eBook

Supercharge collaboration, slash development time, and drive efficiencies within your global DevOps teams.

Real stories and real success... Discover how Cirata transformed DevOps goals into reality for global industry leaders.

cirata

Contents:

onsemi

onsemi's path to modernization: A successful SVN migration.

Background

onsemi maintained a longstanding CollabNet SVN Edge environment, servicing 550 users. Following the discontinuation of updates to the CollabNet platform, the **onsemi** team sought assistance in migrating their SVN repositories from CollabNet to Vanilla Subversion.

They also needed an alternative solution for controlling access to their 400+ SVN repositories.

> "Thank you and the team for all your help, it has been a smooth process and I wish other software vendors provided support as excellent as I have had from Cirata."
>
> *Bill Corr, Design Infrastructure Manager*

About onsemi

onsemi, based in Scottsdale, Arizona, is a prominent American semiconductor supplier. The company's product range includes power and signal management, logic, discrete, and custom devices for automotive, communications, computing, consumer, industrial, LED lighting, medical, military/aerospace, and power applications. **onsemi** operates a network of manufacturing facilities, sales offices, and design centers across North America, Europe, and the Asia Pacific.

Challenges

- CollabNet SVN Edge does not adhere to the conventions of a 'vanilla SVN' installation, so a migration away from it is challenging.
- CollabNet SVN Configuration files are populated in a complex and counterintuitive manner.
- **onsemi** heavily relied on this SVN instance, but both the SVN version and the underlying OS were now out of the supportable range.
- The threat of a non-recoverable issue prompted the team to seek an alternative.
- The current CollabNet installation was configured to use outdated versions of both JAVA and Apache.
- **onsemi** required assistance with migrating their data from the deprecated platform and finding a replacement for the access control functionality of CollabNet SVN Edge.
- Cirata found that the CollabNet instance had not been dutifully maintained, upon inspection there was a large number of accounts with access to SVN repositories that needed to be pruned.
- **onsemi** wanted as little disruption to the developers as possible.

Project Timeline

Jan 19th 2024

Kick-Off and Planning

Jan 31st 2024

New Host built and ready for migration

Installation and Repository Migration Phase

Feb 1st 2024

Repository Migration process initiated

Feb 12th 2024

Cirata's Access Control Plus installed and initial configuration complete

Feb 19th 2024

AUTHZ file converted to Cirata's ACP compatible database, access tested

Tuning and Troubleshooting

Feb 20th 2024

SSL and custom Apache configurations applied and tested

Feb 29th 2024

SVN repository access now operational in new vanilla environment

Mar 11th 2024

Custom scripting to resolve 'pre-revprop-change' issues provided

Project Completion

Apr 7th 2024

Project cutover planned for April 7th maintenance window

Apr 17th 2024

Post deployment troubleshooting and project signoff

Solution

- Cirata assisted with the complete migration of all 400+ SVN repositories from the RHEL 6 CollabNet ecosystem to newly deployed RHEL 7.9 VMs.
- All SVN repositories were upgraded from SVN 1.8 to SVN 1.14, enabling **onsemi** to benefit from all quality-of-life improvements and bug fixes.
- After converting the existing AUTHZ files, the Cirata Professional Services Team populated the newly installed instance of Cirata's Access Control Plus (ACP), resulting in pre-populated teams, rules, and other configurations in the new environment that matched the existing CollabNet setup.
- Cirata used this opportunity to work with the **onsemi** team to reduce the 'Active SVN User' count from over 800 to 550.
- Additionally, we collaborated with the **onsemi** team to integrate an LDAP authority into the Cirata's ACP instance, mirroring the existing CollabNet setup and leveraging the enhanced features in Cirata's ACP.
- Cirata successfully executed the above changes while ensuring seamless integration from the developers' perspective.

Results

- The **onsemi** team successfully transitioned from multiple deprecated systems and services, upgrading from:
  - RHEL 6 to RHEL 7
  - Apache 2.2 to Apache 2.4
  - Oracle JAVA to OpenJDK JAVA
  - SVN 1.8 to SVN 1.14.
- **onsemi** administrators can now access the GUI of their Cirata's Access Control Plus instance from anywhere in the world, enabling real-time changes to SVN repository access globally.
- The **onsemi** team now has access to 24/7 support for their vanilla SVN instance from a team of skilled Technical Support Engineers with decades of experience.
- **onsemi** can scale their environment to meet changing needs, with additional users already added to their instance and the capability to add more easily as required.

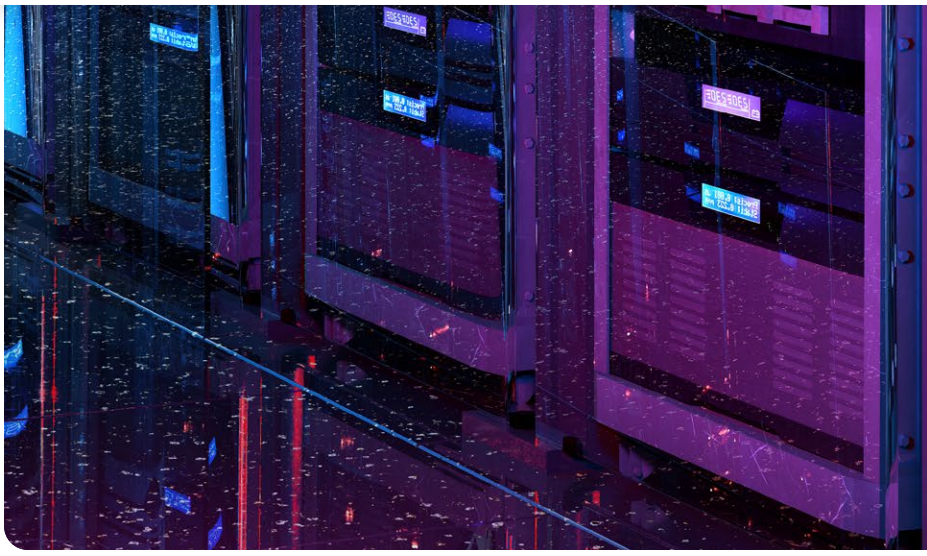
Product Feedback

- **onsemi** identified that placing Cirata's Access Control Plus outside the critical path of their SVN servers provided significant benefits. This configuration ensured that issues with LDAP or related services would not impact users' ability to access the SVN repositories.
- **onsemi** also praised the product's flexibility in adding additional user accounts. The ability to effortlessly scale the number of active Subversion users horizontally is a significant advantage.
- Cirata's Access Control tooling and professional services highlighted that **onsemi's** SVN access lists were overpopulated with accounts that needed removal. The ability to audit and easily update all existing AUTH files with assistance from the Cirata PS team proved to be highly beneficial.

Additional Information

Our primary technical contact within **onsemi** brought valuable experience from his previous role in a different organization, where he worked extensively with Cirata software. Through his use of Subversion MultiSite Plus and Cirata's Access Control Plus, our contact built a strong relationship with our Technical Support and Professional Services teams. His prior experience was a key factor in **onsemi's** decision to partner with Cirata for this project.

From SVN delays to seamless collaboration: Cirata transforms Juniper's development



Background

Juniper Networks was operating large development teams in 3 geographical locations; Sunnyvale, CA, Quincy, WA, and Bengaluru, India.

Juniper Networks, Inc. is an American multinational corporation headquartered in Sunnyvale, California. The company develops and markets networking products, including routers, switches, network management software, network security products, and software-defined networking technology.

Challenges

1. **Geographically distributed teams struggling with Subversion Access**
   - **Coordination challenges**: teams in different cities were faced with latency problems when checking out development workspaces and committing code changes to a single instance of Subversion (SVN).
2. **Slow SCM (Source Control Management) performance**
   - **Version control delays**: Juniper discovered that delays in workspace creation and code commits translated directly into wasted development time and higher costs.
   - **Non-local access delays**: developers accessing SVN data from geographically distant servers faced exponentially increasing delays, particularly when dealing with large workspaces.
3. **Load balancing issues**
   - **Load balancing**: Juniper needed to distribute developer and branch management workloads across multiple servers to ensure high availability. Effective load balancing over the three sites was complex and time consuming.
4. **Access management**
   - **Dependency management**: dependencies between teams or project components caused delays when one part of the project was not ready, which impacted overall productivity.
   - **Tool efficiency**: inefficiencies in development tools were slowing down workflows.
   - **Access restrictions**: engineers frequently moved between projects, making it challenging to ensure repository access was limited to only the necessary staff.
   - **Multiple authentication methods**: Juniper needed to accommodate different authentication methods across business units.
5. **Selective access to repositories**
   - **Legal and contractual compliance**: Juniper had specific legal and contractual obligations requiring selective access to certain intellectual property, depending on team location or individual worker agreements. They were early adopters of selective access controls in SVN.
6. **Long maintenance and disaster recovery events**
   - **Downtime impact**: prolonged maintenance or disaster recovery times, sometimes lasting 1–2 days, significantly impacted developer productivity.
   - **Data loss risk**: extended recovery times increased the risk of data loss, which posed a major threat to projects.
   - **Recovery point objective**: Juniper tasked its DevOps team to improve SVN system uptime from "four nines" (99.99%) to "five nines" (99.999%) reliability.
7. **Data center relocation**
   - **Data center moves**: Due to a fluid development workflow, Juniper needed the ability to physically relocate servers or entire data centers with little to no interruption to development teams.

Solution

Cirata implemented its **Subversion MultiSite Plus** solution across seven Subversion servers at three globally distributed data centers. This setup allowed seamless collaboration among Juniper's development teams worldwide.

Key benefits included:

- **Low latency access**: with repository replicas positioned strategically, developers enjoyed near-local performance, reducing delays in checkout and commit operations.
- **Load balancing**: Cirata's solution enabled efficient load balancing, ensuring that even during outages, other servers remained operational, maintaining developer productivity.
- **Access control with Cirata ACP**: consistent and precise access management ensured that repository replicas followed the same access rules across all nodes.
- **Selective replication**: MultiSite Plus's selective replication groups allowed administrators to control which repositories were available at specific locations, ensuring compliance with legal requirements and reducing unnecessary data distribution.
- **Flexible authentication**: Juniper opted for multiple authentication methods, easily integrated with Cirata ACP.
- **Historical access data**: by collecting access data with Flume, Juniper could generate reports on repository usage, allowing inactive users to be removed from access lists, enhancing security and performance.

During the data center relocations, Cirata and Juniper collaborated on a plan that ensured continuous SVN availability, even while servers were physically moved. The remaining servers kept the system operational, and the relocated servers caught up seamlessly upon reconnection.

Results

- **Improved developer efficiency**: the team of over 3000 developers experienced a 1–4% reduction in wait times, resulting in estimated cost savings equivalent to the annual salaries of 70 full-time software engineers.
- **Centralized administration**: Juniper consolidated smaller repositories under Cirata MSP, improving administrative oversight and security, including consistent authentication and access records.
- **High availability**: Juniper achieved its target of "five nines" reliability, reducing downtime and ensuring high availability even during disaster recovery or maintenance events.

Product Feedback

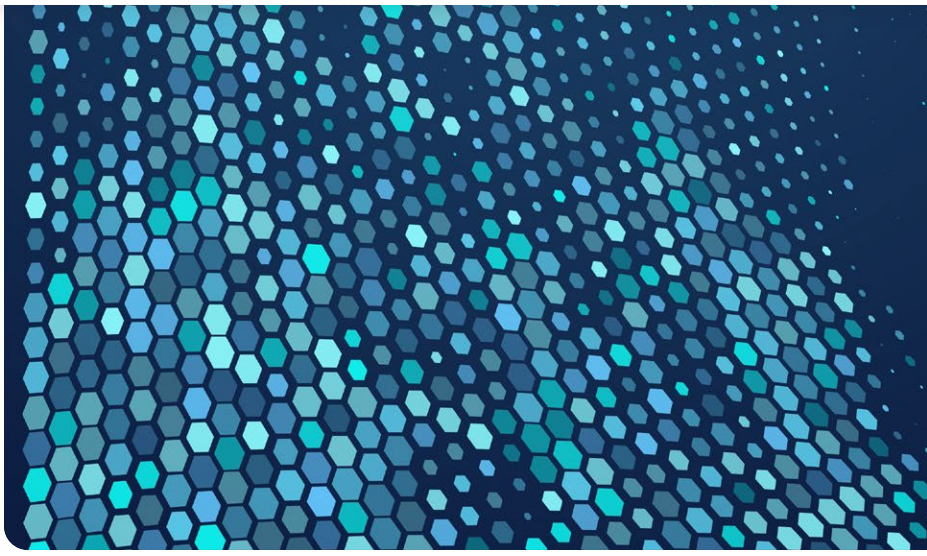
Juniper Networks praised the product for:

- **Resilience during downtime**: developers were able to continue working while administrators resolved issues, minimizing impact on productivity.
- **Reduced downtime for maintenance**: routine maintenance could be performed without affecting all development teams, a key benefit for Juniper's global operations.
- **Flexible infrastructure**: the ability to add and remove nodes based on changing data access needs was particularly valuable.

> "We really needed some way to ensure that all of our sites were up and running all of the time. We needed to be 24-by-7 globally with the same LANspeed performance and access at all three locations. Cirata's (formerly WANdisco) active/active WAN clustering for Subversion was the only solution we found."
>
> *– Angela Thomas, Development Tools Manager, Juniper Networks*

Empowering distributed teams: achieved global synchronization with Cirata's Gerrit MultiSite.

Global technology organization



Global technology organization

Background

A US based technology organization previously relied on Perforce for their source code management (SCM). However, after migrating to Git, the rapid growth of their development teams across multiple geographical locations created new challenges. To support this global expansion, the organization sought a robust Git MultiSite solution to enhance collaboration and streamline their development processes across all regions.

In addition to enhancing global accessibility for their development teams, the oragnization also had a requirement to implement a strong code review system to maintain consistent code quality over the long term. While single instance Gerrit was already part of their ecosystem, they were looking to enhance this service to be available and replicated across all sites.

Challenges

Challenges with globally distributed teams across multiple locations

- Coordination issues: Teams spread across different time zones encountered significant challenges in coordinating their efforts effectively.
- Total number of active developers at all sites was around 1500 at the point of implementation.

Developers experienced significant latency–induced delays

- Often referred to as 'waiting,' due to the large size and remote location of repositories, as well as the handling of Large File Storage (LFS) objects.
- This latency slowed down critical operations like cloning, fetching, and pushing code, leading to reduced productivity and extended development cycles.

Underperformance of SCM

- Version control bottlenecks: Slow performance in Source Control Management (SCM) led to delays during code check-ins, check-outs, branch merging, and conflict resolution.
- Remote interaction latency: When developers accessed Git repositories from distant locations, the delays increased significantly.
- Developer dissatisfaction: Developers were increasingly frustrated with the sluggish response times.

Need for a robust replacement for the decommissioned perforce instance

- The organization had undergone efforts to migrate their Perforce ecosystem to Git with the assistance of a 3rd party consultant.
- As a result of their growth and movement away from the singular Perforce instance, it was key for the replacement to be globally accessible.

Challenges *(continued)*

Need for robust code review platform

- Difficulty in maintaining high code standards across teams, could lead to potential bugs and technical debt due to insufficient or inconsistent code reviews.
- A lack of structured or integrated code review processes had slowed down development cycles and making it difficult to enforce best practices across a distributed team.
- Struggles with managing complex Git workflows, including branch management, merging, and conflict resolution, could lead to errors and slowdowns in the development process.

Obstacles to meeting production deadlines

- Development Process Delays: Various delays in the development process, whether from SCM inefficiencies, coordination difficulties, or other causes, began to affect production schedules.
- Complex Dependency Management: Managing dependencies between different teams or project components proved to be difficult, causing delays if any part of the project was not completed on time.
- Tool Effectiveness: The performance and usability of development tools had a direct impact on developer productivity.
- Disruptions to Workflow: Technical issues or slow systems frequently interrupted workflows, reducing the time developers could dedicate to actual coding tasks.

Solution

- **Global MultiSite deployment**
  The organization installed Cirata Git MultiSite and later expanded this setup to include Gerrit MultiSite across eight geographically distributed sites.
- **Unified development teams**
  This interconnected global infrastructure unified development teams, facilitating seamless collaboration across all locations.
- **Selective replication for flexibility**
  Gerrit MultiSite's selective replication groups enabled administrators to strategically position repository replicas as needed.
- **Enhanced system resilience**
  The implementation of Cirata's Gerrit MultiSite improved system resilience; even during downtime events at one site, all other sites remained fully operational, ensuring continuous productivity.
- **Integrated code review**
  Gerrit integrated a robust code review process directly into the development workflow, fostering thorough reviews and better collaboration before merging code.
- **Granular access control**
  Gerrit provided fine-grained access control, allowing teams to manage permissions and enforce policies with precision, ensuring only authorized changes were implemented.
- **Seamless Git integration**
  Gerrit worked seamlessly with Git, combining distributed version control with a structured review process to maintain code quality and long-term maintainability.

Results

- The distribution of Git repositories into 'replication groups' enabled administrators to strategically position repository replicas where they were most needed.
- The implementation of Gerrit MultiSite provided management granular control over the newly adopted code review process across all sites.
- This approach provided developers with near-local Git interaction speeds for all operations.
- The enhanced system resilience delivered by the Cirata MultiSite software solutions has significantly bolstered security against productivity loss during system downtime events.
- The anticipated 3–5% reduction in wait times resulted in an estimated cost saving equivalent to the average annual salary of 30–35 full-time software engineers.
- Initially deployed for a development team of 1,500 users, the system has steadily expanded over the past six years and now supports nearly 5,000 active developers.

navis®

Utilizing Cirata, Navis now has local servers in Chennai and Oakland always in sync.

Navis continually develops its cargo tracking and automation software from global locations. With 330 developers around the world, in Oakland, California and Chennai India, as well as offices in London, Hong Kong, Dubai, Argentina, Pakistan and New Zealand, the organization is highly decentralized. Having a central server in Oakland created major issues for worldwide developers, especially for those in Chennai who faced extremely long checkout times.Navis attempted to resolve this problem using Subversion svnsync, but this solution was proving unreliable and unstable.

Challenge

- Navis software developers located in Chennai, India experienced long wait times checking-out and checking-in software code to the central server in Oakland, California using Subversion svnsync. The organization required a solution to address this productivity loss as well as the degradation of morale associated with repeated failures and slowdowns.

Solution

- Navis investigated solutions for improving its software development process and found the perfect fit with Cirata SVN MultiSite Plus.
- In Oakland and Chennai, Navis has deployed Cirata SVN MultiSite Plus, a replication, mirroring and clustering software that enables enterprise performance, backup, and 24/7 availability for globally distributed Subversion deployments. SVN MultiSite Plus enables LAN-speed collaboration between the organization's distributed teams, allowing them to work as if they were all at one location, and developers in Chennai enjoy the same LAN-speed performance and access to the most up-to-date changes.
- "Check-in times are up to 10 times faster with the Cirata (formerly WANdisco solution—from hours to just 20 minutes," said Stephen Schleiger, Director of IT, Navis. "Before, trying to do that across the WAN was just useless. The benefit of the performance increase is a huge productivity improvement. Our uptime is also dramatically enhanced. The implementation was easy and Cirata provides us with great support, I can't say enough about the company."

Results

- Utilizing Cirata, Navis now has local servers in Chennai and Oakland always in sync with each other.
- All developers enjoy LAN-speed performance and no longer suffer network slowdowns or failures.
- Navis benefits from hot-backup and automatic failover so business continues as usual even if a server fails.

Navis, a division of Cargotec Corporation, is the global technology standard for managing the movement of freight cargo through shipping terminals. Navis combines industry best practices with innovative technology and world-class services to enable its customers to maximize performance and reduce risk. Whether tracking cargo through a port, automating equipment operations, or managing multiple terminals through an integrated, centralized solution, Navis provides a holistic approach to operational optimization.

> "SVN MultiSite Plus has never failed us, but the WAN problems would have been catastrophic had we not had SVN MultiSite Plus."
>
> *Stephen Schleiger, Director of IT, Navis*

FORRESTER®

A Forrester Total Economic Impact (TEI) Report revealed that SVN MultiSite Plus delivered a return on investment of 357% with a payback period of less than two months. The subject of the study was a Fortune 500 company with annual revenues of over $5 billion that had deployed SVN MultiSite Plus two years earlier. Forrester's TEI methodology measures costs and cost reduction, and weighs the enabling value of a technology in increasing the effectiveness of overall business processes.

Accelerating gaming development: Cirata MultiSite Plus boosts productivity.

Global gaming organization

Global gaming organization

Background

A globally renowned video game organization were operating with a large number of Subversion nodes across the globe.

About the video game organization

The video game organization is a french video game company headquartered in Paris, founded in the late 1990's. The company operates 18 development studios worldwide, and publishes games for mobile devices, consoles and PC.

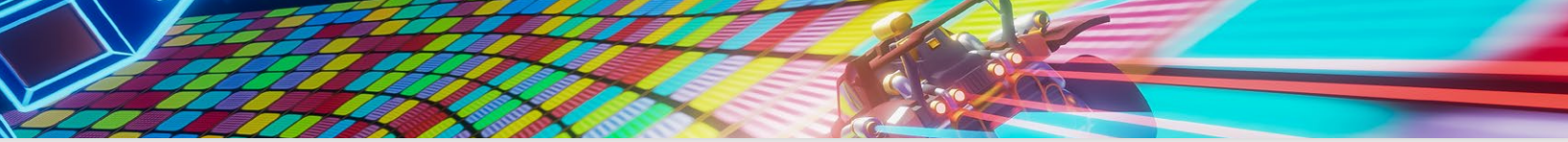
Solution

We installed Cirata Subversion MultiSite Plus at 20 sites distributed around the globe.

- This interconnected global infrastructure unified all development teams, enabling the organization to collaborate seamlessly across all geographical locations.
- MultiSite Plus's selective replication groups allowed administrators to easily position repository replicas as needed.
- This tailor-made repository replication software freed the team from the inefficiencies of custom SVN syncing scripts, allowing them to focus on meeting project deadlines.
- The implementation of Cirata MultiSite Plus also enhanced system robustness. During downtime events impacting one site, all other sites remained operational and active, ensuring continuous productivity.

Product feedback

The gaming organization commended the functionality of the product in the face of a system down event. Allowing developers to continue to work while the admin team are resolving a high profile issue is highly valuable. The ability to perform routine maintenance to the environment without the need for costly and impactful downtime across all development teams was also a key benefit for the team.



Challenges

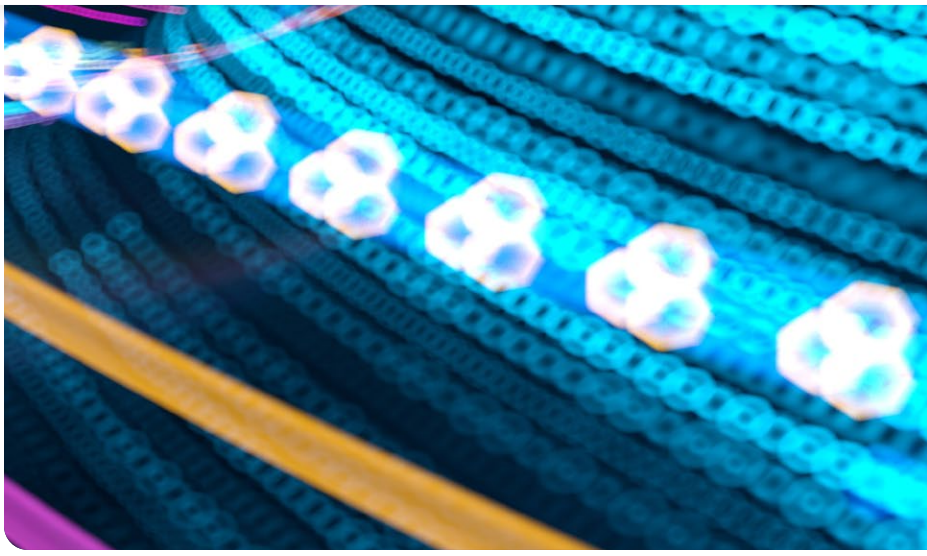
1. Globally distributed teams in a large number of locations, difficulty to align projects
    - **Coordination challenges:** Teams working across multiple time zones were facing significant coordination challenges.
2. Slow SCM performance
    - **Version control delays:** Slow Source Control Management (SCM) resulted in delays when checking in and checking out code, merging branches, and resolving conflicts.
    - **Non-local interaction delays:** Where developers were needing to access SVN data from a source not geographically close, their delays increased exponentially.
    - **Developer frustration:** Developers had become frustrated with sluggish performance.
3. Barrier to meeting production deadlines
    - **Delays in development:** Delays in the development process, whether due to SCM performance, coordination challenges, or other factors, were starting to impact production deadlines.
    - **Dependency management:** Managing dependencies between different teams or components was challenging, this led to delays if one part of the project was not ready on time.
    - **Tool efficiency:** The efficiency and effectiveness of development tools directly impact developer productivity.
    - **Workflow interruptions:** Any interruptions due to technical issues or slow systems were found to reduce the time developers spend on actual coding.
4. Current home-grown SCM syncing approach is inefficient and prone to issues
    - **Lack of scalability:** Relying on a home-grown Subversion syncing solution made changes to the node count incredibly complex.
    - **Reliability concerns:** These solutions were not found to be as reliable as the purpose built alternative, leading to more frequent downtime or data sync errors.
    - **Maintenance burden:** Maintaining and updating a custom synced SVN ecosystem was found to be resource-intensive, diverting valuable time and resources away from core development activities.
5. Maintenance and/or disaster recovery events take too long, can take between 1-2 days
    - **Downtime impact:** Long maintenance or disaster recovery times had significantly impacted productivity, as developers were unable to access Subversion system during these periods.
    - **Data loss risk:** Extended recovery times increase the risk of data loss or corruption, which can have severe consequences for the project.

Results

- The distribution of SVN repositories into 'replication groups' allowed the gaming organization admins to ensure replicas of repositories were where they needed to be.
- This provided developers with near-local SVN interaction times for all interactions.
- This expected 3-5% reduction in wait time resulted in an estimated cost saving equal to the average annual cost of 23 full-time software engineers.

SSP

SSP's developers work as one virtual team and reduce development cycles by over 40%.



SSP uses Subversion at three sites in Australia, South Africa and the UK. Before implementing SVN MultiSite Plus, a central Subversion server in Melbourne supported all locations.

Challenge

- SSP's goal was to create one virtual team out of three separate development groups in the UK, Australia and South Africa.
- Slow and unreliable networks between SSP's sites led each team to work on separate projects based on time zone and location. Collaboration was minimal.
- A centralized build process meant that developers at remote sites working on extensions to SSP's core products typically had to wait five days for the core team in Melbourne to create a build with their changes before they could begin testing.
- SSP evaluated svnsync, but found that it wasn't robust enough and wouldn't address their key requirement of being able to run builds in parallel at each location. SSP's build processes included write steps that couldn't be done against svnsync's read-only slave repositories at remote sites.
- SSP wanted a backup and recovery solution that would eliminate the risk of extended downtime and data loss after network outages and server failures.

Solution

- Development cycles have been reduced by over 40% because network performance and reliability are no longer issues.
- Build times are over 500% faster at remote sites. As soon as a branch with the latest version of SSP's core product is created in Melbourne, it's available in just a few seconds everywhere else. Remote developers can commit changes to it, create a build locally and begin testing in less than a day instead of five days.
- SVN MultiSite Plus enables SSP to create one virtual team out of three separate development groups. Now, SSP can assign the best resources to work together on the same projects regardless of where they're located.
- SVN MultiSite Plus's built-in hot backup and automated recovery features gives SSP the failover and recovery capability they were looking for to support their distributed environment.

Results

- Development cycles have been reduced by over 40%.
- Build times for remote locations are 500% faster.
- Downtime has been eliminated due to SVN MultiSite Plus's built-in hot backup and automated recovery features.
- Administrative overhead has been reduced by more than 50%.
- SSP's development organization is now 24-by-7.

SSP is the premier provider of software solutions to the global insurance and financial services industries with more than 45,000 users in over 50 countries. Offering more than just products, SSP has a proven track record and a commitment to delivery, giving customers peace of mind. 20 of the top 50 global insurers, 30 of the top 50 UK brokers and 4 of the top 10 UK financial advisers rely on SSP.

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"SVN MultiSite Plus has transformed our software development process. We can now run builds at every site immediately which means that nobody is waiting for a build to happen in a different time zone. The bottom line is that we improved build times by over 500% and reduced our development cycles by 40%."

David Stokes, Development Manager, SSP

About:

Leveraging our patented technologies, including the Distributed Coordination Engine ("DConE®"), and trusted by global brands and industry leaders for more than 15 years, our DevOps solutions integrate effortlessly with your existing source code management to increase security, minimize risk, reduce latency, and improve collaboration across globally distributed development teams. In addition, Cirata specializes in the migration of Hadoop data lakes into leading cloud platforms to enable game-changing Artificial Intelligence ("AI") and analytics. With Cirata, data leaders can leverage the power of AI and analytics across their entire enterprise data estate to freely choose analytics technologies, avoid vendor, platform, or cloud lock-in while making AI and analytics faster, cheaper, and more flexible. Cirata's portfolio of products and technology solutions make strategic adoption of modern data analytics efficient, automated, and risk-free.

For more information on Cirata visit www.cirata.com

For more information on DevOps Solutions www.cirata.com/DevOps

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