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## *BlueArc's Titan 2000 – 2X Everything*

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**Abstract:** BlueArc has been defending its right to exist since inception years ago. Now it not only has earned the right to play, but if you aren't taking a look at Titan 2000 you are most likely missing something. Titan 2000 is a serious system for a serious NAS or SAN shop.

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### **The Titan 2000 Series**

Two new models just hit the street for BlueArc, the Titan 2100 and 2200 – offering twice the performance, throughput, and scalability of the already industry leading Titan. Along with almost unbelievable performance gains, the Titan 2000 also has a host of new features that by themselves make the product noteworthy, including:

- Global Name Space – provides a single unified name space to the users for both CIFS and NFS (concurrently). This gives administrators a single mount point for their users no matter where they physically reside – which helps dramatically when moving users around – now it happens dynamically with no downtime. Multi-node read caching lets all the nodes within the cluster itself cache commonly accessed files that can dramatically improve collaborative performance. In short, it makes administration a breeze.
- Virtualization Framework – Creates a virtual file system view of all NAS clusters with a unified directory structure. The virtual file system uses the aforementioned global name space to create up to a 512TB virtual file system instance with a single root. Administrators can then create virtual servers based on performance and availability – and with virtual storage pools can simplify provisioning for applications and workgroups.
- 10GbE – two 10GbE connections are on each node for cluster connectivity.

### **Performance And Scale**

The Titan 2000 continues utilizing the FPGA hardware architecture of the original models – in order to get performance numbers that are, simply, staggering. Versus their primary competitors, the Titan 2200 boasts:

100,000 NFS SpecOps/Second on a single node – 200,000 in a 2-way cluster – 2-3X the closest competitor

512TB capacity – up to 5X the closest competitor

256TB single file system – 16X larger than the closest competitor

4,000,000 files per directory – 60X more than the closest competitor

Over 60,000 simultaneous connections – up to 6X more than the closest competitor

32GB memory – 2X the closest competitor

## Where Does It Fit?

**Consolidation** - with these kinds of capacity in scale and performance, this is a no brainer.

**Application Performance** – this system can support an awful lot of connections, meaning you can have a lot of application tiers hammering it at the same time – with no degradation in throughput or I/O. Whether it's running Oracle with any enterprise application, heavy bandwidth CAD or video, or random access file serving this box is built to take everything you can throw at it and more.

**As A BlueArc Upgrade** – the early BlueArc adopters were all performance hounds, so by default they will love Titan 2000. Since the box is completely compatible with past offerings, users don't have to throw out the baby with the bathwater to get all the benefits – they can simply bolt on new levels of performance and scale in front of their existing systems – and reap all the management benefits that the BlueArc virtualization provides. The file system is completely backward compatible as are all the storage pools the customer already owns. All the upgrade requires is a blade change, which can take only a matter of minutes. This is a fantastic investment protection story. Finally, if users want, they can mix their Titan and Titan 2000 environments and still derive all the benefits of virtual servers and the ability to have shared, tiered storage on the back-end.

## What Else?

It's the software stupid. BlueArc spent so much of its early years talking about the hardware as their differentiator (running NFS in an FPGA, for example); people tend to forget that it's their software that really makes the box cool. They were one of the first to support tiered storage in the same system, with automated policy based migration capabilities built right in. They support iSCSI – which has become a very hot market this year (we're tracking over 10,000 production iSCSI sites so far, and gaining rapidly) – and a perfect way to continue the consolidation story. With both synchronous and asynchronous replication the system can be configured for disaster recovery.

Two of the more interesting software components are the WORM functionality – which lets users lock down a virtual volume as a write-once device in order to adhere to compliance and/or regulatory issues – and their instantaneous snapshot capabilities, which allows users to create a snapshot every minute – up to 1024 times. Unlike other technologies, the BlueArc snaps don't require a full copy on write model – so the space savings can be enormous.

## Bottom Line

In the age of consolidation – this is the ultimate story. The Titan 2000 can collapse and replace a lot of other systems. With some other high-end offerings, users were forced to choose between IOPs and bandwidth, or with connections vs. a single file system, etc. The Titan 2000 pretty much destroys all those arguments. If the system performs as advertised (in a limited number of customer interviews that we did, it outperformed the stated specs) then why not consolidate all of your file services onto fewer systems capable of not only handling it, but also improving overall performance. Managing fewer things is easier than managing more – but even there BlueArc has answered the call by creating a simple to manage environment where everything is virtual – the file system, the name space, the storage pools and the servers themselves.

Like many, I was skeptical of the BlueArc claims early on, but no longer. I am a believer. This is not the normal “50% faster” claim – this is huge, and it's not like it started from a position of weakness. This company has engineering some amazing feats that truly enable real-world business benefit – like consolidating a hundred servers into one, or a thousand into a handful.

BlueArc's biggest challenge is getting invited to the party – because if they are at the table they can't be ignored. The enterprise NAS market can no longer be considered a two-man race.

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