

Carrier Strike Aviation:

*The Future of Naval Tactical Air and the
Maritime Strategy*



Precision Strike Winter Roundtable

Wednesday, March 3, 2010

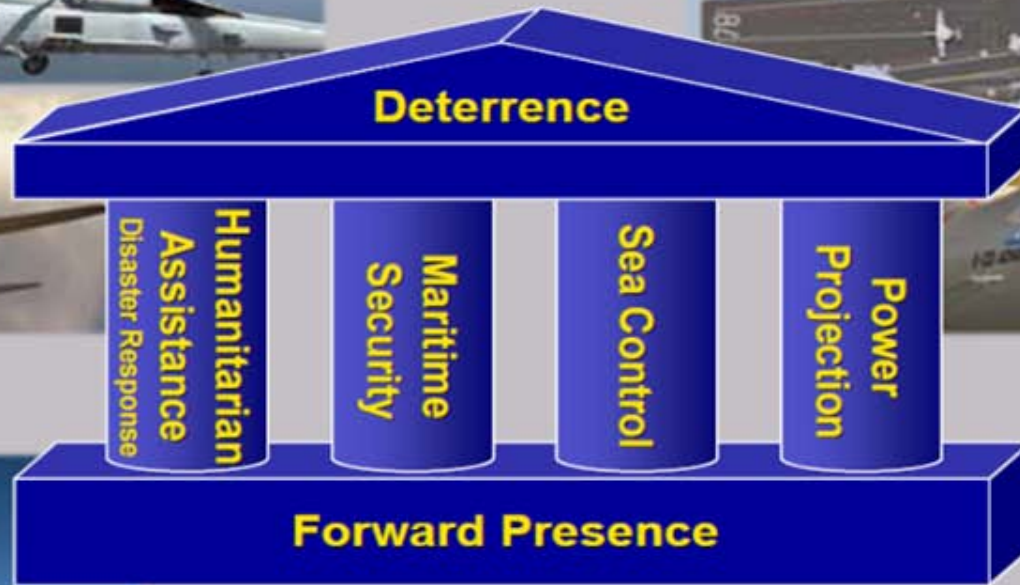
**RADM David L. Philman
(N88) Director, Air Warfare**



Maritime Strategy

Use of the Sea as Maneuver Space

Stable Security Environment
Prevail in Conflict



Friends
Partners
Allies

USN
USMC
USCG

Ability to Prevail in Conflict Helps Create a Stable Security Environment

NAVAL AVIATION CAPABILITIES



Striking Power

**Intelligence,
Surveillance,
Reconnaissance,
and C2**

Power Projection

**Cutting Edge
Training**



CVN-78 Class: A Leap Ahead

Integrated Island

- Dual Band Radar
 - Multi-Function Radar
 - Volume Search Radar

Enhanced Flight Deck

- Advanced Arresting Gear
- Electromagnetic Aircraft Launch System



New Propulsion/Electric Plant

- All Electric Auxiliary Services
- Zonal Electrical Distribution System

Improved Survivability

- Underwater Protection

Key Performance Parameters

<u>KPP CVN 78</u>	<u>Threshold</u>	<u>Objective</u>
Sortie Rate (sustained)	160	220
Sortie Rate (surge)	270	310
Service Life Allowance	5%Wt / 1.5 ft KG	7.5%Wt / 2.5 ft KG
Interoperability	Attain Critical IERs	Attain all IERs
Electrical Capacity	2.5X NIMITZ	3.0X NIMITZ
Manpower	500 reduction	900 reduction

Improved Weapons & Material Handling

- Advanced Weapons Elevator
- Heavy UNREP

Enhanced Ship Self Defense

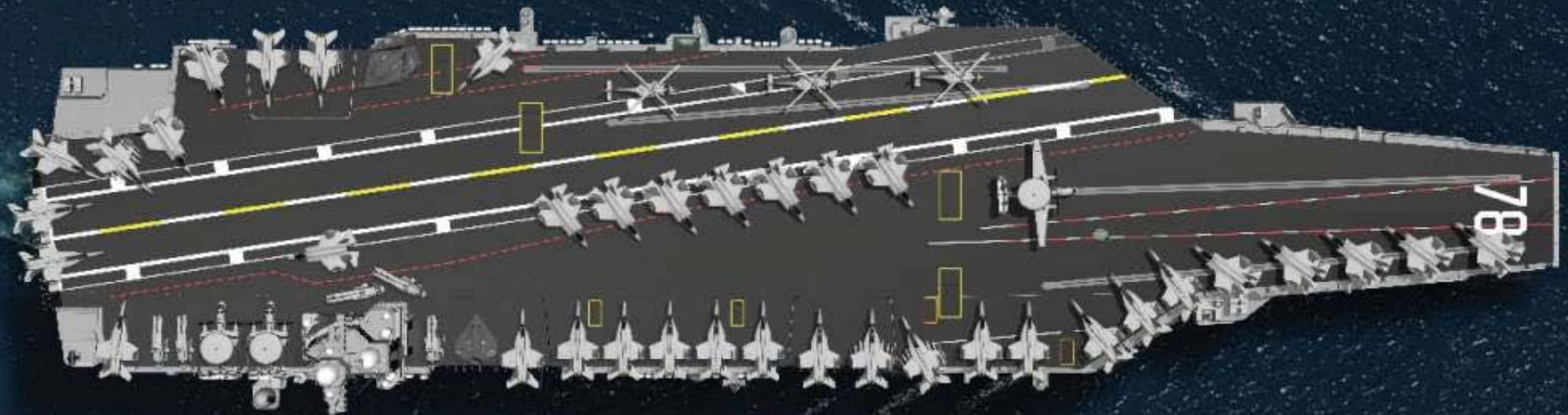
- Open Architecture
- ESSM



Future Carrier Air Wing

NOTIONAL CVW OF THE FUTURE COMPRISED OF:

- 44 STRIKE FIGHTER (F/A-18, JSF) AIRCRAFT
- 5 EA-18G AIRBORNE ELECTRONIC ATTACK (AEA) AIRCRAFT
- 5 E-2D ADVANCED HAWKEYE AIRCRAFT
- 19 MH-60R/S HELOS (11 ON THE CARRIER/8 DISPERSED THROUGH THE CSG)
- 2 CARRIER ONBOARD DELIVERY (COD) AIRCRAFT AUGMENT THE ENTIRE CSG





Strike Aircraft Roadmap



EA-6B



F/A-18A-F

Increasingly
capable,
Netted
Force



F/A-18 E/F & EA-18G



JSF

Capabilities

- **Precision Strike**
- **Stealth**
- **Anti-Air Warfare**
- **Electronic Attack**
- **Suppression & Destruction of Enemy Air Defenses**
- **Close Air Support**
- **ISR**
- **Air Refueling**
- **Reliability**
- **Supportability**
- **Maintainability**

**F/A-18E/F & JSF More Capable:
Range, Payload, Bring-Back,
State of the Art Sensors, Survivability**



FA-18E/F Super Hornet

- The F/A-18E/F aircraft is a multi-role fighter designed for aircraft carrier duty and is the first tactical aircraft initially designed to carry out both air-to-air and air-to-ground missions.***



Combat Proven Capability, Forward Deployed and Ready to Meet the Nation's Tasking

Available Technology and Weapons Systems that Deter and Defeat the Threat

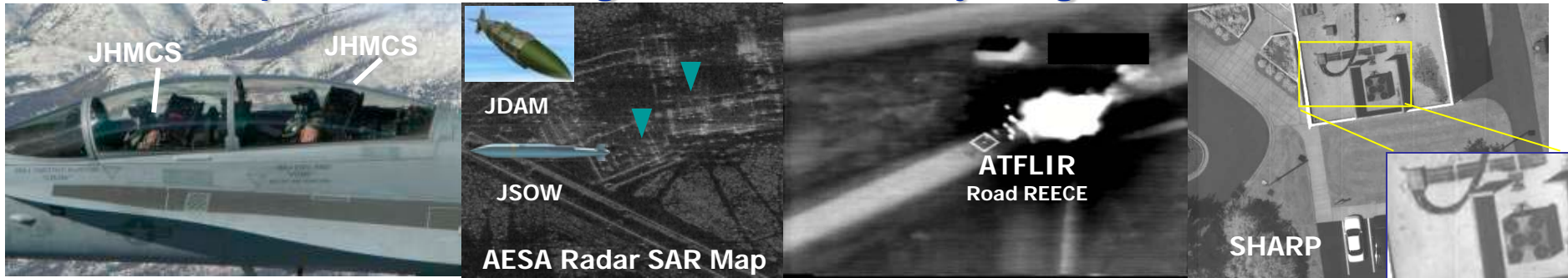
Flexible, Affordable and Survivable

Current F/A-18E/F Compliment Future JSF Capabilities



Super Hornet Block II

Providing time sensitive targeting solutions and high volume precision fires to ground forces and joint ground stations



AIRCRAFT SENSOR INTEGRATION



DCS/VMF
nine-line brief



MIDS/L16



ATFLIR VIDEO DATA LINK



SHARP DATA LINK

CONNECTIVITY PATHS



SOF



Ground Station



RAIDER



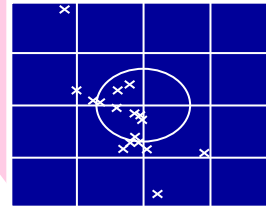
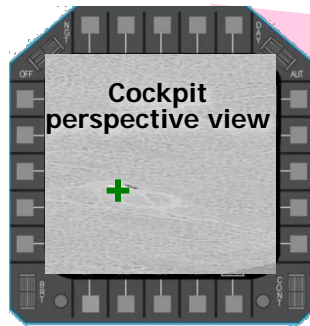
Rover III



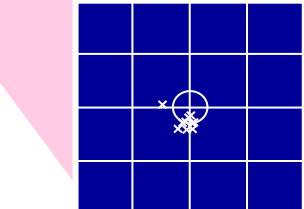
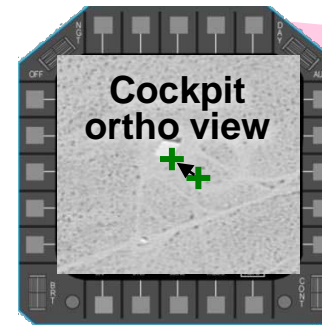
Maritime Domain
Awareness



Future Capability Image Correlation Targeting



Geo-registration results

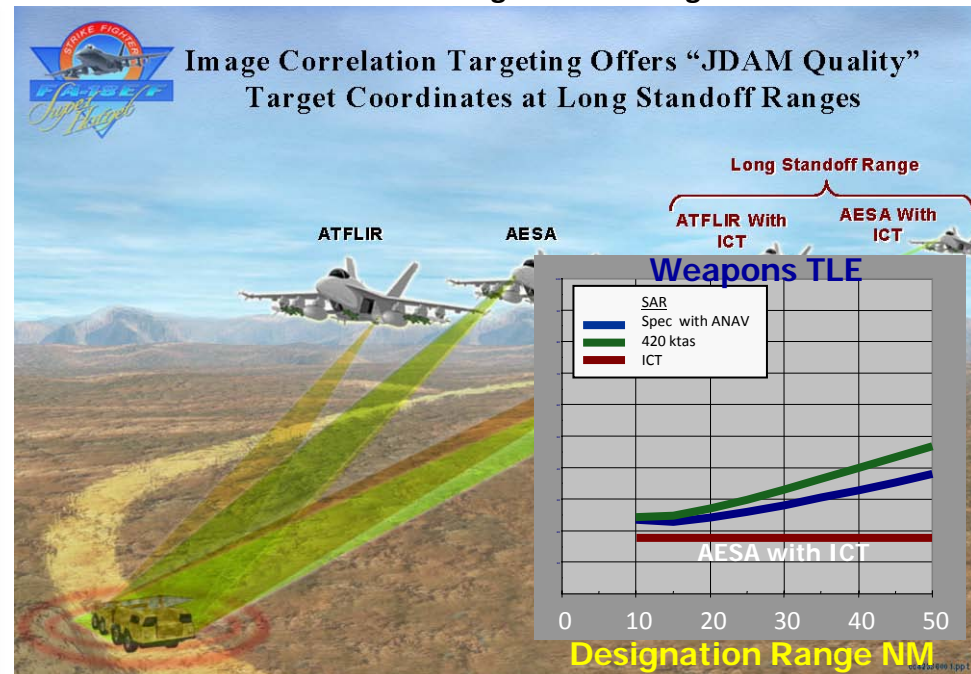


Pilot updated designation from ortho view

Note: Tested against over 12 different target sets, but truth data was only available for the ALAST target board shown here

Image Correlation Targeting Offers “JDAM Quality” Target Coordinates at Long Standoff Ranges

- Onboard Geo-Registration for Precise Target coordinates through the WX
- Geo-Registration Targeting allows real-time reactive targeting at maximum weapon delivery range
- “JDAM Quality” target coordinates at long standoff ranges
- With open architecture, principle design will support growth to:
 - multiple moving targeting solutions using ATFLIR or AESA
 - Blue Force situational awareness
 - Combat ID





JSF F-35 Lightning II



- *Meets the advanced threat (2010 & beyond) while improving lethality, survivability, and supportability*
- *Replaces aging USN and USMC tactical aircraft*
- *Tri-Service program*
- *Eight International Partners*

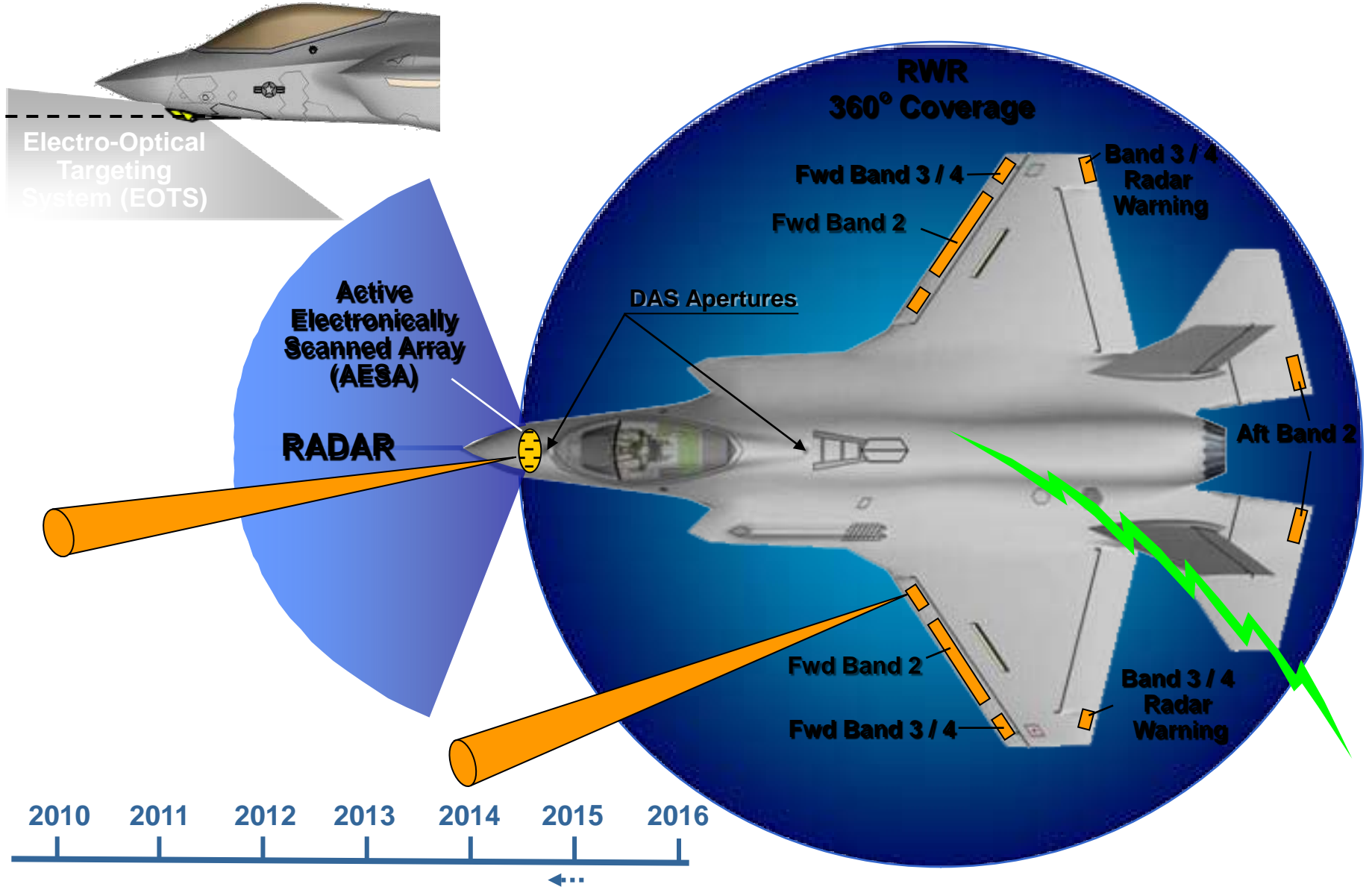


- *Stealth signature and advanced countermeasures*
- *Advanced avionics / data links*
- *Increased range with internal fuel and weapons*
- *Highly supportable, state of the art Prognostics and Health Management system*

Affordable Next Generation “Family” of Strike Fighters



Integrated and Fused Mission Systems

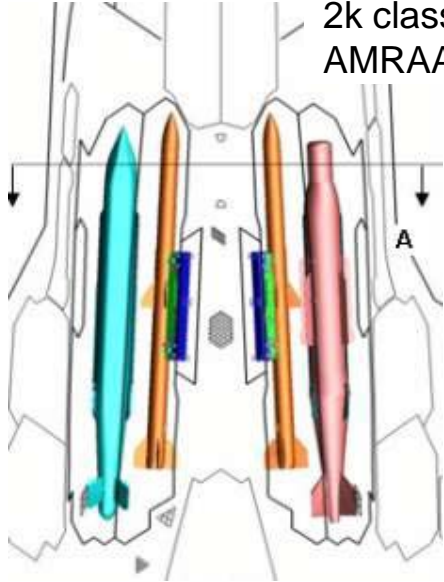




Offensive Firepower

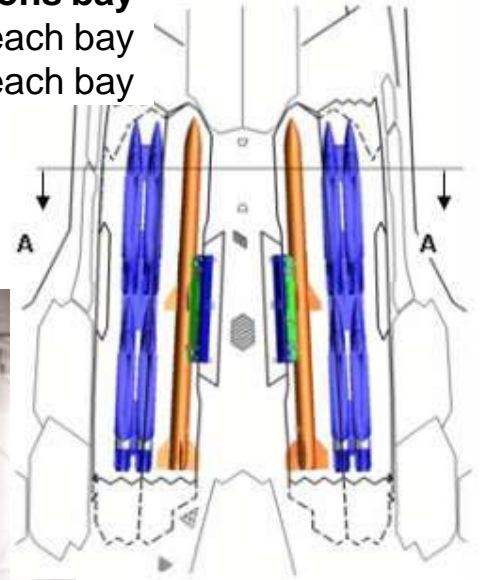
CV internal weapons bay

2k class weapon – each bay
AMRAAM – each bay



STOVL internal weapons bay

1k class weapon – each bay
AMRAAM – each bay



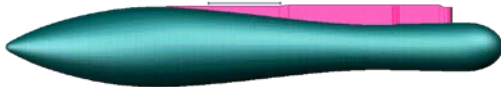
BF-3 undergoing ground vibration testing



F-35 Weapons



EXTERNAL WEAPONS



426-Gallon Wing Tank



Stormshadow (Not DoN POR)



AGM-158 JASSM (Not DoN POR)



MXU-648/CNU-88 Baggage Pod



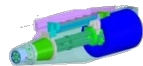
AIM-120B and C AMRAAM



AIM-9X Sidewinder



BDU-57/58/60
Laser-Guided Training Round



Missionized Gun

INTERNAL AND EXTERNAL WEAPONS



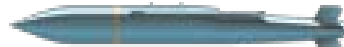
GBU-32 JDAM 1,000-lb
(MK-83/BLU-110 Warhead)



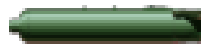
GBU-12 Paveway II 500-lb LGB
(MK-82 Warhead)



GBU-31 JDAM 2,000-lb
(MK-84 Warhead)



AGM-154A/C JSOW Glide Bomb



CBU-103/104/105 WCMD
(Not DoN POR)



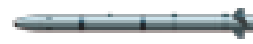
GBU-38 JDAM 500-lb
(MK-82 Warhead)



GBU-31 JDAM 2,000-lb
(BLU-109 Warhead)



AIM-120C AMRAAM



AIM-132 ASRAAM

Weapons Currently Under Development



UK 500# PGB

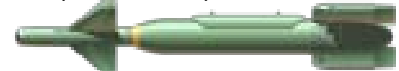


SDB

EXTERNAL WEAPONS



GBU-10 Paveway II 2,000-lb LGB
(MK-84 Warhead)



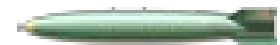
GBU-24A/B Paveway III 2,000-lb LGB
(BLU-109 Warhead)



GBU-16 Paveway II 1,000-lb LGB
(MK-83 Warhead)



MK-83 BLU-110 LDGP 1,000-lb LDGP



MK-83 BSU-85 HDGP



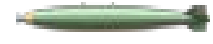
MK-84 2,000-lb LD/HDGP



MK-84 BSU-50 Ballute 2,000-lb HDGP



GBU-12 Paveway II 500-lb LGB
(MK-82 Warhead)



MK-82 500-lb LD & HD



CBU-99/100 Rockeye II
Cluster Munition



Air to Ground Weapons Roadmap

Rockets/MGA

- 2.75" Rockets
- 5" Rockets
- 20mm/25mm/50Cal

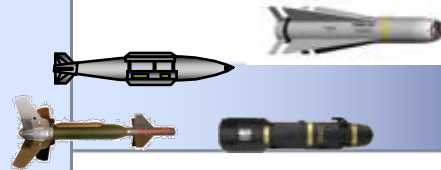


Guided Rockets/MGA

- APKWS
- LOGIR*

Direct Attack

- GP Bomb
- LGB/JDAM
- DMLGB
- Hellfire (RW)
- Maverick
- GBU 24/J109

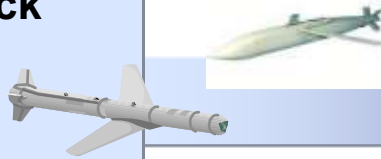


Direct Attack

- DAMTC
- JAGM (RW)
- DMLGB
- GBU 24/J109
- GP Bomb
- LGB/JDAM

Stand-off Land Attack

- JSOW A/C
- SLAM-ER

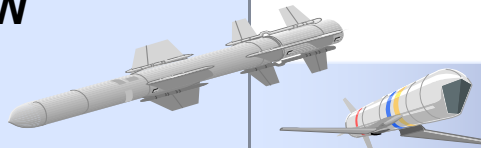


Stand-off Land Attack

- JSOW C-1
- JAGM (FW)
- SDB II
- AARGM

Stand-off ASuW

- Harpoon 1-C
- SLAM-ER



Stand-off ASuW

- Harpoon III
- JSOW C-1
- AARGM

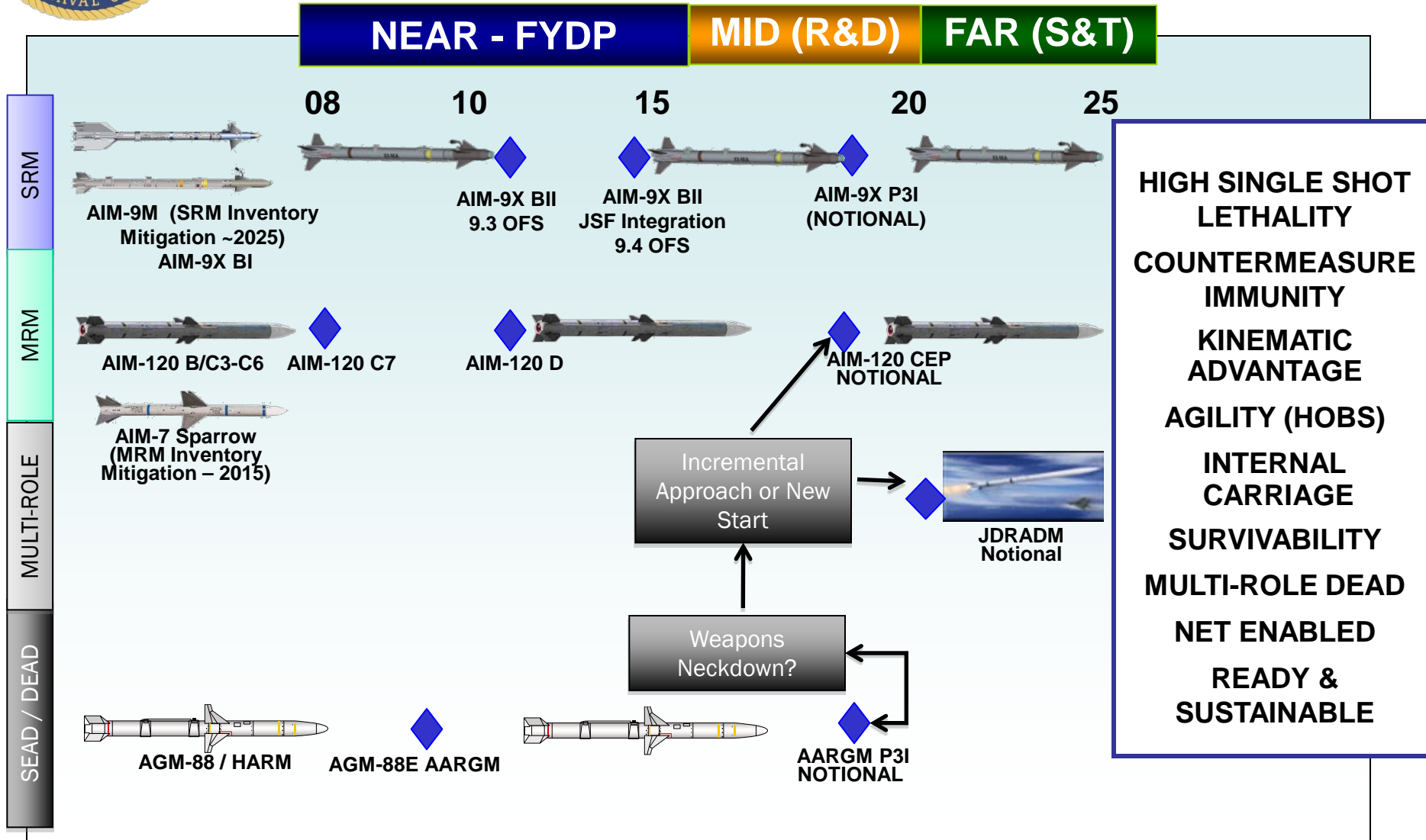
All Wx, Counter EA, Stand-off, Moving Target Capable

* Not Funded
** Not DoN POR

Air to Ground Weapons - Pacing the Threat

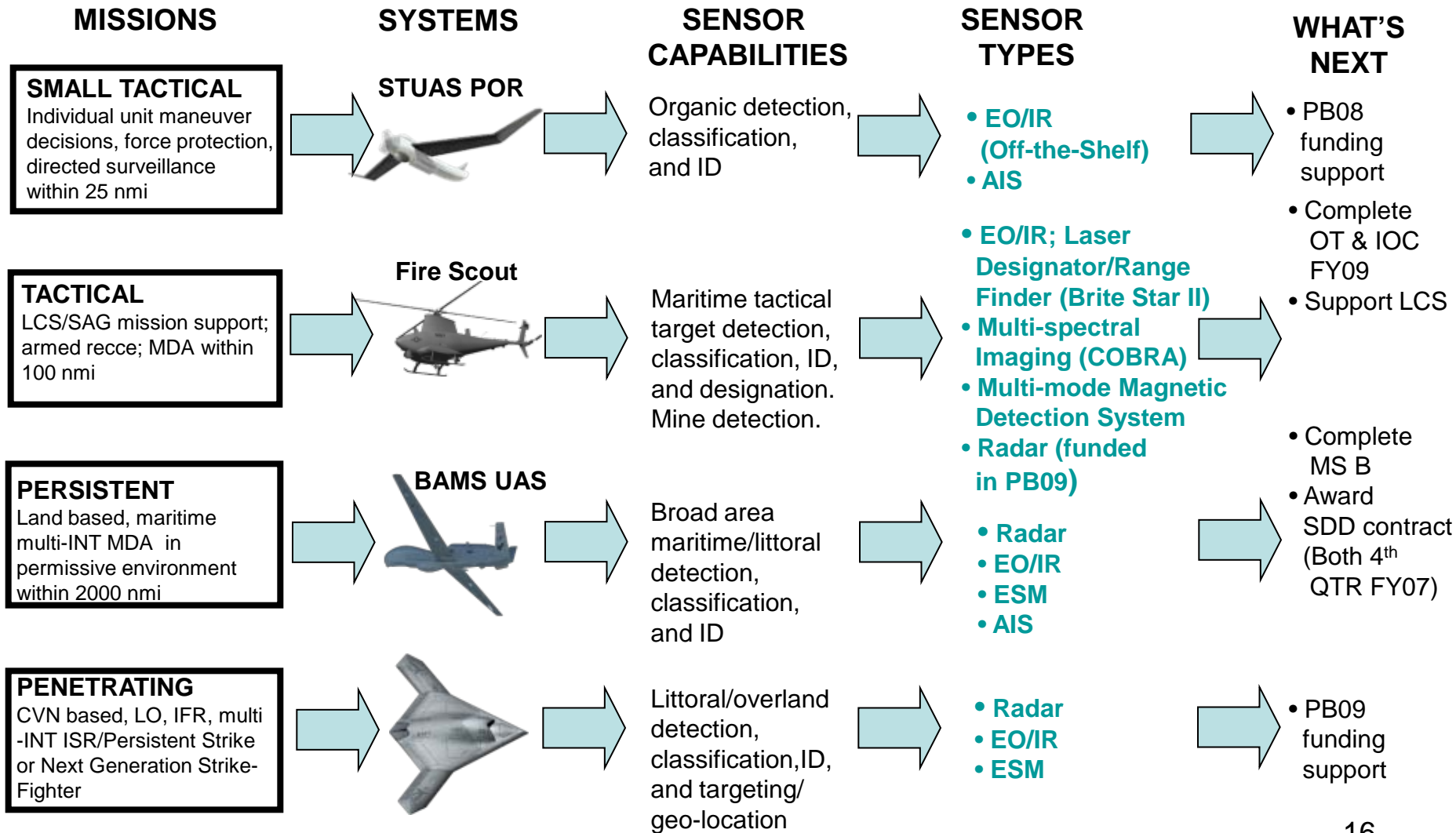


CA / CAD Capabilities Roadmap





UAS Roadmap





Our Challenge:

Win the current wars while outpacing future threats





***LIFE...LIBERTY...AND THE PURSUIT
OF ALL WHO THREATEN IT.***

DISCUSSION

