



A Spec for Success

Building within a Common Data Environment



Laying the Foundation

In the decade since the 2009 economic downturn in the UK, there have been a number of changes in the construction industry. With consolidation in the sector and intensification of competition, companies have found themselves having to identify technology to help them become more efficient not only in the bidding process but throughout the entire management and closeout of projects. By Q3 2018, the construction sector's output was 14 percent higher than in Q1 2007. This, despite the number of construction jobs as a proportion of all jobs having fallen since 2010. Construction may have come late to the technology party, but the industry is starting to make up for lost time.

In the same timeframe, BIM Level 2 certification (fully collaborative 3D BIM) on all public sector projects became a mandatory requirement, with the expectation of full implementation by 2020. The official adoption of this process also increased the file sizes for projects, as well as the need for an agnostic common data environment that goes beyond simple file storage to work with those large files.

Disputes also rose proportionally during the last decade, with a small twist in the last two years: amounts decreased slightly, but the resolution length increased*. It has become more important than ever to find dispute avoidance techniques. A central

repository, or common data environment with easy access and a flexible, familiar structure along with fully searchable archives became a must.

To deal with these changes, many construction companies have turned to technology; embracing mobile devices for "anywhere access" to data and streamlining collaboration to keep projects on time and within budget.

Others have tried to consolidate services by replacing traditional (and sometimes outdated) access methods like VPN and FTP, and moving to the cloud; always trying to balance security with ease-of-use, and functionality with simplicity.

Today, Egnyte is the gold standard for secure file management and collaboration in the construction space. Supporting over 2000 construction firms, Egnyte has been able to realise tangible benefits in the industry.

Balfour Beatty, for example, saved \$5M on the reconstruction of the DFW airport in Dallas leveraging Egnyte, while PC Construction reduced the time needed to provision new projects by 90 percent.

This white paper highlights common use cases and looks at savings associated with employing a hybrid cloud infrastructure.

Operational Challenges in Construction

Construction companies face a myriad of operational challenges on a daily basis, all of which have a direct impact on productivity and profitability. Most of these challenges centre on everyone knowing that they have access to the right information at the right time.

These include:

Execution Speed

Ability to increase project speed and efficiency through all stages (from site set-up to completion)

Connectivity in Remote Locations

Providing full file access at site locations with little to no connectivity and poor bandwidth

Mobile Access

Enabling field workers to access large design files from anywhere and any device — even in areas with poor connectivity

Selective Collaboration

Protecting sensitive information in an increasingly collaborative environment



Saved \$5M on the reconstruction of the DFW airport in Dallas



Reduced the time needed to provision new projects by 90 percent

Using a VPN or large collaboration platforms can lead to significant shortcomings when addressing these challenges. The VPN solution works well to assign secure access to files but fails to address collaboration and mobility requirements especially where the subcontract supply chain is concerned. Conversely, large collaboration platforms address the access and mobility but sometimes fall short from keeping data safe, at times winding up outside the ecosystem, putting it at risk.

For the most part, a common data environment in the cloud is the most promising solution for many of these issues. However, most cloud providers are not able to solve all of these issues either. A combination of solutions seems to be the way forward.

The Egnyte Solution

Egnyte is designed to meet the demanding needs of security and collaboration in modern industry. At the core, it serves as the common environment for all cloud data and the command console for administrators. It delivers the security and administration inherent to on-premises repositories but with the benefits of the cloud. Basically, a cloud solution with the architecture of a file server.

This allows you to:

- Keep pace with new projects by quickly provisioning file sharing
- Protect sensitive information by creating a secure collaboration environment
- Protect against data loss
- Integrate with applications you already use

Keeping pace with new projects

Egnyte lets you provision a file service infrastructure as soon as the project gets underway. The robust permissions model ensures that the new project folder functions as an isolated share only accessible to authorised users.

Moreover, administrators can granularly control access for users and groups at any folder level. Folder permissions can be assigned to users, groups, or a combination of the two. This model supports not only inheritance of permissions from parent to child folder in large hierarchies, but also exclusion at any level of the hierarchy.

The granular permissions model lets you delegate responsibility to project owners without compromising security. Project leads can be made owners of a project folder, giving them full read/write/delete privileges for its content and the ability to manage permissions for any subfolders. IT can now delegate some access control privileges to project owners and focus on more pressing issues.

Smart reporting and auditing provide full visibility into all account activity. Administrators can generate reports on the tracking changes to files, user login activity, permissions activity and more. This equips IT with the tools needed to perform speedy troubleshooting.

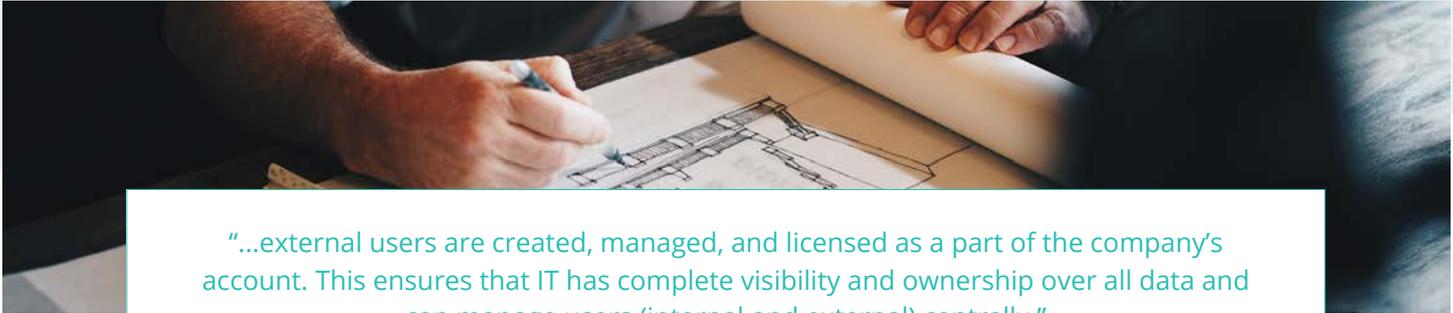
Protecting sensitive information

The industry-leading security framework offers the flexibility and scalability to effectively collaborate while protecting sensitive information.

Firstly, the permissions model allows administrators to modify or exclude permissions at any folder level, ensuring that subcontractors and clients only have access to relevant content.



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Secondly, the user management model ensures a secure collaborative environment particularly important to construction firms. With Egnyte, external users are created, managed, and licensed as a part of the company’s account. This ensures that IT has complete visibility and ownership over all data and can manage users (internal and external) centrally. Egnyte also integrates with existing directory services like Microsoft’s Active Directory (AD) and SAML-based identity providers, allowing IT to maintain a central layer of authentication for users and groups. It offers administrators the flexibility to enforce multi-factor authentication for external users, allowing for more secure collaboration with subcontractors and clients.

Thirdly, mobile device management (MDM) is built around security and control for administrators. This includes policies around mobile device usage, a mandatory passcode lock, local encryption, and more. In case of a suspected breach, it allows administrators to remotely wipe Egnyte content from any user’s computer or mobile device.

Finally, secure link sharing features include the ability to set a password for a link, expiry date and notification when it is opened. Additionally, Egnyte provides an easy and secure upload facility using the upload links. This feature allows construction firms to collect and automatically organise bids from subcontractors en masse, without providing them with any visibility into other files.

Ensure data is never lost

Maintaining a version history is crucial for construction companies, as design files change

frequently. Egnyte protects against data loss in many different ways. To begin, it provides full version control for all files. Administrators can set custom policies around version retention, enabling users to return to a previous iteration at any time. Multiple copies of each file are stored in the Egnyte data centers for disaster recovery purposes.

Similarly, Egnyte also lets administrators determine data retention policies for their account. Users can be excluded from being able to delete files. Even after deletion, files are retained in a trash area for a specified amount of time, accessible only to administrators. This ensures that data is never deleted without explicit IT sign-off.

Integrate existing applications

The modern digital construction site is a complex place with lots of data sources, digital tools and applications that need to (ideally) work in unison. Egnyte provides a practical digital workbench that allows the many different elements to work better together.

For example, the integration between Bluebeam and Egnyte enables you to manage a single content repository for your organisation, ensuring security, efficiency, and compliance, while also making that content available for document markup using Bluebeam’s industry-leading field solution. PlanGrid can also be integrated with Egnyte to work off of one master set that contains all notes, photos, RFIs, and issues while giving users real-time access to the most up-to-date project data, so no one is building off of outdated information.

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Deployments Based on Requirements

Egnyte provides the ability to customise cloud infrastructure depending on the size or type of project and its specific needs. For smaller projects,

firms can utilise a cloud-only solution since it provides fast provisioning and collaboration with no investment at the site. For larger projects, a combination of cloud and on-premises repositories can be used to ensure fast on-site access with the flexibility of the cloud. Egnyte's infrastructure also maintains data redundancy for disaster recovery and unforeseen hardware failures at different sites.

Smaller projects – cloud-only deployment

Smaller projects have a faster turnaround, require fewer people on site, and are often in areas with stable internet connectivity. These environments are perfect for cloud-only deployments because projects can be up and running in minutes with no hardware required.

Larger projects – hybrid deployment

Larger projects have more people on site, require significantly more files, and often have limited or no bandwidth in parts of the construction site. Egnyte overcomes these challenges by syncing files between the cloud and on-premises repositories. The result is a powerful hybrid infrastructure that provides users with the best of both worlds: the flexibility and ease of use of the cloud paired with LAN speed access to project files that are cached in on-premises storage devices.

Fast access on site

Cloud-only solutions can't always provide reliable access on site. Data can become stranded in the cloud, leaving users at the mercy of an unreliable network with limited bandwidth. These conditions can sometimes be overlooked during short-term projects, but for long-term projects, marginal inefficiency adds up.

At construction sites with limited connectivity or when working on large files, Egnyte can cache them to on-premises storage to overcome those connectivity and bandwidth issues.

Collaboration across offices and sites

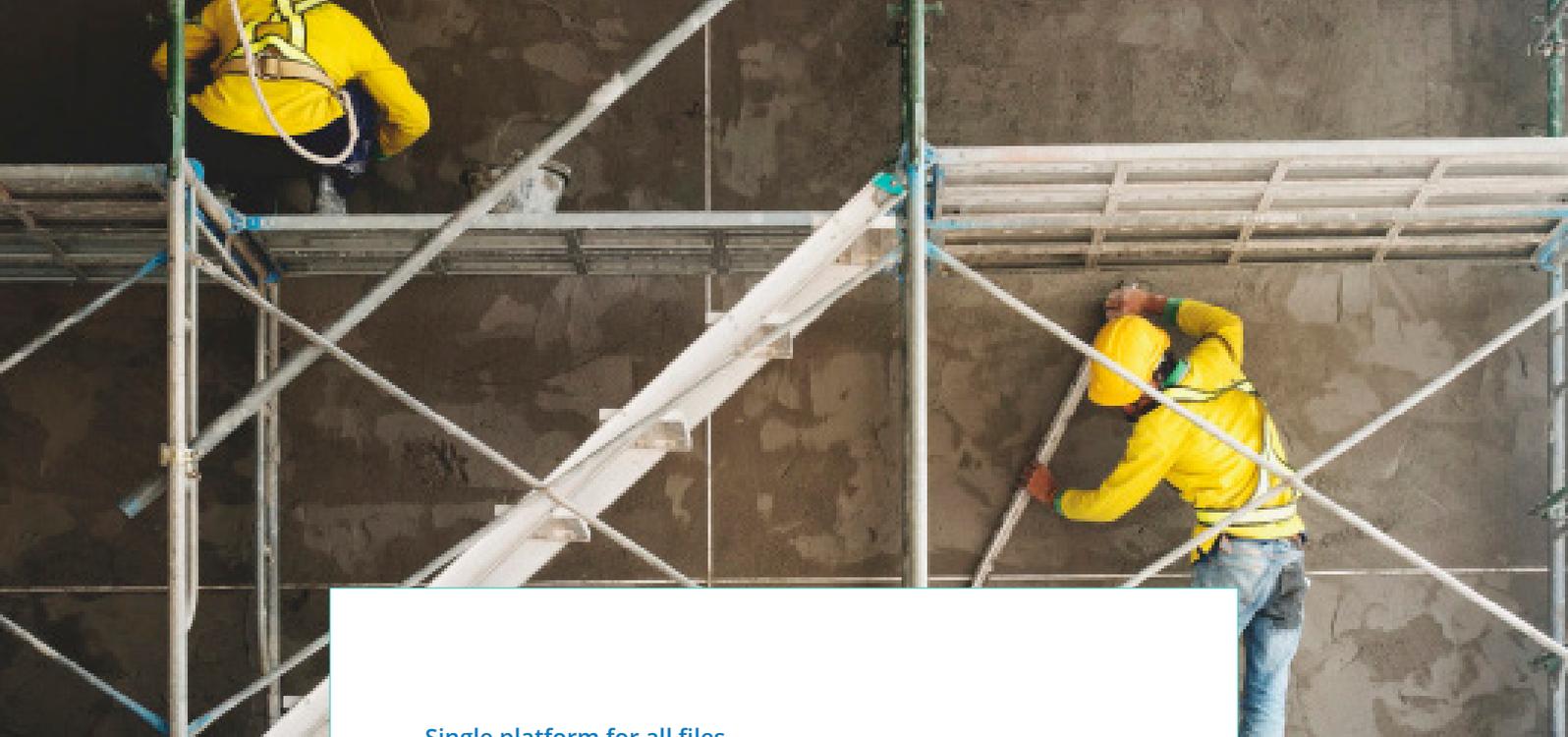
The ability to collaborate between the construction site and the office (or even multiple sites and offices) can involve multiple tools including cumbersome VPNs, or even manually copying data from one location to another if dealing with spotty connectivity. It becomes even more challenging when dealing with large files.

Version conflicts are eliminated since files are automatically locked when editing while allowing others to still view the file. After the file is closed, changes are saved and the file is automatically unlocked.

When working with large files, speed becomes an issue. To solve this, Egnyte allows you to mark folders for offline access and sync them to your desktop. Any changes will sync to the cloud. Conversely, changes made in the cloud are then synchronized back to the desktop.



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Single platform for all files

Egnyte maintains a single repository in the cloud and has the ability to cache files to on-premises storage devices. With files cached on-premises, construction firms can seamlessly access their files and use cases with maximum performance. This improves the experience for end-users, allowing them to maintain their high productivity even in challenging network conditions.

Work Better Together

With net margins in construction currently hovering around 1%, firms need to find additional sources of value from their operations. Considering IT spend is lower than the cross-industry average, increasing productivity through IT is one such source. Shortening the project cycle time by improving efficiency can have a significant impact on the bottom line in a low margin project-based industry like construction. Built for business and designed to tackle the needs of industry, Egnyte is the only comprehensive secure file sharing solution for construction projects of any size.



In a content critical age, Egnyte fuels business growth by enabling content-rich business processes, while also providing organizations with visibility and control over their content assets. Egnyte's cloud-native content services platform leverages the industry's leading content intelligence engine to deliver a simple, secure, and vendor-neutral foundation for managing enterprise content across business applications and storage repositories. More than 16,000 companies trust Egnyte to enhance employee productivity, automate data management, and reduce file-sharing cost and complexity. Investors include Google Ventures, Kleiner Perkins, Caufield & Byers, and Goldman Sachs. **For more information, visit www.egnyte.co.uk**

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