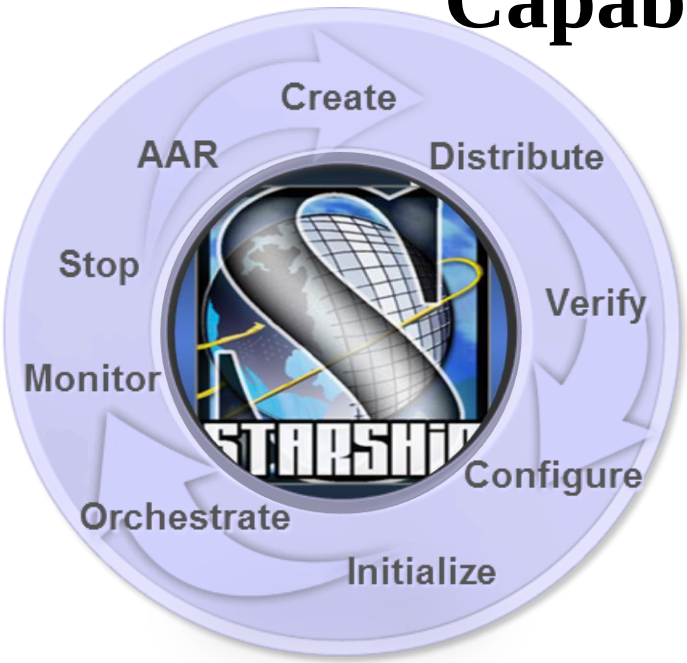
Starship / C3 Driver Capabilities Briefing



US Army PEO STRI/PM ITTS
Instrumentation Management Office (IMO)
David Grow, Senior APM, IMO (Technical)
David.Grow@us.army.mil
407-208-5679
Tamara Truong, COR (Contracting)
Tamara.Truong@us.army.mil
407-384-5476

Data → Information → Knowledge →Actionable Awareness

Contractor Subject Matter Experts:
Joe Benischek – Contractor; Joseph.F.Benischek@us.army.mil
Paul Meckel – Contractor; Paul.meckel@us.army.mil

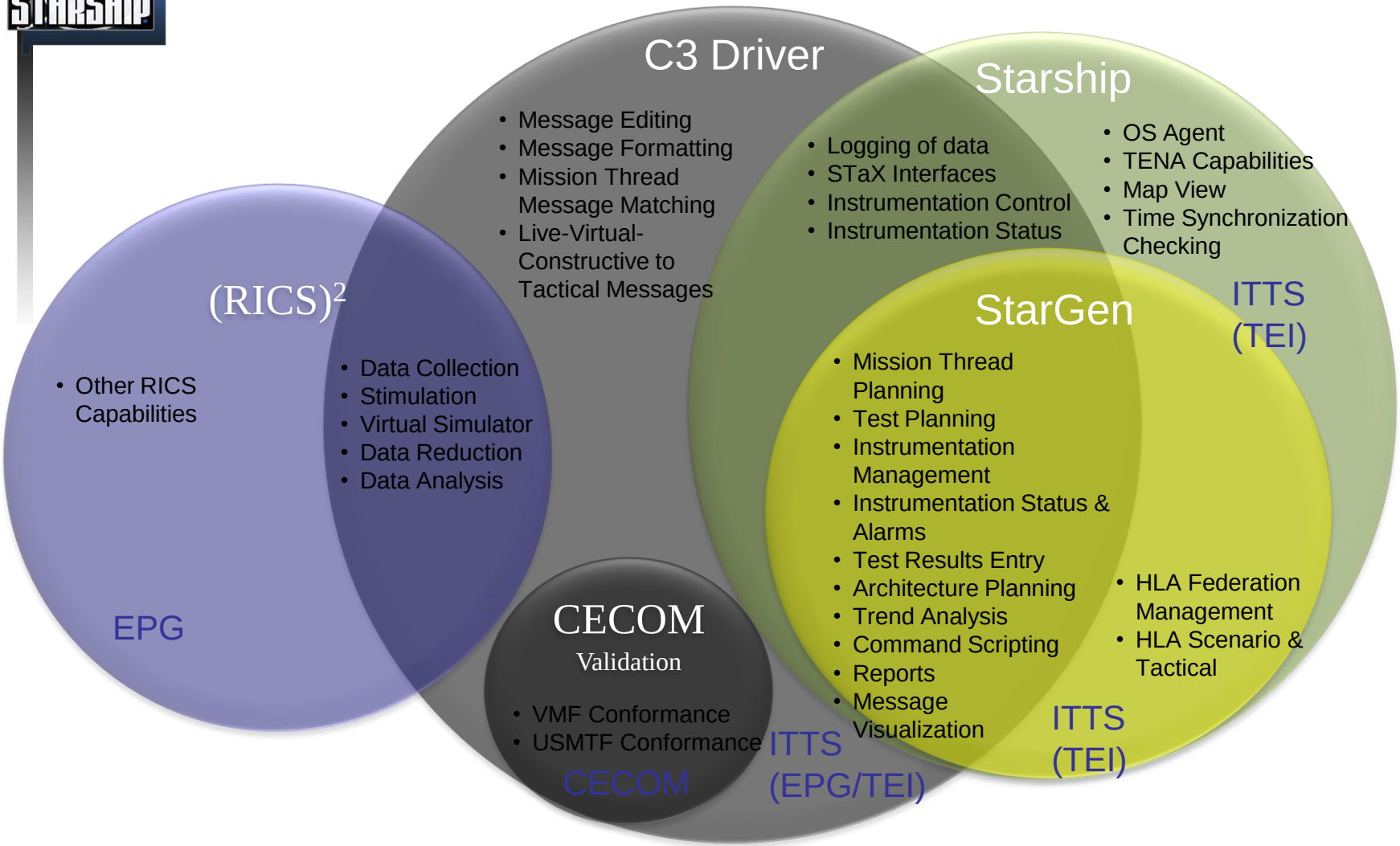
Agenda

- Terminology
- Background
- What is Starship and what does it do?
- What are the major Starship design features?
- Where is Starship deployed?
- What programs does Starship support?
- How does the CTSF use C3 Driver?
- Summary

Terminology

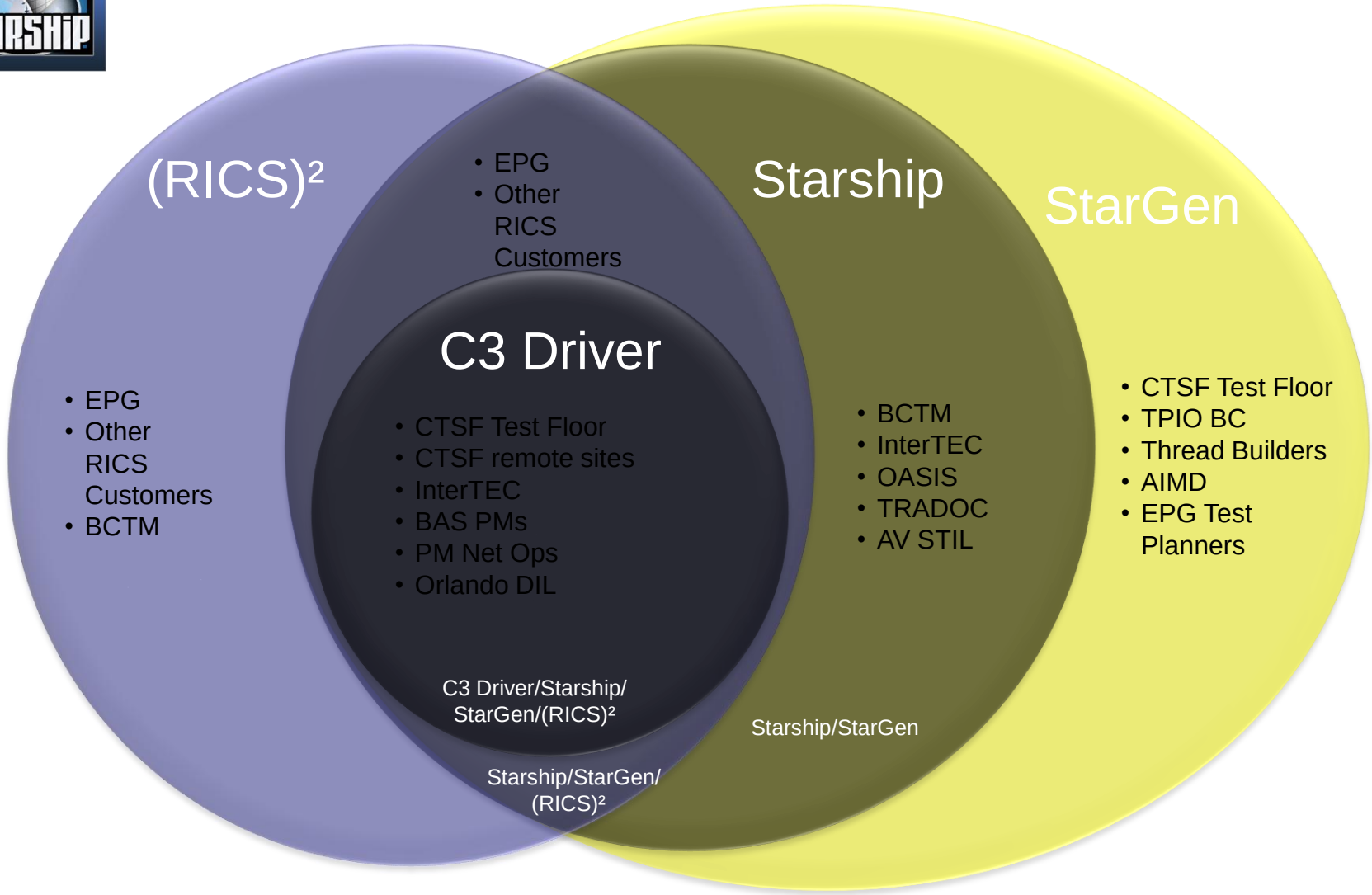
- StarGen = A tool for creating and integrating mission threads into the Starship tool set
- Starship =
  - A C4ISR system overseeing operations of a network under examination and identifying in real time the health, status, message quality, and functionality,
  - PLUS executing remote control functions,
  - PLUS giving real time status and visualization,
  - PLUS AAR tools through a SQL database,
  - PLUS mission repeatability control,
  - PLUS threshold-based event triggering,
  - PLUS network startup and shutdown tools,
  - PLUS triggering and command generation from one network or bus to another
- C3 Driver = A packaging of Starship with an assortment of tools by the US Army Electronic Proving Ground that, together, give a robust C3 test environment (with the CTSF being the primary user)

Functionality Breakdown



Shows the functionality brought by each component and which functionality is used by C3 Driver
Red text shows the current owner/developer of the capability.

Customer Breakdown



Shows the customers using C3 Driver. (Dark violet circle)
Also shown are the customers using the individual components and combinations thereof.

Background

- Development of Starship started in November 1998 with initial fielding in November 1999
- Has been an **<u>ATEC standard</u>** system since 2006.
- Used in both Army and Joint test and training communities' distributed events.
- Currently in use in WIN-T PQT-G testing
  - Starship is interfacing traffic generation (T-GEN) to the NetADMAS data collection systems

What is Starship?

- A software *maestro* that *orchestrates* all aspects of a distributed event from initial setup and planning through execution to after action review

What does Starship do?

Starship is software that facilitates:

- Distributed exercise planning, scheduling, configuration, verification, initialization, monitoring, control, assessment, data harvest, shutdown, and AAR.

Starship:

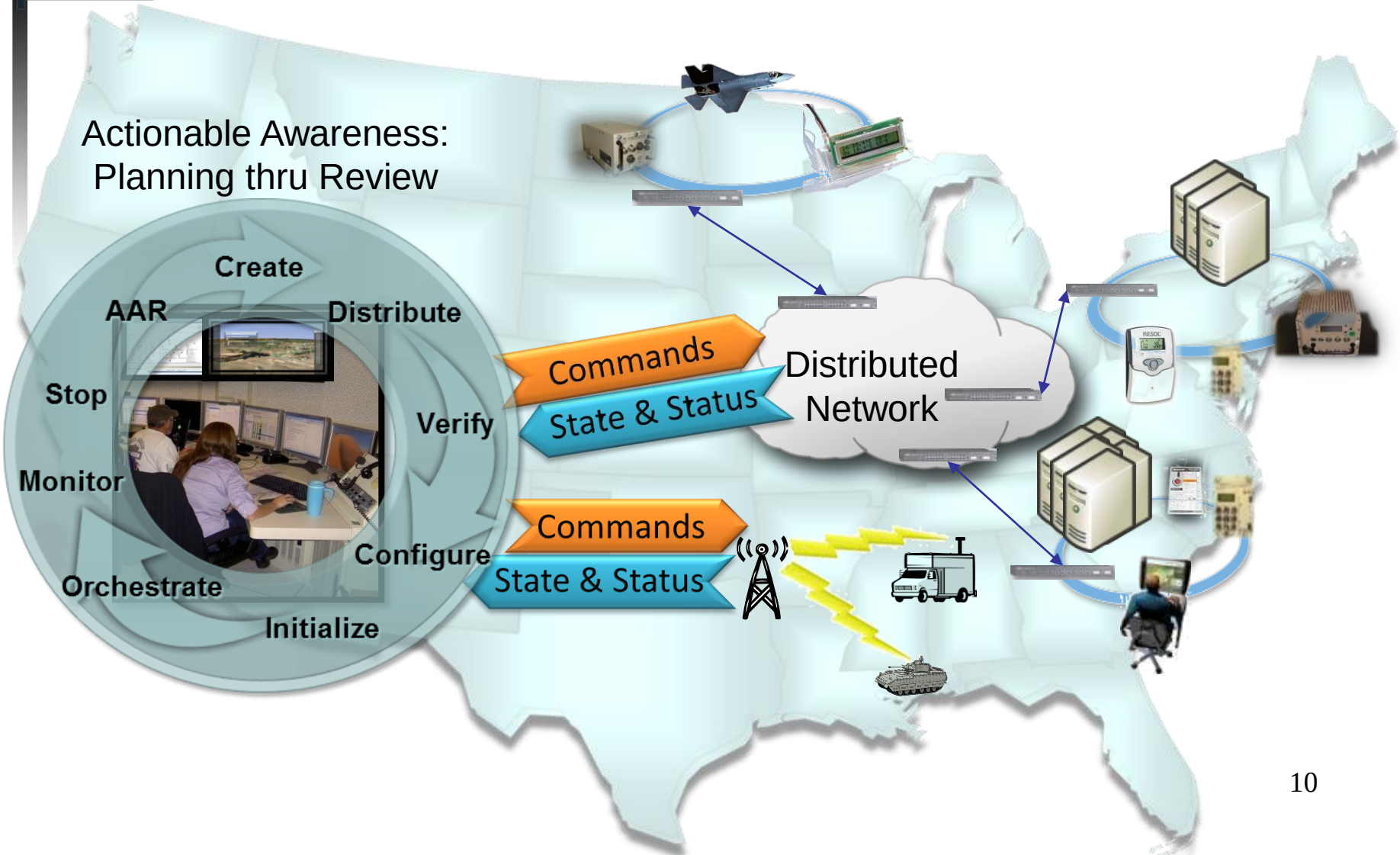
- Interfaces to data collectors, gateways, simulations, federations, applications, computers, SNMP devices, sensors, and other electronic devices
- Integrates data into actionable awareness; and
- Allows the user to manually or automatically take action by exercising the methods or program interfaces exposed
- Is C3 Driver's GUI and "glue"
- Is InterTEC's test control

Starship is everything you would need from a BCT except the costs

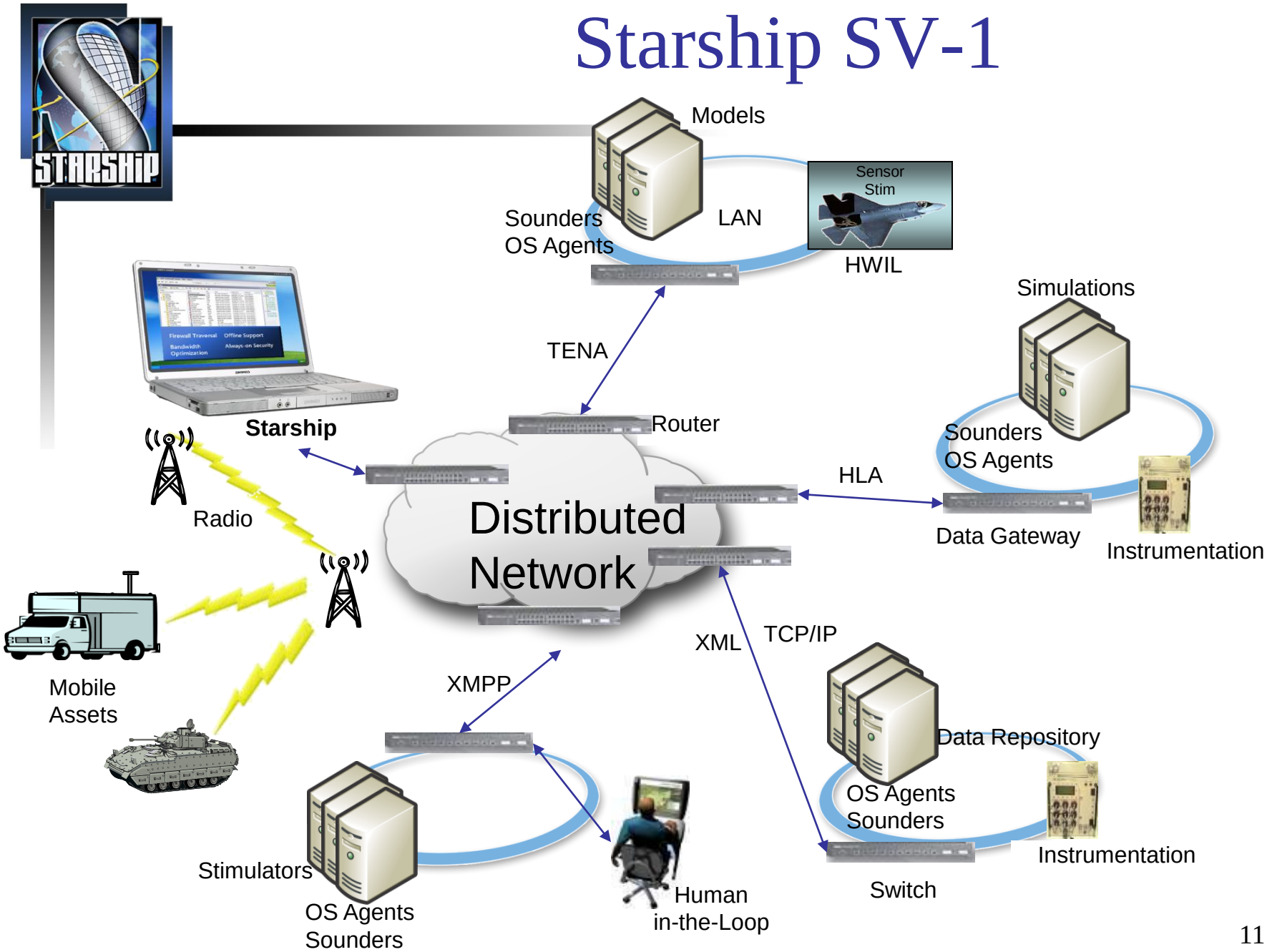
Starship FAQs

- Government owned .Net code
- Architecturally composable, extensible, scalable, and communications protocol agnostic
- Other groups write interfaces to Starship using an interface Software Development Kit (SDK)
- Other groups write Starship “pluggable components” using a component SDK
- Even though its roots were in C4I can be applied to any set of processes conducted by any set of “things”
- Single baseline, implemented in multiple packages

Starship OV-1



Starship SV-1



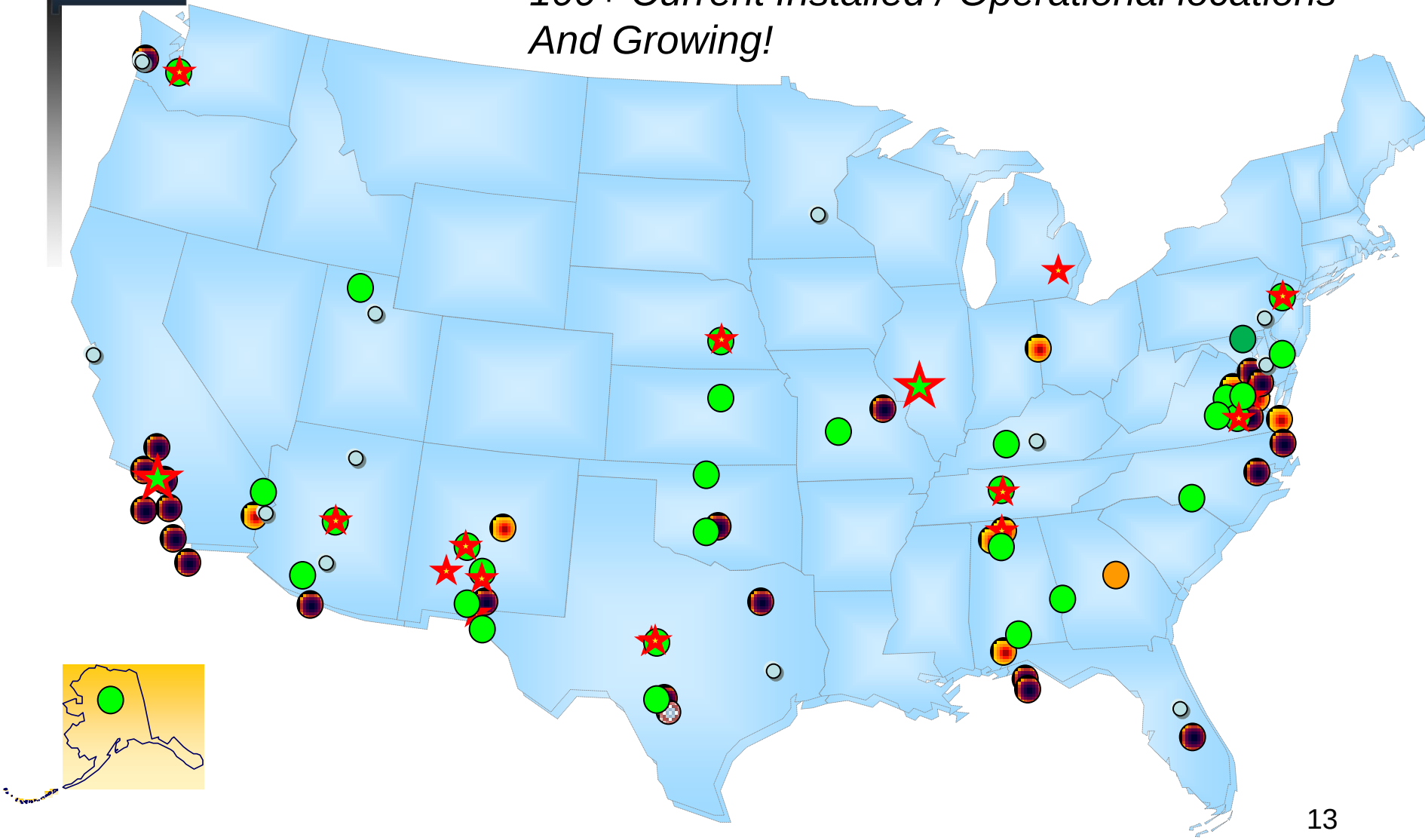
Working to address the full spectrum needs of our customers

Starship Functions

- Plan Architecture (enclaves, connectivity, hardware, applications) and activities (execution events –start, stop, pause, etc)
- Ad hoc: configure applications; verify configurations/settings, initialize applications, shut down, harvest data
- Execute threads to configure, verify, initialize applications, react to situations, compress and harvest data using our OS Agents
- Monitor operations
- Report Results

Starship and C3 Driver Distribution

100+ Current Installed / Operational locations And Growing!



One Major Benefit of Starship

Without Starship:

- A typical distributed event* required 1 - 2 weeks to set up and configure. This is approximately a man-year of effort.
- The effort was entirely manual, error-prone, hard to diagnose, difficult or impossible to reproduce, and harder to know that “all is well” at any time.

With Starship:

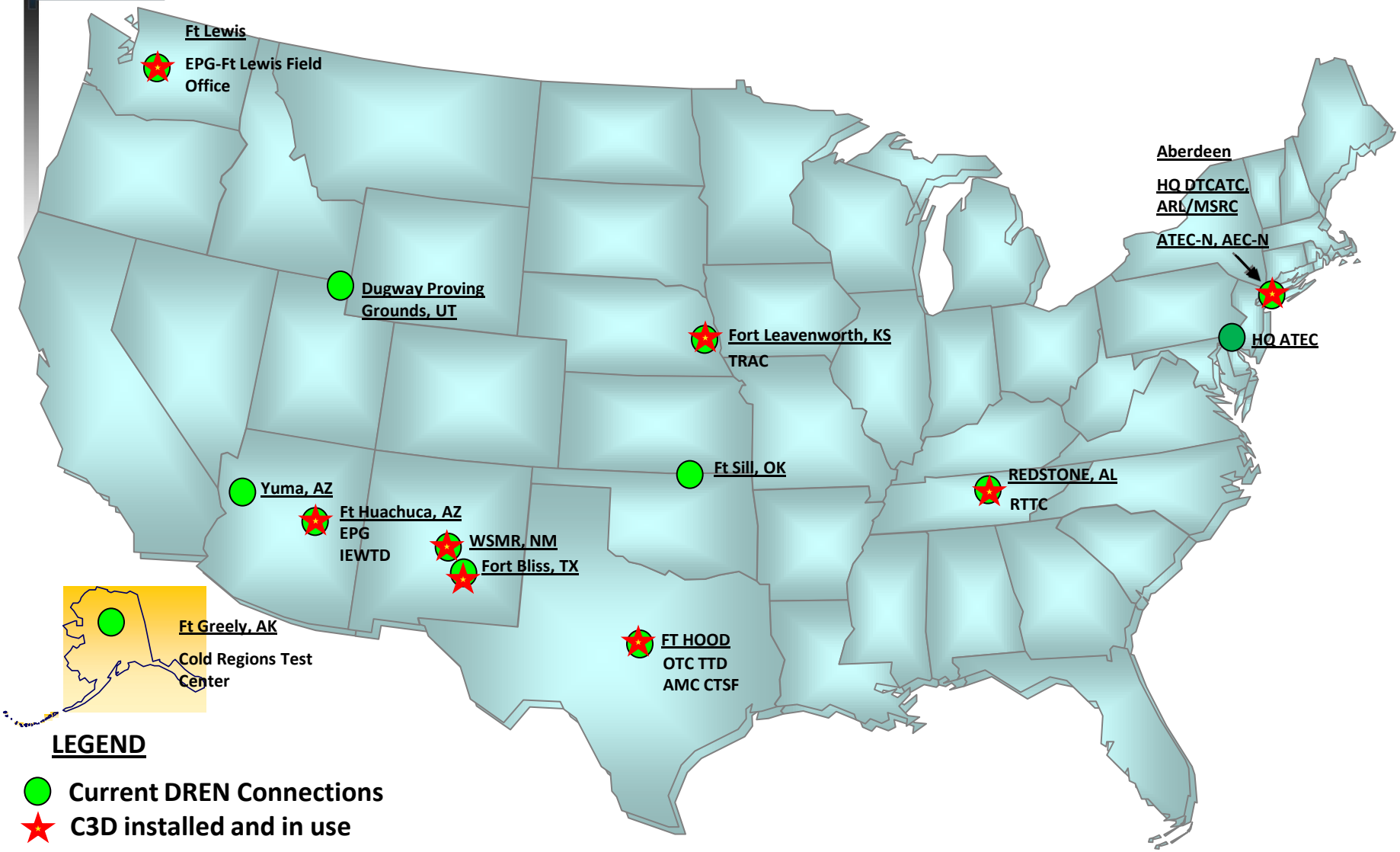
- Fewer people
- Less setup time
- Confidence that everyone is “on the same sheet of music!”
- Repeatable script-controlled execution
- Ready for greater analysis and technical challenges

* approximately 7 nodes 5 engineers (depending upon the numbers simulations complexity of the event)!

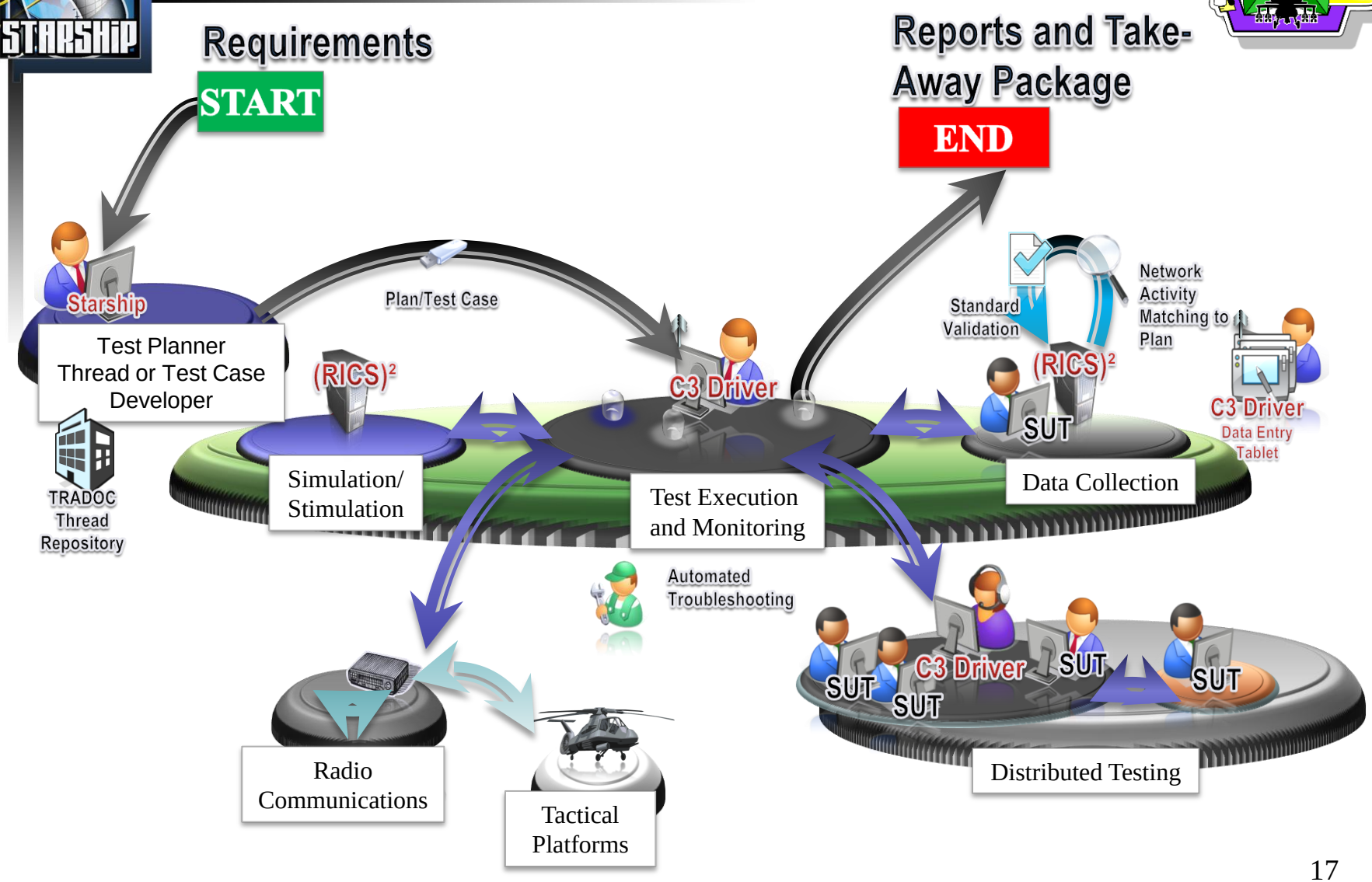
What is C3 Driver?

- A Test and Evaluation System of Systems
  - Better than a tool box
    - Applications are interoperable <u>and</u> interactive via Starship GUI
    - Self contained on one laptop but it is extensible
  - Central Component for Army Interoperability Certification
    - Medium of exchange between TRADOC and the CTSF
    - Software Block System
  - Automates critical but time consuming T&E functions
    - Determine required/optimal test architecture
    - Determine and prepare traffic load
    - Design data collection plan
    - Monitor test execution
    - Prepare reports

C3 Driver *Locations*



C3 Driver Operational View



Benefit to the CTSF

Elapsed Time In Days	Planning	Execution	Reporting
Pre-C3 Driver	15	15 (25*)	15
With C3 Driver	5	15	1

* Retesting required due to issues uncovered after original test

- C3 Driver allows the CTSF to make architecture changes up to test start; before C3 Driver lock down was weeks/days prior
- C3 Driver provides a reproducible, accurate, higher-quality product
- CTSF personnel develop and add components/views/reports into the C3 Driver/Starship baseline

Summary

- A standard product used at 100+ locations
  - Current user base
    - Army
    - Navy
    - Air Force
    - Marines
    - Joint
  - Migrating to FMS
    - Afghan Mission Network
    - Coalition Support
- Basis for CTSF success
- Reduces the costs, manpower, and time to plan and setup a distributed exercise while improving the completeness, accuracy, and after action review