

# Cross-Command Collaboration Effort (3CE)



**3 October 2008**

# Purpose and Agenda

---

- **Purpose: Provide information on the Cross Command Collaboration Effort (3CE).**

- **Agenda:**

- **Background and Overview**

- **Capability**

- **Network**
    - **Knowledge Repository**
    - **Requirements Identification and Decomposition**
    - **Systems Engineering Process**
    - **Documents: Processes and Procedures**
    - **Planning: Cross Command M&S Investment Strategy**

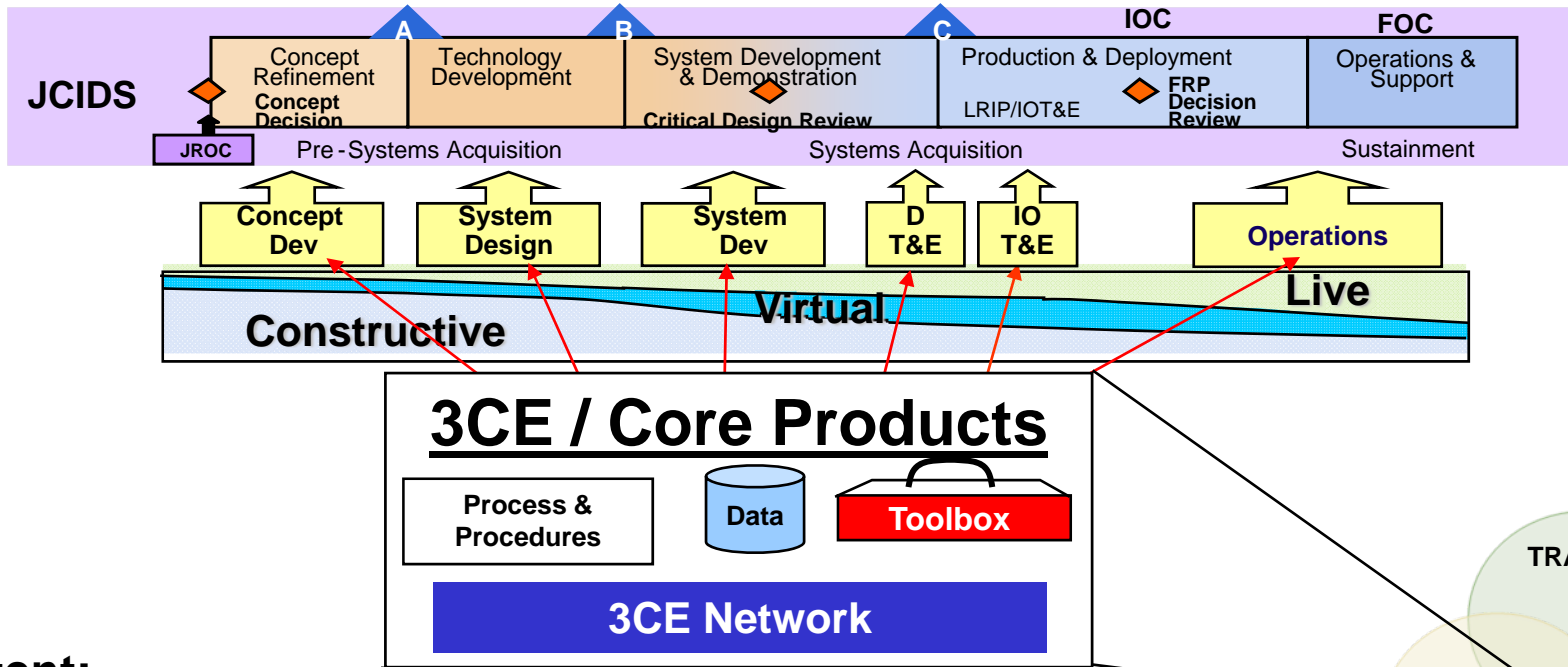
- **Application**

- **FCS Spin Out**
    - **Tools**

- **Summary and Way Ahead**

# What ... 3CE Mission and Intent – Unique Capability

**Mission:** Develop a cross command Army M&S and data environment for design, development, integration, and testing of capabilities, systems, and prototypes.



**Intent:**

**Key Tasks:** Identify, develop, and maintain a **core set of M&S tools, data, and business processes** that provide interoperable connectivity that links the participating organizations, to include providing a common 3CE environment and expertise for the Army to leverage.

**End State:** A 3CE **environment that meets the common requirements** of all three commands and Army PMs to conduct distributed DOTMLPF development.

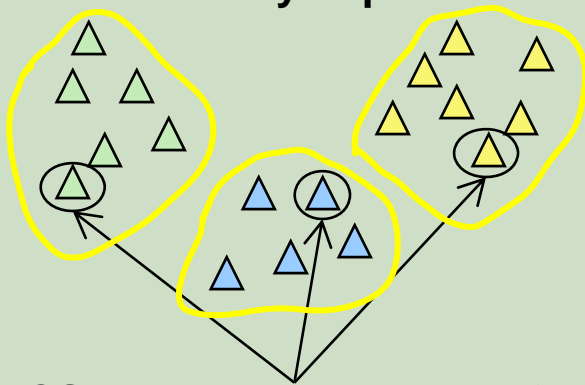
# Program Life Cycle Support ... a Paradigm Change

The 3CE is focused on **identifying and developing** an M&S environment that meets the **common requirements** of all three commands and PM FCS BCT to conduct distributed DOTMLPF development.

## Current Operations

There are numerous, independent command analytic activities.

MoM decomposition is a basic component of the analytic process



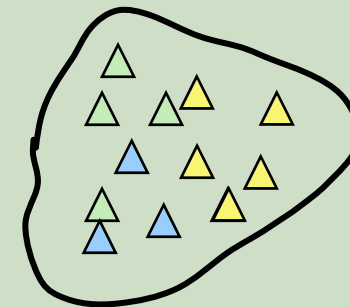
PM FCS may leverage some of these activities in support of time sensitive, **program specific decisions.**



The independent activities lead to discrete tool (e.g. M&S) capability development; sufficient to satisfy the immediate decision requirement and often not capable of supporting reuse requirements.

## Future Operations

Integrated analytic activities conducted IAW standard operating procedures.



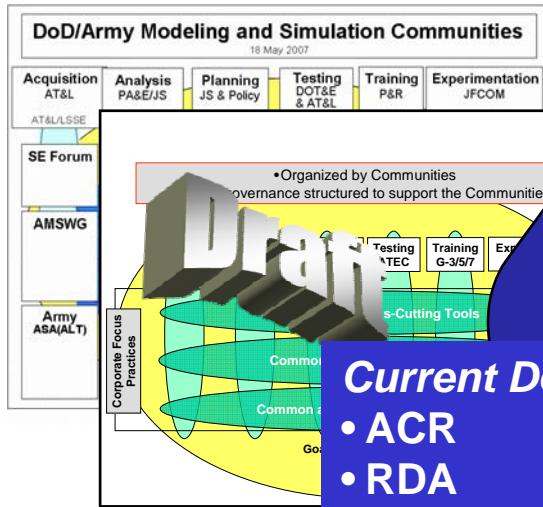
PM FCS leverages 3CE to develop a reusable M&S environment that is capable of supporting **life cycle program decisions.**



Standard processes, procedures, and a common M&S environment provides the means to conduct more integrated and collaborative DOTMLPF development.

**3CE is the agent of change**

# 3CE ... How is This Effort Different?



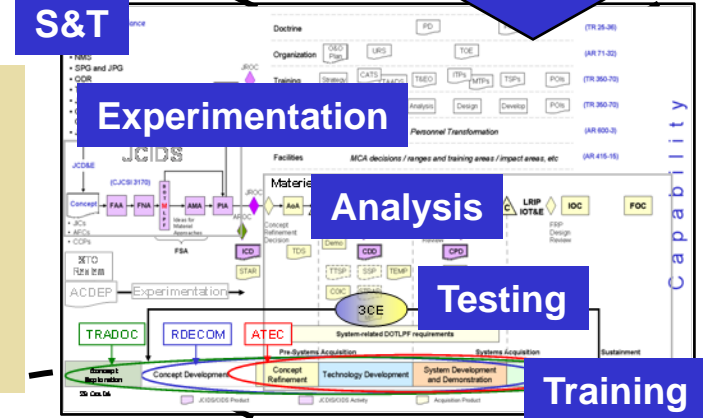
**Current Domains**

- ACR
- RDA
- TEMO

**Problem:** At DoD, Joint, and Service level, there exist M&S concepts, strategies, and policies to enable an “integrated M&S and data vision” ... no resources are allocated for delivering an integrated solution set across the program lifecycle – currently have stovepipe solutions for S&T, experimentation, analysis, testing, and training.

**COA:** To fill the “gap of integrated solution application,” 3CE enables:

- Horizontal integration across M&S communities.
- “Fuzed application” of M&S and data solutions.
- Program lifecycle application
- Cooperative implementation – 3CE Network.



Application Gap

Application Gap

S&T

Experimentation

Analysis

Testing

Training

# Envisioned Benefits of 3CE to...

## The Army

- Provides consistent representation through common tools and data IAW established standards and best practices.
- Provides the capability to leverage a single event for multiple purposes.
- Provides and develops environment capabilities that are traceable to user needs and design requirements.
- Enhances current M&S capabilities and reuse.
- Provides a leave behind capability to support future SoS acquisition programs.

<u>ATEC</u>	<u>RDECOM</u>	<u>TRADOC</u>	<u>Program</u>
<ul style="list-style-type: none"> <li>• Provides a consistent environment for M-T-M</li> <li>• Reduces preparation time for a test</li> <li>• Provides reusable and consistent metrics from development to test</li> <li>• Enhances training proficiency on test equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Enables consistent data from field tests</li> <li>• Reduces the number of data requests</li> <li>• Enables leveraging operational capabilities for engineering and performance tests</li> </ul>	<ul style="list-style-type: none"> <li>• Enables VV&amp;A to test standards for M-T-M</li> <li>• Reduces time to obtain characteristic data from the program</li> <li>• Leverages multiple events for training</li> <li>• Provides a single environment for analysis, test, and training</li> </ul>	<ul style="list-style-type: none"> <li>• Provides a single POC for GFX selection</li> <li>• Leverages command events for multiple purposes</li> <li>• Reduces the M&amp;S and data coordination requirements</li> <li>• Reduces funding for duplicative M&amp;S efforts</li> </ul>

# Roles of 3CE

---

## **3CE will:**

- Support FCS program acquisition decisions.
- Enable AETF application.
- Assess current capabilities to satisfy requirements; identify potential M&S solution providers and capability gaps.
- Integrate and configuration manage M&S capabilities that are common across commands into the Bliss-WSMR LVC environment.
- Provide a means to collaborate cross-command and cross-domain capabilities.
- Establish and share a set of standards, best practices, and expertise.
- Provide a leave-behind capability for future analytic, training, and testing support to acquisition programs.

## **3CE will not:**

- Replace a command's unique mission roles and responsibilities.
- Replace a command's unique M&S capabilities.
- Replace a command's unique data capabilities.
- Impose 3CE capabilities on command unique missions.
- Operate, maintain, or manage a command's distributed network.

***As the integrator of an environment, 3CE focuses on common and consistent capabilities to enable cross command collaboration, synergy, and reusability.***

# Purpose and Agenda

---

- **Purpose: Provide information on the Cross Command Collaboration Effort (3CE).**
- **Agenda:**
  - **Background and Overview**
  - **Capability**
    - **Network**
    - **Knowledge Repository**
    - **Requirements Identification and Decomposition**
    - **Systems Engineering Process**
    - **Documents: Processes and Procedures**
    - **Planning: Cross Command M&S Investment Strategy**
  - **Application**
    - **FCS Spin Out**
    - **Tools**
  - **Summary and Way Ahead**



# 3CE Network

---

- **Network**

- **Established 3CE network consisting 52 total nodes built from 4 “Command” networks**
  - **TRADOC- BLCSE (Battle Labs and Analysis Centers)**
  - **ATEC- ATIN (Test Centers)**
  - **RDECOM- DVL (Research labs)**
  - **PM LSI – Sys of Systems Integrated Labs**
- **Provides capability to conduct distributed experimentation, testing and analysis.**
  - **Extensible to other activities**
- **Provides collaboration services**
  - **VTC**
  - **Voice over IP**
  - **Data and file storage**
- **Persistent Network available 24/7/365**

**Updating Network MOAs and Accreditation to support select Multi National participants in Army directed events.**

# 3CE Network ... A Proven Capability

The 3CE network is a proven capability that has demonstrated success:

- Collaborative – facilitated SO1 planning and 3CE characterization activities
- Distributed – enabled distributed testing for 8 SO1 integration events
- Persistent – maintained greater than 99% availability
- Secure – accredited on the DREN and supported numerous events
- Extensible – linked BLCSE, ATIN, DVL, and SoSIL environments



# Why the Need for a Knowledge Repository (KR)?

*The 3CE KR is needed by multiple users to enable mission execution ...*

## 3CE Team Members (Internal Users)

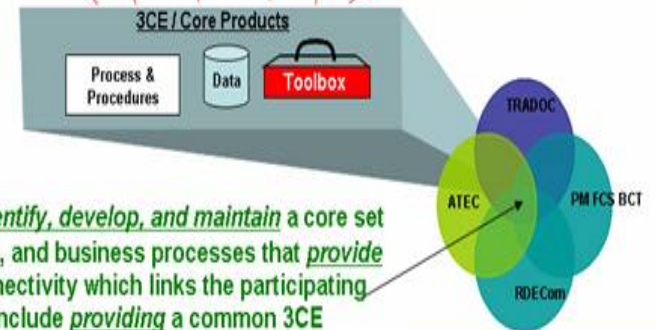
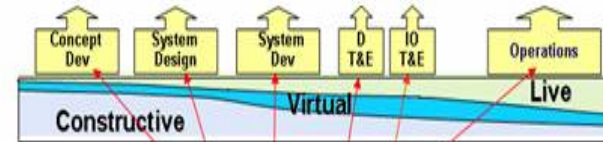
- Facilitate team member coordination
- Enable development, test, and integration activities relating to 3CE's mission and intent.
  - Enable Collaboration
  - Enable Document Sharing
  - Establish processes and procedures to ensure KR contains current and validated information

## 3CE Commands & PMs (External Users)

- Satisfy information needs
  - 3CE capabilities (tools, network)
  - 3CE processes
  - 3CE data
- Satisfy event coordination needs
  - Support the planning, development, execution, and reporting of events
  - Facilitate cross command data visibility and accessibility

## 3CE Mission and Intent

**Mission (Vision):** *Develop a cross command Army M&S and data environment for design, development, integration, and testing of capabilities, systems, and prototypes.*



**Intent:**

**Purpose:** *Identify, develop, and maintain a core set of M&S tools, data, and business processes that provide interoperable connectivity which links the participating organizations, to include providing a common 3CE environment and expertise for the Army to leverage.*

**End State:** *A 3CE environment that meets the common requirements of all three commands and PM FCS BCT to conduct distributed DOTMLPF development.*

*... its demand has a proven reputation for enabling mission success.*

# How do We Function? ... 3CE Overarching Process

*The overarching process describes how 3CE will execute its mission...*

## Source of Requirements



- Research Requirements
- Command Requirements
- PM Requirements

### User (3CE KR)

- Facilitate Event Planning
- Facilitate Event Execution
- Facilitate Accreditation & Certification
- Leverage 3CE Toolkit through the 3CE KR

- Event Requirements

### Requirements:

- High Level
- Analytical Basis
- Across Commands

## Capability Development and Integration

3CE Program Management

3CE TFA IPT

### Analysis/Evaluation

- Identify Requirements
- Consolidate
- Archive
- Verify
- Prioritize
- Decompose
- Refine

Prioritized Requirements:  
• Analytical  
• Other

List of M&S Capability Gaps

### System Engineering

- Assess and define M&S Requirements
- Identify M&S Capability maturity levels and "gaps"
- Refine Capabilities Development Road Map
- Update Knowledge Repository

Prioritized List of M&S Capability Gaps

### Infrastructure, Integration, & Verification

- Validate and Verify Solutions
- Integrate M&S Solutions
- Configuration Manage Solutions
- Manage Current Capabilities

Solutions

### Technical Development

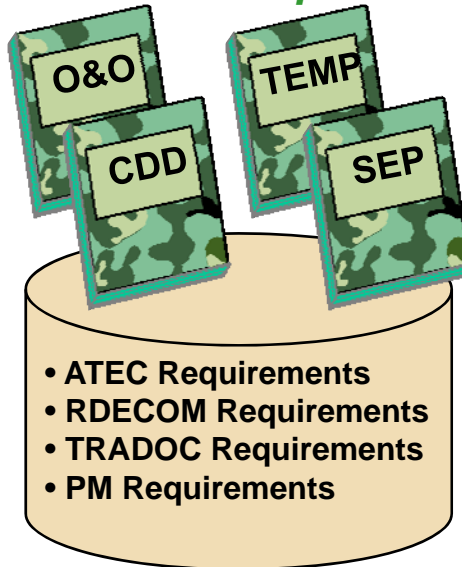
- Identify Current Capabilities
- Design M&S Solutions
- Develop M&S Solutions
- Develop Technical Solutions

- List of Configuration Managed M&S Solutions
- Technical Capabilities
- Business Processes
- Standards

**Legend**  
Inputs  
Outputs  
Process

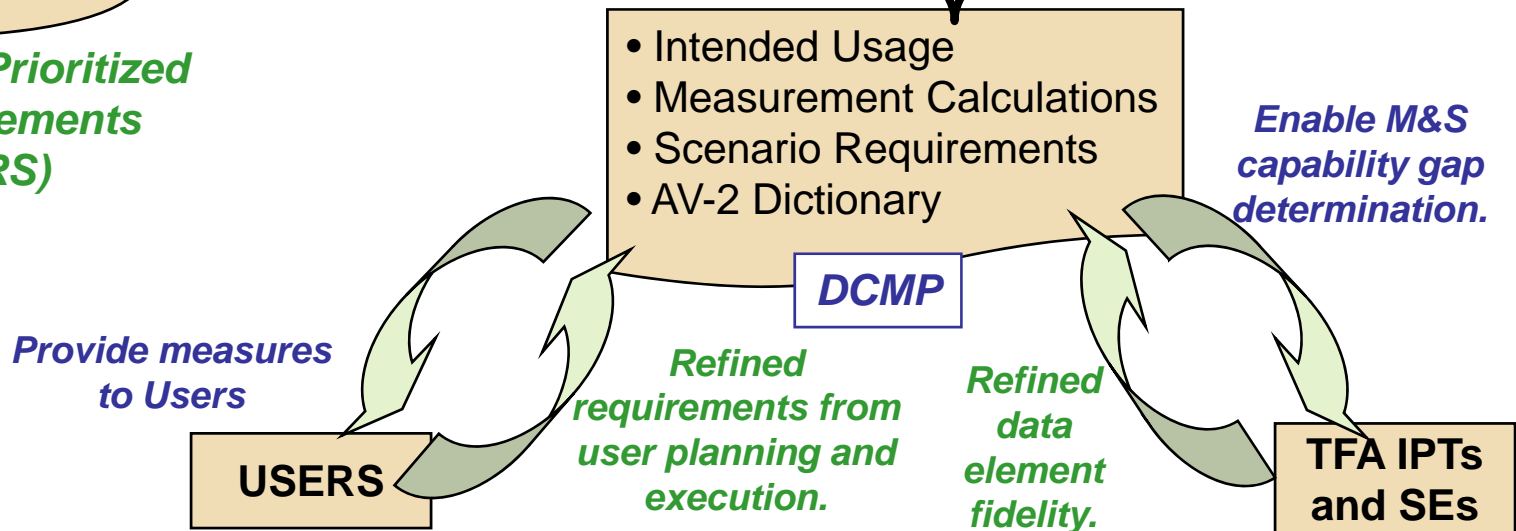
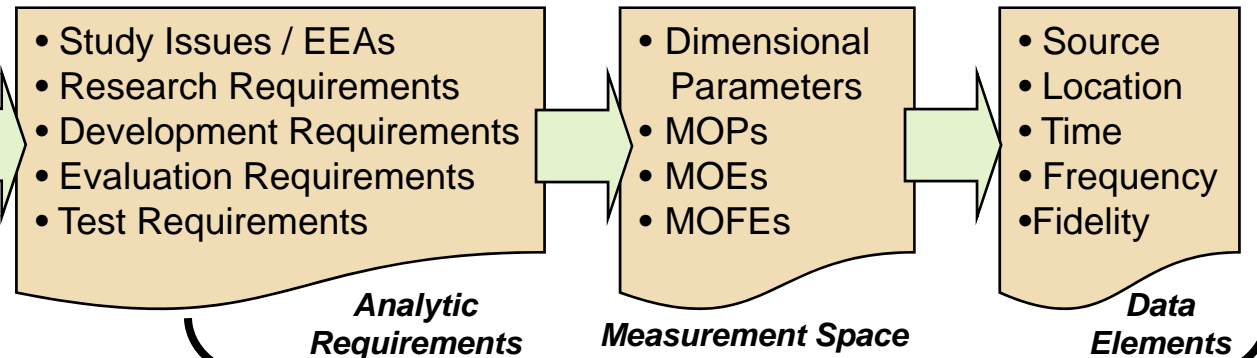
# Analyst/Evaluator Requirement Decomposition

## Authoritative Source Documents for A/E Requirements



## Database of Prioritized A/E Requirements (DOORS)

## Decomposition Process



**Legend**  
 Inputs  
 Outputs  
 Process

# Requirement Types

## User Requirements

**CDD/ORD Requirements**

**Ends**

*Verify that the material solution must be capable of detecting a minefield 90% of the time.*

**Mission Need**

## A/E Requirements

**Analytic Requirements**

**Ways**

- **MOE/MOP**
  - # of mines detected
  - % of mines detected
  - # systems destroyed
  - % of systems destroyed

**Capability**

## M&S Requirements

**Capability Requirements**

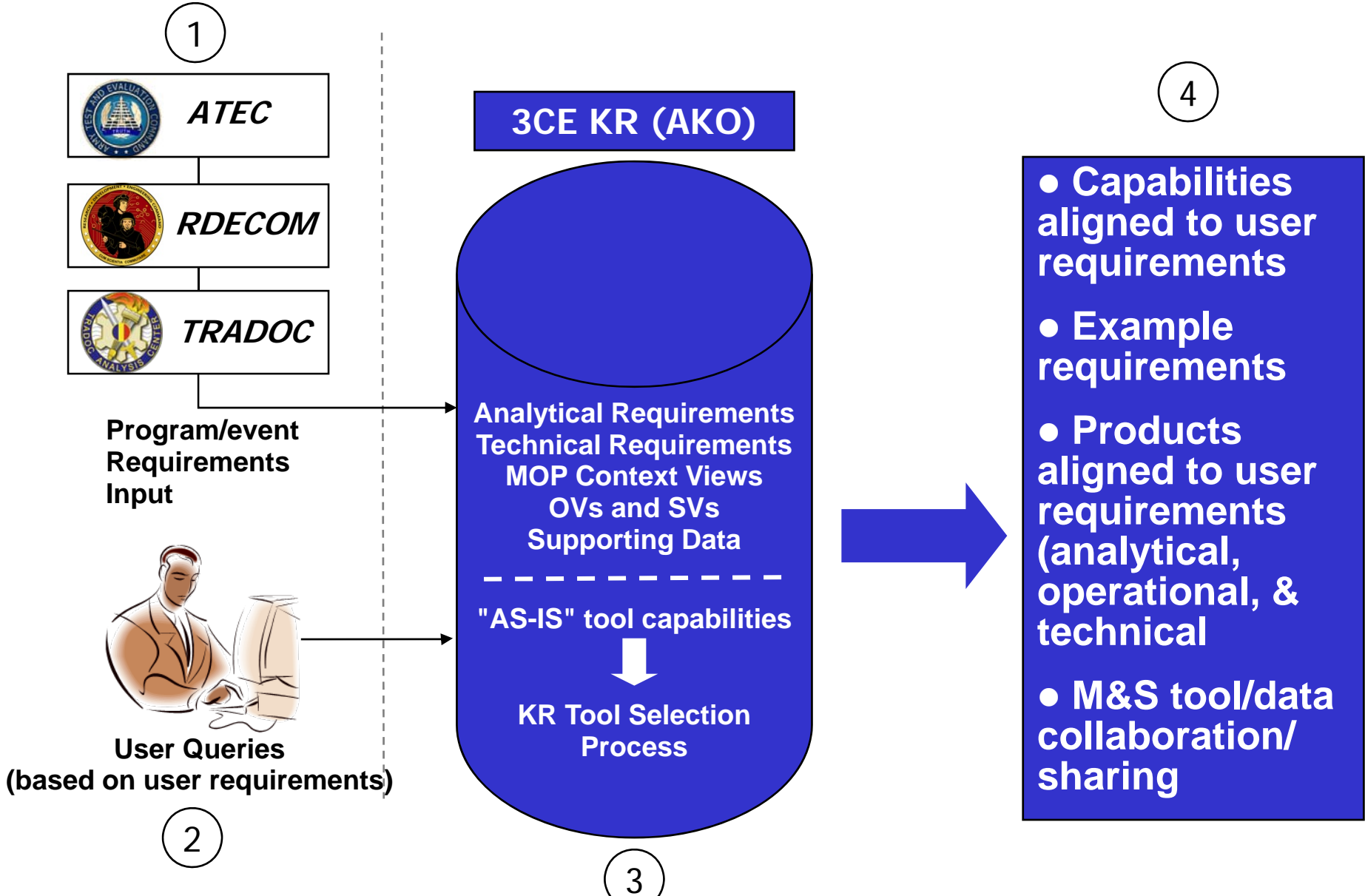
**Means**

*The test system shall simulate minefield detection and breaching.*

**Requirement**

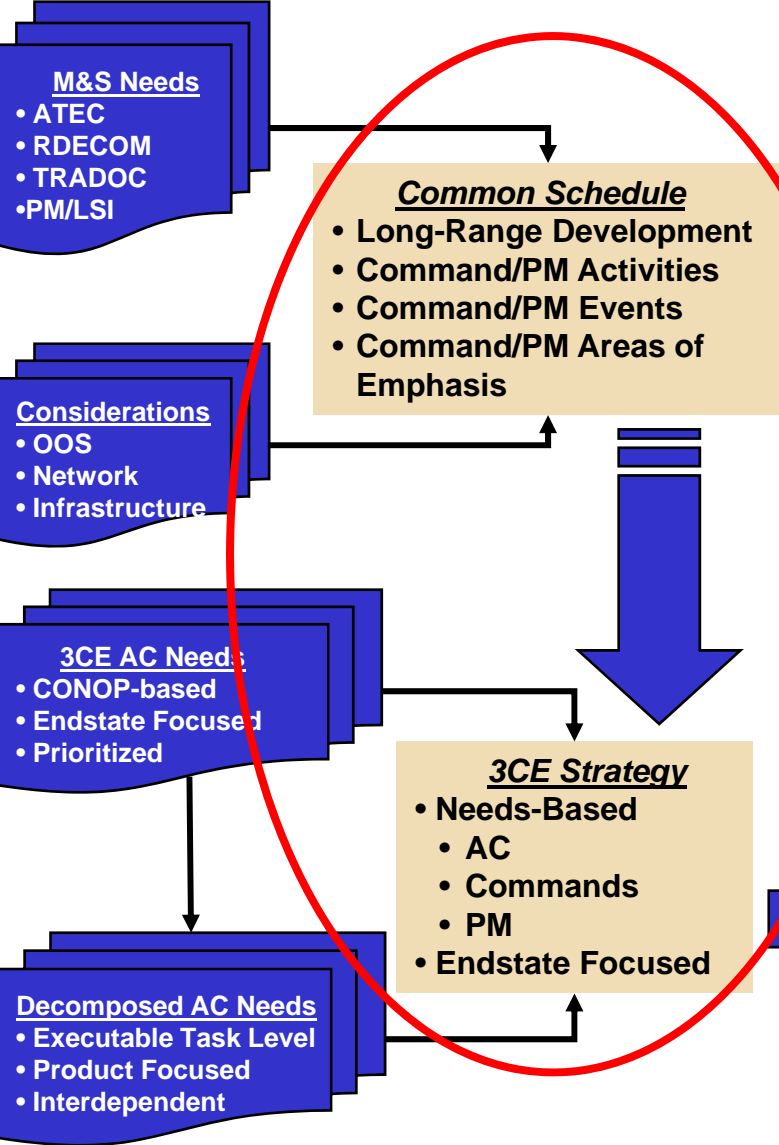
**What “requirements” are we identifying?**

# Tool Selection Using the 3CE Knowledge Repository

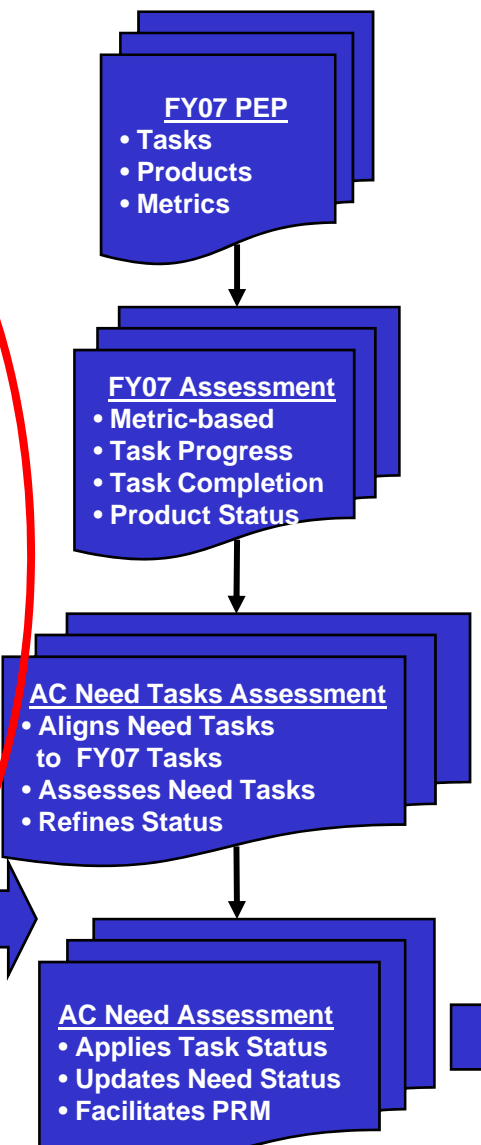


# How Do We Involve the M&S Community?

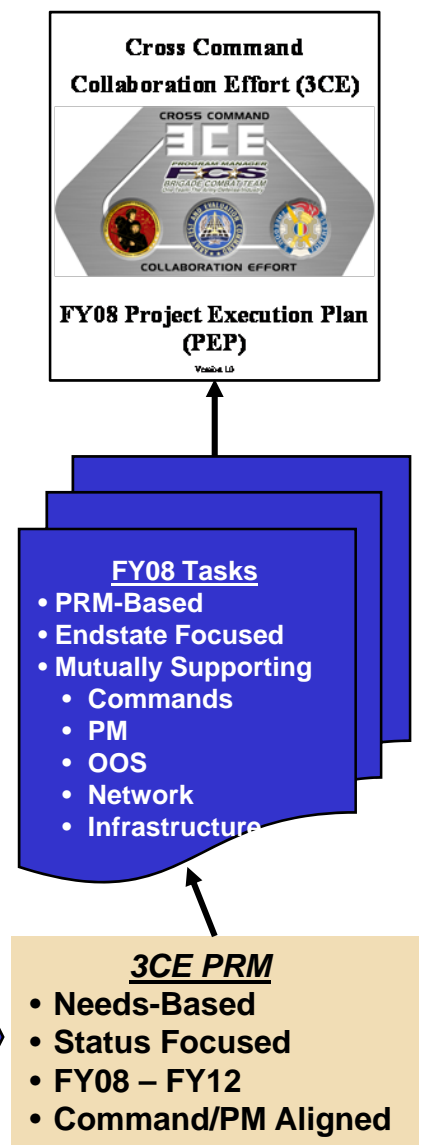
## 1 Endstate



## 2 Current State



## 3 Future State





# Purpose and Agenda

---

- **Purpose: Provide information on the Cross Command Collaboration Effort (3CE).**
- **Agenda:**
  - **Background and Overview**
  - **Capability and Product Accomplishments**
    - **Network**
    - **Knowledge Repository**
    - **Requirements Identification and Decomposition**
    - **Systems Engineering Process**
    - **Documents: Processes and Procedures**
    - **Planning: Cross Command M&S Investment Strategy**
  - **Application**
    - **FCS Spin Out**
    - **Tools**
  - **Summary and Way Ahead**

# Accomplishments to Date for FCS

---

## Event Support

### – Experiment 1.1

- Linked over 3CE sites
- Provided live video and AAR for experiment
- Ability to share lessons learned throughout Army real time.

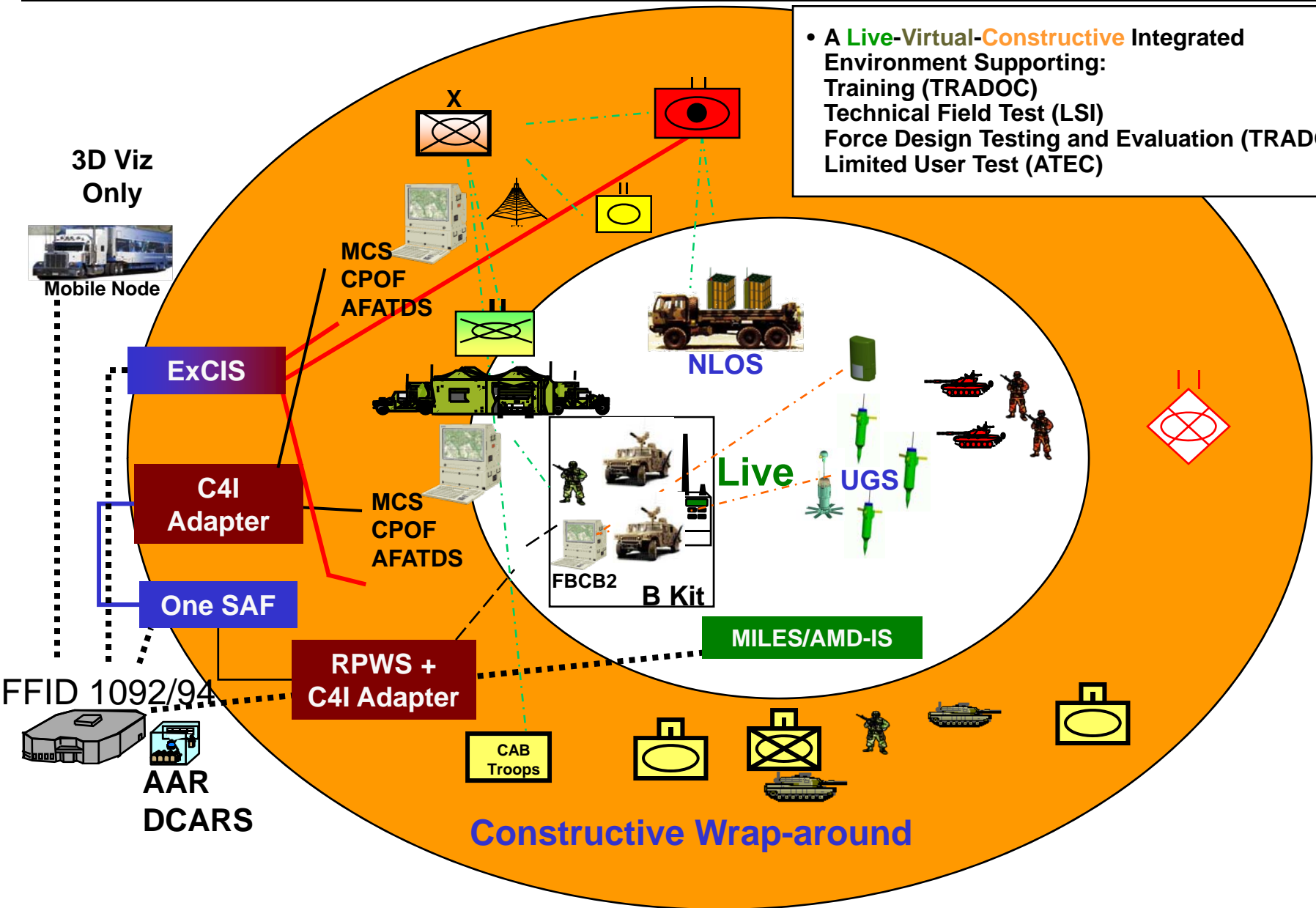
### – SO simulation federation

- Identified requirements
- Identified solutions
- Conducting integration to provide common solution to 4 events.

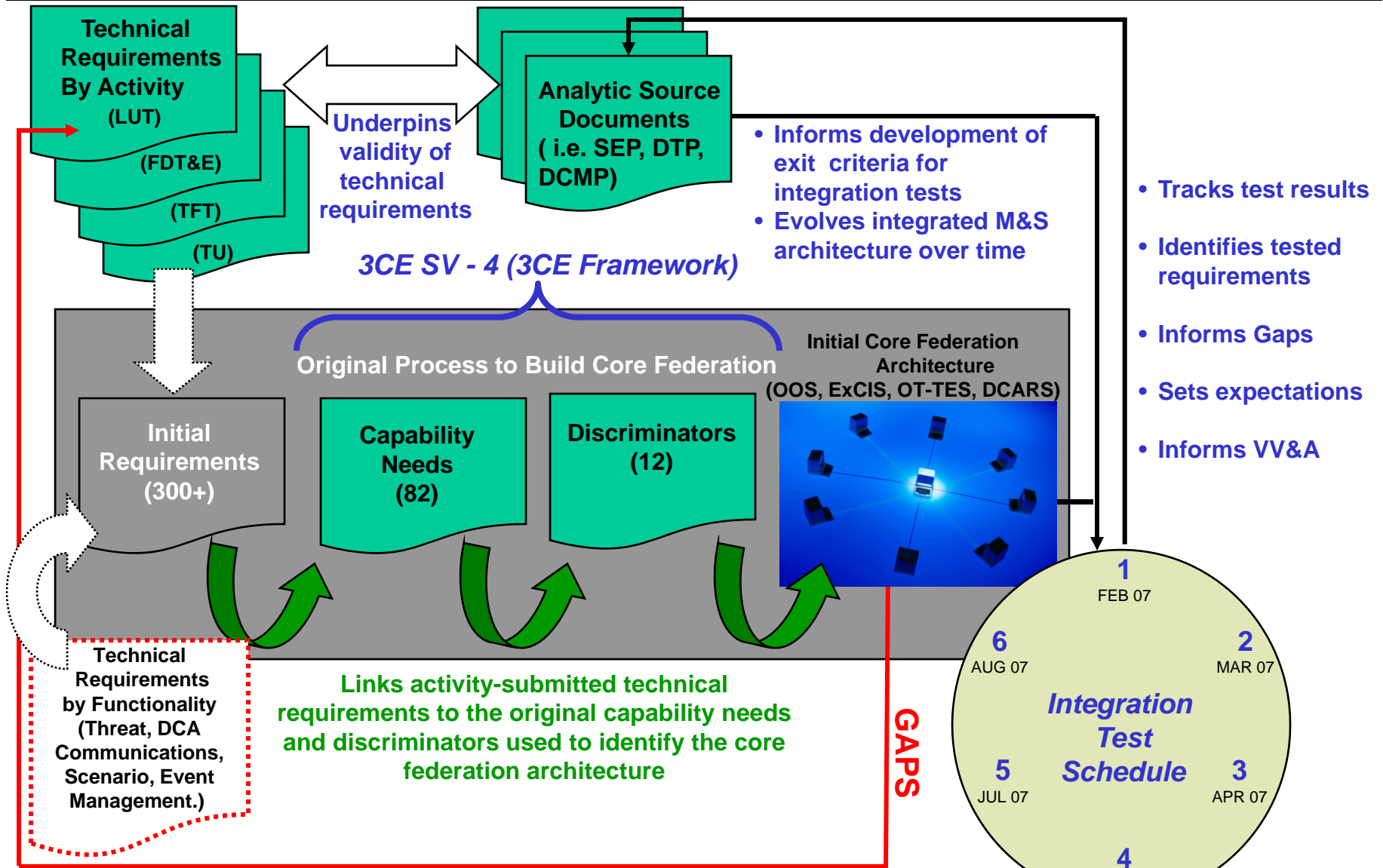
*A 3CE environment that meets the common requirements of all three commands and PM FCS BCT to conduct distributed DOTMLPF development.*

# An Applied Example ... 3CE Supporting SO

- A **Live-Virtual-Constructive** Integrated Environment Supporting:
  - Training (TRADOC)
  - Technical Field Test (LSI)
  - Force Design Testing and Evaluation (TRADOC)
  - Limited User Test (ATEC)



# Enabling SO1 Integration ... Requirements Focused



**Potential GAPS of technical requirements will inform the ability to achieve analytic requirements**

# Purpose and Agenda

---

- **Purpose: Provide information on the Cross Command Collaboration Effort (3CE).**
- **Agenda:**
  - **Background and Overview**
  - **Capability and Product Accomplishments**
    - **Network**
    - **Knowledge Repository**
    - **Requirements Identification and Decomposition**
    - **Systems Engineering**
    - **Documents: Processes and Procedures**
    - **Planning: Cross Command M&S Investment Strategy**
  - **Application Accomplishments**
    - **FCS Spin Out**
    - **Tools**
  - **Summary and Way Ahead**

# Summary

---

***As the integrator of an environment, 3CE focuses on common and consistent capabilities to enable cross command collaboration, synergy, and reusability ...***

- Provides consistent representation through common tools and data IAW established standards and best practices.
- Provides the capability to leverage a single event for multiple purposes.
- Provides and develops environment capabilities that are traceable to user needs and design requirements.
- Enhances current M&S capabilities and reuse.
- Provides a leave behind capability to support future SoS acquisition programs.

***... through the activities in support of SO integration, 3CE will have an instantiation of this capability to support future user activities across the Army.***

- Provide a core federation with supporting functional, interoperability, event management, and data collection and analysis tools.
- Provide an accessible knowledge repository that provides the processes, procedures, standards, and expertise to leverage 3CE capabilities.
- Provide a persistent and secure network that enables collaboration and interoperability across the commands and the PM/LSI.