The Multi-spectral Mobile Ground Target System: A Tri-Service Target Development

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Overview

- **Background**
- **Multi-Service Solution**
- **What is the Multi-spectral Mobile Ground Target System (MMGTS)?**
- **Benefits and Payoffs**
- **Summary**

Background

- Emerging weapon system test requirements.
- Multiple 2004 and 2005 TMI proposals
- Unified approach required

Multi-Service Solution

- **It just makes sense.**
- **Common Service requirements.**
- **Joint Programs, Joint Operations, Joint Training, Joint Testing… Joint Targets?**
- **We have a goal to operate "any" target on any range.**

Project Description

- **The MMGTS project is a tri-service effort to develop a remotely controlled ground target that is threat representative. The MMGTS is designed to give test customers a flexible, modular, and repeatable target.**

- **The four main components of the MMGTS are the:**
  - **Host Mover Chassis**
  - **Threat Façade**
  - **Signature Augmentation Systems**
  - **Mobile Ground Target Control System (MGTCS)**

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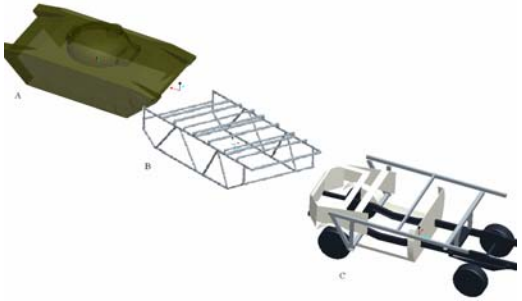

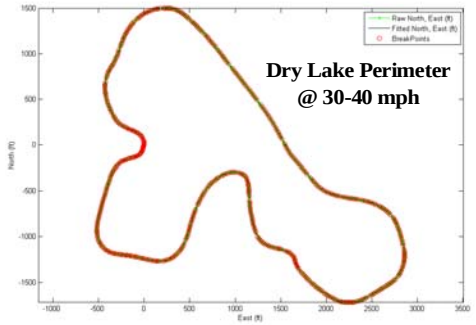

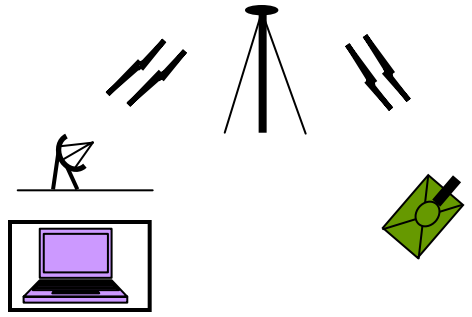

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T-72 Main Battle Tank

ZSU-23-4

2S6 Tunguska

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Multi-spectral Mobile Ground Target System Integrated Product Team

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Multi-spectral Mobile Ground Target System

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Mobile Ground Target Control System (MGTCS)

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MGTCS – Tracked and Wheeled Vehicle Integration

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Benefits and Payoffs

- Reduced operations and maintenance costs.
- Reduced target presentation costs.
- Increased target availability
- Higher target reliability

Benefits and Payoffs Continued

- Flexible Red Force Presentation
- Operation in varied environments
- Portability/Interoperability
- Vehicle Interface Control Documents (ICDs)
- Standards Based Control System

Summary

- **Multi-Spectral**
  - Infrared, RF Emissions, Radar Cross Section, Visual, Laser Return
- **Diverse Target Set**
  - Interchangeable Facades
  - Tailor-able Presentation
- **Expendable Targets**
  - Goal of $50-75K per target (Base)
  - Augmentation systems will be a la carte
- **Standards based Control System**
  - Joint Architecture for Unmanned Systems (JAUS)

Questions?

Backup Slides

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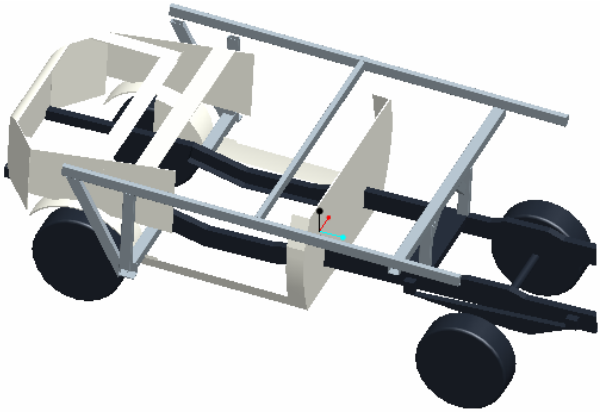

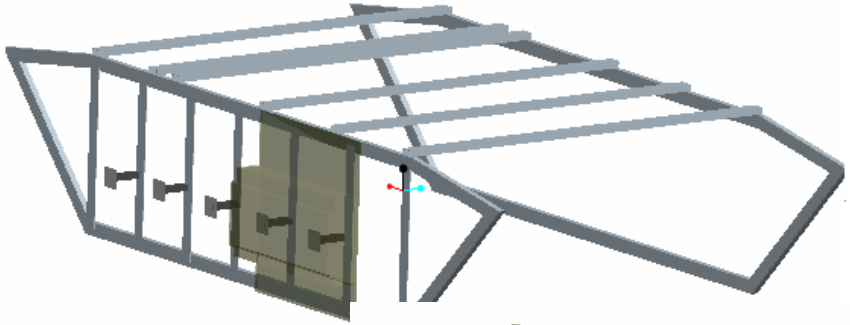

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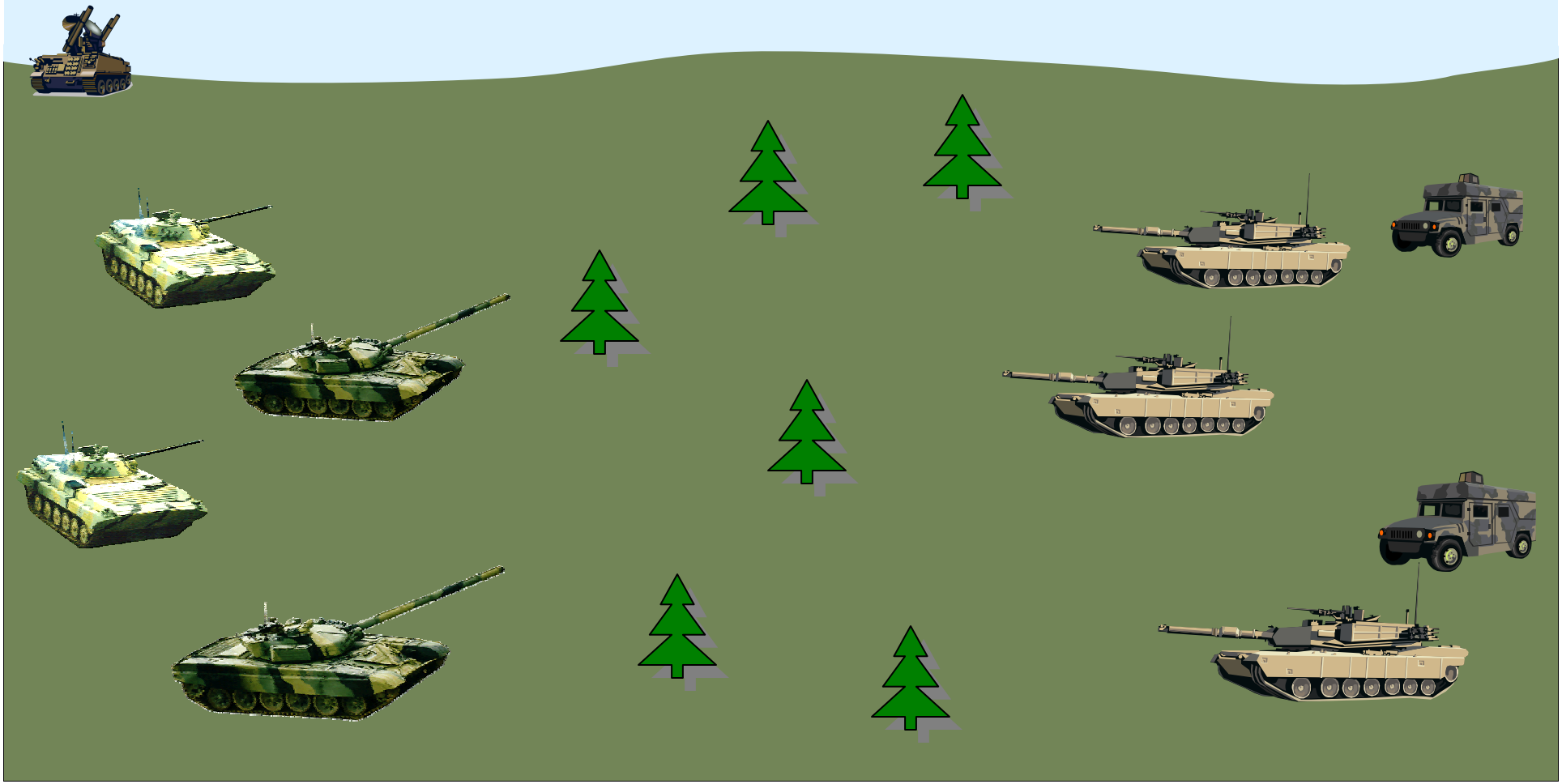
MMGTS Vs. Future Networked Systems



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Key Performance and Technical Requirements

Requirement		*Threshold*	*Objective*
Per Target Cost (Base)		$75K Per	$50K Per
Control System Portability		System is pack-able in a single van style truck.	System is pack-able in a single SUV.
Range Interoperability		Target and Control System capable of operating on the following ranges: WSMR, China Lake, Eglin.	Target and Control System capable of operating on all test and training ranges.
Standards Based Control System		Control system is JAUS (SAE AS-4) Level 1 compliant and uses a transparent Ethernet data link interface.	All control and augmentation systems JAUS (SAE AS-4) Level 2 compliant and uses a transparent Ethernet data link interface.
Target Maneuverability		Vehicle can perform moderately evasive maneuvers (accelerating, braking, turning)	Vehicle can perform aggressively evasive maneuvers (accelerating, braking, "jinking", turning at speed)
Target Straight Line Velocity		≥ 35mph	≥ 50mph
Operating Environments		Open (unobstructed) and simple urban environments (China Lake simulated urban environment).	Desert, wooded, and complex urban environments.
Targets controlled simultaneously by a single ground station		4 (Demonstration will include a minimum of 2 actual and 2 simulated vehicles)	12
Roadway Width		12 feet	12 feet
Time Space Position Information		1 Meter RMS	0. 5 Meter RMS
Signature Fidelity		System able to provide end to end testing for EO and Laser Seekers	System able to provide end to end testing for EO, MMW, RF, and Laser seekers.

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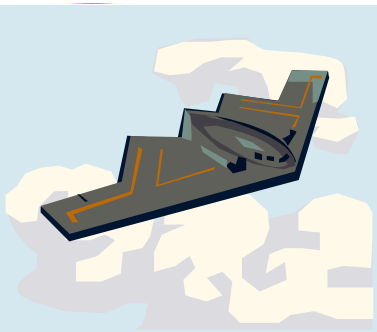
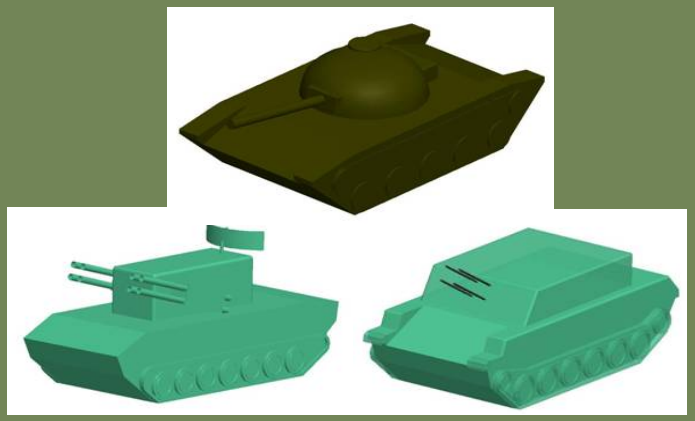
Host Mover Chassis

Before

After





Surrogate Targets

Why do we need Surrogate Threat Vehicles?

- **Limited availability.**
- **Purchase Cost Per Vehicle.**
- **Maintenance cost.**
  - **Availability of replacement parts.**
  - **Specially trained operators and maintainers.**