Precision Strike Technology Symposium

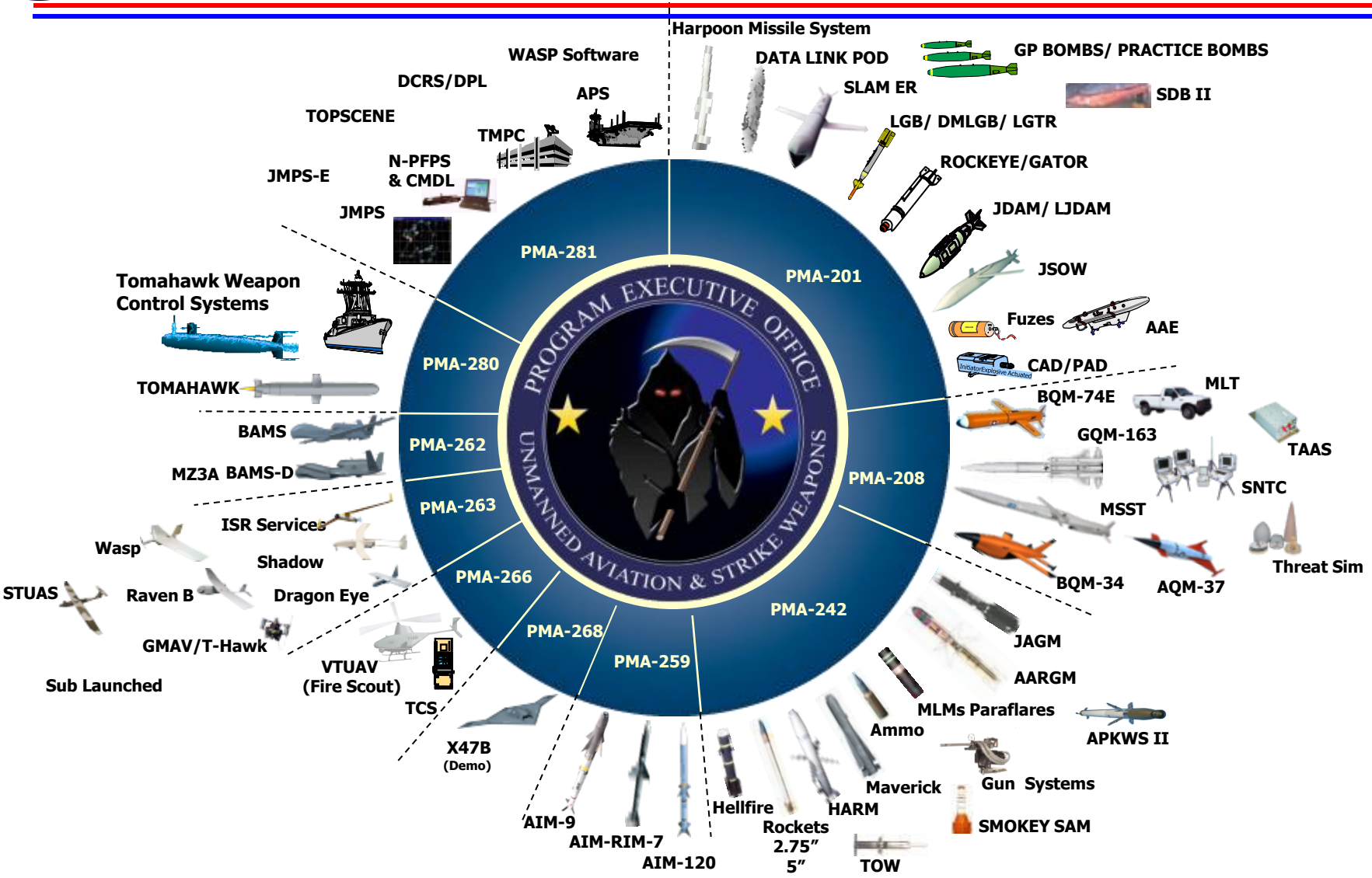
Navy Weapons Development
&
Network Enabled Weapons

October 27, 2009

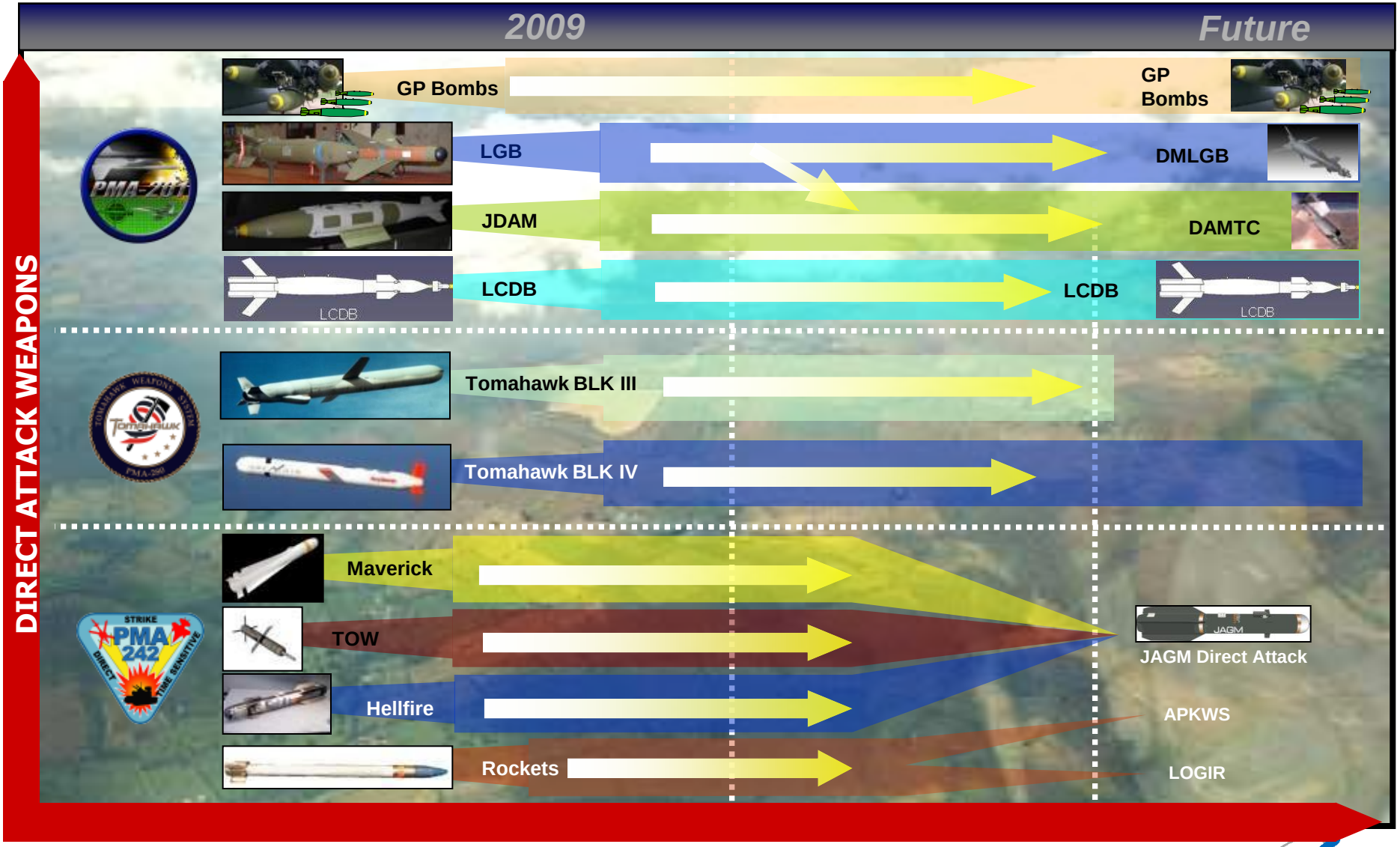
RADM Bill Shannon
Program Executive Officer
Unmanned Aviation and Strike Weapons

NAVAIR

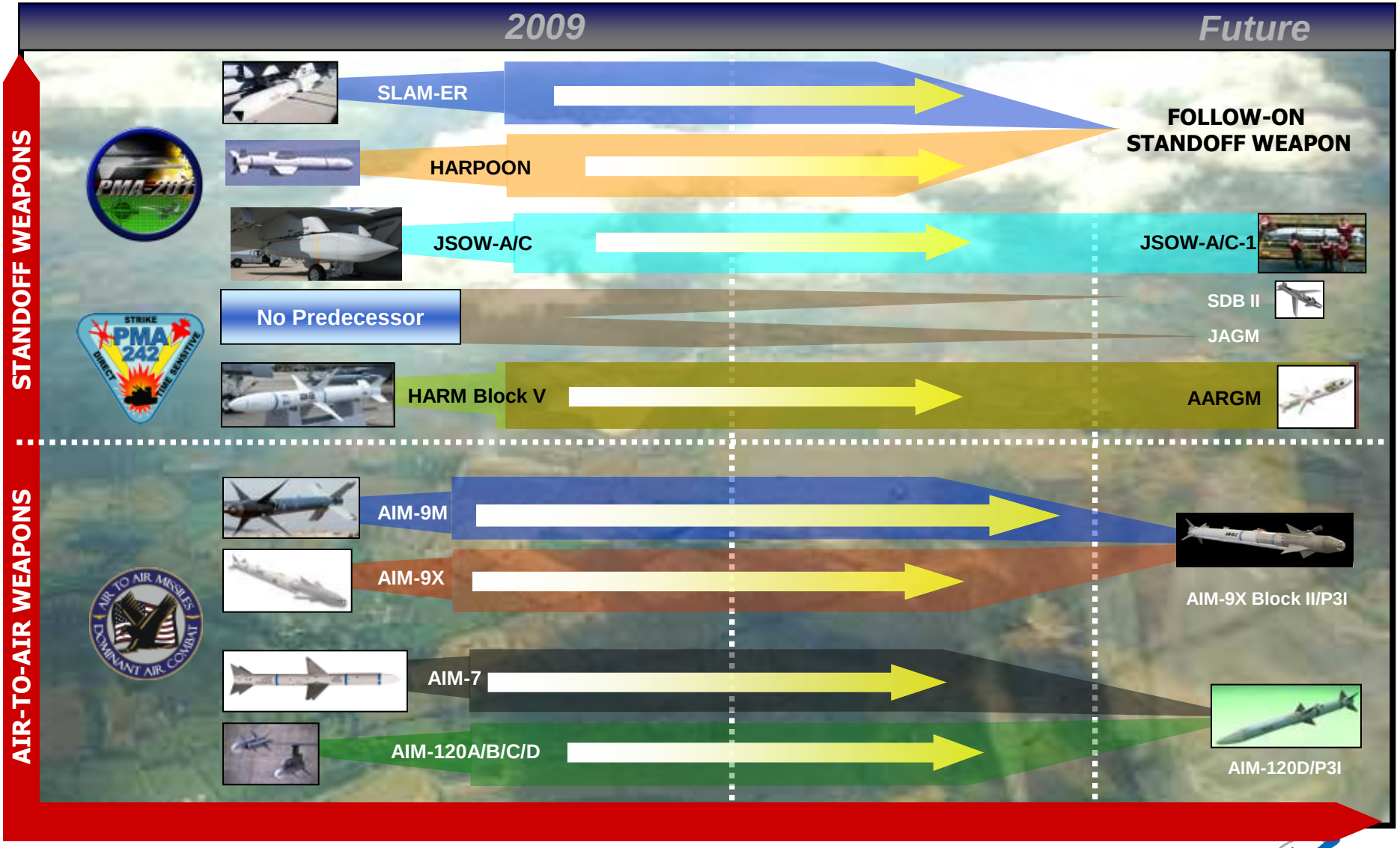
PEO(U&W) Overall Portfolio



Strike Weapons Family of Systems
Direct Attack Weapons



Strike Weapons Family of Systems
Standoff Weapons / Air-to-Air Weapons



Advanced Precision Kill Weapon System II (APKWS II)

Capability

- APKWS is a Semi-Active Laser (SAL) guidance kit added to current 2.75-inch rocket motors and warheads
- Low cost, low collateral damage and minimal integration
- Accurate: 80% within 2 meters of laser spot
- Increased Kills/Sortie: 14 - 38 per sortie
- Status: Mature design, Integrated Test begins November 2009
- Initial Operational Capability 3rd Qtr FY11

Low Cost, High Precision, Low Collateral Damage for Irregular Warfare

Advanced Anti-Radiation Guided Missile (AARGM)

Capabilities

- Counters Advanced IADS
- Greater Lethality
- Addresses ARM countermeasures
- Weapon Impact Assessment

Demonstrated Test Results

- 8 Live Developmental Test Shots
- Multi-mode guidance (ARH, MMW, GPS)
- Advanced Emitter threat detection and ID
- Counter Shutdown Tactics
- Target geo-location
- Netted with off-board targeting (US only)
- Weapon Impact Assessment

Suppression to Destruction of Air Defenses

NAVAIR

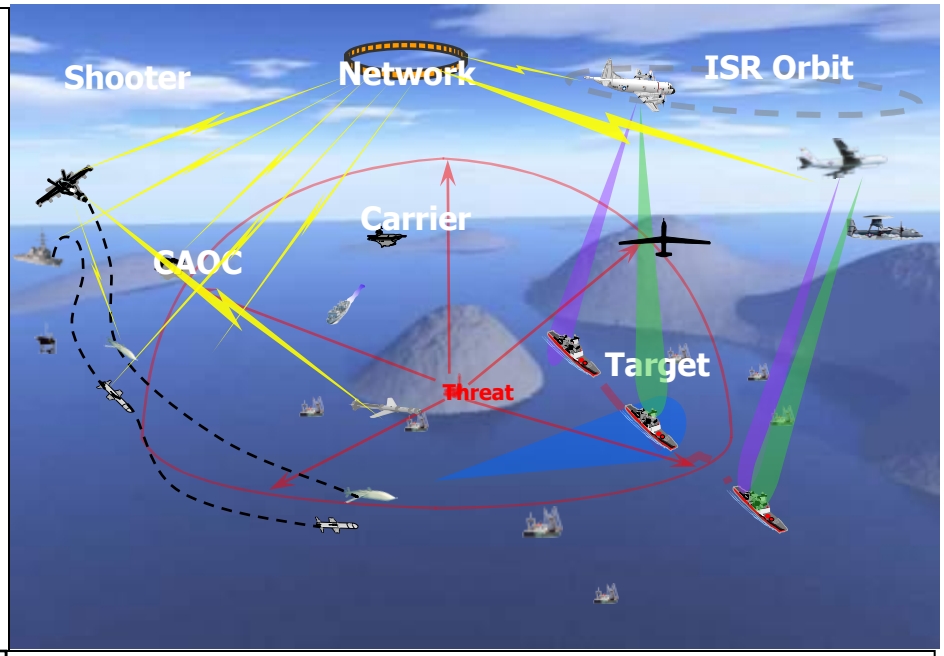
Harpoon Block III

- Block IC out of production
- Block IC continues to provide reliable SUW capability
- Block II FMS in production
- Block III kit upgrade program cancelled
- OPNAV initiating Follow-On SUW AoA

Joint Surface Warfare JCTD

Description:

- **Joint War-fighter has limited capability to engage enemy surface vessels at stand-off ranges in all weather conditions (PACOM sponsor)**
- **Weapon Data-link Network provides linkage and interoperability between USAF and USN ISR platforms via Link-16 to provide in-flight target updates to Joint anti-ship standoff weapons**
- **Proposed Participants**
  - ISR (E-8 JSTARS, P-3 LSRS)
  - Shooter (FA-18)
  - Weapons (H3, JSOW-C-1, SLAM-ER)



Discussion:

- **DUSD (AT&L) program, USN lead w/USAF co-lead**
- **Program began in FY07, runs through FY10**
- **JCTD will deliver first true Net-centric Warfare CONOPS and TTPS**

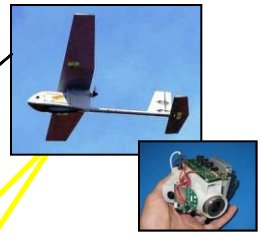
Schedule:

• **Requirements and Software Development**	**FY07**
• **System Integration Testing**	**FY08**
• **Capability Demonstration**	**FY09**
• **Military Utility Assessment**	**FY10**

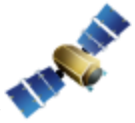
Tactical Real Time Employment Of TACTOM

- Use of UAS Intelligence
- Use of PSS-SOF
- Use of JSPEAR
- Direct Transmission of mission on SIPR

SOF



T/A and FRU will have comms with missile via TSN



JSPEAR MSN on SIPR to TA

JSPEAR MSN on SIPR to FRU

AUR

Tasking Authority

Sends initial ESP to ship

Electronic Strike Package with preliminary mission via RNI

USS PRINCETON (CG 59)

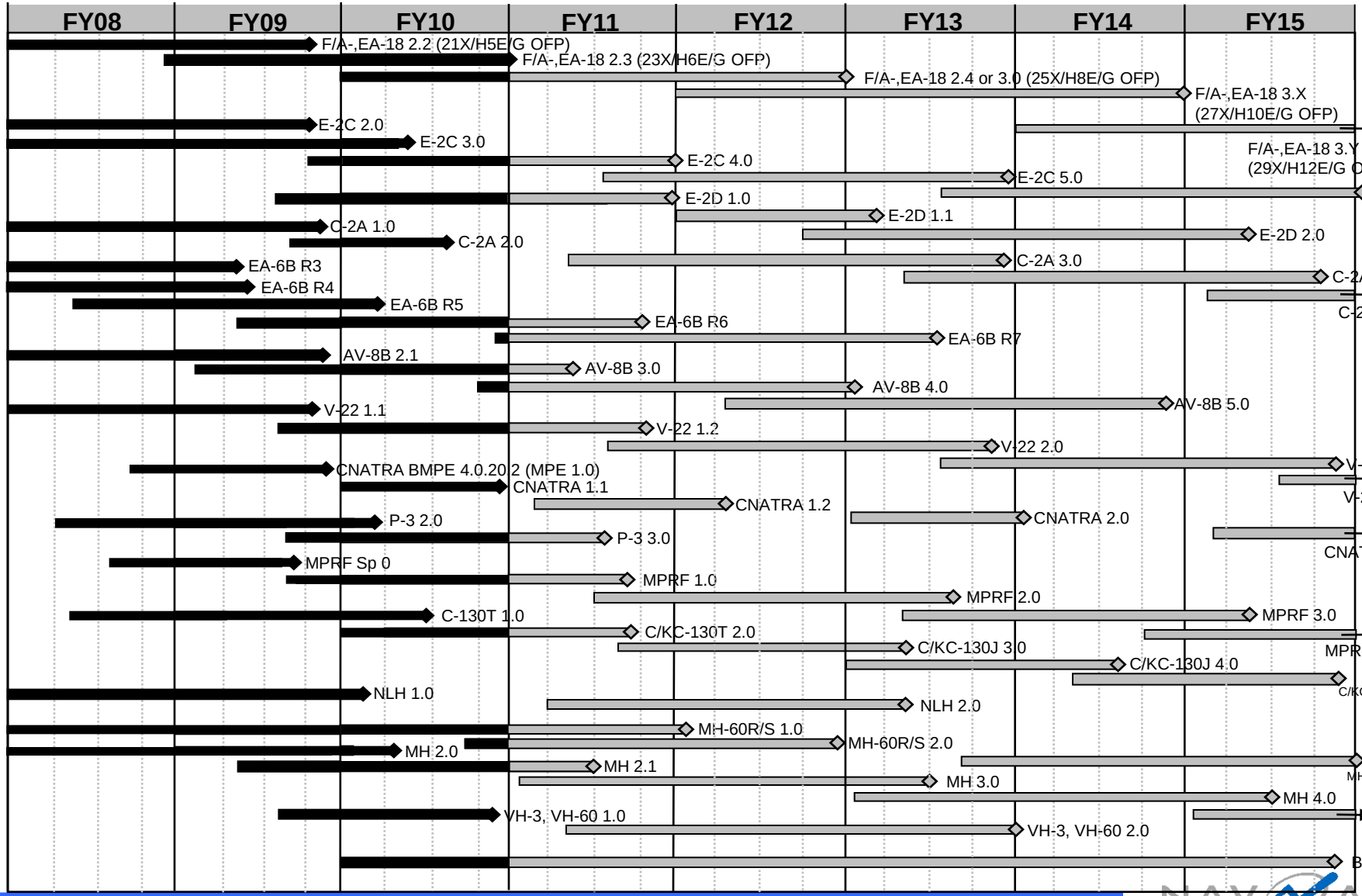
NAVAIR

Mission Planning

Current aircraft using JMPS

FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
F/A-18	MV-22	CNATRA	C-2A	SH-60B	MPRF	MH-60R/S	E-2D	KC-130J	BAMS
E-2C			EA-18G	SH-60F	AH-1Z	KC-130T	H-53K		
AV-8B				HH-60H	UH-1Y				
EA-6B				MH-53E					
S-3				CH-46E					
				CH-53D					
				CH-53E					
				AH-1W					
				UH-1N					
				VH-3					
				VH-60					
				P-3					
				C-130T					

JMPS MPE Development & IOCs



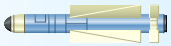
= Fully funded (based on PB-10 budget) =Funding status TBD until PR-11completed

As of 5-18-09

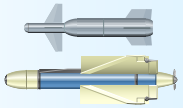
Weapons Revolution

1985 Mission Centric Operations

- Rockets
- TOW
- Maverick



- Rockeye
- Bombs
- LGB
- Walleye



- Penguin
- Sea Skipper
- Harpoon

- HARM

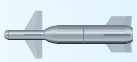
- AIM-9M Sidewinder
- AIM-120 C5/7
- Phoenix

- Tomahawk

1995

- Rockets
- TOW
- Maverick
- Hellfire

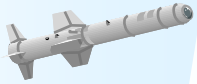
- Rockeye
- Bombs
- LGB



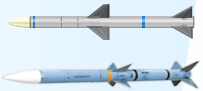
- Penguin
- Harpoon

- HARM

- SLAM



- Sidewinder
- Sparrow
- AMRAAM
- Phoenix

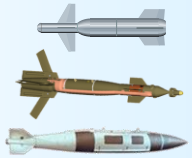


- Tomahawk

2005 Network Centric Operations (GPS)

- Rockets
- TOW
- Maverick
- Hellfire

- Rockeye
- Bombs
- LGB
- EGB
- JDAM



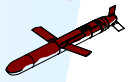
- Harpoon

- HARM

- JSOW-A/C
- SLAM-ER

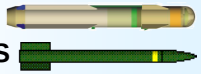
- AIM-9X
- AMRAAM

- TACTOM (WDL)



2015 Enhanced NCO

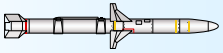
- JAGM
- APKWS



- Rockeye
- EGB
- JDAM
- SDB-II (WDL)

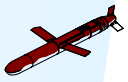
- SLAM-ER
- JASSM (WDL)

- JSOW-A
- JSOW-C (WDL)



- AARGM

- AIM-9X Blk II
- AMRAAM

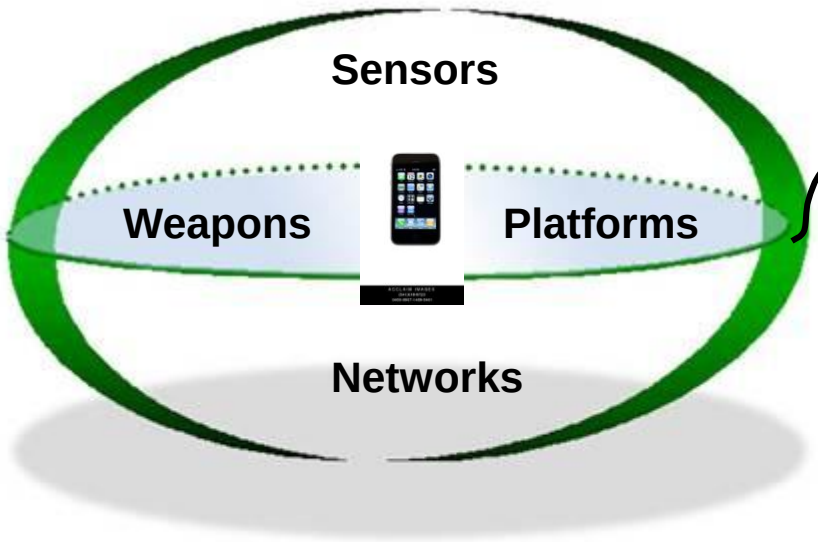


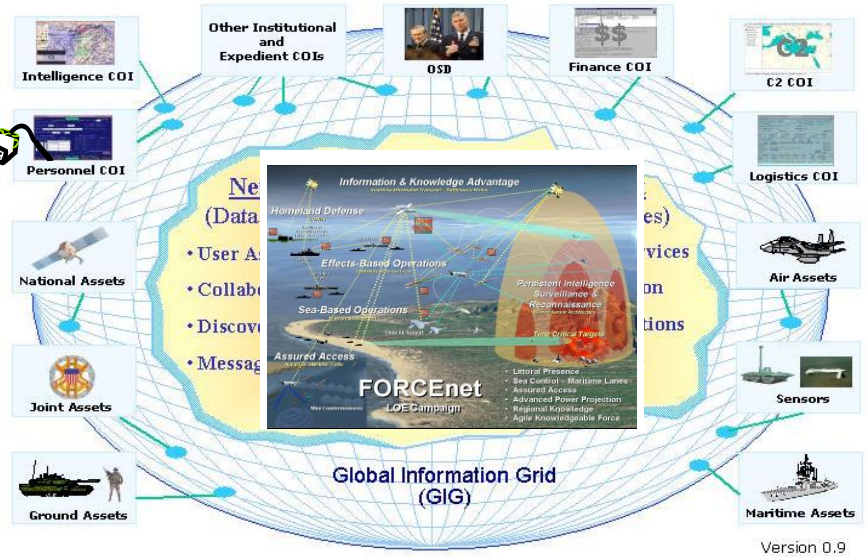
- TACTOM (WDL)

The Next Revolution….

Mission Capability Focused: Speed, Agility, & Alignment

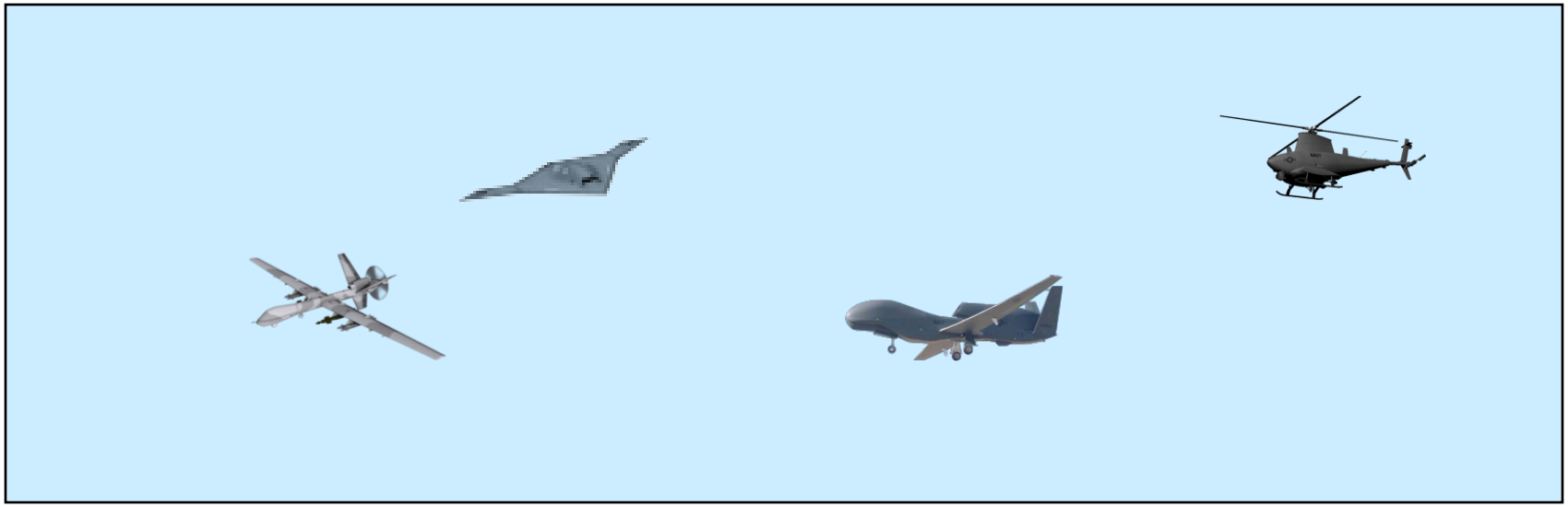
- **We must be networked and interoperable with joint forces (Machine-to-Machine)**
- **We must possess the ability to move tactical war fighting information seamlessly on/off the aircraft and across a networked force**
- **We must manage at the interface**





And the next…

UAV's are destined to become the next evolution of the world's air combat forces. The integration between manned and unmanned systems will be the first step in meeting those future systems, today.



Why?

- **Persistent ISR**
- **Small = Tactical OTH / Big = Strategic**
- **Reduces Footprint**
- **Efficient / More Affordable**

Unintended Consequence:

- **Stressing the Acquisition Process**
- **Easy to get our hands on technology + insatiable fleet thirst = Faster than the current process allows**