NetApp 7-MODE VERSUS cDOT

SHOULD WE MOVE?

How To Reduce NetApp Support Cost

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A Special Research Report

Avoid costly upgrades, maintenance problems, and CIO headaches

S3P SMART 3RD PARTY

OVERVIEW

We deal with IT planning and maintenance issues every day for virtually every type of software and hardware vendor.

One question which seems to be prevalent for many of our NetApp installs is whether or when to convert from the old 7-Mode Operating system to the Clustered Data ONTAP cDOT. This special research report is for you if you are facing this issue.

We know that NetApp and their network of resellers or consultants might have a different view.

We think our engineers who deal with this issue in the trenches every day and have dozens of years inside NetApp can provide you with a balanced view.

You will see that there may be good reasons to switch, but the option of staying with 7-Mode for years to come should be considered.

Our goal in this special research report is to present a balanced view and possibly help you avoid operational problems, costly upgrades and headaches you just don't need.

WHAT IS THE ISSUE WITH NetApp 7-MODE?

For more than 20 years, the basic operating system for NetApp Enterprise Storage Solutions has been the 7-Mode (also now known as ONTAP Traditional or 7G). As with all operating systems, there have been many versions and upgrades for errors, better functionality, proliferation of storage options and changes in technology.

NetApp developed an enhanced version of ONTAP that is called Clustered Data ONTAP. You will see it referred to as cDOT. There have been several versions released since the initial roll-out about 10 years ago.

Clustered Data ONTAP is a much more complex operating system, and original versions did not include several functionalities of the tried and true 7-Mode. NetApp has been working for converged functionality in the Clustered Data ONTAP for some time. The features of it that go beyond 7-Mode relate primarily to scale out versus scale up allowing for better horizontal and vertical storage scaling. Additionally, when there is a need to replace or refresh, you can do so on the fly with minimal downtime or disruption of storage operations.

NetApp has been striving to achieve feature parity between 7-Mode and Clustered Data ONTAP, and they feel that going forward, it will be their multi-protocol offering. The fact that 8.2 is the last release with both 7-Mode and Clustered Data ONTAP indicates 7-Mode will no longer be supported.

NetApp sales force and resellers have been pushing Clustered Data ONTAP and give the impression that there is a major risk to staying with 7-Mode. Some larger

companies and those going through significant hardware upgrades have converted to Clustered Data ONTAP. The new system has many redeeming features and has progressed to a level that has eliminated most early bugs and fixes.

NetApp has had some issues getting customers to migrate from its 7-Mode ONTAP to Clustered Data ONTAP. That, along with its lateness to all-flash storage, has negatively impacted its sales in recent years, according to Dave Raffo of Storage Soup. NetApp CEO George Kurian said clustered node shipments grew 80% year-over-year last quarter, making up 85% of new sales.

However, Clustered Data ONTAP still only accounts for 26% of NetApp's customer base and the upgrades have been largely driven by discounts and promotions.

Dave Raffo goes on to explain that "those discounts have taken a toll on NetApp's bottom line. The company lost $8 million in the quarter, as revenue of $1.38 billion for the quarter declined 10.4% and came in below expectations. Its $5.5 billion in revenue for last year dropped 9% from the previous year."

The market has been very slow to adopt Clustered Data ONTAP, and there are still thousands of companies using 7-Mode. The cost associated with the conversion is key factor in the decision to convert.

The question on the table is whether your company needs to switch from 7-Mode, what is gained and what are the risks of staying away from Clustered Data ONTAP for the next several years. Is this even a reasonable option?

WHAT FACTORS SHOULD YOU CONSIDER
WHEN DECIDING BETWEEN 7-MODE AND CLUSTERED DATA ONTAP?

As we work with our clients who have moved from 7-Mode or are considering an upgrade to Clustered Data ONTAP, these are the factors that we discuss most often:

1. What is the Performance of Your Current System?

Where are the most significant gaps in performance in your current systems, both hardware and software? You have multiple applications and you know which are most mission-critical. Storage is critical, but for most organizations, operating software and hardware drive day to day workloads.

2. Are Storage Software and Hardware Relatively Stable?

In fact, we find that most hardware is very robust. But it is most likely that hard drives will fail before you have problems with your storage operating system (spinning media does give out eventually). So, the question becomes whether you have adequate spares inventory or access to maintenance and equipment brokers who can have spares available as needed.

3. How Many Maintenance or Support Calls Have Truly Been Caused by Storage Issues?

We find that many issues sometimes classified as storage have their roots in other software of hardware systems.

Make sure you have a good picture of your current environment before the move to Clustered Data ONTAP.

What Our Support Engineers Have to Say About System Performance:

We interviewed our in-house NetApp support engineers to get their take on the last few years of support incidents and the causes of the problem. They tell us that these are the most common:

1. Hardware failure*

2. Configuration issues*

3. Non-storage issues*

4. Environmental upgrade/questions (only for those still on 7-Mode who are wondering whether to upgrade)

5. 7-Mode bugs (there are still a few with 7-Mode, and Clustered Data ONTAP has its share too)

One engineer put it bluntly: "While at Smart 3rd Party, I have not had any issues (hardware or software) that could have been improved by migrating to Clustered Data ONTAP."

The Conversion to Clustered Data ONTAP Can Be Costly and Complex.

The change to Clustered Data ONTAP for companies already on 7-Mode can feel like you've brought in a new vendor. How competent and deep is your in-house staff who deal with storage? We usually find that staff is either so consumed with current storage needs or focused on overall operations that you will need outside help to make the upgrade.

Professional services from NetApp, resellers or consultants can be very costly. If you decide to do the upgrade in-house, you will need extensive planning and staff time.

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*All unrelated to 7-Mode vs. Clustered Data ONTAP operating system issues.

To give you a perspective, the NetApp public document, "Cluster Mode vs. 7-Mode Implementation Guide," available on their website is 155 pages. While the guide is extensive, realize that this is not even the internal document that NetApp engineers or resellers would use. And, this guide refers to several other guides and implementation tools that your staff would need to use if you installed Clustered Data ONTAP yourself.

Realize that migration services from 7-Mode to Clustered Data ONTAP is a profit center for NetApp and their resellers because of the high-level complexity and risk of poor install.

If you convert, make sure to budget for extensive outside professional services.

7-Mode is Now Complete with No New Development of Upgrades.

NetApp is no longer developing 7-Mode, and the latest version is the last version. While they will tell you that all their development is going into Clustered Data ONTAP and use this as a reason to switch, this is potentially an excellent reason to stay with 7-Mode.

What you need to evaluate is whether your version of 7-Mode is performing up to your standards and is stable. If so, you know that there will not be changes to the software you are currently using. So, why switch unless there are major business decisions driving software or hardware upgrades that need more robust storage architecture?

Our observation is that host operating systems like Windows and UNIX are not advancing their technologies at a rate that will outpace storage OS.

7-Mode is an incredibly mature operating system. In fact, 7-Mode could be the answer for you for years to come, if it has been stable.

Take the Time to Understand the Functionality of Clustered Data ONTAP/Cluster Mode.

NetApp is a world-class enterprise storage vendor, and our opinion is that they have made many enhancements to ONTAP with Cluster Mode. So, we know it can be the right solution for many companies. We support it every day.

Many of the enhancements can radically speed up systems and make daily operations run more efficiently while reducing the downtime because of hardware or software issues. And, Clustered Data ONTAP is built to scale storage exponentially as your business is growing.

But, there are thresholds in each organization. How fast does your storage and retrieval system need to be? Is this where you are having problems? Are there bells and whistles in Clustered Data ONTAP that you may never have to use? As one of our engineers who is a NetApp veteran says, "The system only needs to be as fast as it needs to be." This insight should not be ignored.

Is faster what you need? Or are you already where you need to be for the next few years?

Is There a Threat the 7-Mode Will Not Be Supported?

In the world of IT, this is a common problem as many big vendors nudge us to all the newest versions of hardware, technology, and software. They push refresh cycles and make pronouncements about end of life, end of service and disappearing bug fix software.

Let's face it: NetApp and the reseller community would love for you to upgrade. They have stockholders and investors clamoring for higher sales and profits.

What we see is that NetApp and many other third party maintenance companies will support 7-Mode for years to come. There are just too many installs and, as much as NetApp would like, they can't force anyone to upgrade.

They will make it painful and costly with annual price escalation for maintenance, but they can't force you.

Whether You Convert to Clustered Data ONTAP or Stay With 7-Mode, Maintenance and Support Can Be Very Costly.

Companies like NetApp, Cisco, Dell, etc. make a huge part of their profits on support. After the initial warranty support, one of the ways they force you into upgrades is by making support so costly.

Or they make it appear that support outside their network will not be "valid."

We researched this and found the following in the 2015 NetApp 10-K filing with the Securities & Exchange Commission:

Total Revenue 2016:	$6.122 Billion
Hardware Maintenance Revenue:	$1.569 Billion
Hardware Contract Maintenance:	$1.252 Billion
Cost of Hardware Maintenance:	$596 Million

What this shows is that NetApp made more than $600 million from hardware maintenance. As one customer said, they are "tired of paying NetApp a recurring sales tax every year."

There is tremendous margin for the manufacturer in maintenance. This is the reason third party maintenance companies can produce such large savings for their customers. In many cases experiencing a 75% cost reduction.

Know that the escalating cost of maintenance can appear to be a driver to convert from 7-Mode as the manufacturer inflates maintenance costs as your filer ages. Keep in mind there are options at a significantly lower price point.

And, if you decide to convert to Clustered Data ONTAP for good business reasons, you should know that you don't need to use NetApp for maintenance. Third party maintenance can be a good option here, too.

KEY TECHNICAL QUESTIONS TO CONSIDER
(PER SMART 3RD PARTY ENGINEERS)

You May Want to Consider Clustered Data ONTAP if:

- You need to provide tiered storage to users in an uninterrupted fashion (Example: Workload is on SATA drives, and it isn't fast enough, can migrate volume to SAS or FLASH in the cluster without the customer being aware)

- You need to be able to perform non-disruptive hardware updates or repairs (Example: Performing a CPU refresh, can evacuate a node to other clustered assets and replace)

- You want to manage all of your resources under a single namespace as opposed to multiple independent entities

- You determine that the workload can be best serviced by a cached front; you can move the volume to a node with flash-cache installed, and then start fronting

These are some indications that you are a candidate for Clustered Data ONTAP.

On the Other Hand, Here Are Some Other Questions to Ask Your Team:

- Do you foresee an immediate need to have some of the capabilities as mentioned above? If yes, then Clustered Data ONTAP is the way to go.

- Do you see legitimate, addressable issues that a hardware refresh would help alleviate? If yes, Clustered Data ONTAP is the way to go.

- How strict are your Service Level Requirements? Is 99.999% necessary? Do you think that Clustered Data ONTAP can provide five 9s?

As noted elsewhere, the predominance of our clients and customers do not have these requirements or service issues.

Here's What Our Engineers Say on That Topic:

- Their hardware has been very stout, except for hard drive failures. And spinning media will eventually fail. Mean Life to Failure (MLF) on most manufacturers can be upwards of 5 years.
  (see https://www.backblaze /blog/how-to-long-do-disk-drives-last/)

- Looking back over the last 4 years, we haven't come across an install that has been determined as being resource-deprived as the cause for a support case. The instances that initially appeared to be performance issues we determined not to be storage-related, it was the environment. Storage was not the issues, even in one major case where it was determined that cause was a setting on their Brocade switches.

- Even the most frequent customer contacts are typically hardware issues and not directly related to software or operating system functionality.

SUMMARY: A SUGGESTED COURSE OF ACTION

Key Action Steps and a Course of Action We Recommend:

- If you are wondering about whether to make a switch, take a look at how your current system is performing. Do you know what your current storage performance is?

- Find out how many maintenance or performance issues were a result of problems with NetApp in 7-Mode

- Find out what release version you have for 7-Mode and how long you have had it. See how stable it has been. If it has been stable, there is a strong case for sticking with it

- Check also your storage hardware for age and performance. Do you have adequate spares or have a supplier or maintenance partner that can guarantee that spares are readily available

- Finally, take a look at options for third party maintenance for NetApp

- Consider other vendors who may offer tailored service levels, expert support across all platforms/systems, and substantial reductions in cost

ABOUT SMART 3RD PARTY

We're Smart 3rd Party, an IT equipment maintenance support company offering our customers high quality without the high cost that some companies attach to it. As Amazon founder Jeff Bezos said, "There are two kinds of companies: Those that work to try to charge more and those that work to charge less. We will be the second."

At Smart 3rd Party, we are the second kind of company. We focus on reducing expenses so we can be the low-cost leader because the customer expects everybody in our space to deliver a certain degree of quality support. What makes us stand out is price.

Along with lower price, we provide excellent customer service because we want to establish long-term relationships with our customers built on trust and on doing the right thing.

I'm Ken Peck, the president of Smart 3rd Party and I put together this special report to offer insights to help you make informed NetApp decisions for your business.

My most recent positions followed 30 years in IT sales, hardware, software, and services companies including Unisys, Motorola, London Bridge, and Syntax. My first entry into third party maintenance was in 1986 at Unisys. There have been many changes over the years. On the sales side, the tools of the trade have changed dramatically. However, the basic sales process remains intact. You still must get the prospect to like you, if they like you they will listen, if they listen they will believe you. If they believe you, they will trust you, and if they trust you, they will buy your solutions to their problems.

NetApp Tier 4 Support Capabilities:

Smart 3rd Party team members have more than 30 years of combined experience supporting NetApp products including:

- 17 years with NetApp including 12 years as an escalations engineer
- 13 years with NetApp as a support engineer providing operational support to customers that heavily use NetApp products as part of their storage infrastructure
- 2 years with NetApp as a support engineer providing operational support to customers

Escalations Engineer:

- Provided tier 3 customer support for urgent or complex issues including on-call rotation
- Specialized in controller and storage subsystem hardware components and FC, iSCSI and NFS protocols
- Focused on "system down" or where data integrity was threatened (multi-disk failure)
- Worked on data recovery cases - never lost any data

Our Mission:

Smart 3rd Party will never outsource your support to another company or country. All support is provided by highly skilled tier 3 level engineers with direct access to our world-class lab facility. Our technical support engineers process many years of manufacturer experience, training, and certifications.

All major systems and operating systems under contract with Smart 3rd Party are replicated in our lab for problem recreation and diagnosis and spare part quality assurance. Let our investment in lab infrastructure work to your advantage.

If you need to perform testing or need to integrate new products, our lab is available to you 24 x 7.

NetApp Evaluation:

Let us know If you need help with evaluating your current NetApp hardware installation and operating system. We can take a look at the issue of 7-Mode vs. Clustered Data ONTAP. We will also be happy to suggest various hardware and software maintenance options for your NetApp install to see what might be done to save significant dollars and enhance the quality of your service.

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INSIDE THE SPECIAL RESEARCH REPORT

- Key factors you should consider when deciding to stay on 7-Mode or move to Clustered Data ONTAP
- What are the most common support issues with 7-Mode?
- Vital technical questions considering Clustered Data ONTAP
- What are the performance considerations?
- A suggested course of action

If you are interested in **reducing costs, avoiding expensive, unnecessary upgrades and future support issues,** this special report is a must-read.

Ken Peck is president of Smart 3rd Party, an IT equipment support company based in Atlanta that provides high-quality third party maintenance services without the high costs.