Nasuni for Teamcenter

The challenge: increasing the performance of multi-site PLM and engineering data access

With Siemens Teamcenter, today's enterprise business professionals are able to manage projects more efficiently. Teamcenter is a Project Lifecycle Management (PLM) solution that brings data and users together into a single platform, providing all company departments the ability to track changes across many disciplines and shorten design through production cycles.

Project teams are becoming more distributed, with enterprises leveraging expertise spread across multiple locations. As more sites and collaboration are required to expedite projects, large design files, combined with high latency and delayed local file availability, create user experience issues. In any distributed Teamcenter environment, remote users face file loading and performance challenges which prevent them from completing their work in timely manner and lead to user frustration with the Teamcenter environment.

The result? Engineering managers and IT professionals pursue expensive storage, remote access, and network acceleration workarounds. These solutions, while providing some benefit, are complex and do not completely solve the underlying architectural issues.

Highlights

Enable high performance Teamcenter file collaboration across many sites

**Accelerate Teamcenter operations** including sync with local FS Caches

Ensure project and business continuity with access to Teamcenter Project Files even if entire offices go offline

Leverage cloud scalability and economics with support for all major private and public cloud storage platforms

Deploy a cloud-first architecture without being tied to one vendor's application-specific cloud

Ensure security in transit and at rest with all data encrypted using customer-controlled keys

Archive design and as-built files at low-cost but have them quickly accessible if needed
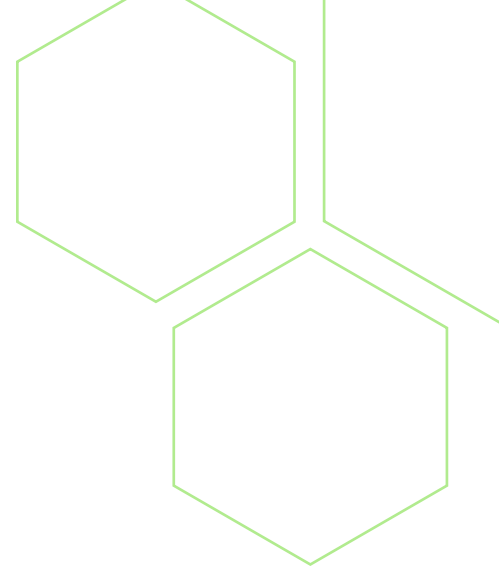
The solution: Nasuni for high performance Teamcenter file distribution across multiple sites

Nasuni's global file system combined with private or public cloud storage is the new standard for storing and synchronizing Teamcenter files across multiple locations. Nasuni has developed several enhancements to accelerate the flow of Teamcenter file data between multi-site FMS caches faster than the standard Teamcenter FMS Store and Forward with WAN acceleration.

How Nasuni accelerates Teamcenter multi-site file workflows

Teamcenter was originally designed to share project files across a LAN in a single location or data center. The ability to synchronize data between multiple locations with Store and Forward was added to improve multi-site access, however this adds management complexity. Nasuni enterprise file services allows Teamcenter data to be accessed from any location, accelerating multi-site access and collaboration performance, without adding additional management overhead.

Powered by the Nasuni UniFS® global file system, Nasuni stores Teamcenter PLM and other unstructured file data in object storage on-premises (private cloud) or in the public cloud. The small subset of file data that is actively used is cached on Nasuni Edge Appliances wherever it is needed for high performance access. Nasuni uses affordable, high-speed Internet bandwidth to keep active files synchronized in all locations.

This flexible, transformational approach combines the limitless capacity of object storage and the security and performance of locally cached active data to scale the sharing of Teamcenter PLM files – and manufacturing operations – across many sites. All with no additional system complexity or management burden.

Traditional Teamcenter operation

With a traditional 4-tier Teamcenter deployment model, the PLM file system as well as database are typically stored on enterprise block and NAS storage in one location. The 4 tiers: Client, Web, Enterprise and Resource interoperate to provide clients controlled-access to the proper version of a file or set of files.

For remote locations, Teamcenter FMS schedules the Store and Forward synchronization of data from FSC to FSC to provide local access. In many situations, due to scheduling and bandwidth, the files are not fully synchronized when a client requests access. These delays in synchronization typically lead to much slower file access response time for remote clients.
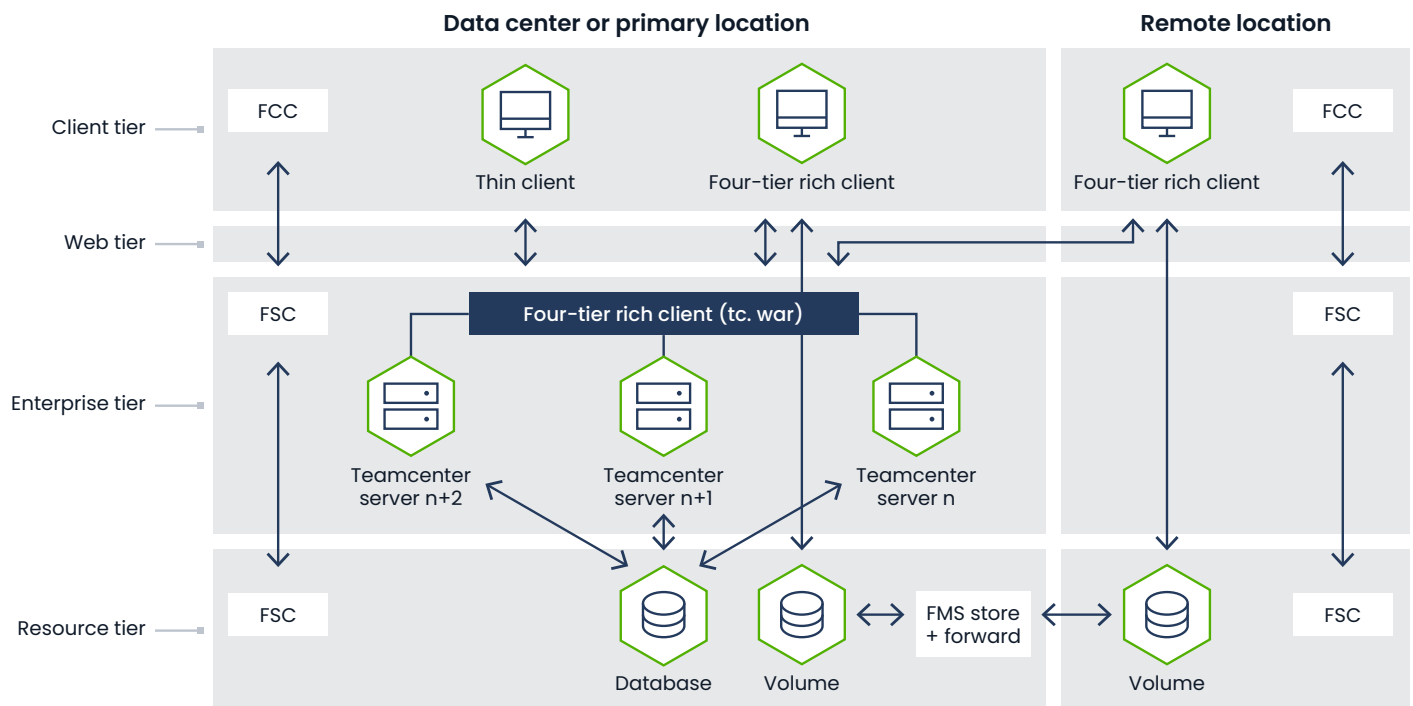
Files are checked out by clients and stored on local FSC storage. For multi-site synchronization of files, Teamcenter FMS Store and Forward synchronizes the files between FSC caches at different locations.

Nasuni remote site operation for Teamcenter

With Nasuni, the local File Server Cache storage is replaced with Nasuni Edge Caching Appliances. With Nasuni, the gold copy of all of the files within the Teamcenter FMS are stored by Nasuni UniFS® in object storage, then cached locally on Nasuni Edge Appliances at all locations, providing every client fast, secure access. The synchronization between multiple location FSC's is controlled by Nasuni, not another application or hardware device.

The client operation to retrieve a file from cache is identical, the main difference is Nasuni's ability to distribute data to multiple FSC caches much faster than Store and Forward or other methods. In order to achieve this, Nasuni created a new Asynchronous Global File Locking protocol to augment the existing UniFS® file distribution capabilities.

Nasuni Asynchronous Global File Locking™ provides intelligence to know whether a file is in cache, has been pushed from another site or is in the process of synchronization. If a remote client opens a file the Asynchronous GFL will intercept the open, lock the file and take the best course of action if the file is not currently in local cache. This provides Global File Locking for data integrity as well as accelerates the movement files to the remote cache.

Additionally, the Nasuni Global Volume Manager™ aligns local changes to the files and work sets from multiple locations in object storage, creating an immutable version history of every Teamcenter file stored in Nasuni.

To facilitate the fast distribution of files between locations, UniFS® chunks, de-duplicates and compresses all file data before transmission from an Edge Caching Appliance. For security, UniFS® encrypts all data and metadata with customer-controlled AES-256 encryption keys. This ensures minimal data transmission time as well as complete data camouflage to provide maximum data security. All data is transmitted and stored in the object store where it can be sent to multiple locations simultaneously, eliminating several point-to-point transmissions and the resulting delays.

Like full-sized file servers or NAS devices typically used as FSC storage, Nasuni Edge Appliances provide access to Teamcenter files using existing authentication procedures (e.g. LDAP, Active Directory) and standard file access protocols (e.g. NFS, CIFS). The big difference, whether the appliances are physical models from Nasuni or virtual appliances using existing infrastructure, is they only require a fraction of the storage capacity of a full-sized file server or NAS device, since they are only caching active files. The resulting 80% reduction in hardware resources and cost enables edge appliances to be deployed in every location that needs to participate in the Teamcenter PLM.
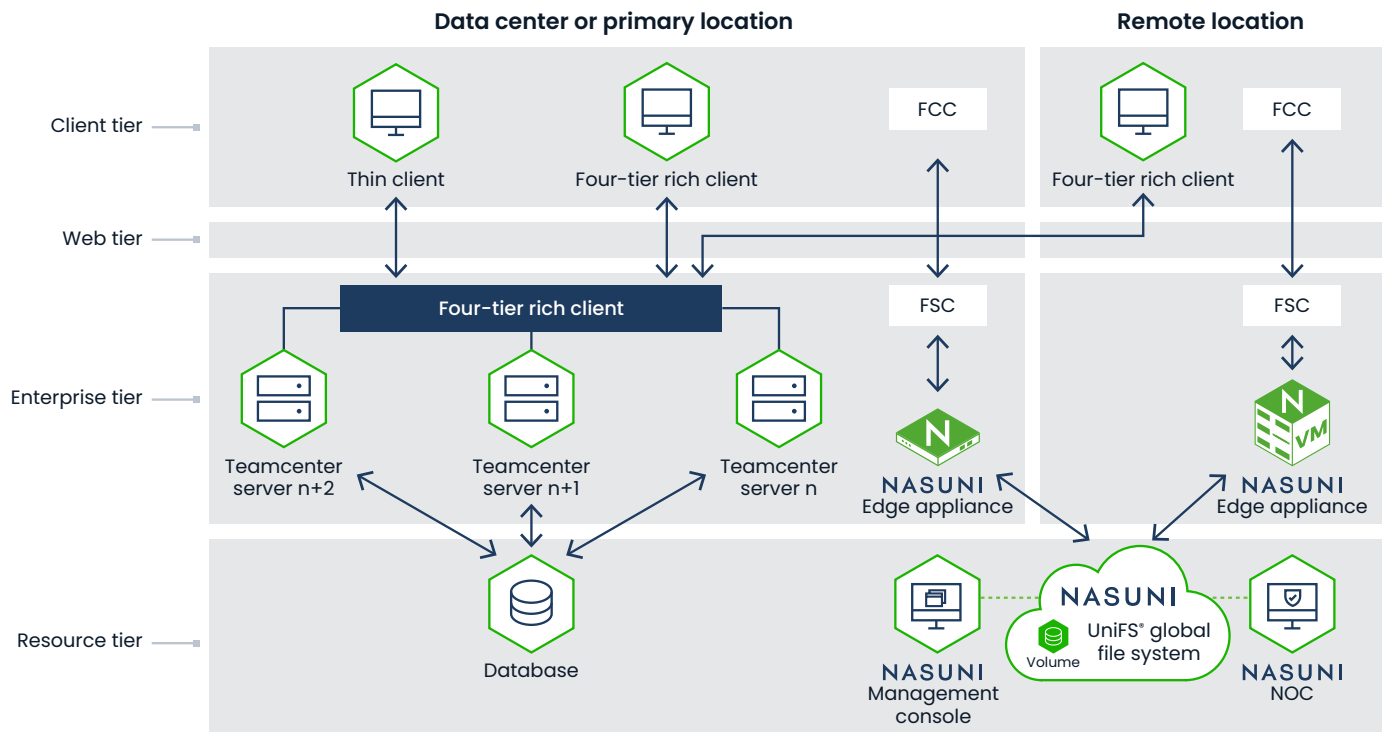
Nasuni automatically synchronizes changes made to the cached copies of Teamcenter PLM files in multiple locations to private or public cloud object storage, keeping an immutable version history of all changes.

With Nasuni, globally distributed engineering and manufacturing teams can collaborate on all Teamcenter files as if they were in the same office. Same access and identical performance. Any changes made to a cached file in any location are de-duplicated, compressed, and encrypted on the local edge appliance. The versions are then propagated using high-speed Internet bandwidth to object storage, where they are stored as read-only versions and synchronized to all other sites as needed.

Scalable file storage and synchronization for all types of files

Nasuni enterprise file services delivers the same scalable storage, synchronization, access, data protection, and centralized management capabilities for all files stored within a company, not just Teamcenter PLM data.

Virtually any type of unstructured data – PLM or design files, application-generated data sets, standard office documents, and more – can be stored and synchronized across all locations with Nasuni's global file system.

Nasuni Edge Appliances, whether physical or virtual, can be easily configured to support the active file workloads of every site.

Benefit summary: Teamcenter managers, engineers and clients

Collaborate on Teamcenter projects across an unlimited number of offices

Accelerate file sync operations from every location without conflicts

Eliminate PLM data sprawl with a single global file system that supports all types of Teamcenter project files

Recover lost, deleted, or archived Teamcenter files or work sets in minutes, not days or weeks

Move Teamcenter files to expertise, not the other way around

Benefit summary: IT

Reduce CapEx and OpEx up to 70%

Reduce file storage resources in each office up to 80%

Reduce reliance on MPLS and remote access tools

Eliminate backup, DR, and archive software maintenance, hardware, and media costs

Provision more capacity in minutes simply by expanding object storage and Nasuni subscription

≡ NASUNI

sales@nasuni.com
+1.857.444.8500

nasuni.com

Nasuni is a scalable data platform for enterprises facing an explosion of unstructured data in an AI world, eliminating the choice between expensive tinkering or an overwhelming transformation of your entire data infrastructure.

The Nasuni File Data Platform delivers effortless scale in hybrid cloud environments, enables control at the network edge, and meets the modern enterprise expectation for protected, insight- and AI-ready data. It simplifies file data management while increasing access and performance.

Consolidate data, cut costs, and empower users – all while transforming your data from obstacle into opportunity.