QuickSpecs

Overview

Latest version: works with Integrity VM v4.2
Initially available with Integrity VM v4.1

Description

Online VM Migration is a capability that became available with Integrity VM v4.1, that enables a running Integrity VM, its OS, and its applications to be moved to a different VM Host system without service interruption. While the VM is moved from one VM Host to another VM Host, the guest OS and all its applications effectively remain active without an OS reboot or application restart. All I/O connections to storage and networks will remain active throughout the migration.

This can be used to: reduced downtime and costs, and increase flexibility, especially for proactive maintenance and workload balancing.

Features

- Clock speeds may differ on VM Hosts-Must be same processor family
- Supports only VIO and AVIO virtual disks
- Migration status displayed by Integrity VM Manager UI
- Migration "communication" via ssh
  - o Default configuration uses HP's ssh
    o Configurable to use 3rd party ssh
- Migration can be triggered through the: command line interface (CLI)
  - Shared logical volume backing storage: virtual disks (for the migration) may also be mapped to logical volumes within a LUN. (Available via Integrity VM v4.1 patch Dec .2009 Serviceguard 11.19 patch.)
  - Integration with high availability: hpvmsg_move command for HP Serviceguard packages
- With Integrity VM v4.2+:

  - GUI-initiated migration:

    - Logical Server Management "drag and drop" V2V migration (with Insight Dynamics - VSE 6.0 release)
    - From Integrity Virtual Machines Manager GUI (vmmgr) v4.1 (with Insight Dynamics - VSE 6.0 release)
  - Secured Online Migration (with data encryption)
  - Improved Online VM Migration performance: can be up to 2x as fast as on v4.1 (for busy systems, where there's resource contention.)
  - Can migrate backwards (if the guest was booted on that version)ISV Data base support

Oracle now supports 10gR2 with Online VM migration (soon with11g)

Informix Dynamic Server 11.50 is now supported by IBM with Online VM Migration (see whitepaper)

Support

A variety of service options are available from HP. For this product, there are software support services, ranging from standard reactive services up to mission critical support services, as well as implementation services, consulting services and training. For more information, please contact your local HP office or your HP authorized reseller.

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Requirements
Hardware:

- Integrity servers only

Software:

1. For use only with Integrity VM (HP-UX 11i v3 VM Host) v4.2 or with any of the bundles containing Integrity VM v4.2 (at least March 2010 release) (including: Insight Dynamics - VSE Suite, and the HP-UX 11i v3 VSE-OE or DC-OE)
2. Supported for the following operating systems running in Integrity Virtual Machine guests:
    - HP-UX 11i v2
    - HP-UX 11i v3
    - Microsoft Windows Server 2003 (prior to v4.2)
3. Integration with Serviceguard, although Serviceguard must be disabled during the actual freeze time (of the migration.)

Other:

- All virtual disks must map directly to either whole LUNs (SAN storage) or with Dec. 2009 patches to Integrity VM v4.1 and Serviceguard logical volumes within a LUN. Migration of virtual disks mapped to files is not supported
- Requires consistent virtual switch configuration (name and subnet)
- If using dedicated private network, recommend 1Gbit or higher connectivity between physical VM Host systems
- Attached I/O devices must be disconnected prior to migration

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Miscellaneous
Dependency, ordering and delivery:

- This product must be used in conjunction with HP Integrity Virtual Machines (or virtualization bundles that include Integrity Virtual Machines).
- This product must be purchased throughout the VM Hosts for which Online VM Migration will be used
- Documentation for this product is in the HP Integrity Virtual Machines manuals @: www.hp.com/go/hpux-hpvm-docs
- Ordering and delivery:
    - Before March 2010, this product could only be ordered stand-alone, and delivered only on the HP-UX 11i v3 Application Release media.
    - As of March 2010 release, this product is also included in the HP-UX 11i v3 virtualization bundles: VSE-OE, DC-OE, Insight Dynamics - VSE Suite
- If this product is used for VMs running Microsoft Windows Server 2003 VMs, then customers must separately purchase the HP-UX 11i v3 Application Release media.

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Software
HP-UX 11i Software licensing and support requirements for software running in Integrity Virtual Machines that will be migrated with HP Integrity Online VM Migration:

NOTE: for brevity, only the term "server" is used in the description below but the understanding is that a VM could be migrated from a server or an nPAR to another server or nPAR.)

In order to migrate an Integrity VM from one server to another, the HP-UX software within the VM being migrated needs to be appropriately licensed on both the server it is migrating from (the "source") and the server it is migrating to (the "target"). This is to ensure there are no licensing violations. Specifically:

- *The HP-UX 11i software (OE and layered applications) within the migrating VM on the source server needs to be licensed on all target servers.*
  - If the HP-UX 11i guest software was licensed per physical core on the source server, then that software needs to be licensed for the same, or greater, number of physical cores on the target server to accommodate the migrating virtual machine.
  - If the HP-UX 11i guest software was licensed using the Virtualization Licensing rules (licensing only to the number of virtual cpu's needed), then that software needs to be licensed for the same, or greater, number of virtual cpu's on the target server to accommodate the migrating virtual machine.
- *If the potential target servers are on different software licensing tiers (have a different price depending upon the size of the server), then each server needs to be licensed appropriately for their tier.*
- *HP-UX 11i v2 OE VM guests can be migrated as well with an HP-UX 11i v3 OE license which provides the right to use a previous version of the OE based on the mappings below:*

Purchased HP-UX 11i v3 OE	Granted HP-UX 11i v2 License To Use
Base OE	- Foundation OE - Technical Computing OE
Virtual Server OE	- Enterprise OE - Foundation OE - Technical Computing OE
High Availability OE	- Enterprise OE - Foundation OE - Technical Computing OE
Data Center OE	- Mission Critical OE - Enterprise OE - Foundation OE - Technical Computing OE

Overview

Avoiding Software License Violation with Online VM Migration

Due to the potential for complications and software license violations, it is highly recommended that customers plan Online VM Migrations in advance to verify that adequate software licenses are in place to facilitate the migration of the software contained in the VM, particularly with third party software products.

Specific restrictions for HP-UX 11i software with Online VM Migration

The following HP-UX 11i software products cannot be run (i.e., are not supported) in conjunction with Integrity Online VM Migration (at this time):

- *HP-UX 11i Metrocluster products*
- *VMs as Serviceguard packages using VM host backing stores provided by volume managers and file systems (e.g., LVM/LVM2, VxVM, Serviceguard SMS CVM/CFS)*
  - Note that VM's configured as Serviceguard packages, using only whole disk backing stores, are supported with Online VM Migration.)
- *VM's configured as Serviceguard nodes, either with or without Serviceguard SMS bundles T2771xx - T2777x.*
  - Symantec software products that do not require Serviceguard clustering should be supportable in VM guests that can be migrated online. However further testing by Symantec should be performed to verify their support.

Software Support considerations for HP-UX 11i software with Online VM Migration

In an environment where the customer has support coverage (both hardware and software), both the source and target servers must have a support agreement covering the hardware and licensed software for each server. When a migration occurs from the source to the target, support for the target will be provisioned according to the support level coverage that is in place for the target. Support is provisioned at the level of support that the source and target servers are covered for under the support agreement in place for each server.

Third-party Software and Online VM Migration

Customers are responsible for ensuring license compliance and should consult with their ISV to determine the specific license requirements when software is migrated within an nPAR/server, or when migrated to another server.