



KONICA MINOLTA

TECHNOLOGY



Dispatcher Suite High Availability

White Paper

Dispatcher  Suite
White Paper

Table of Contents

Introduction	3
Dispatcher Suite Key Features	4
Benefits of High Availability	5
Terminology	6
Planning & Considerations	7
Environmental Overview	7
Limitations	7
Clustering	7
Prerequisites	8
Dispatcher Suite Integration	9
Configuring for High Availability	10
Deployment	11
Sample Deployment Using HAProxy	11
Frequently Asked Questions	13



Introduction

As our premier print management and workflow automation solution, Dispatcher Suite allows companies to effectively manage and reduce their printing costs, while increasing their document workflow productivity and security. Konica Minolta's Dispatcher Suite platform integrates Dispatcher Paragon for print management and Dispatcher Phoenix for automated workflows. This feature-rich platform simplifies print and scan operations, maximizes office efficiencies, and provides businesses of all sizes with the flexibility they need.

With Dispatcher Suite's single sign-on capabilities and dynamic toolset, users have the ability to easily create powerful, automated document workflows for capturing, indexing, processing, and routing documents with zero manual effort. In addition, for organizations who mainly deal with project-based work, you can assign billing codes to individual projects, including support for multi-level project structures. Thanks to its complete modularity, Dispatcher Suite is highly scalable and can be configured exactly to varying corporate needs.

This White Paper provides guidance and best practices for using the HAProxy Load Balancing solution for HTTP and TCP servers in conjunction with Dispatcher Suite, Konica Minolta's comprehensive print management and workflow automation solution.

Dispatcher Suite Key Features



Authentication

User authentication is simple, convenient and fast with the entry of a username and password, PIN, or ID card, right at the output device, for reliable and secure device access.



Rules-Based Engine

Save money while driving team engagement. With provided access, the administrator can set individual print conditions for different users, such as limiting access rights to B&W printing or making duplex printing obligatory.



Print Roaming

Modernized and convenient printing capabilities. Users can submit their print jobs to any managed printer in any location within the network and release the prints whenever and wherever they need them.



Credit & Billing

This is essential for educational institutions and project-based environments that need to charge print, scan and copy costs back to originators.



Workflow Automation

Scan, capture, process, and route your documents automatically. Users can build simple to complex workflows easily, using a powerful, intuitive workflow designer with drag-drop functionality.



Reporting

In order to optimize cost efficiencies, companies can enable the tracking and accounting of all print jobs. Keep track of the “who, what, where & when” throughout the print environment.

Benefits of High Availability (HA)

Konica Minolta understands that your data must be as accessible as possible. While disaster recovery back-up solutions can be effective for large-scale data recovery, disaster recovery needs to also include High Availability to prevent service interruptions and enable real time service restoration. Benefits of a HA system include:



Protection from Downtime

Unexpected downtime can cripple operations, prevent sales, and impact productivity. Using High Availability (HA) solutions with HAProxy, operations migrate seamlessly to another server if one server fails.



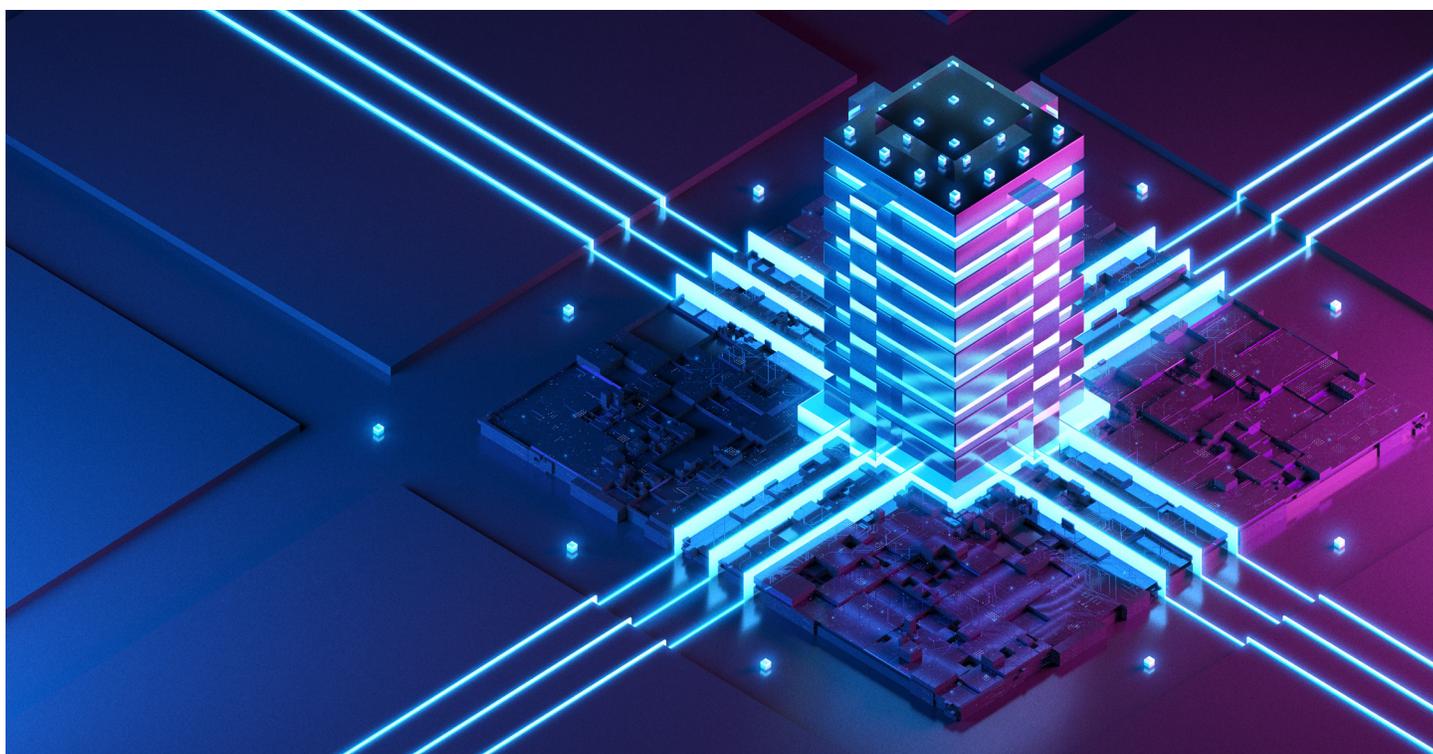
Simplify Maintenance

Reduce the impact to your customers and users whenever you need to take systems or data offline for maintenance, such as software updates or upgrades, backups and more.



Maximize Flexibility, Resilience and Agility

HA solutions excel in distributing your organization's workload across multiple servers and are the preferred solutions for high-profile environments that need to prioritize scalability, resilience and flexibility.



Terminology

Backend

A backend is a set of servers that receives forwarded requests. Backends are defined in the backend section of the HAProxy configuration. A backend can contain one or many servers in it; generally speaking, adding more servers to your backend will increase your potential load capacity by spreading the load over multiple servers.

Frontend

A frontend defines how requests should be forwarded to backends. Frontends are defined in the frontend section of the HAProxy configuration. A frontend can be configured for various types of network traffic and accepts requests from clients.

High Availability

A quality of a system or component that assures a high level of operational performance for a given period of time.

Listener

A listener is a process that waits for connection requests. You define a listener when you create your Load Balancer, and you can add listeners to your Load Balancer at any time.

Load Balancing

Load Balancing refers to the process of distributing a set of tasks over a set of resources, with the aim of making their overall processing more efficient.

Server Weight

Similar to setting priority, server weights indicate how much traffic a device will receive. A server that has greater network capacity or is at a primary data center location that is more central to the user base may have a high weight. All weight settings will deliver traffic to a device at some point.

X-Forward

A common method for identifying the originating IP address of a client connecting to a web server through an HTTP proxy or Load Balancer.

Planning & Considerations

Environmental Overview

In order to provide High Availability to a Dispatcher Suite installation, the environment must meet the minimum requirements for Dispatcher Paragon regarding authentication and for Dispatcher Phoenix regarding workflow processing. Requirements for both products are found in the [Dispatcher Suite online help system](#).

Server count for configuration is determined using the following information:

- Number of locations.
- Number of MFP devices.
- Number of workflow processes.
- Network design of multi-site environments.

Overall hardware requirements should be scoped in relation to server count and scaled using the [Dispatcher Suite hardware requirements](#) as a baseline.



Limitations

When using Dispatcher Paragon with Dispatcher Suite in an enterprise, load balancing environment, the Dispatcher Paragon Embedded Terminal for Konica Minolta only supports Native Terminal mode. It does not support the Web interface.

Clustering

Dispatcher Suite HA configuration begins with installation and configuration of Dispatcher Paragon and Dispatcher Phoenix clustering. Each product should be configured in their respective cluster configurations. Each product's cluster provides necessary High Availability functionality for the overall solution.

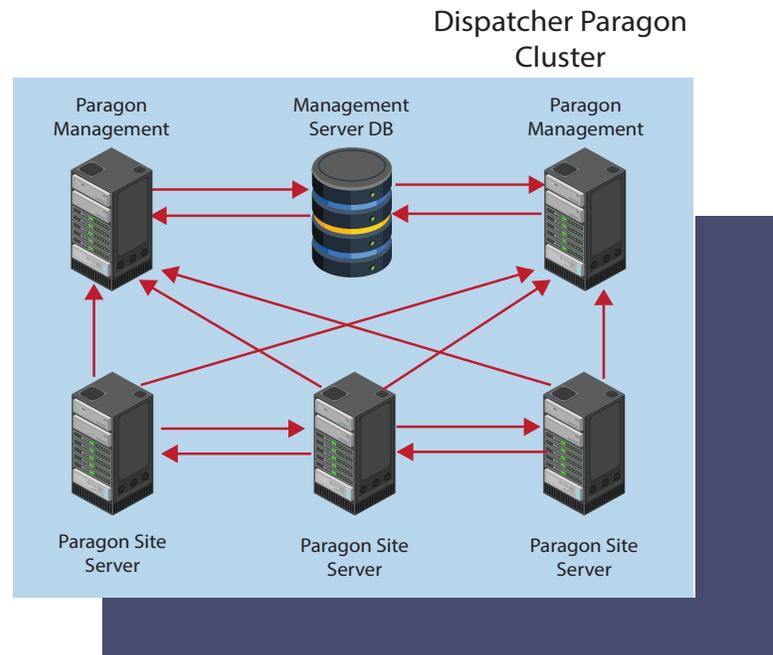
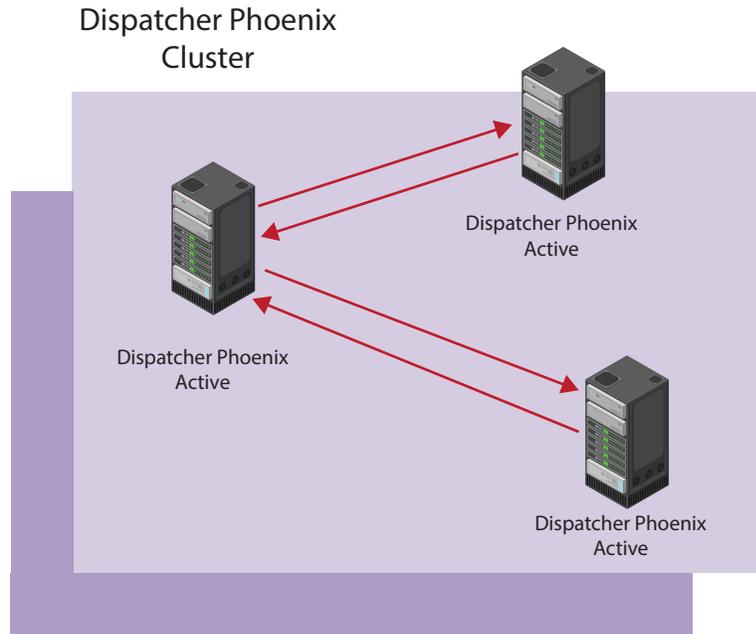
Dispatcher Paragon Clustering - Provides replication between site servers to support degraded cluster scenarios such as a down server, failed or stopped service components.

Dispatcher Phoenix Clustering - Provides replication of workflow engine processing between active nodes to support degraded cluster scenarios such as a down server, failed or stopped service components.



Please note: Clustering of the respective product components is required for HA when an environment requires multiple servers in the configuration. In the case of a single instance environment (One Dispatcher Phoenix instance and One Dispatcher Paragon Management Site Server), no product level clustering is required.

Example Configurations



Prerequisites

- All servers should be part of an Active Directory Domain.
- Windows Authentication using LDAP lookup must be enabled.
- A Network Time Protocol (NTP) or time synchronization must be activated between the separate servers for the two applications to communicate effectively.
- As part of the Paragon configuration: All spooler controllers must be in the same Spooler controller group.
- All MFPs must support OpenAPI setup version 4.1 or higher.

Dispatcher Suite Integration

Dispatcher Suite's integration provides a single point of registration for devices being added and updated for authentication, release, and workflow. Once component clusters have been established with their necessary size and specification, the Dispatcher Phoenix primary active server is integrated with the Dispatcher Paragon Management Server to provide integration functionality. This process should be executed after each cluster is configured for all necessary site and active node servers.

The overall steps for integration are:

1. Configure Dispatcher Phoenix System Settings

Using Dispatcher Phoenix Web, Dispatcher Phoenix must be configured to successfully send and receive MFP and user information from Dispatcher Paragon.

2. Configure Dispatcher Paragon System Settings

To properly share MFP user information with Dispatcher Phoenix, the Dispatcher Paragon System Settings must also be configured.

3. LDAP Configuration

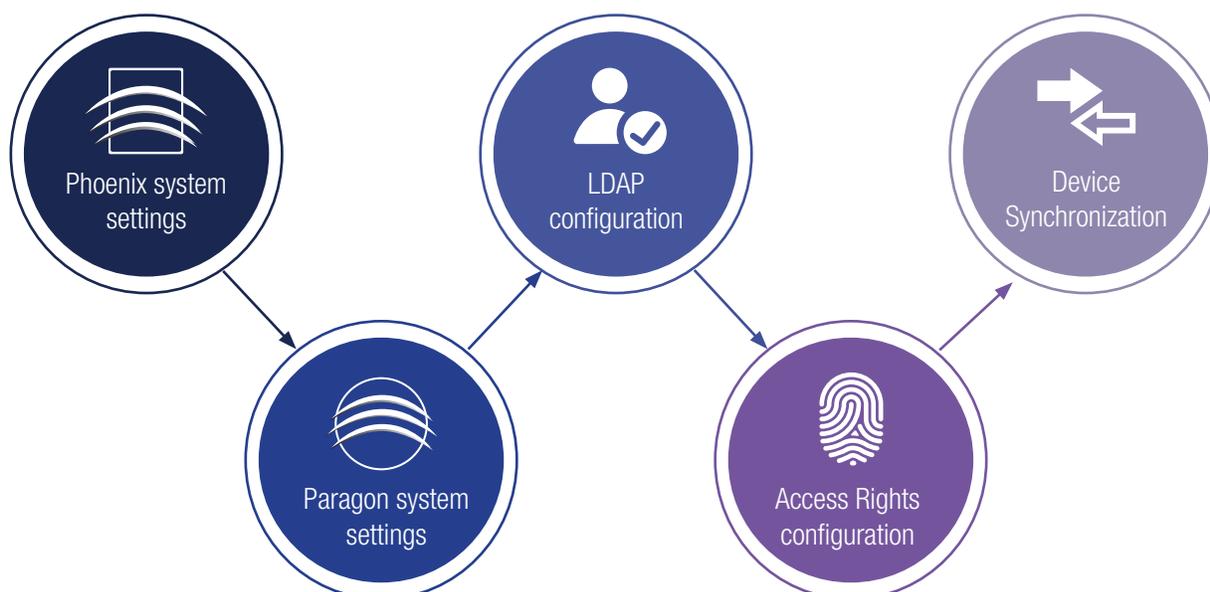
Configuring LDAP for Dispatcher Suite enables user synchronization as well as single sign-on capabilities at the MFP.

4. Access Rights Configuration

Within Dispatcher Paragon, a single user needs to be configured as the API user in order to facilitate communication between Dispatcher Paragon and Dispatcher Phoenix.

5. Device Synchronization

In order to allow Dispatcher Phoenix and Dispatcher Paragon to share information about devices, device synchronization must be enabled.



For more information on configuring Dispatcher Suite, please refer to the [Dispatcher Phoenix Online Help](#).

Configuring for High Availability

This Dispatcher Suite HA solution utilizes HAProxy to provide state aware load balancing to the clustered/integrated Dispatcher Suite environment. The Load Balancer is a single point of failure in the configuration of Dispatcher Suite HA. While it is possible to provide redundancy to the Load Balancer, this document does not address this additional configuration.

Additional information about HAProxy can be found here: <https://haproxy.org>

Configuring High Availability for Dispatcher Suite using HAProxy

This configuration requires that the system is configured to listen for traffic at the frontend while the backend servers route traffic accordingly. You should configure HAProxy for the following:

Frontend listeners for Dispatcher Paragon:

- Secure listener for port 5022 (most common secure communication port for Paragon).
- Secure listener for port 5014-5019 (additional secure port options).
- Listener for port 5012 (HTTP traffic).

Frontend listeners for Dispatcher Phoenix:

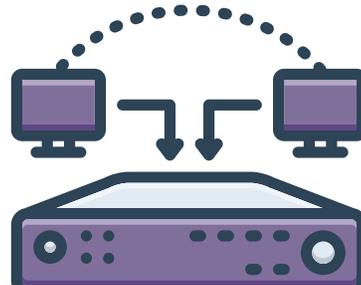
- Secure listener for port 50809 (secure bEST server port for MFP communication).
- Listener for port 50808 (HTTP bEST server port).

Backend server configurations for Dispatcher Paragon:

- Utilize TCP checking for state awareness.
- Source balanced algorithm.
- Hash-type consistency.
- Server identifier.
- Server IP address.
- Server weight - equal weight to the Dispatcher Phoenix Server (ex: 50).
- Check configuration including port for confirmation of state.

Backend server configurations for Dispatcher Phoenix:

- Utilize TCP checking for state awareness.
- Server-close logic.
- X-forward for options enabled.
- Source balanced algorithm.
- Hash-type consistency.
- Server identifier.
- Server IP address.
- Server weight - equal weight to the Dispatcher Paragon Server (ex: 50).
- Check configuration including port for confirmation of state.



Deployment

Sample Deployment Using HAProxy

The following is an example of a Dispatcher Suite HA deployment. This deployment utilizes HAProxy configuration and a group of three (3) servers to host multiple services per server. If necessary, the Dispatcher Phoenix and Dispatcher Paragon components of Dispatcher Suite can be separated into their own servers.

HAProxy Dashboard View (Configured with All Listeners)

The HAProxy Dashboard allows you to monitor frontend connections between the client and HAProxy as well as connections between HAProxy and the backend servers. Using this dashboard, you receive a near real-time feed of information that can be used to troubleshoot proxied services, get insights about your traffic, and watch the load placed upon your servers.

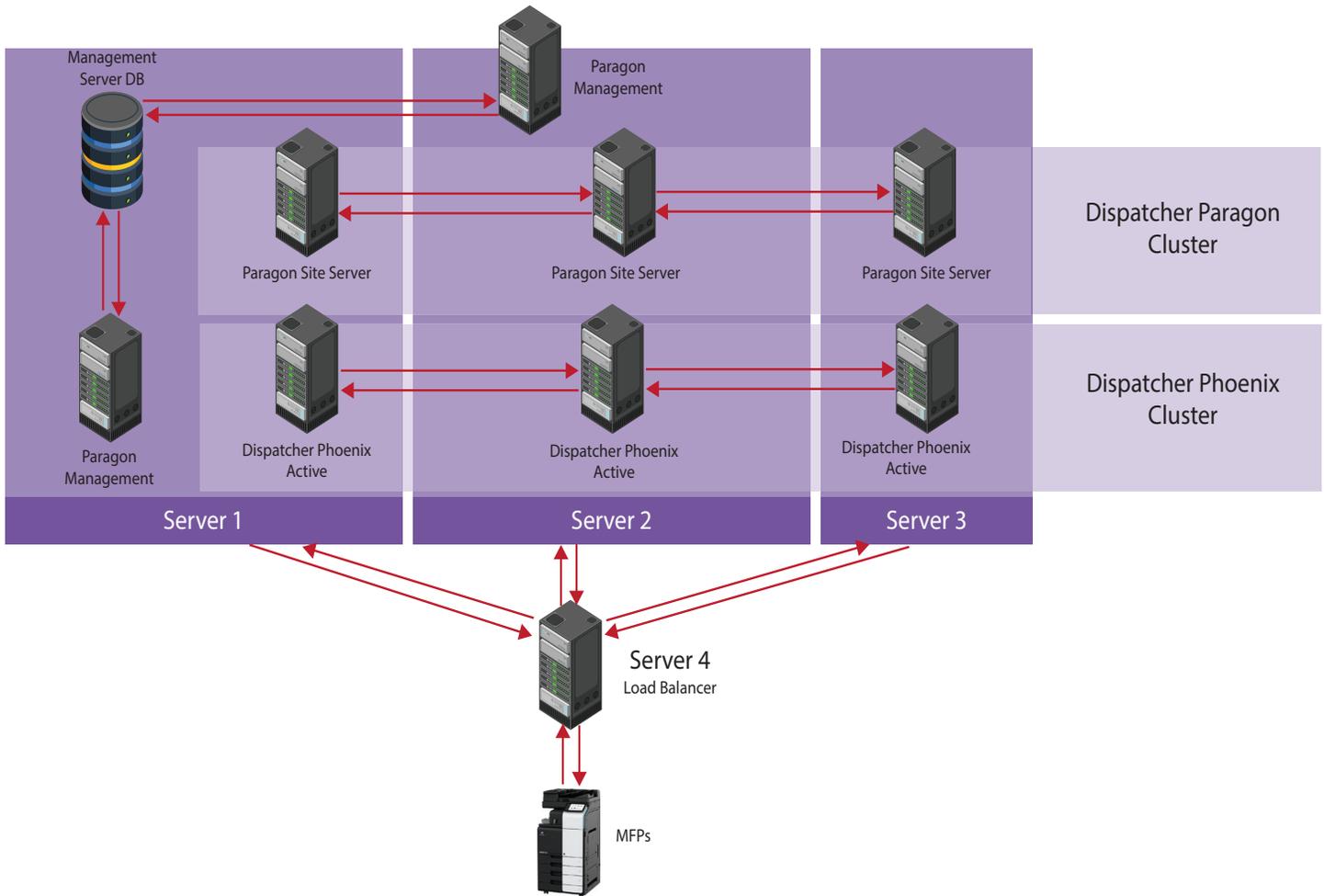
auth											
	Queue			Session rate			Sessions				
	Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot
Frontend				0	0	-	0	0		262 116	0

auth													
	Queue			Session rate			Sessions						
	Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot	Last	
primary-1	0	0	-	0	0		0	0		-	0	0	?
primary-2	0	0	-	0	0		0	0		-	0	0	?
primary-3	0	0	-	0	0		0	0		-	0	0	?
Backend	0	0		0	0		0	0		26 212	0	0	?

best											
	Queue			Session rate			Sessions				
	Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot
Frontend				2	2	-	2	3		262 116	2

best													
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primary-1	0	0	-	0	0		0	0		-	0	0	?
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primary-3	0	0	-	0	0		0	0		-	0	0	?
Backend	0	0		0	0		0	0		26 212	0	0	?

Dispatcher Suite HA (3 Server Configuration)



As illustrated above, each of the servers is configured with the following:

Server 1

- Dispatcher Phoenix Node (Active)
- Dispatcher Paragon Site Server
- Dispatcher Paragon Management Server (Primary Server)
- Dispatcher Paragon Database

Server 2

- Dispatcher Phoenix Node (Active)
- Dispatcher Paragon Management Server (Secondary Server)
- Dispatcher Paragon Site Server

Server 3

- Dispatcher Phoenix Node (Active)
- Dispatcher Paragon Site Server

Server 4

- HA Proxy (Load Balancer)

Frequently Asked Questions



What is HAProxy?



HAProxy is a free, fast and reliable open-source solution offering High Availability, load balancing, and proxying for TCP and HTTP-based applications.



Are Professional Services required to configure HA for Dispatcher Suite?



Yes, professional services are recommended to configure HA for Dispatcher Phoenix. Please contact sec@kmbs.konicaminolta.us for more information.



Does the configuration specific to either Dispatcher Phoenix or Dispatcher Paragon need to change to support HA?



No, Dispatcher Suite needs to be completely configured and clustered appropriately to support HA. There are no additional configuration recommendations.



Who can control the HA environment?



The customer will maintain control of the High Availability environment.



Will any license of Dispatcher Phoenix work in a HA configuration?



The configuration described in this White Paper will support all existing Dispatcher Phoenix licensing modules including perpetual and subscription/term licensing. The customer should still be licensed for the features and functionality they will require.



Is this type of High Availability included as part of the Dispatcher Phoenix license?



There is no additional licensing required for Dispatcher Suite when configuring HA using HAProxy.



How are these High Availability options different from the HA options offered as separate licenses for Dispatcher Phoenix?



You may purchase licenses for specific High Availability functions, such as Load Balancing and Failover, for Dispatcher Phoenix. These licenses provide built-in capabilities for routing traffic between single servers. Using a solution such as HAProxy, you can route traffic between multiple servers and clusters.

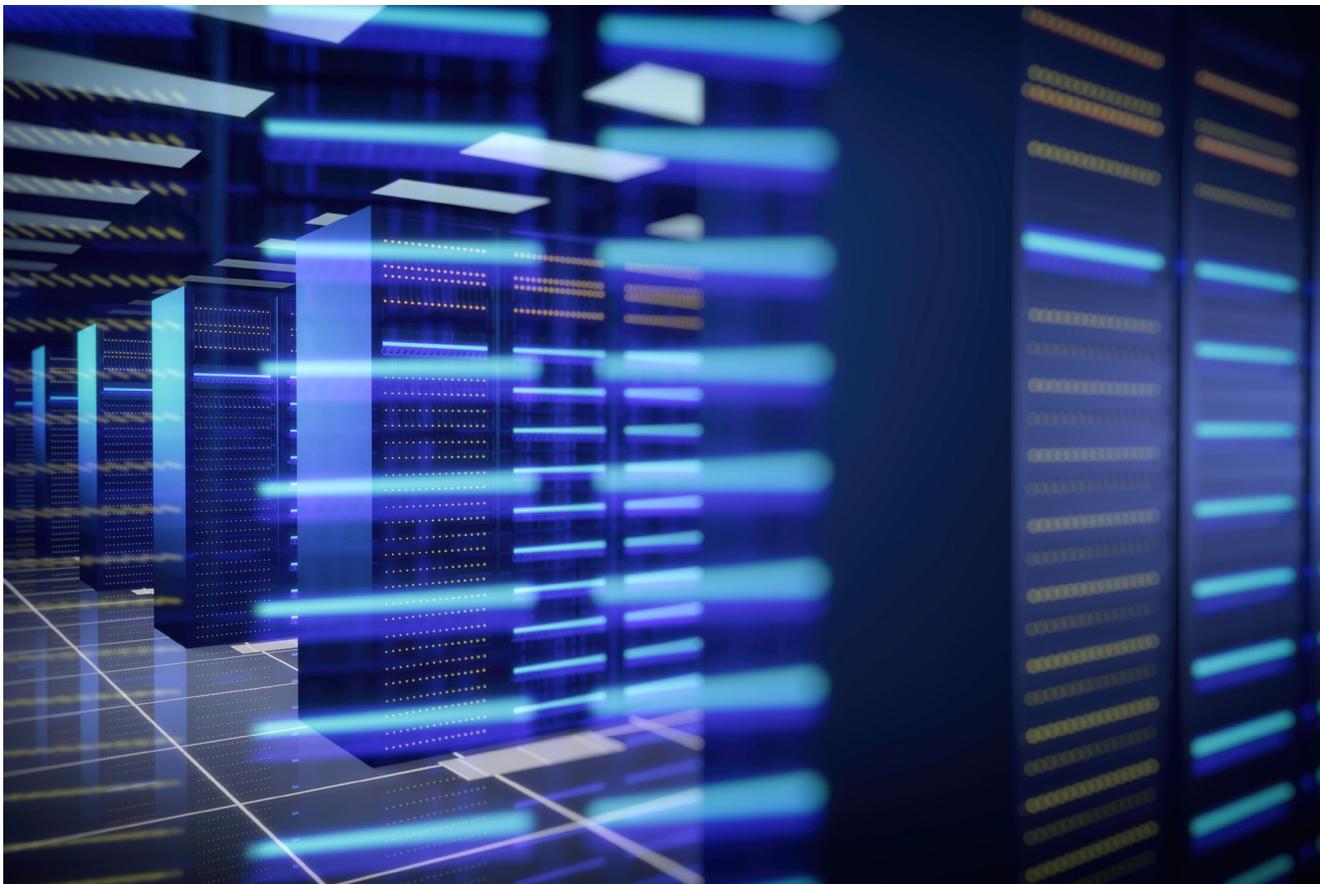


Will Dispatcher Suite HA work with other HA solutions?



The Konica Minolta Solutions Engineering Center (SEC) has currently tested and confirmed that the necessary features for creating a highly available Dispatcher Suite system are functional using HAProxy. Other solutions that provide similar functionality are not officially supported by SEC at this time. As additional solutions are tested, this White Paper will be updated to reflect the additional options.

The High Availability configuration for Dispatcher Suite will be different for each customer. For specific configuration recommendations or to inquire about professional services for Dispatcher Phoenix, please contact:
sec@kmb.konicaminolta.us.



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