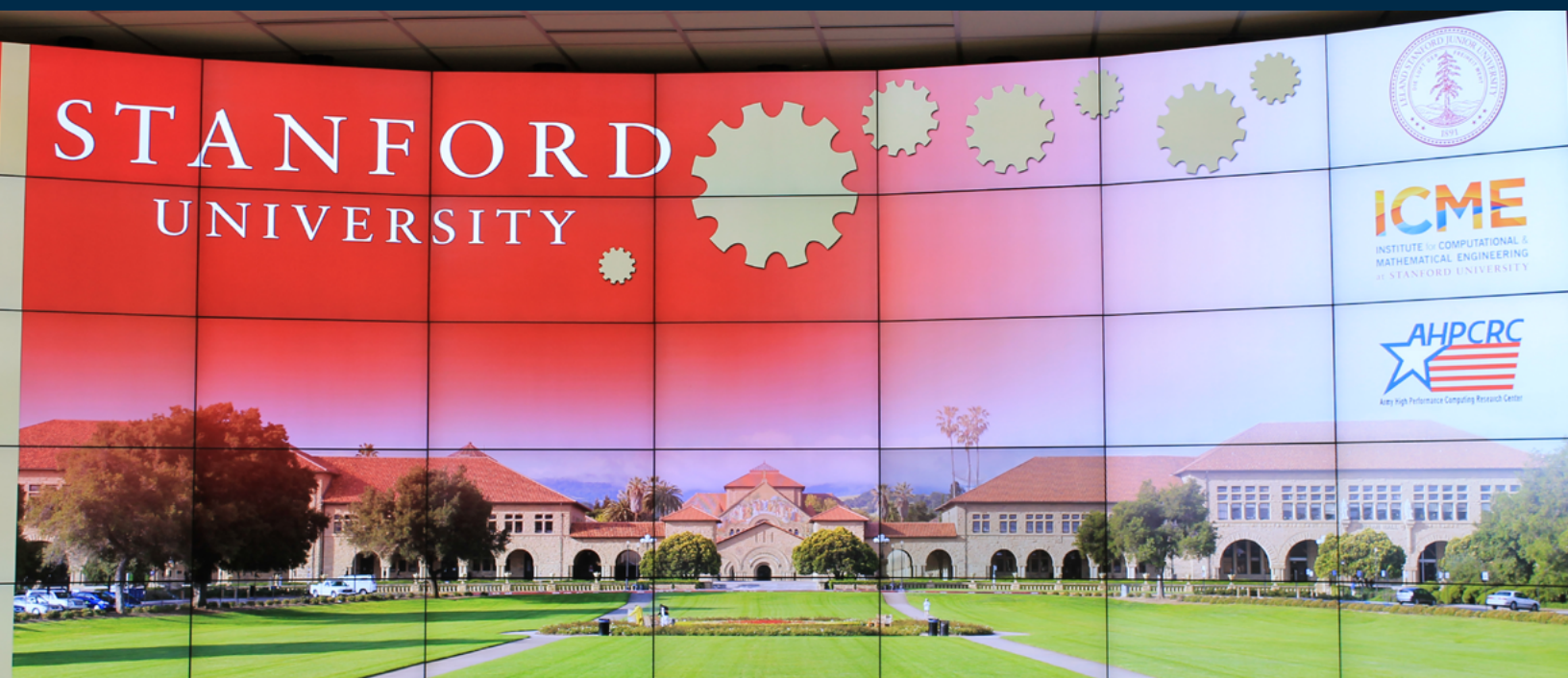




Stanford University HIVE

Stanford is a place of discovery, creativity and innovation located in the San Francisco Bay Area on the ancestral land of the Muwekma Ohlone Tribe.

Stanford
University



1 THE CLIENT

As the lead organization for the Army High Performance Computational Research Center Consortium (AHPARC), Stanford University's Institute for Computational and Mathematical Engineering (ICME) works in corporation with the Army Research Laboratory on research in the field of Computation-Based Engineering Science, with an emphasis on technical solutions relevant to the needs of the U.S. Army. In this role, Stanford conducts research across the sciences in order to produce cutting-edge software and develop innovative computational methodologies for high performance computing environments.

QUICK FACTS

PROJECT

HIVE

CLIENT:

Stanford University

LOCATION

Stanford, California

INDUSTRY

Education and Research

APPLICATION

Immersive Visualization Environment

VIDEO WALL

7x5 curved CineView LCD video wall

PROCESSORS

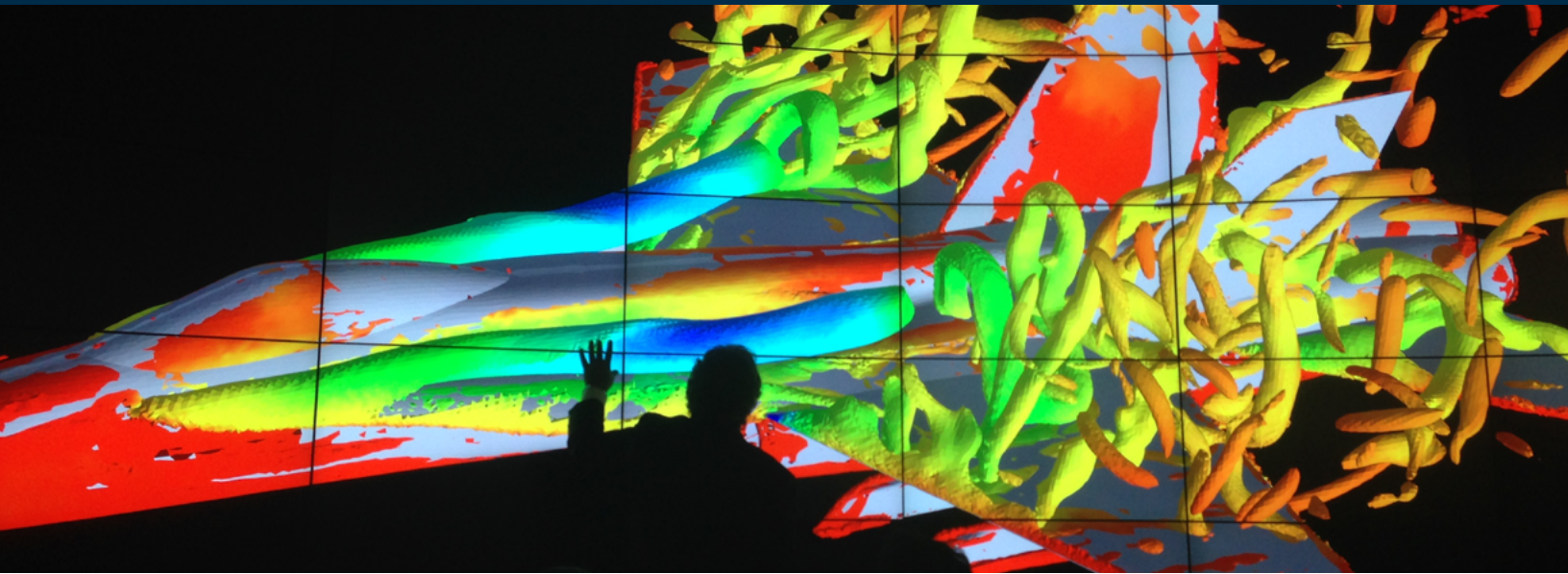
Alpha, Bravo Viz

SOFTWARE

CineNet, Touch Control

ADDITIONAL READING

icme.stanford.edu



2 THE CHALLENGE

Stanford's research frequently requires the examination of high resolution data sets, 3D renderings, and simulations. Until recently, the university had been accessing this data through a number of individual workstations. These smaller workstations could not display large-scale images in high resolution, forcing researchers to view limited sections of data at a time and creating a fragmented view that inhibited collaboration.

To facilitate a more cohesive, collaborative research environment, Stanford initiated the implementation of the HANA Immersive Visualization Environment, or the HIVE, where students and researchers could view their data on a high-resolution video wall system. The system would need to display their cluster of 30 Linux-based PCs in full resolution and allow students throughout the room to dynamically place content on the video wall.

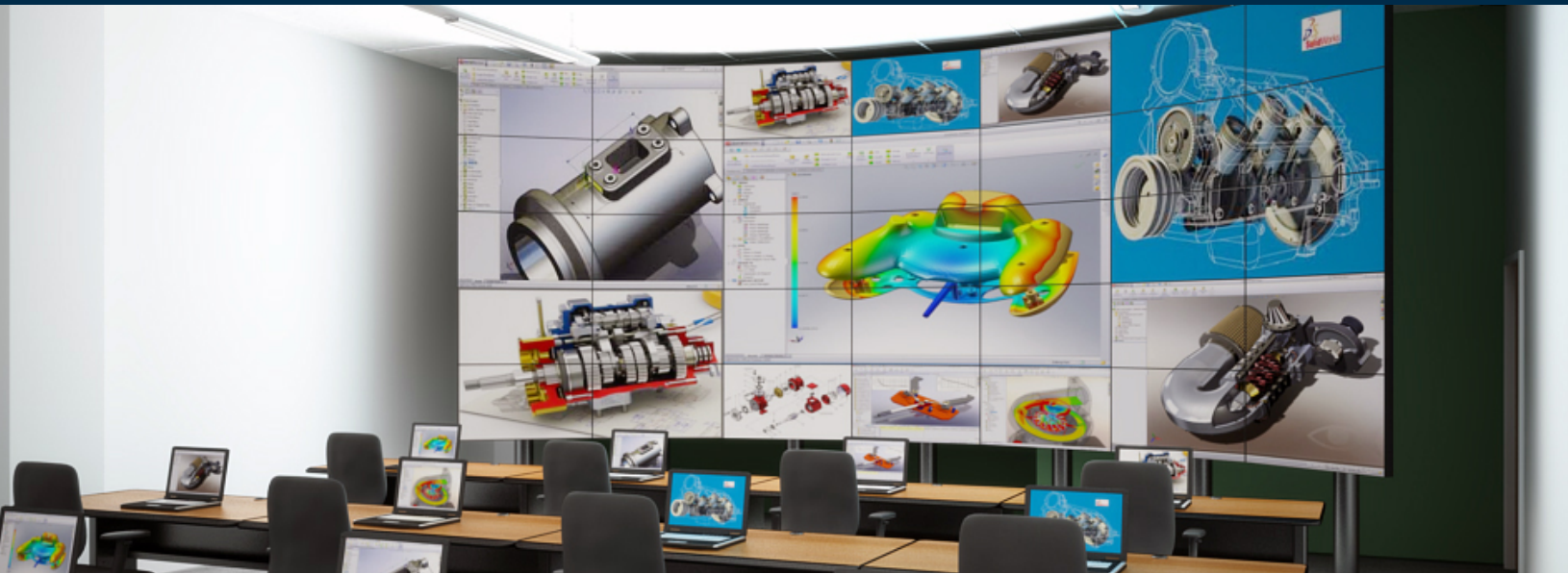
After researching a number of options, Stanford chose Haivision MCS to implement the HIVE's video wall system. Haivision MCS was selected because as both manufacturer and integrator, it was uniquely equipped to provide a cutting edge, fully integrated and highly [customized visualization solution](#).

3 THE SOLUTION

Haivision MCS created a high-performance advanced visualization solution that was custom-tailored to the needs of Stanford's immersive visualization environment.

For the video wall canvas, Haivision MCS provided a CineView [LCD video wall](#), a 7x5 curved array built with 55" monitors. The CineView wall's curved architecture allowed an additional column of screens to be added to the wall, creating an ultra-high resolution canvas that was able to fully accommodate the cluster of 30 Linux PCs. The CineView video wall delivered a crisp, ultra-HD image and a wide viewing angle.

For the processor, Haivision MCS provided the powerful [Alpha video wall processor](#). The Alpha captured signals from the cluster of Linux PCs and displayed them at native resolution across the video wall canvas, allowing users to fully visualize and dynamically manipulate large-scale images and sets of data that were previously only viewable in segmented parts. The Bravo Viz, a sophisticated rendering engine that integrated natively with the



3 THE SOLUTION (Continued)

Alpha processor, further enhanced the visualization experience. Rendering content at multi-HD scale, it enabled the interactive layering of data and allowed both large scale and high detail to be achieved simultaneously

To control the powerful visualization system, Haivision MCS provided its [CineNet software](#). CineNet offered a robust platform that allowed researchers to dynamically arrange and manipulate visual data across the video wall. Features such as drag and drop placement of content, zooming and cropping functions, and customizable layouts provided researchers with a powerful yet intuitive toolkit for collaborative exploration.

For instant, streamlined control over the system, Haivision MCS provided its Touch Control software interface. At the touch of a finger, users could easily control not only the video wall but also various environmental systems in the room such as lights and room temperature.

By leveraging Haivision MCS's powerful advanced visualization technology, Stanford implemented the ultimate collaborative visualization solution to power the HIVE. The seamlessly integrated video wall system transformed fractured data and images into fully realized, ultra-high resolution content on a brilliant canvas. The result was a highly collaborative research environment that provided student

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