Evolution of Unmanned Targets: Eglin Test and Training Center

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Overview

- Historical Synopsis
- Overall Capability
- Current Unmanned Target Capabilities
- Test and Training Requirements
- Challenges
- Planning for the Future
A Little History

• Timeline
  • Fixed Targets: 1968
  • Mobile/Static Targets: 1987
  • Unmanned Targets
    • Tele-operated
      • Ground: 1987
      • Marine: 1987
    • Semi-Autonomous
      • Ground: 2009
      • Marine: 2012
  • Unmanned Target Activities
    • Then
      • 1992: 15 Unmanned Targets
      • 1993: 19 Unmanned
    • Now
      • 2011: 31 Unmanned Targets
      • 2012: 43 Unmanned Targets

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Mobile Targets Scope

- Mission Support - Operations and Maintenance
- Target Vehicle Fleet
  - Blue/Red
  - Unmanned
    - Remote Control
    - Semi-autonomous
  - Time, Space, Position Information
- Surrogates and Simulators
- Denial and Deception Materials
  - Decoys, nets, paints etc.
- Maritime
- Target Facility Infrastructure Support

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Cradle to Grave Support

- Mission Planning
- Cost Estimates
- Engineering and Design
- Acquisition
- Site Preparation
- Placement
- Realistic Scenarios
- Operation and Mission Data (TSGI)
- Deployments
- Storage
- Environmental Cleanup, Demilitarization and Disposal

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Unmanned Control Systems
Ground and Surface

• Tele-operated simplex ground control system
  • Flexibility for all types of wheeled/tracked vehicles
  • Limited capability in speed and consistency

Semi-Autonomous ground control system
• High speed, high repeatability
• Minimal flexibility to alter path

• Semi-Autonomous surface control system
  • Robust control of surface targets
  • Unique control system for O&M support

In t e g r i t y - S e r v i c e - E x c e l l e n c e

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Operational Flexibility

- Simultaneous land and maritime operations
- Mix/Match systems per requirements
- Target speeds of 10-70 mph
- Towing scenarios
- Variety of vehicles
- Real time video, IR
- Large Footprint support
- Centimeter level positioning
- Testing vs. Training requirements
- Prepare for what’s next…
Requirements: Testing

Current

- Multiple vehicle configurations
- Varied terrain
- Foreign and Domestic Targets
- Scripted timing runs
- Small convoys (2-3 vehicles)

Future

- UAV integration
- Dismounted unmanned targets
- Larger/diverse convoys
- Swarm configurations
- GPS-denied Environments
- Large Footprint weapons

In t e g r i t y - S e r v i c e - E x c e l l e n c e

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Requirements: Training

- Current
  - Strafing Support
  - Dynamic vehicle operations
  - Lot testing
  - Interactions with simulated cities

- Future
  - Dismounted targets
  - More diverse foreign targets
  - Testing Requirements minus scripting
  - Unplanned events
Targets Scenario

- Vehicle track created
  - Start/stop/speed of target vehicle defined
- Start vehicle
  - Aircraft Arms weapon
  - Aircraft begins targeting
- Vehicle at speed
  - Cleared for launch
- Weapon release
- Weapon Impact
- Testing: Timing/location/speed
- Training: Speed important

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Challenges

• Funding
  • Problem:
    • Shrinking budget has a double impact on target acquisition
      • Reduced funding for weapon development
      • Reduced funding for bases/installations
  • Mitigation:
    • Efficient management of resources
    • Leveraging off other Ranges and commercial developments
    • Start target planning early
Challenges

• Requirements
  • Problems:
    • Shortened Lead time
    • Creating realistic threats/Cost vs. Capability
    • Information assurance
  • Mitigation:
    • Keep existing support capabilities modular
    • Readily available acquisition contracts
    • Incremental improvements
    • Coordination to ensure procurement/implementation standards
Challenges

- **Spectrum**
  - **Problem:**
    - Reduction of spectrum and increased spectrum use
  - **Mitigation:**
    - Bandwidth management
    - Utilization of wired infrastructure options
    - Leveraging off Industry

- **Future**
  - Utilization of moving targets here to stay
  - Leverage ever-increasing robotics development
  - Increased coordination with Test Ranges/Services
Conclusion

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