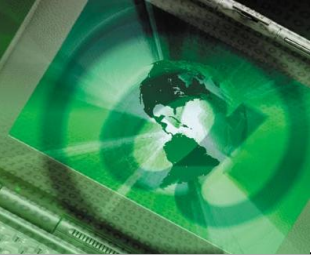**USDA**

U.S. Department of Agriculture
Office of the Chief Information Officer
National Information Technology Center

Best Practices

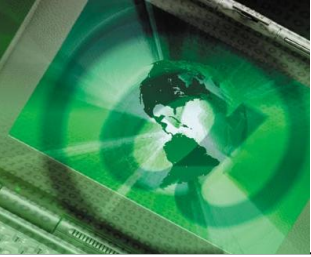USDA Data Center Consolidation Initiative

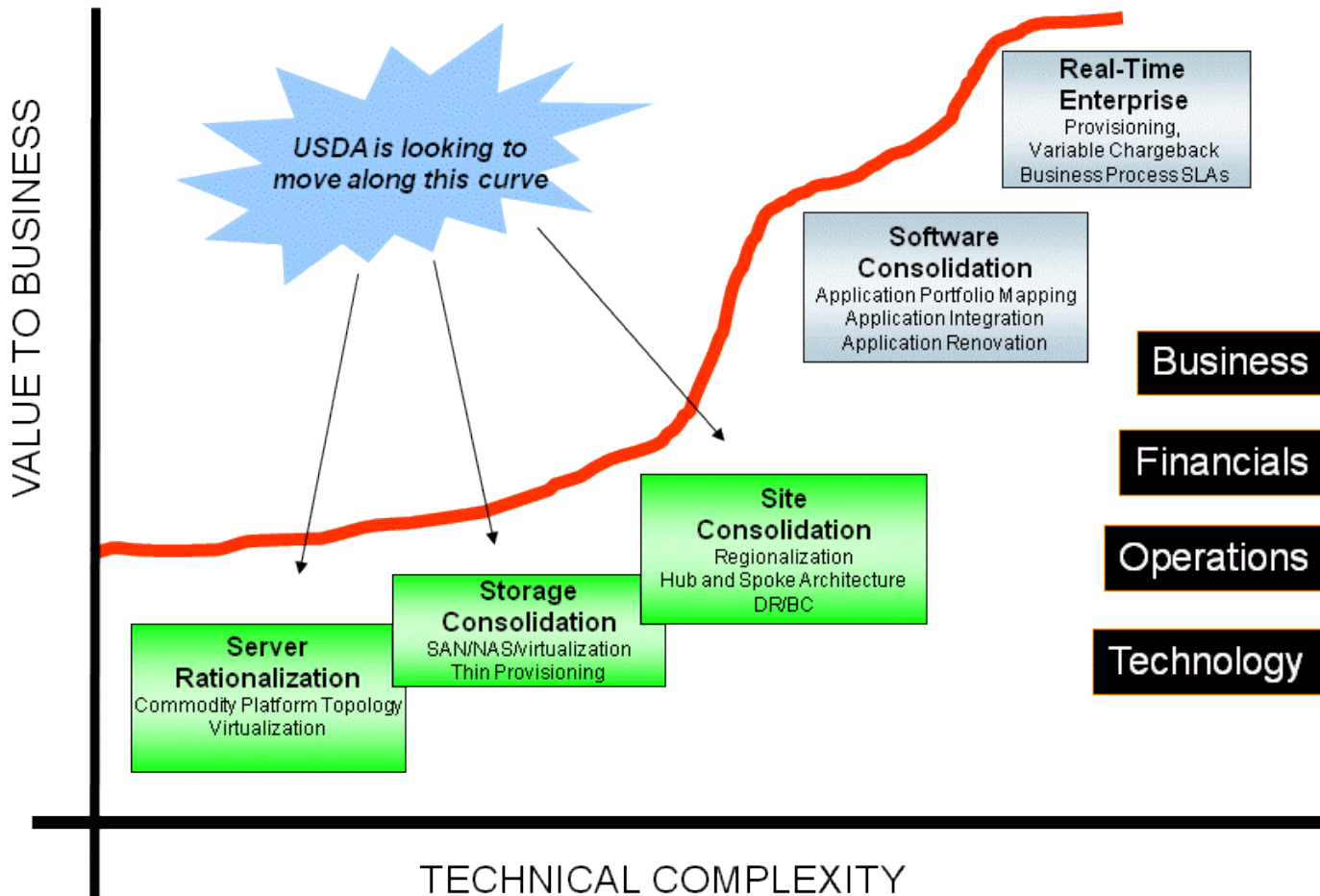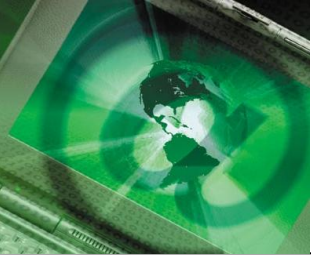Core Team/Mobile Infrastructure/Consolidation Toolkit

May 30, 2012

USDA Data Center Consolidation Initiative

➢ Where We Are: Where We are Headed

➢ The DCCI Core Team

➢ The Toolkit

➢ "Mobile Cart" Data Center & Other Infrastructure

➢ Consolidation Approach

➢ Graphical Hosting Decision Overview

➢ Financial Impact

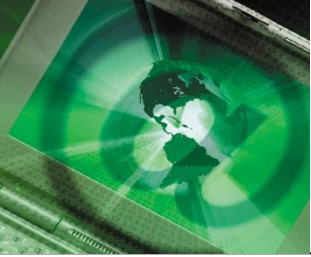# Data Center Consolidation – Where We Are & Where We're Headed

DCCI Core Team

Full –Time Dedicated Staff

- ➤ Program Lead
- ➤ Project Manager (2ea)
- ➤ Architect (2ea)
- ➤ Application Migration Specialist (3ea)
- ➤ Active Directory Engineer/Identity Manager
- ➤ Systems Administrator (2ea)
- ➤ Senior Security Engineers (2ea)
- ➤ Senior LAN/WAN Network Engineer (2ea)
- ➤ Senior DB Engineer (2ea)
- ➤ Business Lead

Staff spanning the spectrum of IT disciplines are assigned to individual migration projects as needed but are not considered part of the "Core Team"

DCCI Core Team
Roles and Responsibilities

- Prepare comprehensive inventory of current assets – hardware, software and storage

- Develop optimal target state architecture based on agency business and technical needs

- Highlight any current assets that do not fit target state architecture

- Coordinate with other OCIO organizations to ensure end-to-end service delivery

- Prepare detailed migration plan (including testing, QA and risk management plans)

- Build target environment – hardware, storage, OS, application and database etc.

- Execute parallel environments

- Conduct final cutover

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DCCI Tool Kit

VMCP - a consolidation-assessment and decision-support tool used to build the best possible infrastructure virtualization plan. Capacity Planner automates the data collection and analysis of server resources and their performance and utilization profiles.

ADDM (Atrium Discovery and Dependency Mapping) - Automatically discovers physical and virtual IT assets and applications, and the relationships between them.

BladeLogic - discovers a complete view of distributed, virtual, and mainframe environments, and creates visual mapping of IT infrastructure

Solar Winds – discovers of network bandwidth & traffic patterns down to the interface level. Identifies which users, applications, & protocols are consuming the most bandwidth.

SysTrack – used to ensure end-user experience management for "client-server" type applications slated to be migrated. The Tool performs user auditing, performance monitoring, latency and, application resource analysis, and application pool design.
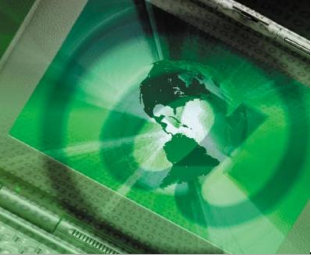
DCCI Mobile Cart & Other Infrastructure

Mobile Cart is a stand-alone set of network, servers and storage components used to "virtualize" existing applications (if customer does not have capacity) as well as stage data transfers to expedite the move process.

Rental Storage Arrays – Utilize short term rentals of storage from our utility model vendor that a provides drop ship bulk data transfer option for data intensive applications such as GIS imagery.

Dedicated Bandwidth – Utilize high-speed, point-to-point GSA Networx connectivity to handle data transfers that require continuous synchronization and to address legacy application issues that delay some application transitions.
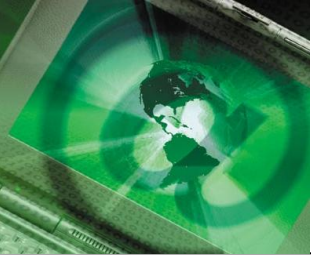
Consolidation Approach

Initiation
- Establish internal strategy and tactics - get all to buy in
- Establish customer business relationships

Discovery
- Understand the customer business applications, environment and budgeted application plans

Planning
- Break application move into manageable pieces

Execution
- Ensure customer applications function in the new environment – parallel testing leading to production

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Consolidation Approach - Initiation
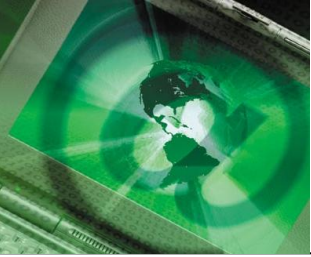
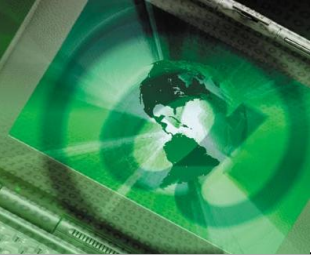Initiation → Discovery → Planning → Execution

Internal

- Strategy/tactics
- Shoot for optimal but have Plan B
- Remain flexible with eye always on goal of strategy
- Flexibility conditioning
  - Best practices to meet strategy goal vs.
    Best practices once consolidated
  - Moves applications as-is vs. when to allow application changes
- Establish consolidation Team
  - Full Time
  - Designated SMEs
- Buy in

External
- Define purpose and scope
- Address fears and concerns
- Set stage for customer interface
  - Understand customer business
  - Understand customer planning
  - Understand unique business and application challenges
  - Emphasis Cooperation
- EDC overview
  - Service offerings
  - Migration processes and business agreements
- Establish management and technical POCs
- Establish meetings and always adjourn with action items and next steps

Consolidation Approach - Discovery

Initiation → **Discovery** → **Planning** → **Execution**

➢ Collect up-to-date network topology

➢ Collect storage requirements to include types and use

➢ Use automated tools for discovery

➢ Collect and validate current application inventory

      - old fashion spreadsheet works best

      - identify OS

      - identify DB and other software versions

      - identify application interdependencies

      - identify licensing agreements

➢ Discuss application bundling approaches

➢ Start with low hanging fruit application moves to build consolidation team and customer technical working relationships

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Consolidation Approach - Planning

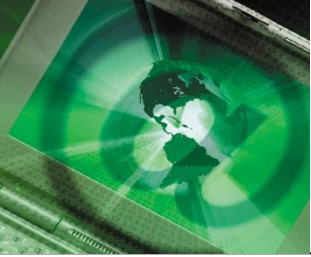|			
Initiation	Discovery	**Planning**	Execution

➢ Request that customer develop a draft high level application move plan – they know their applications best and have an understanding of the target environment

➢ Customer collaboration

- Use discovery phase spreadsheet
- Use customer developed draft application move plan
- Determine best application placements – optimal (Paas or IaaS) or Plan B (IaaS Transitional)
- Develop application move bundles

➢ Request customer test plans for each application bundle

➢ Develop target architecture – mutual approval

➢ Update agreements

➢ Finalize target network access

➢ Finalize project team/communications plan/resource plan
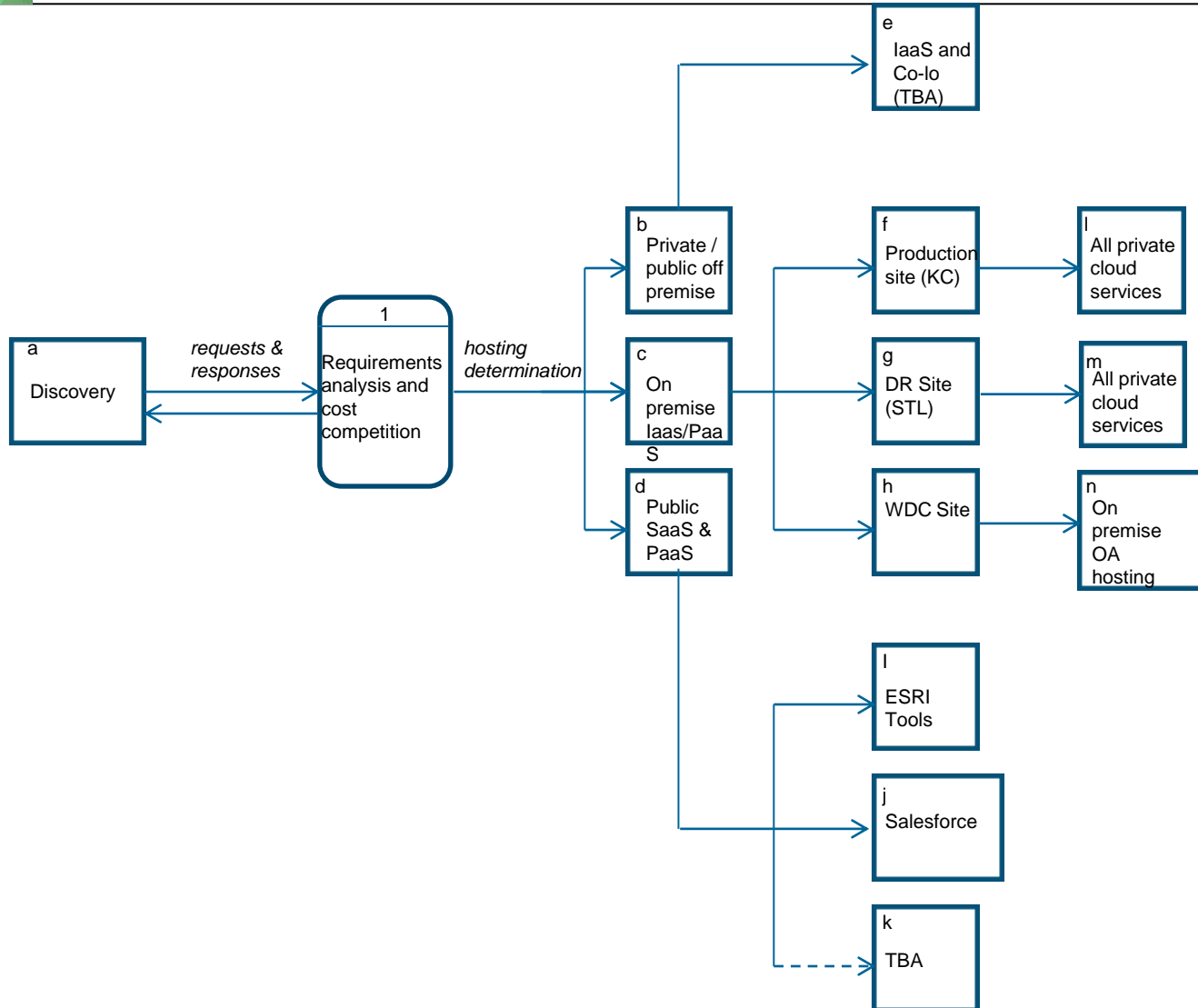
➢ Review roles in target environment

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Consolidation Approach - Execution

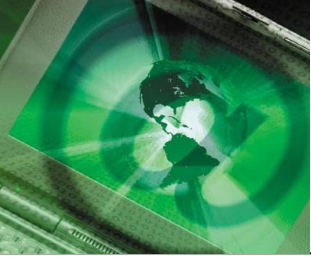| Initiation	Discovery	Planning	Execution

- ➢ Virtualize in customer environment - simplifies testing and reduces time required
- ➢ Build target architecture
- ➢ Replicate data to target environment
- ➢ Execute test/QA plans – testing in parallel
- ➢ Adjust architecture and agreements as needed
- ➢ Place successfully tested applications into production
- ➢ Shutdown corresponding customer infrastructure
- ➢ Close legacy computer room

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DCCI Hosting Site Determination

Questions?