Quick Start Guide:
Cornerstone and DMZedge High Availability and Failover

Configuring Cornerstone MFT Server and DMZedge for clustered environments and High Availability with Failover functionality.

DMZedge

HIGH AVAILABILITY CONFIGURATION

The Cornerstone server can be used in conjunction with the DMZedge server to create a high availability environment with server failover. Any number of Cornerstone servers can be configured to work in a clustered environment where each server shares the same database and file system to access files. Each Cornerstone server can also be configured to communicate with one or more DMZedge servers.

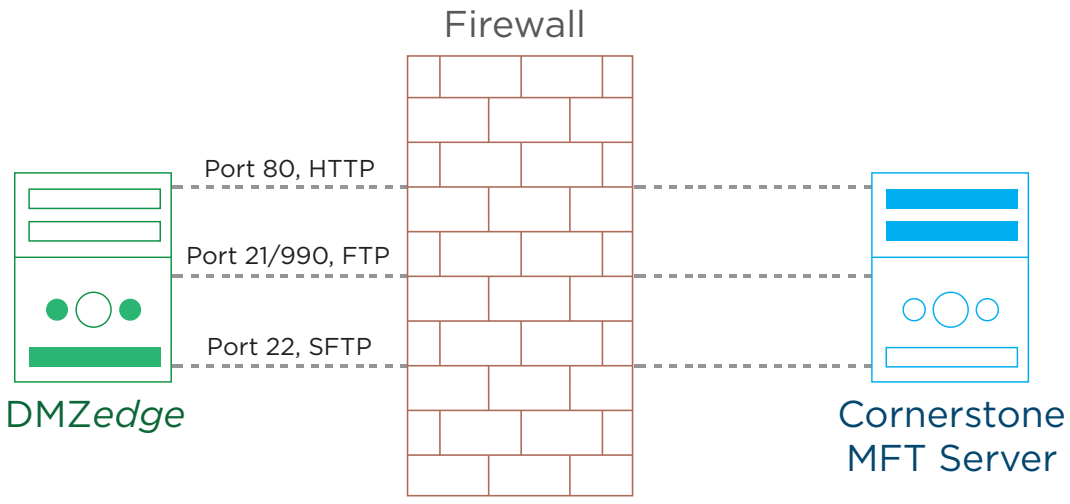
Many combinations of Cornerstone and DMZedge servers are possible. We will explore a few in more detail below, and answer many common questions about configuring the two to work together.

DMZ*edge* BASICS

The DMZedge server is a Windows service that listens on an internal port connected exclusively to a Cornerstone server. DMZedge's sole configuration option is the external IP address it will listen on for commands from Cornerstone.

Cornerstone has a DMZedge configuration dialog used to tell the DMZedge server what ports to listen on. For example, DMZedge can listen on port 80 for HTTP connections, 21 and 990 for FTP, or port 22 for SFTP.

On its own, DMZedge will never listen on an external IP/port combination unless told to do so by a Cornerstone server. Therefore, most of the configuration is actually performed on the individual Cornerstone servers in the cluster rather than the DMZedge application.



The DMZedge server listens on configured ports for messages from Cornerstone. Depending on your server needs, this could be HTTP, FTP, SFTP, or all the above.

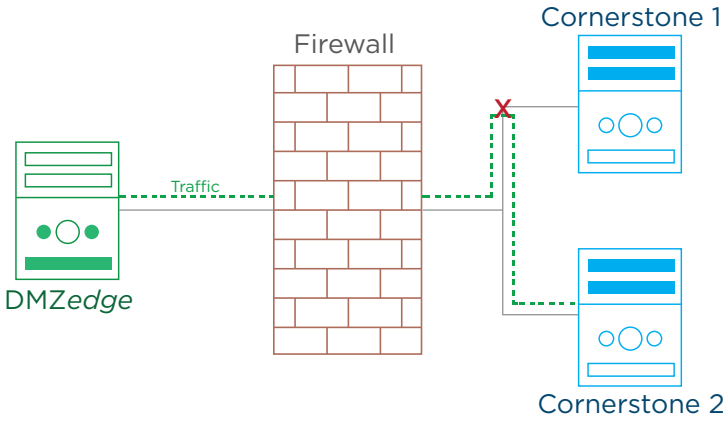
Multiple Cornerstone Servers with Single DMZ*edge* Server

FAILOVER

Consider this simple server failover configuration:

A single DMZedge server is installed on server with an external IP address. Two or more Cornerstone servers are installed on the internal network, configured to talk to a single DMZedge server. The DMZedge connection would be set as the priority for each Cornerstone server. Traffic will be routed to the higher priority Cornerstone server.

In our example, two Cornerstone servers tell a single DMZedge to listen on port 80 and route port 80 traffic to the Cornerstone server. When an external client connects to port 80 the DMZedge server will send the traffic to the cornerstone server that has the higher priority. If one of the Cornerstone servers should go down for whatever reason, traffic would route to the second Cornerstone server. Only one cornerstone server would be doing work at a time, the other ones are used as a backup in case the higher priority server goes down.



In a failover scenario, when Cornerstone 1 is flooded with traffic or goes offline unexpectedly, the traffic will be directed to the next Cornerstone in the priority list.

Multiple Cornerstone Servers with Multiple DMZ*edge* Servers

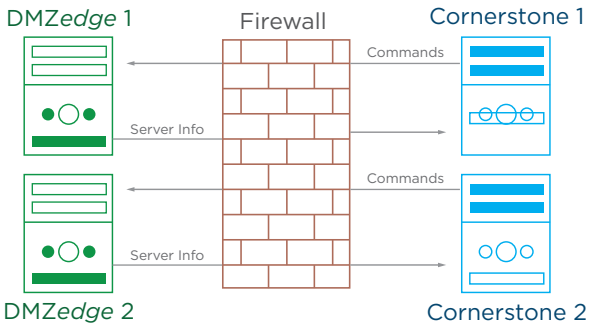
FAILOVER AND LOAD BALANCING

In this mode, each DMZedge server routes traffic to a specific Cornerstone server rather than filling the first on the priority list before transfering to the second, etc. In this setup, multiple Cornerstone servers handle the load equally. Since multiple DMZedge servers listen on external IP addresses, this method requires a load balancer, such as F5's big IP load balancer or Microsoft Clustering Services, to distribute connections to each of the DMZedge servers.

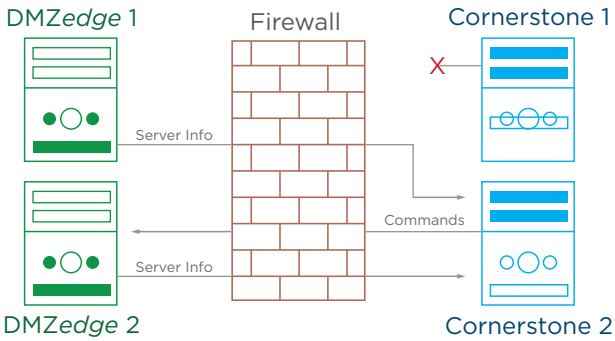
For example, say you have two Cornerstone servers paired with two DMZedge servers. Cornerstone #1 must be configured to communicate with both DMZedge servers #1 and #2. Each time you add a DMZedge server to a Cornerstone server, select a priority. Priority increases with the number. For our example, we configured the servers as follows:

Cornerstone #1
10.0.0.1 (DMZedge #1) with priority setting of 2 (Primary)
10.0.0.2 (DMZedge #2) with priority setting of 1 (Backup/Failover)

Cornerstone #2
10.0.0.2 (DMZedge #2) with priority setting of 2 (Primary)
10.0.0.1 (DMZedge #1) with priority setting of 1 (Backup/Failover)



According to these settings, DMZedge #1 would route traffic to Cornerstone #1 and DMZedge #2 would route traffic to Cornerstone server #2. Each Cornerstone is communicating with both DMZedge servers, and each DMZedge server will route traffic to the Cornerstone server with higher priority.



Let's say Cornerstone #1 has a power failure. If this happens the connection between Cornerstone server #1 and both DMZedge #1 and DMZedge #2 will be lost. When this occurs DMZedge #1, which was routing traffic to Cornerstone #1, will recognize that Cornerstone #1 is no longer accessible and will route traffic to the remaining servers, beginning with the highest priority server—in this case, Cornerstone #2. DMZedge Server #2, which was already routing traffic to Cornerstone #2, will continue on.

In the event Cornerstone #1 powers back up, it will communicate with both DMZedge servers, which will register Cornerstone #1's higher priority and route traffic back to Cornerstone #1.

SINGLE CORNERSTONE WITH MULTIPLE DMZ SERVERS

It is possible to configure a single Cornerstone server with multiple DMZedge servers. However, other than providing a potential failover protection in the case where a DMZedge server goes down, this setup would not provide much beneficit from a load balancing perspective.

LOAD BALANCING/CLUSTERING

Use a load balancer maintain multiple external connections. You can configure the balancer to distribute connections to either multiple DMZedge servers or, if no DMZedge's are used, to multiple clustered Cornerstone servers which share a common database and file system

System Requirements

SUPPORTED OPERATING SYSTEMS

- Windows Server 2016 or later, all 64-bit editions (32-bit is not supported)
- Windows 10 Professional TH1 1507 or later, 64-bit (32-bit is not supported)
- The Web-based Admin Console and the WebUI require the latest versions of Microsoft Edge, Google Chrome, or Mozilla Firefox. Microsoft Internet Explorer (IE) is not supported

MINIMUM HARDWARE REQUIREMENTS

- 2 GHz Pentium class processor or better is required, multi-core is recommended
- 8GB RAM is required, 16GB or more is recommended for production systems
- SVGA (1024×768) resolution display or better is required to run the Administration Console program

MINIMUM SOFTWARE REQUIREMENTS

- Microsoft .NET Core is required and is included in the installer
- Microsoft SQL Server/SQL Server Express 2019. SQL Express is included with the installer
- Microsoft SQL Server Management Studio (SSMS) is not required but recommended. SSMS is available on the Microsoft website.

LIMITATIONS

Cornerstone MFT Server and DMZedge Server are multi-threaded, dynamic server solutions built for the Microsoft Windows operating system. While designed to handle an unlimited number of user connections and configurations, like all software they are limited by the resources of the underlying hardware; most notably, those limitations imposed by memory and the Windows networking subsystems.

DMZedge