PERFORCE

COMPARISON

Perforce Helix Core vs. Subversion

Over the years, Perforce has delivered numerous innovations that set Helix Core apart from all other version control systems in terms of performance and productivity. In contrast, many users have begun to realize that SVN can no longer support the demands that are placed on a versioning system in today's accelerated development environment and are looking for an alternative that solves those problems.

Why Switch to Helix Core?

Helix Core and Subversion (SVN) are sometimes incorrectly likened to one another in internet discussions because of one similarity: They can both handle large files. While it's true that both are better at handling large files than Git or other versioning systems, the similarities end there.

Helix Core is the best solution for teams using SVN because it provides answers to the most troubling challenges that come with using SVN and introduces many powerful capabilities that are absent in other version control systems.

Summary

Version control has come into focus in the last few years as the foundation for DevOps. A high-performant and scalable version control system is critical to achieving accelerated Continuous Integration and Continuous Delivery (CI/CD) workflows. But SVN lacks the features and performance to provide the foundation for DevOps success.

Common frustrations with SVN include:

- **No Built-In Code Review:** This staple of modern Agile and DevOps is not part of SVN. You'll have to license a separate product to do code reviews.
- **Time-Consuming Daily Merge Operations:** Suboptimal branching and merging requires multiple hours to resolve the simplest issues.
- **Cumbersome Release Management:** CI/CD is almost impossible because of the inability to track the changes to individual release branches. This leads to drawn-out code freezes.
- **Performance and Scalability Limitations:** A large number of files in a repository and numerous revisions degrades performance and productivity.
- **Can't Coexist With Git:** SVN has no native Git management capabilities.
- **Incomplete File History:** It's difficult to get a comprehensive view of the sources and scope of change.
- **Can't Work Offline:** There is no way to work offline without losing traceability and ease of use.
- **Weak on Security:** The coarse-grained access controls make it tough to control what users see and do.
- **Lack of Support For Global Teams:** The absence of server replication makes it difficult to collaborate.

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Comparison Matrix

CAPABILITY	SUBVERSION	HelixCore
CODE REVIEW	SVN has no built-in code review. You must license a third-party product to conduct code reviews.	Helix Core includes Helix Swarm, an enterprise-class code review and collaboration solution, that can easily integrate with your CI workflows.
MERGING	SVN has only basic merging capabilities and limited baseline selection. This leads to time-consuming merge conflicts.	Automatic tracking of merge history across all branches – including renames and moves.
RELEASE MANAGEMENT	In SVN, users identify branches by naming conventions. Discovering changes that need to be applied across several branches is complex and error-prone.	Helix Core uses a branching structure called Streams. Streams identifies branches as mainline, development, and release. This hierarchy makes it simple to identify the changes that need to be propagated and to which Stream.
PERFORMANCE AND SCALABILITY	SVN is a single server system which limits performance and scalability.	Proven installations of 10,000+ users and petabytes of data.
WORKING WITH GIT	SVN has no Git management capabilities.	Helix4Git is an add-on option that allows you to store Git repos in the high-performance Helix Core server. With Helix4Git, teams can scale Git for accelerated collaboration and up to 80 percent faster builds.
WORKING OFFLINE	To work offline with SVN, you must copy your entire repo and run a SVN server on your local machine. Returning the code to the original repo breaks completely if someone else was submitting changes to the same paths while you were working offline.	With Helix Core, you can work offline in workspaces on your local machine. Once back online, reconcile the changes with one simple command.
FILE HISTORY	A simple report to find changes made by a particular user or to locate a deleted file can take minutes. This is because it requires listing the whole history of a project and filtering the output.	Helix Core features a robust set of tools from the command line and the Helix Visual Client (P4V) to create a file history report. The TimeLapse View, Revision Graph, and Folder Diff provide complete traceability of the source and history of all changes.
SECURITY	SVN has simple access controls and uses plain text passwords. Once in operation, auditing usage is difficult.	Helix Core has powerful file-level access control and auditing facilities. It also supports SSO and Multi-Factor Authentication (MFA).
GLOBAL TEAMS	No enterprise-class replication technology is available to support a global workforce. You are limited by the capabilities of your WAN.	Helix Core offers an unparalleled set of technologies including caching and an advanced replication technology called "federated architecture." With federated architecture, global teams access and manage files at LAN speed.

Code Review

SUBVERSION

SVN has no built-in code review capability. You must license a third-party product to implement code reviews.

HELIX CORE

Helix Core includes Helix Swarm, a flexible code review and collaboration tool, that can easily integrate with your CI workflows. Helix Swarm supports thousands of users and code reviews across innumerable projects.

Why Should I Care?

Code reviews are a critical part of the development lifecycle because they provide a cornerstone for quality and continuous improvement. Considering the importance of code reviews to the development process, this functionality should be customary in all version control solutions.

Merging

SUBVERSION

SVN includes basic merging capabilities with limited baseline selection. This leads to time-consuming merge conflicts. Some customers report that they spend up to five days during each release cycle reconciling SVN merges.

HELIX CORE

Helix Core automatically tracks the history of branch operations, including renames and moves, with its advanced merge tracking features. 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?

Based on experiences we've observed with customers, any amount of time required to fix merge conflicts is unacceptable. Poor merging functionality often leads to substandard workarounds, such as teams abandoning branching and merging altogether.

Release Management

SUBVERSION

In SVN, users identify branches through an agreed-upon naming convention that must be religiously followed. There is no relationship between the branches and, for example, the main code line. Because of this, there is no built-in method to identify fixes that need to be applied to different branches.

HELIX CORE

In Helix Core, branches are called Streams. Streams are highly intelligent and provide a built-in framework that follows best practices for mainline, development, testing, and releases.

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

- Discover which changes need to be propagated between different Streams.
- Perform merges safely and quickly to multiple Streams.

These capabilities allow managers to easily keep track of fixes across multiple 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, teams spend a lot of time tracking down individual changes by hand. In SVN, this leads to frequent code freezes and locked-down branches.

Performance and Scalability

SUBVERSION

SVN performance suffers as the number of files and revisions increase. The culprit? SVN'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 and time-consuming.

HELIX CORE

Helix Core has proven installations with more than 10,000 users accessing a single repository. Many Helix Core repositories hold millions of files and terabytes of data. In some cases, up to petabytes. Case studies have shown that Helix Core 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 minutes, which has a severe impact on developer productivity. This problem is exacerbated if you plan to attempt CI with SVN, where the total read operations could be millions a day via automation. This results in 1,000 times the load created by 250 users.

Working with Git

SUBVERSION

SVN has no way to manage Git repositories.

HELIX CORE

Helix4Git is an add-on to Helix Core that lets you store Git repos in a high-performance Helix Core server. It looks just like Git to developers, but gives teams the legendary speed and scale of Helix Core. This includes federated architecture for replication, lightning-fast commits, and up to 80 percent faster builds.

Why Should I Care?

Git is the de facto standard among software developers. Unfortunately, Git was never intended to support accelerated CI/CD across global teams. Helix4Git and Helix Core strike the perfect balance of satisfying developer needs against the demand for faster, higher-quality releases. Plus, teams can leverage their existing Git servers via built-in mirroring and the familiar Git interface.

Working Offline

SUBVERSION

To work offline with SVN, you have to copy your entire repo and then run a separate SVN server on your local machine. Returning the code to the original repo breaks completely if someone else was submitting changes to the same paths while you were working offline.

HELIX CORE

With Helix Core, you simply work offline in workspaces on your laptop, then reconcile the changes with one command once back online.

Why Should I Care?

Despite the always on, connected world we live in, there are times when we work disconnected from the company network. Version control systems must provide a seamless way for developers to work where and how they want.

File History

SUBVERSION

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

HELIX CORE

Helix Core offers a strong set of tools from the command line and P4V to create file history reports. TimeLapse View, Revision Graph, and Folder Diff are great tools to quickly discover the source and history of a change. When companies migrate their full SVN repository to Helix Core, they often discover many details about their history that were previously invisible.

Why Should I Care?

Traceability is a key capability in a version control system. This includes the ability to see who, what, why, and when work items have been completed throughout the development lifecycle. It is also critical to track the genesis of defects and to see the impact of fixes on a large code base – whether you're operating in a quality-critical industry or simply desire accountability and continuous improvement across teams.

Global Teams

SUBVERSION

SVN has no built-in caching or replication technology. Implementations are completely dependent on WAN technology. As a result, remote teams can fall victim to poor performance when low bandwidth and high latency are present. To streamline global development, administrators have to install expensive third-party solutions, which adds cost and complexity.

HELIX CORE

Perforce offers numerous solutions for global teams using Helix Core. For small remote offices, Helix Core can integrate with a simple proxy/cache server. This requires almost no setup or administration to deliver benefits to global teams.

For larger offices, Helix Core has advanced replication technology called federated architecture. Each location has its own server (i.e., Linux, Macintosh, PC), to which assets are replicated automatically– making them available where and when teams need them.

Why Should I Care?

Today, software development involves 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 that severely hampers productivity.

Security

SUBVERSION

There is minimal security with out-of-the-box SVN and limited access control for users and groups. SVN can work with LDAP, but this offers little in the way of security. To achieve even baseline control, you will also need to implement a network authentication protocol to get anything other than plain-text passwords. In almost all SVN implementations, all you need is a username and password to pull down an entire repo from the command-line.

HELIX CORE

With Helix Core, you can limit user access to individual files – not just repos or folders. In addition to its complete file-level access control and full audit log, Helix Core supports SSO and MFA.

Why Should I Care?

According to the 2017 Verizon Data Breach Investigative Report, 81 percent of data breaches involve weak or stolen credentials. If all your major enterprise software is secure, shouldn't your intellectual property in your version control system be afforded the same protection?

Conclusion

Don't let SVN deficiencies slow you down. Helix Core is a compelling solution for those looking to regain productivity and resources lost to SVN. Helix Core will deliver satisfaction to your organization both from a technology perspective and from the standpoint of support and services. Leave SVN behind and join a growing customer base of 400,000+ users from more than 3,000 companies.

Want to learn more about how Helix Core stacks up against SVN? We're here to help!

About Perforce

Enterprises across the globe rely on Perforce to build and deliver digital products faster and with higher quality. Perforce offers complete developer collaboration and agile project management tools to accelerate delivery cycles – from agile planning tools to requirements, issues and test management, which then link to all source code, binary assets and artifacts for full build and release tracking and visibility. The company's version control solutions are well known for securely managing change across all digital content – source code, art files, video files, images, libraries – while supporting the developer and build tools your teams need to be productive, such as Git, Visual Studio, Jenkins, Adobe, Maya and many others. Perforce is trusted by the world's most innovative brands, including NVIDIA, Pixar, Scania, Ubisoft, and VMware. The company has offices in Minneapolis, MN, Alameda, CA, Mason, OH, the United Kingdom, Finland, Sweden, Germany, and Australia, and sales partners around the globe. For more information, please visit www.perforce.com