ASA(ALT)
Office of the Chief Systems Engineer (OCSE)

Info Brief
Integrated SoS Architecture

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Systems Architecture Development Across the Acquisition Community

Integrated SoS Architecture Challenges

- Architecture capability is focused on program specific support
- Program specific efforts don't link to a comprehensive SoS view
- Products need to support broader Army processes and decision forums

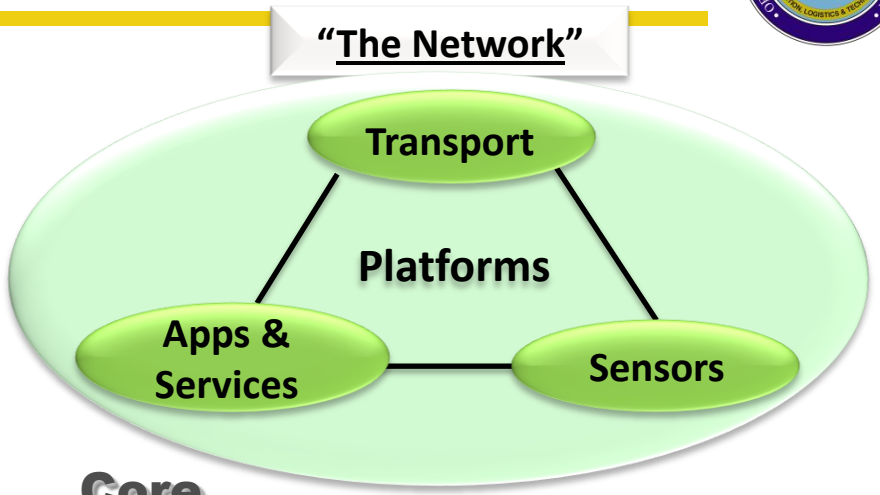
Systems Architecture / Analysis Vision

As the Army's Systems Architect….

Establish the capability to develop & deliver the architecture products that enable analysis & trades and provide timely relevant information for decisions

Systems Architecture Relevancy

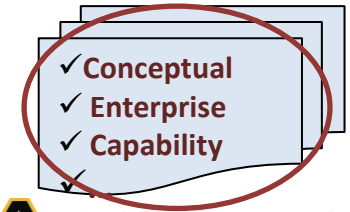
Organize, visualize, analyze, and communicate stakeholder concerns through various viewpoints



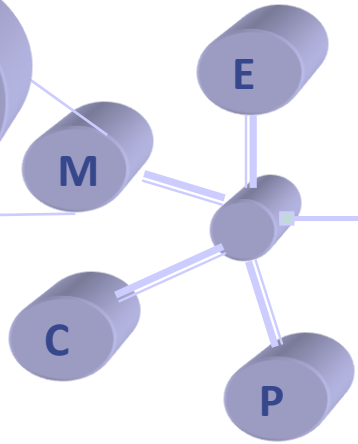
Views

Cost View
Capability View
SE View
Acquisition
etc.

"Fit for Purpose"



Federated Architectures



E – Enterprise
M – Mission Area
C – DoD Component
P – Program

Core Processes

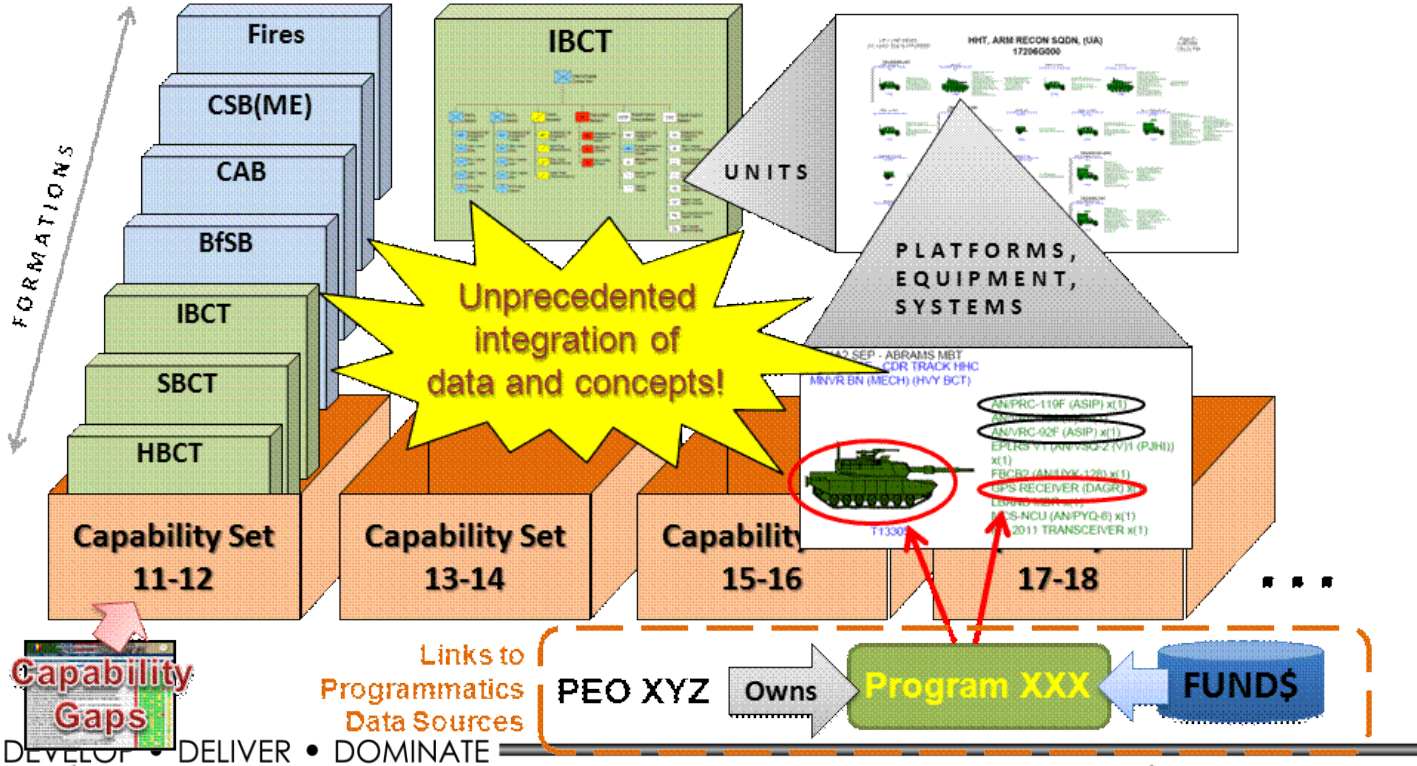
- PPBE/PfM
- JCIDS
- DOTLMPF
- Acquisition
- Systems Eng
- ARFORGEN

Relevancy

- Resourcing
- Capabilities Approval
- Integrated Cap Dev
- Materiel Development
- Reference / Imp Arch
- Fielding

ASA(ALT) Ref/Integrated Architecture Goals

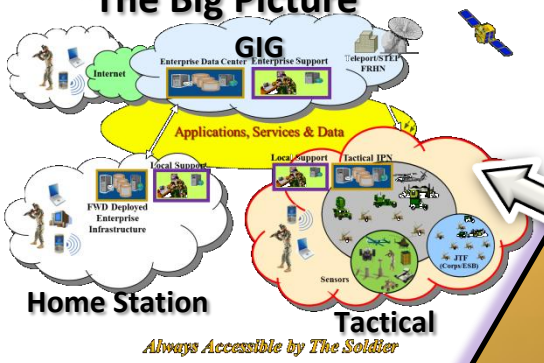
- **Establish reference architectures for all Army formations, across time, that form the basis for representing and communicating the Army's programmed plan**
- **The data is organized in order to support views and analysis across organizational and budgeting bins**
- **Enable trades and analyses that use these architecture data to support informed systems acquisition decisions across the life cycle**



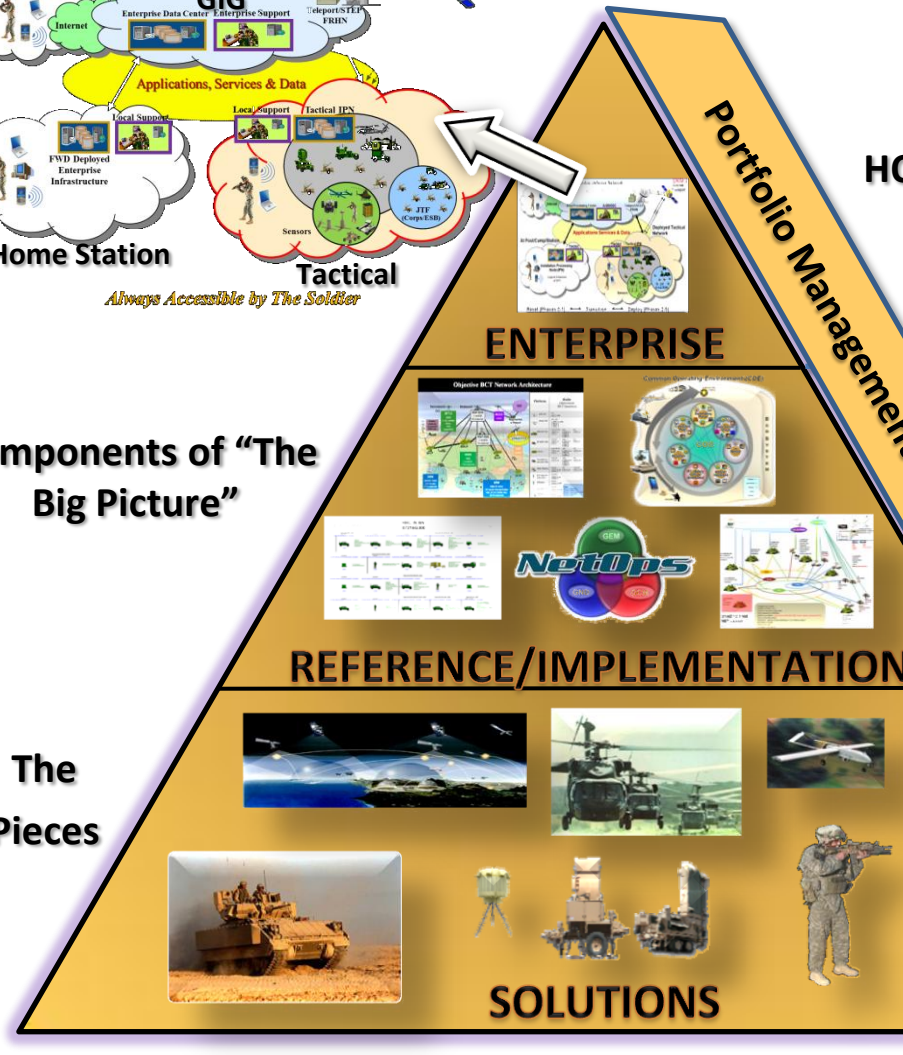
Levels of Architecture

"A System-of-Systems Architecture View"

"The Big Picture"



Components of "The Big Picture"



The Pieces

HQ DA

- Entire Global Network (GIG)
- Army Enterprise Network / GNEC
- Army Generating Force Network
- Army Tactical Network
- Post/Camp/Station/FOBs
- Across all Phases of Military Ops

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- Network Arch by Formation / Echelon
- Common Operating Environment (COE) Reference Architecture
- Transport/NetOps Reference Arch
- Platform Reference Architectures

PEOs/

PMs

- System Architectures
  - Platforms (Air, Gnd, Sldr)
  - Mission Command (CP CE)
  - Radios (GMR, RR, 117G,..)
  - Sensors (Imaging, Radar, ..)
  - Network (NIR/NIE, 4ID, …)

Systems Architecture Efforts

ASA(ALT) systems architecture/analysis has made significant progress, and our products have been used in various forums to support Army/Joint decision making (some examples):

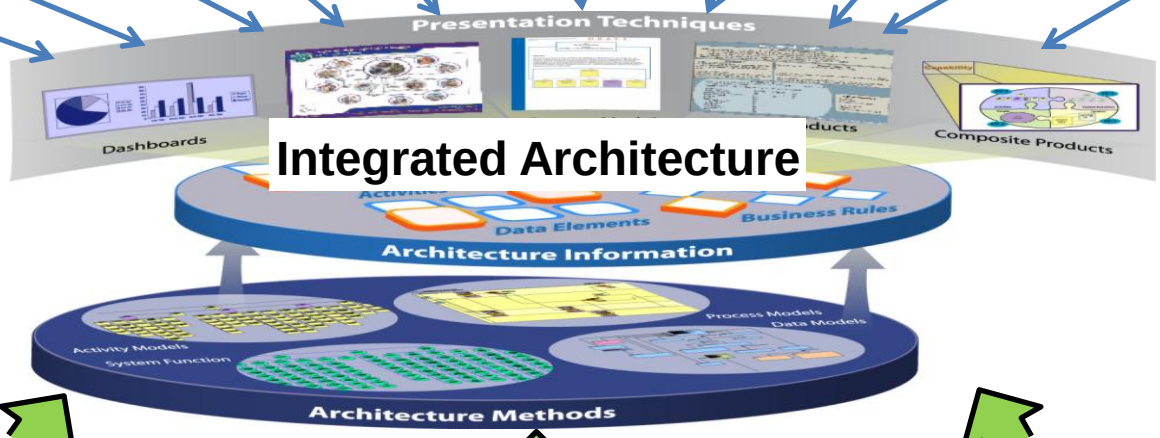
	Product	Status	Supported Process	Result(s)/Anticipated Result(s)
Focused Trades and Analyses	Army Network Design Trade	Complete	PPBE, CPR, Acquisition	Army network Strategy; CS13-14; RMD12
	Network BOI Feeder Data	Complete	PPBE, CPR, Acquisition	CS13,14, & NIE network design, RMD12, Radio DRs, GMR N-M, HMS MS C
	Living Organizationally Based Architecture Pilot	Complete	DOTMLPF, Systems Engineering	Linkages between systems arch, operational arch, and M&S (TRADOC & ASA(ALT))
	Platform Integration SWaP Study	Working (30%)	PPBE, Acquisition, ARFORGEN	Army decision on CS-13 & 14 platform mods, RMD13, Unit selection in FY14
	Network Operations IPT	Working (50%)	PPBE, Acquisition, DOTMLPF	NIE NetOps efforts, reduced operational complexity and reduced troop to task ratios, potential re-programming
	Transport Convergence Trade Study	Working (70%)	PPBE, Acquisition	Realignment of satellite acquisition programs and assets
	Integrated Base Defense	Working (80%)	PPBE, Systems Engineering, JCIDS	IBD Design and reference architectures, FY14-18 POM process input, requirements adjudication
	Aerial Tier Analysis	Working (20%)	DOTMLPF, Acquisition, PPBE	Adjustments to the BOIP, NIE participation, reference architecture design, POM15-19 input
Advancements necessary to address increased complexity	COE Governance	Working (75%)	SoS Systems Engineering - ALL	Advanced and integrated systems trades, over time, relative to integrated requirements
	Reference Architectures (VICTORY, FACE, SPIE)	Working (90,20,20)	SoS Engineering	Direct impact to Army platforms and sensor integration
	Infrastructure development - Portfolio Management	Working (30%)	SoS Systems Engineering - ALL	Advanced and integrated systems trades, over time, relative to integrated requirements and across portfolios

What we need to do next:

Linking Business Areas to Establish an Integrated Architecture

G-6 USAFMA LOGSA G-8 AcqBiz TRADOC G-3/5/7 PEO I PEO C3T CERDEC

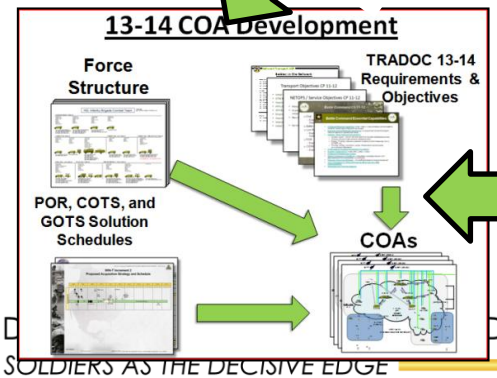
APMS FMS/AOS LIW AE2S AIM/APORTS CADIE CBME IMADS SuperSet CANDR

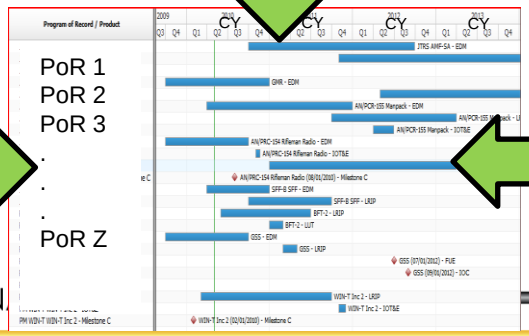


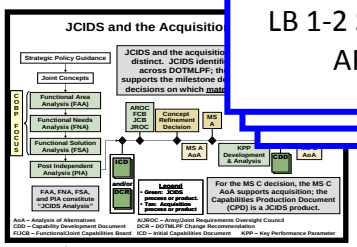
Brigade Design

Program Management

Army Decisions





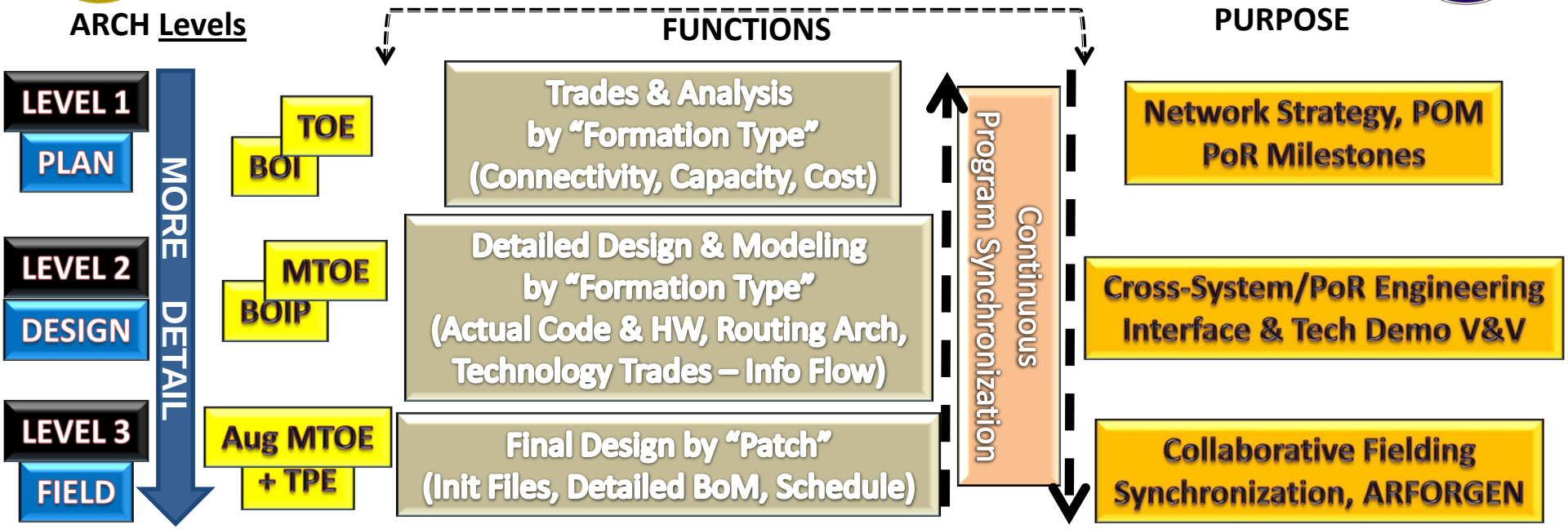


WSR
LB 1-2 Star GOSC
ARARC

Milestone Decisions

Discussion

Basic "Levels" of Architecture



- Architectures of value are "fit for purpose", but in general support the description of Formations, Systems, and their interactions
- Architectures combined with operational scenarios and CoAs enable modeling and simulation, and analysis
- Recent additions to the DoDAF also enable descriptions of Capabilities, Services, and Programmatics, but our tools have yet to maturing
- Tools and processes enable a continuum of activities that support the life cycle

Annual Programmed Plan Refinement Process

(Supported by Integrated Architectures)

Planning

Program

Capability Gaps

13-14 COA Development

Force Structure

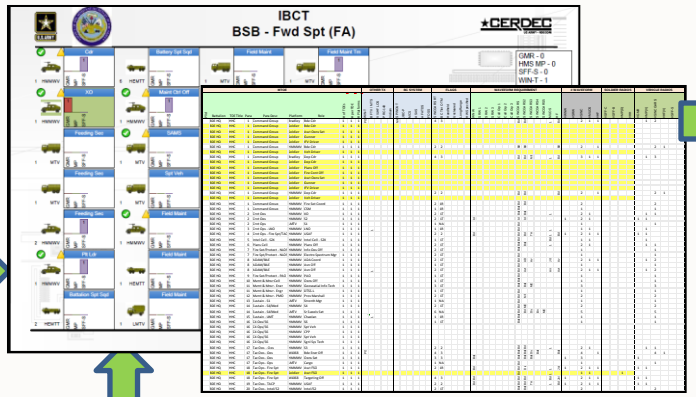
TRADOC 13-14 Requirements & Objectives

POR, COTS, and GOTS Solution Schedules

COAs

Army Decisions

Proposed Changes to the Planned Program

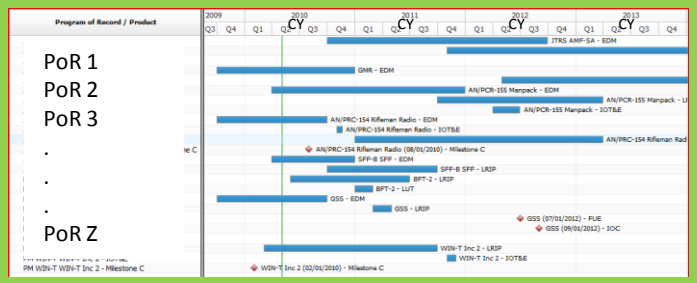


PEOs/PMs WSRs

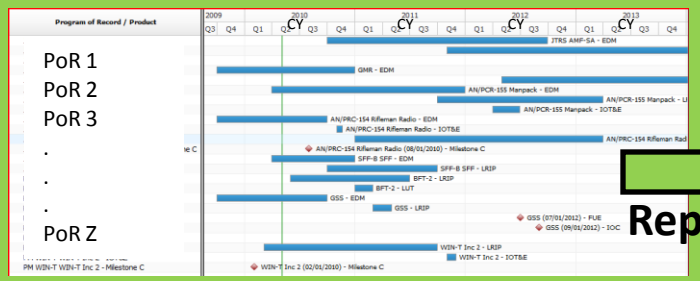
Army Decisions

Architecture Updates

The Programmed Plan (FY 11-17)



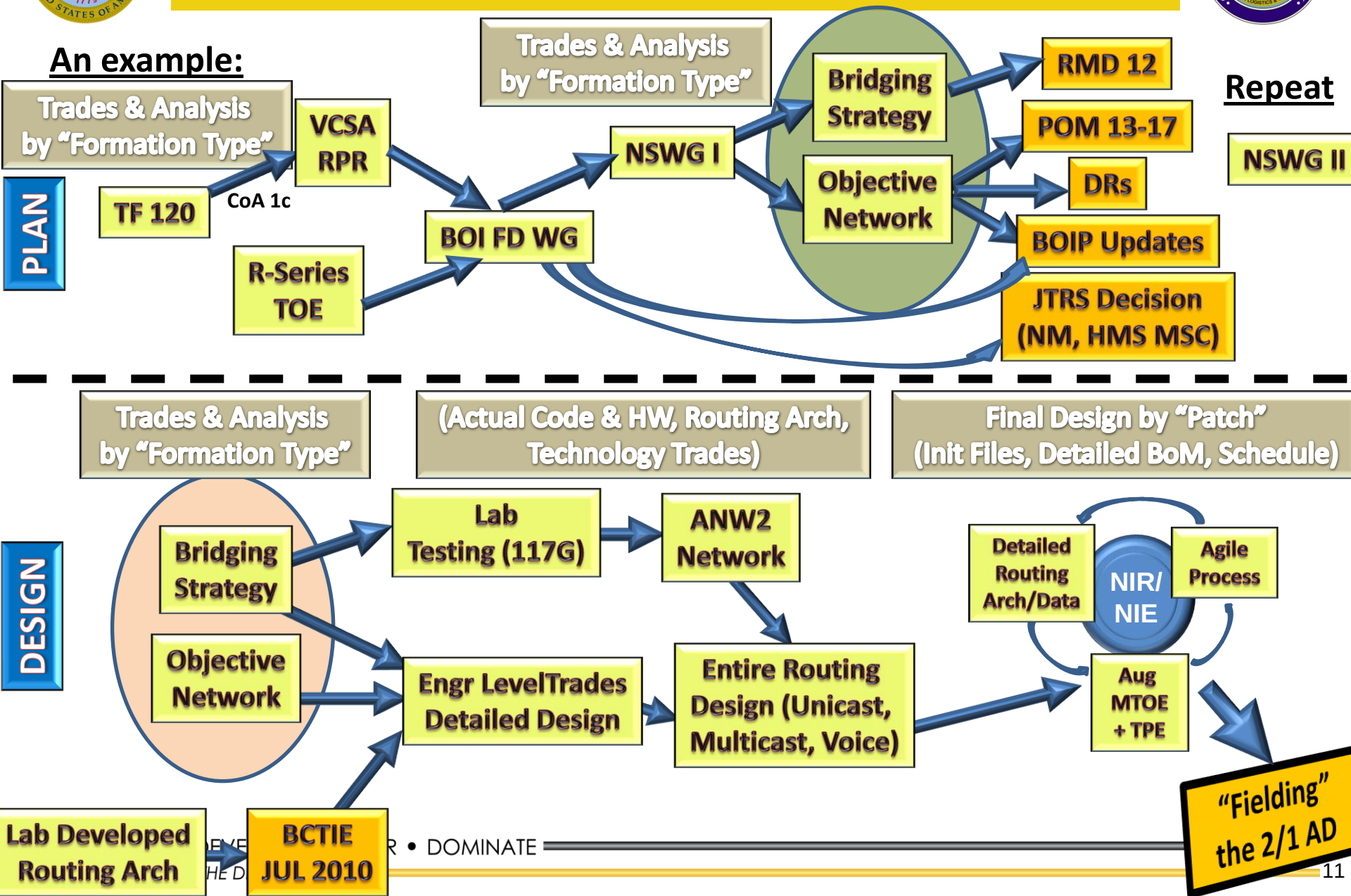
The Revised Programmed Plan (FY 11-17)



Repeat

Examples of Architecture is adding value now

(1 of 2)



Examples of Architecture is adding value now

(2 of 2)