CASE STUDY: A&C MOLD

TRUENAS PROVIDES SCALABLE STORAGE FOR A VMWARE VIRTUALIZED

MANUFACTURING ENVIRONMENT

"TrueNAS allowed us to virtualize everything we do in our manu-facturing operations from just a single storage unit. We are running VMware instances to multiple client systems on the production floor and throughout our entire operation as fast as our network allows. TrueNAS gives us an edge."

- John Konc,
 Head of Computing and
 Information Systems, A & C Mold

THE STORAGE CHALLENGE

A&C Mold was running its production floor equipment off of a combin-ation of aging Direct Attached Storage (DAS) systems and task-specific workstations, and was in the market for a storage solution that would consolidate their file sharing data and their VMware workstation data. The storage solution had to be capable of working with the various types of equipment in their facility and as a storage repository for their employees as well. Because TCO was a concern, the solution also needed to meet their immediate needs within their storage budget and have the ability to scale seamlessly as their operations grew.

A&C Mold's Head of Computing and Information Systems, John Konc, needed to find a new storage array that met these requirements. He started by looking into Dell solutions, but had difficulty finding a storage array that fit all of A&C Mold's requirements within their storage budget. He had worked with FreeNAS in the past and found that it had all the necessary features for their operations; however, they needed a solution with integrated hardware and support. He became aware of TrueNAS while researching various FreeNAS solutions and saw that iXsystems was the developer of FreeNAS and also developed TrueNAS as a commercially supported storage platform. He wanted to know more about TrueNAS and decided to get in touch with the iXsystems sales department.

"The difference between talking to iXsystems and Dell was like humans versus robots. The sales team at iXsystems knew what they were talking about, but Dell was just a salesman trying to push product and didn't hear what I was asking for. iXsystems actually listened and was able to provide a system that fit our needs."

- John Konc

CONSOLIDATING A MANUFACTURING ENVIRONMENT WITH VMWARE ON TRUENAS

A&C Mold worked with the iXsystems sales team to design a solution that supported their use case and plans for future growth. iXsystems recommended that A&C Mold use a TrueNAS Z20 system with TrueCache™, which combines RAM with high-speed SSDs and HDDs, providing A&C Mold with near all-flash performance at HDD capacity and pricing. iXsystems also recommended that A&C Mold's main storage pool be configured in a RAID 10 equivalent setup for a balance of redundancy and performance.

Since moving to TrueNAS, A&C Mold's data has continued to grow rapidly and protecting it is ever more demanding. TrueNAS includes a self-healing file system with automatic and instant point-in-time snapshots that let A&C Mold protect data locally and remotely while lowering operational overhead. A&C Mold is using VMware's VAAI/Block APIs to synchronize TrueNAS snapshots with vSphere snapshots. They also use TrueNAS' vCenter plug-in to make management easier.

A&C Mold's production facility supports 250 Network Devices, with 50 office users and 45 floor workers that access their TrueNAS storage over NFS. Their TrueNAS Z20 currently holds six server-class VMware instances and 14 desktop instances to support their floor Workstations and CNC (Computer Numerical Control) Machines. It also holds 1000s of files for their floor workers.

A&C Mold's TrueNAS Z20 is configured with a dual port 10GbE SFP+ network interface to maximize network throughput. Their system connects to a 10 GbE, 24 port switch as a backbone for storage and virtual communication, which is then connected to two Cisco SG300 1GbE switches for client access.

"We provide our customers with a wide variety of tools to meet their various needs for custom parts and needed a solution that positioned us for future growth. TrueNAS provides us with the versatility and scalability we need to stay ahead of the competition."

- John Konc

FAST, SCALABLE, RELIABLE STORAGE

A&C Mold's virtualized production environment is using VMware and NFS. This combination is an ideal use case for TrueNAS with TrueCache™ technology. TrueNAS uses the underlying OpenZFS file system's separate ZFS Intent Log (SLOG) to great effect, which is placed on a high performance flash drive, to ensure that virtual machines get maximum performance while guarding against lost data. Their Z20 also came with a high performance L2ARC read cache. The combination of these high performance TrueCache™ devices provides A&C Mold with near all-flash performance across their entire network. This also allows for their workers on the floor to access their file repository at any available workstation.

The TrueNAS Z20's head unit can hold up to 160TB of raw, spinning disk storage. The TrueNAS Z20 can be scaled to 400TB with an optional 24-bay expansion shelf, which is why DCIG, an industry analyst, says that TrueNAS has one of the highest storage densities of any enterprise storage array. It also supports up to 4x10 GbE network bandwidth, which can be link aggregated for maximum performance in their environment. This gives room for growth.

To give their storage additional data protection and improve availability, A&C Mold backups their NFS and VMs via a third party application, Trilead. TrueNAS allows them to run nightly backups in a cost-effective manner and minimizes the impact of any potential hardware outages. A&C Mold plans to improve upon this method by moving to TrueSync technology with snapshots and replication, which will allow for near-real-time backing up of data without the performance overhead of standard backup methods. The TrueNAS Z20 also easily scales to a High Availability option, which can add another level of protection against downtime. OpenZFS also has additional data integrity safeguards running at the file system level to guard against data corruption.

iXsystems™

"You expect some issues to come up with any solution you buy, but what really matters is the response you get from support. That sets one company apart from another and iXsystems has shown they're up to the task."

- John Konc

Beyond the kinds of data protection safeguards that can be found in TrueNAS, a reliable storage solution requires dependable vendor-backed support. iXsystems provides A&C Mold with tiered levels of support for TrueNAS that meet their specific needs. TrueNAS comes with the ability to submit their ticket directly from the Web User Interface itself rather than having to navigate to a support portal. From there, the support team assigns the ticket to the technician best equipped to resolve any issue that arises, rather than just the next person in line at a call center.

CONCLUSION

Growing companies need solutions that give them first class performance with a reasonable price tag. They also need solutions that can grow with them. TrueNAS is designed at all levels to scale painlessly. Whether it's additional performance, capacity, or availability, TrueNAS gives companies the ability to meet their current and future needs without worry. The Z20 is an ideal entry level solution for companies like A&C Mold that want to gain an advantage over the competition and grow their organization. In addition, TrueNAS includes all the enterprise-features needed, including VMware support, thin provisioning, in-line compression, snapshots and replication, without additional licensing costs. iXsystems also provides 24/7 white glove support for TrueNAS that meets A&C Mold's needs.

ABOUT A&C MOLD

Established in 1993, A&C Mold has maintained a dedication to customer satisfaction since its outset. Its state of the art facility is located in St. Charles, IL and houses a variety of CNC machining, engineering, horizontal boring, and injection press services. It is one of the few companies in the industry capable of creating mold bases for metal bonded to rubber. You can find a listing of available equipment and product samples at their website: http://www.acmold.com/.

ABOUT IXSYSTEMS

iXsystems is a pioneer in building innovative storage solutions and enterprise servers for a global marketplace based on open technology. With decades of expertise, many contributions to Open Source communities, and stewardship of leading Open Source projects, iXsystems has become the leader of innovative storage and server solutions for the global open technology market.

Thousands have come to rely on iXsystems' approach to doing business. Headquartered in Silicon Valley since its founding in 1996, its consultative approach and dedication to customer service, support, and technological contributions has never wavered and builds the foundation for a new era powered by open technology.