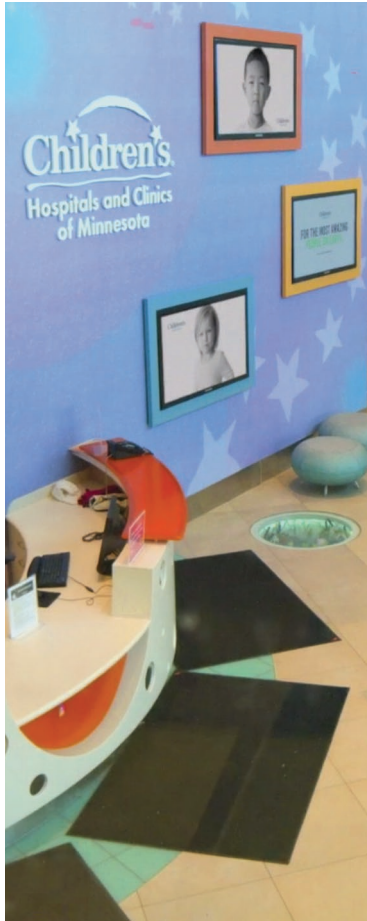# CASE STUDY: CHILDREN'S HOSPITALS AND CLINICS OF MINNESOTA

TRUENAS WITH THE ZFS FILE SYSTEM IN A VIDEO PRODUCTION ENVIRONMENT

THE STORAGE CHALLENGE

Star Studio of Children's Hospitals and Clinics of Minnesota started off decades ago with just a puppet reading get well cards to children in the hospital. Now they serve one of the largest pediatric health systems in the United States, producing hundreds of live shows and thousands of videos. Recently they needed to double their staff and upgrade their storage to accommodate for growth. Their existing solution was a Mac Mini with no volume redundancy at each of the Hospital's two locations in Minneapolis and St. Paul. The systems were nearly out of storage capacity and not meeting the performance needs of their video production environment, causing multiple workflow bottlenecks. They were also experiencing data loss when using the Mac Minis to replicate data between both locations. Their performance was so degraded that they had to transport the hard drives by foot between locations just to replicate the data.

It was clear to the production team at Star Studio that they would need a solution with much better performance and improved reliability before their planned production staff expansion. Star Studio Broadcast Engineer, Ben Diger, had used FreeNAS at home and was familiar with its feature set, so he proposed using it for their video production studio. The IT staff at Children's Hospital of Minnesota liked FreeNAS for its ease of use and capabilities. They knew that it was important to have a commercially supported, well-tested hardware configuration, so they contacted iXsystems to find out more about TrueNAS.

"TrueNAS has performed leaps and bounds above our old solution. It's like having an SSD array on each system rather than a NAS."

- Ben Diger,
 Broadcast Engineer

TRUENAS PROVIDES SCALABLE STORAGE FOR A GROWING VIDEO PRODUCTION TEAM

The sales team at iXsystems assessed Star Studio's needs and provided them with a TrueNAS storage array. The initial configuration was half-populated with 8 x 4TB SAS drives in RAID 10. This allowed Star Studio to meet their initial storage requirements at their desired acquisition cost and to easily expand their storage capacity as their team and operations grow. They configured their TrueNAS with thin provisioned storage for individual users and with pool storage for stock media, video and CG projects. Each dataset is shared via AFP and SMB to accommodate the multiple Mac & Windows users within their office. Their system serves data to the network via dual 10GbE ports aggregated with LACP and then connected to a 52 port switch for client access. Data is also shared between their Minneapolis and St. Paul locations via ChronoSync over a 1GbE pipeline.

"I had put together a personal FreeNAS storage system at home and enjoyed the experience a lot. I was pleased to find out that my knowledge of FreeNAS easily transferred over to TrueNAS with just a couple of minor differences."

- Ben Diger

Ben Diger
Star Studio Broadcast Engineer

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"Our previous solution made expansion very difficult, and would have required multiple servers, splitting up storage between them. With the TrueNAS, we can very easily extend our volume as much as needed by adding drives and expansion shelves."

- Ben Diger

TRUENAS DELIVERS SIGNIFICANTLY HIGHER PERFORMANCE AND RELIABILITY

Star Studio's previous storage solution had topped out at around just 80 to 90 MBps for read and write performance. With TrueNAS, they get almost 800 MBps read and write speeds for nearly 10 times the performance. Offloading data from their cameras used to take 20 to 30 minutes. With TrueNAS, their transfers now take 2 or 3 minutes. Additionally, TrueNAS gives them consistent transfer speeds between locations with no data loss, greatly improving their workflow. Star Studio plans on moving from their current nightly backup method with a third party application to TrueSync remote replication as part of its IT roadmap. TrueNAS uses TrueSync, based on OpenZFS replication, to synchronize data throughout the day between systems with minimal performance and bandwidth overhead.

TrueNAS provides Star Studio with the peace of mind it needs through its underlying file system, OpenZFS, which provides superior data integrity protection over other file systems, as well as iXsystems' professional support. OpenZFS utilizes data integrity checks at the filesystem level to continuously protect against data corruption. In addition to the protections provided by OpenZFS, Star Studio also received technical support throughout the deployment. They provided iXsystems with their desired configuration during the production process so that they simply needed to add their shares to hit the ground running with their new TrueNAS system. They also received proactive pre-configuration and deployment assistance from the iXsystems Support Team to make sure everything was working as desired during this process.

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"There was one point where our debug settings were not down-loading properly. We filed a ticket and had a support technician call us up about 20 minutes later to troubleshoot. The solution was discovered and the problem resolved in a very efficient manner. It's nice to know there is someone you can reach out to any time you have a problem."

- Ben Diger

CONCLUSION

Star Studio provides the young patients at Children's Hospitals & Clinics of Minnesota with entertaining and empowering experiences during their stay. Providing these services requires a reliable solution that can grow with the production team as they expand their staff and programming. iXsystems worked with the Children's Hospitals & Clinics of Minnesota's Star Studio staff to ensure that TrueNAS met their current and future needs for their video production environment. TrueNAS' full suite of features also gives Star Studio the ability to implement new features and meet their future growth needs. See their video to learn more about how Star Studio uses TrueNAS.

ABOUT IXSYSTEMS

By leveraging decades of expertise in hardware design, its contributions to many Open Source software communities, and corporate stewardship of leading Open Source projects (FreeNAS and TrueOS), iXsystems has become an industry leader in building innovative storage solutions and superior enterprise servers for a global marketplace that relies on open technology.

Thousands of companies, universities, and government organizations have come to rely on iXsystems' storage, servers, and consultative approach to doing business. Headquartered in the heart of Silicon Valley since its founding in 1996, the dedication to white-glove customer service, industry-leading support, and transparent technological contributions has never wavered and continues to help lay the foundation for a new era powered by open technology.

ABOUT STAR STUDIO AND CHILDREN'S HOSPITALS AND CLINICS OF MINNESOTA

Star Studio started off in the 60's with just a camera and puppet to make "The Electronic Get Well Card" for children in the hospital. Over time, the show gained popularity and more staff came on board. In 2007 the original studio was closed and the Children's Hospitals and Clinics of Minnesota brought the production facilities within the walls of the hospital for the first time. Professional producers and actors were brought in and programming was expanded to provide its patients with engaging entertainment during their stay.

Children's Hospitals and Clinics of Minnesota has served the Twin Cities since 1924 and has one of the largest pediatric health systems in the United States. They've won multiple awards and are regularly ranked by U.S. News & World Reports as a top children's hospital.