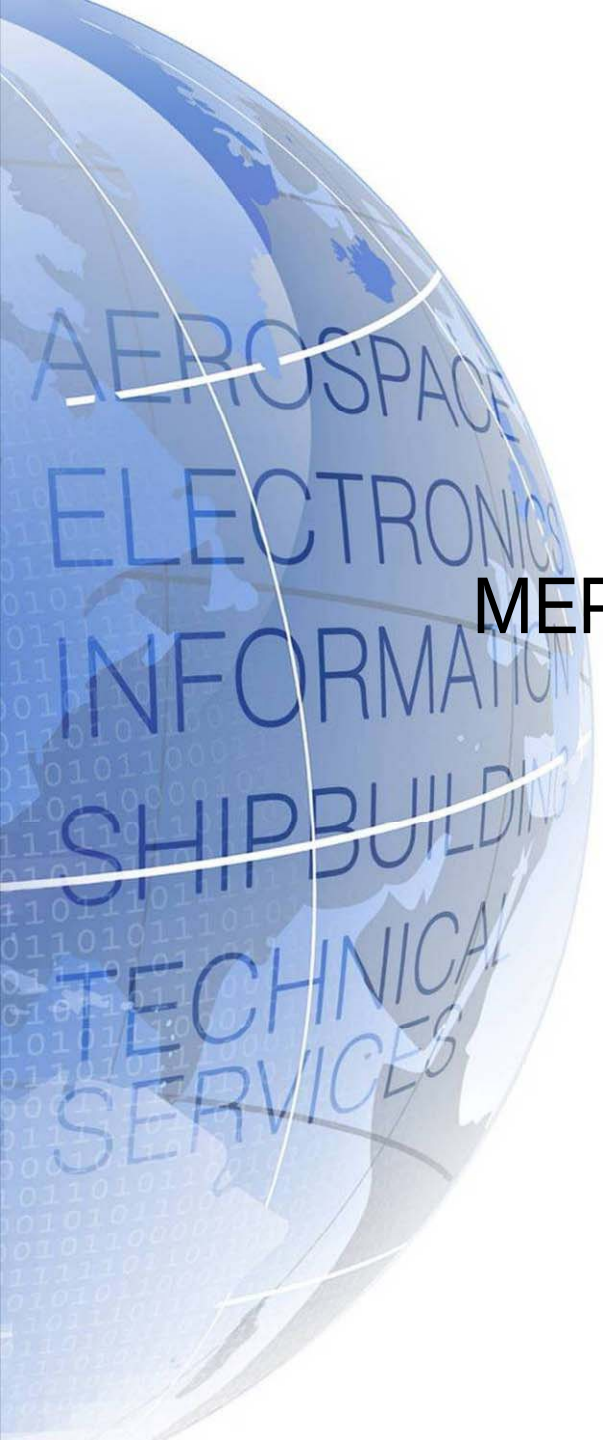


NORTHROP GRUMMAN

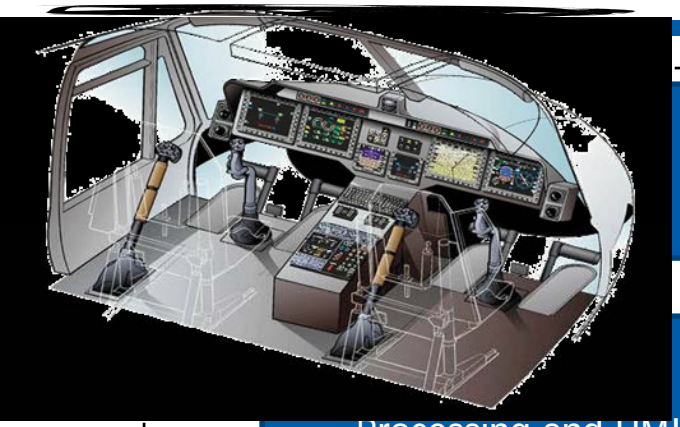
MEP Integration / Open Architecture

January 2010

Ike J. Song
Vice President
Navigation Systems Division

MEP Key Components

NORTHROP GRUMMAN



MEP Design and Integration

Processing and HMI

Vehicle Management
Platform Provider

A-Kit
Partner

Nav

ASE

Weapons

Comm

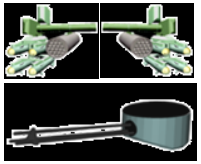
Sensors

APR-39
RWR

AAR-47 M/LWS
(ATK)

ALE-47 CMDS
(BAE)

AAQ-24 DIRCM



STARLite
Radar

Common AND Open = Best Value

Hardware and Software Commonality Across Programs

Degree of Open Architecture

	Program Unique	Common
Open	~~High Cost To Upgrade~~	**Best Value**
Proprietary	~~High Cost to Maintain & Upgrade~~	~~High Cost To Maintain~~

Will Your Common Cockpit Provide The Expected Benefit of Low Cost?

NORTHROP GRUMMAN

☒ Sole source award due to proprietary hardware and software

The sole designer, developer, and manufacturer … these Multi Function Displays are the only known units compatible with the Operational Flight Program …Award to any other source would result in substantial duplication of cost to the government and is not expected to be recovered through competition …

☒ Sole source awarded due to lack of Government data rights

…the government does not possess the right to rehost (the) software in any other device … the sole designer, developer, and original equipment manufacture is the only company that has the rights, resources, technology and documentation required to perform a rehost

E.g. Recent CDU Replacement Competition

Common Avionics Must Include Open Architecture

NORTHROP GRUMMAN

What is open architecture?

- ☑ Employs widely-accepted standard hardware and software interfaces (internal and external)
- ☑ Uses only non-proprietary or commercially available software
- ☑ Allows third parties to add hardware and software capabilities to delivered systems
- ☑ Government receives all developmental artifacts and unlimited usage rights (H/W and S/W)

How to measure openness?

- ☑ Use Government open architecture assessment tools in proposal evaluations

Why does open architecture result in cost-effective, best-in-class systems?

- ☑ Allows full and open competition for upgrades as well as new platforms
- ☑ Reduces cost and schedule required to accomplish upgrades
- ☑ Reduces life-cycle cost for incremental capability improvements and obsolescence management