

State of C2 Evolution

Agenda

- Drivers
- Objective Vision
- Multi-Party Engineering
- Joint C2 Migration
- Teaming
- Additional Information
- Learn More



Drivers

- Need to address cost, timeliness of capability delivery, and subsequent flexibility.

DoD/CIO Campaign Plan, Oct 2011

- "...Therefore, the DoD CIO must address this challenge by providing the advocacy and guidance necessary to facilitate agile, rapid delivery of effective, secure information capabilities across all missions and functions."

JC2 Capability AoA Conclusions and Recommendations, March 2011

- "Sustainment costs of current C2 capabilities dominate"
- "A joint C2 Modernization Strategy that comprehensively addresses both capability improvements and the transformation / migration of legacy capabilities is needed"
- No single program (e.g. NECC), rather a federated "Joint C2 Family-of-Programs"
- Critical function - C2 Enterprise-Wide Architecture Development & System Engineering

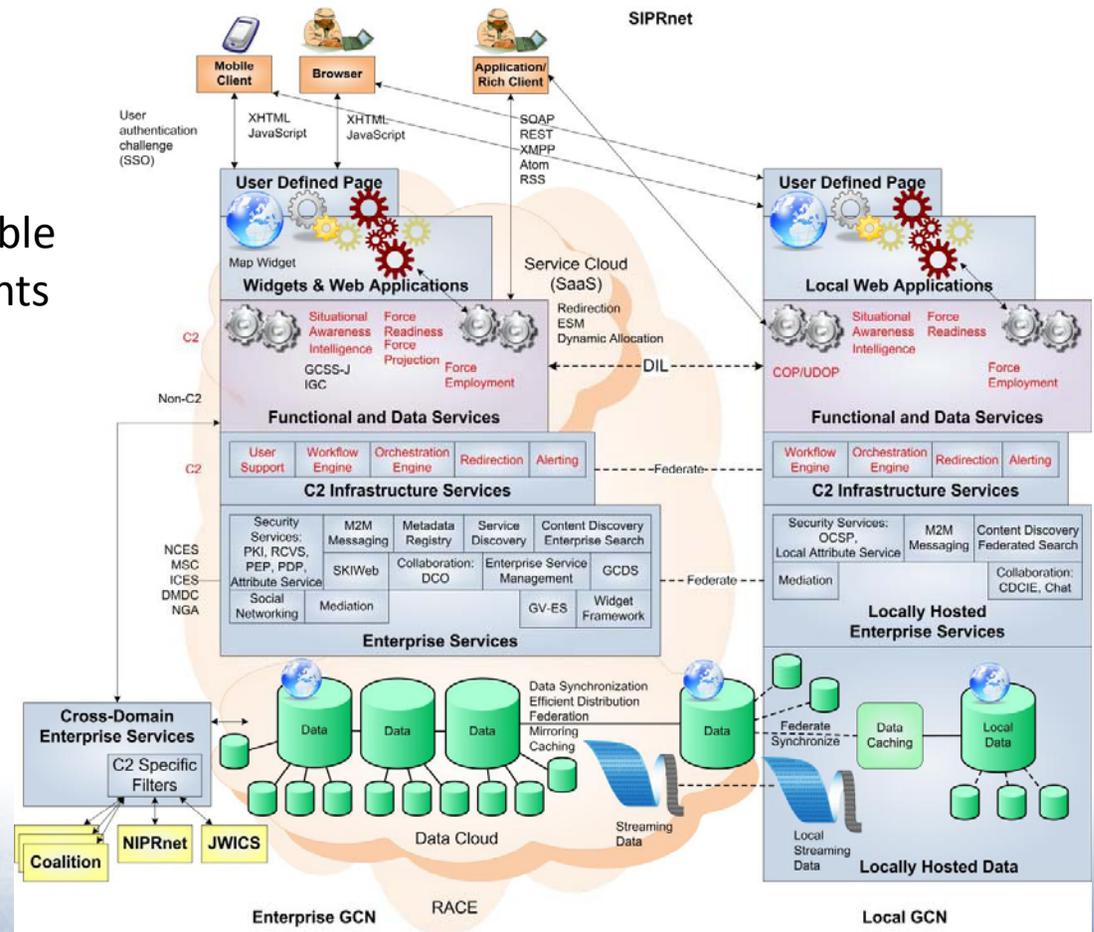
"Mission Command", GEN Martin Dempsey, Army Magazine, Jan 2011

- "Confronting hybrid threats—combinations of regular, irregular, terrorist and criminal groups—in such an environment requires leaders who not only accept but seek and embrace adaptability as an imperative."

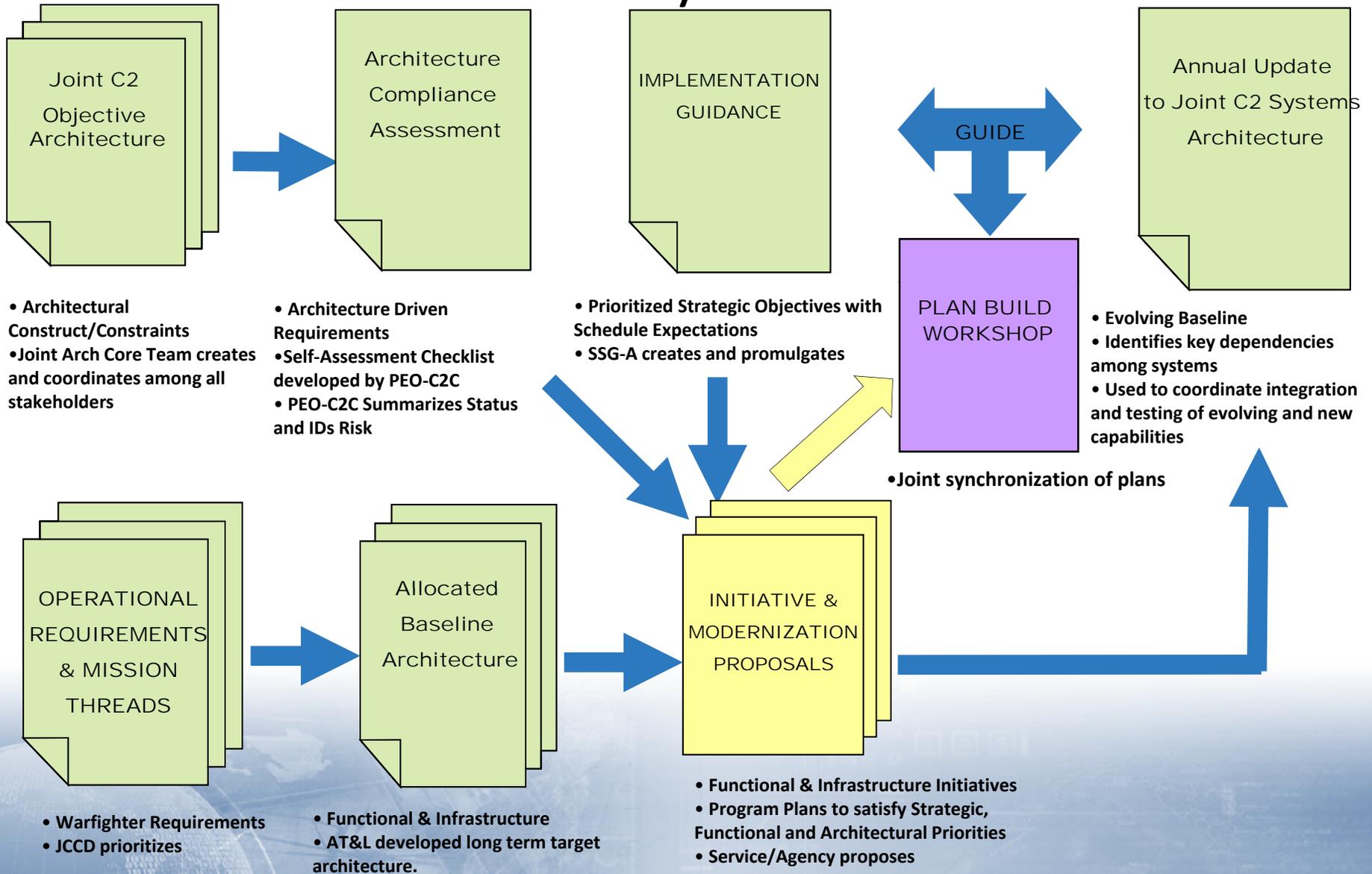
Objective Vision

Agile & Adaptive Environment

- Enabled by a Joint C2 Objective Architecture
- Principles and constraints that enable independently developed components
- Promotes maximum reuse
- Utilizes enterprise services
- Emphasizes use of cloud services

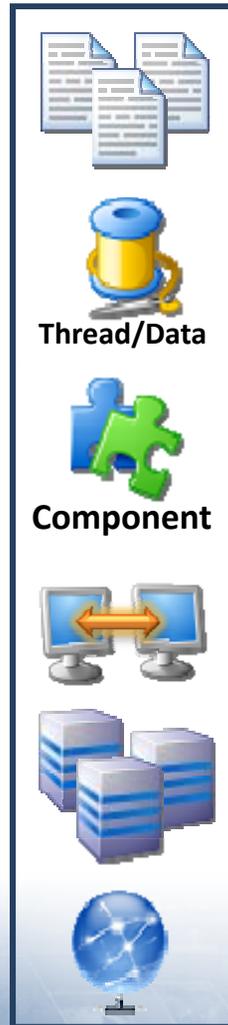


Arch & Ops Requirements Synchronization



Agile and Adaptive Mission Capabilities 1 of 4

Mission Information
Mission Thread
Mission Functionality
Core / middleware
Computing / Hardware
Network



Legacy Baseline Acquisition Boundary

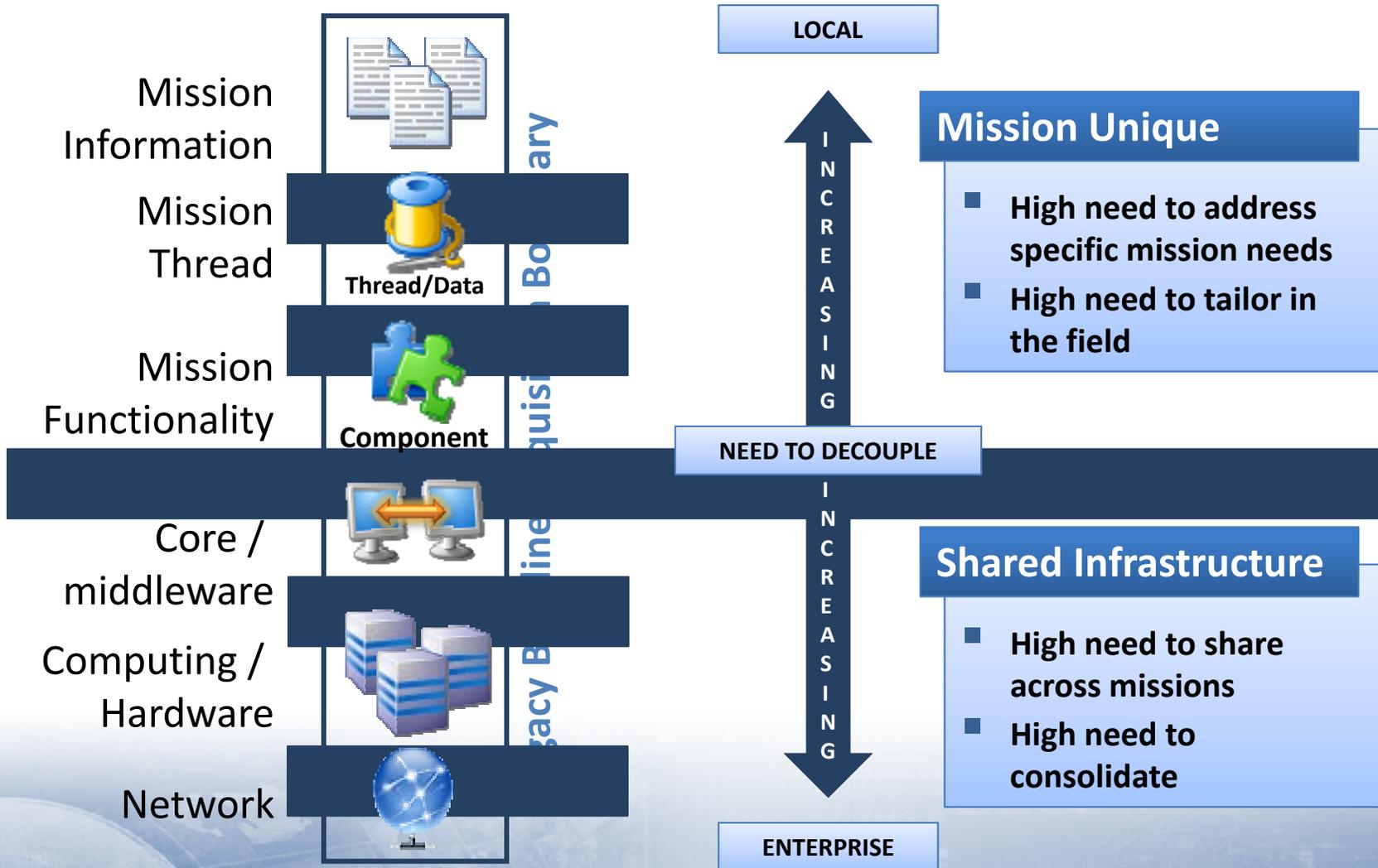
Current Methods

- Deliver a against a complete set of requirements, delivered over a long period of time as a singular tested, accredited capability

Challenges

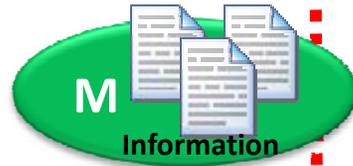
- Requirements are not well known in advance
- Large capabilities have long delivery times
- Capabilities difficult to modify in the field

Agile and Adaptive Mission Capabilities 2 of 4



Agile and Adaptive Mission Capabilities 3 of 4

Mission Information



Mission Thread



Mission Functionality



Mission Component Providers

Independent Component Development

- Large number of mission specific component producers
- Smaller number of core component producers
- Core components can be reused
- Shared Agreements assure components can be assembled

Core / middleware



Computing



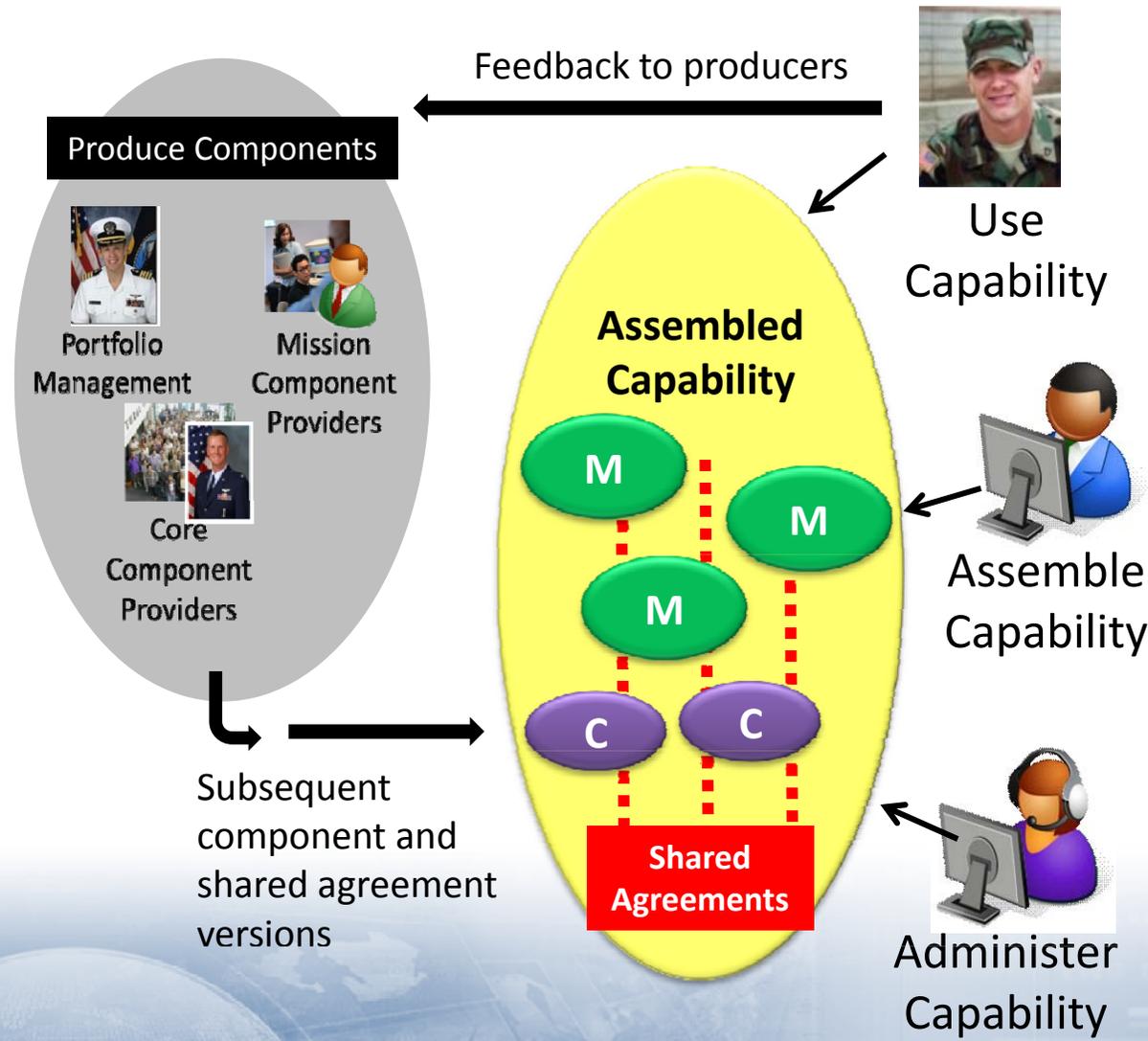
Network



Core Component Providers

Shared Agreements

Agile and Adaptive Mission Capabilities 4 of 4



Independent Capability Assembly

- Capabilities assembled using independently produced components
- Components are a mix of core and mission specific
- Feedback from end user to component producers
- Capability adaptation in field enabled

Multi-Party Engineering – Tenets

Tenet #1 – Provide Small Components

- Short timeframes
- Version-able
- Suitable for iterations as requirements evolve

Tenet #4 – Assemble Capabilities

- Capabilities are assembled from components which are certified to applicable shared agreements

Tenet #2 – Certify Components to Shared Agreements

- Shared Agreements constrain usage to assure ability to assemble later
- Shared Agreements cover security, accreditation, testing, data semantics, etc.

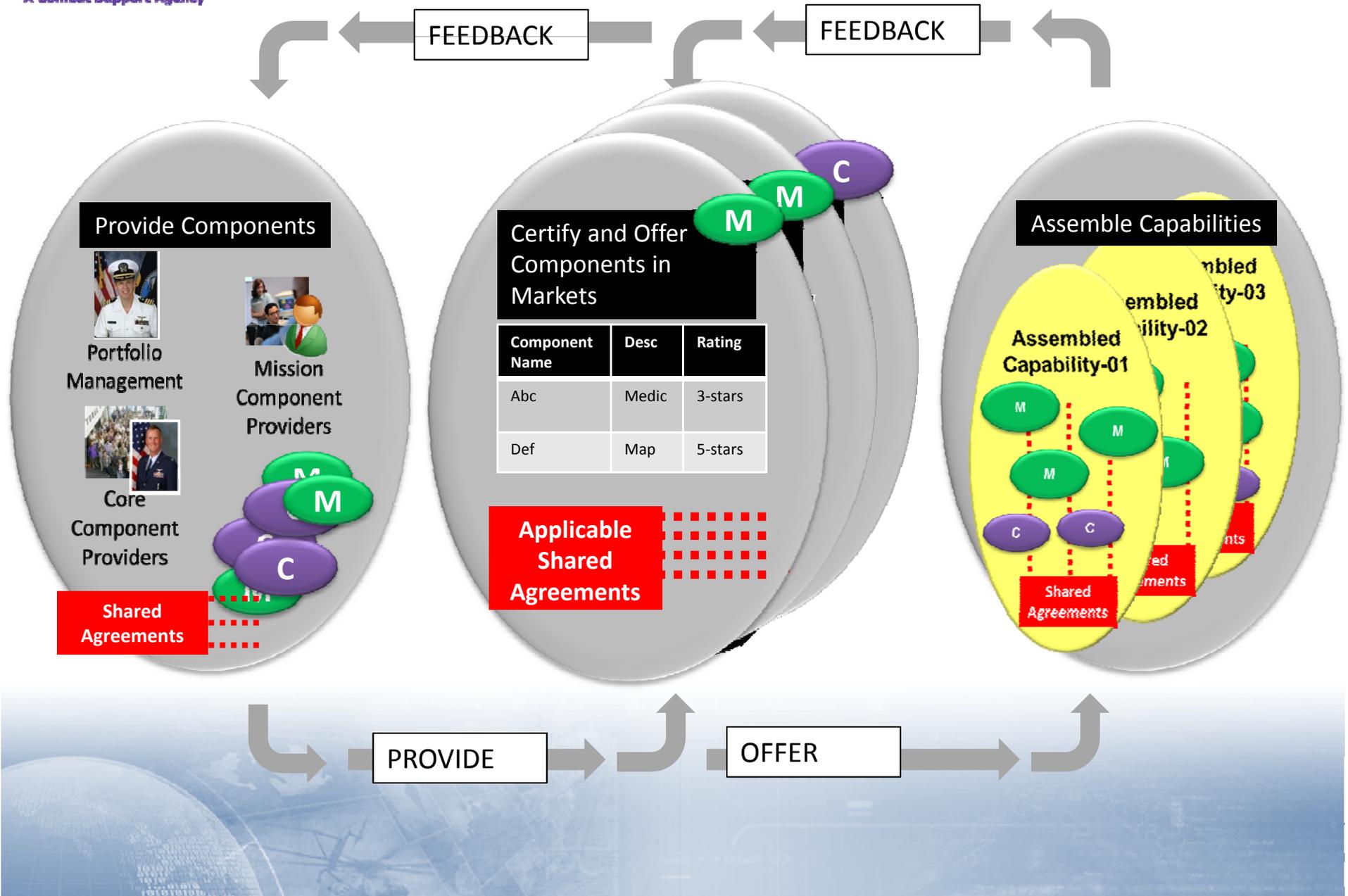
Tenet #3 – Offer Components in Markets

- Markets enable component production and capability assembly to be decoupled in time, yet have integrity (via Shared Agreements) in the final assembly

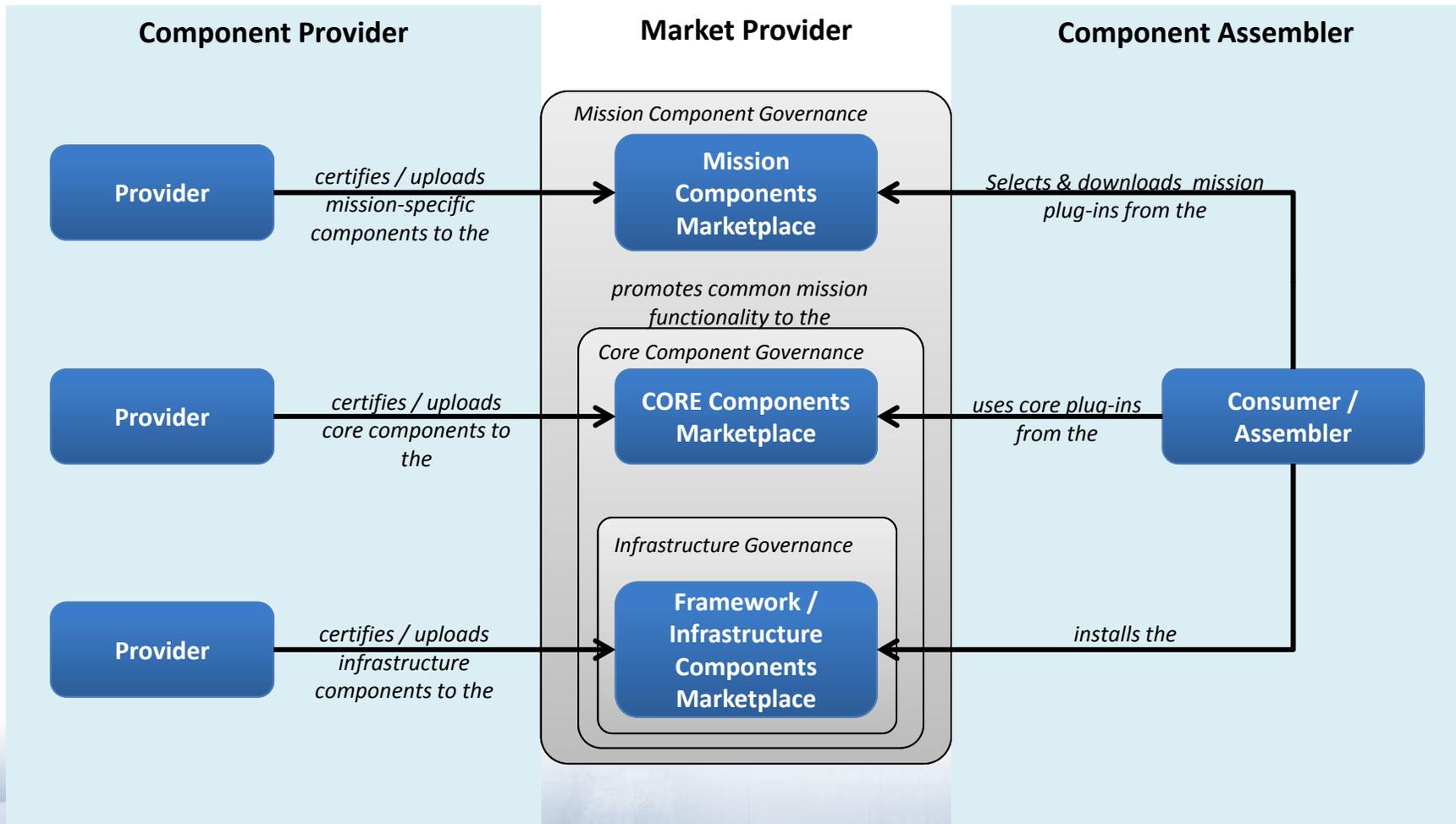
Tenet #5 – Feedback Loops

- End users give direct feedback to the markets and component producers
- The feedback is made available to the component providers, captured in the markets, and drive future component development

Multi-Party Engineering CONOPS



Generic UI Plug-In Marketplace Relationships



Migration Concepts 1 of 2

JC2 Migration includes

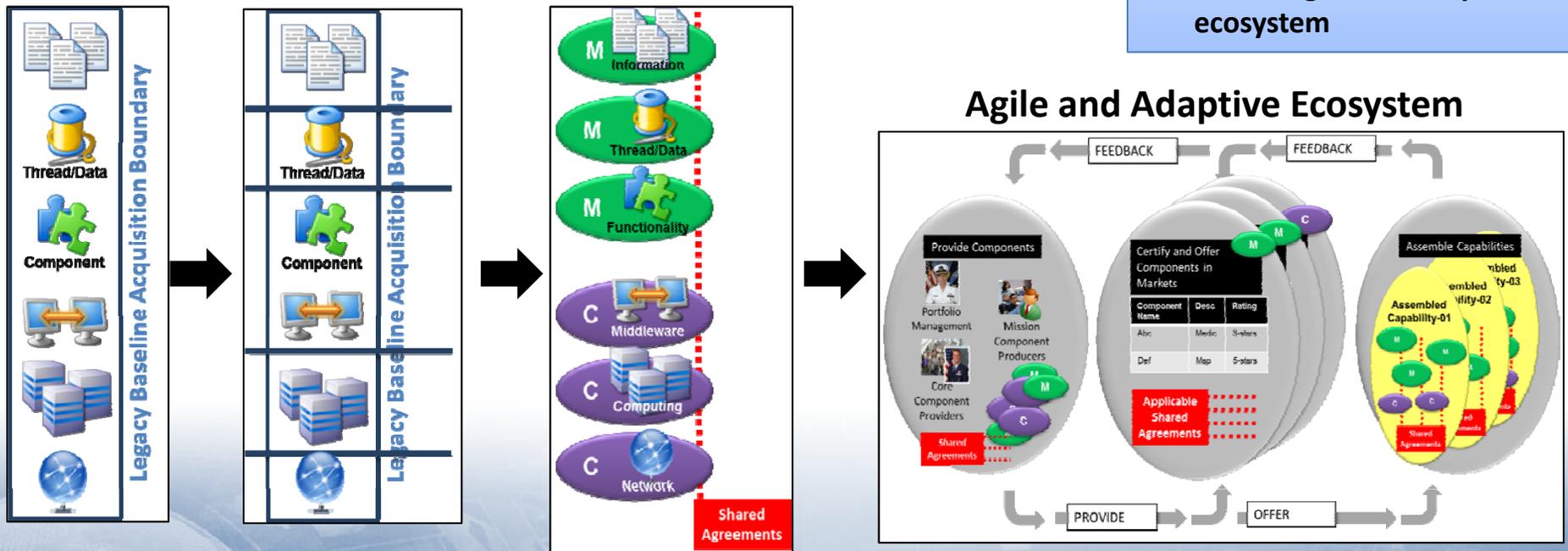
- Modernization
- Deprecation
- New

JC2 Migration assumes

- Based on JC2 Objective Architecture
- Incremental approach, no big bang

Modernization

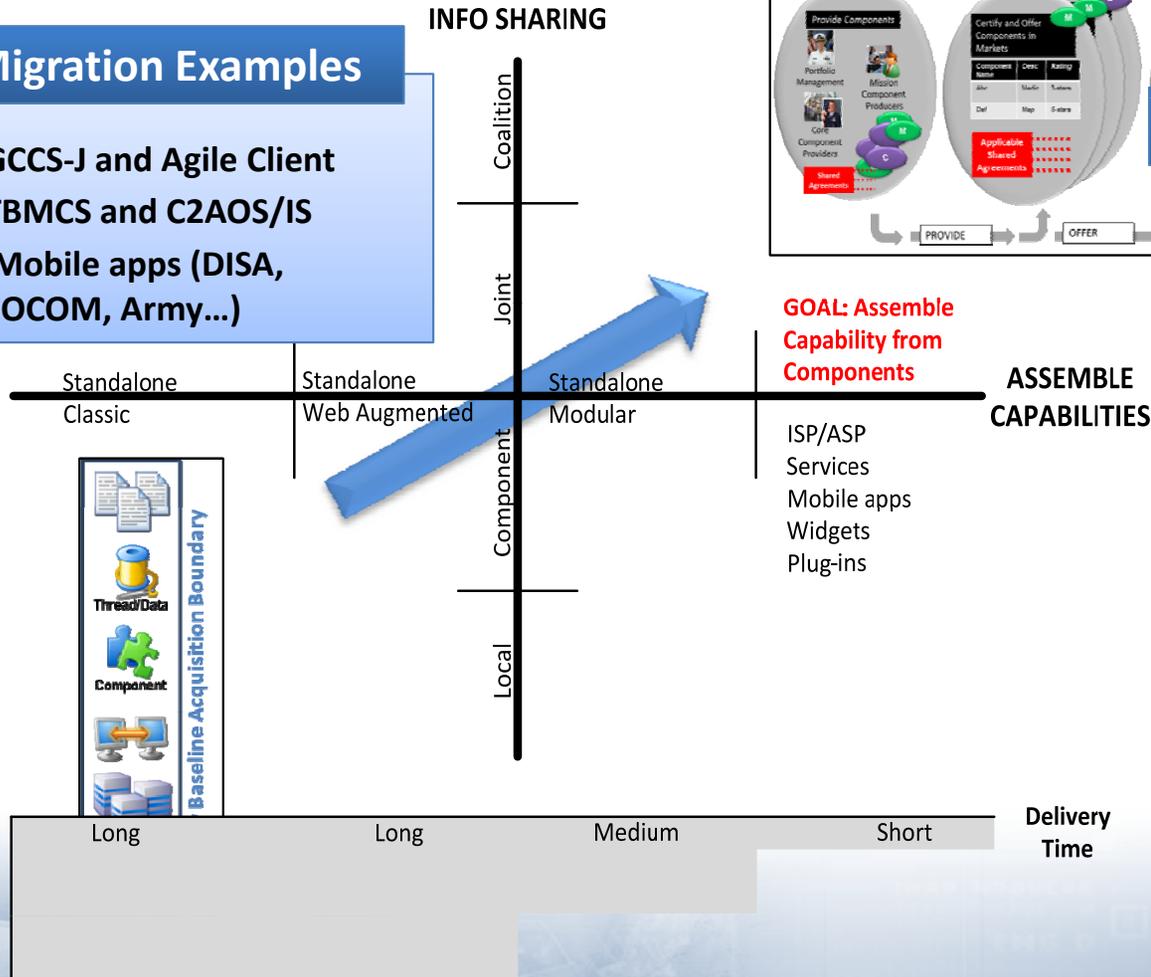
- Deconstruct baseline
- Harvest future components
- Create applicable shared agreements
- Add to agile and adaptive ecosystem



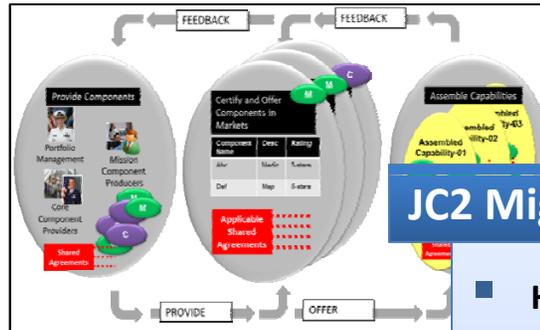
Migration Concepts 2 of 2

JC2 Migration Examples

- GCCS-J and Agile Client
- TBMCS and C2AOS/IS
- Mobile apps (DISA, SOCOM, Army...)



Agile and Adaptive Ecosystem



JC2 Migration Quad Chart

- High level view
- Depict “where” an IT asset (such as legacy baseline) is
 - Ability to assemble capability
 - Ability to share information
- Depict where you want the IT asset to migrate
- Migrate what you need, when you need - iterative, not big bang
- Patterns vary, depending on types of components used to assemble capabilities



Teaming

- GCCS Family of Systems (FoS) PM-CESG – Reuse, Reduce, Modernize
- USAF – Agile Client
- USDI and NRO – Synchronize, Leverage, Implementation Consistency
- COCOMs – Agile Development Efforts:
 - CENTCOM (JC2CUI)
 - SOUTHCOM (Agile Client)
- Other DISA Organizations – Service Implementation and Deployment
- NASA and DOE – Reuse Common Solutions
- Non-govt: MITRE, BAH, MIT-LL – Pushing Concepts
- NGA* - Synchronization of Efforts





Additional Information

Tuesday: 1345-1515

Joint C2: Situational Awareness and Intel (GCCS-J)

- Sustain, Synchronize, Modernize
- Modernization Strategy and Planning

Tuesday: 1530-1700

Multinational Information Sharing (MNIS)

- CENTRIXS
- PEGASUS
- CMNT
- CFBLNET
- UISS

Wednesday: 1300-1400

Joint C2 Planning & Execution (JPES) and Combat Support (GCSS-J)

- JPES Framework
- New GCSS-J Capabilities and Future Evolution

Evolution of C2 Requires New Technology Plus New Development and Deployment Methods



Learn More About MPE

- Attend International Command and Control Research and Technology Symposium (19-21 June 2012)
- Join Community of Action – To Be Announced (Fall 2012)





Learn More About JC2 Objective Architecture

Read - <https://www.us.army.mil/suite/files/30184579>





QUESTIONS

