

Mercury Computer Systems

FASTER BUILDS, FEWER BREAKAGES



FAST FACTS

Employees: 850

HQ: Chelmsford, MA

Founded: 1981

Mercury Computer Systems, Inc. (NASDAQ: MRCY) is the leading supplier of embedded high-performance, real-time image and digital signal processing (DSP) computer systems. The company's systems process radar, sonar, and other signals in defense electronics applications; its medical systems speed the processing of magnetic resonance, computed tomography, and digital x-ray images; and its specialized computing solutions are used in communications and electronic design automation.

"Since we've been using ElectricAccelerator, our build times have been reduced by more than 75%, and in the six months we've been using it, we haven't had even one ElectricAccelerator-related build failure."

— **Trish Collins,**
Release Engineer,
Mercury Computer Systems

SITUATION:

Complex application equals long, complex builds.

Mercury's popular MCOE™ (multicomputer operating environment) is one of the company's core offerings. With over one million lines of code, the MCOE platform is a complex application, which in turn has made its development process complex as well. Compounding the development demands, the software must be built across 12 different operating systems. As the technology grew, Senior Engineering Manager Cyndee Milley, looked for ways to improve the process.

"One of the most time-consuming and frustrating phases of the Mercury development process was the nightly build," said Milley. "Each MCOE software build took more than four hours to complete and was consistently unreliable. As a result, we implemented incremental builds to run when builds failed."

BUSINESS ISSUE:

Long, unreliable software builds drain development resources.

Mercury's build inefficiencies created a bottleneck in the development cycle that adversely affected the entire team. Not only did it require Mercury release engineer Trish Collins' time to correct the error, but developers and QA engineers were forced to wait for the next successful build. According to Mercury's Director of Engineering Services, Darryl McKenney, "We had learned to live with broken builds, because that's just the way it was. Builds were the worst part of our development process."

To address this problem, McKenney and Milley looked for a solution that would get them back on track without the costly and disruptive task of process re-engineering.

SOLUTION:

Faster build without process re-engineering.

To improve development productivity and shorten the MCOE project lifecycle, Mercury looked to the ElectricAccelerator® build acceleration solution. Using patented technology, ElectricAccelerator optimizes software builds and reduces build times by as much as 20x. ElectricAccelerator identifies and monitors dependencies to get fast and accurate builds. Instead of running a build sequentially on a single machine, it distributes pieces of the build to run in parallel on a cluster of inexpensive servers.

ElectricAccelerator's patented automatic conflict detection and correction technology determines exactly which files are used to build every object file, library, or executable, so that when build steps are run out of order, it automatically reruns them in the correct sequence.

Using ElectricAccelerator, Mercury is producing fast, reliable builds. Further, because ElectricAccelerator is fully compatible with GNU Make, implementation required virtually no process changes on the part of Collins or the Mercury developers. They were able to see immediate benefits from the tool. "The tool just works, and the support we received from Electric Cloud was exemplary," said Milley.

To gain further visibility into the cause of build failures, Mercury has also leveraged the ElectricInsight® error detection and performance tuning tool. ElectricInsight mines build information and provides an easy-to-understand, graphical representation of the build structure. With ElectricInsight, Mercury can see a depiction of how each build is structured and run, allowing them to pinpoint performance problems or conflicts in a parallel build.

RESULTS:

Build times reduced by 75%; ROI in one quarter.

By using the ElectricAccelerator and ElectricInsight software production solutions, Mercury has been able to dramatically reduce the time the team spends waiting for their builds to

complete. For one build, the time dropped from four hours to less than one hour. For another, a 24- to 30-hour build went to less than eight hours.

In addition, Mercury developers can now trust an incremental build to recompile correctly, every time. "Since we've been using ElectricAccelerator, our build times have been reduced by more than 75%," noted Collins, "and in the six months we've been using it, we haven't had even one ElectricAccelerator-related build failure."

With ElectricAccelerator, Mercury's MCOE development team's productivity has skyrocketed, allowing for valuable development resources to be allocated to additional business-critical projects. The highest levels of software quality are easier and faster to attain, in part because Mercury engineers can now get feedback on their work more frequently with mid-day builds, and QA can test with "clean" builds with greater frequency.

With ElectricAccelerator and ElectricInsight from Electric Cloud, the software configuration management team from Mercury Computer Systems was able to break the build bottleneck, resulting in dramatically improved productivity, reduced costs, and ultimately better quality.

ABOUT ELECTRIC CLOUD

Electric Cloud® is the leading provider of Software Production Management (SPM) solutions. Electric Cloud solutions automate, accelerate, and analyze software build-test-deploy processes to optimize both physical and virtual IT environments. The company's patented and award-winning products help development organizations to speed time to market, boost developer productivity, and improve software quality. Leading companies across a variety of industries, including semiconductors, enterprise IT, ISVs, mobile devices, and transactional web sites rely on Electric Cloud's Software Production Management solutions to transform software production from a liability to a competitive advantage. To learn more please contact Electric Cloud at (408) 419-4300 or www.electric-cloud.com.

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