Federal GIS Conference 2014

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Best Practices for ArcGIS Version Migration

Mark Williams, Parker Spence

9.3.1, 10.1, 10.2

What version of ArcGIS are you running?

Esri Product Lifecycle

Version	Release Date	General Availability	Extended Support	Mature Support	Retired
10.2.1	Dec 2013	X			
10.2	July 2013	X			
10.1	June 2012		**X – Dec 2013**		
10.0	June 2010		June 2012	**X – Dec 2013**	
9.3.1	April 2009			June 2012	**X – Dec 2013**
9.3	June 2008			June 2012	**X – Dec 2013**

Have you started a migration plan?

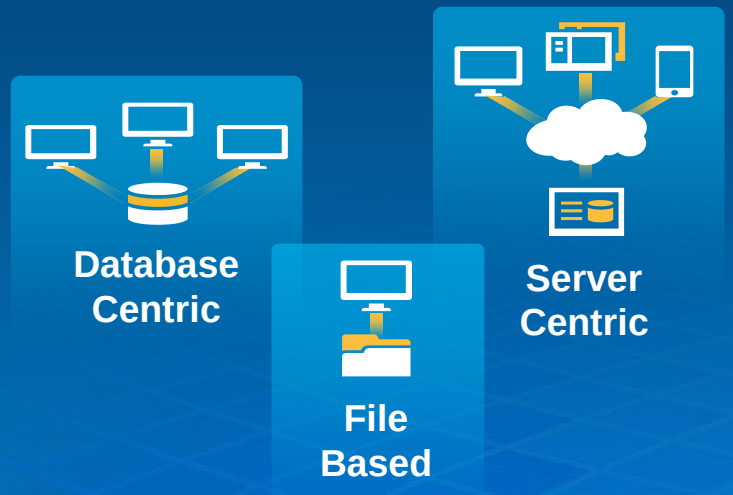
ArcGIS Release Schedule

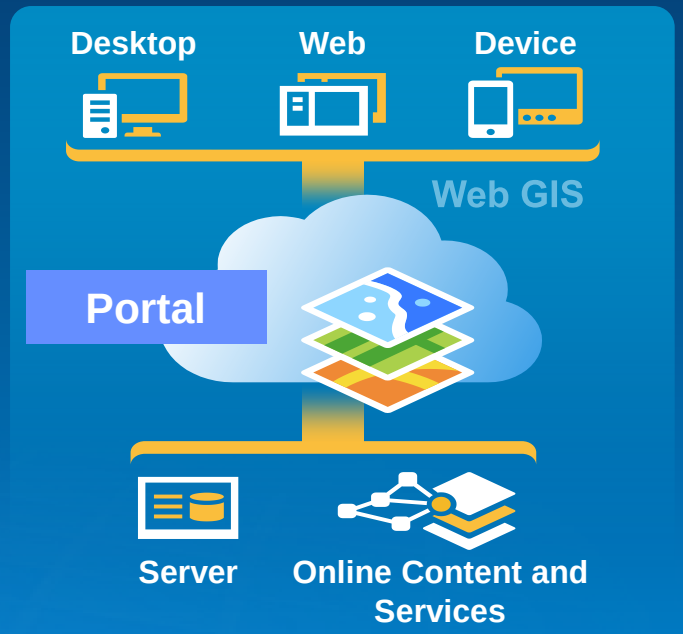
Plan For The Future

- Numeric release identifier cycle
  - 10.2, 10.2.1, 10.2.2, …
  - “service pack” term obsolete
- Releases may contain:
  - Quality fixes
  - Enhancements
  - New functionality
- Targeting 3 updates per year
- Software downloadable

ArcGIS is Evolving

Integrating Implementation Patterns

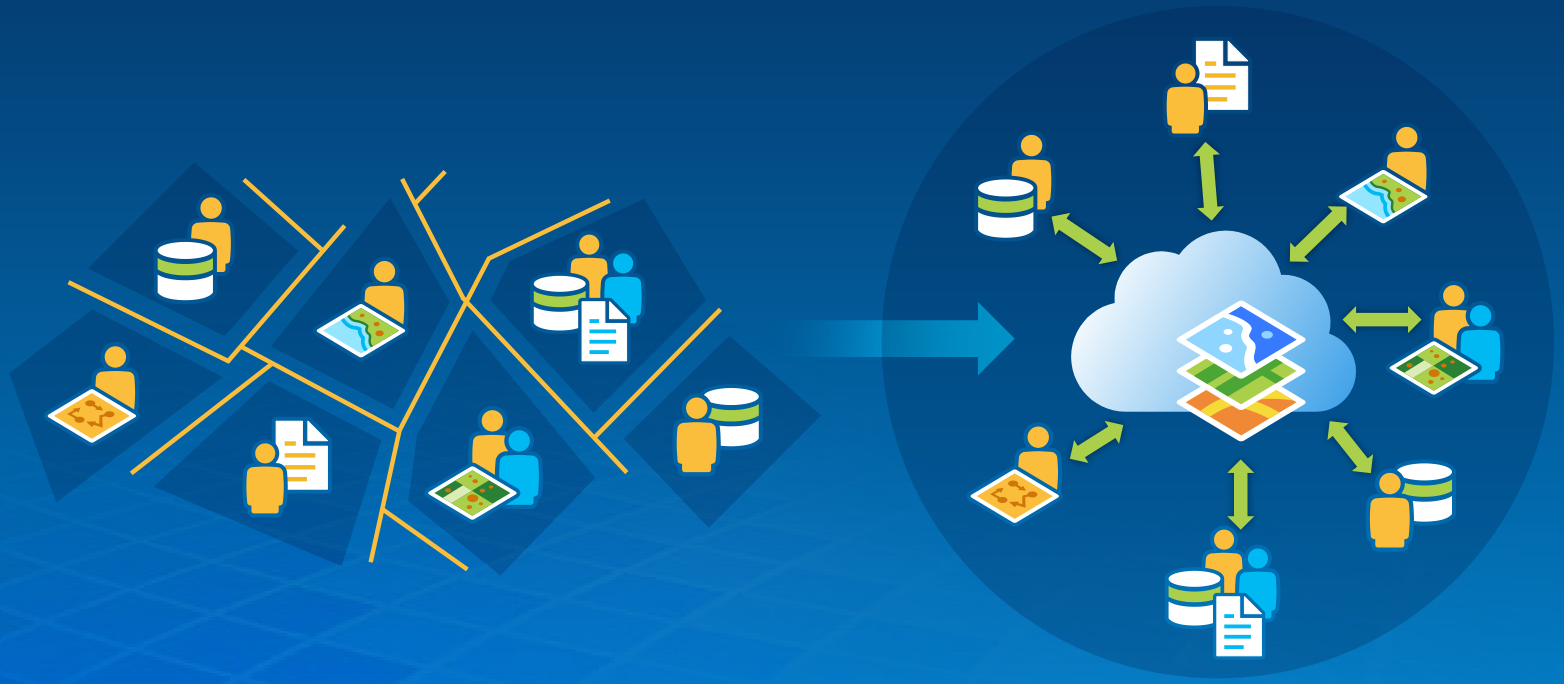




. . . Supporting collaborative approaches

Integrating Organizations and People

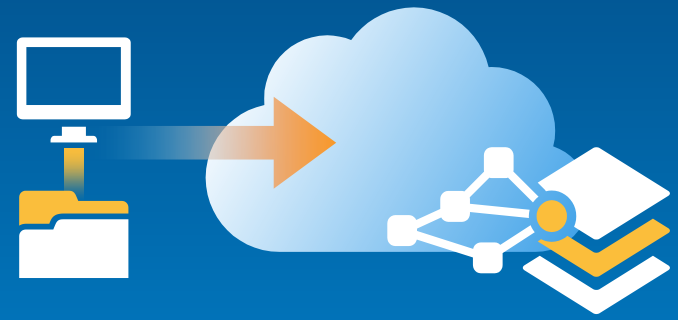
Breaking Down the Barriers



Sharing Resources . . .

Reasons for Migration

- Software retirement
- Hardware retirement
- O/S retirement
- HTML5
- Security enhancements
- Desired functionality
- Real-time data tracking
- Large project implementation
- IT governance and policies
- Technology trends
- Mobile devices
- Performance needs
- Bug fixes



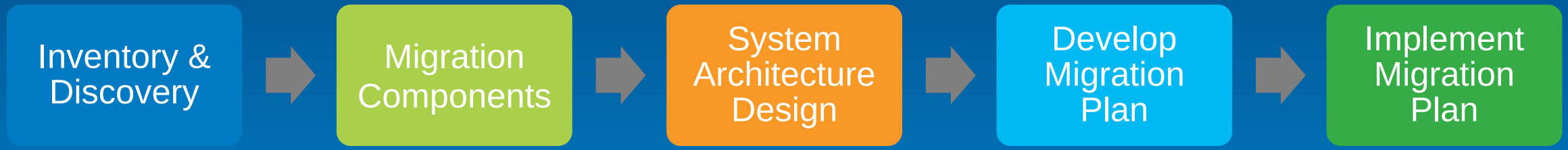
. . . drive business value


MIGRATION

a **migration** is a project that your organization needs to plan for and manage

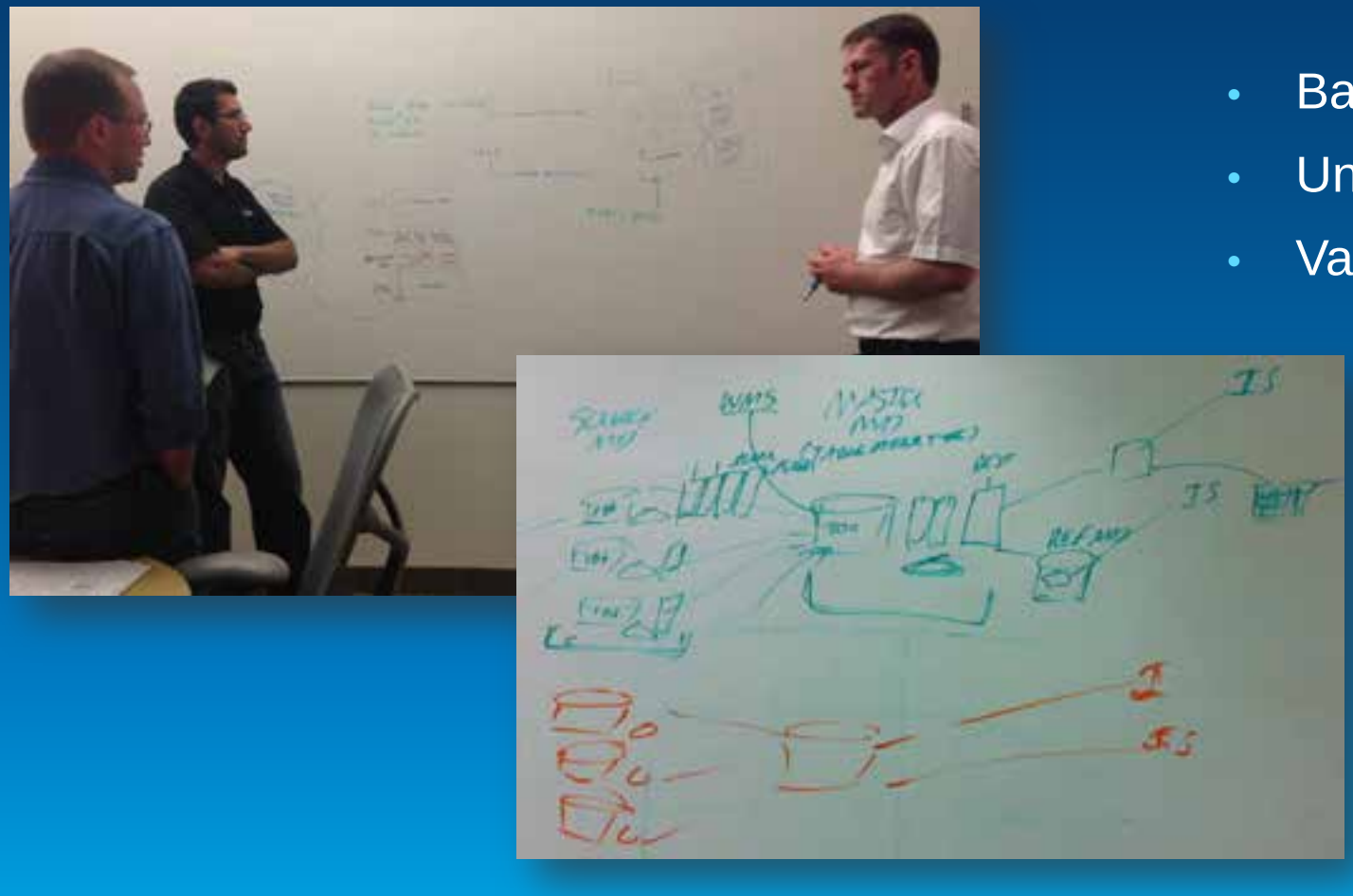
High-Level Approach

Migration process



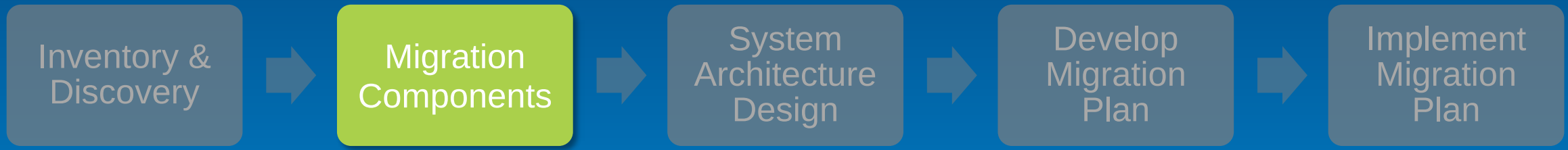

Shapefiles
DBAs
Network Datasets
CPU
Software
Mobile Devices
Bandwidth
GIS Applications
Business Data
Extensions
Vector
Tools
Browsers
Geodatabases
System Administrators
Data Processors
Raster
Hardware
Operating Systems

System Architecture Review



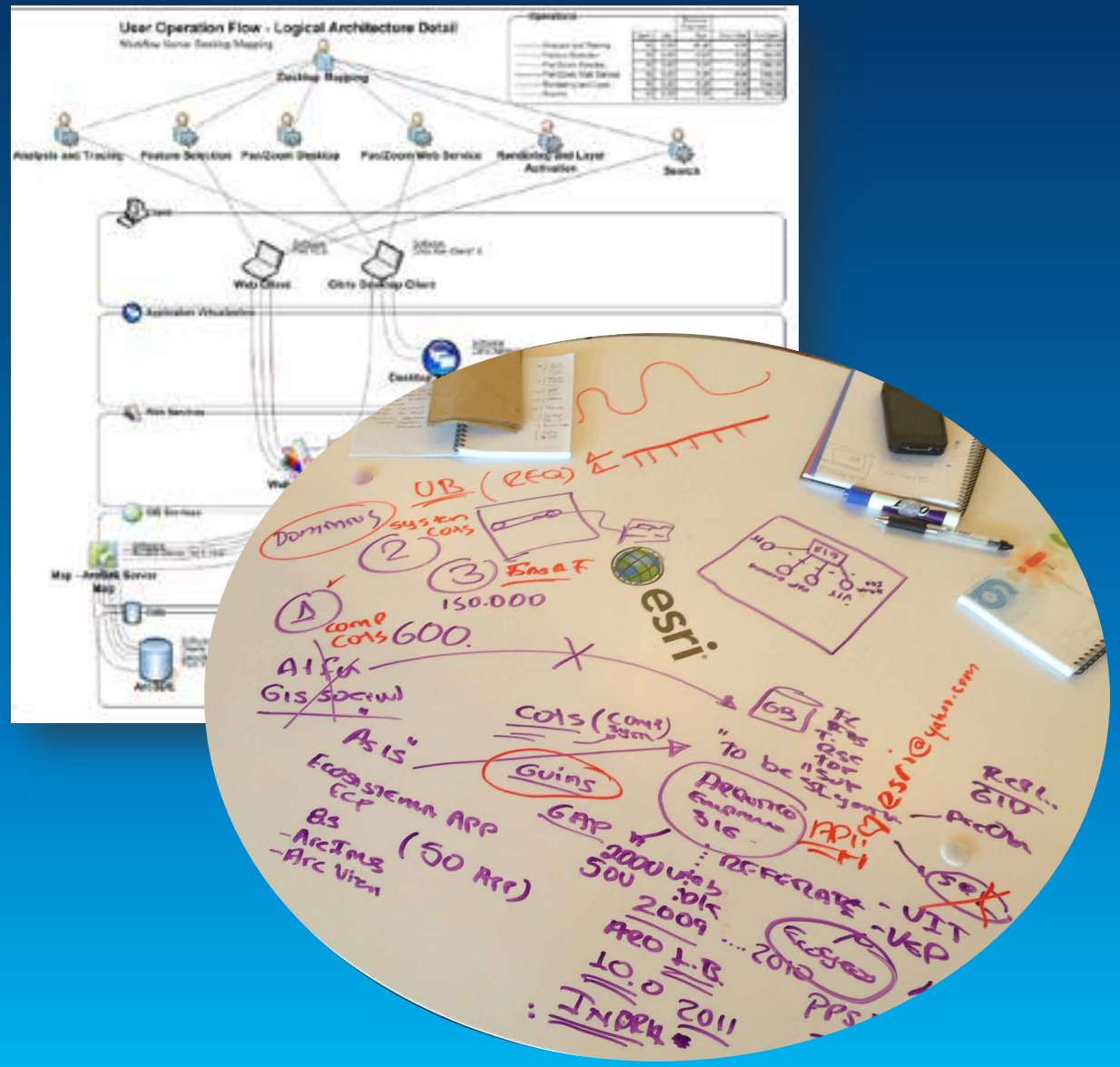
- Baseline of current GIS architecture
- Understand interrelated components
- Validate inventory performed

Good practice & provides documentation


Inventory & Discovery
Migration Components
System Architecture Design
Develop Migration Plan
Implement Migration Plan

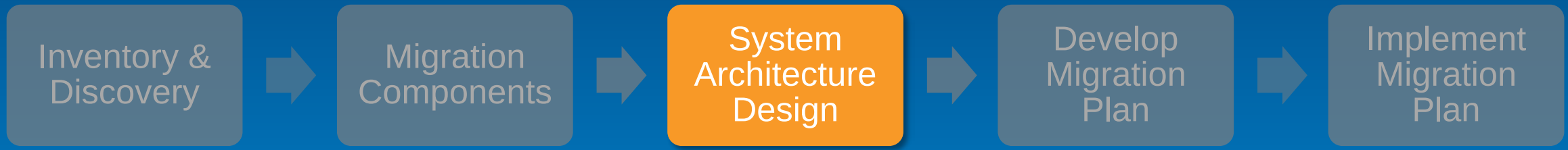
Migration Components

- Functionality analysis
- Involve stakeholders
- Evaluate COTS vs. Custom
- ‘As-is’ and ‘To-be’ mapping



Migration Components

- Dependencies
  - RDBMS or O/S
  - 3rd party solutions & extensions
  - KBUs/stakeholders
- Estimate level of effort
  - Installations
  - Hardware procurement
  - Resources required
  - Applications to update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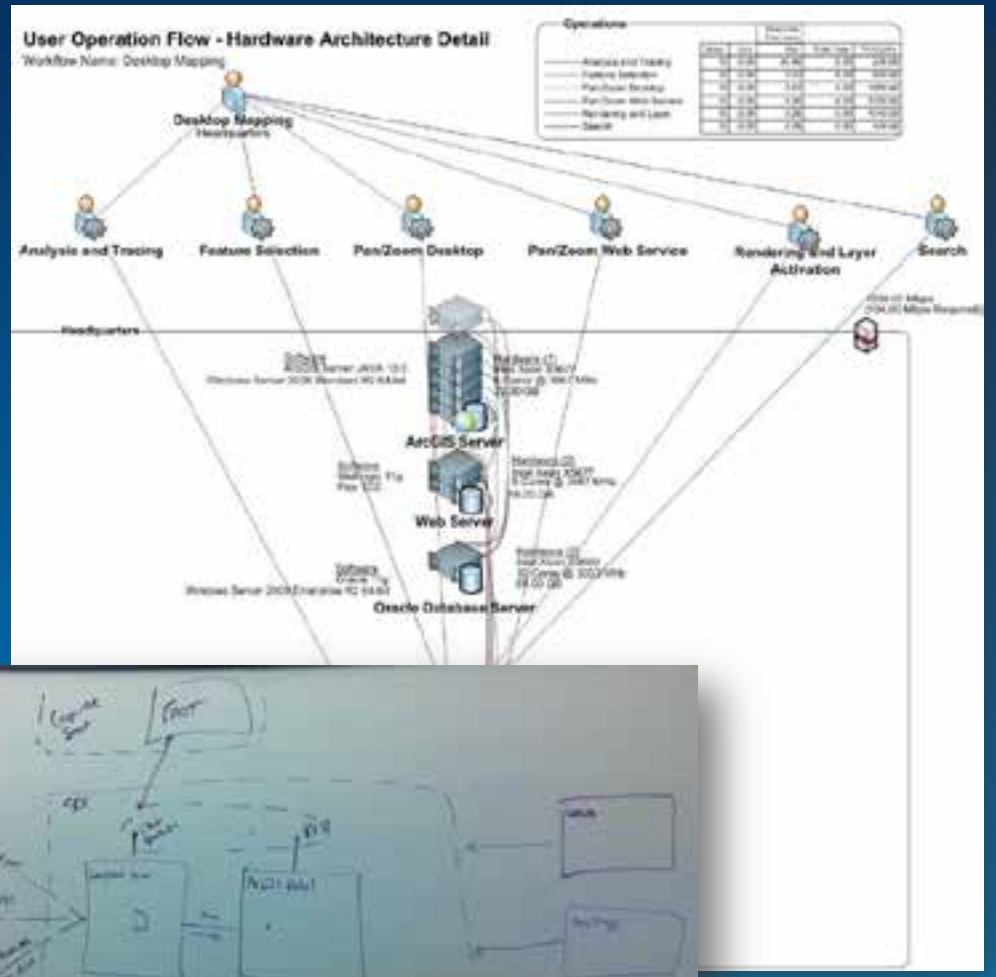
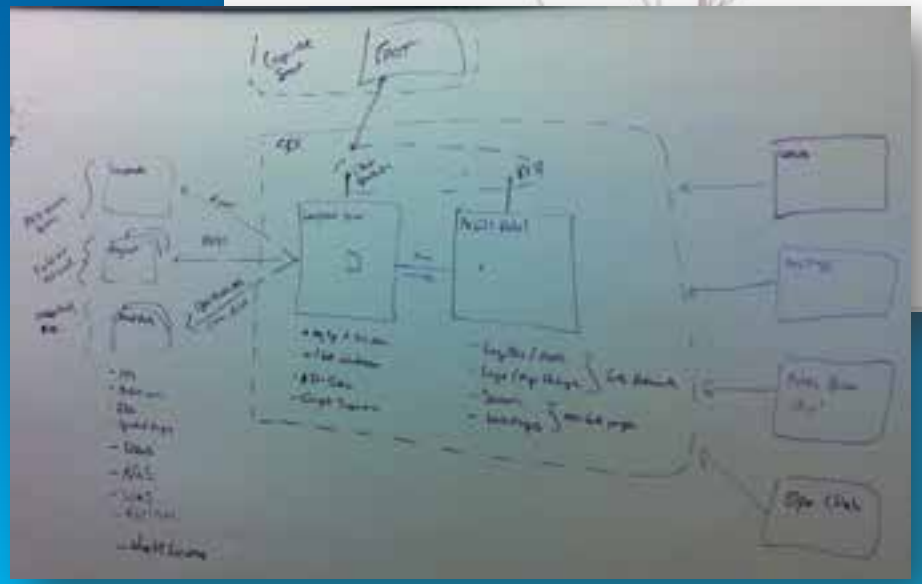
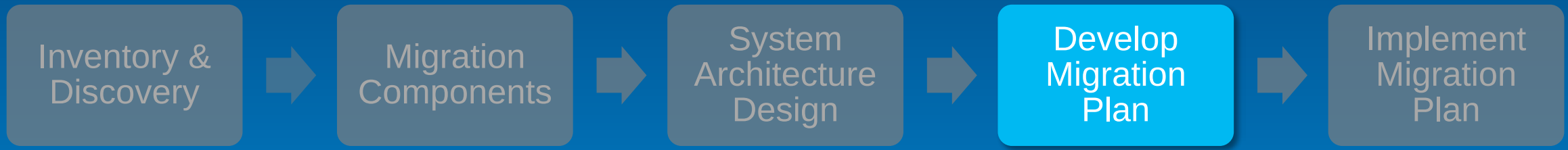
System Architecture Design

- Determine an appropriate GIS architecture
- Examines the following:
  - User workflows & functions
  - Data, Application & Technology
- Incorporates technology considerations
- Identifies a target architecture



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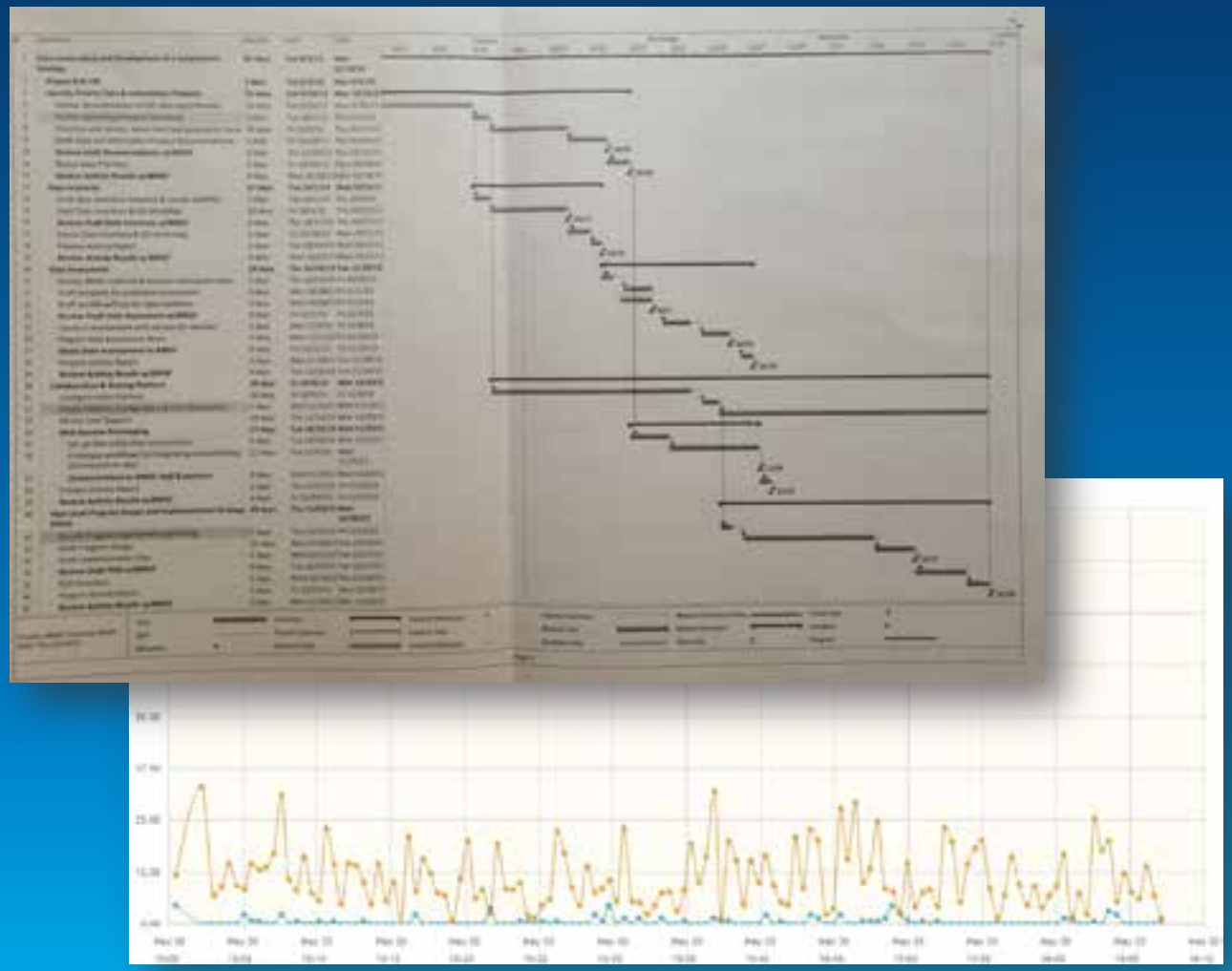
Migration Plan



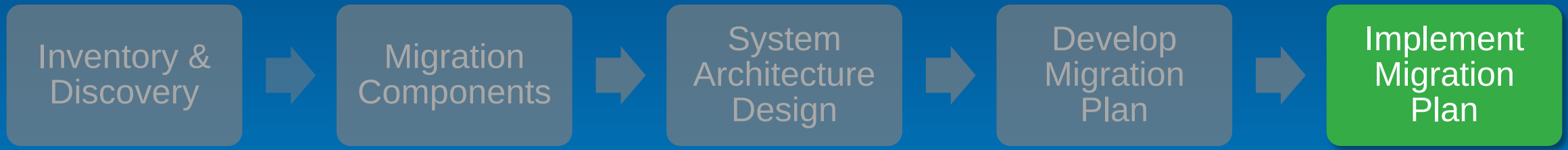
- Roles & responsibilities
- Infrastructure
- Schedule
- Deployment approach
  - Development
  - Testing
  - Implementation
- Disaster recovery plan

Staff Development Plan

Improve staff skills & knowledge in current & evolving roles

- Staff attend right training at the right time
- Projects are not delayed due to staff skills
- Training events maximized by coordination
- Training benefits realized almost immediately

Helps maximize return on investment (ROI)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Implementation Cycle

Migration is an iterative process

Spotlight

Bureau of Land Management (BLM)

BLM Oregon State Office

- Responsible for managing BLM lands in Oregon & Washington
- 11 District offices & 5 field offices
- 1000 GIS users
- 250 concurrent ArcMap users

Challenges

- Wanted to migrate from ArcGIS 10 to ArcGIS 10.1
- Large user base on virtualized Citrix farm
- Wanted to transition users to Web
- Intermittent performance issues

- Wanted to make sure the system could support upgrade

BLM Support Needs

- BLM reached out to Esri for help:
  - Citrix Performance Assessment
  - Migrate users to the Web
  - Develop a caching strategy
  - Geoportal Support
  - 10.1 migration planning

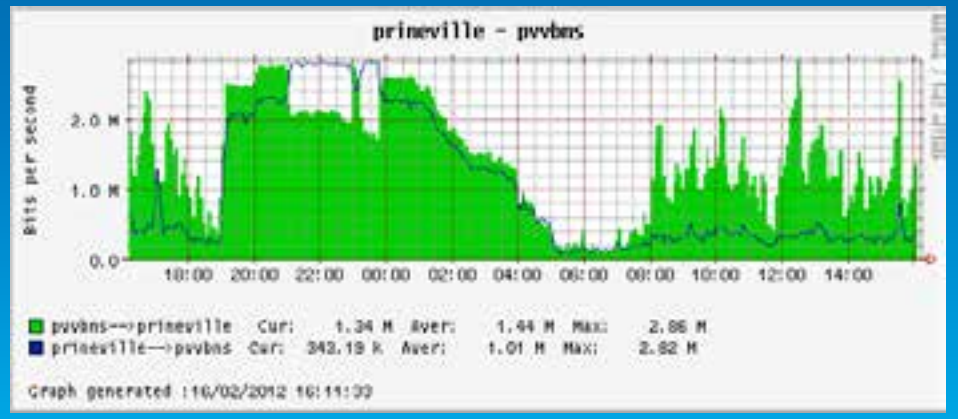
- Esri Enterprise Advantage Program (EEAP) was recommended

Enterprise GIS Performance Assessment

- High-level system architecture review
- Esri core software configuration review, with emphasis on:
  - ArcGIS deployment
  - MXD document performance
  - ArcSDE & geodatabase management
- Oracle database configuration review

What Did We Find?

- Citrix Servers not the problem
- Upgrading to vSphere 5 to improve performance
- Database server - 6 years old, limited memory
- Using Application Server Connect, not Direct Connect
- Slow throughput to NAS
- Network to remote sites was OK



Recommendations

- Switching to Direct Connect would:
  - Increase database capacity - 75 to 150 users
  - Decrease users on virtual Citrix servers - 10 to 8
- New Database Server Recommended
  - Not enough memory
- Replace the NIC on the SAN

Migration Planning and Implementation

- Proactive Recommendations
  - Database server was planned for & obtained
  - NIC card was replaced
- Migration went forward
  - No new surprises

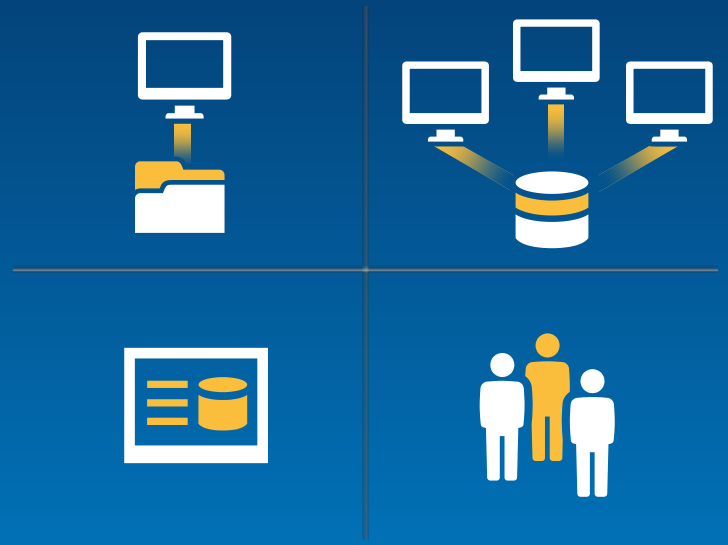
Spotlight

Department of Defense (DoD)

DoD Example 1

Background

- Organization-wide Esri implementation
- Multiple locations
- Legacy hardware
- Performance variations
- Third Parties extend client IT staff



DoD Example 1

Drivers for Migration

- COTS software
- Management directives for:
  - Upgrading computing environments
  - Reduction of computing resources
  - Planning for Cloud platform
- Improving Level of Service

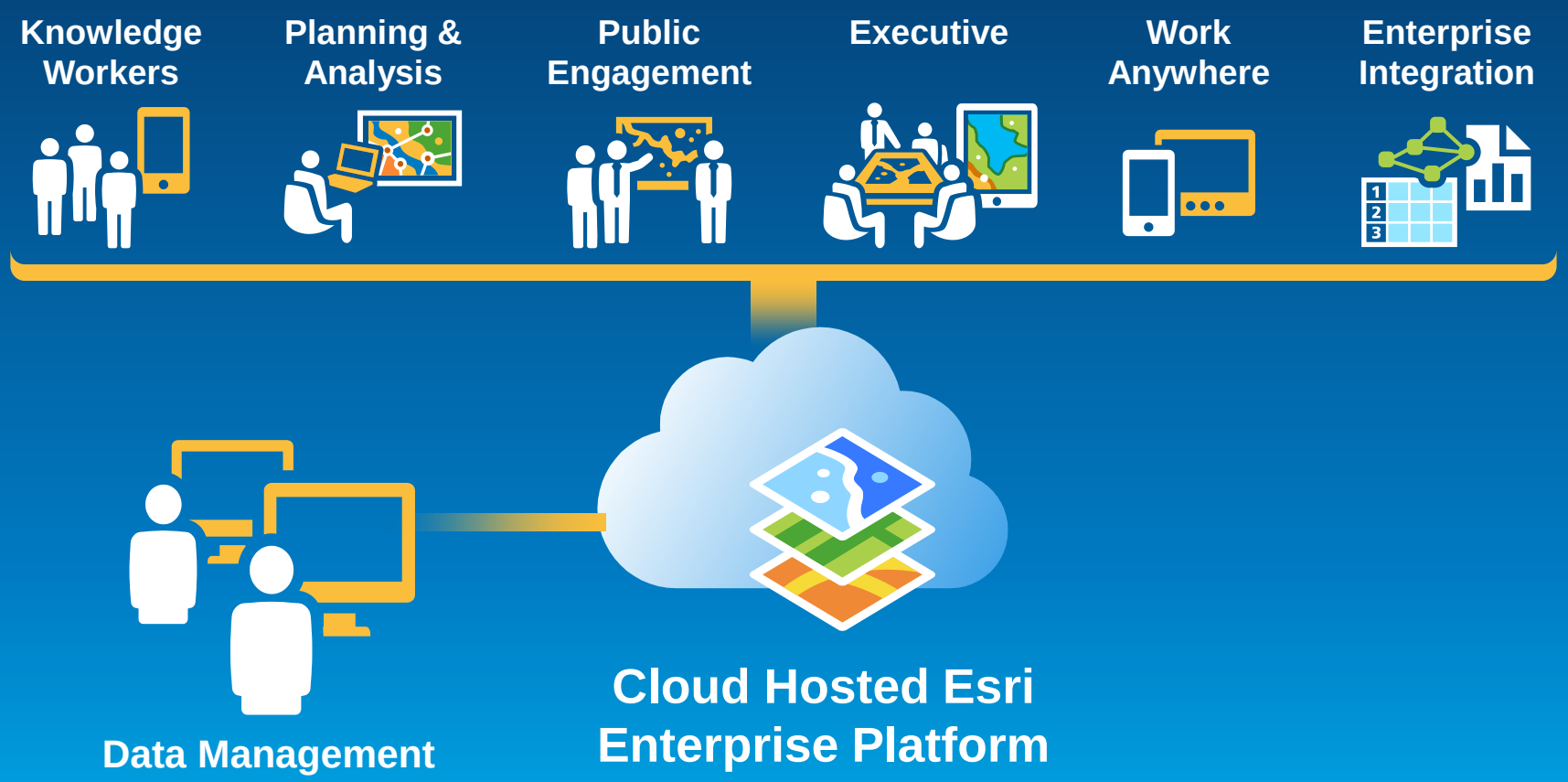
DoD Example 1

Approach

- ArcGIS migration planning:
  - Assess the ‘As Is’
  - Draft the ‘To Be’ platform
  - Define activities to move to the ‘To Be’
- Technical transfer & training
  - Teach and enable
  - “Best Practices” focus
  - Example: System Designer Workshop
  - Esri COTS training

Activity outputs assist parties with migration implementation

DoD Example 1 - Target (To Be) Vision



DoD Example 2

Background

- Large Warfighting Command globally dispersed
- Large investment in ArcGIS Desktop
- Esri platform implementation varies
- Data models vary among organizations
- Requirements exist to:
  - Integrate with multiple non-spatial data types
  - Geospatially locate multiple information feeds

DoD Example 2

Drivers for Migration & Enterprise Implementation

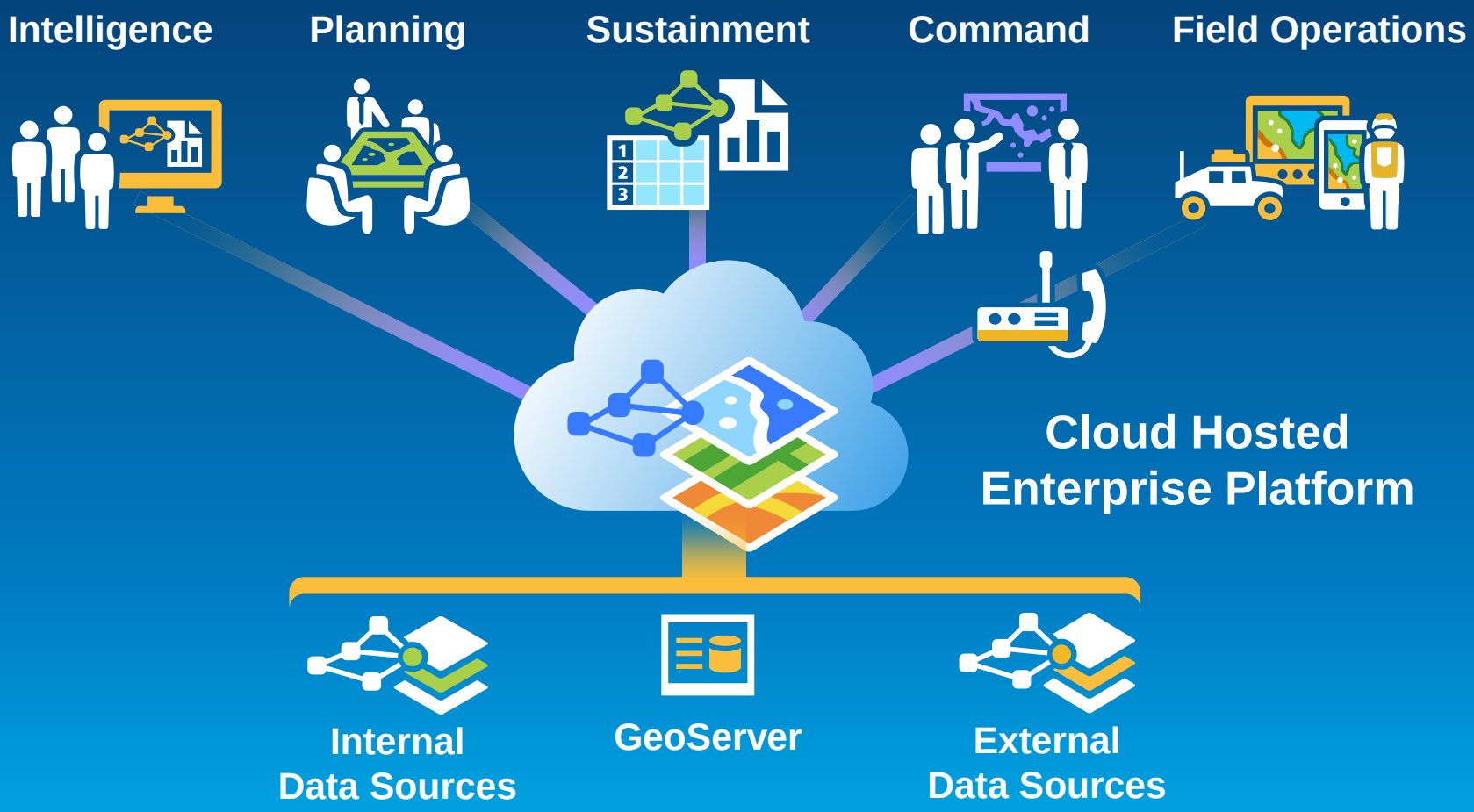
- Leverage new Esri Platform Technology Offerings
  - Portal for ArcGIS
  - GeoEvent Processor
  - Platform Security Enhancements
  - Runtime
- Cost Reduction via:
  - More efficient deployment
  - Leveraging new technology
  - Reducing legacy tools
  - Industry solution templates
  - Improving Level of Service

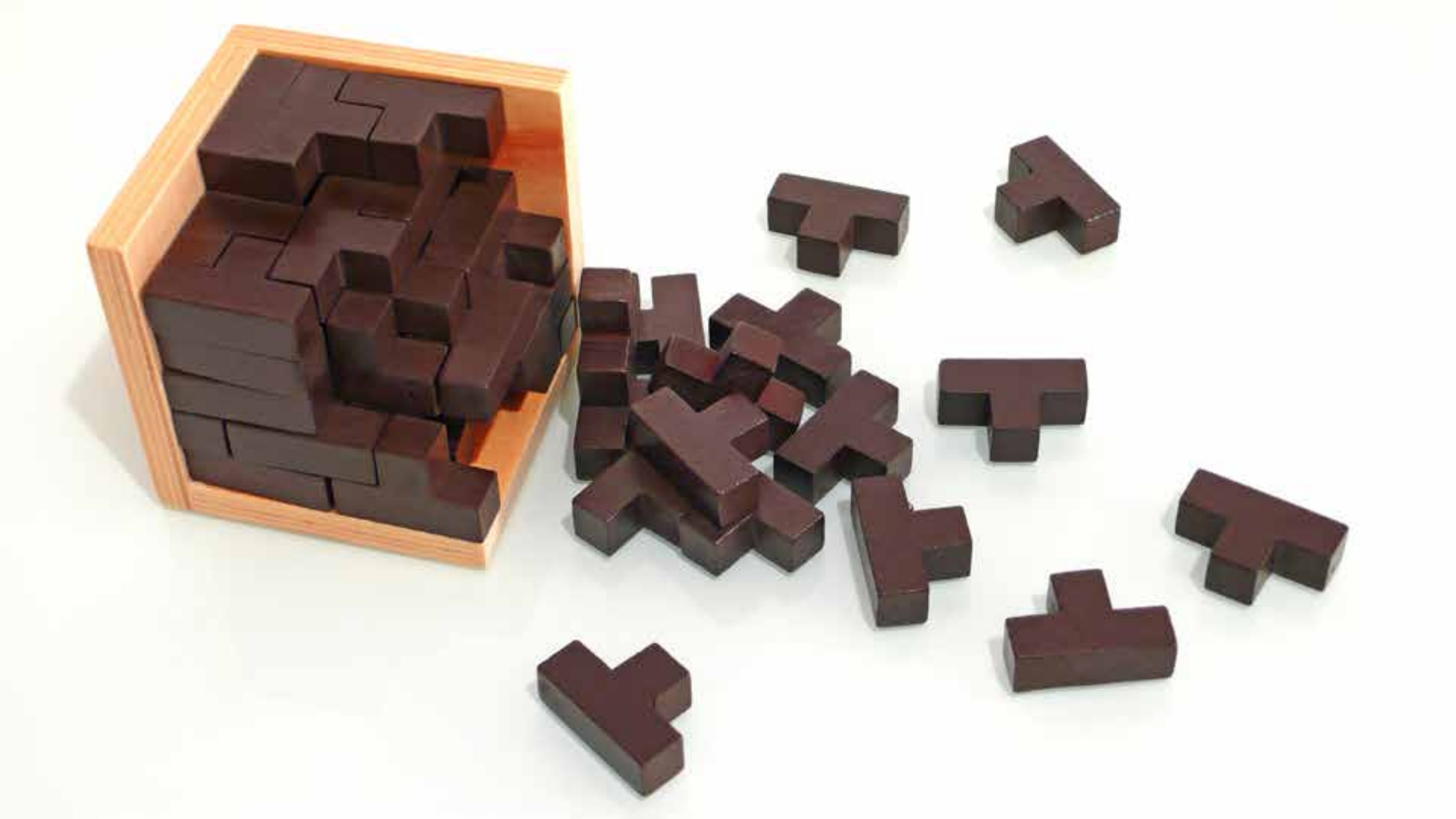
DoD Example 2

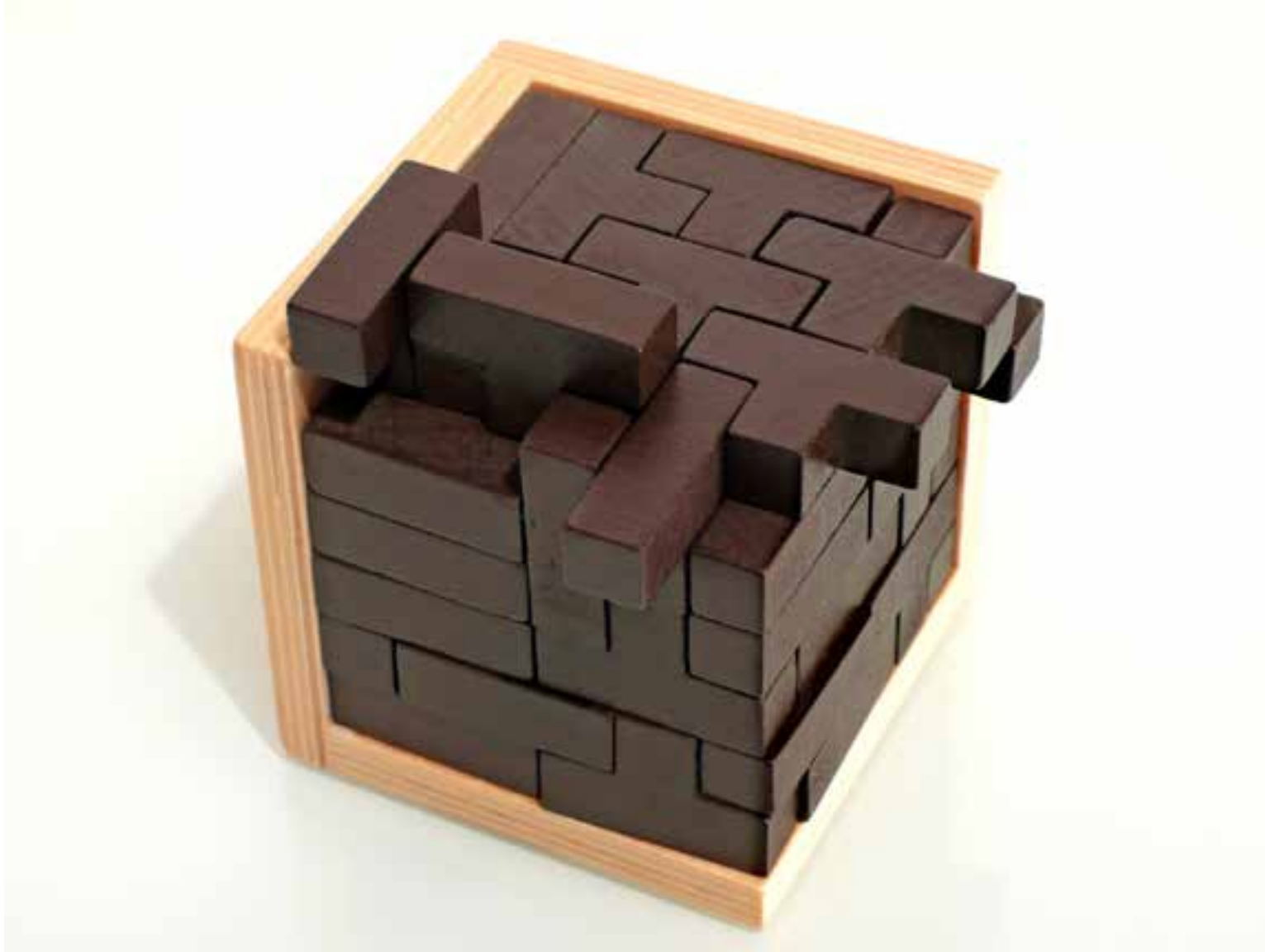
Suggested Approach

- EEAP work plan activities:
  - Migration planning
  - Enterprise system architecture design
  - Integration planning
  - Implementation planning
  - Staff development
  - Operations & maintenance technical transfer
- Esri will provide support throughout implementation cycle

DoD Example 2 – Proposed Enterprise Platform Implementation








Vision
Enablement
Collaboration
Advice

Technical Advisor

- Provide continuity
- Lead planning
- Understand requirements
- Develop technical work plan
- Coordinate activities
- Give ongoing advice

Maximize your investment with Esri

- Reach your enterprise GIS **vision**
- **Collaborate** with Esri experts
- Proactive **advice** and advocacy
- Further **enable** your organization

Additional Resources

esri.com	Products, Training, Support, News, Partner Directory
developers.arcgis.com	SDKs, APIs, Samples, Documentation
solutions.arcgis.com	Focused and Configurable Template Maps and Apps
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ideas.arcgis.com	Contribute enhancements or new functionality
wiki.gis.com/wiki	System Design Strategies

Understanding our world.