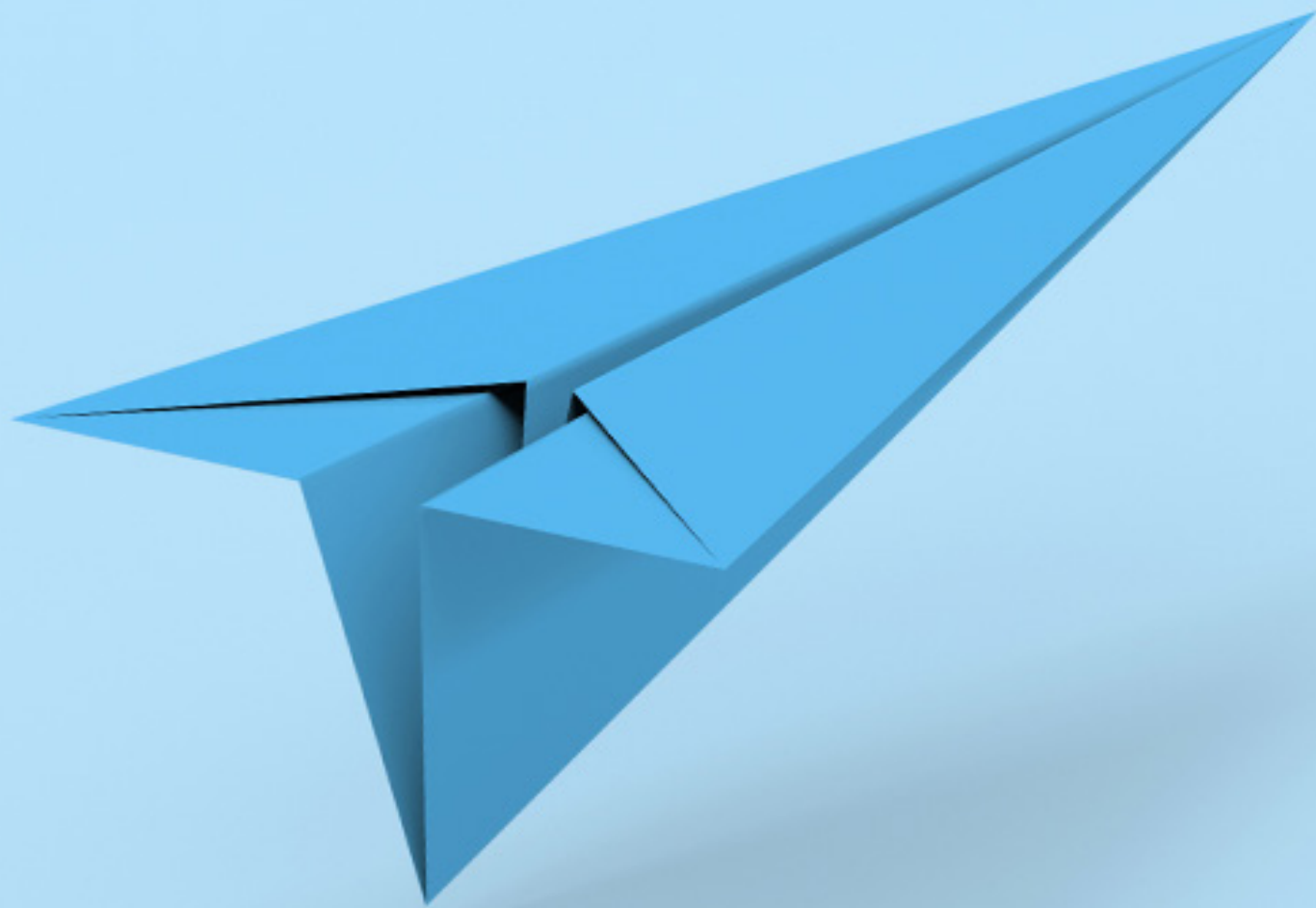


E-BOOK

NetApp Data Migration Services

Migrate to a modern hybrid cloud environment
without risking your data or your business





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Introduction: The challenges of large-scale data migrations

Data is the new currency for business success, driving innovation and new revenue opportunities. A modern infrastructure is key to extracting the most value from your data, no matter where it resides—on premises or in the cloud. Migrating business-critical workloads and applications to a modern storage and data management platform is pivotal to enabling greater access, efficiency, and performance for your data.

However, making the move from an outdated legacy platform to a modern hybrid cloud environment is not an easy undertaking. A large-scale data migration is more than just a straightforward process of moving data from one system to another. It involves large data volumes, heterogeneous systems, disparate data structures, and complex mappings, all of which can complicate the process. It can be disruptive, complex, time-consuming, and risky for your business, often creating roadblocks to IT transformation.



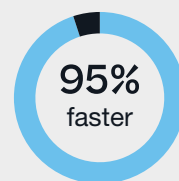
“Gartner predicts that more than 50% of data migration projects will exceed budget and timeline and/or harm the business due to flawed strategy and execution.”¹

Many organizations underestimate the complexity of a large-scale data migration. Without the right expertise and planning, unanticipated downtime and data loss can bring a migration project to a standstill. Large data migration projects are notorious for budget and scheduling overruns, and business, technical, and operational requirements can pose their own challenges to the transition process.

This e-book is a guide to enabling a smooth, cost-effective, and secure data migration process for moving your business-critical workloads to a modern hybrid cloud environment. It includes information about NetApp® Professional Services solutions that can support and simplify the migration process.

Clear scope: Avoid wasted effort, cost, and disruption

The process appears easy if you have unrealistic expectations of the time, expertise, effort, and resources it takes to execute a successful data migration to a hybrid cloud infrastructure. This perceived simplicity often leads project managers to schedule a data migration near the end of a larger, overarching project rather than taking the time to strategize and scope a migration with a full understanding of its implications for the business. Lack of proper planning and preparation from the start can slow a migration, bring it to a halt, or result in failure.










Transition quickly and smoothly with NetApp Data Migration Services
With the help of NetApp Professional Services, a leading automobile manufacturer was able to migrate 224TB of data from Oracle to NetApp in just 2 days, shaving months off the migration process.

Top reasons data migrations fail



- Lack of premigration planning
- Failure to clearly envision the postmigration environment
- Lack of a person with the specialized technical skillset required to perform the migration
- Failure to correctly scope the required costs and time
- Incorrect backup for delayed schedule
- Insufficient project management skills specifically pertaining to migrations

To avoid wasted effort and a costly and disruptive data migration, NetApp migration experts thoroughly review and scope your project. They make sure that every data migration plan includes these seven key tasks:

-  **1. Analyze data complexity**
Determine the types of data in the environment, identify dependencies, and define a migration pathway to get the data to the new storage system.
-  **2. Set up data standards**
Define a set of data standards to help smooth the migration and to proactively identify key risk factors.
-  **3. Establish policies for data governance**
Create standards and rules for maintaining data quality and keeping data safe during and after the migration.
-  **4. Assess data quality**
Identify data inconsistency, incompleteness, and duplication and prepare clean data for a successful migration.
-  **5. Gather migration requirements**
Establish which data will be moved, how that data will be used, who will use the data, and how the migration will affect the business and the way users work after the migration.
-  **6. Identify the correct migration tools**
Determine which migration tools are best suited for the environment and make sure that your team includes skilled experts to use them.
-  **7. Test and validate**
Carry out a full test of the migration process and validate that the security and integrity of the data were maintained.

Proven methodology: Take the guesswork out of migration

Whether you're migrating data to a new on-premises solution or to a public cloud environment, a clear and comprehensive methodology is essential for a well-staged, well-managed, and robust migration that minimizes risks and reduces time and cost. Our experts have developed a proven, six-step methodology that eliminates the guesswork in executing a successful migration. This repeatable approach to transition uses tools and processes that reduce risk, accelerate execution, and enable success from start to finish of the project. At the end of the engagement, you will have a fully configured, tested, and verified NetApp environment, with your data completely intact.

“Never underestimate how much planning and preparation go into executing a migration of this scale. For the 230TB of raw data we've moved, we've had zero complaints of disruption and no reports of detrimental performance.”

Storage Manager
Large Banking Institution



Determine the right migration path from third-party vendors

NetApp Professional Services experts are skilled in delivering smooth on-premises and cloud migrations from third-party platforms with minimal disruption and zero data loss. To enable a successful migration, NetApp experts help determine the right migration path and tools for your specific project, including our own tools such as NetApp XCP and premium tools from other vendors.

NetApp has a depth of expertise in moving business-critical data from different industry solutions, including but not limited to:

- Dell EMC: Isilon, VMAX, VNX/Unity, XtremIO, SC Series
- HPE: 3PAR, Nimble
- Hitachi Vantara: VSP, HNAS, HCP
- IBM FlashSystem
- Pure Storage: FlashArray, FlashBlade

Sample migration workstream: EMC Isilon to NetApp

- Perform NetApp implementation and design based on source Isilon.
- Integrate storage ecosystem and infrastructure (authentication providers, monitoring).
- Update disaster recovery procedure.
- Provision new storage on NetApp cluster to validate operational capability.
- Prepare end users and helpdesk to support change awareness (what and why).
- Establish NetApp SnapMirror® replication between sites.
- Perform NetApp XCP copy jobs.
- Perform NetApp FlexClone® end-user acceptance testing.
- Migration testing—pilot cutovers.
- Migration—production cutovers.

Isilon to NetApp Work Stream in Action

A large U.S.-based financial institution migrated 80TB of data from EMC in just over 2 months, 80% faster than the customer thought possible.



80TB
of data moved in
just over 2 months



80%
faster than the
customer thought



Customer proof points

5PB
of data moved
from EMC

10
days faster
than EMC

Global financial services provider

Migrated 5PB of data from EMC to FlexPod® shared infrastructure system with minimal business disruption and 10 days faster than EMC had proposed for migrating to its own solution.

4
months to
migrate

0
performance
issues

Large U.S. retailer

Migrated 400+ SAN hosts, 3,000+ LUNs, 180TB of data (480+ file shares), and 300 million files from EMC to NetApp in just 4 months, with zero performance issues.

406M
files moved

10
weeks

Large European financial institution

Migrated 150TB of data (more than 406 million files and more than 10,500 shares) from EMC in just 10 weeks.

15X
faster

0
data loss or
data corruption

Global oil and gas company

Migrated 5PB of data to NetApp with zero data loss and zero corruption. And the migration was completed 15 times faster than the customer estimated it would take their own internal team to do.

Data preparation: Eliminate unnecessary costs and complexity

Most organizations can greatly reduce the cost and complexity of a large-scale data migration by analyzing their data usage and archiving old or infrequently access data before the migration. However, enterprises typically don't take this important step. The result is that cold or nonaccessed data takes up valuable storage space in your new environment and you will pay for more storage than you need.

The following data should be analyzed for archiving:

- ✓ Data over x months/years of age
- ✓ Data that hasn't been accessed in x months/years
- ✓ Data that was created by employees who are no longer with the organization
- ✓ Data associated with applications that have been decommissioned

According to IDC, 60% of a customer's data footprint should live on an "active archive" and not on the most expensive flash or hybrid storage systems.

Archiving unused data is a simple concept, but many enterprises don't have the internal expertise or resources required to develop a clear, structured archiving strategy for identifying and moving data to be archived. NetApp archive experts can deliver both policy and analytics planning to help you identify and quickly archive data and efficiently control and manage storage costs for cold and unaccessed data before you start your migration. We can also help you satisfy regulatory compliance requirements for data archiving and access, whether you are migrating to an on-premises or a public cloud environment.

\$1.23M
Annual savings

Example of cost savings for archiving

Assumption: Customer buys 50% less capacity by archiving existing or cold data prior to purchasing storage and migrating workloads to the new storage system. Cost for storage system, FTE, and power cooling for AFF is \$.20/GB/month. In this scenario, the customer needs to buy only 500TB rather than 1PB of new storage. $500\text{TB} = 512,000\text{GB} \times \$.20/\text{GB}/\text{month} = \1.23M annual savings

Beyond the data center: Accelerate the move to public cloud

Moving data and applications to the public cloud is a strategic business decision that can deliver a quick solution to modernizing IT with the flexibility and agility that enterprises require. But how you choose to get to the cloud, and what data you choose to move there, can have a real impact on your business success.

The process may appear easy but, like on-premises data migrations, large-scale data migrations to the public cloud are not simple—and it doesn't help that cloud providers oversimplify to entice customers into adopting cloud solutions. It's not uncommon for large cloud migrations to take longer and cost more than expected, largely due to inexperience and unrealistic expectations of the time, effort, and resources required to execute successfully.

Navigating a large-scale cloud migration requires preparation, knowledge of cloud services infrastructure, and understanding of the appropriate workloads to move to the cloud. NetApp migration experts can help you:

- Define environment requirements to reduce service disruptions during migration.
- Assess your compute and storage workloads to identify which workloads are best suited for public cloud computing and which are better left on your premises.
- Identify which public clouds are best to use for your compute and storage workloads to achieve performance equivalent to on-premises storage services.
- Optimize current compute and storage workloads to ensure a more efficient migration and deliver the ongoing capacity, performance, and cost effectiveness you expect in the cloud.
- Determine the right tools and methodologies to help you smoothly and securely migrate to any public cloud.
- Establish best practices to help you control migration costs and maintain data protection and compliance policies in the cloud.

With our deep data migration expertise, we can help you accelerate your cloud migration journey and adopt cloud faster. We provide the right tools and methodologies to smoothly and securely migrate to any public cloud and the best practices to help you control migration costs and maintain data protection and compliance policies in the cloud.

About NetApp Data Migration Services: Take the risk out of data migration

Trust the experts

Engaging NetApp Professional Services to help with your data migration can simplify and accelerate the process without putting your data or your business at risk. NetApp Data Migration Services have you covered with a plan that aligns to your specific business requirements. Our experts help make sure that your migration delivers the performance, security, and ROI—on premises and in the cloud—that your business needs.

With more than 20 years of experience in data migrations, we have developed proven methodologies, best practices, and tools to enable fast, secure, and successful migrations – we get it right the first time. Don't be among the 50% of businesses that fail at their data migration projects.¹ Let NetApp Professional Services experts help make your data migration a win.



Next steps

Learn more about data migration and how NetApp can help:

- [NetApp Data Migration Services datasheet](#)
- [NetApp Data Migration Services for cloud datasheet](#)
- [NetApp Archive Service datasheet](#)
- [Migrating Enterprise Workloads to the Cloud e-book](#)
- [Data Migration for SAN Enterprise Apps e-book](#)
- [Data Migration for SAN Enterprise Application video](#)

When you're ready to get started with your own data migration, contact your NetApp sales representative.

About NetApp Services

Whether you're planning your next-generation data center, need specialized know-how for a major storage deployment, or want to optimize the operational efficiency of your existing infrastructure, NetApp Services and NetApp Certified Partners can help.

¹ ITConvergence, Data Migration Planning and Best Practices.



About NetApp

In a world full of generalists, NetApp is a specialist. We're focused on one thing, helping your business get the most out of your data. NetApp brings the enterprise-grade data services you rely on into the cloud, and the simple flexibility of cloud into the data center. Our industry-leading solutions work across diverse customer environments and the world's biggest public clouds.

As a cloud-led, data-centric software company, only NetApp can help build your unique data fabric, simplify and connect your cloud, and securely deliver the right data, services, and applications to the right people—anytime, anywhere.

To learn more, visit www.netapp.com



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