

Perforce Helix vs. Subversion



Why Switch to Perforce Today?

Using Subversion often leads to losses in productivity and high administration costs. While its upfront licensing costs are zero, Subversion forces you to spend valuable resources on code management issues resulting from its suboptimal workflows and outdated functionality. The net loss in productivity is far more costly than any licensing fees.

Perforce furnishes a compelling solution for those looking to regain productivity and resources lost to Subversion. It offers proven capabilities in an integrated platform, the choice of either centralized or distributed workflows, a full Git management ecosystem, and advanced security measures. The company also offers dedicated technical support and a professional services team to ensure that your switch to Perforce is as low impact as possible.

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Summary

Using Subversion often leads to losses of productivity and high administration costs. While its upfront licensing costs are zero, Subversion forces you to spend valuable resources on code management issues resulting from its suboptimal workflows and outdated functionality. The net loss in productivity is far more costly than licensing Perforce Helix.

Common frustrations with Subversion include:

- **Broken merging:** The incomplete merge algorithm is practically useless, requiring multiple hours to resolve the simplest issues.
- **Time-consuming release management:** The inability to track the propagation of changes to individual release branches forces long periods of code freezes.
- **Performance woes:** A large number of files in a repository or numerous revisions dramatically slow performance, driving down developer productivity.
- **Weak access control:** The coarse-grained access control makes it arduous to control where users read from and write to.

Perforce offers a compelling solution for those looking to regain productivity and resources lost to Subversion. It delivers proven capabilities in an integrated platform, the choice of centralized or distributed workflows, advanced security capabilities and a full Git management ecosystem. Perforce also offers dedicated technical support and a professional services team to ensure that your switch to Perforce is as low impact as possible.

Comparison Matrix

Capability	Subversion	Perforce Helix
Merging	Subversion has only basic merging capabilities with limited baseline selection, leading to unnecessary and incorrect merge conflicts.	Automatic tracking of merge history across all branches includes renames and moves.
Release Management	In SVN, users identify branches only by convention. Discovering changes that need to be applied across several branches is complex and error-prone.	Perforce's Streams implementation identifies branches as mainline, development, and release with a clear hierarchy that makes it simple to identify which changes need to be propagated and to which stream.
Performance and Scalability	Struggles with large repositories and files sizes. Limited to about 250 users and 1 TB of data.	Proven installations of 10,000 and more users and petabytes of data.
Centralized and Distributed Workflows	Subversion offers only traditional centralized workflows.	Helix supports classic centralized workflows as well as distributed workflows through its native DVCS capabilities. It's also easy to sync data from Git repositories into Helix.
Git Management	Subversion has no Git management capabilities.	Helix GitSwarm provides full Git management while automatically mirroring work into Helix Versioning Engine for enterprise visibility and security.
File History	Provides only a simple log command with few filter options. A simple report to find changes of a particular user or a deleted file can take minutes because it requires listing the whole history of a project and filtering the output.	Supplies a strong set of tools from the command line and P4V to create a report on the file history. Tools in P4V such as TimeLapse View™, Revision Graph, or Folder Diff are essential to discover the source and history of a change.
Global Teams	No built-in caching or replication technology is available to support global workforce.	Helix offers Perforce Proxy and full and filtered replication to enable fast global access.
Security	Subversion itself does not provide any access control; instead, it must rely on Apache.	Helix has powerful file-level access control and auditing facilities.

Merging

Subversion

Subversion offers only basic merge history tracking, which fails in many scenarios. Such merges can be very slow and often cause unnecessary merge conflicts. This is especially true for renames and moves. Some customers report that they spend up to 5 work days in each release cycle handling Subversion merges.

Perforce Helix

Perforce automatically tracks the history of all branch operations with its advanced and mature merge tracking mechanisms, including renames and moves. Changes can be safely merged across all branches, and the integration algorithm determines the best common base to reduce merge conflicts.

Why Should I Care?

Failed merges are the #1 concern of Subversion administrators. This often leads to the high cost and lost productivity of having users spending many hours performing the necessary merges, or for the team to abandon branching and merging altogether.

Release Management

Subversion

In Subversion, users identify branches only by convention and there is no relationship between these branches. There is no built-in method to identify that fixes need to be applied to different branches, and recognizing the required changes is complicated and painful because of the merge implementation.

Perforce Helix

Perforce Streams provide a guided branching framework following best practices for mainline, development, and releases.

With the P4V Streams Graph, developers and release managers can readily:

- Discover which changes need to be propagated between different streams
- Perform the merge safely and quickly

These capabilities allow code line managers to easily keep track of fixes across different code lines.

Why Should I Care?

Bug fixes often need to be applied to several release branches to avoid regression. Without guidance about where these changes need to be applied, code line managers spend a lot of time tracking down individual changes by hand. In Subversion, this leads to frequent code freezes and locked-down branches.

Performance and Scalability

Subversion

Subversion's architecture uses forward deltas to store versions. For each checkout, it must construct the latest version from scratch by sequentially composing all individual deltas. This operation is CPU bound, as well as time consuming. Therefore, Subversion does not scale well for large numbers of users and data. Its performance suffers severely as the number of files and revisions increases and for operations that check out the latest code, such as when creating or updating a working copy.

Subversion is typically limited to about 250 users, and repositories rarely exceed 1 terabyte because of performance and maintenance problems.

Perforce Helix

Perforce has proven installations with more than 10,000 users accessing a single repository. Many Perforce repositories hold millions of files and many terabytes of data, in some cases up to petabytes. Case studies have shown that Perforce is 5 to 10 times faster than SVN when syncing large numbers of files.

Why Should I Care?

When projects mature, their code base and history grow. If the repository cannot keep up with the increased load, the project becomes impossible to maintain. Operations that used to take seconds might now take many minutes, which will have a severe impact on developer productivity. This problem is exacerbated if you plan to connect Subversion to a continuous integration system, where the total read operations could be millions a day, mimicking 1,000 times the load created by 250 users.

Centralized and Distributed Workflows

Subversion

Subversion by itself offers only traditional centralized workflow, which requires a permanent connection with the central server because of its network file system.

Perforce Helix

Besides the traditional centralized workflow, Perforce provides native distributed version control system (DVCS) capabilities to allow users to work offline while still being able to use all Perforce tools and interfaces.

Helix also permits dedicated Git developers to use the full capabilities of Git while under the covers pushing to the central Perforce repository, offering the best of both worlds.

Why Should I Care?

Distributed version control allows developers to quickly create local branches without affecting the size of the central repository. In the end, work still needs to be stored in the central repository for sharing, reviewing and continuous integration. Helix offers the workflows developers often prefer, while meeting the needs of the larger enterprise.

Git Management

Subversion

Subversion has no facilities for managing Git repositories.

Perforce Helix

Helix GitSwarm provides the option of the pure Git-based workflow many developers prefer. It also makes projects easy to manage. Administrate projects and teams, maintain visibility over all projects, track issues and keep important project information easily available in a Git-powered wiki. GitSwarm automatically mirrors your team's work to Helix Versioning Engine for enterprise-class collaboration, visibility, security and control.

Why Should I Care?

A collaboration platform needs to flexibly accommodate the preferences of its users, or those users will go elsewhere. Many developers today prefer to work disconnected, storing and versioning their work to a local repository before sharing it with others. Git has become a very popular distributed version control tool, and often larger organizations will have some teams using Git while others use different tools and workflows. With Perforce Helix, you can manage any teams and projects using Git while automatically mirroring work into the Helix Versioning Engine. This brings enterprise visibility, security and control across all projects and teams.

File History

Subversion

Subversion provides only a simple log command with few filter options. A simple report to find changes of a particular user or a deleted file can take minutes because it requires listing the whole history of a project and filtering the output.

Perforce Helix

Perforce supplies a strong set of tools from the command line and P4V to create a report on the file history. Tools in P4V such as TimeLapse View, Revision Graph, or Folder Diff are essential to discover the source and history of a change.

When companies migrate their full Subversion repository to Perforce, they often discover many details about their history they were never aware of.

Why Should I Care?

Although a traditional central server offers many benefits such as closer collaboration, there is a growing trend to be able to work while being disconnected. Sometimes the developer is on the move and unable to access the company network. More importantly, distributed version control allows developers to quickly create local branches without affecting the size of the central repository. In the end, work still needs to be stored in the central repository for sharing, reviewing, and continuous integration.

Global Teams

Subversion

Subversion has no built-in caching or replication technology, having to rely on the WAN with low bandwidth and high latency. Alternatively, administrators have to install expensive third-party solutions, which add cost and extra complexity.

Perforce Helix

Perforce provides its easy-to-install and virtually maintenance-free Proxy solution for small remote offices and a flexible replication solution for larger offices at no extra cost. Replicas can be set up to be full, filtered, and caching on-demand to suit your requirements and bandwidth.

Why Should I Care?

Many development teams are going global, with users accessing and submitting to repositories from all over the world 24 hours a day. Without proper caching or replication technology, remote teams suffer from latency and bandwidth saturation, which severely hampers their productivity.

Security

Subversion

There is no built-in security in a Subversion repository and no concept of access control, users, or groups. To authenticate a user and to determine whether the user has access to the repository, you must install and configure Apache in addition to Subversion, which adds extra complexity and requires additional resources. Apache access control is also typically limited to a whole repository.

Perforce Helix

In addition to its complete file-level access control capabilities, the Helix platform applies advanced behavioral analytics to assess the risk level for each threat event, bringing sharp contrast to the most critical threats. This enables you to detect compromised accounts, malware and theft attempts immediately.

Why Should I Care?

Every week it seems some new company has made the headlines for having its data stolen. In fact, a recent IP Commission Report estimates the annual cost of data theft in the U.S. alone at \$300B. Conventional approaches to security are not enough to prevent the theft of your most valuable intellectual property. Organizations need an effective last line of defense against this type of data theft.

Conclusion

Open source products such as Subversion are not “free.” They come with hidden costs, such as lost productivity, delayed products, and increased maintenance that have the potential to be an order of magnitude more expensive than the savings in an upfront license fee.

About Perforce

Perforce Software helps companies build complex products more collaboratively, securely, and efficiently. Perforce Helix is a source code management (SCM) and content collaboration platform trusted by the world’s most innovative brands, including EA, Ubisoft, Samsung, NVIDIA, SAP, Pixar, National Instruments, Salesforce.com and the New York Stock Exchange. According to an independent study, companies that migrate to Perforce improve developer productivity by 15% and release their products 25% faster.

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