

## CASE STUDY

# CD-ADAPCO REALIZES VERY HIGH PERFORMANCE WITH LOW-COST CLUSTERING

CD-adapco is a global leader of engineering and modeling services for a wide spectrum of businesses that include automotive and aerospace industries. With offices spanning the globe and clients demanding advanced computation-based engineering, CD-adapco must quickly and efficiently create cutting-edge solutions that meet the exacting standards of these highly technical industries. Large amounts of computing power and storage are essential requirements to carry out this mission-critical function.

### THE BUSINESS ISSUE

Steve Feldman, Director of Product Development at CD-adapco, manages the company's datacenter and is responsible for reducing cost while growing the company globally.

"We are a global company trying to achieve world-class results and we needed large, compute-intensive clusters that are scalable and affordable. We needed a storage management solution that would allow us to grow without costing a fortune. Red Hat Enterprise Linux® and the Red Hat Global File System (GFS) fill these needs," said Feldman

In the past, CD-adapco relied on a costly UNIX® infrastructure that met their application requirements for performance but was far too expensive. CD-adapco was looking to build out engineering, Computational Fluid Dynamics (CFD) solvers, Computer Aided Design (CAD) tools, and services to expand into biomedical, building, environmental, chemical, marine, oil and gas, power generation, and turbomachinery industries. They needed a reliable, scalable, and cost-effective way to take their datacenter to the next level and give their customers highly effective tools for design applications.

### SOLUTION

CD-adapco deployed Red Hat Enterprise Linux and Red Hat GFS with industry-standard server hardware and storage area networking. This allowed them to reduce their infrastructure costs significantly while increasing throughput. The company deployed an easy-to-manage scalable cluster solution to replace their existing proprietary storage infrastructure.

### FAST FACTS

**Customer:** CD-adapco

**Industry:** Fluid dynamics software

**Geography:** New York and London

**Goal:** Scalable, cost-effective storage management

**Solution:** Red Hat® GFS

**Cluster size (nodes, storage):** 32 nodes, 8 Terabytes

**Storage hardware specifics:** GNBD block sharing to 32 servers

**Applications/Software:** STAR-CD, STAR-CCM+

**Key benefits:** Scalable IO performance, reduced complexity via data sharing

**Special GFS features exploited:** GNBD

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Steven Feldman, Director of Product Development

“CD-adapco Group’s system—powered by Red Hat GFS—has achieved very high performance and scalability,” said Feldman. “Our 32-node Fujitsu-Siemens Linux cluster came with a Terabyte disk farm served up to all nodes via Red Hat GFS technology. Our benchmarks show that the per-node IO performance of STAR-CD running Red Hat GFS is virtually identical to that of local disks. The whole system, including Red Hat Enterprise Linux and GFS, scales nearly linearly to 32 nodes, allowing us to achieve very high performance using low-cost Linux clustering technology from Red Hat.”

The company benefits from using Red Hat Enterprise Linux and Red Hat GFS, most notably through significant cost reduction and improved throughput. Replacing proprietary systems with industry-standard server technology like Red Hat GFS provides the IO throughput that was previously unattainable through NFS.

## SUMMARY

Not only has CD-adapco increased their scalable architecture and lowered cost, they have also been able to deliver highly accurate and efficient engineering tools to their customer base. By replacing an expensive UNIX infrastructure with Red Hat Enterprise Linux and GFS, CD-adapco significantly reduced its costs and increased performance, thus greatly improving operational efficiency.

