Defense Information Systems Agency

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Automated Test Case Generator Web Service

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Automated Test Case Generator (ATC-Gen) Web Service

- Automated Test Case Generator (ATC-Gen)
  - Link 16 Compliance Testing
    - MIL-STD-6016D
    - STANAG 5602
  - Web Service
    - Will be accessible via
      - Web Browser
      - InterTEC Net-centric Evaluation Services Toolkit (NEST) Add-In
  - Combines previous standalone versions of ATC-Gen into one platform
    - Reactive Mode (Currently used at JITC)
    - Active Mode (ATC-Gen provides its own Truth Data)
  - Located on the JMETC Network and CFBL
    - Will run off the DTEN when available

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ATC-Gen (Continued)

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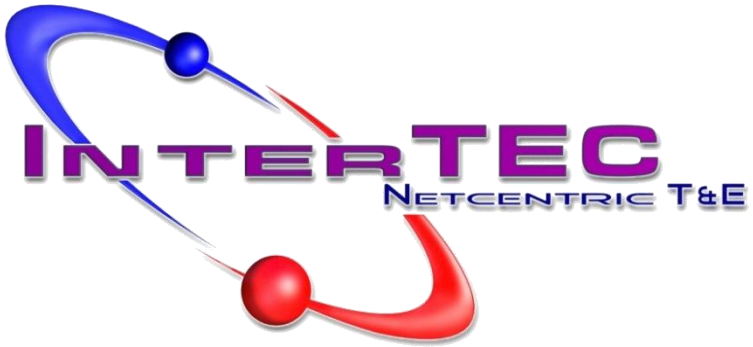
  - Part of InterTEC
  - Link 16 sent/received as Simple J
  - For Active Mode Test Cases Truth Data can be sent as
    - Test and Training Enabled Architecture (TENA)
    - DIS
    - Simple DIS
  - User Interface will support the complete configuration of the application and test cases
    - Application configuration (protocols and addresses) separated from test cases
      - Simplifies the test case configuration



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Web Service History

- Derived from Active Mode version of ATC-Gen
  - Currently in use to support US Joint Testing
  - Currently in use to support NATO TDLITS Testing
- Proof of concept developed in 2010
- Decision to place that version online October 2010
- Development to proceed on full web version
  - Improved single user version
  - Multiuser version online

How ATC-Gen Supports TDL Testing

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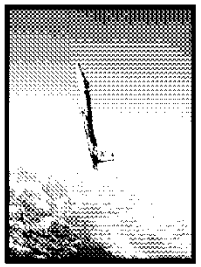
ATC-Gen

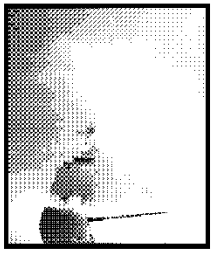
ATC-Gen focus on critical Link 16 elements

UNCLASSIFED

What are the "Deadly Sins"?

- Time: Lack of a common time standard
- Nav: INS/GPS integration factors
- Tracking: Poor tracking performance & inaccurate Track Quality calculations
- Connectivity: BLOS relay requirements & throughput limits
- Gridlock: Failure to achieve common geodetic coordinate frame
- ID: Automated ID processing differences
- Message standard implementation
- JTTP shortfalls
- Network design/management shortfalls




"Deadly Sins" inhibit interoperability

24 March 2005 UNCLASSIFED 656-4

The "Deadly Sins" inhibit Interoperability

ATC-Gen Supports the Full Acquisition Lifecycle

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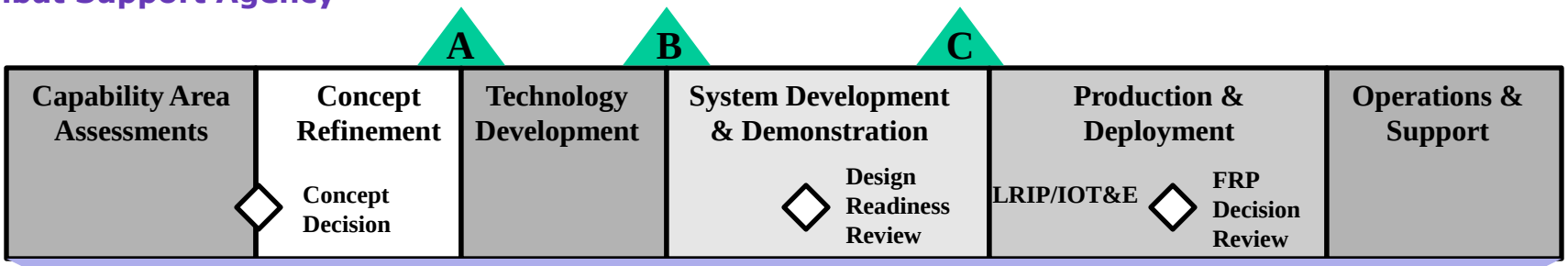

ATC-Gen Testing Supports the Full Acquisition Cycle

Testing Early in the Development Phase

Continuous Lifecycle Testing

ATC-Gen

Just-in-Time Testing ◇ Test on the Users Schedule

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Benefits

- Supports Agile Testing
- Allow JITC Subject Matter Experts (SMEs) to focus on emerging technologies
  - Lets an automated tool do the repetitive work
  - Automates parts of the certification process
- System Under Test (SUT) can do their own testing
  - Test at the convenience of the SUT
  - Test earlier in the acquisition cycle
    - Fix problems earlier
  - Use same system JITC uses
  - Reduce risk in the certification process
  - Results can be made available to JITC Action Officers

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Benefits (Continued)

- Rapid and Repeatable testing
- Provides Pass/Fail results
- Standardizes testing
- Ease of use – Graphical User Interface
- User account access
  - Own configuration files for application and test cases
  - Own log files
- Solve difficult testing problems
  - Problems hard for a human analyst to detect
    - Correlation/Decorrelation

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Benefits (Continued)

- **Web service simplifies distribution**
  - **Remotely accessible, so application can be located on a server at any Defense Enterprise Computing Center (DECC) location**
  - **Updates easier**
    - **Do not have to send out copies**
    - **Available to everyone at the same time**

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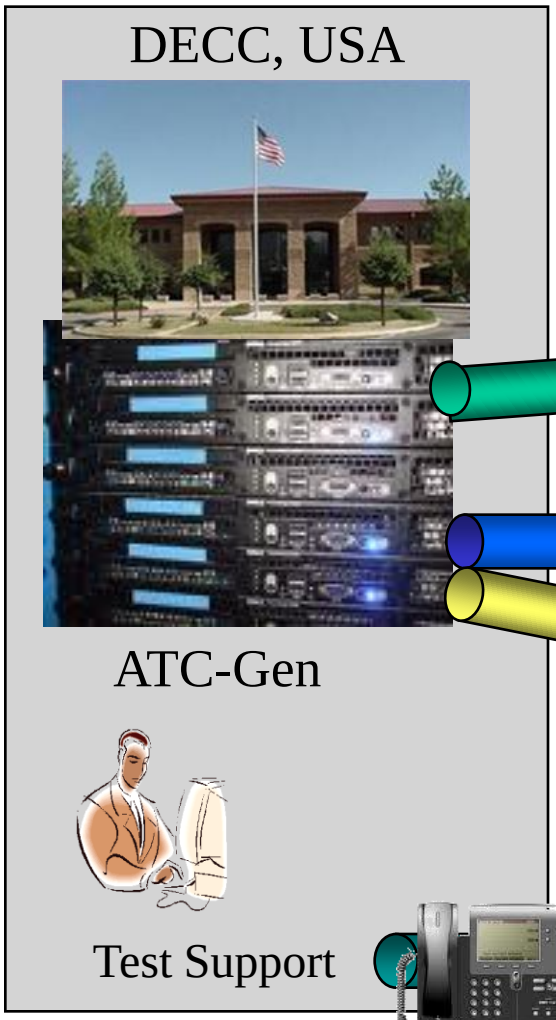
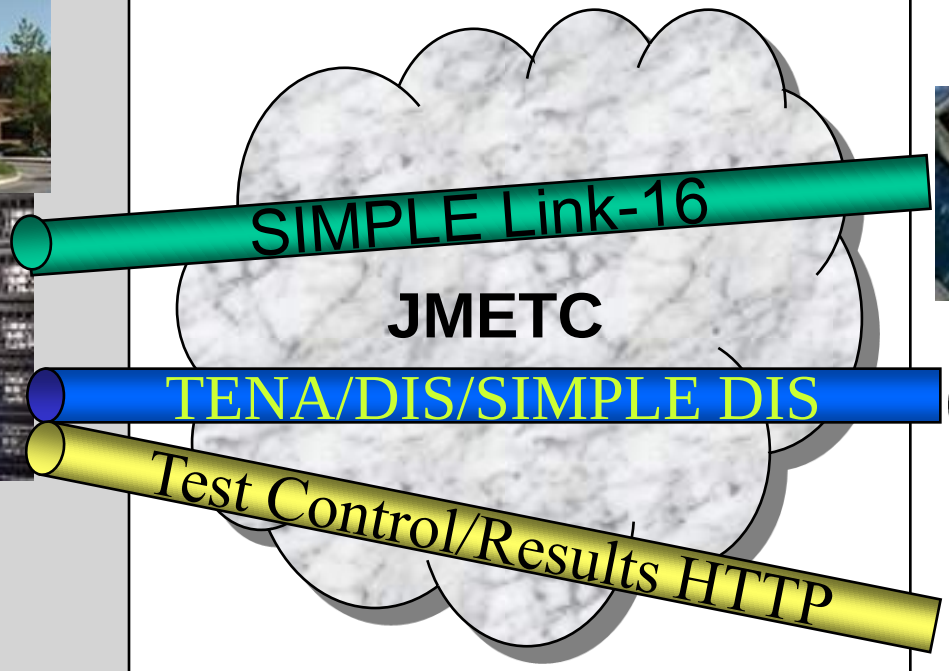
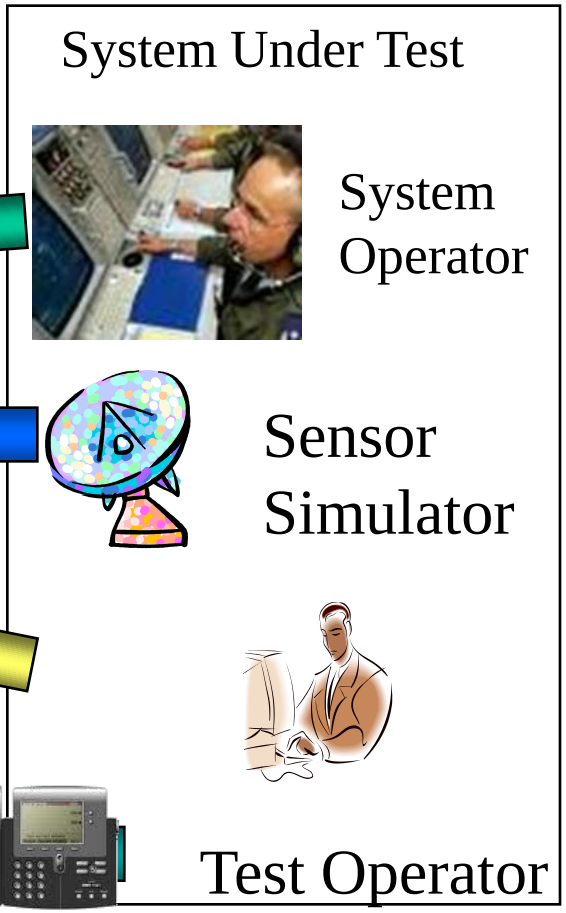
ATC-Gen Use







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Test Cases

- Approximately 100 Test Cases
  - Includes both Reactive and Active Mode
- Focus on critical Link 16 Elements
- Current test cases cover
  - Track Management
  - Reporting Responsibility
  - Combat Identification
  - Correlation and Decorrelation
- Test cases are Verified and Validated
- Traceable to Rule Set or Standard

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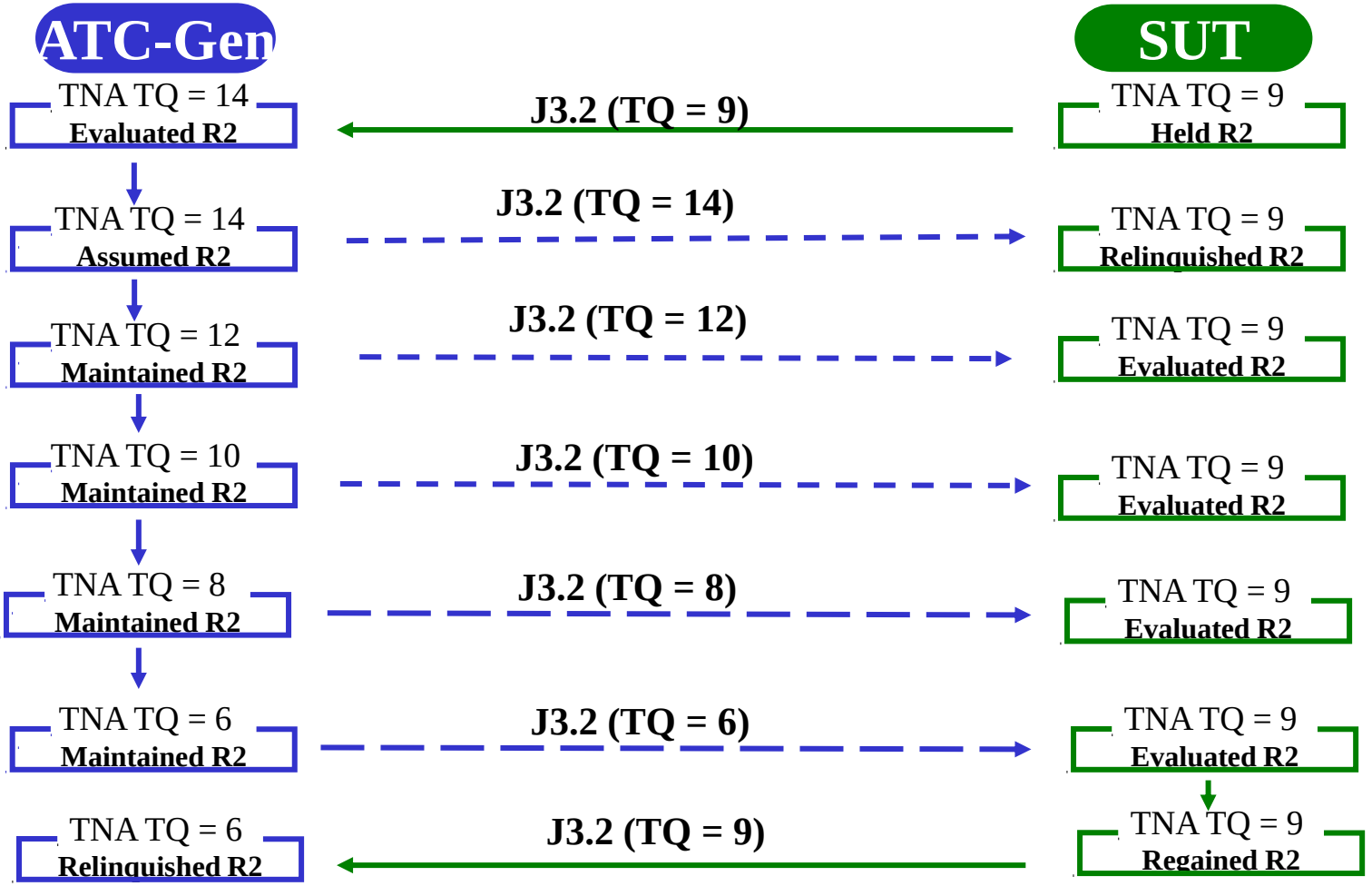
Test Case Example

Reporting Responsibility (R2) Shift



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Testing Process

1. Remote Tester requests web service scheduling from JITC ATC-Gen Help Desk

2. JITC Action Officer and Help desk personnel coordinates resource request, support resources and test requirements

4. ATC-Gen Web Service Test Ready

SUT

3. Network, Access, Training

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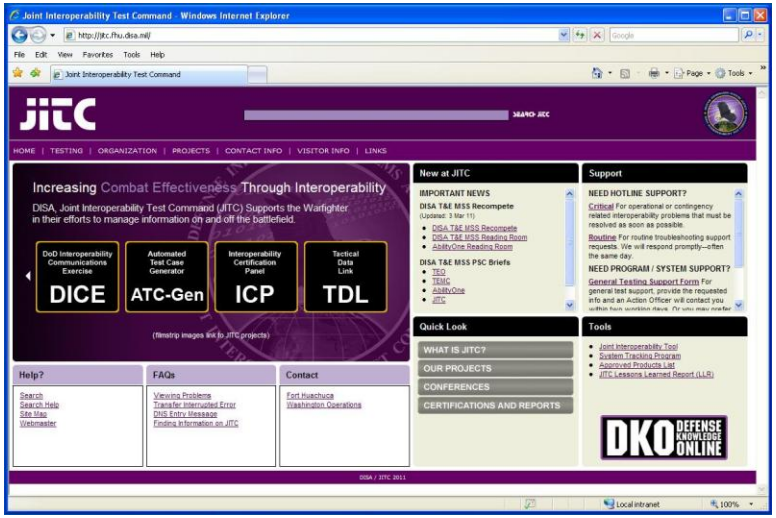
Help Desk

- **Help Desk has been established**
  - **Separate telephone number**
  - **Email distribution list**
  - **Personnel to support testing**
  - **Web page on JITC Web Site**
- **User manual developed**



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