# System of Systems Common Operating Environment (SOSCOE) Support to Net Centricity

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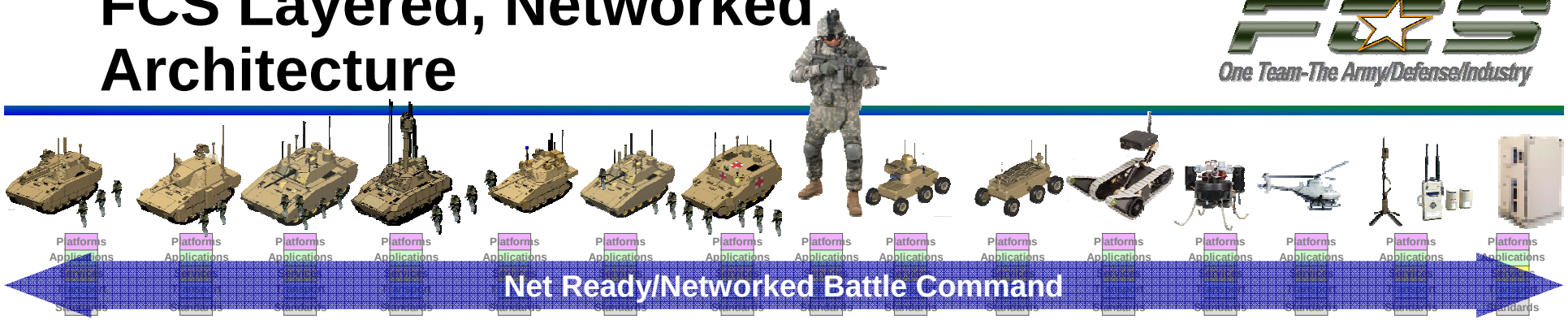
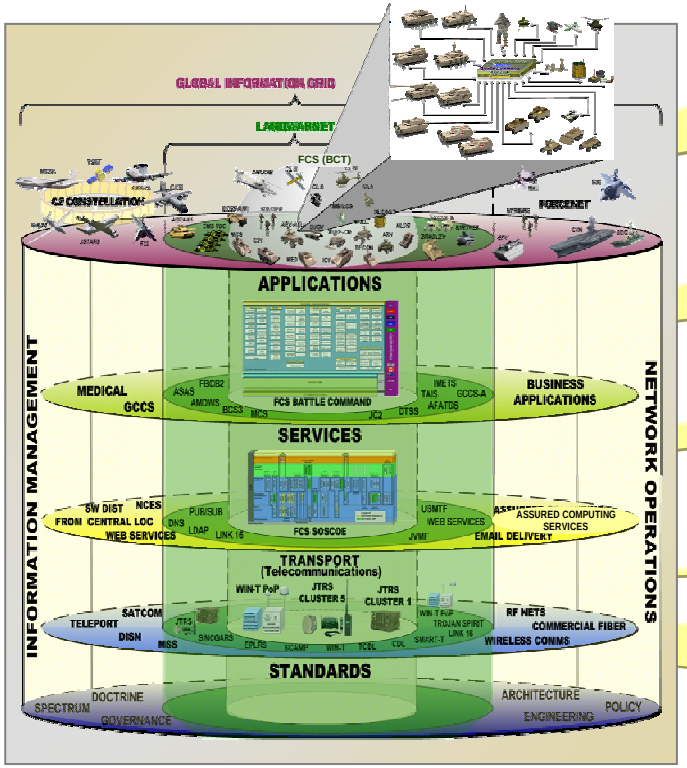
# FCS Layered, Networked Architecture

FUTURE COMBAT SYSTEMS
FCS
One Team-The Army/Defense/Industry




- **Command BCT system elements are commonly developed to integrate FCS platforms into a larger geographically dispersed yet Functionally integrated machine**
- **Battle Command incorporates C2, Intelligence, Surveillance, and Reconnaissance (ISR), Embedded Training, and Sustainment**
- **Net ready information management element of service based architecture - SOSCOE**
- **Heterogeneous transport layer enables robustness**
- **Networked battle command, embedded training, and supportability developed Technical View (TV-1) integrated into SoS level TV-1 standards supporting integration**

***Integrated Architecture Provides Design-Phase Flexibility and Tactical Adaptability For The Networked FCS (BCT)***

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# SOSCOE & NCES – Different Environments

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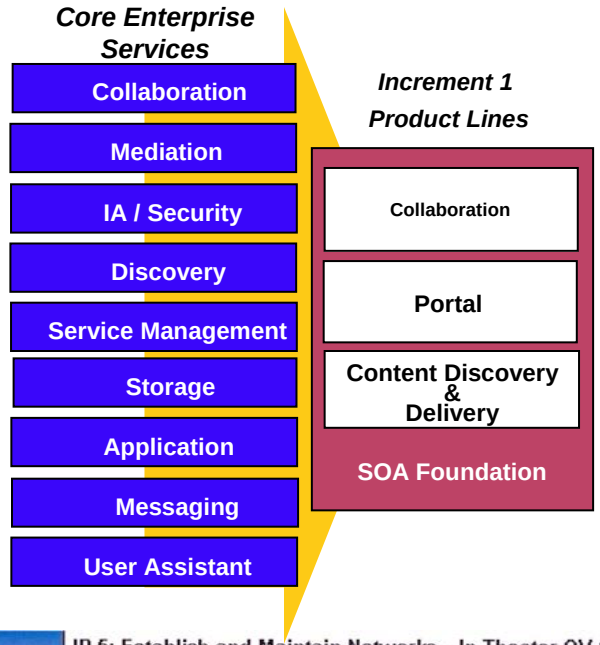
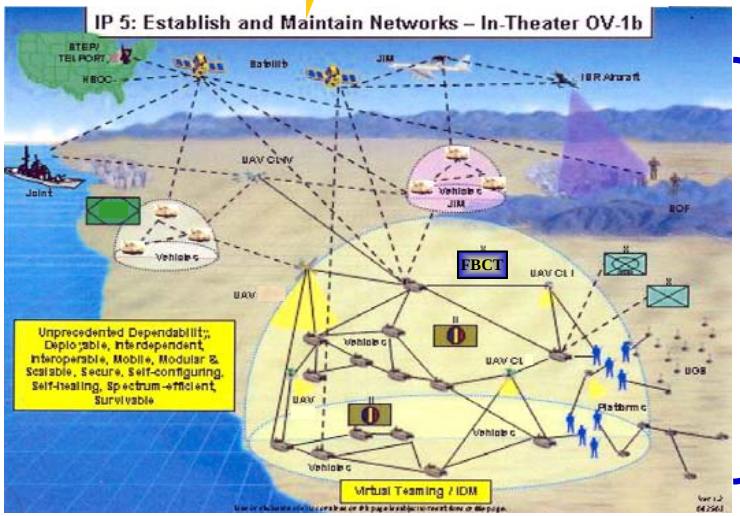



## NCES (Increment 1): High-bandwidth Reliable Network

- **NCES focused on providing enterprise services running within a high bandwidth reliable network infrastructure**
  - Capabilities are server-based
  - Leverages centralized computing paradigm
  - Emphasis on 'shared spaces' presumes uninterrupted access to those spaces
  - Acquisition Strategy
    - **Adopt before Buy, Buy before Create**
    - **Acquire via Managed Service Providers**




## SOSCOE: Low-bandwidth Ad Hoc Network

- **SOSCOE focused on providing reusable software infrastructure components for Platform and Battle Command Applications on a Bandwidth Constrained Ad Hoc Network**
  - SOSCOE must support decentralized real-time and safety-critical applications
  - Emphasis on managing QoS over radio networks
  - SOSCOE makes wide use of "Proxy" notion for maintaining seamless communications with the GIG at WIN-T POPs



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# SOSCOE Architectural Concept

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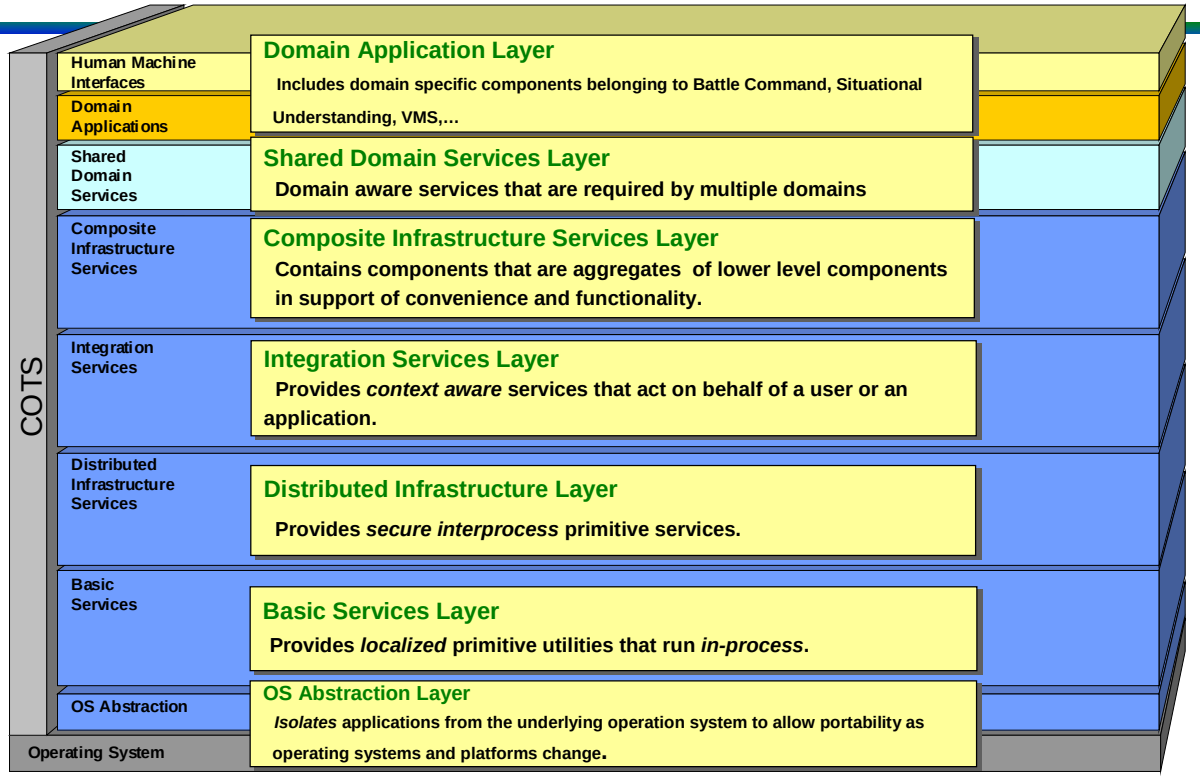
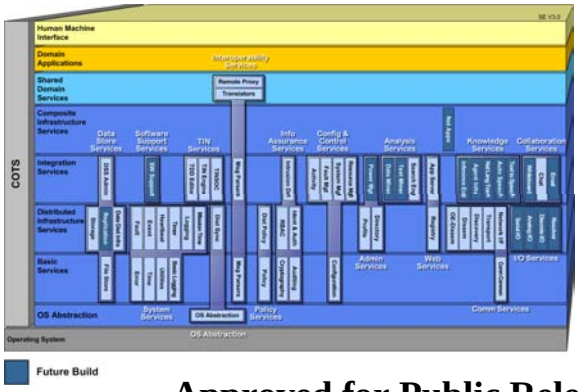
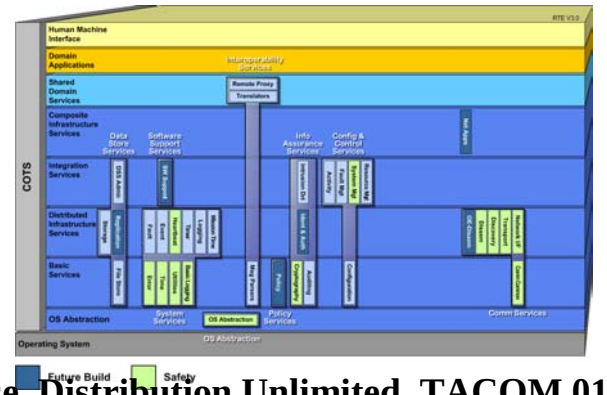
- **SOSCOE is a "toolset" of Infrastructure Services that provide a Service Oriented Architecture operating environment for FCS Applications**
- **Although each Edition may require unique implementations, the Application Interfaces (APIs) will conform to a set standard**



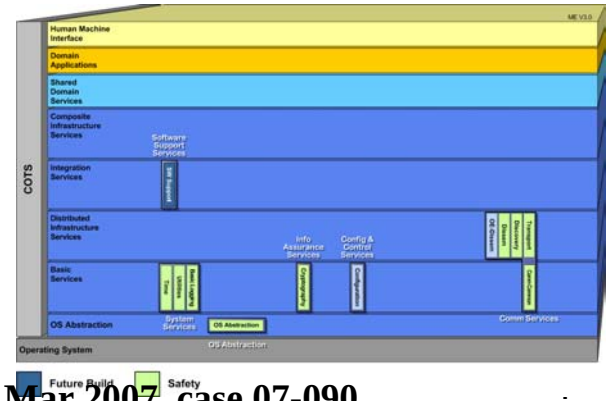

## Standard Edition




## Real Time Edition




## Micro Edition

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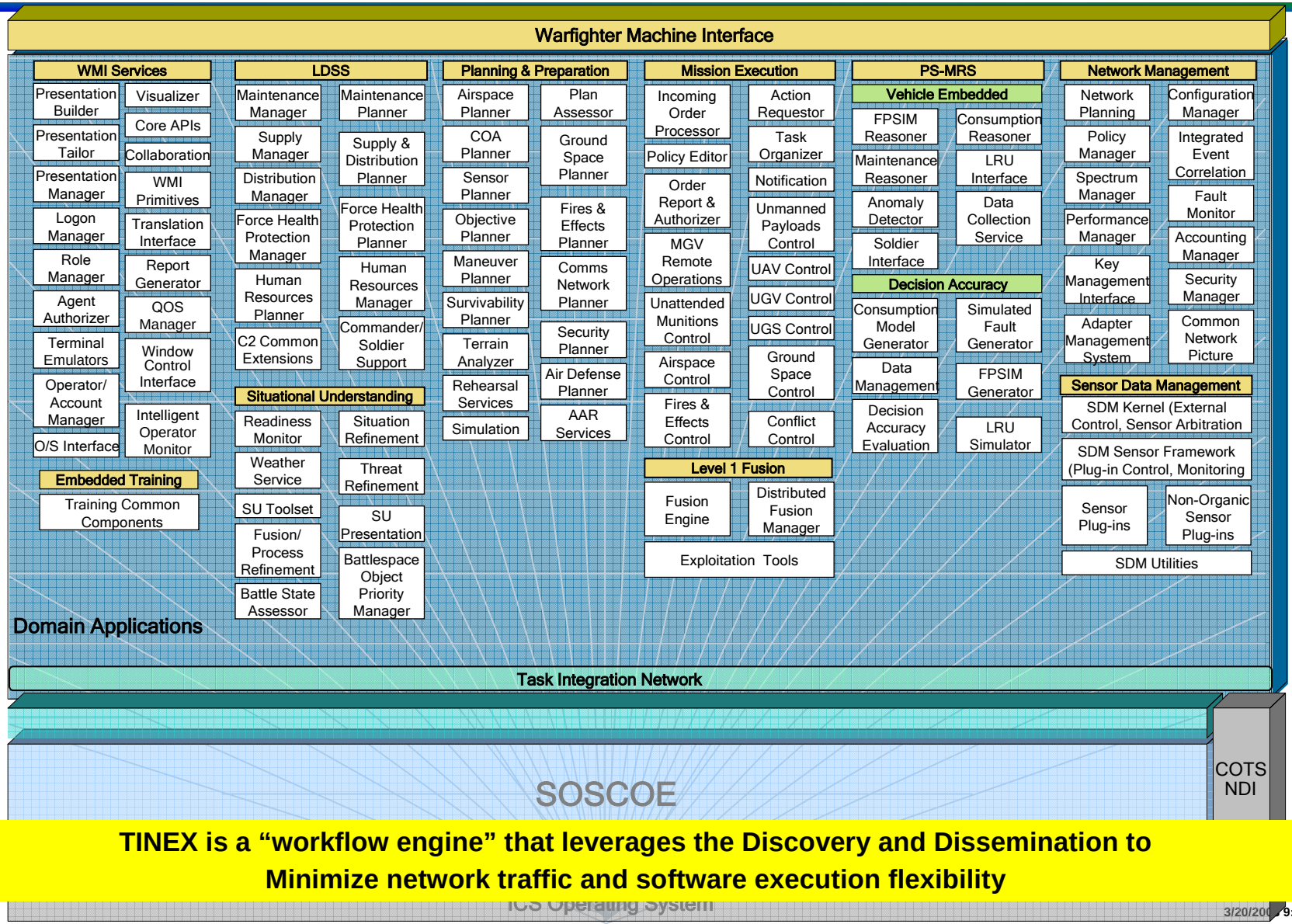
# FCS Battle Command Compose-able Architecture Drives the Use of TINEX




**TINEX is a "workflow engine" that leverages the Discovery and Dissemination to Minimize network traffic and software execution flexibility**

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# Task Integrated Network (TIN) "Thread" Application Services to create desired Effects

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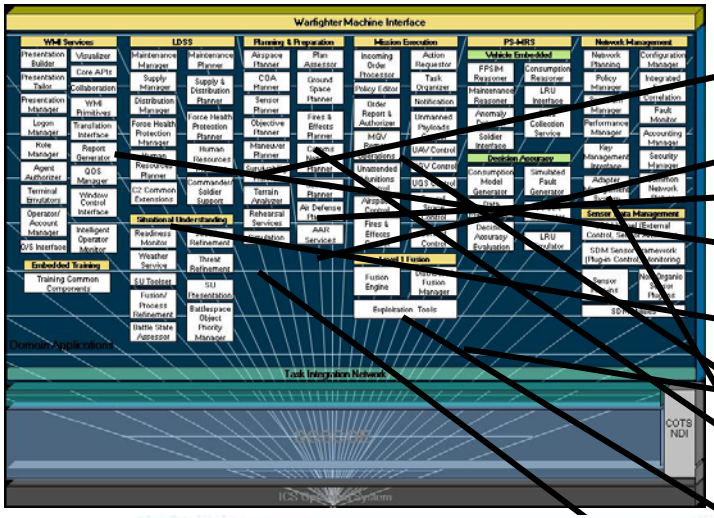


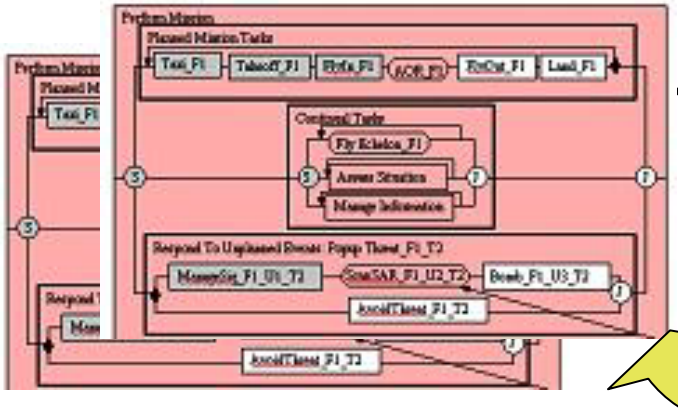

- Object, Situation, Threat & Refinement Service
- Battle State Assessor Service
- SU Presentation Service
- Presentation Builder, Tailor, Manager Service
- Collaborator Service
- Simulation Service
- Plan Assessor Service
- Weather Service
- Terrain Analyzer Service
- Notification Service
- BSO Priority Manager Service
- ⋮

**Battle Command Process**

**TIN Formation**

**Apply Knowledge, Judgment, and Analysis to Understand the Situation**

**Task Sequence**

**TINs provide adaptable "script" to efficiently implement services**



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# SOSCOE is Incrementally being Developed And Fielded

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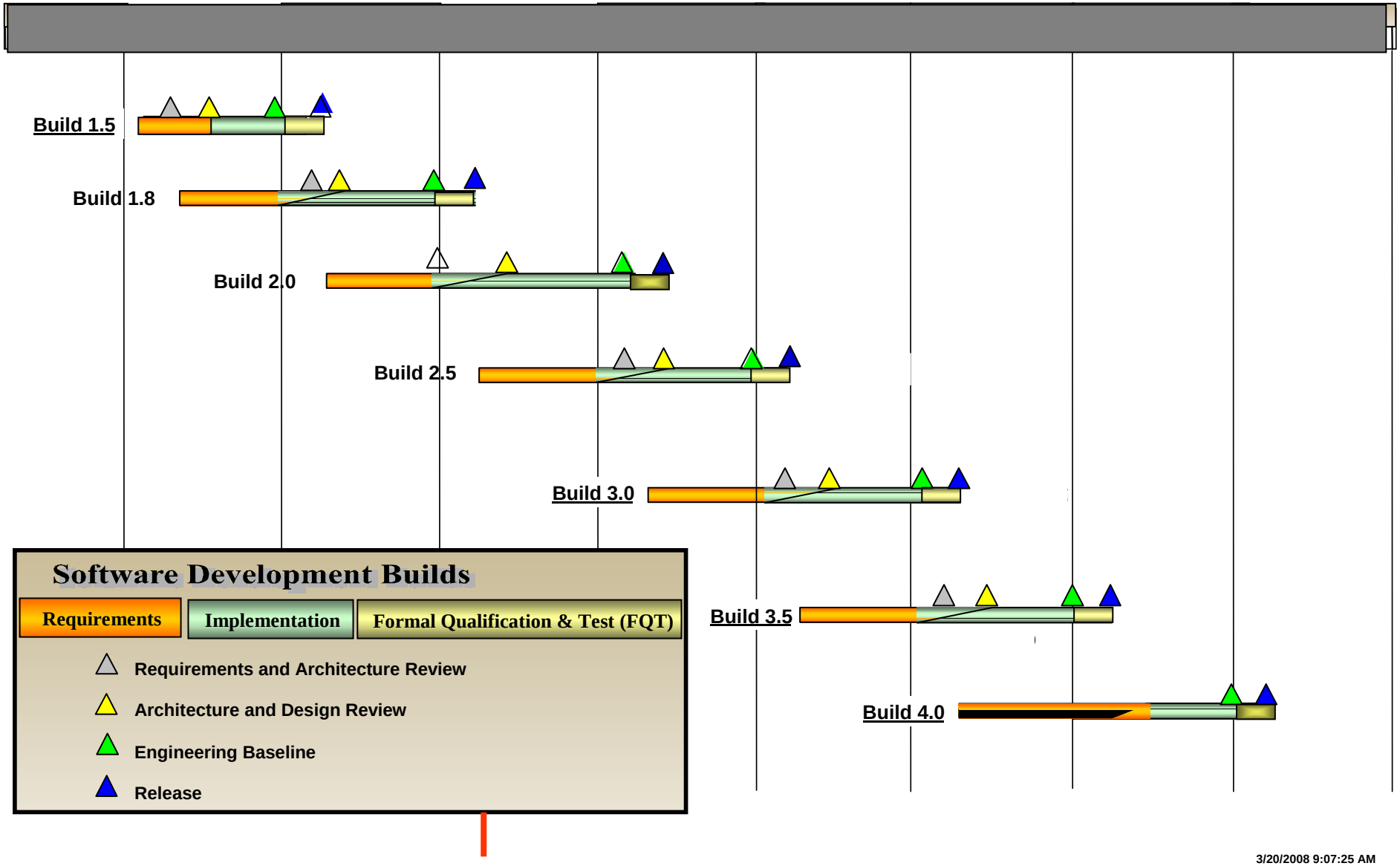




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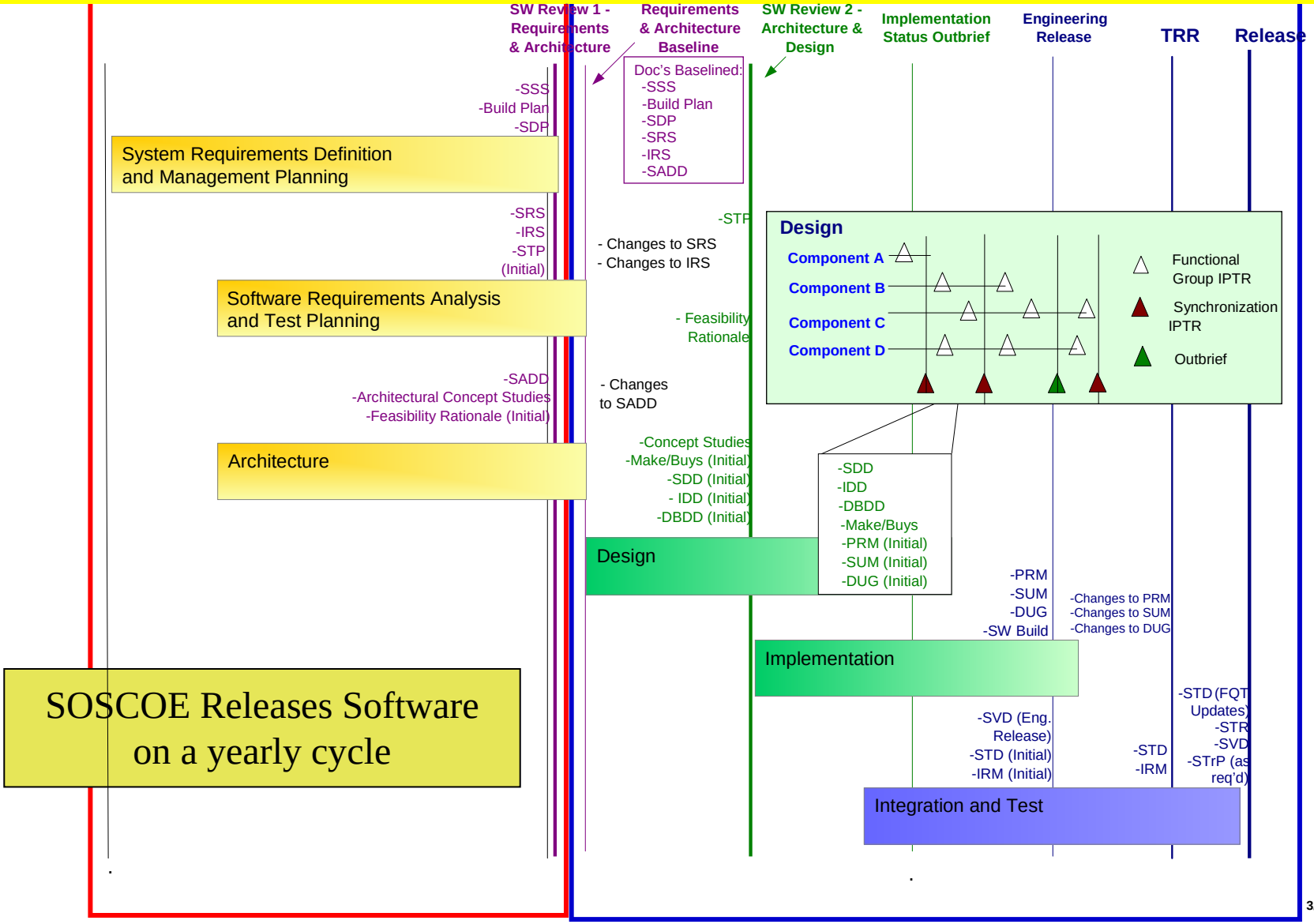
# SOSCOE 2 Year Build Cycle

**Software Development Methodology is based on IEEE 12207.2 Evolutionary Model**



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# Summary

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- **SOSCOE provides the Infrastructure for the Tactical Domain supporting Net Centric Operations paradigms**
- **SOSCOE is being Developed by a Team of Boeing, SAIC and 34 other companies**
- **SOSCOE Development Cycle is 2 years with yearly Releases**
- **SOSCOE is available via Distribution Agreement and SLA under Government Purpose Rights (GPR)**
- **SOSCOE Build 1.8 consists of 95% COTS/Open Source or a Total of 78 products**
  - 14.7M SLOCS delivered

**SOSCOE is based on a set of Standardized APIs**
**and based on**
**COTS/Open Source, modified and developed software**


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