Rotary Wing Training Systems

Overview

For over 40 years, CAE has delivered high fidelity rotary wing platform simulations to train U.S. and foreign military crews to safely operate their aircraft under challenging real-world conditions.

CAE continues our industry-leading support of military rotary wing aviation platforms, including the CH-47F Chinook, by incorporating computer system virtualization and Modular Open System Approach (MOSA) technologies to provide scalable, cost-effective systems able to support the rapidly evolving development and sustainment life cycle features required to support both aircraft and training system development, deployment, and concurrency upgrade.

CAE's breadth of capabilities and experience enables the company to deliver customer-unique CH-47F, UH-60M, MH-60R/S, and other platform simulation systems built on proven common, scalable hardware and software solutions. The result is a suite of reliable simulation systems that enable pilots to develop and enhance their tactical skills in operation of complex, digitized, multi-role rotary wing aircraft.

The Solution

We have married CAE's Simfinity™ Integrated Procedures Trainer (IPT) with a common, virtualized computing environment to provide engineers with a powerful simulation development environment – our VSIL. Our VSIL, also augmented with a virtualized desktop development environment based on Simfinity™ VSIM to form our VLAB, currently supports engineering development on CH-47F and UH-60M aircraft platforms for the US Army's FSTSS program.

Common Software Architecture

Our FSTSS development program establishes a common, scalable, reconfigurable CH-47F and UH-60M simulation software architecture across the VSIL, VSIM, and Full Flight Simulator form factors. The core functionality of our modern CH-47F and UH-60M simulation platforms is centered on a high-fidelity aircraft avionics simulation based on the aircraft Operational Flight Program (OFP) rehosted onto our server-grade COTS computers running Microsoft Windows. Our common, integrated software architecture, utilizing the rehosted aircraft OFP with tailored human-machine interfaces, allows us to seamlessly transition between aircraft configurations and scalable training delivery systems such as cloud-hosted desktop training environments, portable cockpit procedure trainers, tailored fidelity interoperable collective training systems, and full flight simulators.

CAE

Common Hardware Architecture

Our VSIL and Full Flight Simulator training systems share a common hardware computing and network system architecture, ensuring that software developed within the VSIL environment is able to be easily migrated to the final target training platform, such as our CH-47F Full Flight Simulator. Our common computer / network architecture is 100% based on COTS computer hardware, operating systems, and open, industry-standard system interfaces.

Our open, COTS-based hardware architecture supports fundamental MOSA measures by allowing rapid technology insertion and upgrade, ensuring vendor independence through common COTS technology, allowing software applications to be easily ported and reused between environments.

Virtualized Environment and MOSA Development

CAE has aligned our simulation systems research and development activities to support the general DoD initiatives related to MOSA as well as specific emerging MOSA-conformant digital aircraft architectures incorporating a digital backbone. Our I/ITSEC demonstration CH-47F VSIL / VSIM environment highlights our approach to system virtualization leading to reduced system physical footprint and increased software portability. Continued CAE MOSA-focused efforts will include full support for US Army and US Navy Future Vertical Lift (FVL) digital backbone architectures, the ability to easily consume third-party simulation-ready aircraft software applications, and support for systems experimentation in order to rapidly incorporate concurrency updates to counter emerging threats.

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For more information contact us:

milsim@cae.com   CAE Defense & Security   @CAE_Defence   cae.com/defense-security

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