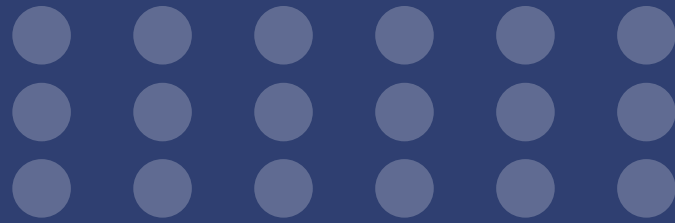




BIM Meets WAN

Achieve Real-Time Revit Worksharing on Wide Area Networks





The WAN Collaboration Problem.

As technology continues to make the world smaller and smaller, it seems almost simultaneously data is getting bigger and bigger. That's certainly the case with the powerful Building Information Modeling (BIM) software, Autodesk Revit. With project teams spread across town or across the world, the RVT file poses a difficult collaboration challenge for architects and engineers.

Accessing Revit RVT files, or even smaller worksets, across a wide area network can be extremely slow. The frustration and lost productivity for end-users is only the beginning, of course, as such a demand on the bandwidth can cause overall network slowness or crash. Many companies have turned to hardware accelerators and costly bandwidth upgrades to solve the problem.

Another alternative, although not recommended, has been to replicate worksets and entities at local sites to give users access at LAN speeds. Unfortunately, the concurrent edits that take place are at risk of being in conflict with one another. Revit calls this method 'Editing at Risk' because if a remote user's edits are found to be in conflict, his or her work cannot be merged with the central file and must be done again.

“WAFS allows local access to up-to-date files at all times...”

So, how can you give local users access to the same files everywhere on the WAN at LAN speeds? GlobalSCAPE WAFS allows local access to up-to-date files at all times, while eliminating the risk of concurrent edits by ensuring real-time file locking.

In this whitepaper, we'll be examining how GlobalSCAPE WAFS can be used to facilitate multi-site collaboration with Autodesk Revit projects.





Setting up GlobalSCAPE WAFS.

GlobalSCAPE WAFS is simple to install and configure on any WAN network.

There are four basic components to the WAFS-enabled network: the *Server*, *Agent*, *Jobs*, and the *Vault*.

Server

The first step is to install the GlobalSCAPE WAFS *Server* component. The *Server* acts as the hub, directing traffic, synchronizing mirrors, ensuring file coherency, and resolving any file conflicts. In all deployment scenarios, a single instance of *Server* is used. The *Server* includes an intuitive administrative console for managing *Jobs*, viewing network snapshots, and configuring security and other settings.

Agent

Once the *Server* is installed and functioning, the GlobalSCAPE WAFS *Agent* component is installed on all local servers (or, if desired, client machines where data is directly accessed). *Agents* communicate directly and only with the *Server* to mirror and lock files locally as the *Server* directs.

Jobs

This is the basic building block of a WAFS deployment. *Jobs* are a collection of watched folders and their respective links to folders at other *Agent* sites. Once a *Job* is created, the *Agent* and *Server* work together to ensure that local data for that *Job* is the same at all sites. All files within a *Job's* watched folder(s) will be mirrored, including RVT files, Microsoft Office Documents, AutoCAD files, images, etc. (note: file-type filters can be set at the *Agent* if desired)

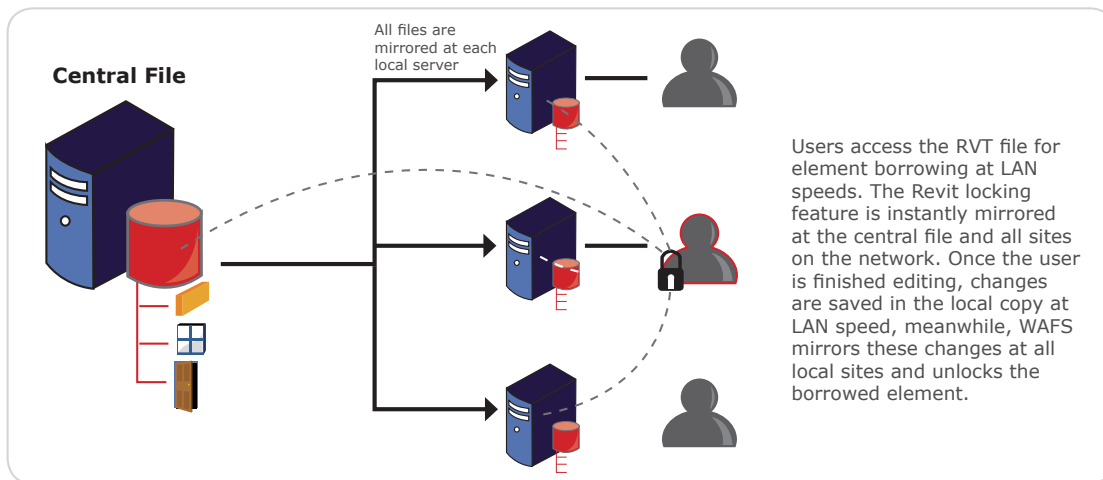
Vault

The *Vault* is the working space on the central server where the *Server* stores all *Jobs'* current file versions, past versions, deleted files, and log files.

What do end users see? Nothing. The GlobalSCAPE WAFS *Agent* works behind the scenes on each local server to keep local files up-to-date. Users access their files on the LAN as normal. As Revit entities or worksets are borrowed, the *Agent* tells the *Server* to lock the entity at all other *Agent* sites. When changes are saved locally, the *Agent* mirrors only the file deltas through the *Server* to all other *Agents* and then unlocks the file.

Working with GlobalSCAPE WAFS.

Once GlobalSCAPE WAFS has been configured at the Server, each Agent has been installed at local servers, and Jobs have been defined, you are ready to start working. There are two methods for Revit collaboration, both of which are supported by WAFS.

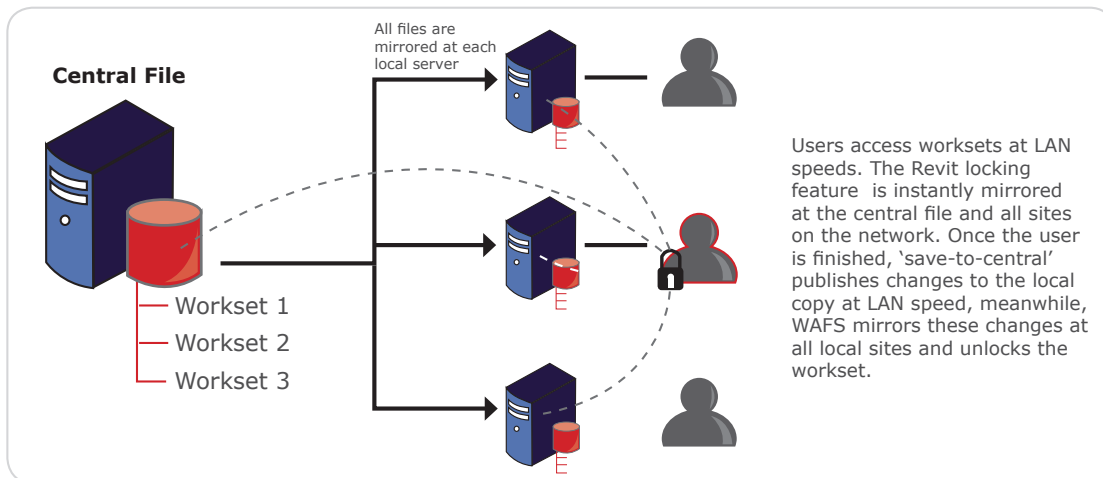


Element Borrowing

Autodesk Revit enables simple element borrowing, a process of making elements editable on the fly by obtaining permission from either the central file or users who own those worksets. To prevent concurrent editing, Revit detects whether another user is already editing the element before granting the borrower permission.

With GlobalSCAPE WAFS, each local copy of the RVT file(s) is complete with up-to-date status of ownership on all elements. So, whether the element is being edited by another user locally or half-way around the world, Revit will disallow borrowing in order to preserve total file coherence. If the element is available, the user will borrow the element and GlobalSCAPE WAFS will update all sites with the new ownership status.

Once the user has finished editing the borrowed element, changes are saved to the local RVT file. Then, GlobalSCAPE WAFS uses a proprietary byte-level differencing technology to mirror only the file deltas at all other sites. Once the edits are mirrored, the element is unlocked.

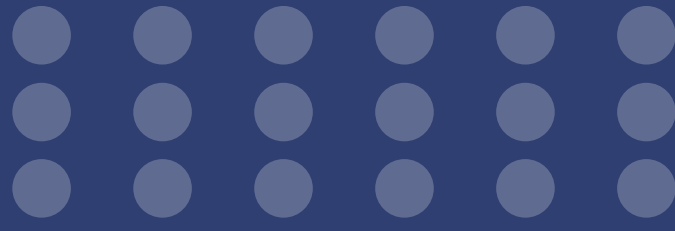


Worksharing (Worksets)

Worksharing is a feature of Revit designed to permit multiple users to access different portions—or “worksets”—of the larger parametric model, locking only the entities in that workset and allowing others to work simultaneously on other parts of the project. When using worksets, a collective file called the “Central File” contains the entire design, while team members can edit worksets individually and publish changes with the “Save-to-Central” command when finished.

GlobalSCAPE WAFS extends this multi-user capability to multi-site collaboration by mirroring the Central File and all worksets at each local server, thereby allowing users at various sites to access the data at LAN speeds instead of streaming the files over a WAN. Similar to element borrowing, once a workset is borrowed—or “checked out”—by a local user at any site, the native locking function of Revit is instantly enacted at all sites on the network, eliminating the risk of concurrent edits.

When the user is finished editing the workset, the save-to-central command publishes changes back to the local copy of the central file. Using a proprietary byte level differencing algorithm, GlobalSCAPE WAFS mirrors only the file deltas at all sites. The changes are published to the central server and to central file copies at all sites on the network nearly instantaneously without using significant bandwidth. Once the changes have been mirrored, the workset is then “checked in” and unlocked at all sites.



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