

## CASE STUDY: BENJAMIN FRANKLIN CHARTER SCHOOL

Unifying Multiple School Campuses with TrueNAS® and TrueRack®



*“We had a handful of storage systems that were failing badly. Even though the network was incredibly slow, it was all we had to work with. We knew we desperately needed a new approach.”*

**- Aaron Echols,**  
*Lead IT Administrator*

### THE STORAGE CHALLENGE

As Benjamin Franklin Charter School (BFCS) continued to grow their enrollment, they were faced with challenges from their aging server infrastructure that was failing to keep up with the pace of their growth. Many years before the current IT department, BFCS had decentralized their storage infrastructure by creating a 5TB virtual storage network across five campuses with one SuperMicro server at each location. They encountered substantial problems as the infrastructure was not setup for data redundancy, and the amount of IT maintenance was increasing across the multi-site server setup.

The virtual storage network was at capacity and their usable space was drying up. Extremely slow performance, unreliable hardware, and the divided server infrastructure began to take their toll as usability and performance issues became a frequent occurrence across the campuses. The IT team at BFCS was becoming overwhelmed with keeping their storage network running. BFCS knew they had to find a solution that would consolidate the storage across campuses while also giving the performance and scalability their growing school required.

### WHY BFCS CHOSE TRUERACK WITH TRUENAS

Choosing a replacement for the failing storage infrastructure was a major decision, and BFCS knew they needed a consolidated storage solution that would scale with their school's needs as the student body and school staff grew. Aaron Echols, the Lead IT Administrator at BFCS, began his search for a new storage solution that would help reduce server downtime, consolidate their storage infrastructure, and increase performance for spinning up virtual machines. Aaron remembered

*“The iXsystems staff was friendly, knowledgeable, and courteous. It was like working with co-workers that we had known for years. It was great!”*

**- Aaron Echols**

a couple of companies that he had heard of in the enterprise storage market and researched various solutions provided by Tegile and Nimble. To his surprise, while searching these names using internet search engines, one company continually came up in the results and stood out above the crowd: iXsystems.

From his experience using FreeNAS, Aaron remembered that iXsystems sponsors the FreeNAS Project and builds their TrueNAS Unified Storage Appliances on the battle-tested Open Source framework that FreeNAS and OpenZFS provides. Aaron compared TrueNAS to solutions from Tegile and Nimble and found that iXsystems offered the best enterprise storage solutions and the lowest TCO amongst their competitors. After thoroughly comparing all of their options, BFCs knew the right path forward was the iXsystems TrueRack rack-scale architecture with TrueNAS.

## **BFCs DEPLOYS TRUERACK AND TRUENAS FOR DATA AVAILABILITY AND VIRTUALIZATION MANAGEMENT**

Aaron was pleased to find that during the sales process, the sales representatives from iXsystems were friendly and informative, without employing over-the-top pressure tactics like some of the other big players in the storage enterprise industry. After explaining his storage challenge, the Sales Team at iXsystems quickly went to work and came up with a custom solution specifically designed for BFCs. The Sales Team recommended that BFCs deploy the TrueRack rack-scale architecture. It was preconfigured with three virtual desktop infrastructure (VDI) host systems, three virtual server infrastructure (VSI) host systems, and 1 Citrix-ready TrueNAS with High Availability configured in RAID10 with 25TB of usable storage and two hot spares. They also purchased an expansion shelf, which gave them room to grow their primary storage up to 1.2PB. BFCs deployed a second TrueNAS storage array in their data center for disaster recovery.

BFCs has noticed a sizable increase in IOPS since deploying their TrueRack architecture. Using their previous architecture combined with Hyper-V, starting a virtual machine would often take up to a minute to complete. After switching to XenServer on their new TrueRack



*“The integration of TrueNAS with Backblaze B2 Cloud Services is ideal for our needs. The use of cloud sync gives us an easy to use and cost effective off-site disaster recovery solution.”*

**- Aaron Echols**

architecture, BFCS can spin up VMs in under twenty seconds. iXsystems also provides the school with white-glove, US-based support that has eliminated the communication barrier that BFCS has seen working with other companies.

TrueRack gave BFCS the ability they needed to scale their infrastructure by delivering maximum data availability and over 1PB of scalability. Since deploying TrueRack, BFCS has been able to add many more user-facing services, manage hundreds of SMB shares, and spin up multiple virtual machines using VDI, all with no performance loss that would lead to a poor user experience.

Aaron learned that TrueNAS is deeply integrated with many cloud services including the Backblaze B2 Cloud Storage platform and plans to sync their data to Backblaze to complement the replication of data from their master TrueNAS storage array to the secondary TrueNAS, used for local replication. In the event of an unintentional data-loss disaster, BFCS can use TrueNAS Cloud Service Integration to quickly recover their data as they plan to have a copy of the data in the Backblaze B2 cloud that can be immediately and conveniently restored by TrueNAS.

## TRUERACK AND TRUENAS DELIVER RESULTS

TrueRack with TrueNAS gave BFCS the high level of data availability they desperately needed while allowing the school to manage their services and storage from a single architecture. The new architecture provides the school with everything necessary to scale their infrastructure, add more user-facing services, and manage data sharing, with the performance their school required. With iXsystems' white glove, US-based support, Aaron and BFCS can rest easy knowing that help from seasoned customer support representatives is only a phone call away. BFCS is excited to see continued innovation from iXsystems with their new BackBlaze support, arriving early in the first quarter of 2018, in TrueNAS 11.1.

## ABOUT BENJAMIN FRANKLIN CHARTER SCHOOL

Benjamin Franklin Charter School was one of Arizona's first charter schools. What is a charter school? A charter school is a public school that receives its operating authorization and funding from the State Board of Education, the State Board for Charter Schools, or any school district that chooses to charter a school under the charter school law passed in 1994. The "Charter" is a contract with the chartering body that allows a private entity to operate a "public" charter school in accordance with a specific program outlined in the charter.

The philosophy, curriculum, and strong parental involvement that define Benjamin Franklin Charter School are based on many years of experience with similar programs that resulted from the "Back-to-Basics" movement during the 1970's. In the same spirit of parental involvement that gave birth to those earlier programs, Benjamin Franklin Charter School is the result of parents getting involved in their children's education by taking advantage of the new charter school law to form parent operated and governed schools.



## 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.

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