C2 Challenges Within a Net-Centric Environment

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Introduction

• Battlespace complexity
• Test and Evaluation Challenges
• C2 Challenges
  • Speed of Information
  • Management of Data
  • Information Assurance
  • Ad-Hoc Networking
  • Anti-Access/Area Denial
  • Keeping Pace With Industry
• Conclusion
Today’s Complex Battlespace Environment

- Comms/Data
- Passive sensing
- Target Imaging
- Target Designation
- Active EW

"Test Like We Fight"
Test and Evaluation Challenges

- Platform Avionics Increasing In Complexity
  - Drives Cost and Schedule
  - Drives Increased Test requirements
  - Drives Level of Sophistication of Test Capability

- T&E Funding
  - Stresses Test Program Schedules
  - Stresses Test Capability Development
  - Drives Re-Use and Optimization of Test Program

- Focus on Service Life Extension for Programs
  - Interoperability
  - Net-Centricity
  - Drives Need for Innovative Test Methodologies
Speed of Information

• Effective and Efficient Data Sharing
  • Multiple platforms
  • System of systems (SoS)
  • Family of systems (FoS)

• Sensor to shooter
  • Terabytes – vs - Kilobytes
  • Minutes – vs - Hours

• Technology Refresh
  • Processing Power
  • Compatibility
  • Adherence to Standards
Interoperability and the Kill Chain

FIND

FIX

TRACK

TARGET

ENGAGE

ASSESS

Sensor-to-Shooter

Sensors

Identification Systems

Sensors

Weapon Systems

Sensors
C2 Platforms

Live, Virtual, Constructive and Hybrid Environments
Management of Data

- Tasking, Collecting, Processing, Exploitation, and Disseminating
  - We are collecting more data in real time than ever before.
  - Who stores? Who forwards? Who stores and forwards?
  - Who needs what data?
  - Roles and responsibilities of Platforms (CONOPS)
- How do we test all of this in a Net-Centric Environment?
Information Assurance

- Sharing an awareness of the battlespace across geographically separated organizations, forces, and networks.
- Understanding the process and policies
- The balance between speed –vs- need
- Risk Management
- Reciprocity
Ad-Hoc Networking

- Platform Interoperability
  - In and Out of the Battlespace
- Addressing schema
- Payload Control
  - Levels of Interoperability
- Net Enablement
- Protocols
- Seamless flow of Data
- Technological Advancements
Ant Access/Area Denial

- Maintaining a Net-Centric Battlespace
- Littoral –vs- Long Range
- Testing in the Right Environment
- Surface / Air Interoperability
Keeping Pace with Industry

- Fiscal Environment
- DoD Processes
- Program –vs- Project Management
- Technological Advancements
- Investing in Technology
- Integrating and Testing COTS into Program of Record Systems
Conclusion

- Shift from Platform Centric to Net-Centric
- Complex and Unpredictable Battlespace
- Innovative, Effective and Efficient products and procedures
- Need to understand in order to overcome C2 Challenges, and dominate the Battlespace

SAIL capabilities enable networked End-to-End System of Systems testing in an operationally relevant environment.
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