Agile Product Lifecycle Management

AutoVue for Agile PLM Planning Guide

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AutoVue for Agile PLM Planning Guide, Release 20.2.3

Contents

Preface

The *AutoVue for Agile PLM Planning Guide* provides recommendations on how to deploy AutoVue for Agile PLM, File Manager, AutoVue client and client components. For more technical information on how to deploy/configure AutoVue and its associated components, refer to the *AutoVue for Agile PLM Installation Guide*.

Audience

This document is intended for administrators and users of AutoVue for Agile PLM.

Documentation Accessibility

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Related Documents

Oracle's Agile PLM documentation set includes Adobe® Acrobat PDF files. The Oracle Technology Network (OTN) Web site
http://www.oracle.com/technetwork/documentation/agile-085940.html contains the latest versions of the Agile PLM PDF files. You can view or download these manuals from the Web site, or you can ask your Agile administrator if there is an Agile PLM Documentation folder available on your network from which you can access the Agile PLM documentation (PDF) files.

Oracle's AutoVue for Agile PLM documentation set is available at
http://www.oracle.com/technetwork/documentation/agile-085940.html#autovue

For more information on Oracle AutoVue products, refer to the Oracle AutoVue documentation set available at
http://www.oracle.com/technetwork/documentation/autovue-091442.html

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.
AutoVue	For simplicity, this document uses the product name AutoVue interchangeably with AutoVue for Agile PLM.

1

Deployment Components

AutoVue is a multi-tiered, client-server architecture that enables document viewing, markup and collaboration capabilities for Agile PLM. These tiers are typically deployed across several components across a production environment: the AutoVue server, Application Server, File Manager, VueServlet, and AutoVue applet.

Figure 1–1   AutoVue for Agile Deployment
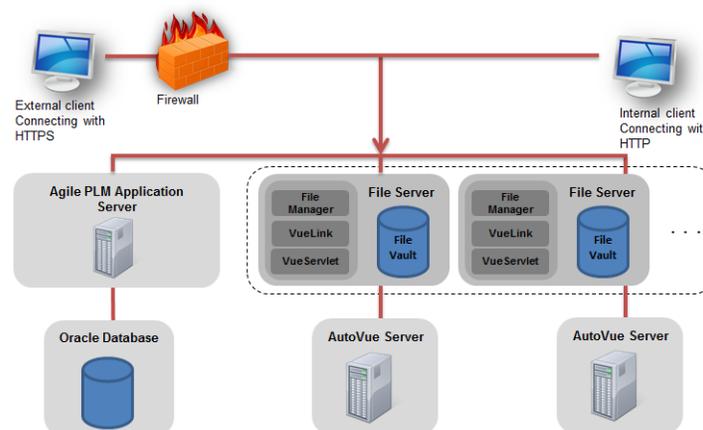
1.1 Agile PLM Components

The components of AutoVue for Agile PLM include the:

- Agile Application Server
- File Manager
- AutoVue server
- AutoVue client libraries

1.1.1 Agile PLM Application Server

The Agile PLM Application Server is the center of the Agile PLM system, and manages data stored in the Agile PLM database. The Agile PLM Application Server runs on industry-leading J2EE application servers. The application server connects to the components in a persistence layer where product content is stored. All Agile PLM data is contained or organized in business objects that are set up by the administrator, and specified and used by the enterprise's Agile PLM users. Business objects is a general

term that implies objects created from the classes available to the enterprise, but other entities in Agile are also objects, such as workflows, searches, reports, and so forth.

1.1.2 File Manager

The File Manager stores all documents, drawings, and other files within the Agile PLM system. A File Manager provides a place to store and retrieve files locally or remotely. Due to the geographically dispersed nature of the global enterprise, multiple Agile PLM File Managers can be deployed in a distributed configuration for efficient distribution of product content. Agile PLM File Manager is made up of two main components: the File Manager Web application and the file vault. The file vault is the file system where the actual files reside. The file vault can be located on the same server as the Web application or on a dedicated storage system.The File Manager can be installed on the same machine as the Agile PLM Application Server but is, typically, installed on a separate machine. The File Manager can also be installed in a cluster and distributed across geographic regions.

1.2 AutoVue Components

The AutoVue components include:

- AutoVue Server
- AutoVue Client Libraries
- VueServlet
- AutoVue Applet/Client

The installation involves AutoVue installed on a server, to which client machines are connected to access and view documents. An AutoVue solution has several components: the AutoVue server, an application server hosting the VueServlet, a Web server or an application server hosting AutoVue client components, and the AutoVue client. In the case of AutoVue for Agile PLM installation, the AutoVue for Agile PLM Servlet (VueLink) is packaged and deployed as part of the File Manager installation. The VueLink is also deployed on the File Manager and tunnels the requests to the Agile Application Server using HTTP protocol.

The AutoVue client is a JAVA-based applet that is the main entry point to AutoVue's capabilities. The AutoVue client components need to be made accessible to end-users at an application server or Web server location.

1.2.1 AutoVue Server

The AutoVue server is the core of the AutoVue solution. An AutoVue server instance is comprised of one session server and multiple document servers (by default, there are four document servers).

> **Note:** The AutoVue server can be installed on a different platform than the AutoVue for Agile PLM integration components.

Figure 1–2   AutoVue Server
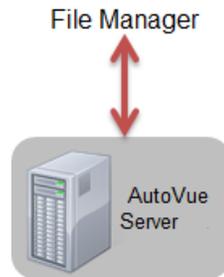
The session server receives all requests sent to the AutoVue server and then delegates the tasks to a document server. When a file is opened, all the processing is performed on the document server. It parses the file and generates the streaming file to send to the AutoVue client. A document server can be dedicated to streaming file generation. During AutoVue installation, AutoVue dedicates four document servers and one streaming file document server by default. When a document server reaches the predefined memory threshold, it may start unloading its memory by dumping some graphical data to a specific folder. When this dumping occurs, performance is usually degraded when loading a file on that document server. To optimize performance in this case, it is recommended to distribute the load onto a larger process pool rather than using data dumping. Note that if the process pool size becomes too large, and the operating system spends significant time swapping between processes, then another node in the AutoVue server cluster should be added.

For more information on the AutoVue server, refer to the "AutoVue Server Configuration" section in the *AutoVue for Agile PLM Installation Guide*.

> **Note:**   For the minimum hardware requirements for the AutoVue server, the ProcessPoolSize should be set to 8. Refer to section for more information.

The AutoVue server is very CPU, I/O, Memory and Graphics intensive. Ensure that the machine hosting AutoVue server is dedicated to AutoVue and is not being used for other applications.

If the AutoVue server is running in a virtualized environment, ensure that the proper resources are allocated to the virtual machine hosting it. Note that virtualized environments may have slight degradation in performance compared to running on native hardware.

1.2.2 AutoVue Client Libraries

AutoVue client libraries need to be hosted within an application server or a Web server. The client libraries must be configured to communicate with the VueServlet, which in turn communicates with the AutoVue server. End-users connect to AutoVue using the URL served by this application/Web server.

> **Note:**   For optimal performance, the client libraries should be installed on all systems in the DMS.

1.2.3 VueServlet

The VueServlet acts as the main entry point for communication between AutoVue clients and the AutoVue server. The VueServlet must be configured for access to a firewall when used by external AutoVue clients to communicate with the AutoVue server.

Generally, the VueServlet can be deployed on any application server. For a list of application servers that are certified by Oracle, refer to Section 2.2, "System Requirements". The number of synchronous or asynchronous requests that the VueServlet can handle is limited by the capabilities of the application server that it is deployed on. The requests can include new session requests, file open requests, requests to execute functionality that requires server-side operations, or all of these. You can configure the number of simultaneous connections from the VueServlet to the AutoVue server by setting the InvokerCount parameter.

Depending on your peak usage, you may need to have multiple VueServlets that can serve requests to AutoVue. Since the VueServlet is hosted within an application server, you must rely on the application server's load balancing capabilities or rely on an external load balancer. Ensure that the load balancer is configured for session stickiness.

1.2.4 AutoVue Applet/Client

The AutoVue applet is a JAVA-based applet that is displayed via a Web page (HTML, ASP, and so on).

2

Hardware/System Requirements

This chapter discusses the following:

- Section 2.1, "Hardware Requirements"
- Section 2.2, "System Requirements"

2.1 Hardware Requirements

Table 2–1   Hardware Requirements

Component	Oracle-Certified Hardware Requirements

AutoVue Server	**Note**: The AutoVue server is very CPU-, I/O-, memory-, and graphics-intensive. For optimal performance, we recommend to install the AutoVue server on the same machine as the File Manager and that the machine running the AutoVue server should not be used by other applications.
	
	- 8 GB of RAM (dedicated to AutoVue for Agile PLM)
	- Quad-core processor
	- 400 MB of disk space for installation
	- At least 30 GB of free disk space:
	  - 20 GB for the AutoVue server cache (if you configure a larger size for the AutoVue cache directory, ensure that the additional disk space is available).
	  - Additional space required for managing markup symbols, user profiles, and markups.
	  - AutoVue also stores temporary files (at the %TEMP% path on Windows operating systems and at /tmp/autovue path on Linux operating systems). These files are generally deleted after processing is complete. Ensure that there is available disk space for AutoVue temporary files.

Table 2–1   Hardware Requirements

Component	Oracle-Certified Hardware Requirements

Client	■ Minimum requirements for your operating system (OS):
	
	    ■ 2 GHz CPU
	
	    ■ 2 GB of RAM
	
	■ Recommended requirements for your OS:
	
	    ■ 2.5 GHz Dual-Core CPU
	
	    ■ 4 GB of RAM
	
	It is recommended that the Java Virtual Machine (JVM) used for the AutoVue client is configured for a maximum memory of 256 MB. If loading larger documents, you may need to increase this memory to a higher value (for example, 512 MB).
	
	■ The AutoVue client is a Java applet and as such works on most operating systems and browsers that support Java applets. To see what is certified by Oracle, refer to Section 2.2, "System Requirements".
	
	■ When running the AutoVue client on machines with non-Windows operating systems (OSes), ensure that these machines have a graphics card that supports OpenGL. This is necessary for loading 3D models.
	
	■ On Windows machines, it is recommended to have a graphics card with OpenGL support. In the absence of an adequate graphics card driver, Windows uses its OpenGL capability which is slower as compared to having a graphics card that supports OpenGL.

Important: For the minimum hardware requirements described, each document server requires 2GB of RAM and two document servers must be allocated per CPU core. For information on configuring the documents servers and process pool, refer to Appendix B.4, "Process Pool Size Option."

2.2 System Requirements

Table 2–2   System Requirements

Component	Oracle-Certified Operating Systems and Software
AutoVue Server[1] (The installation requires about 400MB of free space. Additional space will be required by AutoVue for storing other data such as streaming files and markups.)	**Windows** ■ Windows Server 2008 - 32-bit - 64-bit (AutoVue running in 32-bit mode) ■ Windows Server 2008 R2 - 64-bit (AutoVue running in 32-bit mode) **Important**: Windows 2008R2 has improved memory management compared to Windows 2008. It is recommended that you run AutoVue on Windows 2008R2 for better memory handling and long-term stability. ■ Windows Server 2012 - 64-bit (AutoVue running in 32-bit mode) **Linux** ■ Oracle Linux 5.8 and up (x86) and 6.X (x86) - 64-bit (AutoVue running in 32-bit mode) ■ Red Hat Enterprise Linux 5.8 and up (x86) and 6.X (x86) - 64-bit (AutoVue running in 32-bit mode) **Important**: AutoVue is supported on a 64-bit Linux operating systems (OS), but will run in 32-bit mode. The following prerequisites libraries should be in 32 bit, with the exception the Xvfb package xorg-x11-server-Xvfb. These should be the same architecture (64-bit) as the OS: ■ libGL.so.1 ■ libGLU.so.1 ■ libz.so.1 ■ libbz2.so.1 ■ libXt.so ■ libXp.so **Virtualization** ■ Oracle Virtual Machine 2.2.2 ■ VMWare Server version ESXi 5

Table 2–2   System Requirements

Component	Oracle-Certified Operating Systems and Software

Client
 	
Clients running the following Java Virtual Machines:
 	
■ Java SE 7 update 45and higher
 	
  - 32-bit and 64-bit
 	
■ Java SE 8 and higher
 	
  - 32-bit and 64-bit
	Windows OSes:
	
	Windows XP—32-bit (deprecated) and 64-bit
	
	Windows Vista—32-bit (deprecated) and 64-bit
	
	Windows 7—32-bit (deprecated) and 64-bit
	
	Windows 8—32-bit (deprecated) and 64-bit
	
	■ Internet Explorer 7
	
	■ Internet Explorer 8
	
	■ Internet Explorer 9
	
	■ Internet Explorer 10
	
	■ Firefox ESR 24
	
	■ Chrome 21
	
	MAC OS X 10.8
	
	■ Safari 5.0[2]
	
	■ Firefox ESR 24
	
	Solaris 10 (Sparc)
	
	■ Firefox ESR 24

Application Server The VueServlet has been certified on the following application servers:	■ Tomcat 6.x and up
AutoVue for Agile PLM AutoVue for Agile PLM integration components can be installed on the following OSes: For supported versions, refer to the "Agile Product Lifecycle Management Capacity Planning Guide" on OTN http://www.oracle.com/technetwork/documentation/agile-085940.html	■ Oracle Solaris (SPARC and x64) ■ Linux (Oracle, Red Hat Enterprise, SUSE) ■ Microsoft Windows ■ HP-UX Itanium ■ IBM AIX (POWER)

[1]   The AutoVue server can be installed on a different platform than the AutoVue for Agile PLM integration components.

[2]   When launching AutoVue from a Mac client, certain configurations may be required. For more information, refer to Oracle Support Document 1662405.1 (Getting Message "Select a temporary directory" When Printing With AutoVue) which can be found at: https://support.oracle.com/epmos/faces/DocumentDisplay?id=1662405.1

3

Planning AutoVue for Agile PLM Deployment

Before installing and using AutoVue, you must identify your deployment requirements.

The following are architectural considerations for your deployment:

Table 3–1   Architectural Considerations

Deployment Considerations	Deployment Recommendations
■ Scale AutoVue for Agile PLM for a high volume of concurrent users. ■ Scale AutoVue for Agile PLM for high peak usage. ■ Configure AutoVue for Agile PLM to support viewing of different document types	Depending on types of document to be viewed (2D, 3D, and so on), number of concurrent users of AutoVue, and peak usage, it might be necessary to have multiple instances of the AutoVue server. Refer to *Section 4.1, "Scaling AutoVue for Agile PLM for High Usage"* for more information.
■ Prepare AutoVue for Agile PLM for distributed geography.	For distributed geographies, AutoVue for Agile PLM must be deployed in independent clusters in each location. Refer to Section 4.2, "Distributed Geography."

Additional deployment scenarios are described in Chapter 5, "Feature Deployment Considerations".

Once your deployment requirements are identified, you can plan your AutoVue for Agile PLM deployment. Since AutoVue can plug into and work with various other components, it is highly recommended to perform a Systems Integration Test and User Acceptance Test to ensure that AutoVue works well with all components and can reliably meet your technical and business/end-user needs. The *AutoVue for Agile PLM Testing Guide* can be found on the AutoVue for Agile PLM Documentation OTN page: http://www.oracle.com/technetwork/documentation/agile-085940.html#autovue.

For information on the various deployment considerations for AutoVue, refer to Chapter 5, "Feature Deployment Considerations." In most cases, more than one of these scenarios are applicable to your deployment. It is recommended that you review all of these various deployment scenarios and identify what is applicable to your deployment.

4

Deployment Considerations

This chapter discusses the deployment considerations and best practices for scaling AutoVue for Agile PLM for better usage.

4.1 Scaling AutoVue for Agile PLM for High Usage

This section discusses the deployment considerations for AutoVue Server and File Manager.

4.1.1 AutoVue Server

Depending on the number of concurrent users, the kind and size of documents that users will typically view, and whether files will be loaded natively or from streaming files, an AutoVue Deployment Expert may recommend that you have multiple instances of AutoVue servers to meet your needs. A setup where multiple AutoVue servers are communicating with each other to handle the load is referred to as an AutoVue server farm.

> **Note:** In a multi-AutoVue server deployment, it is recommended to install AutoVue in the exact same folder path on each server otherwise streaming file validation will fail.

The following figure shows the AutoVue server deployed in a server farm.

Figure 4–1   AutoVue Server Farm Deployment
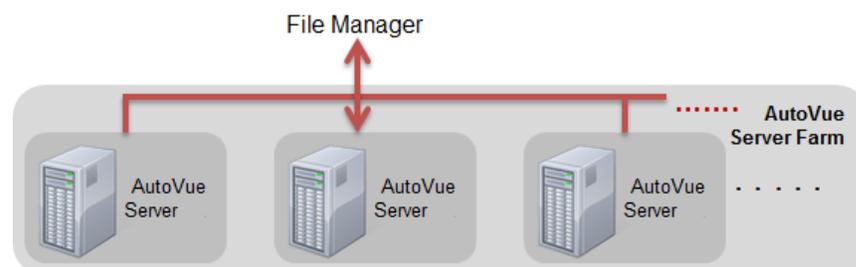
Each AutoVue server has a session server and multiple document servers. The session server accepts all requests to AutoVue and is responsible for distributing document requests across the document servers. When AutoVue is configured in a server farm, the session servers across the servers in the farm communicate with each other in order to distribute load across all the document servers in the server farm.

In order to setup AutoVue for load balancing, you must perform some configuration on the AutoVue server-side. Refer to the *AutoVue for Agile PLM Installation Guide* for more information on configuring an AutoVue server farm.

> **Note:** Streaming files and user profiles are not shared between servers in the server farm.

4.1.2 File Server (File Manager/VueServlet/File Vault)

Based on your peak usage, it may be necessary to setup multiple File Servers and distribute requests across the multiple instances. You must rely on the load balancing capabilities of the Agile PLM server or setup multiple File Manager/VueServlet instances and rely on an external load balancer that is configured to distribute load across all your application server instances.

> **Important:** It is required that the VueServlets in a clustered environment have identical settings (especially, the jvueserver parameter).

The following figure shows the File Server in a cluster.

Figure 4–2   VueServlet/File Manager Cluster
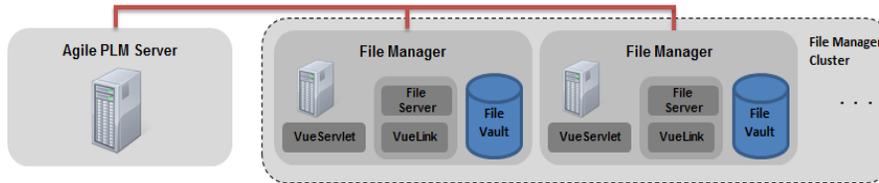
4.2 Distributed Geography

When deploying over a distributed geography, you must configure AutoVue for Agile PLM in independent clusters across the different locations.

Figure 4–3   Distributed Geography
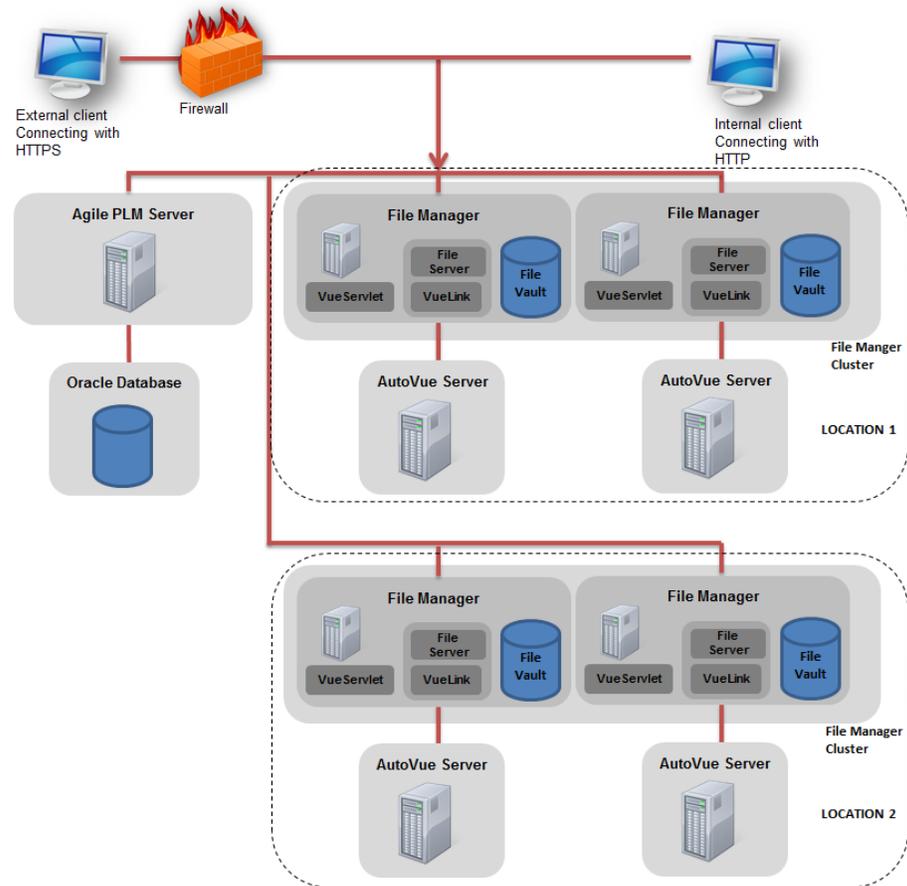
In this scenario:

- The Agile PLM server is configured such that users at Location 1 are always routed to the application server cluster in Location 1, and users at Location 2 are always routed to the application server cluster in Location 2.

- The AutoVue servers are local to the File Server.

4.3 Best Practices

The following are best practices to follow when deploying AutoVue for Agile PLM:

- Always run the AutoVue server as a service. For more information, refer to the "Running the AutoVue Server as a Service" section of the *AutoVue for Agile PLM Installation Guide*.

- Always run the AutoVue server as a named user and not as a LocalSystem account, as the latter has more privileges than the user name account.

- Do not use the same user account for Agile PLM, application server and AutoVue for Agile PLM.

5

Feature Deployment Considerations

This chapter discusses the deployment considerations for scaling AutoVue for Agile PLM for better usage.

5.1 Feature Considerations

The following sections discuss how to leverage streaming files and real-time collaboration (RTC).

5.1.1 Streaming Files

AutoVue generates streaming files by default for most of its supported file formats. A streaming file is created the first time you access a document in AutoVue. It contains all the information needed to display and to perform queries on the document. Streaming files provide the advantage that AutoVue can load from streaming files significantly faster than loading a file natively. Loading from streaming files also consumes a lot less memory on the server-side than when loading a file natively. All streaming files are checked into Agile PLM as .CFM files.

When planning your AutoVue deployment, you must determine how to size AutoVue's cache folder for streaming files. In most situations, AutoVue downloads the native document and its external references into the cache folder and then generates streaming files. You can specify various parameters for sizing the cache folder such as the size, number of files or last access date. For information on how to set these parameters, refer to the "Streaming Files Options" section of the *AutoVue for Agile PLM Installation Guide*. A default installation of AutoVue specifies the size of the cache directory to 20 GB. If you have a large deployment or your deployment involves loading of very large files, you must set this size to a bigger value. Note that you may experience performance issues if the cache folder is very big or if there are a large number of files in the Cache folder.

> **Note:** Cache folders are not shared between servers in a server farm.

> **Important:** For performance reasons, it is recommended that AutoVue's streaming file cache directory is excluded from real-time virus scans. If real-time virus scans are enabled, there is a performance impact on AutoVue and the impact is tied to the kind of operations done by the virus scan. It is also recommended that you run scheduled virus scans at a time when the AutoVue server is not heavily in use.

5.1.2 Real-Time Collaboration

AutoVue provides a real-time collaboration (RTC) feature that enables multiple end-users to review files interactively over distributed geographies, from distributed Document Management Systems, and from behind a firewall. The following sections describe how to plan your collaboration deployment.

For detailed information on configuring AutoVue for collaboration, refer to the *AutoVue for Agile PLM Installation Guide*.

5.1.2.1 Default Configuration

The following diagram shows a default RTC deployment.

Figure 5–1   RTC Deployment
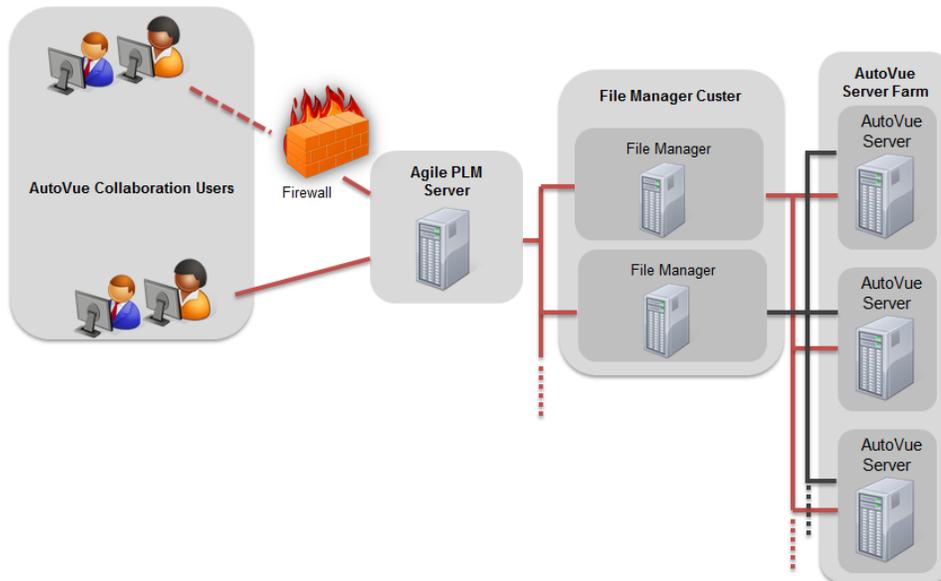
In this scenario:

- There is no need for extra configuration around RTC in this setup.

- Users connecting to AutoVue can initiate and participate in collaboration with the other users connected to AutoVue.

5.1.2.2 Configuration for Distributed Geographies

The following diagram shows RTC between users over distributed geographies.

Figure 5–2   Configuration for Distributed Geographies
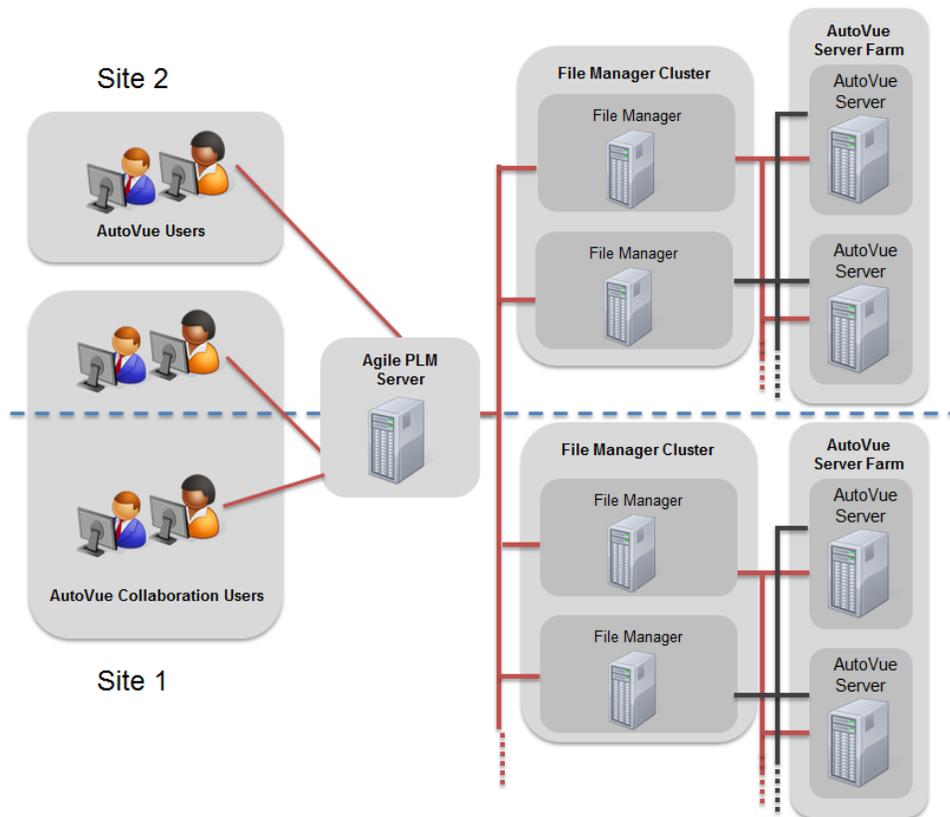
Note the following:

- Users are located over distributed geographies.

- AutoVue collaboration is done over a single location (Site 1). This ensures that users have access to the same files and do not require distributed DMS.

- This is the recommended deployment when there are distributed geographies and the DMS/VueLink do not support distributed scenarios.

- High bandwidth is required between Site 2 and Site 1 because users from Site 2 are connecting to Site 1 for RTC.

A

Feedback

If you have any questions or require support for AutoVue please contact your system administrator.

If at any time you have questions or concerns regarding AutoVue, please contact us.

A.1 General AutoVue Information

Web Site	http://www.oracle.com/us/products/applications/autovue/index.html
Blog	http://blogs.oracle.com/enterprisevisualization/

A.2 Oracle Customer Support

Web Site	http://www.oracle.com/support/index.html

A.3 My Oracle Support AutoVue Community

Web Site	https://communities.oracle.com/portal/server.pt

A.4 Sales Inquiries

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