NetApp
Go further, faster

Storage Solutions

FlexCache Software

Get to market faster and enjoy tier 1 storage performance at tier 2 cost

KEY BENEFITS

Speed Time to Market
Maximize productivity by eliminating bottlenecks and accelerating remote data access.

Reduce Administration Costs
Avoid unnecessary data replication and automatically adjust cache content to changing data usage.

Automate data migration, replication, and synchronization.

Lower Infrastructure Costs
Use less expensive SATA disk for all data and use more expensive tier 1 storage to dynamically store only active data, as determined by actual usage.

Enjoy tier 1 performance for the cost of tier 2 by using tier 1 only for your most frequently used data.

THE CHALLENGE

Ensuring that the right data is on the right storage at the right time in compute-intensive, dynamic business environments
Large compute farms process vast quantities of data for a wide variety of applications, such as movie rendering, electronic design automation, seismic analysis, and financial simulations. These large farms are invaluable, but they create their own complex challenges. As administrators add servers to the farm in response to increasing data demands, system throughput may actually decrease. Because multiple compute nodes use the same data set, the performance of an entire farm can be limited to the throughput of a single storage system. The performance of shared data sets can also be an issue in a distributed global enterprise. Many companies rely on complete replication to ensure that important data sets are available in multiple locations, but full replication can cause delays, disrupt workflows, and increase the risk that work is being performed or decisions are being made without access to the latest information. Full replication can also be expensive to implement and complex to manage. Tiering storage, which uses less expensive storage for older or infrequently used data, can greatly reduce infrastructure costs, but these savings can often be eroded by the additional cost of managing tiering policies and procedures.

THE SOLUTION

Deploy NetApp FlexCache software
Now, by using NetApp® FlexCache™ software, you can scale compute farm performance without adding management complexity, enabling you to get to market faster and more efficiently. FlexCache shortens response times, accelerates performance for large compute farms, speeds data access for remote users, and helps you create a tiered storage infrastructure that does not require tedious data migration or management.

SPEED TIME TO MARKET

With FlexCache software, you can achieve results and get to market faster, more efficiently, and without complex, time-consuming administration. By distributing file access loads across multiple storage systems, FlexCache software makes it possible for you to scale the overall performance of your compute farm without adding management complexity. You can add caching systems as needed to scale out performance as your compute farm grows.

FlexCache software creates a flexible, horizontally scalable caching layer within your storage infrastructure that increases

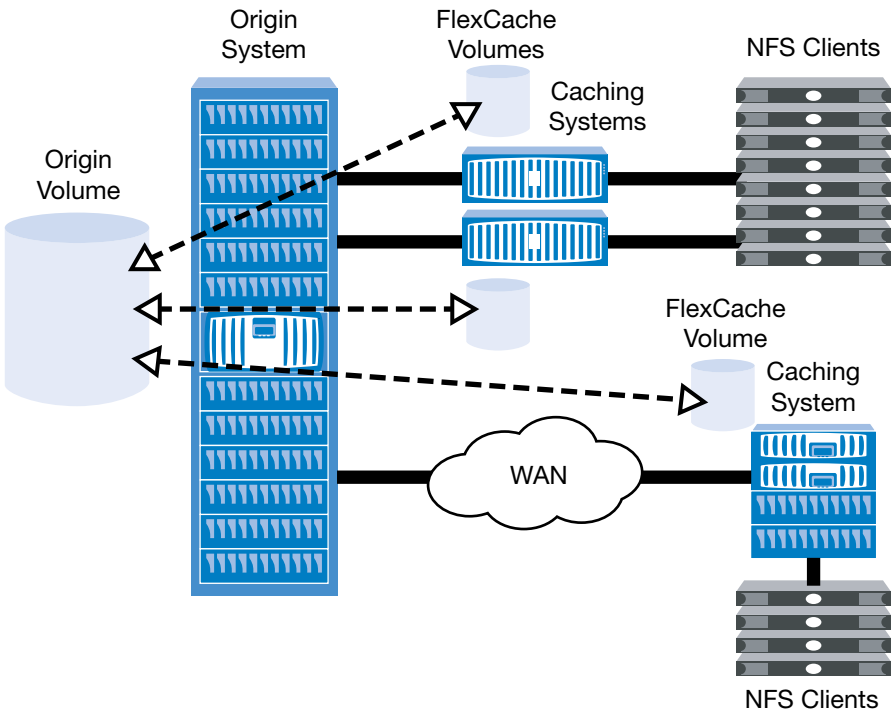

Figure 1)
FlexCache in local acceleration and remote caching scenarios. One or more FlexCache systems cache only the most frequently used data for accelerated access by the users and servers.

performance by automatically adapting to changing usage patterns to eliminate bottlenecks. FlexCache volumes store the most frequently used data from "origin volumes" on other NetApp storage systems. When servers or users request data, FlexCache serves it locally whenever possible, shortening storage response time and reducing the workload on the origin system. Full cache consistency and file locking enables the integrity of your data at all times.

With FlexCache software, you can automatically replicate your most frequently used "hot" data sets from origin volumes to FlexCache volumes on one or more caching systems. For instance, suppose that you have a repository that contains many large product design or multimedia files. It's impossible to know which files will be in high demand on a given day. FlexCache automatically caches the most frequently accessed files on high-performance storage for quick access and maximum efficiency, without requiring you to constantly monitor and migrate files. As access patterns shift, older files time out of the cache and newly "hot" files take their place.

ACCELERATE DATA ACCESS ACROSS WIDE AREA NETWORKS

Using FlexCache software for remote caching eliminates the need to manage data replication, reduces bandwidth costs, and ensures that the latest data version is always available to users in remote offices. If you manage a distributed global enterprise, it can be difficult to know which data will be needed in each location and when it will be needed. You could rely on replication to ensure that important data sets or software tools are available in each office, but this can be expensive, requiring you to invest heavily in both infrastructure and people to manage it. In addition, delays can occur while your users wait for the latest files to be replicated, and there is always the chance that work will be performed or decisions made based on outdated information or software.

With FlexCache software, once a remote site reads a file across the WAN, the local cache stores it and serves it at the speed of the local LAN whenever someone wants to access it. This works particularly well if you support a distributed organization that is involved in product development and testing, where storage read performance is usually far more important than write performance. It also works well if your users work from a variety of dispersed locations, giving remote users faster access to their home directories, shared toolsets, and other files, no matter where they happen to be.

LOWER INFRASTRUCTURE COSTS

Tiered storage can greatly reduce storage costs by storing older or infrequently accessed data on less expensive disks while maintaining a smaller pool of expensive, high-performance disks for active data. The difficulty with this approach, however, is that it requires the development of policies and management of procedures to ensure that the right data is on the right storage at the right time. Analyzing data usage and migrating data between tiers could easily become a full-time job for your staff.

NetApp can help you improve performance and lower storage costs where read performance is a critical factor. FlexCache software makes it easy to implement a "reverse" tiered storage architecture in which all your data resides permanently on less expensive SATA disk. Caching storage systems with high-performance Fibre

SYSTEM REQUIREMENTS

ITEM	REQUIREMENT
Storage system for origin volumes	Data ONTAP 7.0.x or 7.2.1 or later
Storage system for cache	Data ONTAP 7.2.4 or later
Clients	NFS V2 or V3

Channel disks dynamically store the active working set as determined by actual usage. Your users enjoy tier 1 storage performance while you pay tier 2 prices.

FlexCache software provides another opportunity for savings by transferring to the cache only the data that is actually accessed by the clients. As a result, the caching system uses less storage than full replication and provides significant cost savings when compared to alternatives that use full data copies to relieve storage bottlenecks.

CHOOSE YOUR DEPLOYMENT CONFIGURATION

NetApp FlexCache software addresses several problematic data access and data management concerns, including but not limited to frequent read bottlenecks, remote access support, and the effect of changing usage patterns on tiered storage. You can deploy FlexCache software with NetApp FAS storage systems that can serve both primary storage and caching needs. You can also deploy FlexCache software with NetApp V-Series systems to extend the benefits of FlexCache software to your heterogeneous storage running under Data ONTAP®. If application performance requires you to move caching from shared systems to dedicated caching systems, you can cost-effectively deploy FlexCache software on NetApp Storage Accelerator systems.

PARTNER FOR SUCCESS

When you partner with NetApp, you get the benefits of a fully tested solution, the expertise of our Professional Services and Global Support teams, access to our innovative technologies, and the assurance of best practices. You can accelerate the return on your infrastructure investments and get the most business benefit from them. We respond quickly to your problems, no matter where in the world they occur; and with one of the most flexible support programs in the industry, you always get exactly the support you need for your unique IT and business requirements.

NetApp is a world leader in unified storage solutions for today's data intensive enterprise. Since its inception in 1992, NetApp has delivered technology, product, and partner firsts that simplify data management.

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