Hewlett Packard Enterprise

Engineered for excellence

CADFEM Engineering Simulation Cloud powered by Hewlett Packard Enterprise

"CADFEM's long-term relationship with HPE has enabled us to both expand our offerings to our customers and add value to our solutions."

– Gerhard Zelder, Manager IT-Solutions, CADFEM

Objective

Deliver a reliable, scalable high-performance computing (HPC) environment to engineering customers for simulation via the cloud.

Approach

Evolve an existing ANSYS Software-as-a-Service (SaaS) solution to a scalable, high-performance CAE simulation Platform-as-a-Service (PaaS) solution via the cloud and enabled by a long-term relationship with HPE.

IT Matters

- Match the increased scalability of ANSYS with the built-in scalability, performance, and resilience of HPE ProLiant Gen8 servers to allow users to push the boundaries
- Benefit from a simple, secure user portal designed for ease of use to expand the power of HPC to more engineering users
- Enable customers to benefit from CADFEM's extensive expertise and a reliable platform that provides a consistent user experience

Business Matters

- Expand offerings from providing user licenses to end-to-end CAE infrastructure that is accessible via a cloud portal
- Allow CADFEM customers to focus on their simulation components without having to worry about or manage the infrastructure
- Deliver differentiated CAE simulation solutions via the cloud for increased customer productivity and innovation

Selecting the right cloud partner
CADFEM wanted a single partner who could bring it the servers, storage, support, and services it needed to build a "no-compromise" solution.

About CADFEM

Founded in 1985, CADFEM has established itself as a leading provider of CAE simulation software, consulting, and support, employing more than 200 employees worldwide. Since its founding, CADFEM has overseen the complete range of products of the world's leading CAE provider ANSYS in Germany, Austria, and Switzerland. CADFEM is the ANSYS Competence Center FEM in Central Europe and has offices in the Czech Republic, Poland, Russia, China, India, Japan, and the U.S. In addition to software sales, CADFEM provides all services related to support, consulting, customization, and seminars.

But because software alone cannot guarantee the success of a simulation, CADFEM is a systems vendor, and now an engineering services provider with CADFEM Engineering Simulation Cloud.

Its clients receive everything that is essential to their simulation success from a single source: software and IT solutions, advice, support, engineering, and transfer of expertise.

Realizing the limitations of only delivering licenses

It's amazing what opportunities arise as technology changes. CADFEM has for many years delivered CAE software licenses—mainly ANSYS—over the Internet as a Software-as- a-Service (SaaS), pay-per-use model to customers via a simple portal.

But as the software became increasingly scalable, CADFEM realized that here was an opportunity. Its SaaS subscribers were limited by the performance of their own desktops where the software was installed and simulation data stored. Only the ANSYS licenses came from CADFEM's servers.

CADFEM realized that its engineering users were being constricted—not by their imaginations, expertise, or even the ANSYS software simulation capabilities—but by the underlying hardware platform. They weren't able to push the boundaries. They couldn't realize the true potential of their innovation.

CADFEM realized it could become a real innovation enabler if it found the right partner and expanded its service portfolio to include a CAE simulation Platform-as-a- Service (PaaS) solution via the cloud.

The need for speed and scalability

By this time, ANSYS had increased the scalability of its software to take advantage of faster multicore processors and increasing amounts of RAM that was available. CADFEM wanted to make this increased scalability available to its customers. Rather than being limited by the power of their desktops, this move would allow CADFEM's customers to take advantage of a scalable HPC platform built, operated, and tuned for simulation by CADFEM's top CAE platform engineers.

But it needed a partner who could bring the infrastructure that would meet CADFEM's high standards and the stringent requirements of an HPC platform delivered via the cloud to a large number of demanding engineers.

CADFEM wanted a single partner who could bring it the servers, storage, support, and services it needed to build a "no-compromise" solution. Scalability, reliability, performance, and security were the key criteria. It also wanted a partner with extensive HPC experience and a proven track record. It didn't have to look far.

"The CADFEM Engineering Simulation Cloud provides a high-performance CAE environment for ANSYS Workbench, which is easily accessible from anywhere and always up and running. It provides fast batch processing for solving very large simulation models, as well as interactive pre- and post-processing capabilities. A high degree of scalability, efficient 3D visualization, and powerful data compression are an integral part of this tailored solution. The CAE environment is powered by the technologies of HPE, NICE, DCV, VCollab, and, of course, ANSYS Inc. together with CADFEM's engineering support on top," says Zelder.

Increasing productivity
The CADFEM solution increases an engineer's productivity by providing flexible access and resources needed for both submitting batch and executing interactive workloads.

Building on a long-term relationship

As a workstation specialist, CADFEM had a long relationship with HPE. So when CADFEM invested in cluster technologies a number of years ago to support its private cloud and internal CAE systems, HPE ProLiant was a natural choice.

With its scalability, performance, and built-in resilience, HPE ProLiant proved to be the right choice for CADFEM. But what really made the difference was the consistency of the HPE ProLiant design across multiple generations. CADFEM didn't want to have to change its vendor each time it ran out of headroom, or a new server or storage technology came out, just to retain the characteristics it needed.

CADFEM wanted to build a strategic partnership with a vendor that could provide a consistent experience with new hardware models building on the features and capabilities of the previous generation. So when it came time to build the CADFEM Engineering Simulation Cloud, it looked no further than its strategic partner—HPE.

The one HPE advantage
In addition, the HPE Converged Infrastructure initiative made sure all of the components worked seamlessly together. This gave CADFEM confidence that as demands changed with new customers and as simulation workloads demanded more resources, it would be able to provide what its customers needed. CADFEM is also evaluating other components from HPE's solution portfolio to help advance its solution like HPE Cloud Service Automation for self-service automation.

The introduction of the HPC team provided CADFEM with all the additional support it needed to bring the CADFEM Engineering Simulation Cloud to market.

The CADFEM Engineering Simulation Cloud

The CADFEM Engineering Simulation Cloud allows engineers to access the ANSYS software they need for CAE simulation from anywhere, at any time, and from any device—including smartphones and tablets—via the Web portal or mobile user interface.

This allows engineers to use the CADFEM Engineering Simulation Cloud just as they would their own in-house HPC environment. But CADFEM's solution increases their productivity by providing the flexible access and resources they need for both submitting batch and executing interactive workloads.

Rapid provisioning
Engineering users can provision the virtual infrastructure for a new simulation workload with a single click and use it immediately. The time-consuming and lengthy process of procuring and building the IT infrastructure in-house is eliminated.

Scalable capacity
Users can order what they need with the assurance that they can push the boundaries and always have the capacity and HPC resources they require for the task at hand.

Flexible resources
Resources are tuned by CADFEM engineers according to the specific HPC function, such as fast response times for interactive 3D preprocessing, speed for solution simulation, and in-memory 3D evaluation of large files for post-processing.

Enhanced security
Each CADFEM Engineering Simulation Cloud user is confined to their own secure virtual machine with dedicated storage for complete protection.

Case study
CADFEM

Industry
Computer-aided engineering (CAE)

Customer at a glance

Graphics server
- HPE ProLiant SL6500 Scalable System
- HPE ProLiant SL250s Gen8 Servers with Tesla graphics boards

3D virtual power workstation
- HPE ProLiant DL560 Gen8 Servers
- HPE P2000 G3 MSAs for WIP data
- Virtual 3D Power Workstation on Microsoft® Windows® 7

Compute server
- HPE ProLiant BL460c Gen8 Server Blades
- HPE D2200sb PCIe Storage Blades
- Linux
- InfiniBand

Network protocol
- 10 Gigabit Ethernet

Usage tracking
- eCADFEM Portal based on FlexNet Manager

ANSYS licenses
- Provided by eCADFEM or
- Directly installed on the cloud or
- Customer licenses on premises

CADFEM is using HPE to power its CADFEM Engineering Cloud, which offers critical CAE applications and resources as rapid and secure HPC services that its engineering customers can easily access to accomplish their range of development tasks faster.

Empowering the user

The CADFEM Engineering Simulation Cloud expands the use of HPC resources to more engineering users across CADFEM's customer base. No longer restricted by inadequate training or expertise, resource constraints, or budget limitations, CADFEM Engineering Simulation Cloud customers can purchase what they need in daily or weekly increments and make HPC available to anyone who needs it to increase productivity.

As a cost-effective solution with a low entry price, the CADFEM Engineering Simulation Cloud enables accelerated innovation—a unique advantage for CADFEM's customers.

A solid foundation

With a partnership built on innovation, trust, and consistency, CADFEM's Engineering Simulation Cloud powered by HPE meets the needs of HPC users under pressure to provide competitive differentiation and extremely high-quality products.

The HPE/CADFEM relationship has made a real difference. It has enabled CADFEM to grow its business by expanding its solution portfolio and add real value for its customers with a scalable, resilient, secure HPC platform powered by a partner who understands its business—HPE.

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