



***ATEC***  
***Test Integration***  
***Network (ATIN)***

***Suzanne Strohl***  
***25 Jun 03***



***Our Army . . . Our Soldiers . . . Our Equipment***



# *Outline*



- Reason for ATIN
- ATIN Objective
- ATIN Linkage
- FCS Requirements
- FCS Instrumentation Tree
- FCS Instrumentation Team
- How We Are Getting There
- External Related Efforts
- Wrap Up



## *Reason for ATIN*

- Support FCS Testing and Future System Testing
- Provide a common architecture across ATEC for distributive testing
- Provide common inter range (range to range) and intra range (within a range) hardware where practical
- Real-time test control, data collection, and data transport



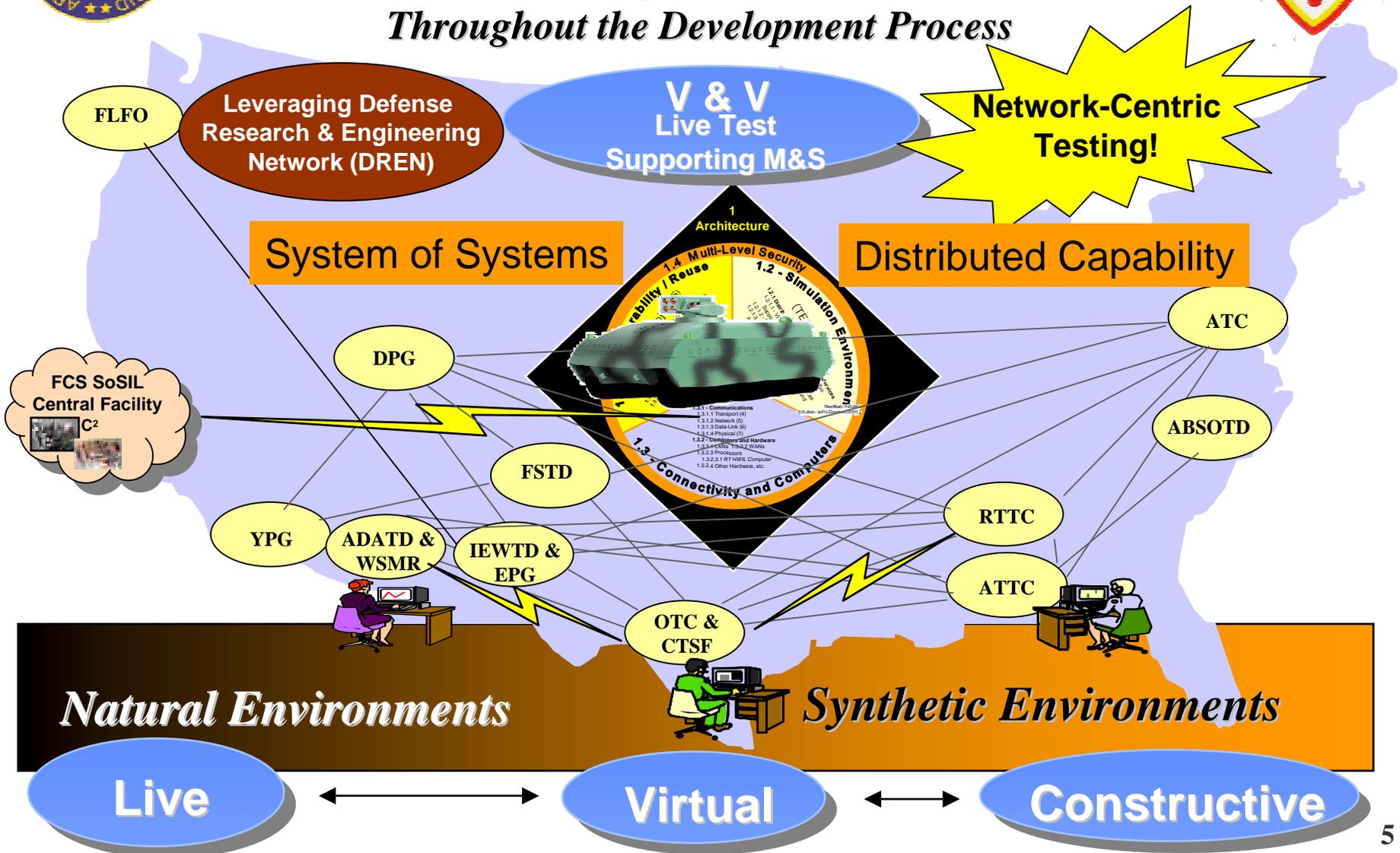
# *ATIN Objectives*

- The objectives of ATIN are to provide connectivity to:
  - ◆ ATEC Ranges and Test Directorates
  - ◆ Fixed Government Test Facilities
  - ◆ Contractor Facilities
    - FCS System Integration Labs (SILs)
    - FCS System of Systems Integration Lab (SoSIL)
  - ◆ Mobile/Remote Instrumentation Systems
  - ◆ AEC Evaluators
  - ◆ Individual and Central Test Data Bases
  - ◆ Multi-level Security



# ATEC Test Integration Network

## Linking FCS Development to Army Test Ranges Throughout the Development Process





# *FCS Requirements*

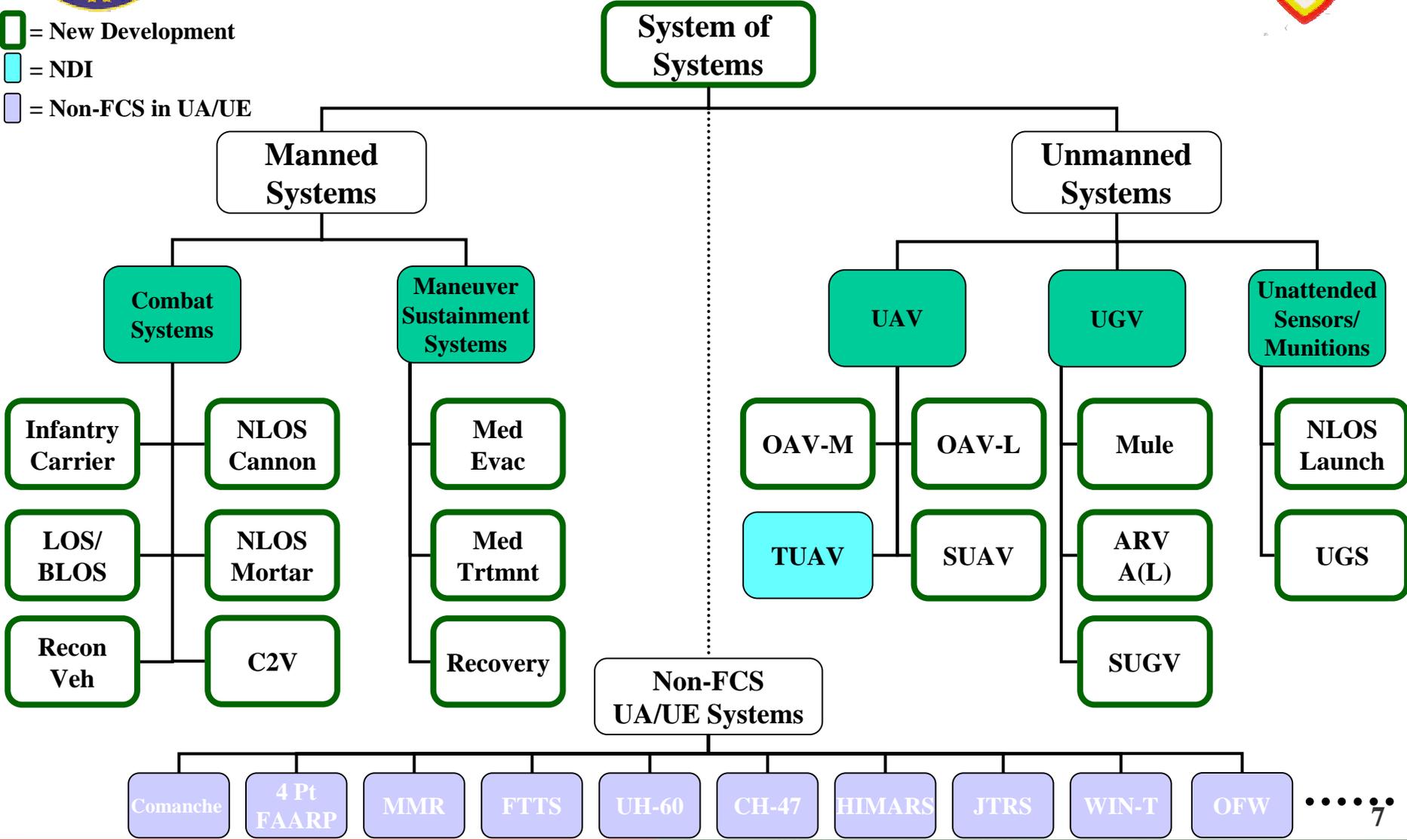
- FCS test strategy is complicated by several factors
  - ◆ Breadth of FCS capability, multiple Battlefield Functional Areas
  - ◆ The geographic scope of the FCS Unit of Action
  - ◆ Involvement of multiple Test Organizations:
    - Government (ATEC DTC, ATEC OTC, JITC, etc...)
    - Lead System Integrator
    - Prime Item Developers
  - ◆ Limited number of platforms available for test
  - ◆ Aggressive program/test schedule



# FCS Instrumentation Tree



- = New Development
- = NDI
- = Non-FCS in UA/UE





# FCS Instrumentation Team



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# *How We Are Getting There*



- Continuous Meeting Coordination:
  - ◆ Rock Drills for CG: Aug, Sep, Oct 02
  - ◆ Coordination Meeting with CTO & LSI: Nov 02
  - ◆ ATIN Meeting Instrumentation and M&S: Feb 03
  - ◆ ATIN Working Groups: Feb 03
  - ◆ Meeting with JITC on JDEP and FCS: Feb 03
  - ◆ IT Summit: Apr 03
  - ◆ ATEC Test Technology Symposium: Jun 03
  - ◆ FCS Instrumentation Prioritization Meeting
    - 15-16 July 03 at WSMR
    - 19-20 Aug 03 at WSMR



# *How We Are Getting There*

- Develop Top Down ATIN Approach
- Formalize and Empower 3 Small Technical Working Groups operating in parallel
  - ◆ Security Group - Needs, accreditation, and DITSCAP requirements
  - ◆ Connections Group - Standard methodologies, standard architectures/interfaces
  - ◆ Requirements Group
- Develop ATIN ORD
- Develop and Present Phased Plan and solicit funding



# *How We Are Getting There*

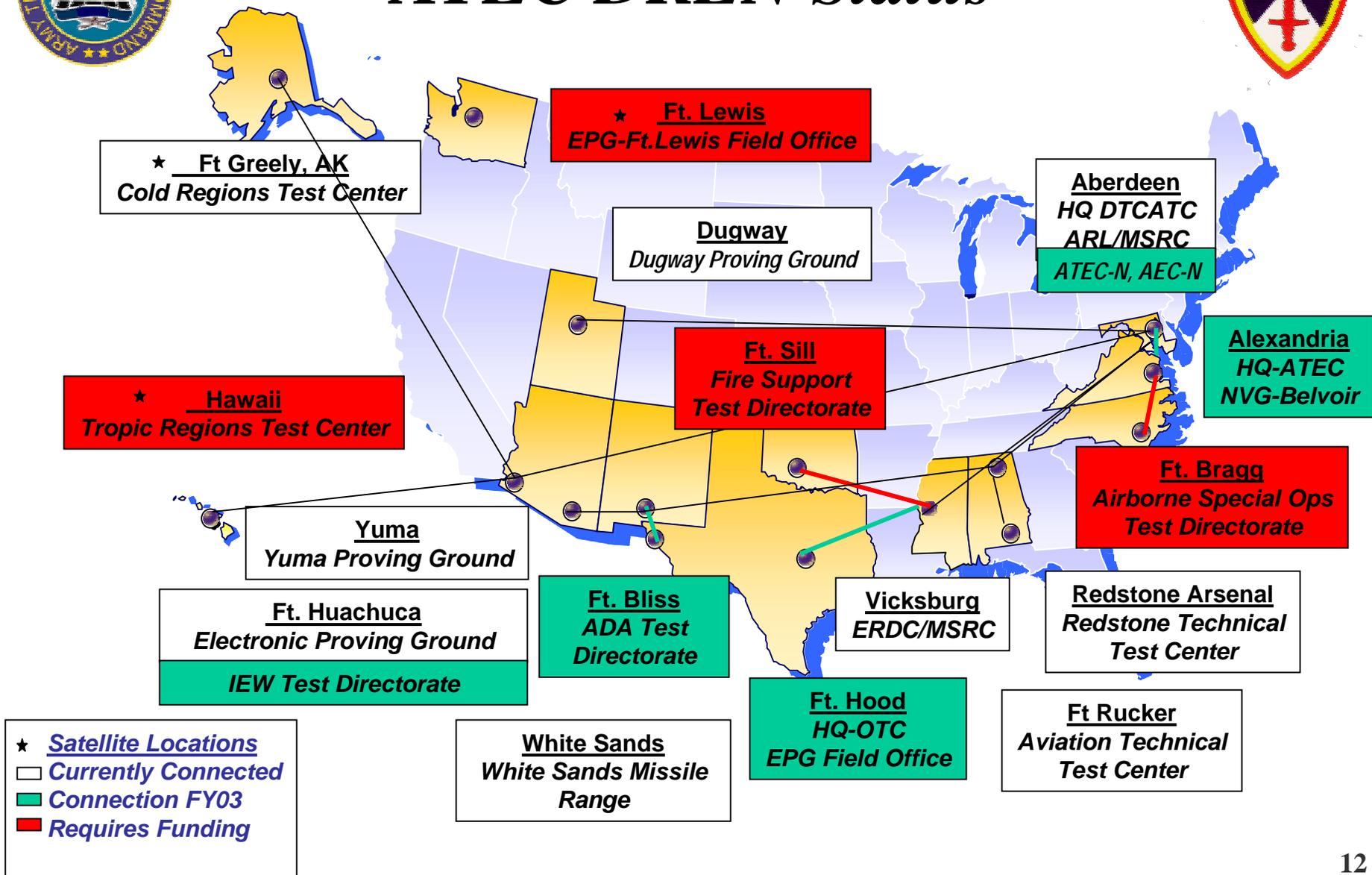
## *Phase 1*



- Complete DREN Backbone to ATEC Subcommands
- Establish architecture for Test Execution and Control
  - ◆ ATIN Objective Force Testbed
  - ◆ Inter Range Control Center
- Develop Data Collection architecture and methodology
- Solicit external requirements from CTO
- Pursue HPC to defray connection and usage costs



# ATEC DREN Status





# *ATIN Objective Force Testbed*

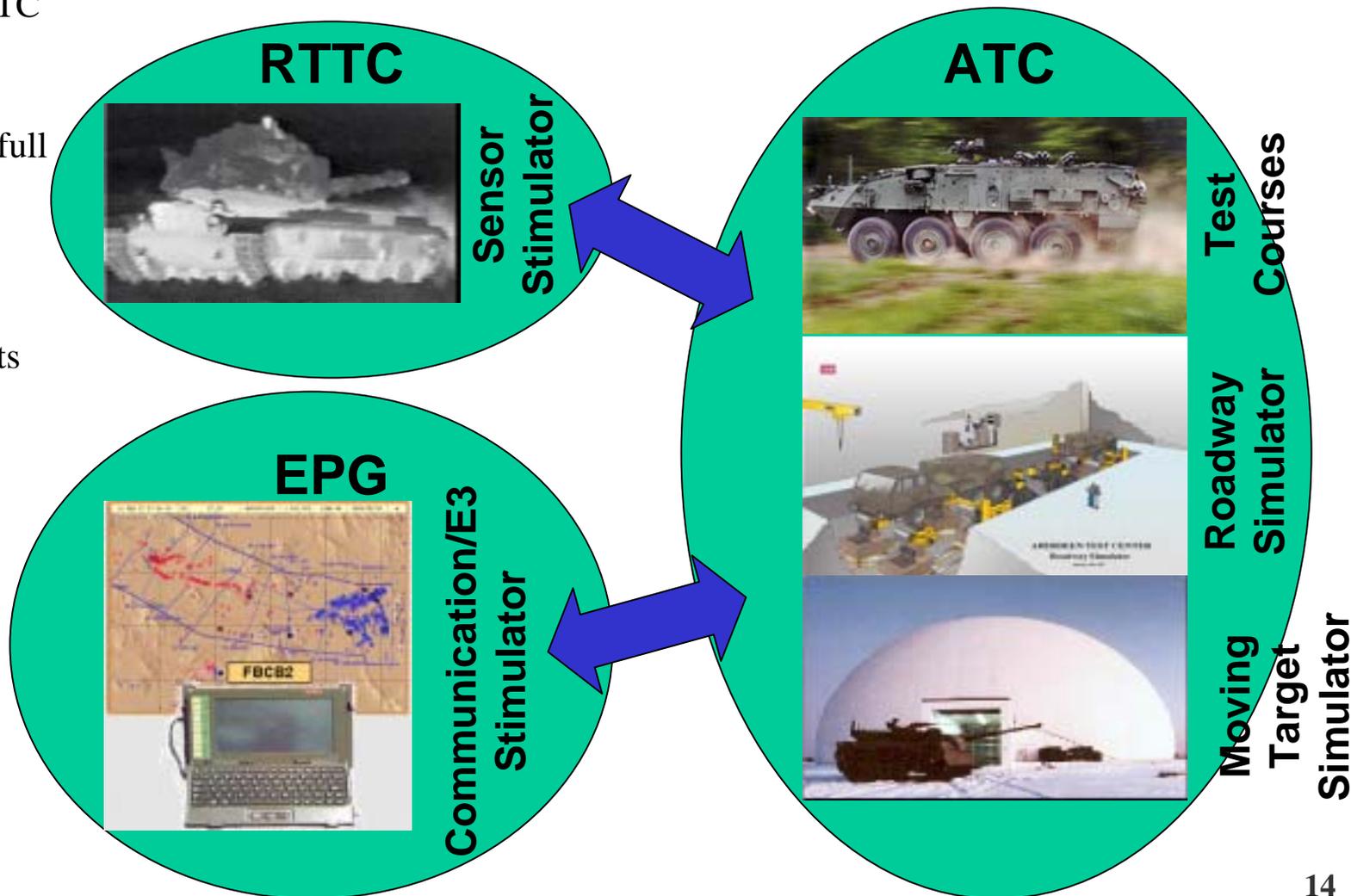


- \$100K from PM FCS for ATIN
- Develop ATIN Requirements and Plan of Action and Milestones for Connectivity
  - ◆ Develop DTC Plan \$40K
  - ◆ Develop OTC Plan \$20K
    - Use DTC Plan as template for OTC
  - ◆ Develop Intra-range Connectivity Plan \$40K
- ATC has Lead



# ATIN Objective Force Testbed

- Integrate DTC Sim/Stim capabilities with DT Ranges for full SoS T&E
- Initial efforts focused on intra-range portion of ATIN







# *How We Are Getting There*

## *Phase 2 and 3*



- Develop Test Execution and Control Elements
  - ◆ Expand capability to incorporate M&S Federations to provide wrap around environment
  - ◆ Integrate with SIL and SoSIL architectures
  - ◆ Develop Range Integration Centers (RICs) at each range
- Develop standard and individual Data Links to Remote systems



# *External Related Efforts*



- LSI connecting SILs and SoSIL through DREN
- RDECOM MATREX STO
  - ◆ Combination of JVB and VDLMS
  - ◆ M&S Architecture Working Group
  - ◆ Dec 2003 - Ref. M&S Architecture (V0.5, beta version)
  - ◆ April 2004 – V1.0 Release
- IMSE – Interoperability M&S Environment
  - ◆ Concentrate on developing business practices
- JITC - JDEP DREN connectivity to SoSIL
- FI2010 / TENA
- Others



# *Wrap Up*



- ATIN is required to Support FCS Testing and Future System Testing
- ATIN will provide a common architecture across ATEC for distributive testing
- ATEC will continue to work with PM FCS, LSI, and DoD
- ATIN vision is clear and development is progressing
- ATIN POC Lead - Brad Cronn
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  - ◆ commercial: 703-681-2749



# BACK UP SLIDES



## *Results of First ATIN Meeting*

- Presentations on: DCSIM ATECNet, HPC, RDECOM, VPG, and solutions from ATC, WSMR, YPG
- Working Group Results:
  - ◆ Current FCS requirement is up to TS SCI
  - ◆ No TS/SCI wireless capability available
  - ◆ S-DREN is Secret only
  - ◆ Currently working requirements
  - ◆ ATECNet is the ATIN backbone
    - Sufficient bandwidth to meet data transmission requirements
    - Reliable data communications capabilities
    - Data storage capabilities with reliable access
    - Expandable



# *RDECOM MATREX*



- JVB/VDLMS STO combined into VESTA (?)
- Funded \$40 – \$100M, 8 mo architecture development
- ATEC participation in RDECOM M&S AWG
  - ◆ To ensure our requirements and solutions are addressed
  - ◆ To quantify trade-offs and gaps to address the limitations of M&S architecture against T&E requirements
  - ◆ Need SME in specific areas (sensors, C4ISR, chem/bio, ...) to insure that the baseline architecture will satisfy requirements
- Need ATIN to start working the physical infrastructure and investigate feasibility
- Need to define OT scenarios and mission threads for “prove out” exercises to test this architecture



# *IMSE*



- Interoperability M&S Environment
- Effort Lead by Col. Steve Rust ASA(ALT)
- Members
  - ◆ TRADOC, REDCOM, ATEC, PM FCS, CEAC
  - ◆ ATEC Rep – John Haug
- Purpose
  - ◆ Facilitate the synchronization of M&S tools and users with the FCS Advanced Collaborative Environment (ACE) to support FCS and eventually the OF
  - ◆ Develop common architecture for Army
- Leverage RDECOM MATREX STO



# *JITC*



- Joint Interoperability Test Command
  - ◆ HQ at Ft. Huachuca, AZ
  - ◆ Facility at Indian Head, MD
- Joint Distributed Engineering Plant (JDEP)
  - ◆ DOD-wide, distributed, **interoperability** tool for design, software support, test, and evaluation
  - ◆ Battlefield representative environments for SoS
- Will be connected to FCS SoSIL through DREN



# FCS Distributed Intelligent Architecture For Network Centric T&E Environment

