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Why front-end Deduplication technology is a must have for production oriented DAM?

The Traditional method of managing digital assets

Storage

Most traditional DAM solutions store a full copy of each file or version of a file on a network share, which means that 25 variants of a 2GB Photoshop file would require 50GB of storage space. For creative organizations in the business of producing digital assets, storage is a major issue because the storage needs of the business are exceeding available disk space in the organization.

Retrieval

The majority of DAM solutions are nothing more than glorified network file shares – they just index the metadata associated with an asset. The actual network transfer of the files involves sending full copies of a digital asset to and from the underlying network share.

Unfortunately, with the volume of digital assets exploding, IT administrators are constantly scrambling to deal with storage expansion needs, as well as, costly network re-architectures necessary to clear up clogged corporate networks.

What is Deduplication

Data deduplication is a specialized data compression technique for eliminating duplicate copies of repeating data. Deduplication techniques look for redundancy of sequences of bytes across multiple file versions. These sequences of data are compared to the history of other such sequences in the file. The repeating data in the newer versions of a file are referenced rather than stored again. This process is completely hidden from the end users and creative applications so the whole file is readable exactly as the user would expect it to be, even though only changed bytes are stored against the first version.

It is important to note that deduplication is NOT A LOSSY VERSION COMPRESSION technique that creative users utilize when converting files from an uncompressed format such as Adobe Illustrator to other formats such as JPEG. Deduplication uses mathematically proven algorithms to guarantee that the file content or resolution from a user's perspective does not change.

Historically, deduplication technology has only been available with expensive enterprise back-end backup & archiving systems. For the first time, evolphin® has implemented front-end deduplication that ensures that when a creative user changes a digital asset, only the modified bytes are transmitted and stored on the server. This eliminates transmitting and storing redundant data across multiple files.

Why it benefits you

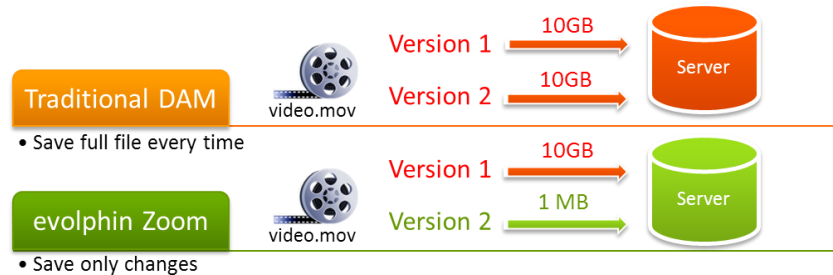
Deduplication lowers storage costs as fewer disks are needed. It also improves disaster recovery since there's far less data to recover and transfer. Additionally, backup and archive data typically includes a lot of duplicate data in creative organizations. The same data is stored multiple times in a traditional DAM, consuming unnecessary storage space on disk, electricity to power and cool the disk, and bandwidth for network access. This creates a chain of cost and resource inefficiencies within the organization.

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Remote sites such as branch offices or external partners can download digital asset versions in seconds in what used to take hours. Many of evolphin's customers have reported a dramatic reduction in network download performance after implementing Zoom. For instance, prior to using Zoom, creative staff at one of our ad agency customers in Texas would spend 2-3 hours downloading a large (several gigabytes) InDesign catalog file from their central office to their branch office. Once Zoom was implemented, the deduplicated changes took them only a few minutes to download.



How deduplication works

New Versions

Creatives can iterate a digital asset 30-50 times in the course of executing a creative project. Often approval workflows force the creative professional to tweak each file multiple times in order to meet project requirements. This causes an explosion of new versions for a given digital asset. Front-end deduplication technology from evolphin examines the file segments in a new version of a digital asset uniquely identifying data segments, and then compares the segments with the stored data in the previous version of the file. If the segment is unique, it is stored on disk. However, if an incoming data segment is a duplicate of what has already been stored in the previous version, a reference is created to it and the segment is not stored again.

For example, a file is modified several times during the creative process and creates a significant amount of duplicate data. Deduplication algorithms analyze the data and store only the compressed, unique segments of the revision. In a typical enterprise backup and recovery regime, this process reduces storage capacity requirements by 10 – 30 times for work-in-progress file versions. The patent-pending deduplication technology from evolphin can achieve up to 99.9% data compression on changes to a file that are saved as versions. This means that companies can potentially store 10 TB to 30 TB of backup data on 1 TB of physical disk capacity which has huge economic benefits.

Smart Copy

In creative organizations it is very common to create duplicate copies of large digital assets such as large Photoshop design files or QuickTime movie clips referenced in another creative project. It is not uncommon to end up with over 50+ copies of the same file as it is used in multiple projects over time. Since creative users do not want to modify the original asset as doing so can impact other projects that reference the same digital asset; so they end up creating duplicates.

Further, when a new creative project is initiated; creative users often copy digital assets from a previous campaign or from a similar project. This allows them to avoid a cold start because they can reuse existing artwork and make appropriate changes to the new project. Unfortunately this common practice is the leading cause of storage explosion as redundant data is stored again and again.

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evolphin Zoom's Smart Copy feature eliminates this problem without the user being aware of the deduplication technology. It does so by automatically storing a pointer in the Zoom DAM database to the specific file version from which a 0-byte copy of the digital asset is made. As the creative user begins to iterate and create new versions of this Smart Copy, the Zoom deduplication engine automatically stores incremental changes or byte sequences but completely hidden from the creative user. Therefore, 50 copies of a 10GB QuickTime movie clip will not occupy 500GB because Zoom can store 50 0-byte references to the master file.

The Smart Copy technology is not the same as the symbolic links mechanism offered by Operating Systems (OS) like MacOS, Linux or Windows. If a DAM tried to eliminate redundant copies by using symbolic links from the OS, it would cause the master file to be changed when the assets referenced via a symbolic link are edited. Smart Copy ensures that each copy lives in its own name space. Changes to the Smart Copy do not change the master file. Modifications to the Smart Copy are referenced against the file segments in the master asset version from which the Smart Copy was branched. This unique deduplication technology can eliminate almost all redundant copies of a digital asset in creative projects.

Implementing Zoom Deduplication

Unlike traditional DAM solutions that require network shares to be configured with an RDBMS, evolphin includes its own high-performance database and is optimized for both metadata and large file storage. There is no special configuration needed for the evolphin deduplication engine to do its work. Creative users continue to check out or access files without the need to worry about how file segments are stored in the evolphin Zoom database. All the evolphin Zoom desktop clients are deduplication aware and transparently convert a compressed file to a full file when the user opens the file on their desktop in their creative application. This ease of deployment is a big factor in accelerating adoption of the evolphin Zoom deduplication technology in a creative organization.

About evolphin Zoom

Zoom is designed by Creatives for Creatives. A comprehensive range of features including visual version control, advanced project workflow management, web-based review tools and archiving share a common code base and as a result are tightly integrated and present a common look and feel which eliminates many of the deployment and support issues often prevalent with traditional DAM systems.

The Zoom product has several key differentiators setting it apart from existing DAM solutions. A highly scalable and performant database written specifically for large binary assets, deduplication capabilities that minimize storage consumption and bandwidth usage, feature rich metadata, and a user friendly workflow system that enables automation and control without the need for expensive custom programming.

From concept to completion, Zoom optimizes the creative process and allows organizations to drive down the cost and time to execute creative jobs.