Regional and Global Data Worksharing

The challenge

Major infrastructure projects require a multi-disciplined approach using staff with specialised skill sets. Projects are often won by companies whose specialised staff aren't necessarily available in the same location and so the work needs to be shared between geographically-dispersed offices. From another perspective, worksharing allows an agile workforce that simplifies resource planning for managers by spare capacity in quieter regions able to assist with offices experiencing an excess of work.

While consultants understand the importance of worksharing, most continue to rely on basic Document Management Systems (DMS) that are restricted to email correspondence, contracts and other office documents. While suitable as digital filing-cabinets, DMSs cannot manage the complex, resource-heavy geospatial data and related design files – such as those created using 12d Model or CAD – that are required by various parties during the lifetime of a project.

Every day, consultants create and use multi-gigabytes of unmanaged geospatial data. To date, the traditional solution has been to copy and transfer this data across to other computers using generic file-sharing services or solutions like DropBox or OneDrive. However, rather than sharing the data, they are duplicating or creating multiple copies of the data. This creates a number of problems: users aren't aware of which version is the latest; data may be lost or mishandled during the transfer process; and there is no clear audit trail on what has been changed or added.

There are a number of other potential negatives consequences to improper data handling in workshare environments:

1. Increased network traffic and corresponding decrease in network responsiveness.
2. Lingering doubt about the reliability and quality of the data.
3. Inefficiency and lower productivity through increased use of disk storage and time spent waiting for data transfers.
4. Increased likelihood of human operator error in a non-automated workflow.

The solution

12d Synergy has been developed to enable efficient and seamless worksharing for staff regardless of their location by providing a single source of truth for all email, documents and geospatial data.

12d Synergy is a check in/check out system which uses local caching technology so computational and data-intensive engineering and geospatial software can operate on locally-stored data on the hard drive rather than on a network drive, greatly increasing performance and responsiveness.

Version and access control, rollback and audit trail

12d Synergy maintains the history of all changes to all files and tasks – who changed it, why it was changed and when. This history provides a complete audit trail. Version control allows users to roll back to any previous version of documents to review and make edits if required.

12d Synergy also provides granular access and visibility control of files and projects. Supervisors can grant designers full access to a project, while project managers might be given read-only access to design files. Additionally, files and folders can be hidden from unauthorised users to ensure the security of data.

Improving efficiency with geospatial data

Many engineering and geospatial software packages, such as 12d Model and TUFLOW, were designed to store data across a number of associated files. These folders of files must be managed as a group to maintain the integrity of the engineering or geospatial model data.

12d Synergy is capable of managing folders of files while maintaining the association between the individual files. The software monitors the state of each file in the folder. Any file that has not changed does not need to be checked in or out between edits. This reduces the amount of data that is transferred. In the case of 12d Model projects, the amount of data transfer can be reduced by up to 95 per cent.

Managing multi-office worksharing

To reduce transfer times and bandwidth usage even further, companies can implement a File Replication Server (FRS) in a remote office. The FRS acts as a caching server, storing files for local office access. Files can be replicated on demand or administrators can manage the frequency and scope of the replications (e.g. all project files are replicated overnight for use). The FRS only delivers byte-level changes between files (deltas), so even when sending large files, 12d Synergy delivers only what is absolutely necessary. The FRS allows multi-office organisations to receive the benefits of 12d Synergy with fast access for all users.

Benefits

- Use specialised skills from any office or country with seamless and fast data transfer.
- Less time wasted waiting for data to upload and download as only data which has changed is transferred.
- Reduced travel costs as consultants no longer need to visit project offices as frequently to be productive.
- Geospatial modelling runs faster, making employees more productive on a day-to-day basis.
- Reduce strain on IT networks as data transferred can be reduced by more than 95 per cent.