

ALTAIR ENGINEERING

Software developer engineers global growth strategy with Dell EMC Isilon



ESSENTIALS

Industry

Engineering

Organization Size

Approximately 2,300 employees

Business Challenges

- Rapid business growth demanding an increased development workload
- Slow storage performance affecting productivity of engineers for 6–8 hours every few weeks

Results

- Increased from 50 to 80 daily software builds without performance degradation
- Shrunk backup time of one billion files from four days to less than one day
- Saved 42 terabytes of storage space with post-process deduplication
- Reduced storage provisioning from one week to a few minutes

Solutions

- Dell EMC Isilon
- HyperWorks, PBS Works, solidThinking, ACUSIM, RADIOSS

Shorter lifecycle for software innovation

In business, growth is almost always good. But too much of a good thing often brings challenges. Altair Engineering is a case in point. With the company acquiring new firms and growing 10 percent annually, Altair needed to speed up development cycles to meet customer demand. So when Altair launched a new “software factory,” the increased load frequently slowed performance of its IBM SONAS storage. This affected the productivity of 500 developers for six to eight hours every few weeks.

After an exhaustive evaluation, including proof-of-concept (POC) testing, Altair chose Dell EMC Isilon scale-out storage to replace its NetApp and IBM storage.

Jeff Marraccini, Altair’s vice president of computer systems, comments, “During the POC, we beat up the Isilon with one rigorous test after the other, and it never missed a beat. Everyone here was confident it would work well in production.”

With Isilon, Altair improved application performance and infrastructure stability to enable faster product development. Altair also reduced the time to back up one billion files from four days to less than one day, strengthening data protection. And with simpler storage provisioning, Altair responds to changing developer needs in minutes rather than a week.

Environment

Altair deployed five Dell EMC Isilon X-Series nodes at its Troy, Michigan, headquarters as central storage for nearly 2,000 users, including 700 product developers. Isilon supports everything from user home directories to complex engineering and simulation applications such as HyperWorks computer-aided engineering, PBS Works high-performance computing workload management, solidThinking design suite, ACUSIM AcuSolve CFD, and RADIOSS automotive crash simulation.

In addition, Altair uses Dell EMC Isilon infrastructure software, including InsightIQ performance monitoring and reporting, SmartDedupe data deduplication, SmartQuotas quota management, SmartConnect cluster resource optimization, and SnapshotIQ point-in-time data protection.

Approximately 60 percent of Altair’s infrastructure is virtualized with VMware vSphere.

“Isilon is our Swiss Army knife of storage. As we take on new database projects, it’s easy to add dedicated flash tiers. Or if we need archiving for compliance, it’s just as simple to bring on lower-speed, high-capacity storage.”

Jeff Marraccini,
Vice President,
Computer Systems,
Altair Engineering

A nimble, thriving software factory

Since moving to Isilon, Altair improved performance and stability across the software development lifecycle. Before, as simultaneous software builds climbed to 50 or more, time to execute these processes on Altair’s old storage increased from eight to 15–20 hours. That’s no longer a problem with Isilon.

Dave Gruber, Altair’s senior systems engineer, explains, “On Isilon, we average 60–80 builds a day without any performance issues whatsoever. The builds all execute in the same amount of time regardless of how many are running.

“Isilon has helped our culture of innovation thrive even more now that developers have reliable and faster access to resources. This helps our developers turn out products faster and gives customers more predictable timelines for product delivery.”

Geared up for big data backups

Isilon performance also improved backup times dramatically. Altair backs up roughly one billion files with IBM Tivoli Storage Manager (TSM), which took four days to complete on IBM SONAS. Now, Isilon backups complete in between six and 20 hours.

“The Isilon OneFS is so well tuned for Big Data that it makes backups very fast,” notes Marraccini. “We can spread the load across all five Isilon nodes, and our users don’t even notice when backups are running.

“Plus, I now have peace of mind that we’re able to protect all the updates each day instead of running the risk of missing some like we did before.”

Recovering 42 terabytes of storage

With Isilon SmartDedupe, Altair saves 42 terabytes of storage space through post-process data deduplication. This contributes to faster backups and helps Altair get the most from available storage capacity. Best of all, Altair gains these advantages without impacting application performance.

“We tried running deduplication on NetApp but gave up because it absolutely killed performance,” Gruber remarks. “SmartDedupe runs with no performance hit.

“And it lets us target exactly what we want to dedupe instead of just turning it on for everything and hoping for the best. That granularity gives us the most bang for our buck.”

Provision storage in minutes

Altair can now scale virtually without bounds by simply adding Isilon tiers as needed.

“Isilon is our Swiss Army knife of storage,” says Marraccini. “As we take on new database projects, it’s easy to add dedicated flash tiers. Or if we need archiving for compliance, it’s just as simple to bring on lower-speed, high-capacity storage.”

Provisioning additional storage is also easier with Isilon. Before, when LUNs filled up, Altair had to create a new one and move all the data, which caused significant downtime for the developers.

“I had one group banging on the threshold of their quota, and while talking to the manager I expanded their capacity by simply changing the number on Isilon,” Gruber explains. “That would have been a week-long process on our old storage.”

Company Overview

Altair Engineering develops and applies simulation technology to synthesize and optimize designs, processes, and decisions for a broad range of industries, including automotive, aerospace, consumer electronics, and life sciences. With more than 2,300 employees, Altair serves more than 5,000 corporate clients worldwide from its 45 offices located across 23 countries.

Gruber adds that Isilon greatly simplified day-to-day administration. "After the initial setup, weekly management time has dropped from 4–6 hours to near zero. And we've had zero downtime since Isilon went into production."

Software development follows the sun

With the success of Isilon at Altair's headquarters facility, the company is now considering the deployment of another Isilon at its Bangalore, India, development site.

Marraccini notes, "By deploying Isilon in India and using SyncIQ to replicate data between there and Michigan, we'll create a true follow-the-sun development environment. This will help drive our software innovation and growth worldwide even more."



[Learn more](#) about Dell EMC Isilon solutions



[Contact](#) a Dell EMC Expert



[View more](#) resources



Join the conversation with [#DellEMCStorage](#)