



Cooperative Engagement Capability

A Sensor Netting Enabler

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Purpose: NPS Acquisition Symposium

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PEO IWS 6.0



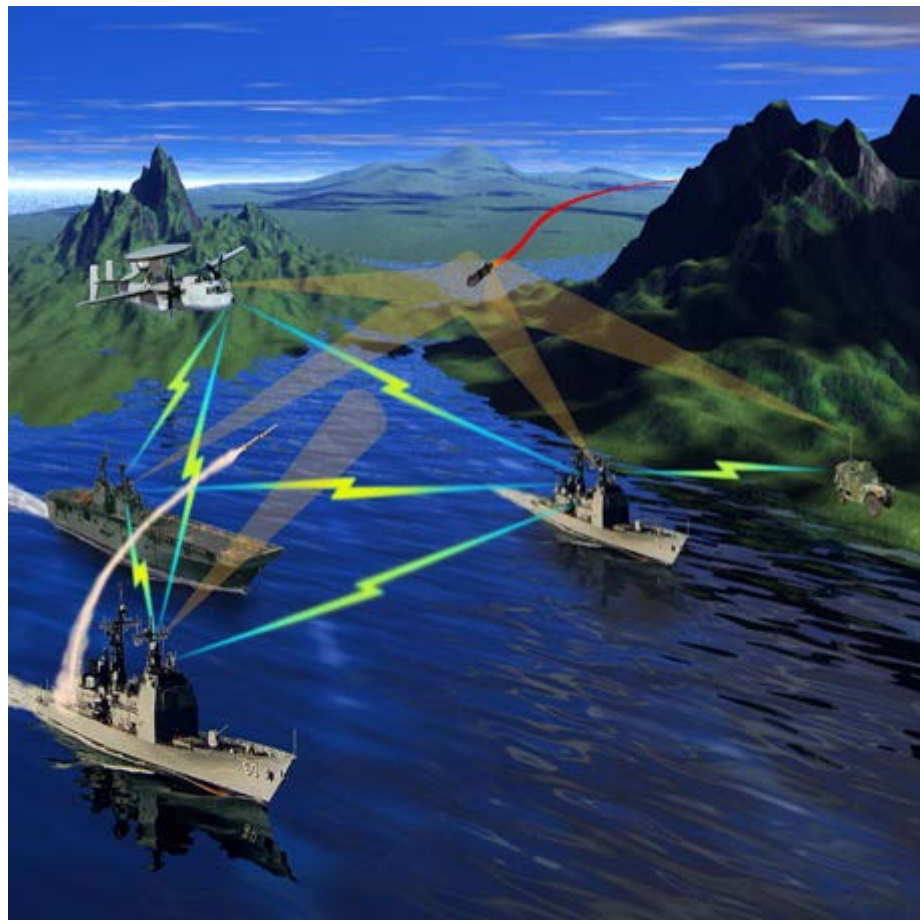
Cooperative Engagement Capability



System Description:

CEC brings revolutionary capability to air defense by distributing existing sensor data in a significantly different manner. Benefits include improvements in:

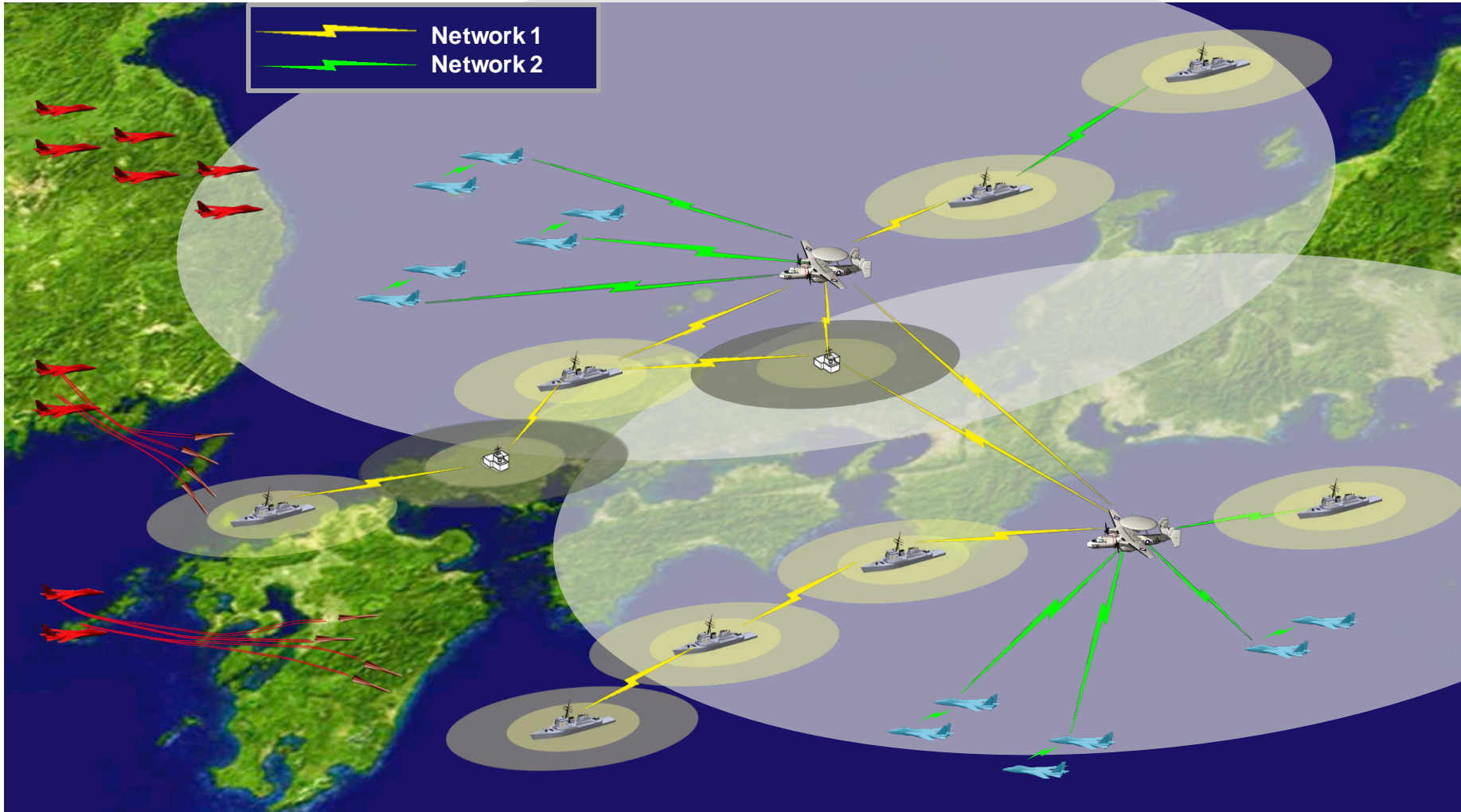
- Track accuracy
- Track continuity
- Consistent identification
- Decision-making time
- Target engagement range



Accurate, continuous target tracks



Notional CEC Network



Networked platforms need common CID and able to close the Fire Control loop with an elevated sensor



MPM Perspective: What is MBSE?



- **An approach to systems engineering in which models**
 - Are an integral part of the technical baseline,
 - Evolve throughout the acquisition life cycle
 - Are integrated across all program disciplines (e.g., systems engineering, operations analysis, software engineering, hardware engineering, manufacturing, logistics, etc)
 - Can be shared and/or reused across acquisition programs, including between government and industry stakeholders
- **An authoritative source of data/information with varied viewpoints for stakeholders**
- **It is NOT a collection of performance based physics based models or system simulations**



MPM Perspective: Why Use MBSE



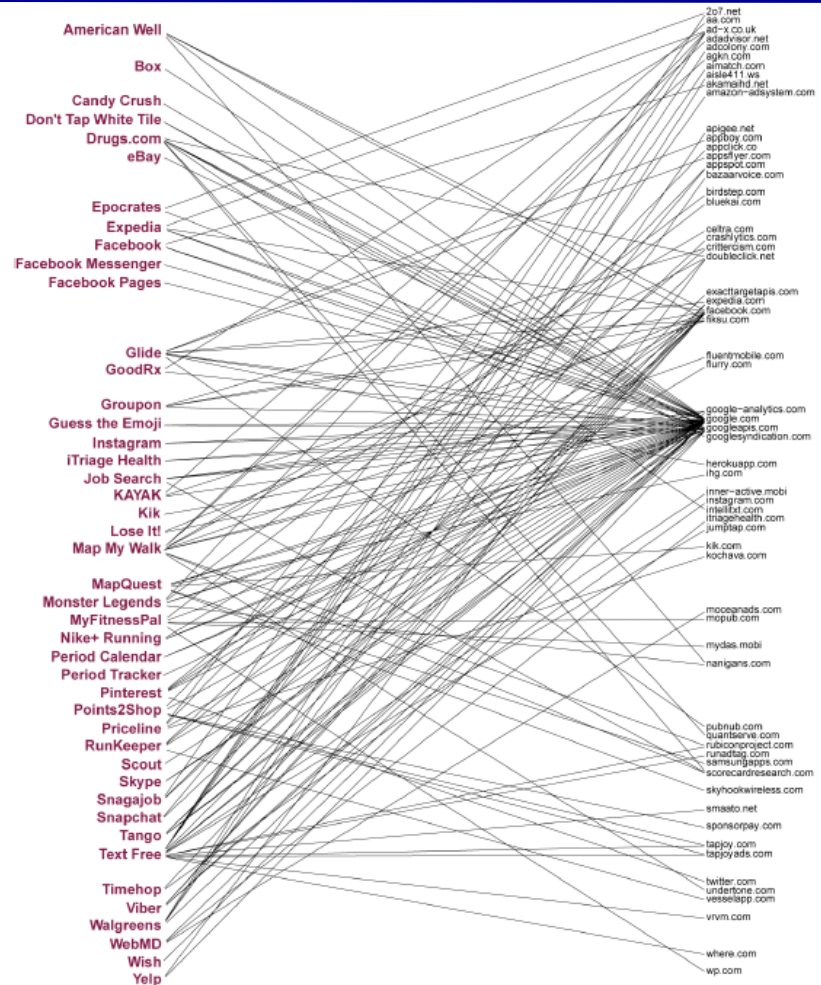
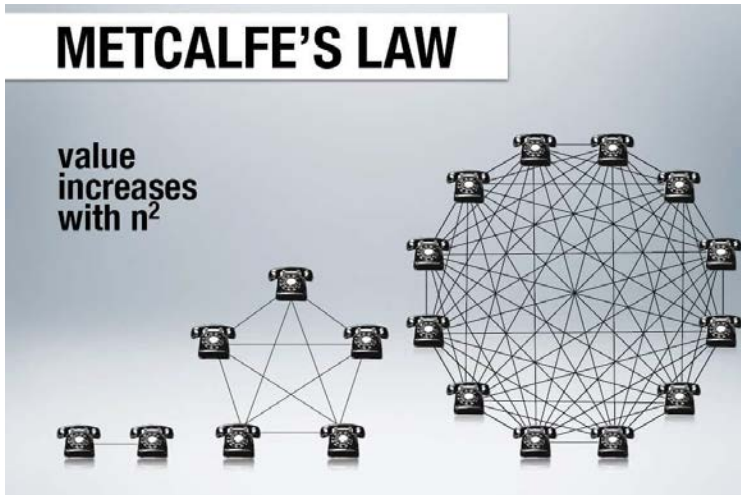
- **Reduce cost of new capability through a Digital Thread**
 - Link approved requirements to software producing platforms
 - Identifies gaps in Architecture early in development
 - Software coders understand the design intent
 - Replace document based processes with more effective model based methods
- **Enable rapid fielding and deliver capability on demand**
 - Pair Model Based Systems Engineering (MBSE) and Agile Development Processes to speed fielding of new capability
 - Adapt to both foreseeable and unforeseeable change
 - Avoid “Point Solutions” and Linear Development
 - Rapidly evaluate alternative designs
- **Eliminate Backtracking and Failure Points**
 - Utilize the virtualization of the system through a Digital Twin
 - Employ Automated Testing for Defect Containment
 - Invest in re-usable software components and models



BACK-UP

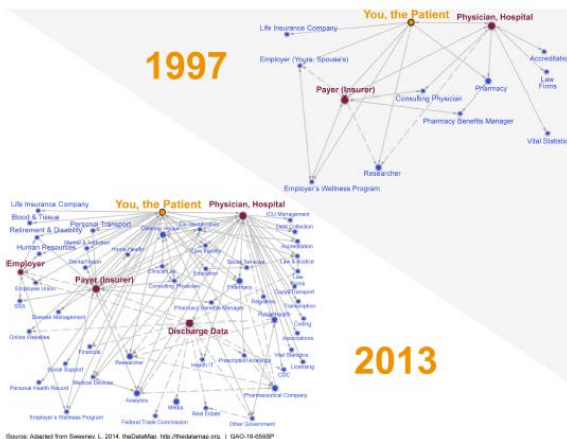
Data Sharing Examples

Android Apps Sharing Data with Third Parties



Source: Zang et al. 2015. | GAO-16-658SP

Personal Health Care Data Flow



2013

Source: Adapted from Sweeney, L. 2014. TheDataMap. <http://thedatamap.org>. | GAO-16-658SP



Line of Sight to Horizon for Different Sensor Altitudes

