

An **Evolphin Software** Technology White Paper



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Discover How Evolphin Zoom Revolutionizes Digital Asset Versioning And Workflow

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Abstract

Smart version management of digital assets such as binary files, graphics, images, text documents, or software code, can bestow a competitive edge to organizations that implement it well. Once considered a necessity limited to software development groups, version control today is an imperative for any creative team that produces and consumes digital assets.

In addition to version control, managing the review-approve-commit cycle around digital assets is also critical to ensuring seamless delivery of creative project milestones. It is no wonder this powerful combination of workflow solutions integrated with version control is gaining traction with creative professionals everywhere.

Introducing Evolphin Zoom. Its unique architecture enables creative professionals to manage the entire design lifecycle via integration with authoring tools such as Adobe Creative Suite, Autodesk Maya and many more. Zoom boasts industry-leading performance, digital asset version compression, sophisticated workflow integrated with version control, real-time trend analysis, and report generation.

The Creative Professional's Dilemma

Traditionally, creative professionals and designers have relied on a less-than-ideal combination of options to manage the production of their assets:

1. Copy, Move, Delete (CMD)
2. Digital Asset Management Systems (DAM), or
3. Software Version Control Systems (SVCS)
4. Issue Tracking Systems

With the provisional Copy, Move, Delete method, users create new versions by copying an existing file to a new folder or under a new filename, move the older version to a backup folder, and then delete versions that are no longer in use. Managing workflow is ad hoc as well: File versions are emailed for review, and shared network drives without locking are used to synchronize projects. CMD is an unstructured, chaotic and extremely error prone way to manage the production of digital assets.

Others have implemented a **Digital Asset Management (DAM)** system. DAM systems have historically focused on the annotation, ingestion, cataloguing, and searching of **static** digital assets. For example, a stock footage shop that needs to provide an interface to search images or video clips from its library may setup a DAM system. These solutions do not address **active version control** requirements or **version compression of changing assets**. Version control functionality is an after-thought and often requires integration with a separate software version control system.

Creative professionals, being creative after all, have tried to improvise with utilitarian **Software Version Control System (SVCS)**. These can meet performance and scalability requirements for text-based documents; however, they don't handle binary objects well. Also, many SVC systems lack namespace tracking capabilities, which leaves them vulnerable to accidental and often irrevocable changes to folders or directories.

Traditional SVCS also do not provide **support for visual versioning**. Creative professionals must then employ a tool to **manually convert digital assets to preview images**. These images are stored locally, rather than on the server. As a consequence, network bandwidth and disk usage explode as full file copies are downloaded to workstations.

Finally, to bring structure and automation to the review-approve-commit cycle, creative professionals have resorted to **issue tracking systems** traditionally used for software development. These systems essentially provide comment tracking; there is **no support for hiding unapproved versions**, or for updating the workflow status based on asset check-ins in the repository, and no capabilities for publishing approved versions.

While all of these solutions have been around for a while, they lack critical features and capabilities that can dramatically improve the creative professional's productivity.

Evolphin Zoom Is The Winning Solution

Evolphin Zoom was designed from the ground up to meet the unique needs of creative professionals. Zoom addresses technical requirements around performance, scalability and disk usage, and includes several **patent-pending technical breakthroughs** that enable creative professionals to get more done, work visually, and securely manage the production of their digital assets.

Performance

Whether you're working on a 1 GB MOV file, a 100MB Photoshop file, a 35KB HTML file or a 4KB JavaScript file,

all types of assets must import, check-in and check-out in seconds, not minutes.

To meet performance demands, Evolphin Zoom's **carefully tuned, standard web-based (HTTP) file streaming protocol** can transmit large binary files with minimal network packet loss and congestion, boosting network throughput for common VCS operations. On the backend a **patent-pending Zoom database** cuts down on the disk I/O calls to ensure changes can be saved as fast as the disks can sustain write requests.

Scalability

A solution must handle the simultaneous import of 1,000s of binary files at once. The solution must also enable all versions of a particular asset to be easily and quickly checked out, whether it's the 7th version or the 20th version of an asset.

Zoom takes advantage of the latest improvements in RAM capacity and speed to **maintain in-memory indices** of version, workflow and file metadata. Most requests from users can be answered by looking up a table in-memory instead of doing expensive disk seeks. Look-up for a specific version can be **performed in constant time**, independent of the number of revisions stored. Multi-threaded execution allows concurrent requests to be performed without process switching overhead experienced by previous solutions.

Disk Usage

Storing multiple versions of a small number of files won't tax your disk space; however, consider the enormous use of storage when

working with thousands of files, each with multiple versions. Compression helps, and most solutions handle compression of text files with ease; but how well do current solutions compress versions of binary objects?

Zoom uses an **adaptive compression technique** that is content-aware. In other words, instead of a trivial file compression utility, an algorithm is selected – based on the file's content. The algorithm computes the smallest set of changed bytes in a binary file, right on the user's desktop, prior to streaming to the server. This makes it possible to store 20 versions of a 50 MB Photoshop file in 4-5 MB instead of using 1 GB of disk space (20 x 50MB = 1GB).

Plain vanilla binary file storage approaches require either full file per version to be stored or concatenation of all the versions to a single file that is subsequently compressed using a Zip utility. Unfortunately both approaches consume too much disk and compute resources. The Evolphin approach avoids CPU overhead as well as large storage requirements.

Visual Versioning

Creative design professionals are visual by nature. A winning VCS solution must support preview images for each and every version in the repository.

For every version that is saved, Zoom will **automatically generate a thumbnail preview**. And unlike most tools that create thumbnails on the local disk, Zoom is the first tool to version thumbnails on the server as well. This allows for powerful **visual search capabilities** using **Zoom Asset Browser** from any desktop.

Additionally, using the **Zoom Visual History** browser, any user can zip through **visual previews of each version** without installing the authoring tool.

Visual Workflow

All creative professionals follow some kind of review-approve-commit process, but it can be time consuming to keep vigil over all the versions, manage reviewers' feedback, and track the progress through the approval process.

The **Zoom Workflow** application integrates with authoring tools, such as Adobe Creative Suite and Autodesk Maya, to allow users to browse their tasks and associated assets from within the creative application. Files versions, checked-in as part of a workflow task, are kept in an **unpublished** shelf on the server, so there is no longer any need to keep work-in-progress separate by storing them on the author's desktop. Customers and other team members are able to view only the published assets, separate from intermediate versions.

In addition, the **Zoom Workflow Manager** can automatically detect when a user is finished with a task, transition status, and notify reviewers via their system tray. Reviewers can annotate comments to checked-in revisions. If a change is disapproved, work can be resubmitted via new revisions to the assets. Zoom Workflow Manager tracks all iterations, and supports hierarchical reviews.

Workforce Reporting

Zoom enables Managers and Project Leads to **track and report the time and money** spent on perfecting a digital asset. Every time an asset is modified, Zoom tracks the user, authoring application, and the time spent on the asset. This feeds into a timesheet rollup web application that can be used for billing,

analyzing costs, and reviewing actual costs against allocated budgets. Based on workflow progress, Zoom can reveal star performers - users who consistently finish tasks on time, with minimal rejects by approvers.

Namespace Tracking

Accidents happen. Every creative professional has had an asset or two disappear due to a user or colleague simultaneously deleting or modifying the directory or folder that houses the asset.

No problem. Unlike most version control systems, which track only files, or track moves and renames as delete and add operations, Zoom tracks actual changes to both files and folders. Zoom uses **patent-pending graph-theory algorithms** to infer dependencies amongst assets. This enables Zoom to **detect and prevent accidents** such as the accidental deletion of a directory on a server while another user is adding or modifying files in that directory on his desktop. In a team setting with users working concurrently on related assets, this can become essential. With Zoom, users don't need to lock down the entire directory to make a change to its structure. Changes to a directory are versioned and tracked for dependencies to avoid inconsistent states.

The Benefits of Zoom

Visual Version Control

Zoom has been architected specifically for the creative professional. It is not *just* a version control system. It is a complete solution for the modern creative workflow. Zoom provides for

- ✓ Visual history
- ✓ Visual search
- ✓ Plug-ins for authoring tools such as Adobe CS, Autodesk
- ✓ A context-driven UI

- ✓ Automated versioning of thumbnail previews

Blazing Fast Performance and Massive Scalability

Zoom is designed to handle vast numbers of small- to large-sized digital assets and their revisions. Zoom is the only DAM solution in the marketplace that catalogs and provides search on digital asset versions in real-time.

Performance benchmarks show Zoom to be up to **50x faster** than the nearest competing VCS.

Zoom also scales well, with no performance hit as the asset count increases. In a scalability benchmark, Zoom was able to import 67,000 digital assets in just 30 seconds. Searching and retrieving a preview of an asset in a repository with a million plus digital asset versions took a fraction of a second.

Integrated Workflow

Version control systems and workflow systems have been around for a while, but have always existed independently. Zoom brings the power of an Enterprise-grade workflow system tightly woven around VCS concepts to ensure you can track, assign, review, approve and publish versions of digital assets.

Ease Of Deployment

It takes less than an hour to implement Zoom and get started. Zoom deployment consists of a central server that houses the asset repository and enforces the workflow rules. Zoom clients are installed on end user machines.

Installers allow even the novice user to easily deploy the Zoom server on any machine. Default parameters have been tuned for optimal performance. Zoom server uses the standard web protocol: *http*. This makes navigating firewalls relatively easy.

Once the Zoom server is installed, deployment starts with using the built-in default project or creating new projects to map to ongoing work. Users can be easily assigned to the project via a web administration application. Roles can be attached to users to impose access rules.

End users can run the Zoom client installers to setup Zoom desktop clients and plug-ins on their desktops. Zoom clients specify an *http* URL to connect to the Zoom server. Customers outside the organization's firewall can connect using the Zoom client as well.

Summary

Evolphin Zoom has been benchmarked as the fastest visual asset versioning and workflow software on the planet. Zoom makes it easy to instantly store, version, track, secure, review, approve, search, and preview a continuously increasing number of digital assets.

Resources

Please contact our sales team to learn more about the technical capabilities and benefits of Evolphin Zoom.