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IBM Rational ClearCase

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Perforce Helix Core vs. IBM Rational ClearCase

Helix Core is set apart from all other version control systems by its high performance, scalability, and increased productivity for hardware and software product development teams. At one time, IBM Rational ClearCase was on the cutting edge of technology and SCM (Source Code Management) features. Today, however, some of ClearCase's technology can actually impede adoption of DevOps processes. DevOps automation is necessary to stay competitive in today's marketplace. As a result, many teams have come to realize that ClearCase no longer meets their needs.

Why Switch to Helix Core?

Developers find ClearCase commands too complex. And ClearCase administration is expensive, due to a proprietary database file system (VOB, or Versioned Object Base). This system also limits flexibility in OS and storage options, which are both critical to version control operations. An inflexible approach to managing projects, called UCM (Unified Change Management), strictly defines how teams manage their assets across versions. Finally, while support for global teams was once a strongpoint for ClearCase, its MultiSite capability has fallen behind in collaboration. This has resulted in frustration for developers, poor performance, and burdensome complexity.

Helix Core is the best alternative solution for teams using ClearCase. The ability to support extremely large quantities of files – both source code and non-code assets – of virtually any size, makes Helix Core the best fit. The advanced, seamless branching and merging features provide teams with the ultimate flexibility.

Perforce federated architecture provides the performance that teams need to collaborate on a global scale. High performance, fully integrated Git at Scale technology, Helix4Git, lets administrators support software teams and contractors with the ease of self-service administration. All of this is delivered with built-in features that address the compliance, governance, and security needs for even the most complex and demanding enterprises.

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Summary

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

Common frustrations with ClearCase include:

- **Performance and Scalability Limitations:** A large number of files in a repository and numerous revisions degrade performance and productivity.

- **Total Cost of Ownership:** High license costs, additional tooling and infrastructure, and the cost in time for system administration increase the total cost of ownership.

- **Time-Consuming Operations:** Developers, admins, and build engineers spend too much time on low value tasks with ClearCase. Automation is difficult to integrate and orchestrate.

- **Cumbersome Release Management:** CI/CD is almost impossible because of the inability to track the changes to individual release branches. This can lead to drawn-out code freezes.

- **Inability to Work With Git:** ClearCase has no native Git management capabilities.

- **Lack of Support For Global Teams:** ClearCase MultiSite is an old-fashioned way to address global VCS functionality. For teams with multiple terabytes or petabytes of assets, creating duplicates of the database and asset store at multiple sites is impossible, resulting in fragmentation.

Comparison Matrix

CAPABILITY	Rational ClearCase	HelixCore
PERFORMANCE AND SCALABILITY	ClearCase uses a proprietary file system that slows down common operations. The larger the number of assets, the slower the system.	Helix Core effortlessly supports thousands of users and millions of daily transactions. And it accelerates CI/CD with lightning-fast commits and concurrent builds.
COST OF OWNERSHIP	Developer productivity is the clearest path to return on investment, and ClearCase is hard to use and slow. ClearCase is also expensive to license, use, and maintain.	Helix Core optimizes developer productivity with ease of use and fast response to commands. With a per-user licensing model and DevOps automation capabilities, Helix Core provides a better total cost of ownership.
BRANCHING AND MERGING	ClearCase branching and merging capabilities can be complicated. This leads to time-consuming merge conflicts.	Helix Core offers simple, intelligent branching with automatic tracking of merge history across all branches – including renames and moves.
RELEASE MANAGEMENT	In ClearCase, users identify branches by naming conventions and using UCM Views. Views, however, can incorporate files from more than one branch. 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 structure makes it possible to automatically identify changes that need to be propagated and to which codeline(s).
WORKING WITH GIT	ClearCase has no Git management capabilities.	Helix4Git is an add-on option that allows you to manage Git repos in a high-performance Helix Core server.
GLOBAL TEAMS	You must purchase and integrate a separate product: ClearCase MultiSite. For many companies, this requires managing copies of large assets stored at each geographically diverse location.	Helix Core offers an unparalleled set of technologies including caching and an advanced replication technology called Perforce federated architecture. With federated architecture, global teams access and manage files at LAN speed.
SECURITY	Early on, one of the most compelling features of ClearCase was its granular permission structure and ability to support compliance needs. The permission model mimics Linux/Unix and is at the VOB level.	Helix Core has powerful file-level access control and auditing facilities. It also supports SSO and Multi-Factor Authentication (MFA).
FILE HISTORY	In ClearCase, you can use one of several commands to generate a report for the range of changes in the context of your view, whether for a folder or a file.	With Helix Core's Visual Client (P4V), you can simply right click on a file or folder to see the history of changes. From the command line, you similarly use the 'p4 changes' command.

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Performance and Scalability

CLEARCASE

ClearCase's VOB and MultiVersion File System (MVFS) requires installation of a new file system and modifications to the kernel of the operating system upon installation. It presents the user workspace as a dynamic view into the server, which requires a continuous network connection. This slows down file system operations and activities unrelated to version control, such as a directory listing.

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. And it accelerates CI/CD workflows with lightning-fast commits and concurrent builds.

Why Should I Care?

When ClearCase projects mature, their codebase and history grows. If the repository cannot keep up with the increased workload, the project can become impossible to maintain. Common operations like syncing or merging might now take minutes, which has a severe impact on developer productivity and patience.

Cost of Ownership

CLEARCASE

ClearCase's active-user floating license model is expensive to purchase and maintain. It's even more expensive because of additional tooling needed for global development, lack of integrations, and missed automation opportunities. The cost for administrative support further impacts the bottom line. It's not uncommon to need one administrator for 25 to 50 users.

HELIX CORE

Helix Core's per-user licensing model and maintenance fees provide immediate cost savings. And the hardware required to maintain the on-premise and global development sites are less expensive. Plus Helix Core's automation capabilities, with extensive built-in APIs and plugins, empower your DevOps teams with the tools to build a better pipeline. Administrators can maintain Helix Core – even for thousands of users across multiple development sites – with ease.

Why Should I Care?

Reducing fixed costs is essential to realizing a competitive advantage. Helix Core's less expensive infrastructure and extensive integrations equals productivity and a comparatively lower total cost of ownership. Case studies have shown that an enterprise may expect to save $350,000 in annual operational costs after migrating from ClearCase to Helix Core.

Branching and Merging

CLEARCASE

ClearCase includes sparse branching and basic merging capabilities with a limited baseline selection. This can lead to time-consuming merge conflicts. Some former ClearCase customers report that merge and integration activities took days to complete and required multiple developers. Those same tasks can take minutes in Helix Core.

HELIX CORE

Helix Core also offers light-weight branching, but with improved traceability. It automatically tracks the history of branch operations, including renames and moves, with its advanced merge 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?

Spending time fixing merge conflicts hinders developer productivity and impacts the bottom line. With the right version control tool, time is not wasted reconciling merges and manually tracking changes.

Release Management

CLEARCASE

In ClearCase, there is no relationship between the branches and, for example, the main code line. Users can identify branches using names and UCM Views. These views can incorporate changes across branches, but there is no built-in method to identify fixes that need to be applied to several 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. Developers can seamlessly manage parallel development and multiple software releases.

With the P4V Visual Client's Streams Graph feature, developers and release managers can quickly discover which changes need to be propagated across Streams, and merge safely. 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. With Perforce Streams, you can clearly identify where changes need to be applied. Now your team won't waste time tracking down individual changes by hand.

Working with Git

CLEARCASE

ClearCase has no way to natively manage Git repositories.

HELIX CORE

Helix4Git is a high-performance Helix Core server that lets you store Git repos. 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 that take up less storage.

Why Should I Care?

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

Global Teams

CLEARCASE

To manage remote teams, ClearCase offers MultiSite. This solution must be purchased separately and requires considerable effort to administer and maintain. Plus, teams need to keep copies of the same versioned object base (VOB) in various locations. It is impossible to maintain a single source of truth across your enterprise. The VOBs can quickly become out of sync when a change packet is not included in the commit.

One customer reported that a simple replication used to take up to 20 minutes with ClearCase. But since migrating to Helix Core, those same tasks now take just 2 minutes or less. What's more, they're utilizing less expensive infrastructure.

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.

PERFORCE

Security

CLEARCASE

Since the beginning, ClearCase has offered rigorous and granular security. It is available on the VOB, UCM project, or code directory level.

HELIX CORE

With Helix Core, you can limit user access down 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 is one of the only version control systems with Multi-Factor Authentication (MFA).

Why Should I Care?

Data breaches can have an enormous financial impact on an enterprise. If all your major enterprise software is secure, shouldn't your intellectual property in your version control system have the same protection? With Helix Core, you are able to have all the performance enhancements without compromising on what matters most.

Conclusion

Don't let ClearCase's deficiencies slow you down. Helix Core is a compelling solution for those looking to start automating, and regaining productivity and resources lost to ClearCase. Helix Core delivers satisfaction to your organization from a technology and services perspective. Leave ClearCase 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 ClearCase? We're here to help!

About Perforce

Perforce is a leading provider of enterprise scale software solutions to technology developers and development operations ("DevOps") teams requiring productivity, visibility and scale during all phases of the development lifecycle. Enterprises across the globe rely on its agile planning and ALM tools, automated test management, static code analysis, and version control solutions as the foundation for successful DevOps at scale. Perforce is trusted by the world's most innovative brands, including NVIDIA, Pixar, Scania, Ubisoft, and VMware. For more information, please visit www.perforce.com