USNORTHCOM
Integrated
Architecture:
A Means to an End

14 September 2004

Presentation to the 9th ICCRTS
Copenhagen, Denmark

Dr. Raymond Beamer, MITRE Corp
Lt. Col. Paul Henning, USAF
Mr. Richard Cullen, GS-14
USNORTHCOM/J665, Architectures Branch
**USNORTHCOM Integrated Architecture: A Means to an End (Briefing Charts)**

**Performing Organization**: US Northern Command/J665, Architecture Branch, 250 Vandenberg Street, Peterson AFB, CO, 80914-3808

**Abstract**: The original document contains color images.

**DISTRIBUTION/AVAILABILITY STATEMENT**
Approved for public release; distribution unlimited

**Security Classification of**: unclassified

<table>
<thead>
<tr>
<th>a. REPORT</th>
<th>b. ABSTRACT</th>
<th>c. THIS PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>unclassified</td>
<td>unclassified</td>
<td>unclassified</td>
</tr>
</tbody>
</table>

**Limitation of Abstract**: unclassified

**Number of Pages**: 17
Overview

- United States Northern Command – Who We Are
- Architecture in the Federal Government
- Architecture Development & Processes at US Northern Command
- US Northern Command Architecture Tool
- US Northern Command Architecture Status and Progress
United States Northern Command conducts military operations to deter, prevent and defeat threats and aggression aimed at the United States, its territories and interests within assigned areas of responsibility; as directed by the President or Secretary of Defense, provides military assistance to civil authorities, including consequence management operations.

Deter, Prevent, Defeat, Mitigate:
Protecting Americans where they live and work
Concept of Operations

USNORTHCOM Layered Defense Concept

“Homeland”
Deter and Defend
• Air & Space Defense
• Land Defense
• Maritime Defense
• Critical Defense Infrastructure Protection

“Approaches”
Detect and Defeat
• Missile Defense
• Air Interdiction
• Maritime Interdiction

“Forward Regions”
Detect and Prevent
• Deterrence
• Preemption
• Assure Allies
• Threat Reduction
Connectivity - Communities of Interest

USNORTHCOM must interoperate with over 600 other agencies/entities
Architecture in the Federal Government

• GAO Enterprise Architecture Management Maturity Framework (EAMMF)
  • Stage 1: Creating awareness
  • Stage 2: Building the management foundation
  • Stage 3: Developing products
  • Stage 4: Completing products
  • Stage 5: Leveraging to manage change

• 2001 survey of 93 federal departments and agencies:
  100% below Stage 5 (83% in Stages 1 or 2)

• 2003 survey of 96 federal departments and agencies:
  99% below Stage 5 (90% in Stages 1 or 2) (7 years after Act)

Architecture is not easy to implement--
Average stage was 1.33 in 2003
Architecture Primary Functions

• Identify DOTMLPF gaps, shortfalls, and duplications

• Identify prioritized solutions for the DOTMLPF gaps, shortfalls, and duplications (linked to strategic objectives, i.e., strategic vision key result areas, command critical capabilities, and Joint Mission Essential Tasks)

• Identify funding profiles for the DOTMLPF solutions

• Identify timelines for implementing the DOTMLPF solutions

• Identify technical standards and compliance for the N-NC information exchange environment

• Work subordinate unit mission needs to include JTFs, OPCON forces, etc.

• Manage the Enterprise Architecture as a Program

Focus on the primary uses of the architecture data as we develop a net-centric architecture approach
Gather N-NC enterprise information: mission, people, schedule, $$, etc...

...combine into products needed to help analyze the issue and make a decision

Issue arises! Specific information needed...

Combine data elements to answer questions or produce needed products
Chief Architect’s Organization

Managing the architecture effort with a Program Management Office (PMO)
Enterprise Architecture Process

Step 1: Mission Analysis

Mission Analysis (MA) Process

**INPUTS**
- Strategic Guidance
- Commander's Intent
- Vision
- Mission Statement
- Command Approved JMETs
- Architecture

**OUTPUTS**
- Review References
- Identify MA Resource Requirements
- Identify Specific Tasks
- Identified Implied Tasks
- Identify Additional JMETs
- Identify “Command-Linked” Tasks
- Identify “Touch Point” to Command Tasks
- Identify References Supporting Each Task

Step 2: Link Tasks by Info Exchange

**Example of Task Flow: Provide and Exercise Theater Situational Awareness**

- Task A: Integrate Theater and Friendly Nation SA
- Task B: Evaluate SA Support to Decision Making
- Task C: Provide COP input to NORTHCOM Training and Exercise Design Plan

Step 3: Map Tasks to Org Structure

Adaptive Joint Headquarters (AJH)

Shows task assignment by functional cell:

- Joint Planning Group
- Interagency Coord Group
- Combine Intel & Fusion Group
- Ops Planning Group
- Mobile C3I Coord Center
- Battle Cab
- Logistics Ops Cell
- Current Ops Group
- Info Superiority Group
- Theater C4I Coord Center

*Illustration simplified for brochure purposes

Step 4: Identify DOTMLPF Needs

Subjective Analysis of the Data Will Identify Shortfalls

- Task(s) A, B, C
- System (GCCS/C2PC/etc.)
- Identified Shortfalls

*Illustration simplified for brochure purposes

Architecture identifies gaps, shortfalls, and duplications
Spirals – Development cycles ≤ 16 weeks assigned to each project to focus the efforts of project managers, developers, and IT Investment Management staff. *Development focus*

Blocks – Periods of time (linked to command-level events) that focus on providing capabilities to the commands. *User capabilities focus*
Projects, Spirals, Blocks, & Architecture

Project development occurs in Spirals, Upgrades occur in Blocks, Target Architectures come from Block upgrade plans
The CARDSS Tool

- Real World Events
- Mission Needs
- Exercises

N-NC Enterprise Architecture

Baseline → Target

- Emerging Technology
- Capabilities
- Evolving Standards

Acquisition Strategies

New Programs Areas to Invest

Commands Architecture Repository and Decision Support Source
Assessing Progress

Using GAO’s Enterprise Architecture Management Maturity Framework (EAMMF) to assess progress
Achieve Stage 5 by 30 September 2005 !!!!

<table>
<thead>
<tr>
<th>STAGE 1: Creating EA Awareness</th>
<th>STAGE 2: Building the EA Mgt Foundation</th>
<th>STAGE 3: Developing EA Products</th>
<th>STAGE 4: Completing EA Products</th>
<th>STAGE 5: Leveraging the EA to Lead Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>If an organization has plans to develop and use an architecture yet hasn’t satisfied the criteria in stage 2, it is considered in stage 1.</td>
<td>1. Adequate resources exist</td>
<td>10. Written and approved organization policy exists for EA development.</td>
<td>16. Written and approved organization policy exists for EA maintenance.</td>
<td>24. Written and approved organization policy exists for IT investment compliance with EA.</td>
</tr>
<tr>
<td>2. Committee or group representing the enterprise is responsible for directing, overseeing, or approving EA.</td>
<td>11. EA products are under configuration management</td>
<td>17. EA products and management processes undergo independent verification and validation.</td>
<td>25. Process exists to formally manage EA change.</td>
<td>26. EA is integral component of IT investment management process.</td>
</tr>
<tr>
<td>3. Program office responsible for EA development and maintenance exists.</td>
<td>12. EA products describe or will describe both the “as-is” and the “to-be” environments of the enterprise, as well as a sequencing plan for transitioning from the “as-is” to the “to-be.”</td>
<td>18. EA products describe both the “as-is” and the “to-be” environments of the enterprise, as well as a sequencing plan for transitioning from the “as-is” to the “to-be.”</td>
<td>22. Committee or group representing the enterprise or the investment review board has approved current version of EA.</td>
<td>30. Return on EA investment is measured and reported.</td>
</tr>
<tr>
<td>4. Chief Architect exists.</td>
<td>13. Both the “as-is” and the “to-be” environments are described or will be described in terms of business, performance, information/data, application/service, and technology.</td>
<td>19. Both the “as-is” and the “to-be” environments are described in terms of business, performance, information/data, application/service, and technology.</td>
<td>23. Quality of EA products is measured and reported.</td>
<td>31. Compliance with EA is measured and reported.</td>
</tr>
<tr>
<td>5. EA is being developed using a framework, methodology, and automated tool.</td>
<td>14. Business, performance, information/data, application/service, and technology descriptions address or will address security.</td>
<td>20. Business, performance, information/data, application/service, and technology descriptions address security.</td>
<td>27. EA products are periodically updated.</td>
<td></td>
</tr>
</tbody>
</table>