

# Cross Cutting Thread Scalable Enterprise Architectures



Our research in the **Scalable Enterprise Architectures** thread addresses how to construct enterprise systems supporting the war-fighter that are scalable and sustainable over the long term deployment of the system. The thread brings together technology from *Enterprise Architectures* (e.g., new ways to construct scalable architectures), *Information Management* (e.g., new ways to organize the information so that its interaction and display can scale), *Information Assurance* (e.g., how can the enterprise be visualized), and *Computers and Software* (e.g. new ways to organize the task of building the application and see it used over the widest range of applications). Seven projects address various aspects of the Scalable Enterprise Architectures challenge. A **one-hour guided tour** (starting at Thread Central at 10:30 am and repeated at 2:30 pm) provides an overall orientation of the work being done in each technical area plus in-depth presentations by four projects. Please visit the remaining projects using the map provided on the reverse.

## Enterprise Architectures

### **Tour** EA-02 Node Information Services – Joint Process Integration

This research identifies patterns that address the operational needs of building enterprise and service oriented systems. It identifies not only the patterns, but also strategies for codifying the patterns and how to transfer the patterns to ESC systems. The patterns aid in the acquisition of scalable systems by formalizing the lessons learned in building these systems.

### **Tour** EA-03 Enterprise Transformation to Service Oriented Architectures: Case Studies and Unifying Framework

This research, via 10 case studies, creates a conceptual framework for guiding enterprise systems to transform to Service Oriented Architectures (SOA) systems. The framework addresses both the technical and non-technical parts of the transformation, including economics, risk, and change management. The ability to transform a system as operational needs change is critical to the sustainment of a system. Managed change is always going to be more cost effective than building a new system.

### **EA-05 Multi-agency Enterprise Architectures Planning Framework**

As the enterprise grows and transforms, system will need to interoperate across geographical, organizational, and agency boundaries, research, such as in this project, needs to address how the social and technical issues of the different environments. This research studies how the architectures of multiple agencies function as a federation of executable architectures.

## Computers and Software

### **Tour** CS-02 Extending Enterprise Services to the “Tactical Edge”

With the deployment of service-oriented systems to users on the tactical edge, understanding the operational impact of operating services in less-than-ideal conditions is necessary. This research attempts to build a model of how services will act in these circumstances.

### **CS-03 Service Level Management and End User Experience**

Service Level Agreements (SLAs) are the contract that defines the functional and non-functional requirements that a service will provide to the stakeholders of the service. Accurate SLAs are key to sustainable SOA systems, especially as they are used in more and more systems over time. This work, from CI&T, tracks compliance with negotiated SLAs and provides alerts to technical support when SLA compliance exceeds a certain threshold.

## Information Assurance

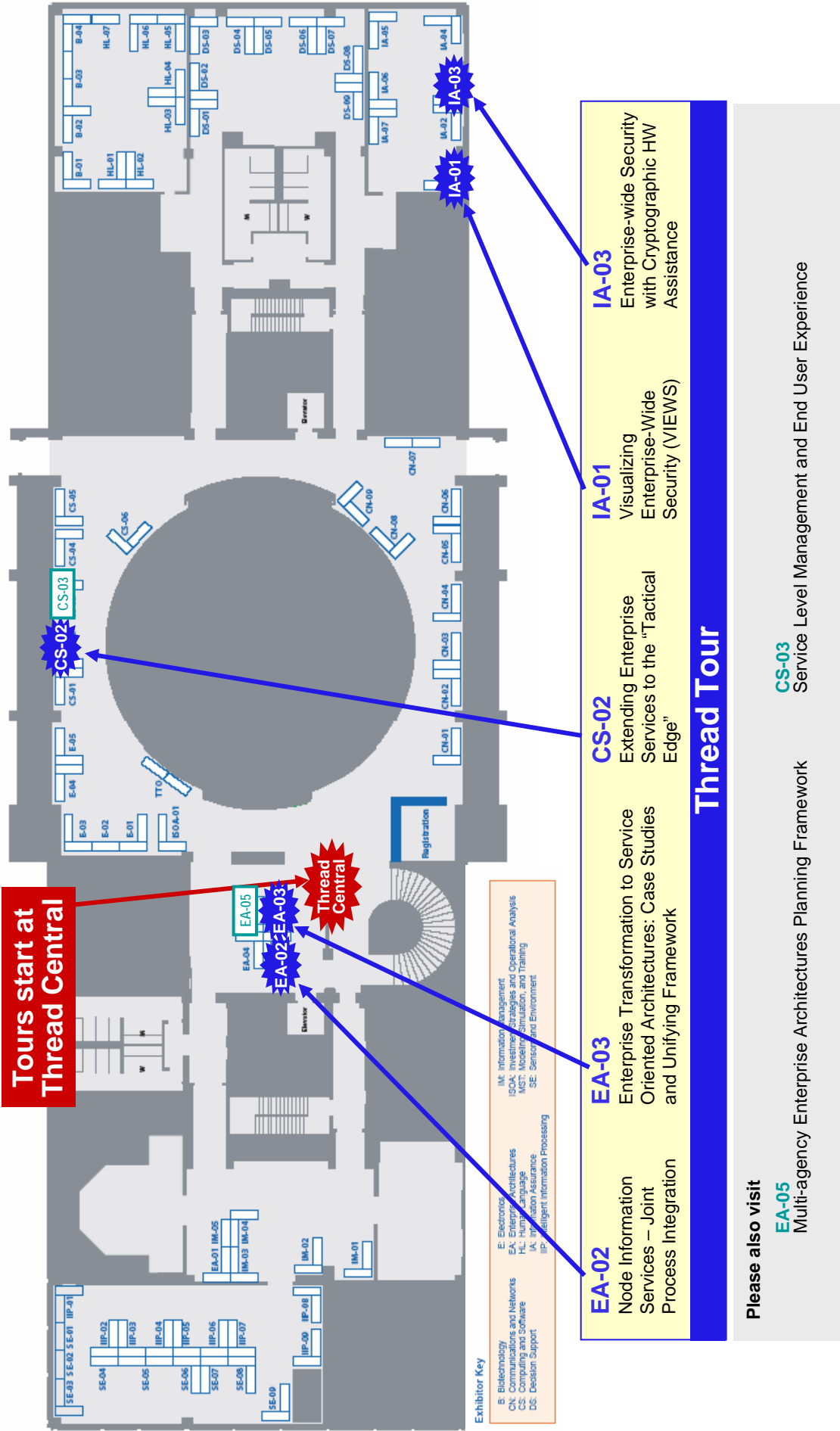
### **Tour** IA-01 Visualizing Enterprise-Wide Security (VIEWS)

With increased enterprise deployment, managing the systems, and especially their security status becomes critical to maintaining their effectiveness and safety. This research aims to provide a system to graphically inspect the application-level security of enterprise systems.

### **Tour** IA-03 Enterprise-wide Security with Cryptographic HW Assistance

As ESC deploys enterprise systems, especially over unsecured connections, security becomes a significant concern. This research looks at hardware-base cryptography for authentication, integrity, and access control.

# Scalable Enterprise Architectures



**Tours start at Thread Central**

**Thread Central**

**Exhibitor Key**

- B: Biotechnology
- EN: Electronics
- EA: Enterprise Architectures
- ISDA: Investor Strategies and Operational Analysis
- HL: Human Language
- IA: Information Assurance
- IP: Intelligent Information Processing
- IM: Information Management
- ISDA: Investor Strategies and Operational Analysis
- MST: Monitor, Simulate, and Train
- SE: Sensor and Environment

<b>EA-02</b> Node Information Services – Joint Process Integration	<b>EA-03</b> Enterprise Transformation to Service Oriented Architectures: Case Studies and Unifying Framework	<b>CS-02</b> Extending Enterprise Services to the “Tactical Edge”	<b>IA-01</b> Visualizing Enterprise-Wide Security (VIEWS)	<b>IA-03</b> Enterprise-wide Security with Cryptographic HW Assistance
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**Thread Tour**

**Please also visit**  
**EA-05**  
 Multi-agency Enterprise Architectures Planning Framework

**CS-03**  
 Service Level Management and End User Experience