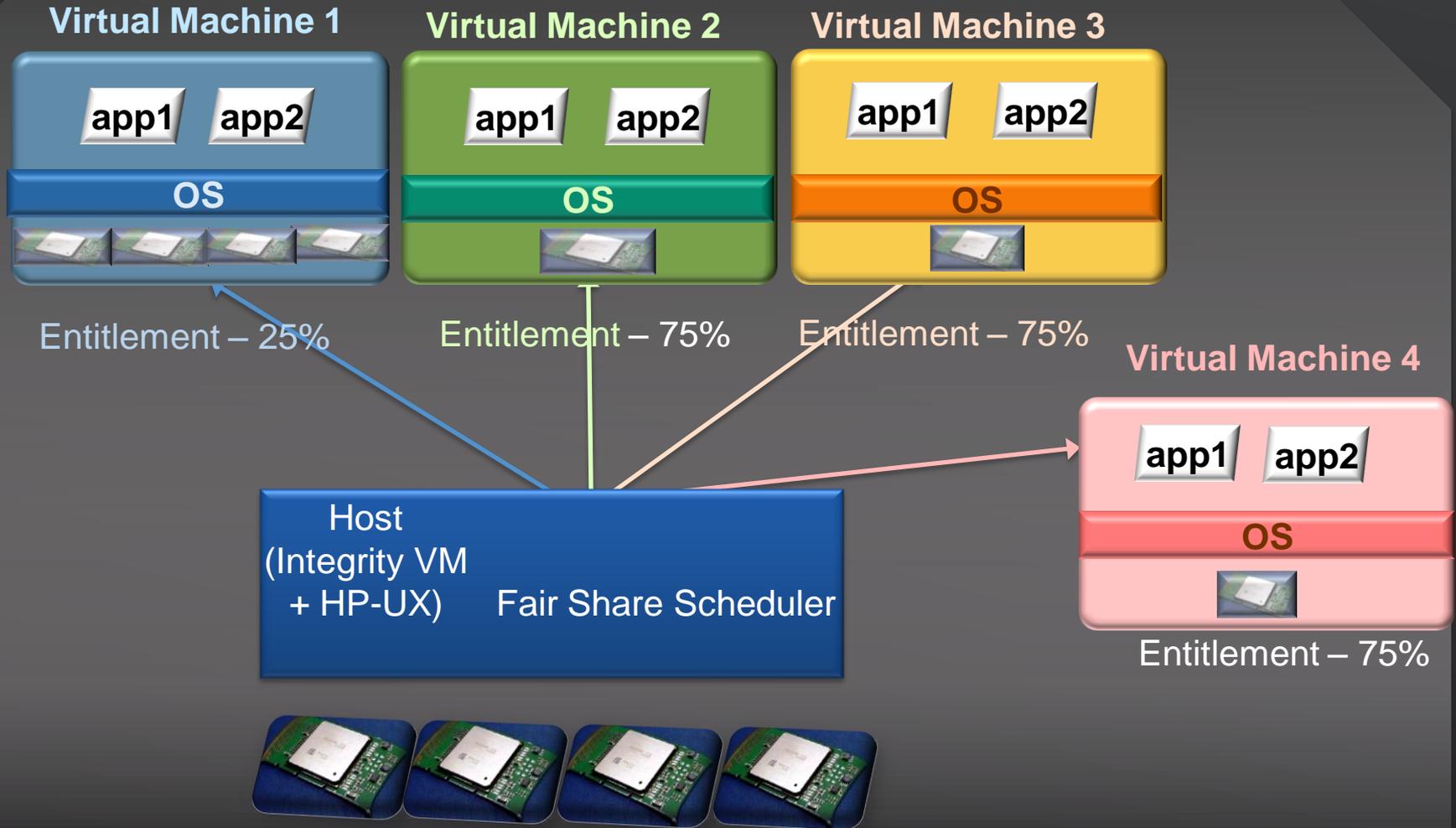
Host
(Integrity
VM +
HP-UX)
Fair Share
Scheduler

- 1 or more vCPUs/VM
- vCPUs/VM \leq pCPUs
- Entitlements for each VM
- 20 VMs/Core
- vCPU add/delete needs VM reboot

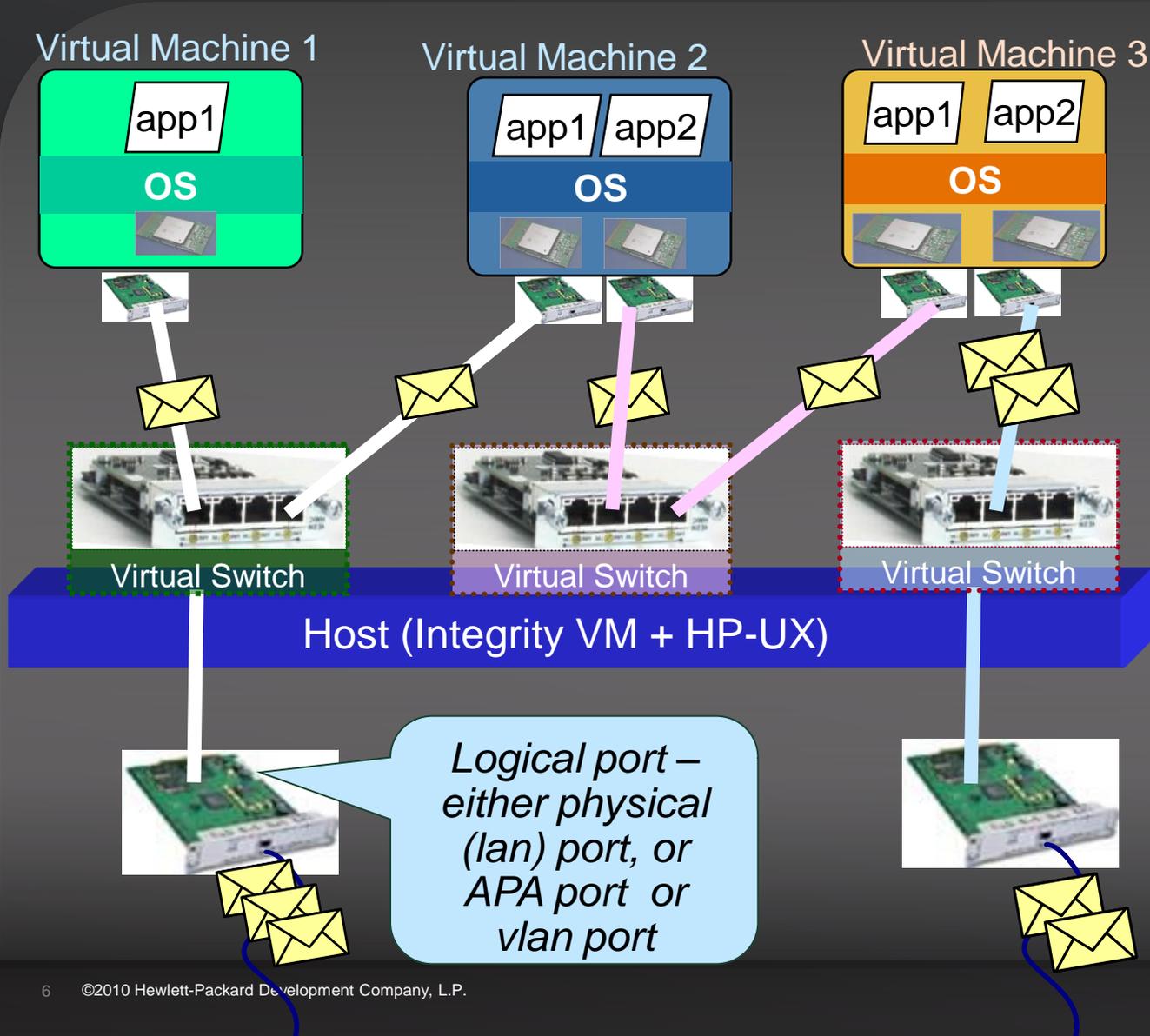


iCAP

CPU Entitlements



Dynamic Network Sharing



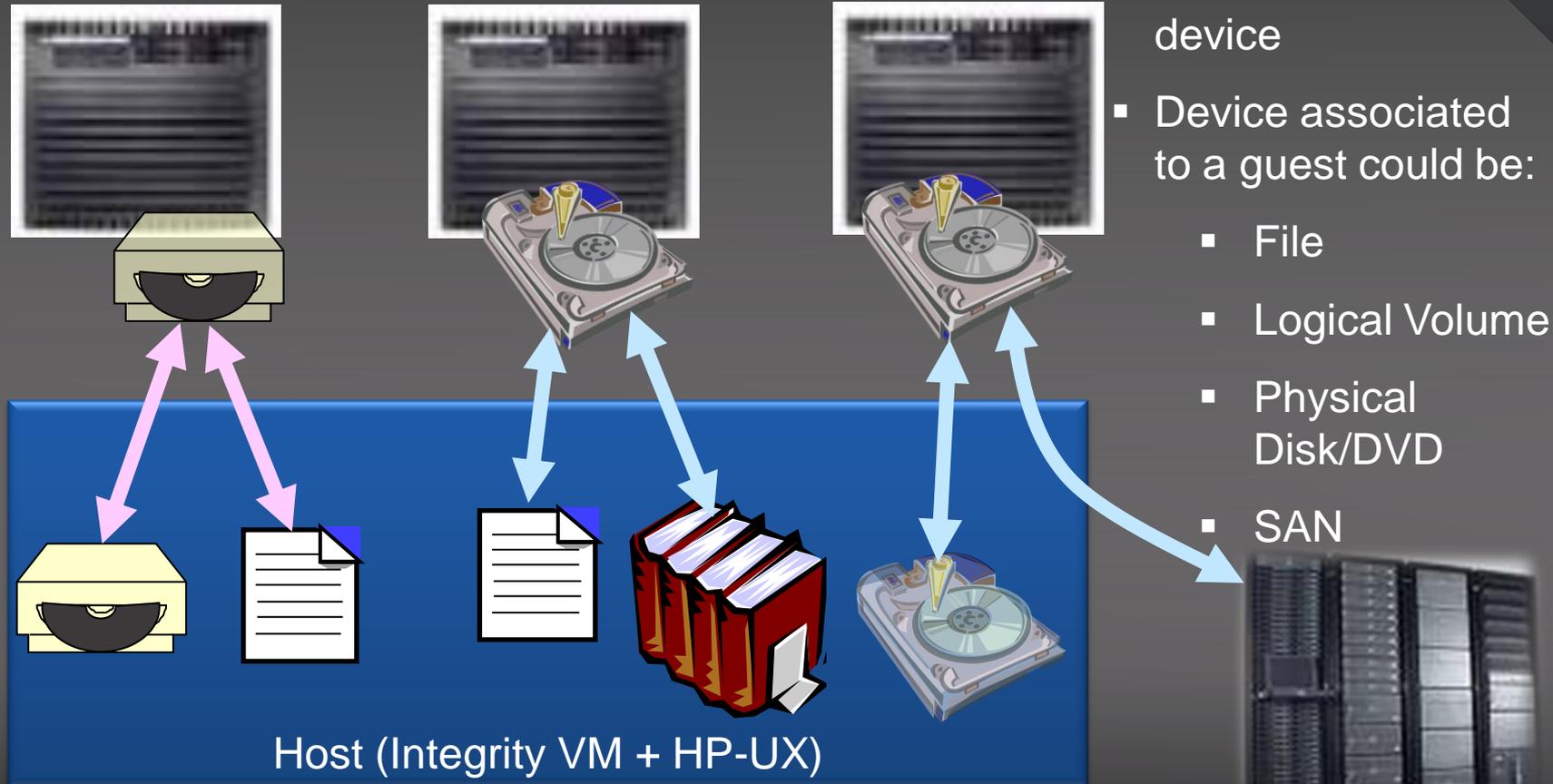
Physical NIC's bandwidth shared between 2 VMs

Guest-Guest communication through a Virtual Switch

Physical NIC associated to only one VM



Storage Virtualization



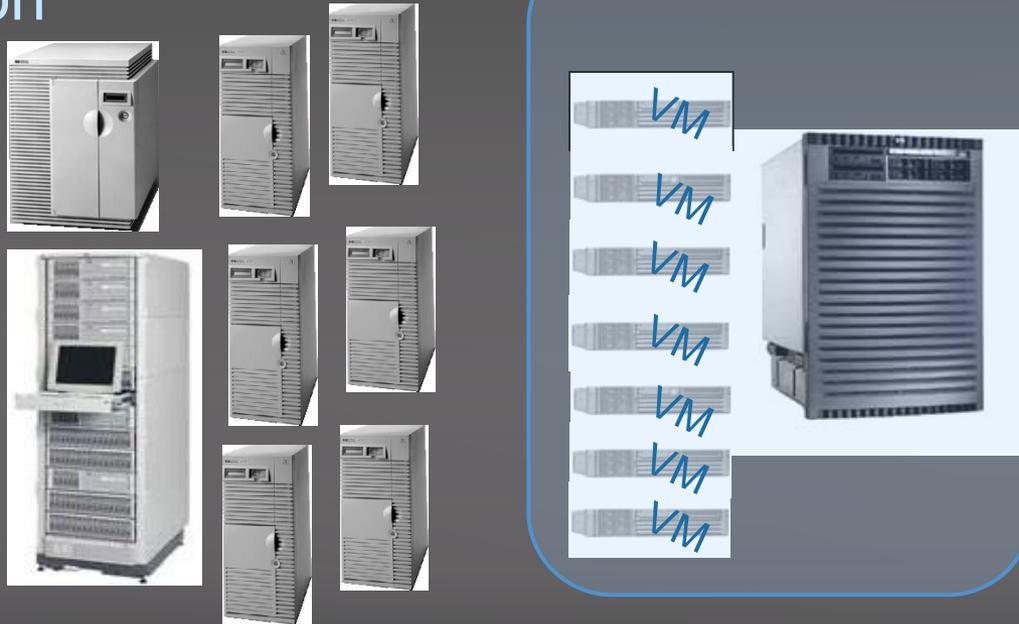
Agenda

- Integrity VM Overview
- **Deployment Scenarios**
- Features Supported / Restrictions
- Future Plans
- Troubleshooting Tools
- Q&A

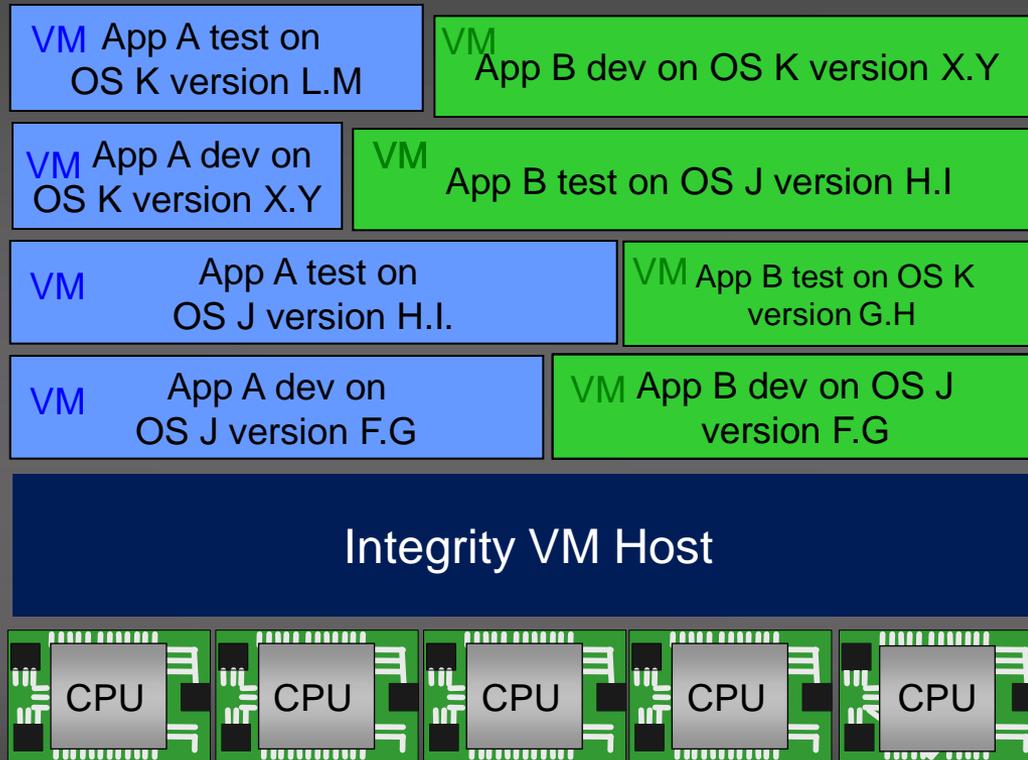


Hardware Consolidation

- Consolidation of end-of-support-life servers with legacy applications
- Low power consumption
- Reduce cooling needs
- Less floor space
- Deployment agility
- Resource allocation flexibility
- Cut HW, SW & maintenance costs



Hardware consolidation for test/ development



Scenarios:

- Monolithic & distributed application development & testing
- Qualification on multiple OS versions
- Development & testing on multiple configurations

Benefits:

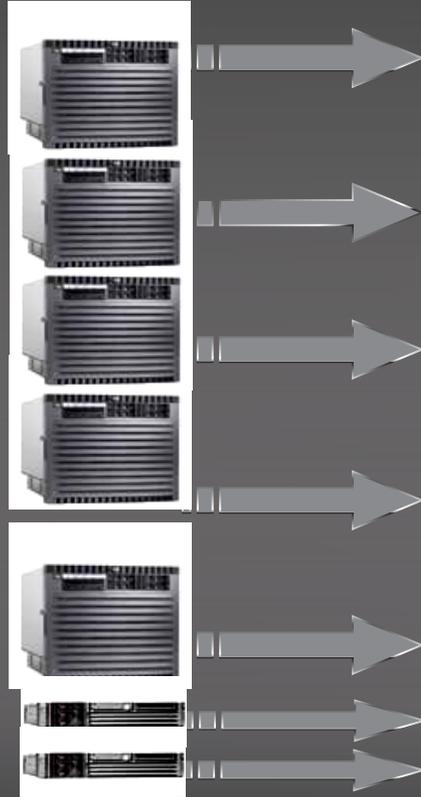
- Cheaper – Fewer “test” boxes
- Faster – Ready to boot
- or ready to use

Disaster Recovery

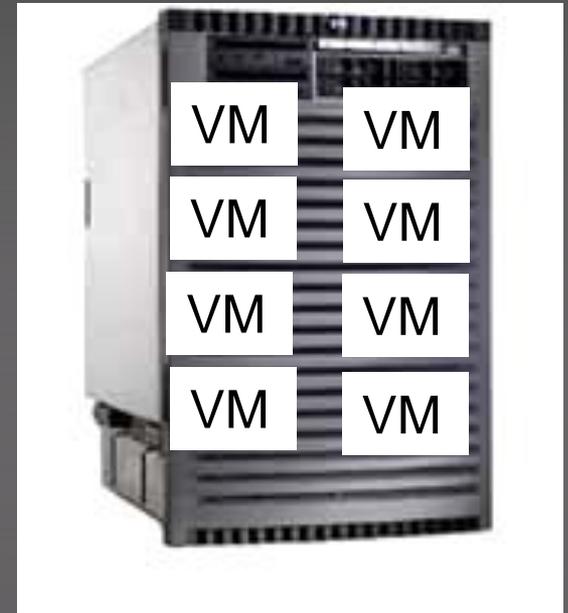
- Benefits

- Fewer physical servers at DR site
- DR servers ready-to-boot/active standby; otherwise used for development, test, evaluation, ...

Production Site



Remote Site



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Features Supported

- Runs on any Integrity Servers with Intel VT-i enabled processors
- Para-virtualized drivers to support Accelerated Virtual I/O
- OpenVMS cluster support
 - Between Guest and Physical
 - Between Guests within same host
 - Between Guests across hosts
 - Volume Shadowing
 - IPCI
- Supports migration (Offline/Online) of VMS guest (standalone) from one host to another
- Guest Monitoring through HPSIM



Monitor

\$ moni modes

```
+-----+  
| CUR |  
+-----+
```

```
OpenVMS Monitor Utility  
TIME IN PROCESSOR MODES  
on node BVMS1  
7-OCT-2010 12:24:44.95
```

Combined for 4 CPUs



Troubleshooting – Logging tools

– Fair Share Scheduler (FSS)

- /var/adm/syslog/syslog.log
- Set log level using
 - # vm_fssagt -l 7 (def:3, 7 is extremely verbose)

– Verbose Logging

- Set logging: vMP> say -1 recorder
- Turn Off: vMP> say 0 recorder
- View monitor log: vMP> rec -view
- Flush buffer: vMP> rec -flush

– Show/Change Monitor log size

- # ch_rc -v -l -p VMMLOGSIZE
- # ch_rc -a -l -p VMMLOGSIZE = 4096

Troubleshooting – Performance

- `hpvmstatus -<options>` (e, i, r, d, V, s, S ...)
- `hpvmsar -<options>` (a, A, ...)
 - Gives guest CPU utilization
- Glance/glanceplus
 - System utilization including CPU, memory, disks etc
 - Glance -<options>
 - C – CPU report, D – Disk report, L –LAN Report
 - M – Memory Report, L – Logical system report



Troubleshooting – Devices

– hpvmdevinfo

- Displays information about assigned storage devices
- Gives mapping between virtual and physical disks

–hpvmdevmgmt

- Manage devices
- hpvmdevmgmt –l all
 - Shows device database

Troubleshooting – Scenarios

–Virtual Switch doesn't exist

- # hpvmmodify –P OVMSG1 –a network:avio_lan:vswitch:Myswitch
hpvmmodify: WARNING (host): The vswitch 'Myswitch' does not exist.
hpvmmodify: ERROR (host): The vswitch 'Myswitch' does not exist.
- Look at vswitch information
- #hpvmnet

Name	Number	State	Mode	PPA	MAC Address	IP Address
localnet	1	Up	Shared	N/A	N/A	
myswitch	2	Up	Shared	lan1	0x001a4b087d23	15.146.157.203



Troubleshooting – Scenarios

– Guest not started

- `hpvmstart -s -P OVMSG1`

- Gives more clues

- Example Message:

- `hpvmstart -s -P OVMSG1`

- HPVM guest OVMSG1 configuration problems:

- Warning 1: OpenVMS guests not supported on this host's CPU type (Madison)



Troubleshooting – Scenarios

– vNIC doesn't respond

- `hpvmnet -S <virtual switch>`
- `Ifconfig <physical nic>`
- `hpvmnet -S <vs> -V`
- `hpvmnet -r -S <vs>`
- `Ifconfig <interface> UP`
- Check monitor and syslog
 - `/var/opt/hpvm/common/hpvm_mon_log`
 - `/var/adm/syslog/syslog.log`

Troubleshooting – Scenarios

– Guest Hang

- CTRL/P to get VMS crash
 - tc command to generate VMS dump and vm.core file
 - vMP:CM > tc
 - vMP:CM> ed –init
- OR
- # hpvmconsole –P OVMSG1 –q –c tc –fi
 - # hpvmconsole –P OVMSG1 –q –c 'ed –init' > /tmp/tc.log

Troubleshooting – Scenarios

– Guest Crash

- Monitor log
 - /var/opt/hpvm/common/hpvm_mon_log
- Collect other logfiles
 - # hpvmconsole -P OVMSG1 -q -c cl > cons.log
 - # hpvmconsole -P OVMSG1 -q -c 'ed -init' > init.log
 - # hpvmconsole -P OVMSG1 -q -c 'ed -mca' > mca.log
- hpvmcollect -P <guest name>
 - Collects log files, system status, device information, configuration information, guest information, crash dumps

Troubleshooting – Scenarios

– Guest Disappear

- View guest log

- vMP> rec –view

- » It has “Guest Punishment”, “Assertion Failed”, “VMM Panic” ?

- » If nothing, look for:

- Collect other logfiles

- # hpvmconsole –P OVMSG1 –q –c cl > cons.log

- # hpvmconsole –P OVMSG1 –q –c ‘ed –init’ > init.log

- # hpvmconsole –P OVMSG1 –q –c ‘ed –mca’ > mca.log

- hpvmcollect –P <guest name>

- Collects log files, system status, device information, configuration information, guest information, crash dumps

References

- Integrity VM Cookbook

- http://h71000.www7.hp.com/openvmsft/hpvm/integrityvm_cookbook.pdf

- Integrity VM Install/configuration guide

- <http://bizsupport1.austin.hp.com/bc/docs/support/SupportManual/c02023903/c02023903.pdf>

- HP Integrity Virtual Machines 4.2: Release Notes

- <http://bizsupport2.austin.hp.com/bc/docs/support/SupportManual/c02471305/c02471305.pdf>

- Troubleshooting

- Contacts

- Office of OpenVMS Programs
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- Product Manager: Shastri Vivasvan Sudhir
- (Vivasvan.shastri@hp.com)



Thank You

