

Special Research Report:

**How To Know When The Time is Right
For Moving From NetApp 7-Mode To
Clustered Data ONTAP: Avoid Costly
Upgrades, Maintenance Problems and
CIO Headaches**

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Key Thoughts from your friends at Smart3rdParty

February __, 2016



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 8 Mode.**

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 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 present a balanced view and possibly help you avoid operational problems, costly upgrades and headaches you just don't need.

What's The Issue With NetApp 7-Mode?

For over 20 years the basic operating system for NetApp Enterprise Storage Solutions has been the 7-Mode (also known now 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 (Clustered Data ONTAP). You will also see it referred to as 8-Mode. There have been several versions released since the initial roll-out which was almost 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 Clustered Data ONTAP for sometime. The features of Clustered Data ONTAP 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, Clustered Data ONTAP will be their multi-protocol offering. And 7-mode will no longer be supported. This is indicated by 8.2 being the last release that will have both 7-mode and Clustered Data ONTAP personalities.

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. A number of 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.

On the other hand, the market has been very slow to adopt Clustered Data ONTAP and there are still thousand of companies using 7-Mode.

The question on the table is whether your company needs to switch from 7-Mode, what will be gained and what are the risks to 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 biggest 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.

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?

How many maintenance or support calls have really been caused by storage issues? We find that many issues sometimes classified as storage actually have their roots in other software or 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 root causes of the problems.

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

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

One engineer put it bluntly: *“I have not had any cases (hardware nor software), that could have been improved by migrating to Clustered Data ONTAP.”*

2. 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? Normally we find that the staff is either so consumed with current storage needs or are focused on overall operations that you will need outside help to make the upgrade.

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

To give you a perspective, the NetApp public document, “Cluster Mode vs. 7 Mode Implementation Guide”, available on their web site, is 155 pages.

While the guide is extensive, realize that this is not even the internal document that NetApp engineers or their 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 of complexity and risk of a poor install.

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

3. 7-Mode is now complete with no new development or 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 a very good reason to stay with 7-Mode.

What you need to really 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 Window and UNIX are not advancing their technologies at a rate that will outpace storage OS.

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

4. Take the time to understand the functionality of Clustered Data ONTAP/Cluster Mode.

Truly 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 risk of downtime because of hardware or software issues. And, Clustered Data ONTAP is made to scale storage exponentially as your business is growing.

But, there are thresholds in each organization. How fast does your storage and retrieval system really need to be? Is this where you are having problems? Are there bells and whistles in Clustered Data ONTAP that you may never 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 wisdom should not be ignored.

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

5. Is there a threat that 7-Mode will not be supported?

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

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

What we see is that NetApp and many other 3rd 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, but they can’t force you. Which brings us to another important point:

6. 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. New then seems like the way to go.

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 2015:	\$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 over \$600 million** from hardware maintenance. And, of course, we don’t know what other resellers might have made from contract and hardware maintenance.

The point is that there is great margin in maintenance and that is **why 3rd Party Maintenance companies can produce such large savings for their customers.**

Know that as the cost of maintenance can appear to be a driver to convert to 7-Mode, there are much less costly alternatives.

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. 3rd Party Maintainers can be a good option here, too.

Key Technical Questions to Consider (per our 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 volumes 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:

1. Do you foresee an immediate need to have some of the aforementioned capabilities? If "YES", then Clustered Data ONTAP is the way to go.
2. Are you seeing legitimate, addressable issues that a hardware refresh would help alleviate? If "YES", then by virtue of the ONTAP versions that newer hardware supports, Clustered Data ONTAP is the way to go.
3. How strict are your Service Level Requirements? Is 99.999% (5 9's) really necessary? Do you really think that Clustered Data ONTAP can really provide 5 9's?

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.com/blog/how-long-do-disk-drives-last/>)

- Looking back over the last 3 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 were performance issues or the cause was the environment. Storage was not the issue, even in one major case where it was determined the 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, really take a look at how your current system is performing. Do you really know what your current storage performance is?
- Find out how many maintenance or performance issues were actually a result of problems with NetApp and/or 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. How is the 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 3rd 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 Smart3rdParty:



We're **Smart 3rd Party**, an IT equipment maintenance support company that holds the philosophy that our customers deserve high quality service without the high costs 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 also want to be that 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 a 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.

NetApp Tier 4 Support Capabilities: Smart 3rd Party team members have **over 30 years of supporting NetApp products.**

- Team member 1 has been working with the NetApp product line for 17 years. This engineer worked 12 years at NetApp as an escalations engineer handling a variety of issues that cover the solutions spectrum.
- Team member 2 has been working with the NetApp product line for 13 years. This engineer has worked for NetApp as a support engineer as well as providing operational support to customers that heavily use NetApp products as part of their storage infrastructure.
- Team member 3 has 5 years experience with NetApp and holds a Masters of Science, Computer Science
- Smart 3rd Party hardware maintenance programs offer high quality IT infrastructure support at a low cost.

- We are based in Atlanta, Georgia and offer nationwide service. Our principal owners have over X years in the IT Industry and Smart3rdParty has been in business for almost a dozen years.
- Our programs put the emphasis on reducing problem diagnosis and problem resolution timeframes. We do this by eliminating all of the confusing layers of technical support and escalation.
- We offer flexible service levels to fit your business and budgetary requirements from 'mission critical' support 7 x 24 x 365 to 'next day' service.

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 possess 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 24x7.

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. Cluster 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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“We have a long standing partnership with S3P and they are our trusted go to 3rd Party Support company when Recurrent offers 3rd Party Support. “ Rahul Pinto, Director of Services Recurrent Technologies, Inc.

“I have worked with the team at S3P for close to 10 years always experiencing great results.” Spencer Drury, Vice President, Atlantix Global Systems.