



# Optimizing Live Long-Distance VMware vMotion with NetApp FlexCache and F5 BIG-IP WOM

F5® BIG-IP® WAN Optimization Manager™ (WOM) enables BIG-IP devices to optimize long-distance VMware vMotion transfers that use NetApp FlexCache to perform VMware Storage vMotion. BIG-IP WOM optimizes the FlexCache update process and improves the performance of long-distance vMotion transfers over the WAN.

## Long Distance vMotion

Long-distance vMotion enables the transfer of a virtual machine (VM) from one data center to another through a two-step process. First, Storage vMotion transmits the disk version of the VM. Then, long-distance vMotion transfers the current state of the machine to the new location. The disk transfer portion of a long-distance vMotion transfer is powerful, but many need improved performance to address latency and packet error rates that restrict the viable distance over which long-distance vMotion can be utilized.

Using NetApp FlexCache to facilitate Storage vMotion can significantly speed the process. It does this by copying the relevant portions of the file out to the local cache in the remote data center. But in some cases, FlexCache performance can suffer also, particularly when latency is high or the WAN connection has packet loss. While FlexCache can speed the transfer and offer more stability, many desire improved performance between data centers with both Storage vMotion and FlexCache.

Data center managers need the ability to transfer load to different data centers for a variety of reasons—ranging from balancing workloads to data center consolidation. They have to accommodate shifting locations to match usage patterns and locate the server closest to users to support, for example, teams that shift while “following the sun.”

The ability to make these moves must be uninhibited by occasional network blips or high latency. Reliability and assumed completion, along with security, are large concerns for the data center manager to consider when planning such transfers. In the end, it is all about agility. How fast can a VM be moved from one data center to another, and can it be moved seamlessly with minimal user interruption?

BIG-IP WOM addresses latency, throughput, security, and even outright failure due to quality of WAN connections through a layered approach to WAN optimization and security. With these mechanisms, data center managers can send VMs farther, faster than with long-distance vMotion and FlexCache. Deploying BIG-IP® Global Traffic Manager™ (GTM) redirects connections to the new location seamlessly. With BIG-IP WOM, the destination of VMs being moved over the WAN can be farther away, utilize less bandwidth, and contend with higher latency—all while moving VMs successfully.

## Key features

- **Encryption**—Secures your vMotion transfers without loading your servers
- **Compression**—Sends less data over the WAN for vMotion transfers
- **Deduplication**—Prevents transmission of redundant blocks of data, particularly when transferring several similar VMs
- **TCP Optimization**—Minimizes protocol overhead of WAN connections to maximize throughput

## Key benefits

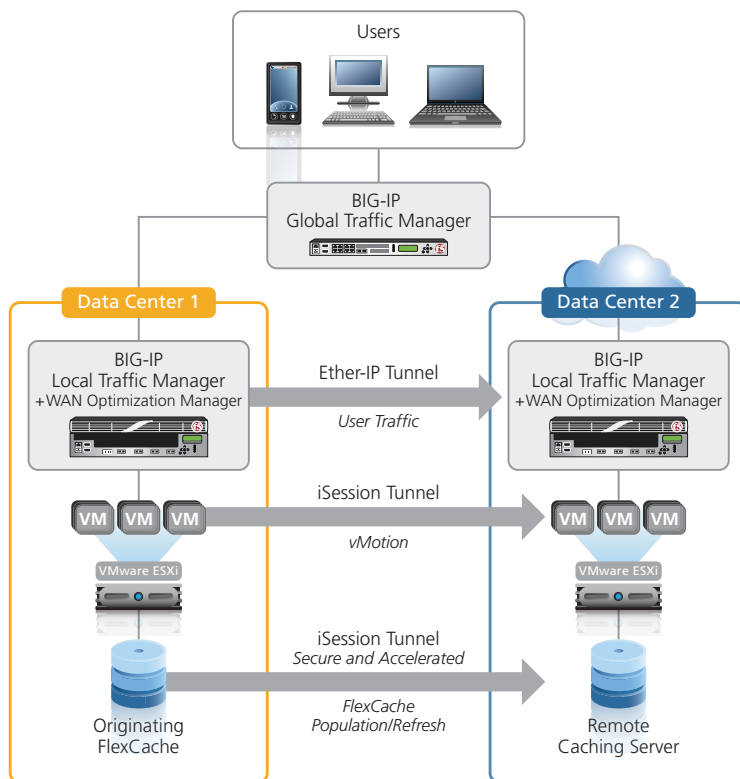
- **Increase Performance**—Improves vMotion and FlexCache transfer times
- **Increase Efficiency**—Maximizes bandwidth utilization
- **Cost Savings**—Reduces WAN costs and offloads CPU-intensive processes from servers
- **Improve Security**—Encrypts vMotion transfers over the WAN

## Solution

BIG-IP WOM enables data center managers to:

- Accelerate FlexCache transfers across the WAN.
- Mitigate the effects of latency.
- Optimize existing bandwidth to move VMs, thus controlling costs and eliminating the need for costly bandwidth upgrades, helping to reduce existing bandwidth requirement costs.
- Guarantee bandwidth and prioritize long-distance vMotion and FlexCache traffic.
- Allow transfers to complete that could not have finished otherwise, especially in the case of slow link speed, latency, or high data loss.
- Secure VM transfers with tunneling and encryption over the WAN.

BIG-IP WOM does this by layering optimization techniques onto the F5 TMOS® operating system.



BIG-IP WOM accelerates both Storage and Memory vMotion.

## Learn more

For more information about BIG-IP WOM solutions, please see the following resources or search [f5.com](http://f5.com).

### Product overview

[BIG-IP WAN Optimization Manager](#)

### Datasheet

[BIG-IP WAN Optimization Manager](#)

### White papers

[Myths of Bandwidth Optimization](#)

### Podcast

[Byte Caching, Compression, and WAN Opt](#)

### Deployment Guide

[Long Distance vMotion Deployment](#)

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