

Mission Thread Workshop

Elicit stakeholder input effectively to ensure successful system-of-systems development.

HOW DO YOU ENSURE YOUR SOFTWARE ARCHITECTURE MEETS THE NEEDS OF YOUR STAKEHOLDERS? The answer is to involve them.

Engaging relevant stakeholders helps you define their needs and priorities, and develop a system of systems (SoS) based on their input. A Mission Thread Workshop (MTW) conducted by the SEI is an effective way of understanding stakeholder needs and reducing the risks associated with software architectures.

SEI MTWs are facilitated, stakeholder-centric workshops that elicit and refine end-to-end quality attributes, capabilities, and engineering considerations for SoS mission threads.

A quality attribute is a property of a work product by which its quality will be judged by a stakeholder or stakeholders. Quality attribute requirements, such as those for performance, security, modifiability, reliability, and usability, have a significant influence on the software architecture of a system.

In Department of Defense programs, an SoS is integrated to accomplish a number of missions that involve cooperation among individual systems. Understanding the activities conducted in each system and how they interoperate to accomplish the missions of the SoS is vitally important.

Challenges

The MTW helps your organization meet the following challenges:

- creating and developing a shared vision for how the SoS and its constituent systems should function to achieve the assigned missions
- defining stakeholder priorities for SoS quality attributes
- considering and addressing tradeoffs (technical, funding, schedule, etc.) for the SoS and its constituent systems
- identifying and investigating SoS challenges early in the lifecycle before they become risks

Phases of an MTW

1. **Preparation.** The MTW lead works with SoS representatives—program managers, architects, and capability subject matter experts—to develop and collect artifacts.
2. **Execution.** The MTW team augments the SoS mission threads with capability, engineering, and quality attribute considerations based on stakeholder input and the dialog among the stakeholders and architects. During each step, the MTW facilitator guides the discussion, and the scribe documents the augmentations and any issues that arise.
3. **Follow-On.** After conducting an MTW, you can expect to see these benefits:
 - augmented mission threads (within days of workshop completion)
 - list of SoS challenges (within a couple of weeks of workshop completion)

Benefits

The benefits that an organization can expect from conducting an MTW include the following:

- receive higher buy-in from SoS stakeholders
- gain insight into the desired behavior of the SoS and its constituent systems
- identify architectural challenges, engineering challenges, and capability gaps
- define architecture guidelines and principles to guide SoS development
- avoid the costly consequences of development and operational failures
- deliver more cost-effective and on-time SoS capabilities
- learn to successfully execute your own MTWs

Get Started

If you are interested in arranging a Mission Thread Workshop for your organization, contact us by calling 888.201.4479 or sending email to info@sei.cmu.edu.

Software Architecture Training

The SEI offers software architecture courses and certificate and certification programs that are based on extensive SEI and community experience in architecting software-intensive systems.

More than 20,000 people from more than 1,800 organizations have attended courses in the SEI Software Architecture Curriculum, and more than 2,500 people have earned software-architecture-related certificates.

Visit www.sei.cmu.edu/education-outreach/courses/ to see the complete set of architecture-related offerings and register for upcoming courses.

SEI Expertise in Software Architecture

For almost two decades, the SEI has been instrumental in creating and developing the field of software engineering known as software architecture.

A system's software architecture is the conceptual glue that holds every phase of a project together for all of its stakeholders. It is the depiction of a system that aids in understanding how the system will behave.

Software architecture serves as the blueprint for both the system and the project developing it, defining the work assignments that must be completed. The architecture is also the primary carrier of system qualities, such as performance, modifiability, and security, none of which can be achieved without a unifying architectural vision.

About the SEI

The Software Engineering Institute is a federally funded research and development center (FFRDC) that works with defense and government organizations, industry, and academia to advance the state of the art in software engineering and cybersecurity to benefit public interest. Part of Carnegie Mellon University, the SEI is a national resource in pioneering emerging technologies, cybersecurity, software acquisition, and software lifecycle assurance.

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