# Operational Planning Considerations for Cross-Range Test Operations

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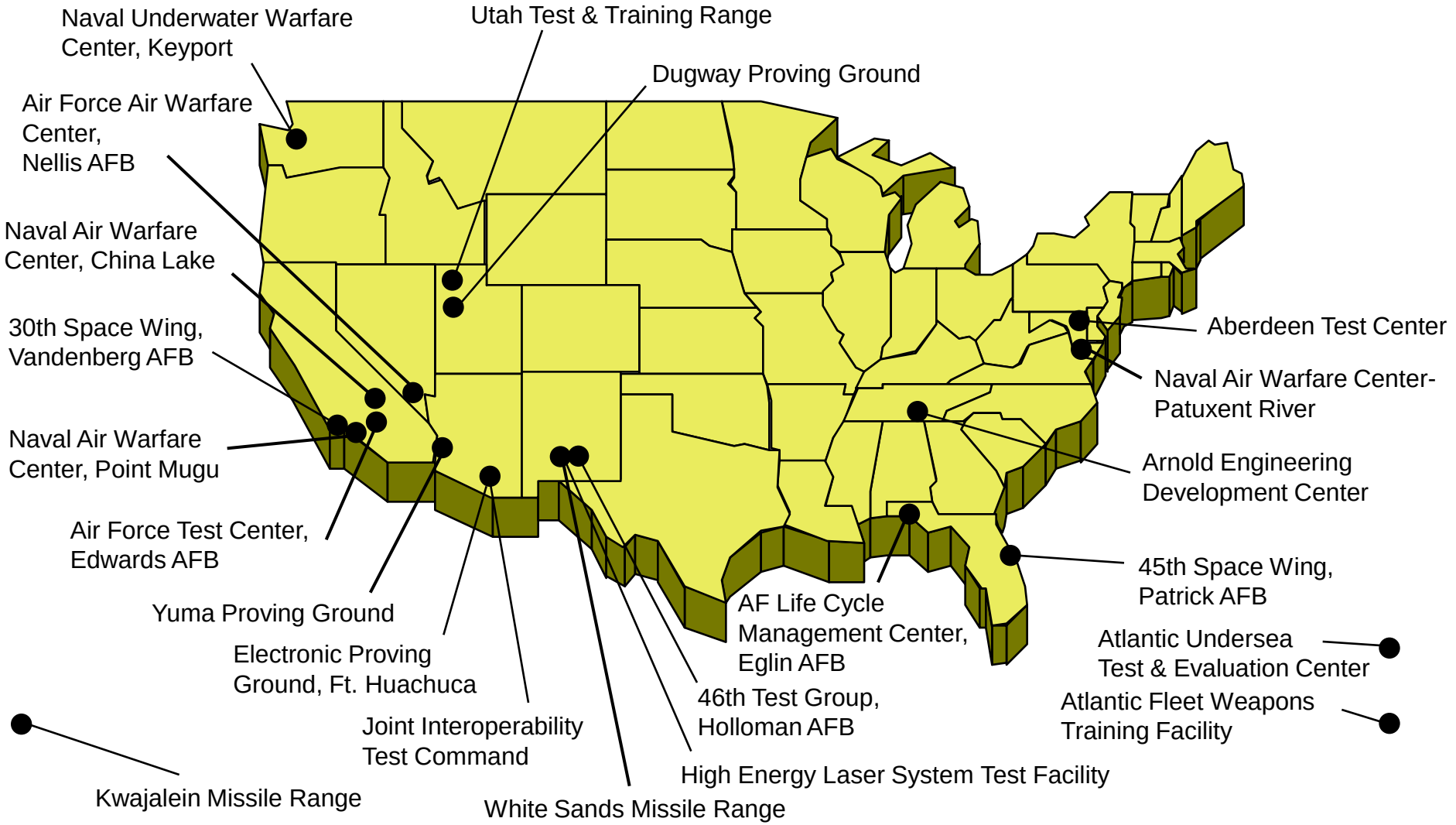
**JT3**

# Major Ranges & Test Facilities

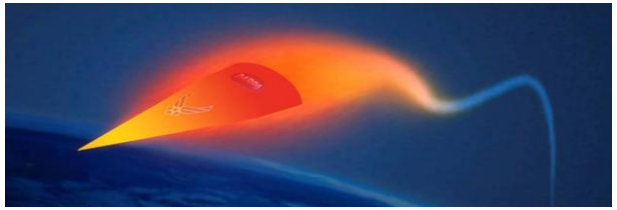


# Test Mission Areas

5th to 4th Gen Integration and Test

Space Test, Training, and
ISR Integration

Cyber Testing: Increased Participation
with the National Cyber Range

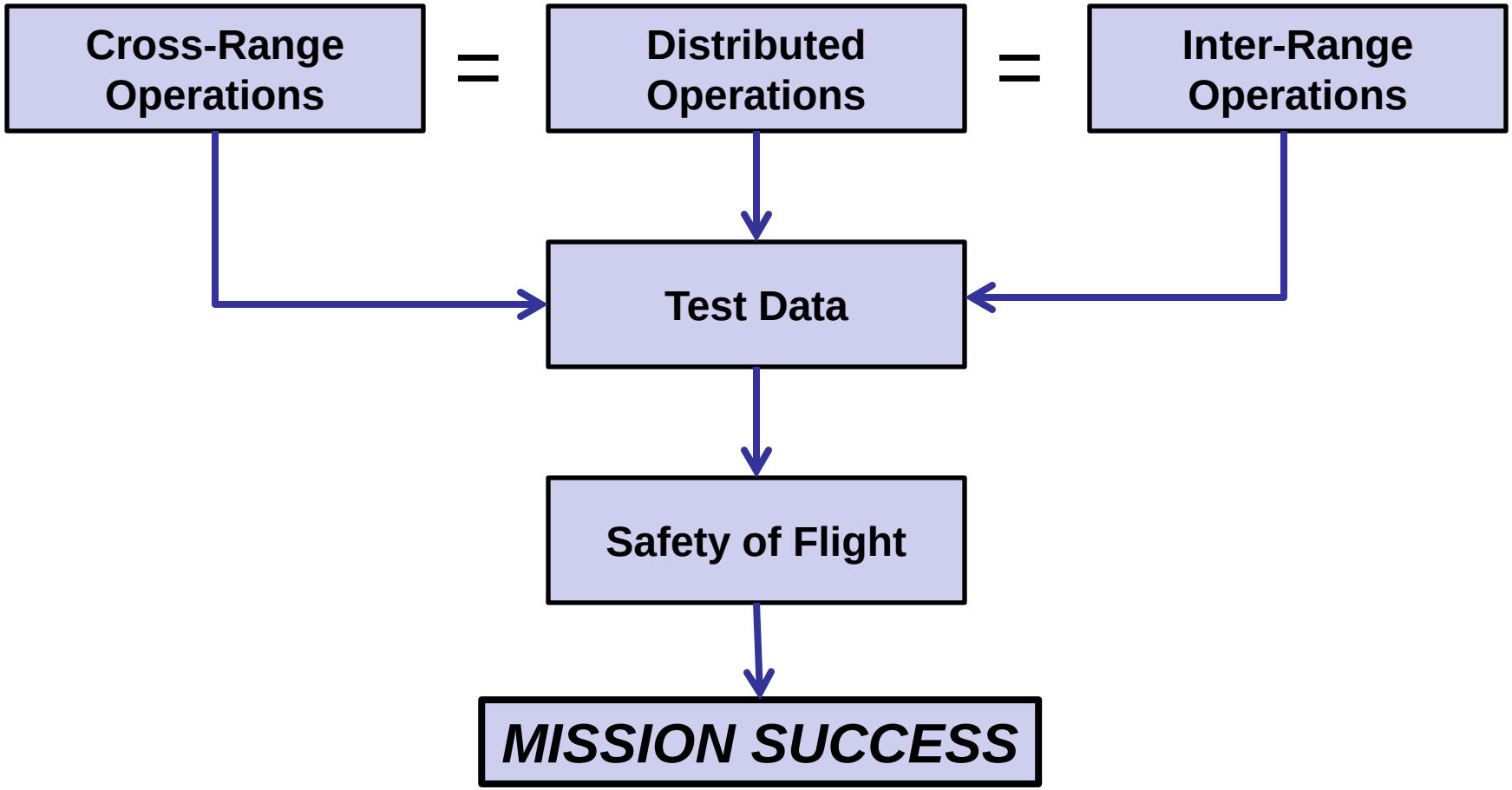


Hypersonic Vehicle Testing

# Test Mission Requirements

- Greater shift from single system performance testing to integration of new capabilities in a joint environment
- Increase in warfighter operations to support Anti-Access/Area Denial (A2/AD) concepts may require testing in a larger expanse of airspace
- Increased requirement to support test and training in missions with multiple threat capabilities, to include Cyber and Space operations
- New weapon systems require the integrated use of the Western Range Complex to meet mission requirements

# Terminology



# The Problem Set

- **Test infrastructure paradigm—may encounter issues as missions differ across the Services**

| Infrastructure Paradigm | Actual |
|---|---|
| Interoperability | Always |
| Compatibility | Often |
| Commonality | Sometimes |

- **A common network or protocol (TENA or TMATS) may not be available at all test locations**
- **Near real-time telemetry a must for test conduct and control**

**Mitigate issues with *Operational* planning**

# Operational Planning Considerations

- Determine infrastructure requirements that meet objectives
  - Telemetry requirements
  - Data file transfer system at both locations
  - Control room display information
  - Determine flight safety critical information

- Connectivity
  - Conduct analysis of alternatives to determine infrastructure required to support test activity
    - Test frequency
    - Bandwidth
    - Latency
    - Security classification level
    - Reliability of Transport system (DREN, Microwave, Dedicated Fiber, DISA)
    - Ability to troubleshoot
    - Scheduling process/persistent capability
  - Verify ability to connect and troubleshoot prior to test

# Operational Planning Considerations

- Develop Concept of Operations (CONOPS)
  - Determine Op Con for test conduct and control of SUT
  - Determine Op Con for test conduct and control of test targets/aircraft (FTS)
  - Document via MOAs and MOUs between both organizations
  - Develop Test Plan in conjunction with both organizations
  - Utilize “Reciprocity” where applicable—test safety and security
- Control room operations
  - Establish clear lines of communication between TDs, TCs, and Des
  - Ensure common displays are used at each location to minimize search and discussion time
- Frequency management and de-confliction
- Cybersecurity

# Summary

- **Cross-range operations have been conducted for many years by the Services—many lessons learned exist across the Services**
  - **Test and Training Enabling Architecture (TENA) and Joint Mission Environment Test Capability (JMETC)**
  - **Operational test and training community (Air Combat Command, Distributed Missions Operations Center, COMOPTEVOR, ACETEF)**
- **Pre-planning and coordination will lead to a successful cross-range test operation**