



NetApp XCP 1.0 Migration Tool Overview

January 2016

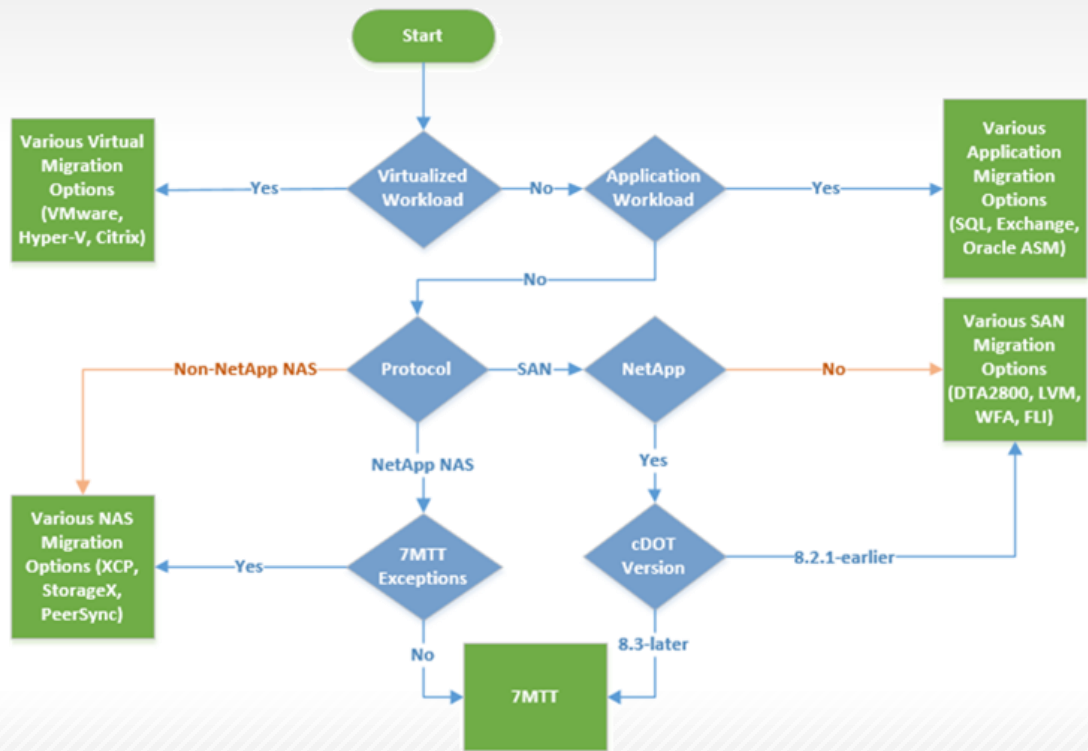
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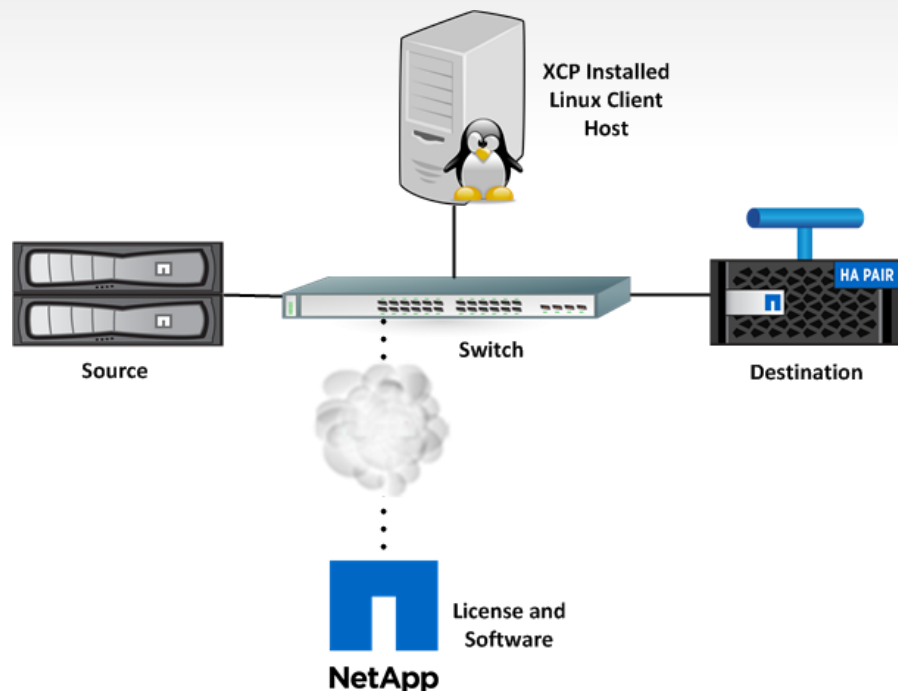
Recommended migration tools

The workflow demonstrates the positioning of XCP migration use case as part of the overall transition tools story, primarily as NFS only copy engine for 7MTT exception and third-party use cases.



What is NetApp XCP migration tool?

- Host-based NFSv3 copy engine developed by NetApp
 - NetApp to NetApp transitions
 - Third-party to NetApp migrations
 - High performance compared to that of traditional tools such as rsync and find
 - Up to 25 times faster in high-file-count environments and even faster over a WAN
 - Command line interface similar to rsync
- Additional functionality
 - Indexing/cataloging/three-level verification
 - Collects and catalogs metadata
 - Volume, subtree, and file-level assessment
 - Console, CSV, and HTML reporting
 - Alternative to OS commands (*du*, *find*, *ls*, *rsync*)



Features

Granularity

- Process any parts of any file system (qtrees, subtrees)

Diff Engine

- Change scan checks hundreds of millions of files per hour

Catalog

- Keeps reports, logs, and a metadata archive of every scan or copy

Filters

- Even more granularity
- Set criteria for age, owner, size, access time, or any attribute

Updates

- Sync incremental changes to a copy/replication target

Restart

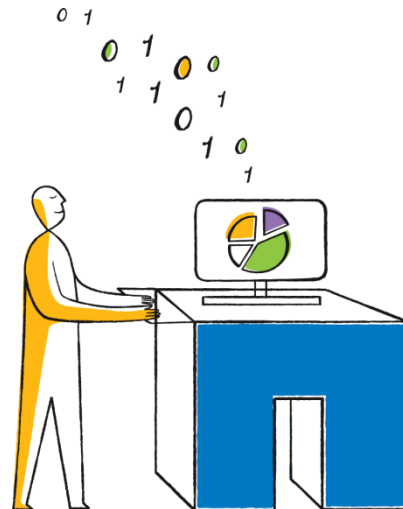
- Fast recovery to resume an interrupted search/copy/update

Verification

- Stats, structure, and full data comparisons make copies reliable

Snapshots

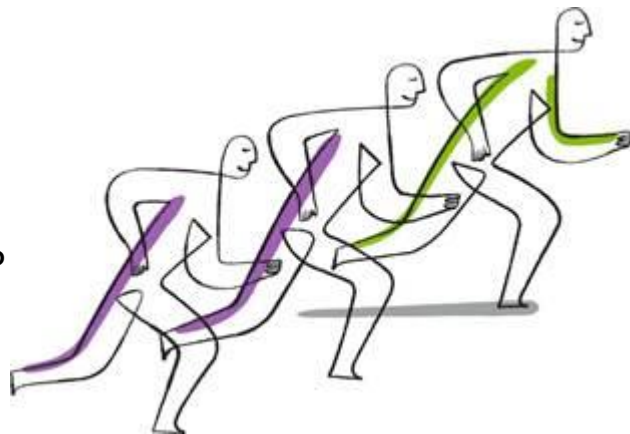
- Copy/diff/sync from snapshots as well as live file systems



Integrated feature suite for file and data processing

Why NetApp XCP migration tool is so fast

- Fully utilizes hardware and network bandwidth
 - Streams file system requests in large batches rather than moving them back and forth
 - Leverages multiple CPUs on a client
 - Opens multiple connections
 - Aggregates multiple network interfaces
- Built-in NFS client
 - Bypasses several OS layers to drive I/O directly through the TCP
 - Leverages the full feature set of the NFSv3 protocol



Licenses

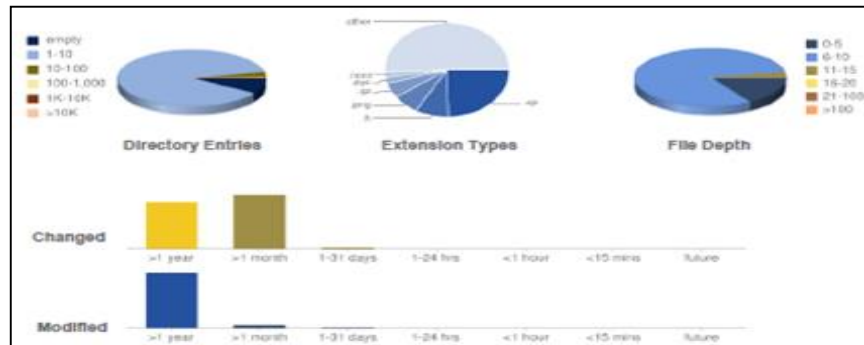
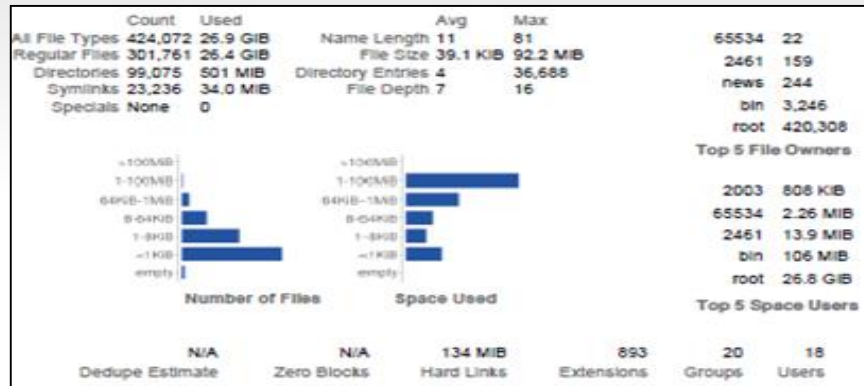
- NetApp offers a free 90-day XCP renewable license
- You can obtain the license from <https://xcp.netapp.com>
- You can download the software from the [NetApp Support](#) site



NetApp XCP migration tool sample reporting

- Online and HTML reporting
- XCP is fast, so you can change query filters and run multiple reports to discover valuable information about your data
- Reports provide verification and documentation of migrations
- You can use XCP reports to scope NetApp® and non NetApp systems and plan and execute migrations
- Report output
 - HTML
 - CSV
 - JSON

Note: The report is generated from an XCP scan of a third-party array.



NetApp XCP migration tool use cases

- **Third-Party Storage to NetApp Migrations**

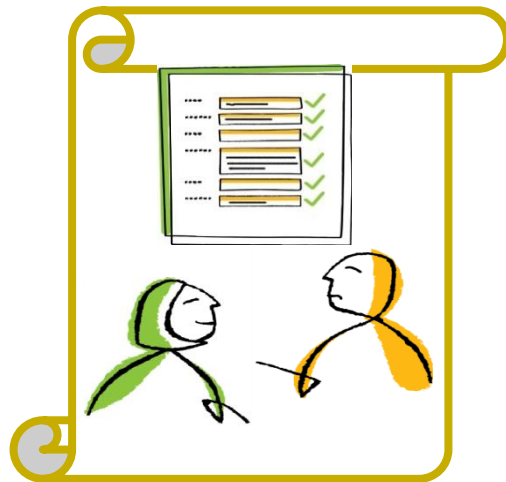
- High-file-count environments (hundreds of millions of files)
- Reduces cutover windows
- Scoping and reporting

- **7MTT Exceptions for Transition**

- Qtree breakout without swing space requirement
- n level copy granularity
- 32-bit to 64-bit NFSv3
- Controller consolidation ($n:n$) and scripting
- Any NetApp to NetApp transition

- **File-Level Assessment and Reporting**

- Dates (accessed/modified)/size/type/owner/permissions
- Symbolic/hard link discovery
- Customized reporting



NetApp XCP migration tool Linux host system requirements

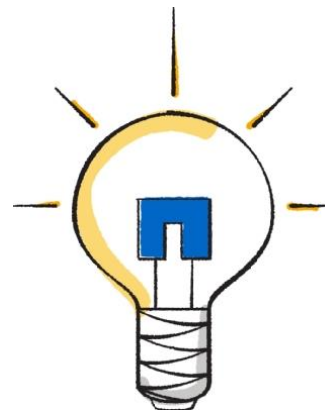
XCP uses a **Linux client host system** to generate parallel I/O streams and fully utilize available network and storage performance.

To support XCP, each Linux client host requires:

- 64-bit Intel or AMD server, minimum 4 cores and 8GB RAM
- 20MB of disk space for the xcp binary and at least 50MB for the logs
- Recent Linux distribution (RHEL 5.11 or later or kernel 2.6.18-404 or later)
- No other active applications
- Access to log in as root or run *sudo* commands
- Network connectivity and root access to source and destination NFS exports

Recommendations:

- Set Linux TCP performance-tunable parameters in */etc/sysctl.conf*. For more information run *xcp help info* or refer to XCP Technical FAQ.
- Export source volumes are read-only.



NetApp XCP migration tool benefits

Multifunctional	✦ Search, analyze, filter, and report ✦ Catalog, copy, and verify files and data
Flexible	✦ Volume, subtree, and file granularity ✦ Wide variety of sources and NetApp® storage targets
Software Only	✦ Easy to deploy and use ✦ No hardware, no drivers, no installation—XCP is just one executable file
Innovative	✦ From-scratch new NFS client in C, Python, and Cython ✦ High-performance asynchronous parallel I/O for all file system operations ✦ Substantially reduced time for searches, copies, verifications, and cutovers



Best practices

- Expert skills required (UNIX + storage)
- Training recommended (functionality + performance)
- Requires manual or scripted provisioning, planning, and job management
- If you can use NetApp® SnapMirror® software, then use it and don't use XCP
- Network, host, and storage utilization must be monitored

▪ Additional Considerations

- Supported directly by NetApp
- NFSv3 data and permissions only (no ACLs)
- Does not preserve storage efficiency savings
- Preserving/copying snapshots requires additional steps and scripting
- Best fit (25 times and higher versus rsync): high-file-count environments
- Worst fit (no benefit versus rsync): small number of large actively changing database files



Future enhancements

- Windows/CIFS
- File ACLs (NFSv4 or any UNIX file system with ACLs)
- Manageability: GUI, scheduling, provisioning
- Transparent migration (XCP currently requires an outage window; differential sync is available today but transparent migration with flexible cutover is not)
- Change reports
- File and subdirectory level autotiering



NetApp XCP available resources

- [XCP Quick Start Guide](#)
- [XCP Technical FAQ](#)
- [XCP User Guide](#)
- XCP Support ng-xcp-support@netapp.com



Thank you