Keeping GE Healthcare Universal Viewer Highly Available with Symantec™ ApplicationHA

Solution Overview: High Availability

Introduction

Providing high availability to clinical applications like GE Universal Viewer is critical for ensuring continuity of service for the modern PACS environment. GE Healthcare and Symantec have partnered to develop a solution which brings industry leading availability technology, with Symantec™ ApplicationHA, to both Centricity PACS and Centricity PACS-IW with Universal Viewer, when running in a VMware® virtual environment. Availability solutions designed for virtual environments most often monitor and detect events only at the operating system or virtual machine layer. The lack of visibility this creates into the guest operating system exposes a tremendous degree of risk to the required levels of uptime for mission-critical applications.

ApplicationHA resolves this critical gap in availability by monitoring the constituent services, processes and applications residing inside the guest OS instance. The deep awareness, problem detection and enhanced remediation options from ApplicationHA makes it a critical component of any PACS architecture. This paper describes how GE Healthcare's Universal Viewer leverages ApplicationHA as an integrated offering, and the value the joint solution provides to healthcare professionals.

Overview of GE Universal Viewer and Symantec ApplicationHA

GE Universal Viewer

With Universal Viewer for Centricity PACS, GE Healthcare delivers a powerful unified workspace for radiologists and clinicians. Universal Viewer brings together intelligent tools, enhanced usability and access, advanced visualization for clinical specialties like breast imaging to help optimize productivity.

Unlike disparate PACS and 3-D display systems, Universal Viewer helps increase efficiency by simplifying information access with a single image repository across 2-D and 3-D studies, enabling holistic oncology and other specialty work flows, with easy access to prior exams.

Universal Viewer is designed to work with Centricity PACS and is available in a virtual environment to help organizations maximize the use of their current data center space.

Symantec ApplicationHA

ApplicationHA is a software solution integrated with VMware vSphere® High Availability, designed to provide in-guest application awareness directly to the ESX cluster. The resulting capability allows for a comprehensive set of responses to both application faults, operating system level 'Blue Screens', as well as the loss of a virtual machine or physical host. ApplicationHA allows for the automated restart of both off-the-shelf as well as custom applications, in addition to the graceful reboot of the guest OS itself. By leveraging the Application Heartbeat API, ApplicationHA is also able to signal vSphere High Availability to take additional recovery steps such as power cycling of the virtual machine or moving the virtual machine to an alternate ESXi host entirely.

ApplicationHA is based on the industry leading Symantec™ Cluster Server, powered by Veritas technology, and uses similar concepts such as agents, resources, and service groups. It does not include the high availability cluster components such as the Group Membership and Atomic Broadcast (GAB) and Low Latency Transport (LLT), giving it a lightweight server footprint that allows for faster installation and configuration.

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How Symantec ApplicationHA keeps Universal Viewer highly available with VMware vCenter Server™

ApplicationHA communicates directly with VMware High Availability. ApplicationHA conveys the application health status in the form of an application heartbeat. This allows VMware High Availability to automatically reset or restart a virtual machine if the application heartbeat is not received within a specified interval.
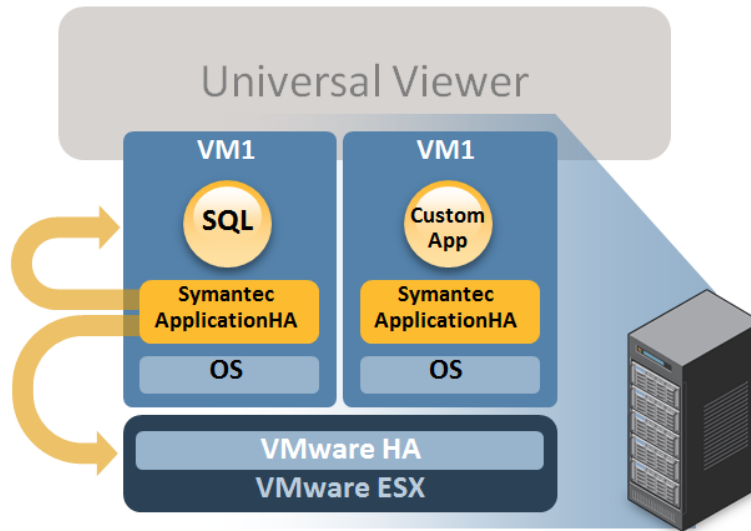

Figure 1. Symantec ApplicationHA keeps GE Universal Viewer applications and services highly available by communicating with VMware High Availability

Symantec ApplicationHA Agents

Agents are application-specific modules that plug into the ApplicationHA framework to manage applications and resources of predefined resource types configured for applications and components on a system. The agents are installed within the ApplicationHA guest components. These agents start, stop, and monitor the resources configured for the applications and report state changes. If an application or one of its components fail, these agents also restart the applications and its resources on the virtual machine.

ApplicationHA agents are classified as follows:

• *Infrastructure agents*
  Infrastructure agents are packaged (bundled) with the base software and include agents for mount points, generic services, and processes. These agents are immediately available for use after installation of ApplicationHA.

• *Application agents*
  Application agents are used to monitor third party applications such as Microsoft SQL Server, Oracle, and Microsoft Exchange. These agents are packaged separately and are available in the form of an agent pack that gets installed when you install ApplicationHA guest components. The ApplicationHA agent pack is released on a quarterly basis. The agent pack includes support for new applications as well as fixes and enhancements to existing agents. You can install the agent pack on an existing ApplicationHA guest components installation.

Symantec ApplicationHA Benefits

ApplicationHA Feature	Customer Benefit
Application Agents	True application awareness accurately detects when the application stops responding, including the underlying resources such as network connectivity.
VMware vCenter Integration	Configure and monitor application availability from a common user interface.
VMware High Availability Integration	VMware High Availability is automatically invoked, if less disruptive remedies such as restarting the application do not resolve the issue.

Testing

During the integration and testing process, GE Healthcare engineers worked closely with Symantec's developers to verify the solution performed as expected and provided the needed availability. Testing involved was detailed, intentionally stopping or killing various components, monitoring ApplicationHA's detection and restart logic. Each Universal Viewer component was also tested to help ensure that ApplicationHA did not alter behavior or performance.

How To Purchase

For additional information on ApplicationHA visit http://www.symantec.com/application-ha

Prior to placing your order with Symantec, ensure to consult with GEHC-IT service to verify which version of ApplicationHA has been validated.

To purchase ApplicationHA, contact your Symantec Sales representative at SYMC_HighAvailability@symantec.com

Ensure to coordinate implementation of ApplicationHA with GE Service to ensure proper installation.

Appendix

The following table lists the GE Universal Viewer applications and services that are monitored by Symantec ApplicationHA.

Server Name	Services
Universal Viewer Zero Footprint Server	IIS Admin Service, Websocket Service, Karaf, DefaultZfp, ZFPAppPool
Adaptive Streaming Engine	IIS Admin Service, Dakota
Universal Viewer Controller/ dB with CPACS	Integrad System Management, Tomcat, IIS Admin Service, Centricity PACS Connector, StorageController, AdminServer, SQL Server (Microsoft SQL Server), SQL Server Agent (Microsoft SQL Server)
Universal Viewer Controller/ dB with IW	Integrad System Management, Tomcat, Integrad PACS-Services, DicomServer, HL7 Server, IIS Admin Service, EventController, StorageController, Storage Commit Server, AdminServer, Query-Retrieve Server, SQL Server (Microsoft SQL Server), SQL Server Agent (Microsoft SQL Server)
Universal Viewer ZFP XDS-PIV	PIV, DefaultWebSite, SQL Server (Microsoft SQL Server), SQL Server Agent (Microsoft SQL Server)
Universal Viewer Web Cross Enterprise Display- XBUS	RabbitMQ
Cross Enterprise Display- Provider	Provider service name configured in the Provider Configuration file

More Information

Visit our website

http://www.symantec.com/application-ha

To speak with a Product Specialist in the U.S.

Call toll-free 1 (800) 745 6054

To speak with a Product Specialist outside the U.S.

For specific country offices and contact numbers, please visit our website.

About Symantec

Symantec Corporation (NASDAQ: SYMC) is an information protection expert that helps people, businesses, and governments seeking the freedom to unlock the opportunities technology brings—anytime, anywhere. Founded in April 1982, Symantec, a Fortune 500 company operating one of the largest global data intelligence networks, has provided leading security, backup, and availability solutions for where vital information is stored, accessed, and shared. The company's more than 20,000 employees reside in more than 50 countries. Ninety-nine percent of Fortune 500 companies are Symantec customers. In fiscal 2014, it recorded revenue of $6.7 billion. To learn more go to www.symantec.com or connect with Symantec at: go.symantec.com/socialmedia.

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