

Overview

Development and testing the storage product which delivers cloud-integrated local NAS (Network Attached Storage) capabilities to a globally-distributed enterprise, allowing storage capacity to be centrally located, managed, and protected is always a challenge. As storage capacity needs explode and projects and workflows become shared across multiple sites, enterprises are searching for a storage solution that allows workers to collaborate and share workloads at LAN-like speed while keeping storage and networking costs minimized. This case study outlines our strengths & capabilities in developing and testing NAS products in-house in Alten Calsoft Labs.

The Client

Our client is a storage startup in cloud storage space headquartered in Campbell, USA.

Product(Cloud Controller, derived from FreeBSD UNIX operating system) : Until now the Global Cloud Storage System leverages high-performance, secure Internet technology to create an interconnected, unified global file system. With this product, persistent data can be centrally located where it is easy for IT to manage, yet remain fluid and easy to access, regardless of physical location. Storage islands disappear, capacity and data protection costs go down, system management is simplified, and users collaborate and share on workflows as needed as if they were local.



The Cloud Controller makes use of full functionalities of FreeBSD operation systems along with ZFS file system. Cloud Controller storage design is the concept of separating file system metadata from file system data. File System metadata is everything that is not actual data in files in the file system. In a multi-site scenario, metadata is snapshotted across sites in a regular fashion. The data is stored as drives in the cloud when data is written at a site. When a user tries to read files from the file system at a remote site, the corresponding drives are downloaded on demand and are served to the user.

The Challenge

The key challenge was to identify the right resources in key skills on development, support & testing SMB, CIFS, NFS protocols along with the test automation skills to address many scenarios as listed below:

- Development & Sustenance of Cloud controller features.
 - File systems(ZFS, NFS, CIFS/SMB) and FreeBSD UNIX kernel modules
 - Support key features such as Global Read Write, HABC, Disaster Recovery, snapshots
- Testing the functionality, system and performance testing
 - AD/NTACL/SMBTesting
 - AD Configuration (multi domain, multi-site, trust) and join AD domain settings on all the CCs
 - smbtorure, nbench, fstress, IOZone, makeset, modfile, IOMeter,Robocopy ○ Cloud upload/download tests using 1Gig, 10Gig Ethernet cards.
- Smoke, Regression, Cloud connector testing of cloud platforms on Amazon, Nirvanix, HP, EMC clouds
- Test Automation

The Solution

ALLEN Calsoftlabs Pvt Ltd provides IT services for a wide range of industries today. Over the years we have developed competencies across various domains and also enriched our domain expertise by address various customer requirements. To address resource requirements in Storage domain, we have rich set of people with solid experience in storage technologies, application/system development, firmware development, file system & device driver development for all most all the operating systems which exist in the market today.

We ensure ourselves to be always in the forefront of technology to remain competent. This means our customers get from us precisely what they need, as we understand their business, where and how technology fits into their business. Our success key point is premium quality software development & services at affordable price and on-time delivery. This way, we make a difference by helping our customers achieve their business goals with respect to new product innovation or services with the cost advantage.

To address the above challenge, we have set up a client ODC in Bangalore engaging about 15 hard core system engineers in NAS product development and testing area. This team predominantly works on core system stack like NFS, CIFS, SMB protocols and test automation.

Technology and Resources

- OS: Windows, FreeBSD UNIX, Linux
- Hardware Setup: Intel, AMD platforms
- Filesystem Test Scripts/Tools: smbtorture, nbench, fsstress, IOZone, makeset, modfile, IOMeter, Robocopy
- Testing Effort: 15 full time employees working on testing effort
- Testing Automation: Robo framework
- Language/Skills used for automation: C, perl and Python
- Team size: 15

About Calsoft Labs

Calsoft Labs provides specialized concept to market Product Engineering services to product and technology companies in select market segments. Our target markets include Automotive, Consumer Electronics, Industrial Automation, Networking, Storage and Independent Software Vendors (ISVs). Calsoft Labs delivers unmatched business value to its customers through a combination of process excellence, reusable frameworks and technology innovation.

Calsoft Labs is a wholly owned subsidiary of ALLEN. Set up in 1988, ALLEN is a European leader in Engineering and Technology Consulting (ETC) with 14,800 employees in over 16 countries worldwide.

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