Panel 1:
Requirements Generation for Total Battlespace Awareness

JAWS 99

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Naval Aviation Systems Team

Requirements Generation

- Know the environment.
- Know your adversary.
- Know your strengths.
- Know your weaknesses.
- Your strengths and weaknesses, arrayed against your adversary's strengths and weaknesses, should reveal your requirements.

"Know the enemy and know yourself; in a hundred battles you will never peril. When you are ignorant of the enemy but know yourself, your chances of winning or losing are equal. If ignorant both of your enemy and of yourself, you are certain in every battle to be in peril."

Sun Tzu, The Art of War, Sixth Century B.C.

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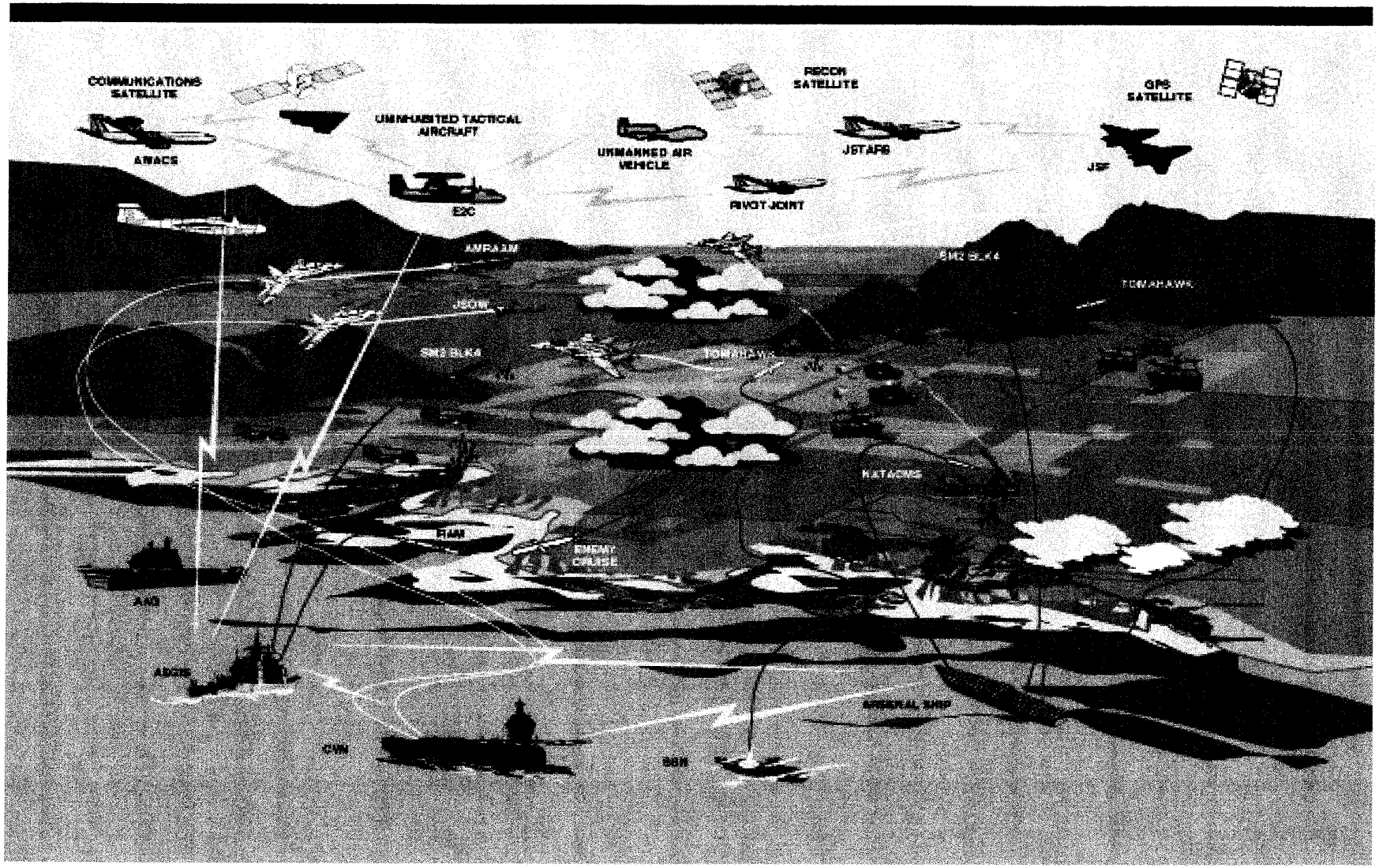
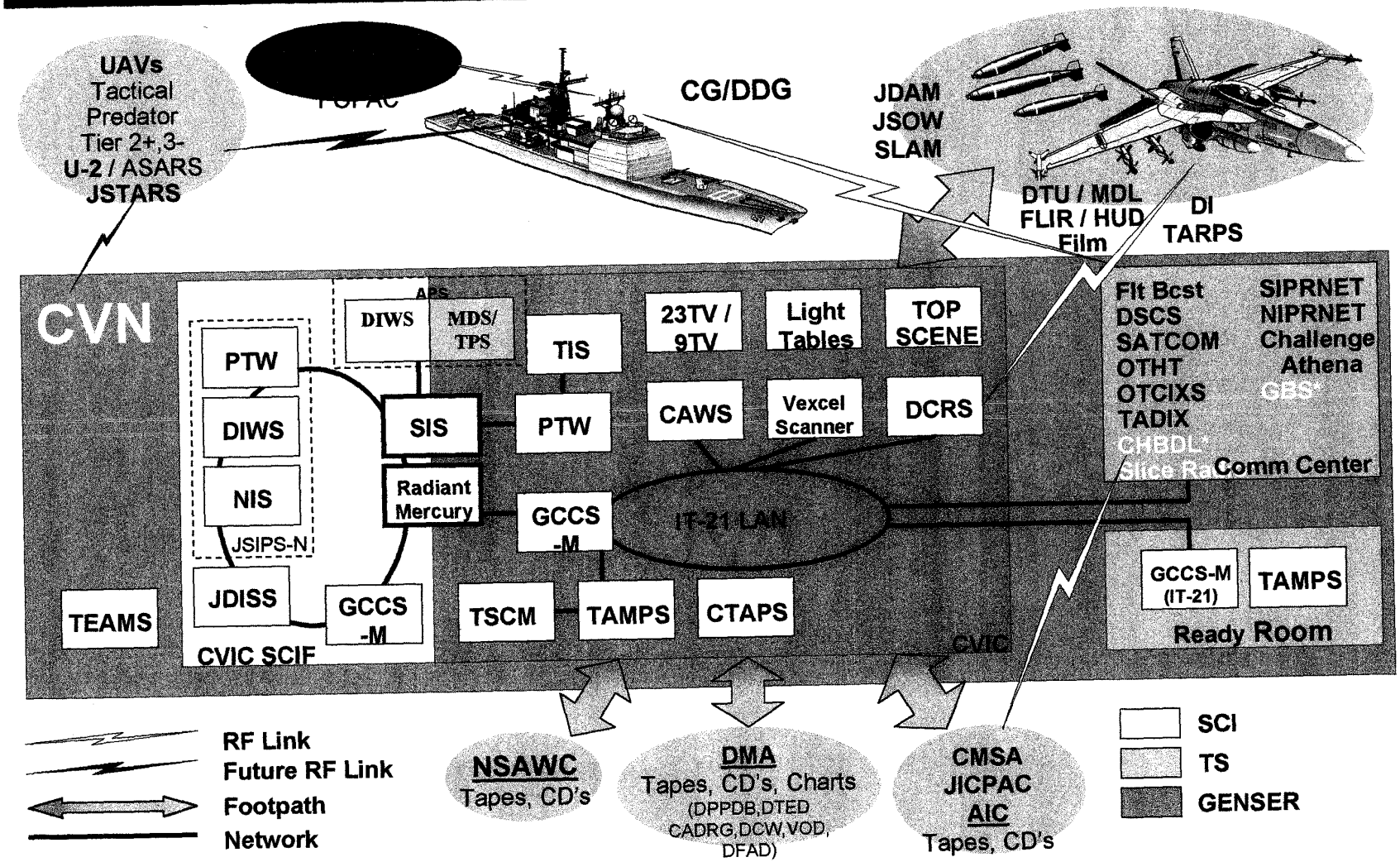
Today's Environment

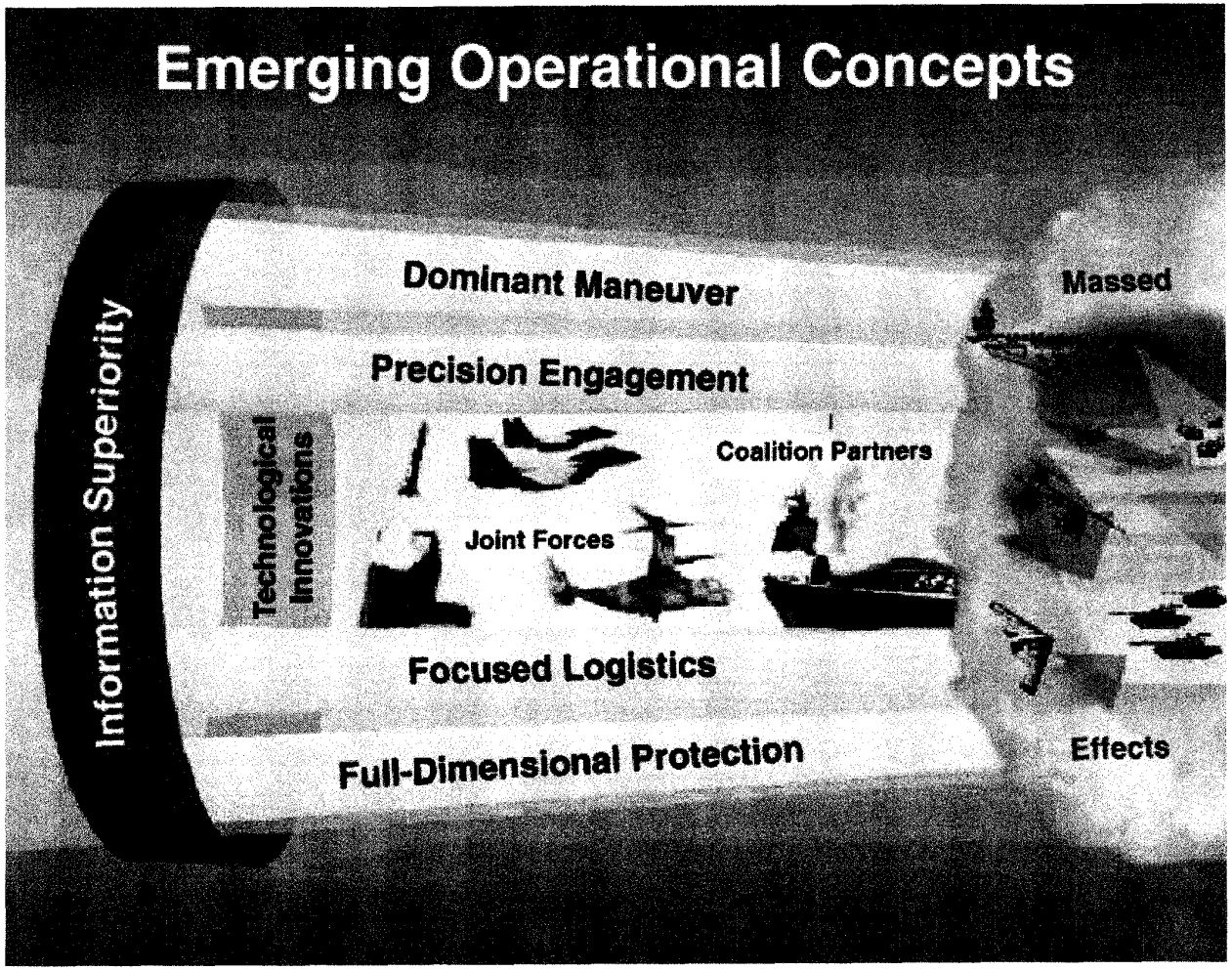
INFORMATION WARFARE DIVISION
Tomorrow's Technology Today
NAVAL AIR WARFARE CENTER
WEAPONS DIVISION



Current CVIC



Emerging Operational Concepts

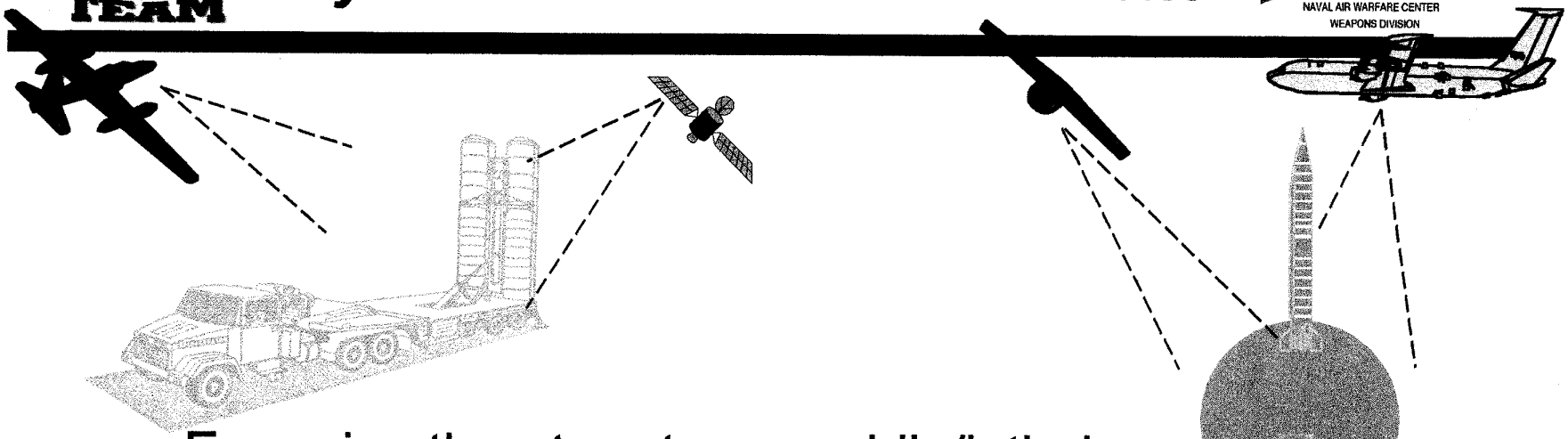


Operational Warfare Drivers

Aircraft	→	**Single seat, multi-mission, smart/ programmable**
Weapons	→	**Guided, standoff, autonomous**
Force Structure	→	**Fewer platforms, people, weapons**
Threat	→	**Lethal, mobile, electronically agile**
Operational Concepts	→	**Enable rapid, decisive, low loss victory**

Improved planning methods and tools required to meet high information demands of modern strike warfare

Dynamic Mission Environment



- Emerging threat systems mobile/lethal
  - > 90%mobile, main threat to JSF (RADM Steidle)
- High interest "time critical" targets
  - Relatively few, but can drain JTF resources (1994 DSB)
- Battlefield changes dramatically <u>within traditional planning & execution timelines</u>

Mission planning is the pacing function in joint precision interdiction timeliness (1994 DSB)

Network Centric Warfare
Brave New World

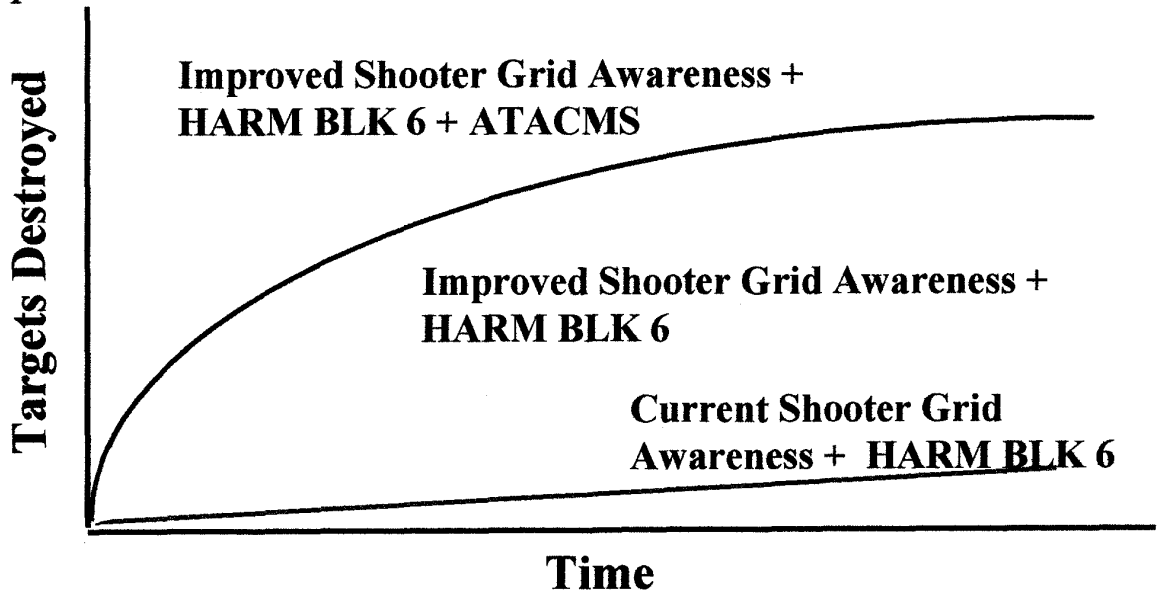
- Warfare which derives its power from the robust networking of a well informed but geographically dispersed force, enabled by:
  - Highly webbed information services
  - Timely access to all relevant and appropriate information sources
  - Value-added, automated command and control processes (to include high speed automated assignment of resources to need)
  - Integrated sensors hosted on the information network and closely coupled in time to the shooters and command and control processes
  - Weapons reach with precision and speed of response

Source: VADM Cebrowski, President, Naval War College, October 1998

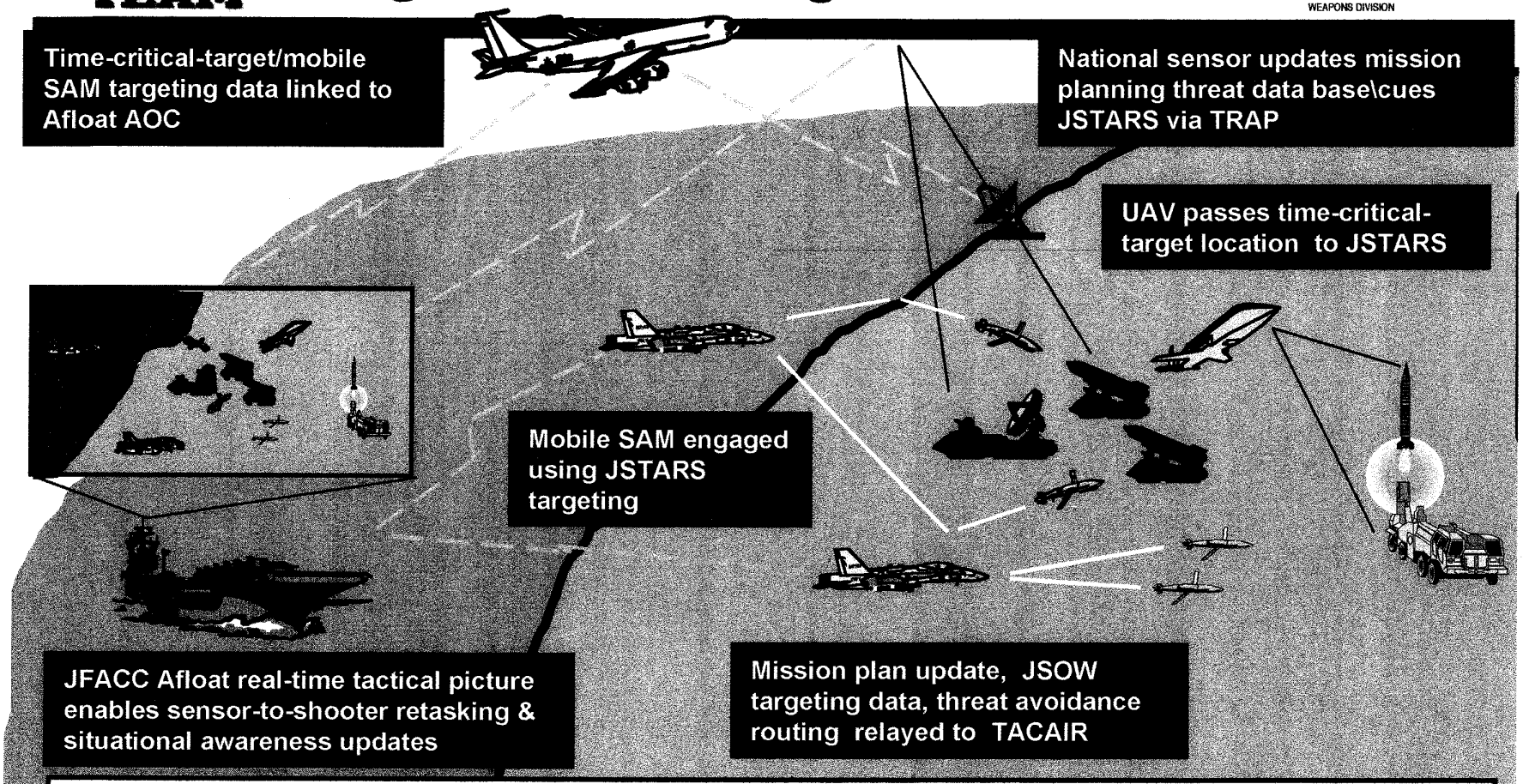
Network Centric Warfare Increases Joint Combat Power

Results for Precision Engagement

- **Operational Impact**
  - Dramatic Early Results
  - Greatest Rates of Change in Initial Phase of a Campaign
  - Inflicts Maximum Losses on the Enemy
  - Shortens Timelines
  - Locks out Enemy Options

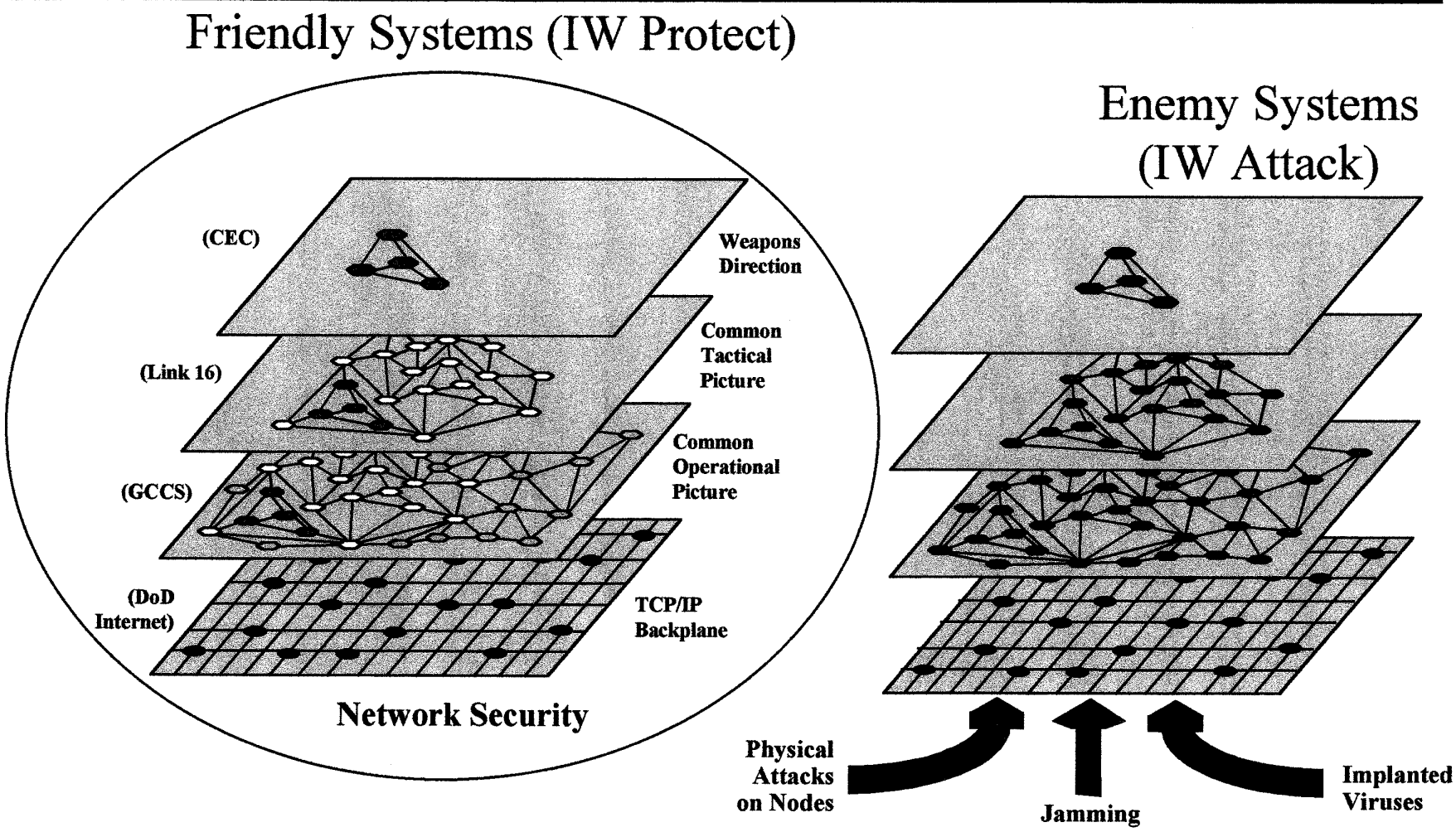


Network Centric Warfare
Integrated Planning & Execution



Time-critical-targets/advanced mobile threats demand integration of theater sensor data into real-time battle management and mission plan updates

Information Warfare



Scope of Land Attack Targeting 2010

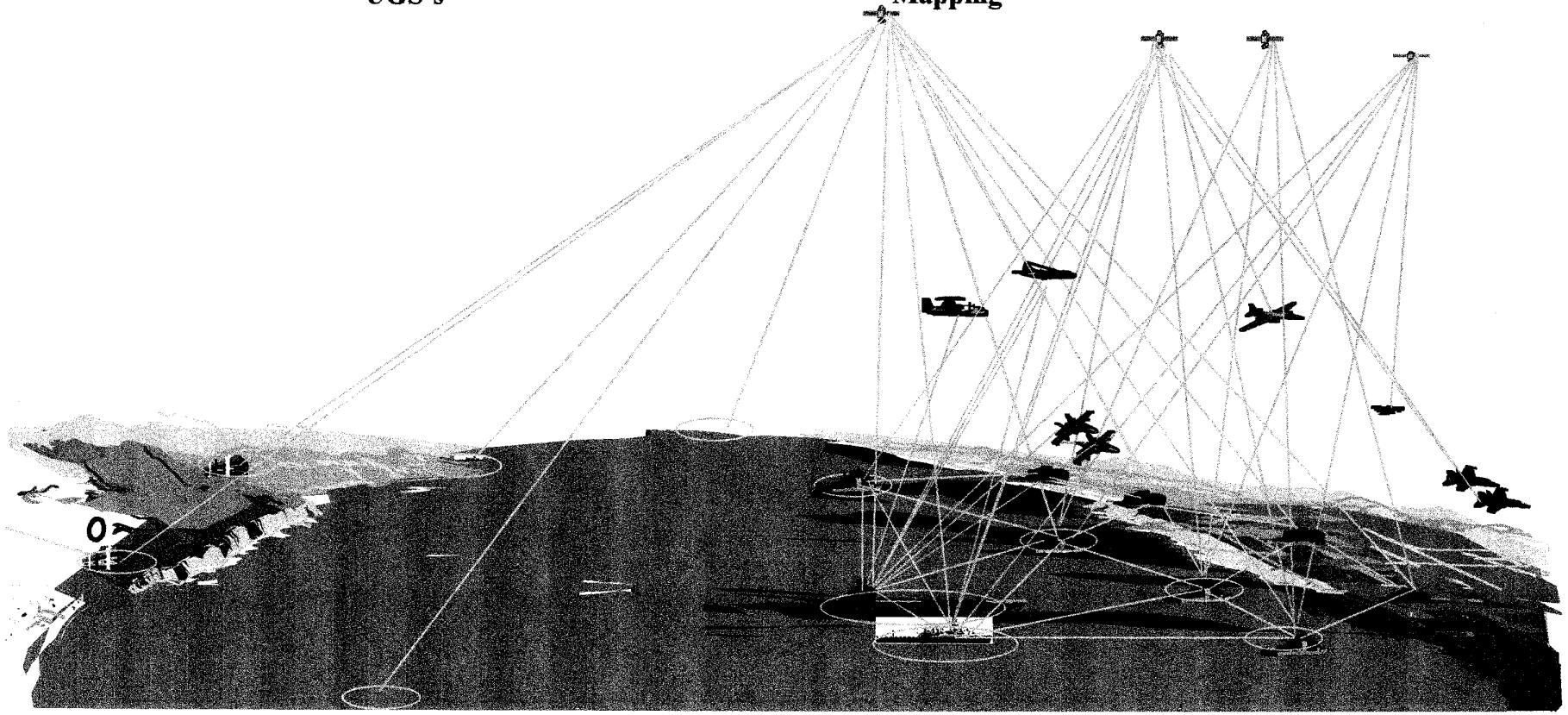
Missions (day, night, wx)
Strike
Air - Ground
Surface - Surface (NSFS)
SEAD

Sensors
NTM
Manned A/C
UAV's
Troops
UGS's

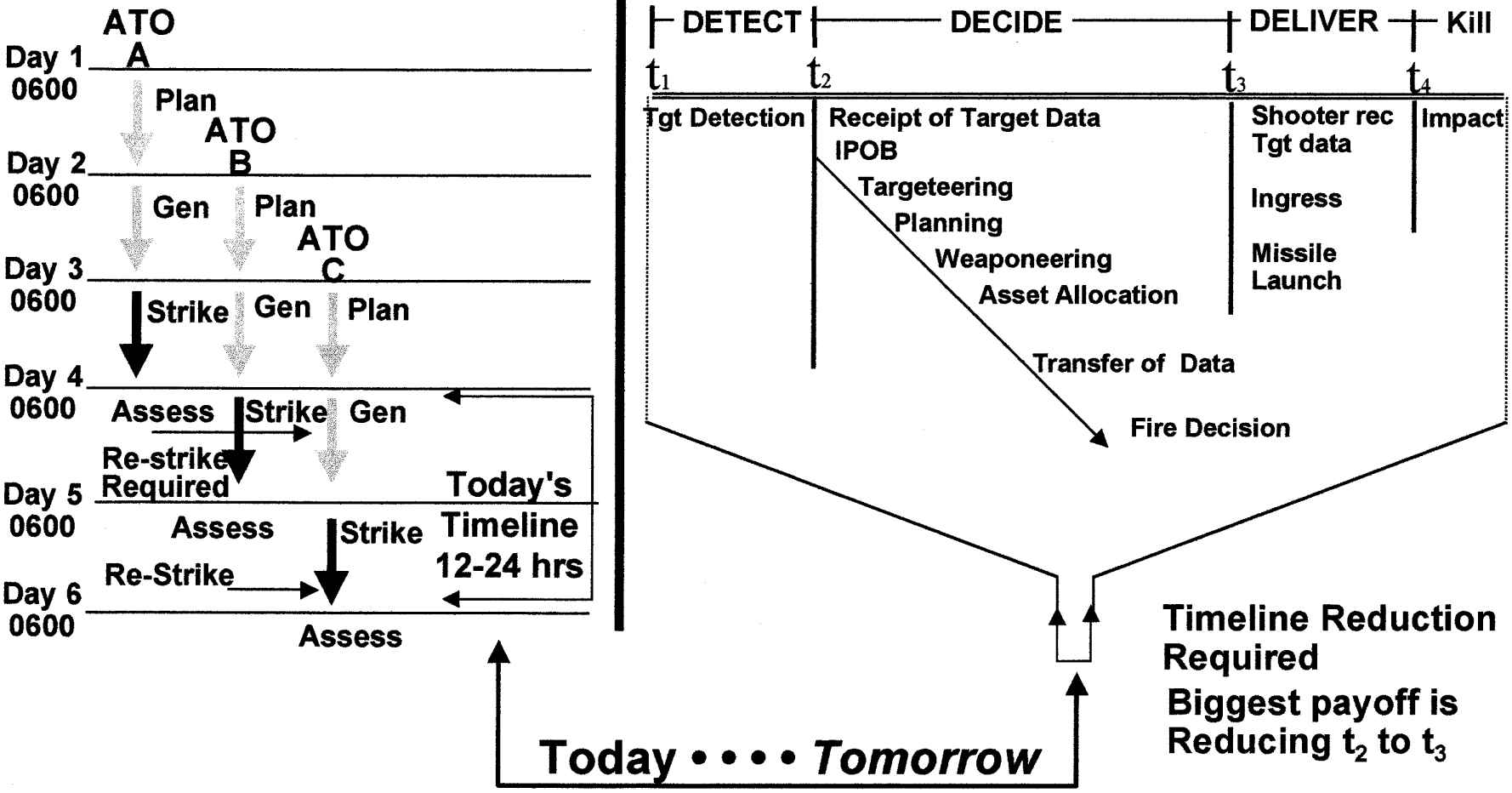
Launch Platforms
Manned A/C
UCAV's
DDG's/SSN's

Weapons (to 600nm)
Unguided
Guided
INS/GPS-only
Terminal Sensor
Mapping

Targets
Soft, Hard, Buried, Camo'd
Fixed, Relocatable, Mobile,
Moving, TCT's
Point, Array



Strike Timeline



Cooperative Engagement Capability

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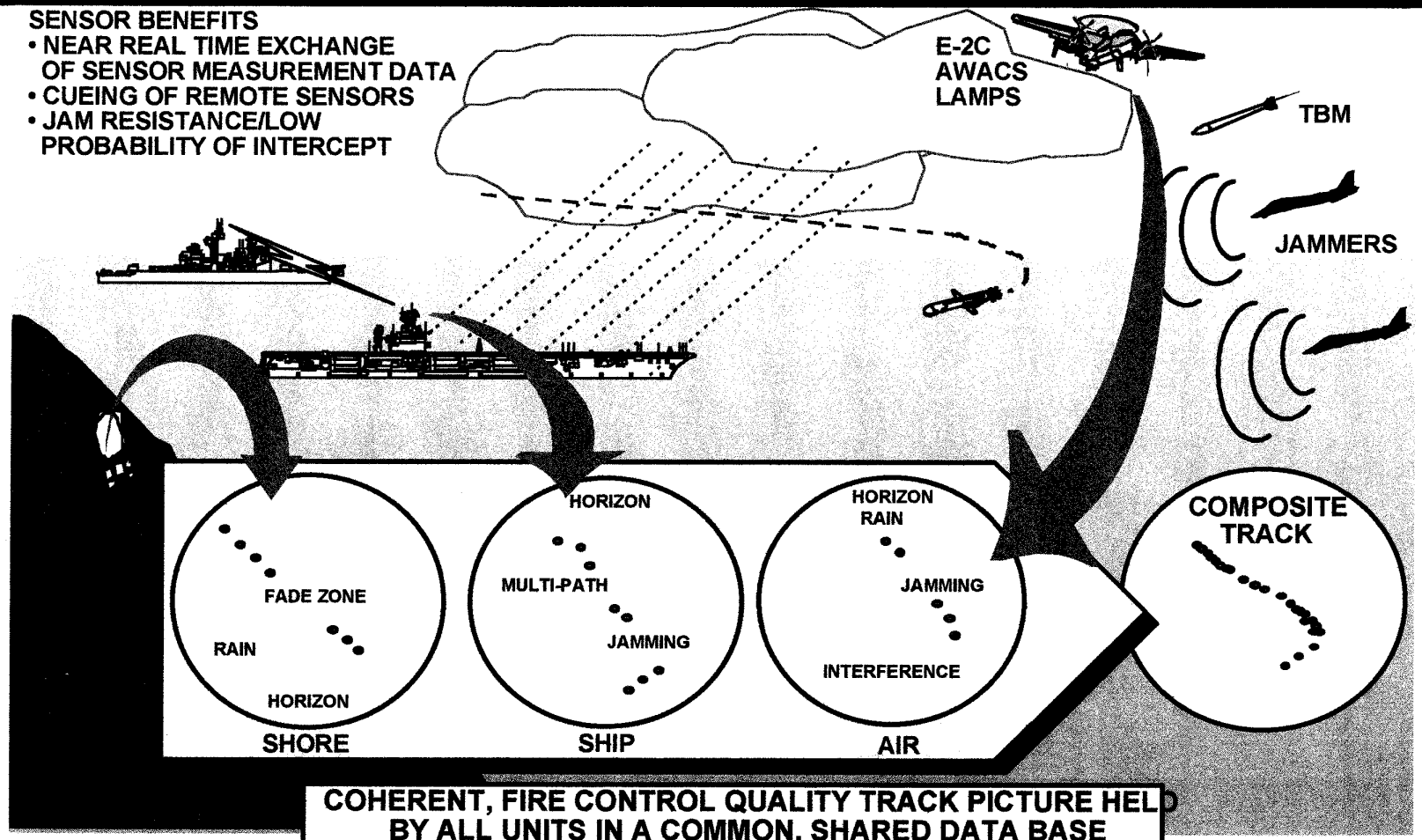
SENSOR BENEFITS
- NEAR REAL TIME EXCHANGE OF SENSOR MEASUREMENT DATA
- CUEING OF REMOTE SENSORS
- JAM RESISTANCE/LOW PROBABILITY OF INTERCEPT



COHERENT, FIRE CONTROL QUALITY TRACK PICTURE HELD
BY ALL UNITS IN A COMMON, SHARED DATA BASE

The Future: Seemless Integration