

# High Availability and Disaster Recovery

Version: 1.0  
Date: December 10, 2012  
Author(s): MSI  
QlikView: Version 11



## Contents Table

---

Overview.....	3
QlikView Components .....	4
QlikView Component Overview .....	4
QlikView Web Server (QVWS) / IIS .....	4
QlikView Server (QVS) .....	4
QlikView Publisher (QDS).....	4
QlikView Directory Service Connector (DSC) .....	4
QlikView Management Service (QMS).....	4
Backup / Sync Points.....	5
QlikView Components' Configuration / Data Files Summary Table .....	5
High Availability and Disaster Recovery Scenarios .....	6
QlikView Components' Active/Passive Failover & Storage Summary Table .....	6
Single Server .....	7
Two Servers, Active / Passive.....	8
Two Servers, Active / Active QVS and QVWS.....	9
Multiple QlikView Clusters, Multiple Data Centers .....	10
Multiple QlikView Clusters, Multiple Tiers, Multiple Data centers .....	11
Appendix A.....	12



## Overview

---

This document explains High Availability and Disaster Recovery options when implementing QlikView. There are two primary sections in this document:

- 1. QlikView Components**

Description: provides an overview of the main components of QlikView and gives a description of the configuration and data elements to be replicated or backed up for each.

- 2. QlikView High Availability and Disaster Recovery Scenarios**

Description: highlights the most common approaches to achieve high availability in a QlikView Environment.

Hardware and software environment and QlikView implementations will vary amongst organizations. This document is not an implementation guide. This paper covers numerous approaches for making QlikView highly available and/or recoverable. These approaches should be balanced with the required needs of an organization. Common themes are explained while individual property and configuration details will not be addressed. Consult QlikTech to discuss solutions not listed.



## QlikView Components

A QlikView environment is made of five discrete components, described below. With the exception of the QlikView Management Service, these components can co-exist on one server or cluster across two or more servers in an active/active or active/passive configuration. The QlikView Management Service can run in an active/passive configuration only.

Note: This document will address single or dual server configurations for simplicity. These concepts apply equally to scenarios where two or more servers exist in a cluster.

### QlikView Component Overview

#### QlikView Web Server (QVWS) / IIS

The presentation tier of QlikView responsible for delivering QlikView content over HTTP / HTTPS to QlikView AJAX (desktop, laptop, mobile) clients. Unavailability of this tier will impact user access to QlikView.

#### QlikView Server (QVS)

The application tier of QlikView responsible for in-memory, associative analytics. Unavailability of this tier will impact user access to QlikView.

#### QlikView Publisher (QDS)

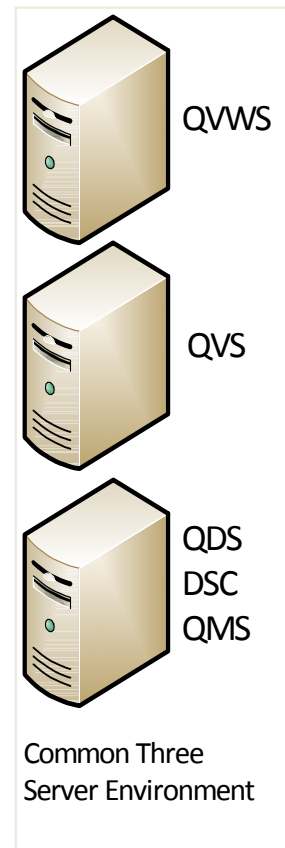
The data tier of QlikView responsible for scheduling of data loads, security authorization (I.e. permissions), and distribution of QlikView applications to the QlikView Server. Unavailability of this tier will not impact user access to QlikView but will impact batch processing.

#### QlikView Directory Service Connector (DSC)

Component of QlikView responsible for user and group resolution during reloads. Unavailability of this tier will impact batch processing and may impact user access to QlikView documents if group level authorization is used. This service communicates with the authentication service provider(s) (E.g. Active Directory, LDAP, etc.) and provides the connection to third party authentication providers which QlikView can utilize in conjunction with authorization functionality.

#### QlikView Management Service (QMS)

Component of QlikView responsible for access to the QlikView Management Console and the QMS API. Unavailability of this component will impact administrative functions and possibly interfere with accessibility to QlikView assets. The QMS is responsible for administration, configuration, and licensing tasks.



**Backup / Sync Points**

Whether producing backups or replicating files for highly available solutions, each QlikView component has configuration and/or data files that should be secured. Whether the QlikView components are spread across multiple servers or reside on a single server, the sets of files to consider are the same. See Appendix A for a more detailed explanation of file types and locations.

**QlikView Components' Configuration / Data Files Summary Table**

QlikView Component	Component Name	File Type	Change Frequency
QVWS	QlikView Web Server	Configuration	Infrequent
QVS	QlikView Server	Configuration / Data	Frequent
QDS	QlikView Publisher	Configuration / Data	Frequent
DSC	QlikView Directory Service Connector	Configuration	Infrequent
QMS	QlikView Management Service	Configuration	Frequent

Components which have frequently changing configuration and data (I.e. QlikView Server, QlikView Publisher, and QlikView Management Service) are able to reside in configuration and data files on non-local storage, so as to be able to take advantage of the same data center file shares or multiple data center file replication mechanisms (E.g. SRDF). If using non-local storage for QlikView Clustering, review *"SAN & NAS storage in a QlikView environment - Tech Brief - Mar 2012.pdf"* for supported storage options.



## High Availability and Disaster Recovery Scenarios

A QlikView environment is comprised of the discrete components described in the prior section. High availability solutions can be included for all components or simply those components for which high availability is needed. This section describes common scenarios used to achieve high availability, which are ultimately governed by the items listed in the following table.

**QlikView Components' Active/Passive Failover & Storage Summary Table**

QlikView Component	Passive Failover Supported	Active Failover Supported	Shared Storage Required for Active / Active
QlikView Web Server	✓	✓	No
QlikView Server	✓	✓	✓
QlikView Publisher	✓	✓	✓
QlikView Directory Service Connector	✓	✓	No
QlikView Management Service	✓	No	*

\* Not required but possible to move data there to aid in active/passive failover

All scenarios show components co-existing on a server but the concepts still apply when components are separated to their own servers (E.g. QlikView Server (QVS) and QlikView Publisher (QDS) on their own dedicated servers).



## Single Server

With this configuration, a single server runs all QlikView components. Data recoverability is accomplished by having taken a backup of the server and an on-demand restore occurs when possible. Production is unavailable until the restore is complete.



QVWS (Active)  
QVS (Active)  
QDS (Active)  
DSC (Active)  
QMS (Active)

### Advantages

- No additional licensing needed
- Simple: installation, maintenance, administration, troubleshooting

### Limitations

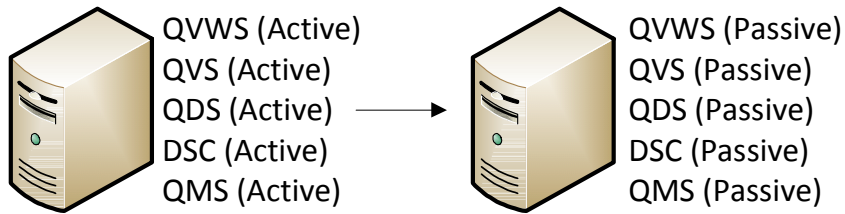
- May not meet recoverability requirements
- Not accessible while performing recovery procedures



**Two Servers, Active / Passive**

With this configuration, all QlikView components run on one server with a second server standing by in either the same data center or a different data center. In this scenario, the QlikView services on the passive server are off. Should the active server go offline, the QlikView services are turned on manually or programmatically using 3<sup>rd</sup> party scripts or software.

Data recoverability is accomplished by having taken a backup of the active server and an on-demand restore occurs when possible on the passive server. Production is unavailable until the restore is complete.



**Advantages**

- No additional licensing needed
- Simple: installation, maintenance, administration, troubleshooting

**Limitations**

- Ineffective utilization of hardware
- Slower to fail over

**Common Variations**

- It is possible to make use of the dormant server as a development or test environment when not in use. Switching from a development or test mode to production failover requires manual changes.
- Virtualization of the passive server is also possible. While it is not recommended to leverage virtual servers in production, a virtualized passive server can be effective with the understanding that during a failover scenario performance may be impacted.



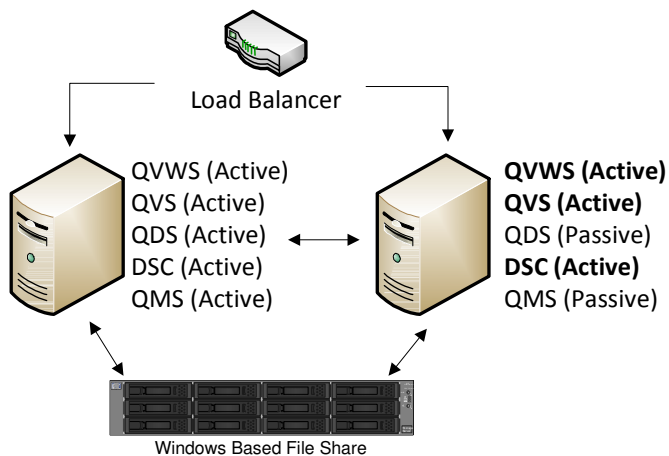


**Two Servers, Active / Active QVS and QVWS**

With this configuration, the QlikView components responsible for user experience are made active on a second server. The QlikView Web Server, QlikView Server, and Directory Service Connector are made active on both servers. Two or more QlikView Servers active in a QlikView environment are described as a "QlikView Server Cluster." To route user traffic to both servers, a 3<sup>rd</sup> party network load balancer is positioned in front of the web servers. Should a server fail, users on the failed server are automatically routed to the second server. Note that while the process of routing users to another server is automatic, users would experience an interruption of service. In addition, an active / active configuration is only supported in the same data center.

During normal operation, it is possible to configure user traffic flow to a single server such that the second server has no load, or it is possible to configure user traffic to spread across both servers. If the intent is to achieve full failover capabilities with no degradation of performance, the servers should be sized so that a single server can handle the complete user load.

As opposed to a single server failure, in the event of a total system failure, data recoverability is accomplished by having taken a backup of the shared storage area and an on-demand restore occurs when possible. Production is unavailable until the restore is complete.



**Advantages**

- Faster failover, automatic
- Better utilization of hardware

**Limitations**

- Requires load balancing hardware or software
- Multiple QlikView licenses are required
- Impact to capacity if a server is lost

**Common Variations**

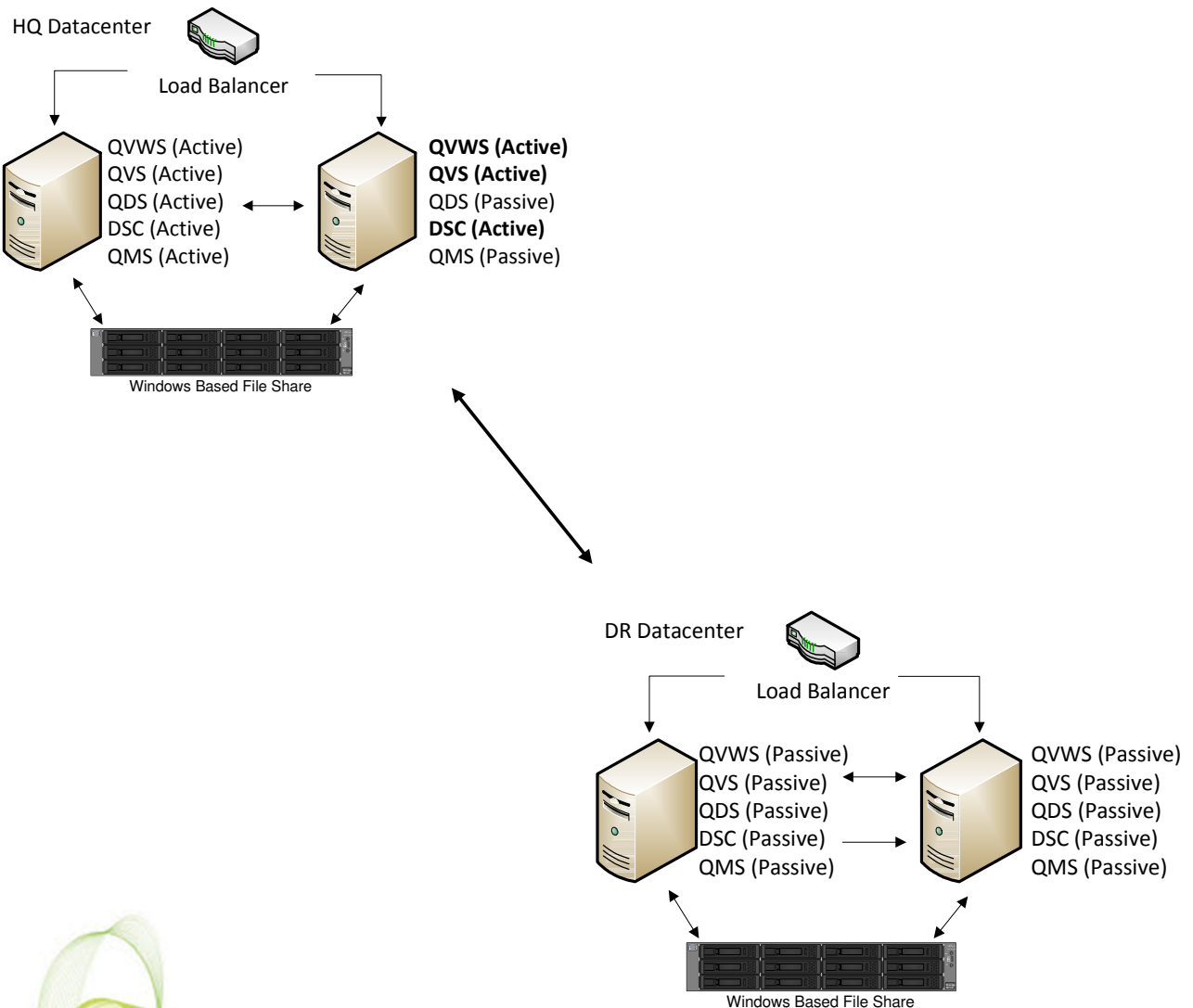
- It is possible to make the QlikView Distribution Service (i.e., QDS / QlikView Publisher) active on multiple servers. QDS load will automatically spread across both nodes.



### Multiple QlikView Clusters, Multiple Data Centers

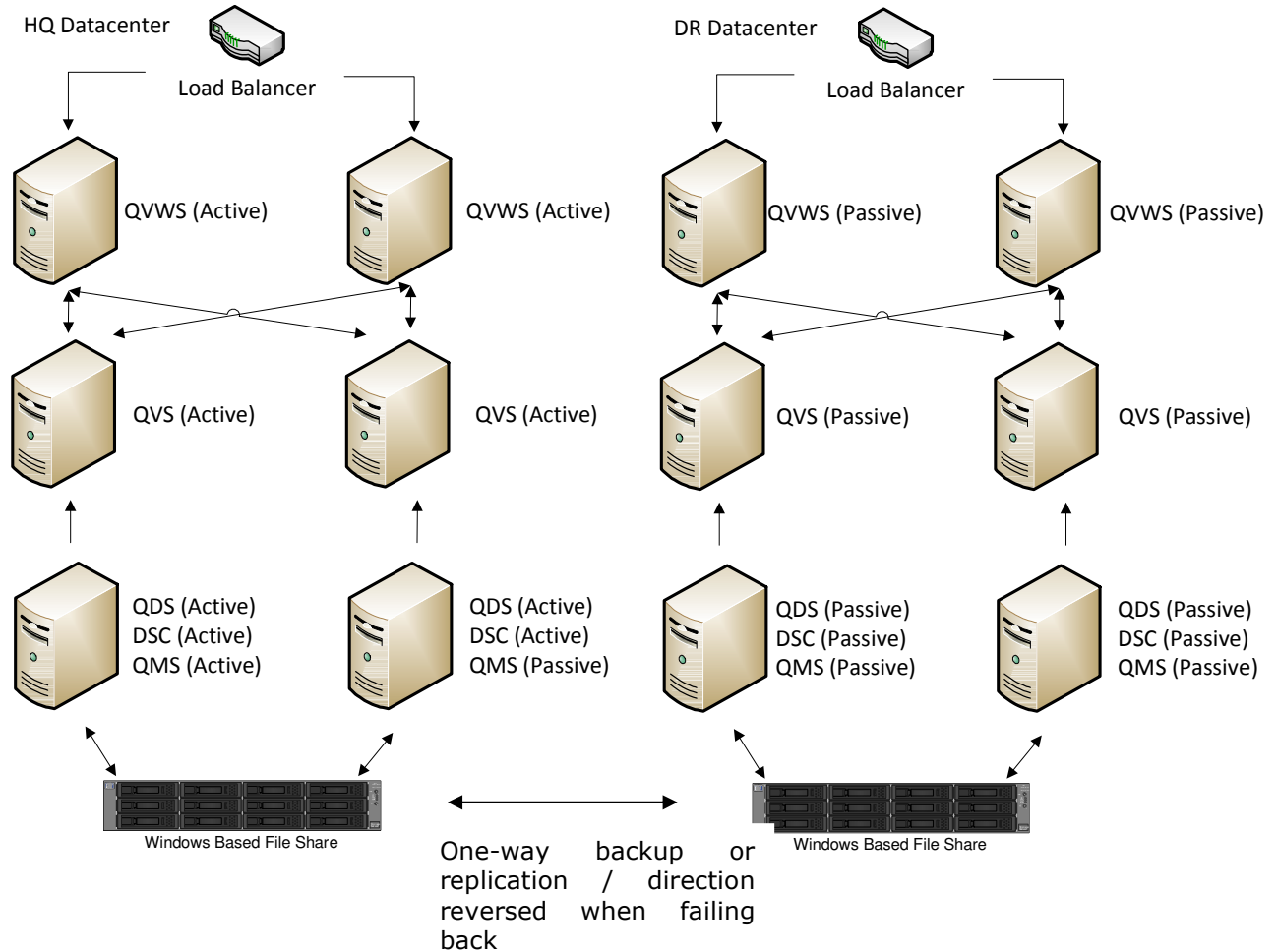
This configuration is a combination of the second and third scenarios, with an active/active QlikView Server cluster in a primary data center failing over to a dormant cluster in an alternate (or same) data center. Routing users to the alternate site is commonly a networking function, and the QlikView services are turned on manually or programmatically with 3<sup>rd</sup> party scripts or software.

As opposed to a single server failure, in the event of a site failure, data recoverability is accomplished either by having taken a backup of the shared storage area and an on-demand restore occurs when possible or by file replication to the alternate data center. Production is unavailable until the data is available and the QlikView services at the alternate site are turned on.



**Multiple QlikView Clusters, Multiple Tiers, Multiple Data centers**

This configuration is a continuation of the prior example and expanded to show clustering and tiered components that are common to customers with Enterprise Deployments of QlikView requiring fault tolerance and high availability.



## Appendix A

The table below lists the critical backup / sync points of each QlikView component along with how frequently each element changes. Regardless of the approach to make QlikView highly available and/or recoverable, these elements need to be considered in all cases.

QlikView Component	Critical Backup   Sync Points	Function	Change Frequency
QlikView Web Server	Config.xml	Configuration settings	Infrequent
QlikView Web Server	IIS changes if using IIS	Configuration settings	Infrequent
QlikView Server	*.pgo	Configuration settings	Frequent
QlikView Server	settings.ini	Configuration settings	Frequent
QlikView Server	*.shared	Collaboration Information	Frequent
QlikView Server	*.meta	Document Authorization and Metadata	Frequent
QlikView Server	*.qvw	QlikView Applications	Frequent
QlikView Publisher	*.xml	Tasks and Configuration settings	Frequent
QlikView Publisher	*.qvd, *.qvx *.qvw	QlikView Data and Applications	Frequent
QlikView Directory Service Connector	*.xml	Connectivity information to user and group lists (e.g., Active Directory)	Infrequent
QlikView Management Service	*.xml	System-wide Information and WorkOrders	Frequent
Other	Extension Objects	Custom / 3 <sup>rd</sup> party visualizations	With development cycles
Other	Database Connections	ODBC / OLE DB connections defined on Publisher server	With development cycles
Other	QVX Connectors	Custom / 3 <sup>rd</sup> party data connectors	With development cycles

