

Rhode Island Enterprise GIS Business Plan

Summary Presentation

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Agenda

- **Project Background**
 - Federal Funding
 - State's Objectives
- **What The Business Plan Says**
 - Short term approach
 - Medium/long-term approach
- **Current Status & Next Steps**
 - There has been some progress already

Funding Source & Relevant Federal Initiatives

The National Spatial Data Infrastructure (NSDI)

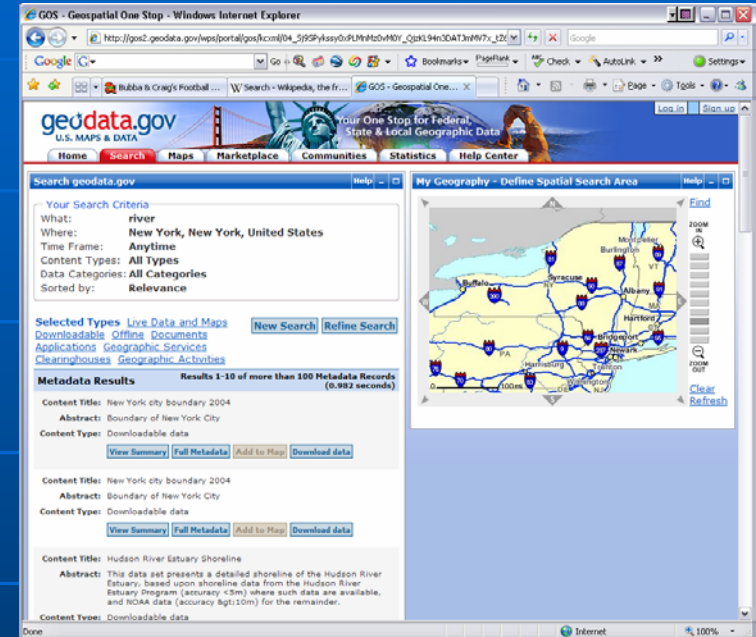
- **Compilation and integration of consistent, high-quality nationwide data for:**

7 Framework Data Layers

1. Geodetic Control
2. Cadastral (parcels)
3. Political Boundaries
4. Hydrography
5. Imagery (orthos)
6. Elevation
7. Transportation
(Air, Roads, Inland Waterways, Rail, Transit)

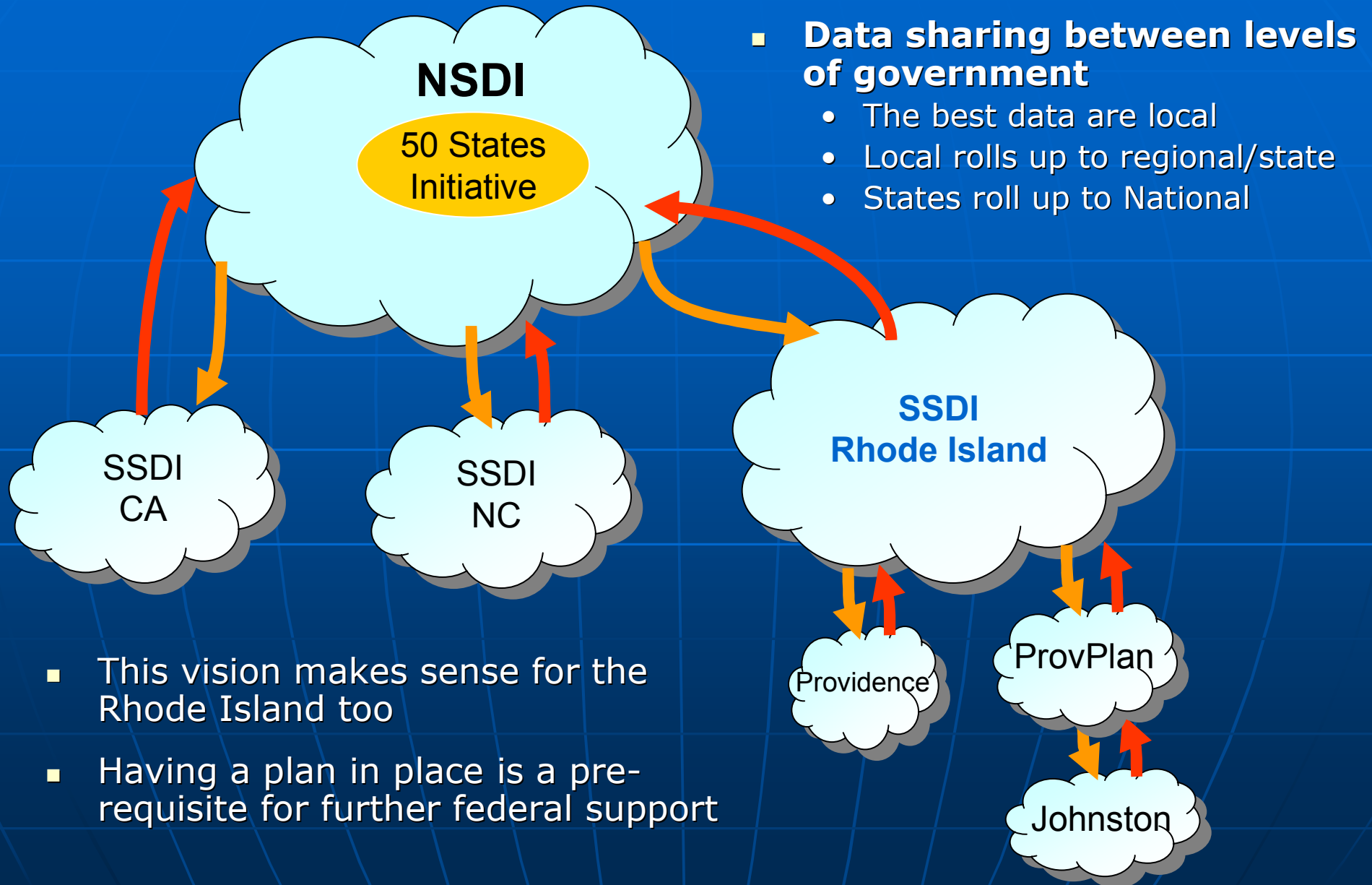
- **50 States Initiative:**

- Effort to catalyze creation of NSDI
- Including the CAP grant funding this project



The Federal Vision for NSDI:

National & State Spatial Data Infrastructures working in concert



- This vision makes sense for the Rhode Island too
- Having a plan in place is a prerequisite for further federal support

Rhode Island's CAP Grant Project

■ **FGDC wants to create NSDI**

- State Spatial Data Infrastructure SSDI's are critical to success of NSDI
- States need to self-assess and develop strategic, business plans to help realize the NSDI vision
- FGDC supports planning via CAP grants

■ **Rhode Island's Specific Challenge:**

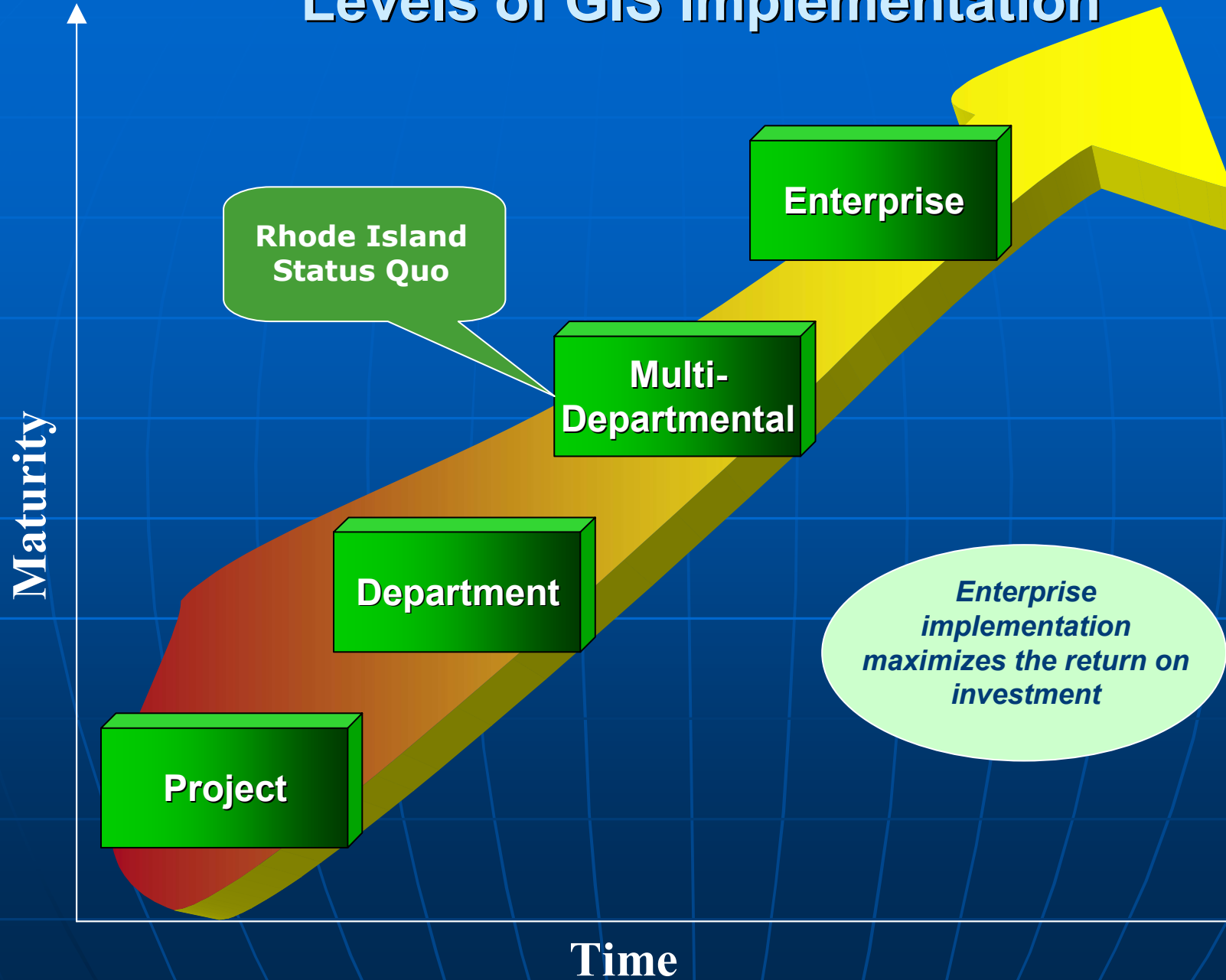
- Internal inter-agency data sharing has technical challenges
- Develop a plan for enterprise-wide data sharing architecture

Rhode Island GIS Background

5 Key State Players

- **Department of Administration (DOA) – Statewide Planning**
 - Houses RIGIS Coordinator (recently re-housed from DoIT)
 - Coordinates statewide efforts such as orthophoto and landuse projects
- **Department of Transportation (DOT)**
 - Long-time GIS user w/ fulltime GIS staff
 - Developing server-based data management and applications
- **Department of Health (DOH)**
 - Long-time GIS user w/ fulltime GIS staff
 - Full departmental GIS infrastructure
- **Department of Environmental Management (DEM)**
 - Long-time GIS user w/ fulltime GIS staff
 - Mostly desktop GIS capabilities
- **URI Environmental Data Center**
 - 20 year old GIS organization within Natural Resources Department
 - 1990 RI legislation created RIGIS and included URI
 - Provides public dissemination of state GIS data
 - Acts as NSDI “clearinghouse node”

Levels of GIS Implementation



GIS Enterprise Architecture for Rhode Island

- **Addresses Challenges and Provides Long Term Benefits**
 - Single efficient and effective GIS infrastructure for state govt.
 - Alleviate current, inefficient “sneaker-net” workflows for data sharing
 - Avoid duplication of effort and data
 - Provide centralized and shared data repository, application infrastructure, and web services
 - Consistent and quality data available
 - Lowers barrier to entry for new users
 - Professionally managed
 - Performance & availability
 - Disaster recovery
 - Standards and user policies are defined, visible, and used
 - Consistent with trend towards State IT Infrastructure consolidation
 - Potential software license consolidation efficiencies in future

Business Plan Project Overview

Goal:

To produce a Business Plan to implement a *strategy and preliminary architecture* for building an Enterprise GIS for RI

- Interview lead GIS departments (RIDOA, DOT, DEM, DOH)
- Assess how Enterprise GIS might benefit other GIS stakeholders
- Draft "Needs Assessment" for Enterprise GIS
- Develop "Conceptual Design" for Enterprise GIS
- Develop Business Plan for Enterprise GIS
- Work with RI staff on final presentation of findings

Business Plan for:

Rhode Island Enterprise GIS



Developed for the:

Rhode Island
Department of Administration
Division of Information Technology

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Prepared with the assistance of:



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Business plan objectives

- Incorporate GIS into RI IT Enterprise Architecture
- Establish secure common repository for existing state agency geospatial data
- Provide broad and easy access to data repository for use by all state agencies
- Develop a suite of application tools and web services to provide consistent access to spatial information
- Establish GIS management committee

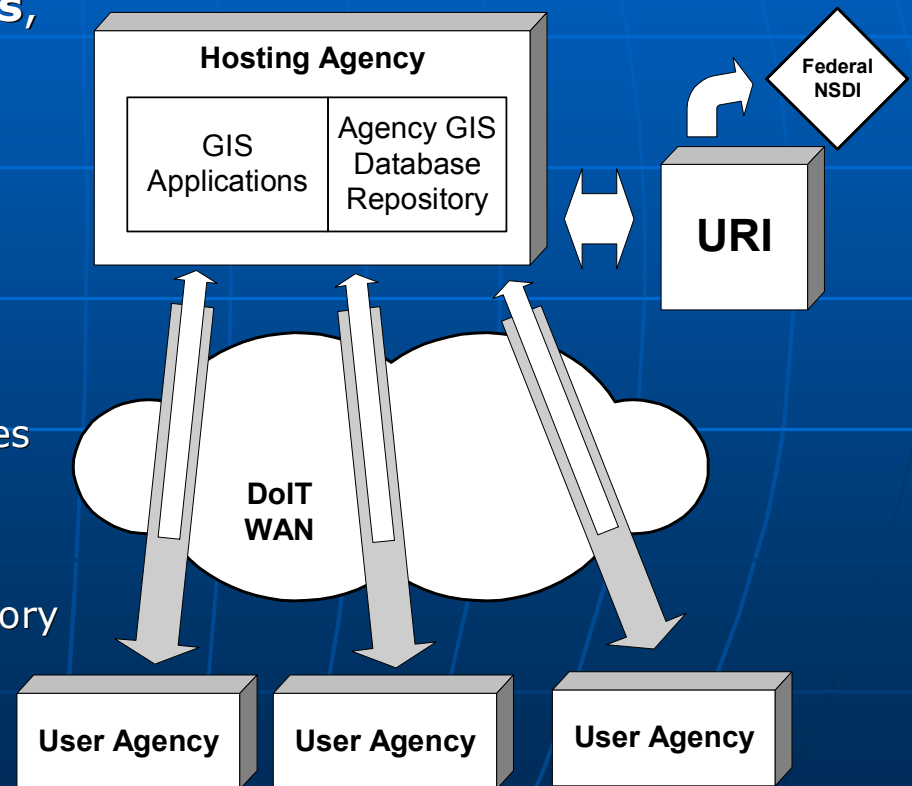
Incorporate GIS into Overall State IT infrastructure

Two phased approach: *Federate then Consolidate*

- **Phase 1:** Existing resources built into **collaborative federated model**
 - +/- zero cost
 - Existing agency hosts communal data repository
- **Phase 2:** GIS data and services are consolidated and deployed as **centralized GIS infrastructure**
 - GIS is managed as part of state's overall IT infrastructure
 - Hosted at DoIT data centers

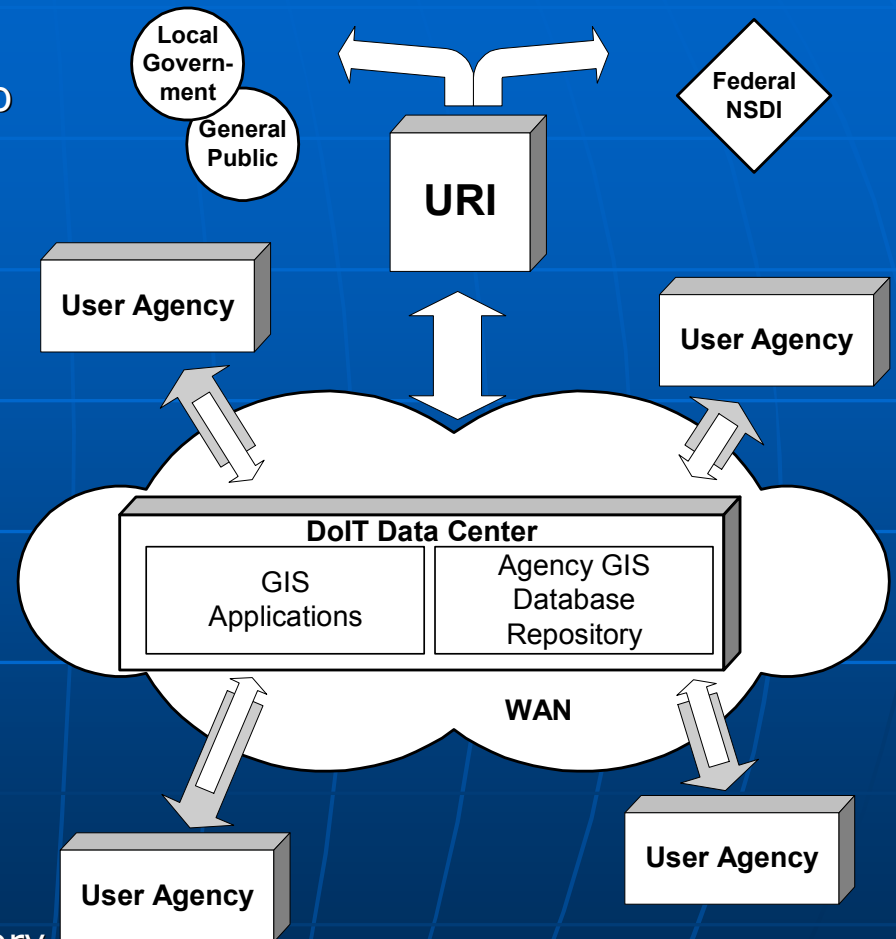
Phase 1: Federated Agency Model

- Leverage **existing agency resources** for both hardware and software
- GIS capabilities, particularly **data access**, are shared for communal use
- Cooperative agreements negotiated between agencies
- No chargeback fees
- Overall RI GIS costs reduced through sharing and reduced redundancy
 - Data updates are done once, not four times
- User Agency
 - Consumer of data/services
 - Contributes agency data to shared repository
- Hosting Agency
 - Provides system and application administration



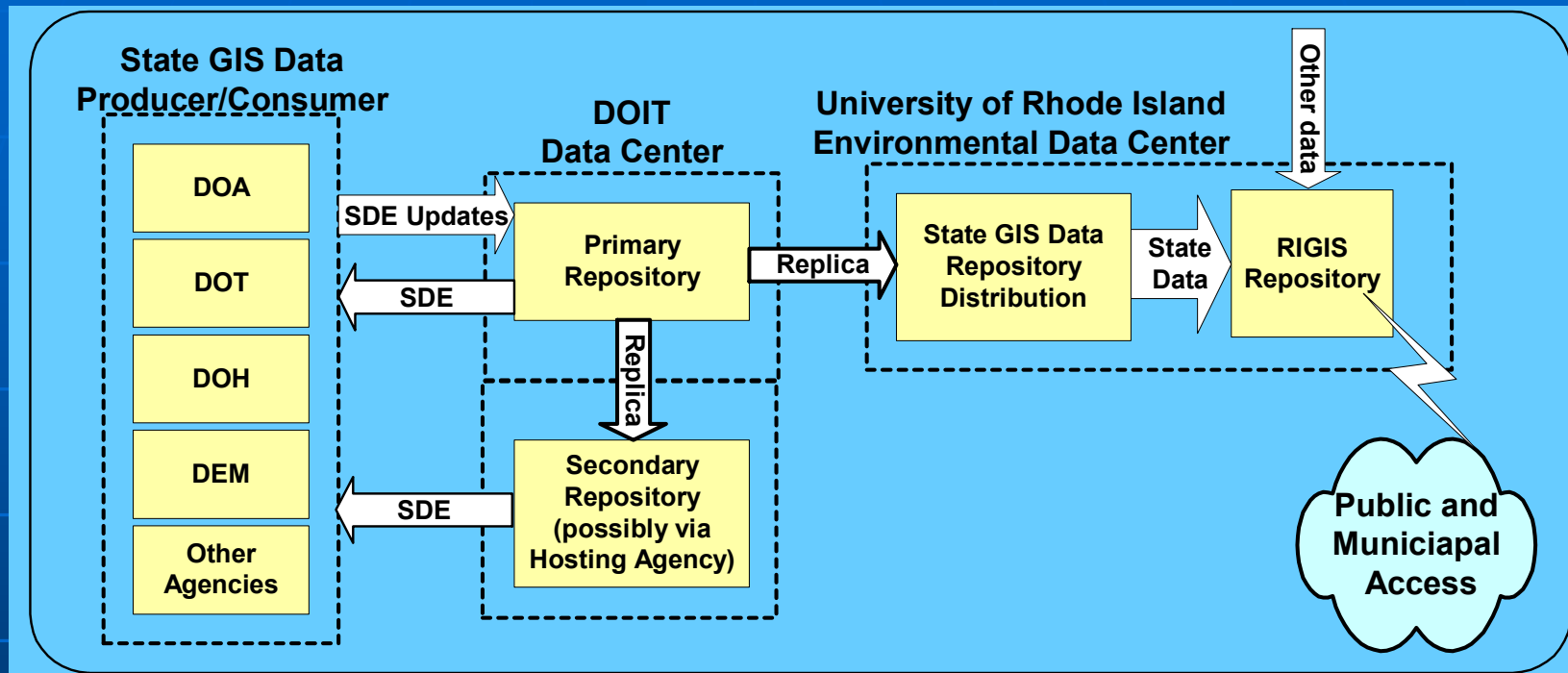
Phase 2: Centralized GIS Model

- Shared resources are physically moved to DoIT data center(s)
 - GIS is ID'ed as part of overall state IT infrastructure
 - GIS integrated into RI IT enterprise
- High level of service
 - High availability and performance
 - Virtual machines
 - Standard operating system administration
 - Enterprise Storage Area Network (SAN)
 - Disaster recovery
 - Change management processes
- User Agency
 - Consumer of services
 - Contributes agency data to shared repository
- GIS Management Committee guides application administration and priorities



GIS Data Repository

Centralized View



- Primary repository hosting agency is DoIT
- Direct database access for data reading (and editing)
- State agencies retain master copies of agency data
 - Agencies remain the primary “custodians” of data
- URI continues to fulfill public distribution mandate

GIS Management Committee

- Formal committee comprised of agency GIS managers
- Acts as GIS infrastructure “change management committee”
- Chaired by state GIS coordinator
- Technical non-GIS member appointed by CIO
- Regular scheduled meetings
 - Develop GIS best practices
 - Rules for “The Commons”
 - Prioritize and select resources to move to data centers
- Continues RI culture of cross-agency sharing of GIS resources

Organized Approach Leads to New Opportunities

Outreach to Champions & New Users

- Opportunity to further geospatial initiatives across the state
 - Additional **state agency** involvement
 - E911, Public Safety, Health & Human Services, etc.
 - Enterprise architecture lowers barriers to entry
 - Additional **local government** involvement
 - Most municipalities are already doing GIS
 - Foster intergovernmental data sharing
 - Interests, such as **statewide parcels** benefit from the enterprise approach
 - Collect and aggregate once, not four times
 - Outreach to GIS users at all levels (state, regional, local) is key to ensuring that **ROI** is realized
 - GIS data are expensive to create, but easy to share
- State GIS coordinator role includes outreach
 - **Upward:** Executive support
 - **Outward:** Grass roots support
 - Critical to sustaining effort beyond initial phases

Current Progress

- **Hosting agency model has been tested**
 - DOT opened their copy of ArcSDE to other agencies
 - DEM and Statewide Planning have successfully connected to GIS layers at DOT
 - Network connectivity/security issues are manageable
 - Performance is good
 - Currently only accessing transportation data
 - Next step would be to add further RIGIS layers
- **DOT GIS-server Applications are Planned to be Hosted at DoIT Data Center**
 - For DOT Project Management Portal application
 - Using ArcGIS Server software
 - ArcSDE will be part of application infrastructure
 - Effort is ongoing
 - Could provide a model for broader DoIT hosting of GIS infrastructure
 - Pending examination of scalability

Next Steps

- Broaden data available on DOT's ArcSDE instance
 - Encourage further access by DEM and RIDOA (and others?)
 - Include additional RIGIS layers
- Track progress/success of DOT PMP hosting by DoIT
- Formalize GIS Management Committee
- Begin work on standards and procedures
- Begin planning for projects to further develop the common GIS infrastructure
 - Data: such as statewide parcels
 - Web-services: for easy access to data
 - Applications that use the infrastructure

Questions & Discussion

