

Revolutionary Real-Time Solution for CVS Allows Leading Provider of Communications Semiconductors to Get Globally Distributed Development Teams Working as One

PMC Sierra is a leading provider of high-speed broadband communications semiconductors and products for access, metro, storage, and wireless infrastructure equipment as well as laser printers. The company offers worldwide technical and sales support, including a network of offices throughout North America, Europe and Asia. The company is publicly traded on the NASDAQ under the PMCS symbol, and is included in the S&P 500 index.

PMC Sierra's Challenge and Opportunity

PMC Sierra uses CVS to provide source code version control and act as a repository for all of the work done by its developers. Before implementing WANdisco, PMC Sierra maintained a central CVS server in their Santa Clara, California location, with remote development sites accessing the CVS server over the WAN. The problem was that network performance was too slow for the remote sites to be fully productive. When the inevitable network or server failures occurred, the remote development sites couldn't work at all. This drove up development costs and led to delays in new product introductions. Like so many other companies, PMC Sierra wasn't realizing the full benefits of distributing development offshore. All of these factors led PMC Sierra to look for alternatives.



Other multi-site development solutions that PMC Sierra evaluated before selecting WANdisco were based on master-slave approaches in which all checkins are done to a master repository, and the master repository is then manually replicated back to remote read-only slave repositories on a periodic basis. This leaves the master and slave repositories out of sync most of the time. As a result, developers at the remote sites are required to do updates (reads) against the master repository before doing their commits, in order to avoid checkin failures. This effectively cancels out any improvements in network performance that these solutions might offer with their local read capabilities.

The other problem that PMC Sierra found with competing solutions that relied on a master-slave architecture was that the master server had the potential to become a single point of failure, just as their central CVS server had been. Minimizing developer downtime due to network and server failures was critical.

The WANdisco Solution

WANdisco for CVS provided PMC Sierra with a cost-effective, fault-tolerant software configuration management (SCM) solution that could synchronize work from their globally distributed development teams in real-time. With WANdisco, CVS repository replicas from distributed development sites connected over a wide area network (WAN) are functionally identical to a single CVS repository. This means that procedures don't have to change when software development moves offshore, as is often the case with competing multi-site development solutions. With WANdisco, all of the cost-savings and productivity improvements that should be achieved from going offshore are actually realized.

Profile

PMC Sierra provides high-speed broadband communications semiconductors and wireless infrastructure equipment.

Locations

Corporate headquarters are located in Santa Clara, California, with multiple development sites in North America and India

CVS Users

100

Objectives

- PMC Sierra required a solution to address network performance. Central CVS server access over the WAN was too slow for remote sites to be fully productive.
- Minimize or eliminate the impact of network or server failures on remote development sites.
- Leverage existing CVS skills, so that staff doesn't have to be retrained.

Solution

- WANdisco provides PMC Sierra with a 1000% improvement in network performance and a dramatic reduction in bandwidth usage.
- WANdisco's self-healing and high availability features automate disaster recovery and reduce downtime to zero.
- WANdisco leverages existing CVS skills, so no developer or administrator retraining is required.

"Our objective was to find a multi-site development solution that would address our network performance issues and allow us to expand the use of our Indian outsourcing partners. We knew that we couldn't continue with our existing infrastructure. Other multi-site solutions we evaluated relied on master-slave approaches to replication that would have offered little improvement over what we had in place. WANdisco by comparison, provided us with nearly a 1000% improvement in network performance, while at the same time reducing our bandwidth usage and costs dramatically.

WANdisco's automated recovery and high availability features also made a big difference for us. Since we've had WANdisco in place, even when network outages or server failures occur, our developers have been able to continue working without interruption. Recovery is automatic."

*—Doug Konkin, Manager, Software Development,
PMC Sierra, Inc.*

WANdisco for CVS:

- Immediately replicates changes made at one site to all of the other development sites on a network. It's functionally equivalent to having everyone working together at the same site against the same CVS repository, at LAN speed over a WAN.
- WANdisco improves WAN performance and reduces bandwidth usage in three ways:
 1. WANdisco eliminates normal TCP chattiness by using its own protocol on top of TCP/IP to transfer change sets over the WAN between repository replicas.
 2. WANdisco maintains persistent physical connections between repository replicas at each site. This means that the overhead of opening and closing a connection with each request over the WAN is eliminated. Connection pooling is used to multiplex these physical connections for scalability to support large numbers of clients at each development site.
 3. WANdisco doesn't generate any WAN traffic unless it is absolutely necessary. Developers checkout from the local repository replica, so there are no remote reads. When developers are ready to check in a change set, WANdisco runs a validation step to make sure that there are no checkin failures on the local repository replica before it propagates the changes to all of the other repository replicas.
- Self-healing and high availability features automate disaster recovery and reduce downtime to zero.
- Allows staff trained in CVS to leverage those skills without any learning curve.

The Results

WANdisco allowed PMC Sierra to achieve nearly a 1000% improvement in network performance and reduced their bandwidth costs

significantly. Before implementing WANdisco for CVS, PMC Sierra was considering adding an additional E-1 line to accommodate a new Indian outsourcing partner that they were planning to use for development. Because of the network optimization offered by WANdisco, they were able to avoid that expense.

In addition, WANdisco's automated recovery and high availability features have made a big difference for PMC Sierra. Prior to installing WANdisco, if there was a network outage, or the central CVS server went down, development work would come to a halt. After installing WANdisco, even when network outages have occurred, developers have been able to continue working without interruption. Recovery happens automatically without any intervention from a CVS administrator.

Finally, because WANdisco offers a solution that complements CVS, it allowed PMC Sierra's CVS administrators and development staff to leverage the CVS skills that they already had. PMC Sierra hasn't lost time retraining existing staff to use a new multi-site solution based on something other than CVS.

About PMC Sierra

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About WANdisco

Since 2001 WANdisco has set out to push the limits of what can be achieved with distributed systems deployed on a Wide Area Network (WAN). The result of these efforts is new technology that fundamentally changes the way distributed nodes, or servers, interact to provide unprecedented levels of reliability, availability and scalability (RAS), enabling the internet to realize its full potential. WANdisco has applied this technology to the development of its suite of multi-site SCM solutions for CVS, CVSNT, and Subversion. For the first time a development team can truly be spread-out across the world and work as one unit, in real-time.

Global 2000 companies rely on WANdisco's suite of SCM solutions for CVS, CVSNT and Subversion to enable them to distribute work based on where their talent is located, rather than time-zone constraints. This results in dramatically reduced costs and significantly improved utilization of scarce resources.

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