

Raytheon

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Directed Energy Applications

...

**When it absolutely has to get
there at the “Speed of Light”**

Mike Booen

Vice President

Raytheon Missile Systems

16 April 2006

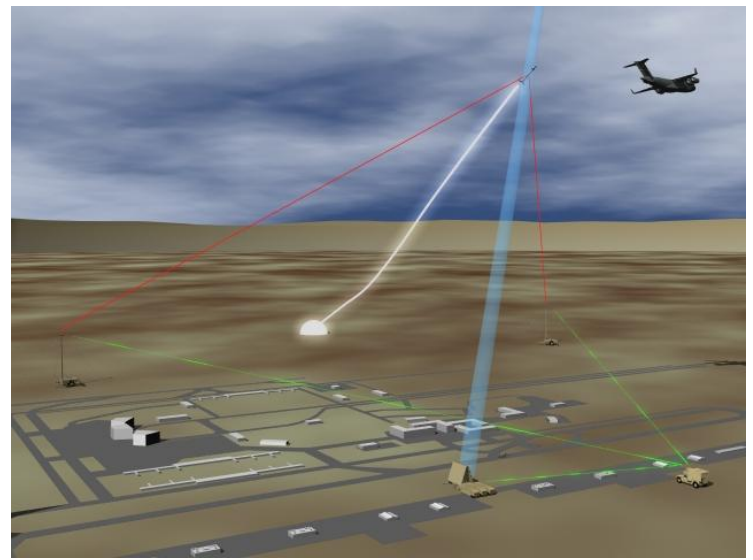


**DIRECTED
ENERGY
WEAPONS**

Counter MANPADS Needs the Speed of Light

On-board protection for some aircraft...

and point protection to support expeditionary airfields



Infrared Countermeasures provide critical asset self-protection

Raytheon Vigilant Eagle protects all aircraft at the airfield

Mature? Reliable? Affordable? Logistics? CONOPS?

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Vigilant Eagle – Mature Hardware Ready for Demonstration

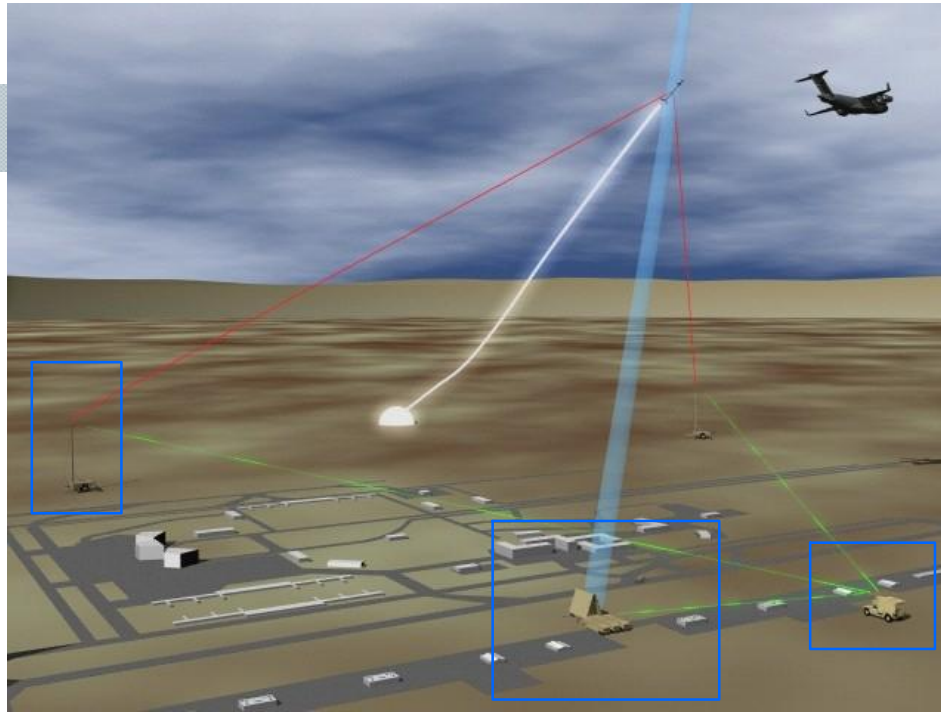
MDT



C2



**Off the Shelf
system currently
in operation**



**Demonstrated and
operational**

**HPM
Live Fire Test Results**



Laser-Based IR Countermeasures Use the Speed of Light

Affordable, Reliable, Light Weight Aircraft Self-Protection Against Surface & Air Launched Missiles

Missile Warning Coverage

Jamming Radiation

1. Missile launch is detected and a turret is directed onto, and tracks, the missile
2. A low power laser sends a modulated beam of infrared energy to the missile and jams the seeker, causing it to miss



How do you protect the helicopters?

Warfighter Benefits

AH-1Z



- **Small size, low weight, low drag ideally suited for constrained rotary wing a/c**
- **Proven manufacturing ability and attractive high rate production potential**
- **High reliability consistent with a system leveraging mature hardware / software**



Pointer

- **Based on Production AIM-9X Pointer**



Controller

- **Based on Production AIM-9X Controller**



Laser

- **Multi-band**



MW Sensor

- **Single color**
- **Multi color**

Technology Push: Non-Lethal Technology

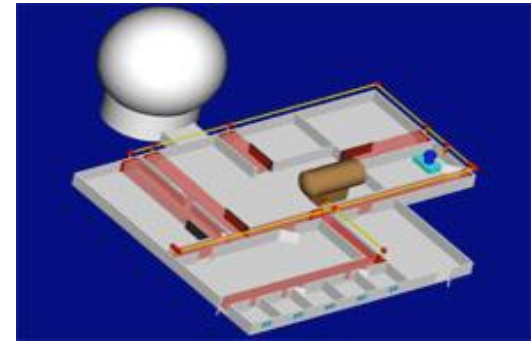
Force Projection



Force Protection



Facility Protection



Shout



**Raytheon . . .
Filling the Void for
our Customers**



Shoot





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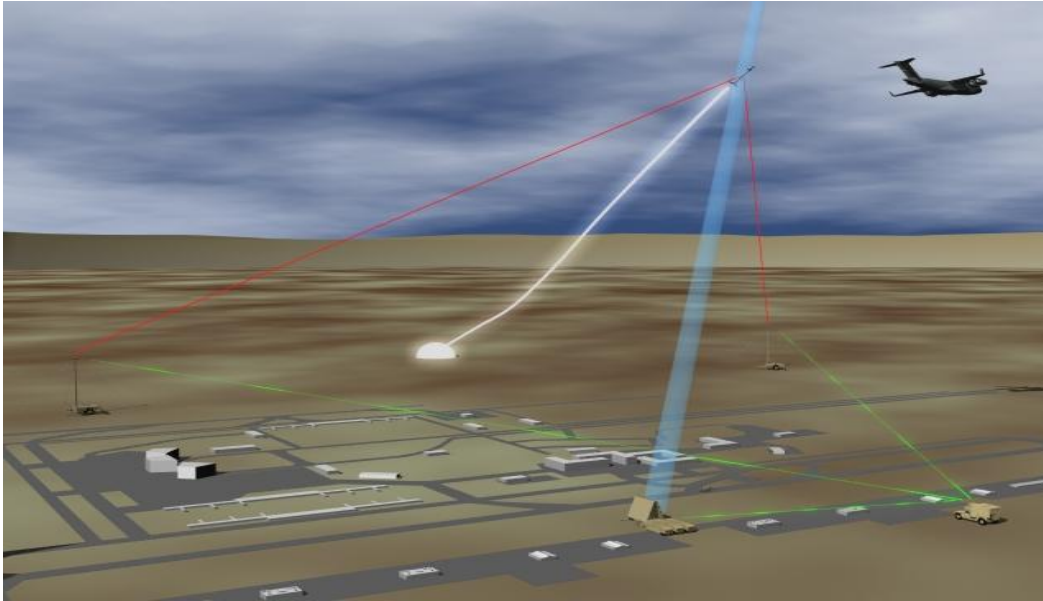
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PENSKE
Truck Rental

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- **BACKUP**

Vigilant Eagle



- Vigilant Eagle
 - Affordable capability to counter MANPADS terrorist threat
- HPM effect tested and proven effective in live fire against terrorist threats
 - Missile detect and track capability proven in live fire
 - C2 System Proven

03:32:08

MT:Looking

EL: 3

AZ: < 0

