

# *Headquarters U.S. Air Force*

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## **Riding the IT Wave: IT Acquisition Technical Challenges**



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# Agenda



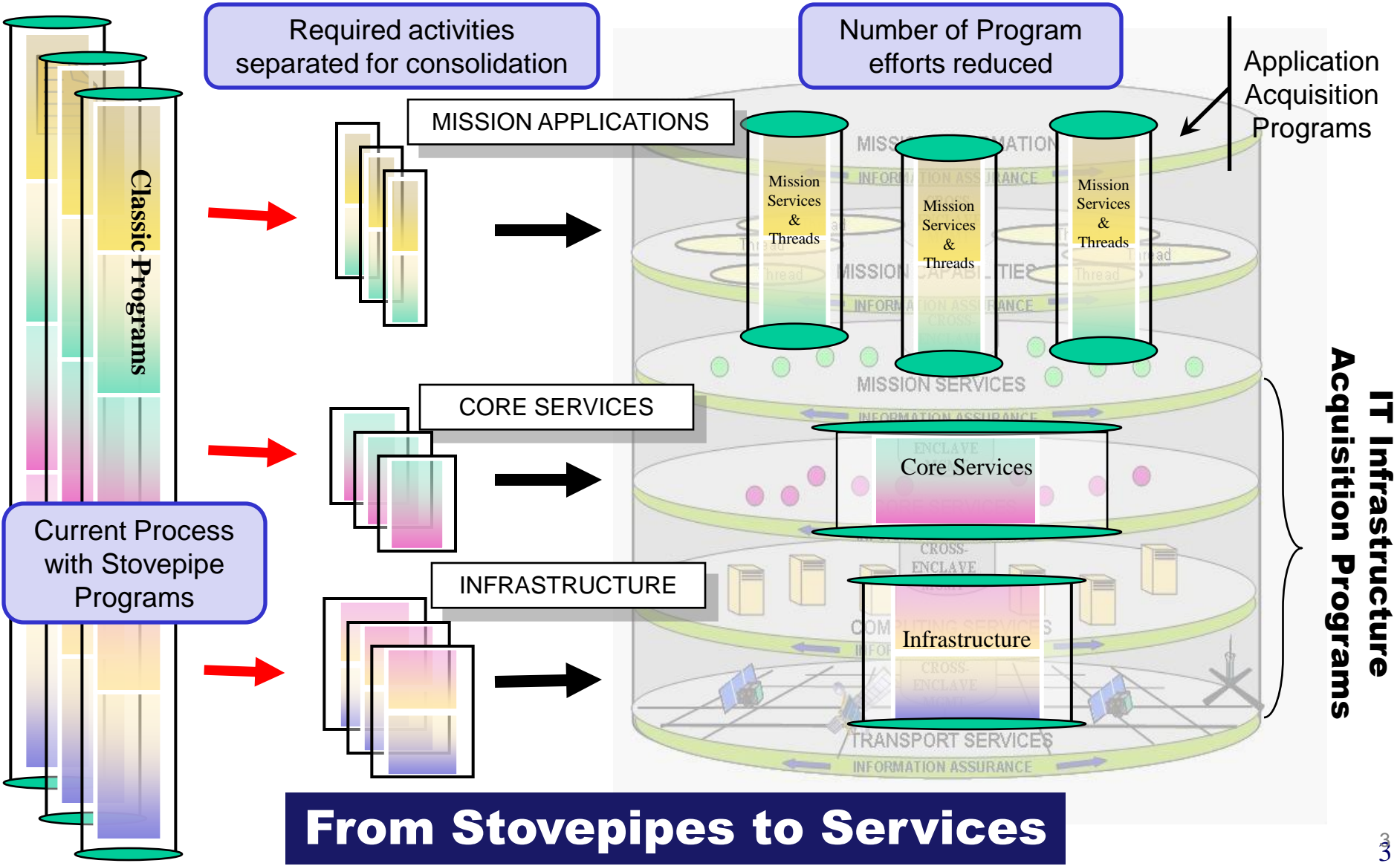
- **Agility to Get Capability**
  
- **Critical Enablers**
  - **Common Infrastructure**
  - **Implementation Baseline**
  - **Integration Test Lifecycle Capability**
  
- **Composable Capability Grand Challenge**



# Consolidation of IT Infrastructure



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# *Agility to Get Capability*



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## **Focus on Capability Delivery**

- Cut down the time it takes to field capabilities
- Use services to gain capability in modular, incremental approach

## **Separation between building Capability and building Infrastructure**

- Capability built on known IT infrastructure reducing timelines
- Move infrastructure to managed services and commodity IT

## **Use of Standards**

- Develop a Standards-based approach for building the IT infrastructure and then for building upon that IT infrastructure

## **New Processes**

- Services Development and Delivery Process (SDDP)
- Governance structure to align programs
- Testing of new capability in the environment it will run in

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# *Acquisition Leadership Working to Provide Policy*



- **Ensure PMOs comply with web services standards and processes**
- **Develop Acquisition Strategy to use the common IT Infrastructure (network infrastructure, hosting environments, and middleware)**
- **Provide Capabilities built using lightweight services and applications independent of infrastructure**
- **Monitor compliance with infrastructure “to be” standards as specified in the Consolidated Enterprise IT Baseline (CEITB), aka “Target Baseline”**
- **Support Product Center definition of the Implementation Baseline**
- **Provide necessary expertise (critical enablers) to PMOs in order to use and manage the IT Infrastructure**



# *Critical Enablers*



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## **Platform Services Management**

- **Key in defining architecture and infrastructure**
- **Work agreements with AFSPC to partner with DISA and other hosting providers and providing enterprise licenses**

## **Integration Test Lifecycle Capability (ITLC)**

- **Perform testing to ensure proper integration of new services**
- **Maintain repository of capability web services documentation**
- **Support Help Desk problem solving and service monitoring**

## **Outreach**

- **Work closely with program offices and users to understand compliance with standards & protocols and reduce development time for programs**

**Standards & Infrastructure are required**

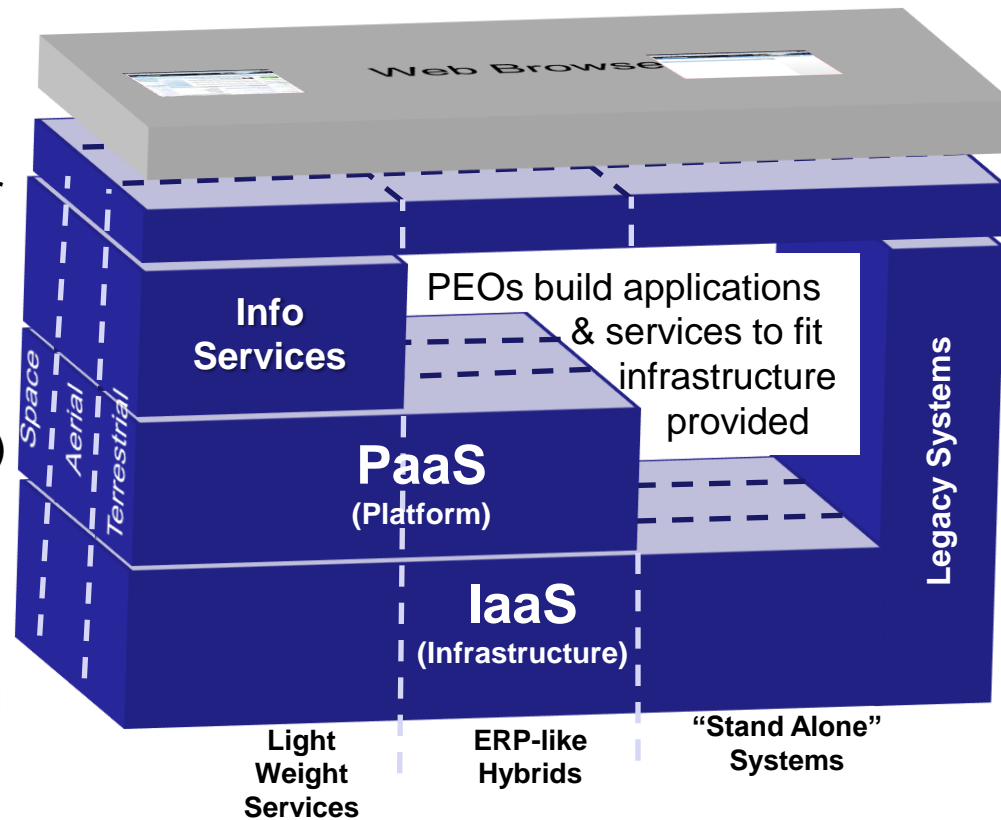


# Common IT Environment



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- **Focus on levels of commonality:**
  - Infrastructure as a Service, including network and physical infrastructure
  - Platform as a Service providing managed services platform
  - Info services, using PaaS
  - Redirector to the correct area
  - Consistent Web 2.0 presentation layer
- **Focus on classes of capability:**
  - Light Weight Exposure and other Info/Mission Services
  - ERP like COTS capability - combination of services and system(s)
  - More stand alone systems - preference on consistent network/laaS)
- **Third dimension includes Terrestrial (Ground & ground stations); Aerial; and Space**
- **Challenge is defining baseline within one “cube” and growing out**



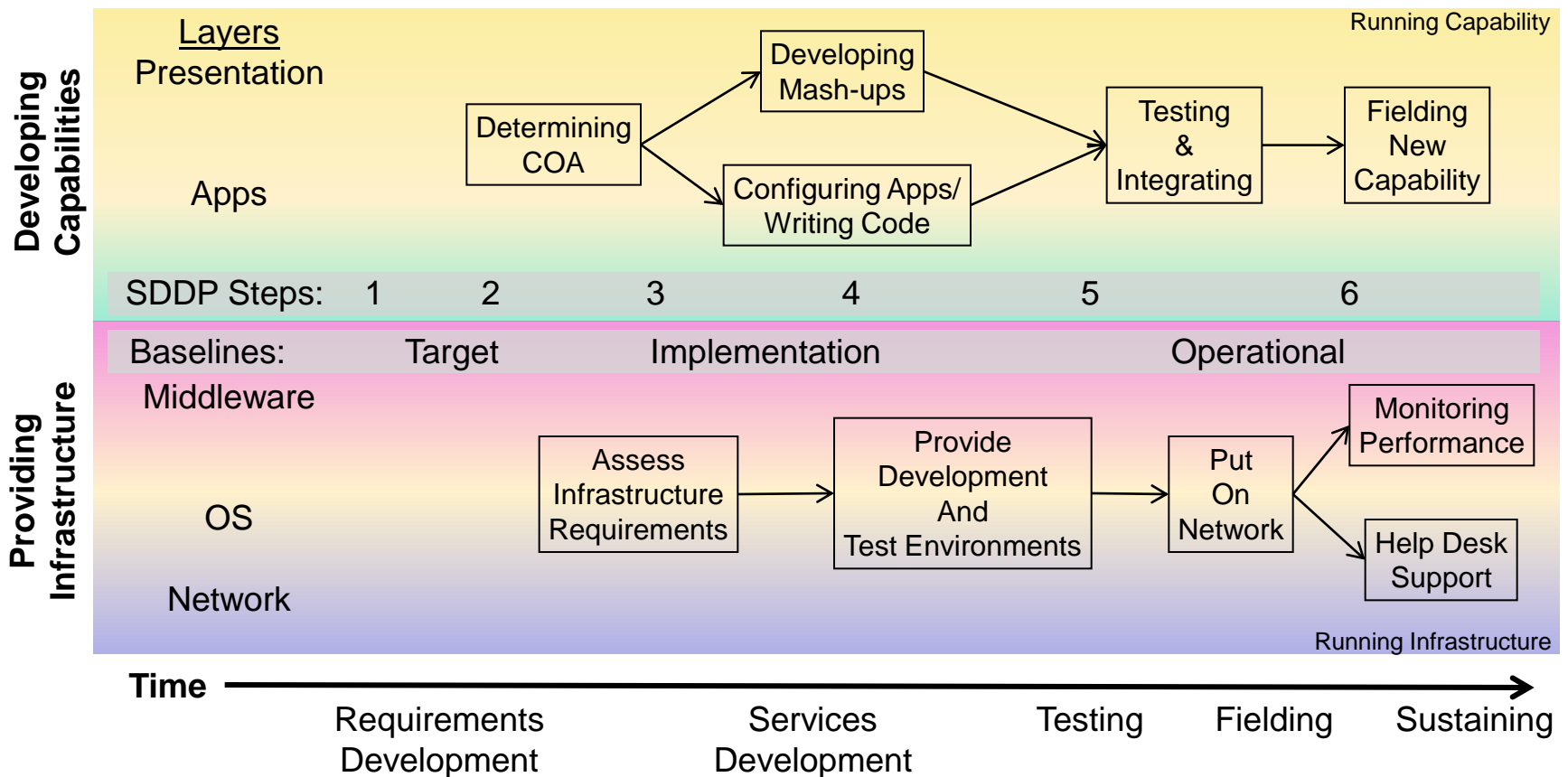


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# Shifting to Development Process



## Acquisition Participation in New Collaborative Development Processes





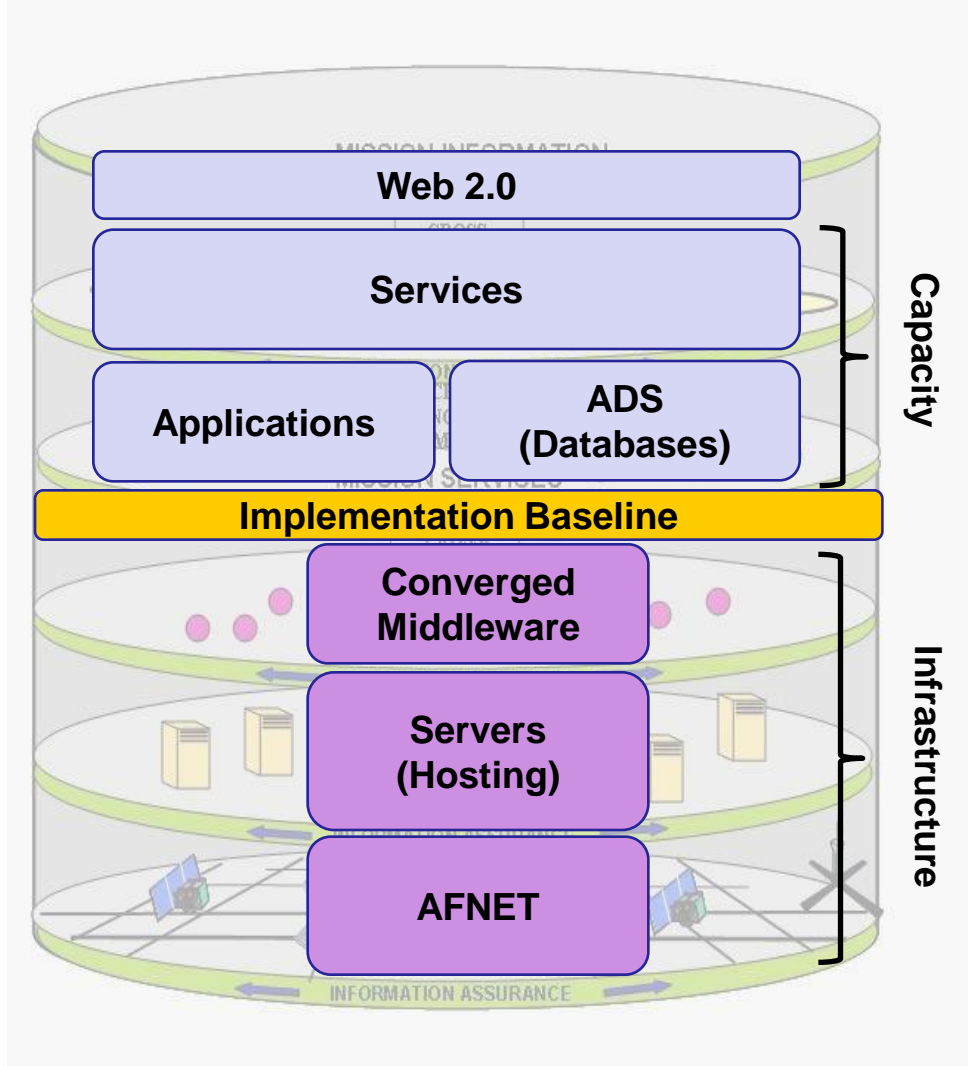
# Implementation Baseline



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The Implementation Baseline explains how to apply the Web 2.0 Tenants:

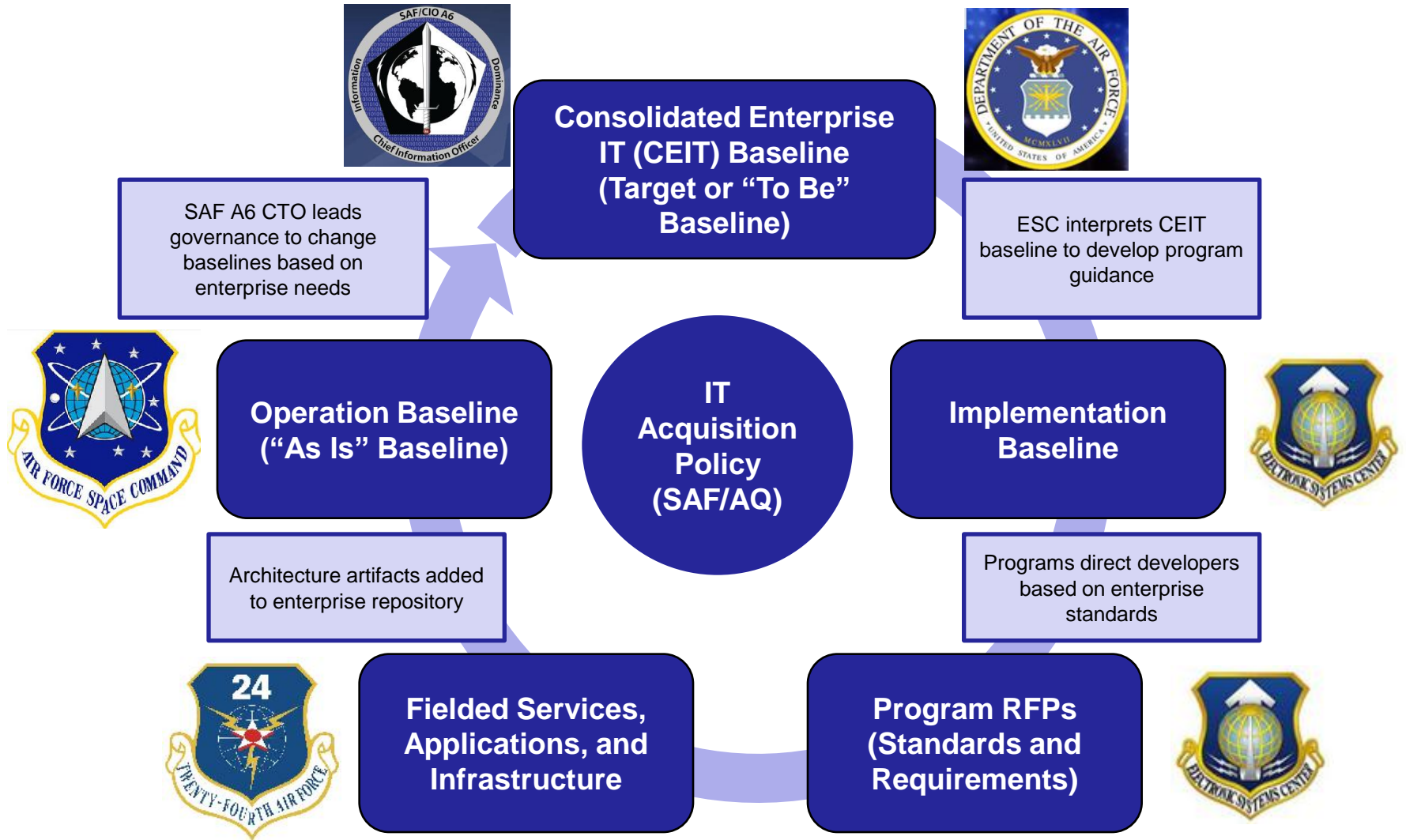
- Client Neutral
- Capabilities separate from Infrastructure
- Bounded User Requirements
- Web Enabled Services
- Strong 2-way Authentication
- Enterprise Sustainment of infrastructure and core services





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# Enterprise Baseline Relationships





# Integration Test Lifecycle Capability



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## The Integration Test Lifecycle Capability (ITLC) provides:

- **Test** solutions in realistic “hot” environment
- Aid in **packaging and provisioning** solutions for fielding
- Maintain **repository** of web services documentation after fielding
- Provide **Help Desk Tier 2-3** support
- **Analysis/report** on the performance of fielded services for AFSPC (24<sup>th</sup> AF)
- **Advise** on AF IT infrastructure and the Target Baseline as a member of the CCB



Several organizations to provide the skills needed to support roles

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# The Integration Test Lifecycle Capability (ITLC) in the SDDP

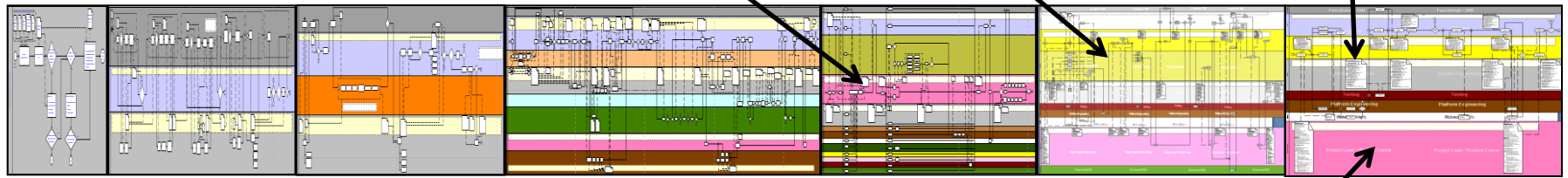


Participate in the "kickoff" meeting to determine schedule of tasks needed for fielding

Performs **testing** in the pre-production environment to ensure integration, security, and performance

Provides level-2 and 3 **helpdesk support** to problem solve when services fail

SDDP



Step 0  
Step 1 Define Problem  
Step 2 Process Definition  
Step 3 COA  
Step 4 Development  
Step 5 Testing  
Step 6 Operation

Involved in determining the **provisioning** needs for the new capability prior to development; changes to the **infrastructure** would be sent to AFSPC

**Monitors** use and performance of services, then provides recommendations for changes to the infrastructure and deprecation of services



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# End-to-End Test



## Today

- Applications only tested in contractor development lab
- Disconnected from Air Force IT environment
- Real testing starts after system goes on operational network
- Lots of effort required after fielding to meet acceptable user performance requirements

## End State

- Provide snap shot of test tools for external use (e.g. TestForge.mil)
- Applications tested in a government provided, representative environment
- Test environment aligned to the operational environment to stage capabilities
- Complete user experience tested; end-to-end prior to release

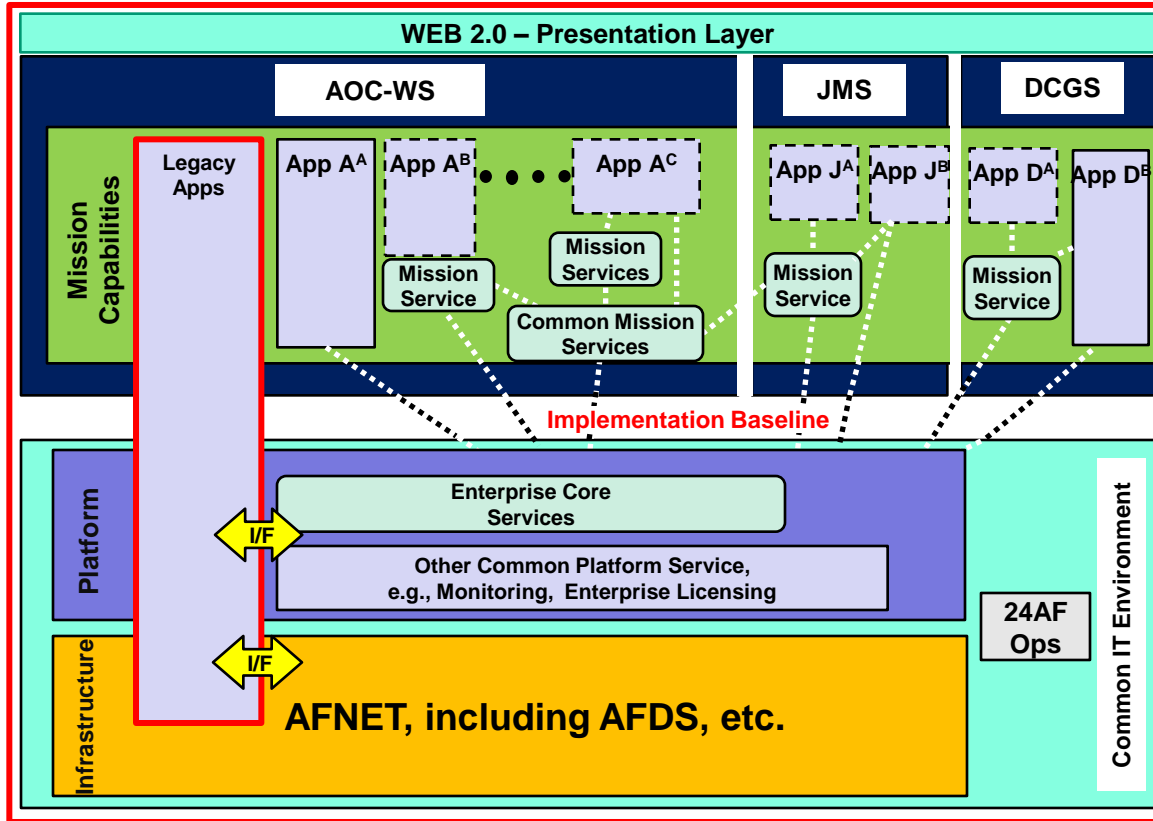
A "Test Range" for IT systems to include collaborated responsibilities, facilities, personnel, and processes



# An Example of the Future State: Common IT Infrastructure + Multiple Capabilities



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- Centralized design and provisioning of a common IT Infrastructure,
- Increased C&A inheritance
- Increased enterprise licensing & commodity procurement



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# *Summary*



- **Agility needed in providing Capability to the Warfighter**
  - **Separate building Capability from building Infrastructure**
  - **Use Baselines to define the IT Infrastructure and how to build on this infrastructure**
  - **Use new processes such as SDDP to develop services**
  - **End-to-End testing in realistic environments ensures compliance and functionality before fielding**
- **Acquisition Community (AQ) needs to complete these tasks to enable agility**
  - **Change policy to match new processes**
  - **Resource critical enablers to support new processes**
  - **Use governance structure to oversee processes**



# Composable Capability Grand Challenge



**U.S. AIR FORCE** *(briefed by LtGen Bowlds, New Horizons, 26 Jan 2011)*

## ■ A new paradigm for the design, acquisition and employment of IT-based Command and Control

- Rapidly plan, configure and dynamically adapt C2 functionality to meet evolving mission needs
- Develop and field components as well as a method to employ them

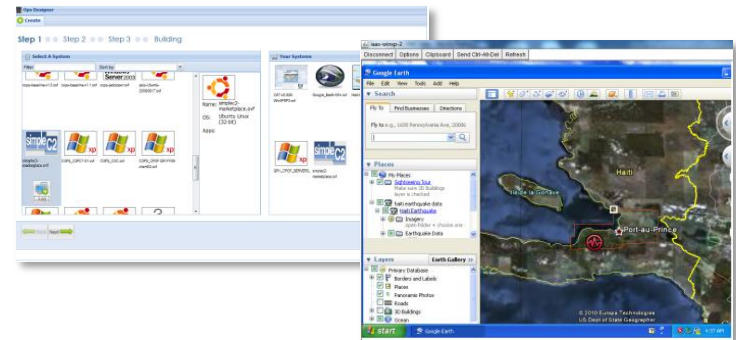
**USER COMPOSITION ENVIRONMENT**  
Applications that Allow End Users to Configure, Create and Display Information

**COMPOSITION ENABLERS**  
Technologies that Enable Rapid Discovery, Creation, Assembly, Dissemination of Trustworthy Data and Services

**DYNAMIC RESOURCE PROVISIONING**  
Applications that Help Users Dynamically Plan, Manage and Allocate Resources, e.g. Applications, Computers, Networks

## ■ Grand Challenge

- Broadly engage Industry and Gov't
- Prototype and Demo with OSD Chief Architect and Joint Staff J8
- Address future Business model issues
- FFRDC-developed Reference Implementation will be made available as optional starting point



*Driven by Operational Need – Enabled by Technology Advances*

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