Data Store Management Best Practices

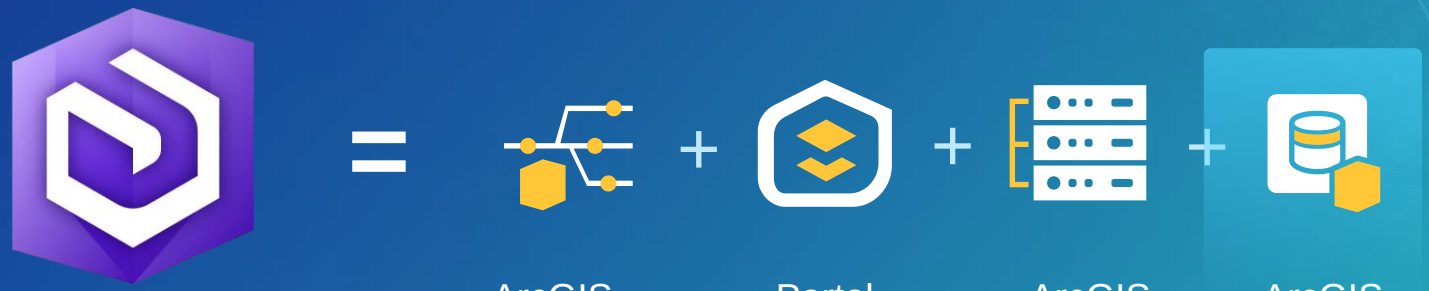
Bill Major
Laurence Clinton

Session Agenda

1. Overview
2. Installation and Configuration
3. Backing up the data store
4. Restoring the data store
5. Moving data store to a new machine
6. Upgrading
7. Questions

Overview


ArcGIS
Enterprise
=
ArcGIS
Web Adaptor
+
Portal
for ArcGIS
+
ArcGIS
Server
+
ArcGIS
Data Store


ArcGIS
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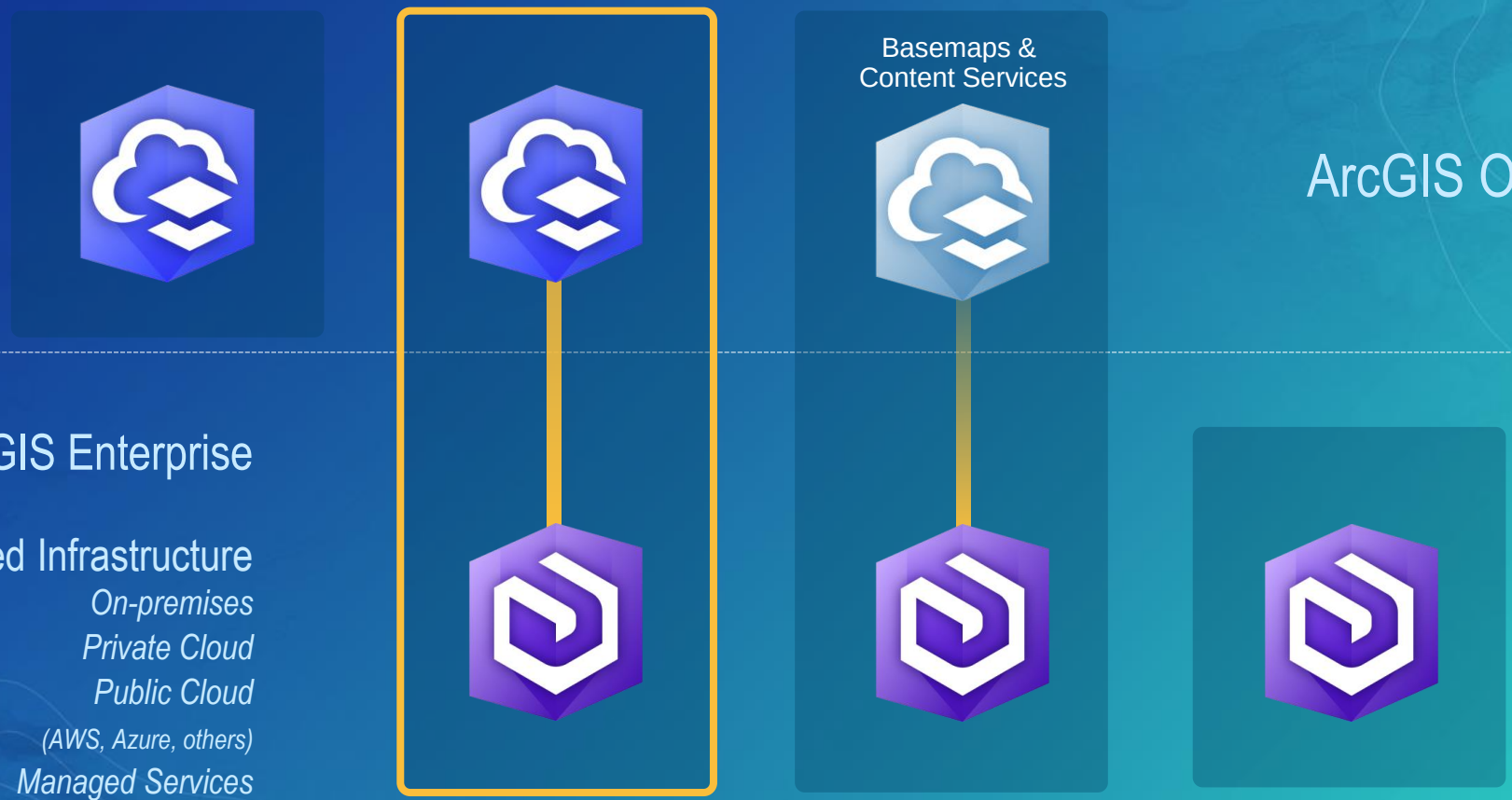
Data Store

Web GIS Deployment Patterns

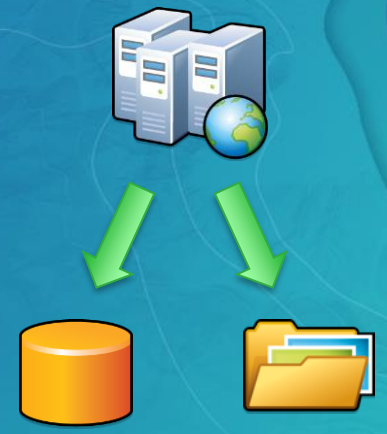
Begin with ArcGIS Online & SaaS



Begin with ArcGIS Enterprise & Software

Understanding Data Stores

- **ArcGIS Server data store concept**
  - Valid location that contains data used for web services
  - Read/write by the ArcGIS Server service account
  - Two types: Folders and Databases
  - Define via ArcGIS Server Manager or Desktop



- **ArcGIS Data Store**
  - Separate software installation; available since 10.3
  - Used to configure and deploy a hosting server configuration with Portal for ArcGIS

ArcGIS Data Store Types

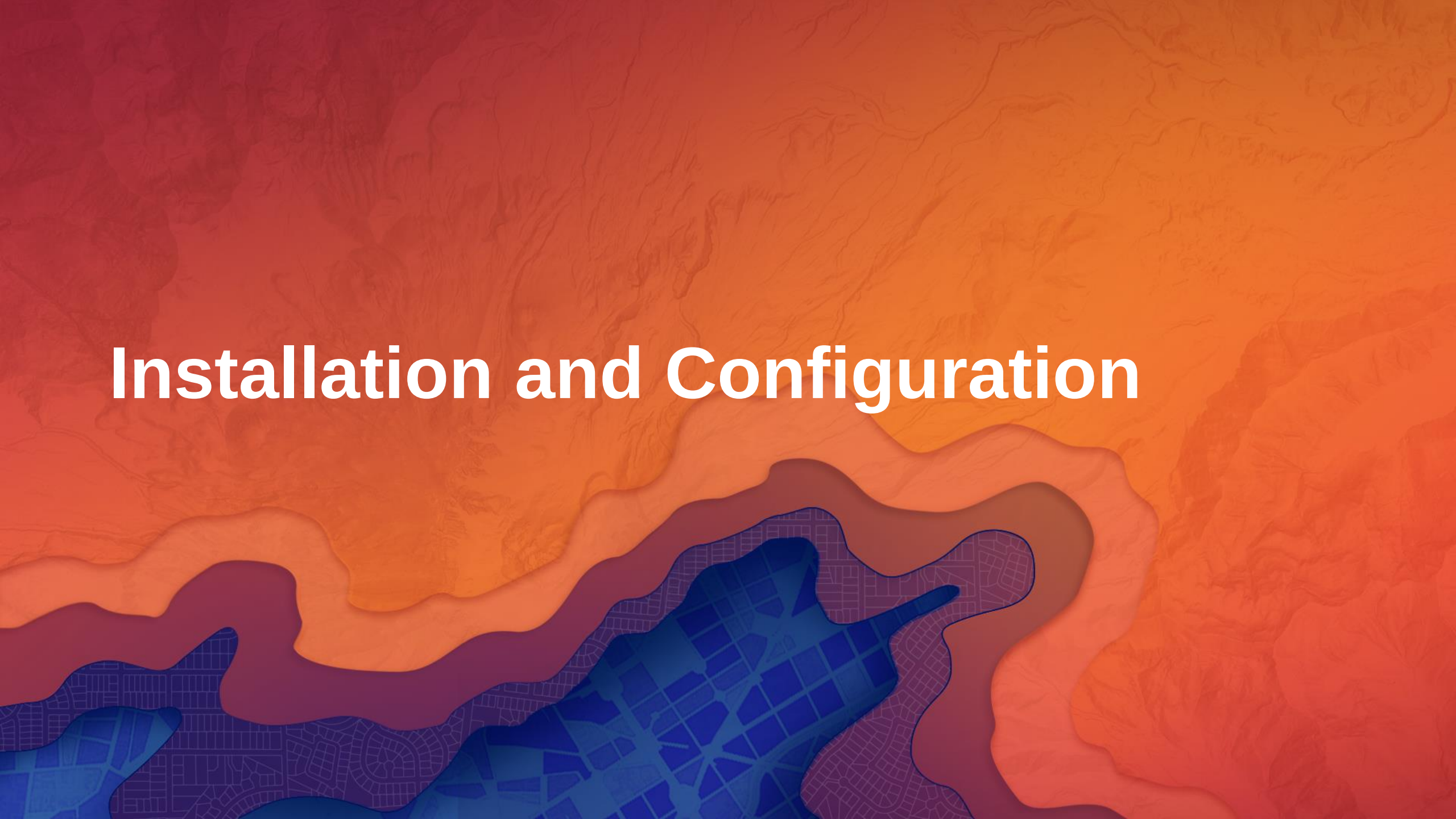
- **Relational Data Store**
  - Hosted feature services, managed by Portal and ArcGIS Server
- **Tile Cache Data Store**
  - Publish scene layers, not Hosted tile services
- **Spatiotemporal Big Data Store**
  - Archive observation data streamed when using ArcGIS GeoEvent Server.
  - Stores output from GeoAnalytics Server tools

Functionality ArcGIS Data Store provides

Functionality	Data store type
Publish scene layers	Tile cache and relational data store
Editor tracking, ownership-based access control	Relational data store
Enable or disable attachments	Relational data store
Publish an empty hosted feature layer	Relational data store
Publish thousands of hosted feature layers	Relational data store
Create feature templates	Relational data store
Calculate values for a field	Relational data store
Publish a hosted tile layer	Relational data store
Archive observation data streamed when using ArcGIS GeoEvent Server.	Spatiotemporal big data store
Feature analysis tools	Relational data store
GeoAnalytics Tools	Spatiotemporal big data store and relational data store
Raster analysis tools	Relational data store

Apps that utilize the ArcGIS Data store include Insights for ArcGIS, Survey 123 for ArcGIS, Geoplanner for ArcGIS, Workforce for ArcGIS

Installation and Configuration



ArcGIS Data Store Installation and Configuration Notes

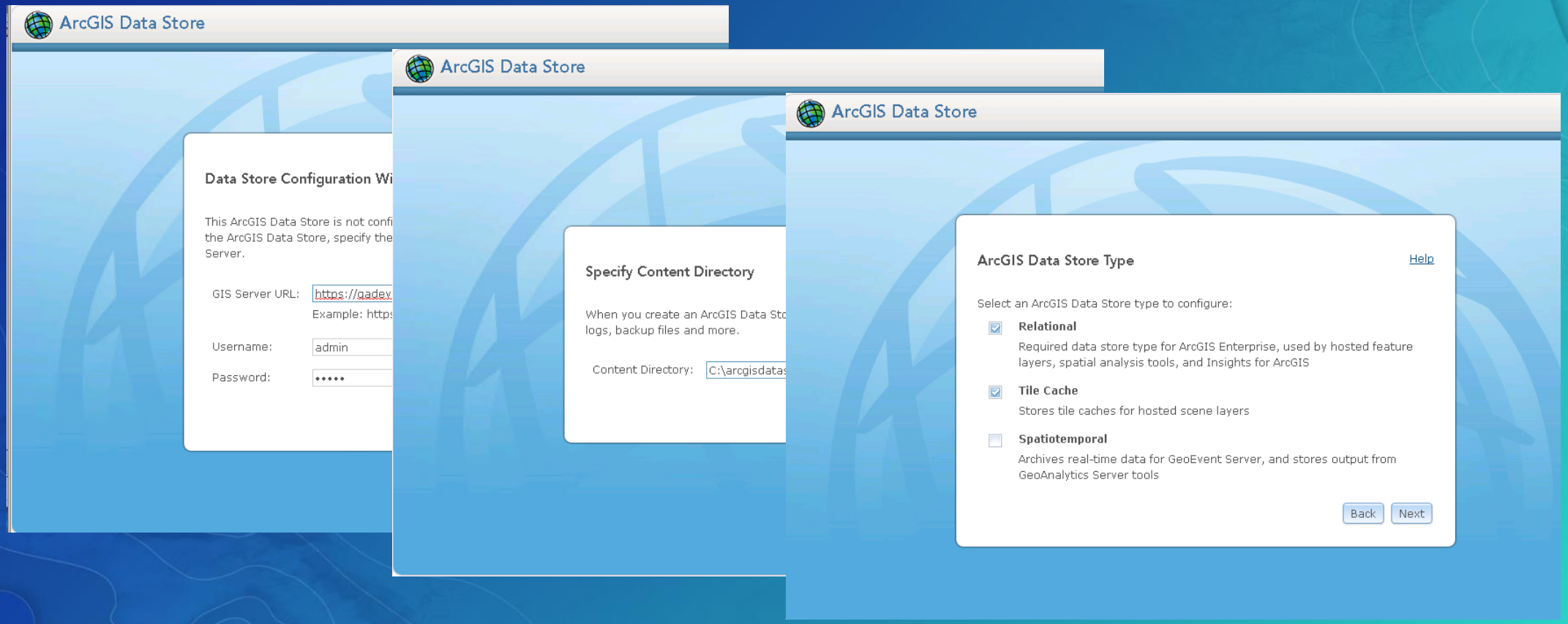
- Starting at 10.4, ArcGIS Data Store installs using an OS or Domain service account.
- In a distributed server environment, the ArcGIS Data Store should be installed with fast network access to ArcGIS Server. Portal for ArcGIS does not communicate directly with the ArcGIS Data Store; only ArcGIS for Server does.
- ArcGIS Data Store Ports: 2443 (HTTPS), 9876 (TCP)
  - Tile cache data store: 29080 (HTTP), 29081 (HTTPS)
  - Spatiotemporal big data store: 9220, 9320
- Configure with ArcGIS Server via web browser or a command line utility
- Supports availability via a Primary and Standby node

Installation and Configuration

- Estimate amount of disk space to account for installation, configuration, and data
  - Minimum requirement for one empty data store type is 13 GB of available disk space
    - This does not include data
    - ReadOnly mode threshold - Data stores placed in read-only mode or stopped when machine disk space drops below threshold
- Data stores by their nature store large volumes of data
  - Install on drive with plenty of free space
- Spatiotemporal big data store
  - Should be installed on dedicated machines
  - Install on robust machines with significant amounts of available RAM
    - By default consumes 50 percent of available memory
- Create a Domain service account in advance of installation to support network backup operations

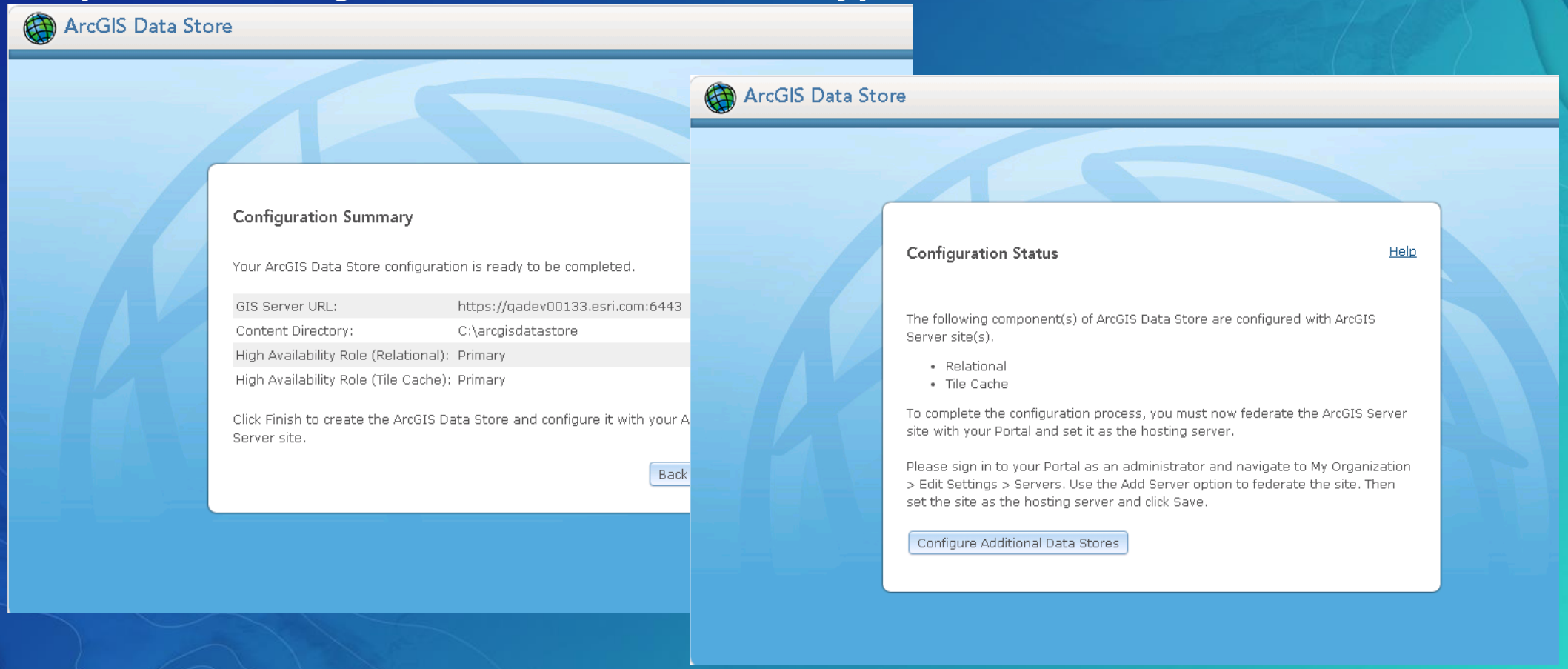
Configuration
Data Store Configuration Wizard

- **Ability to configure all data store types from Data Store Wizard**



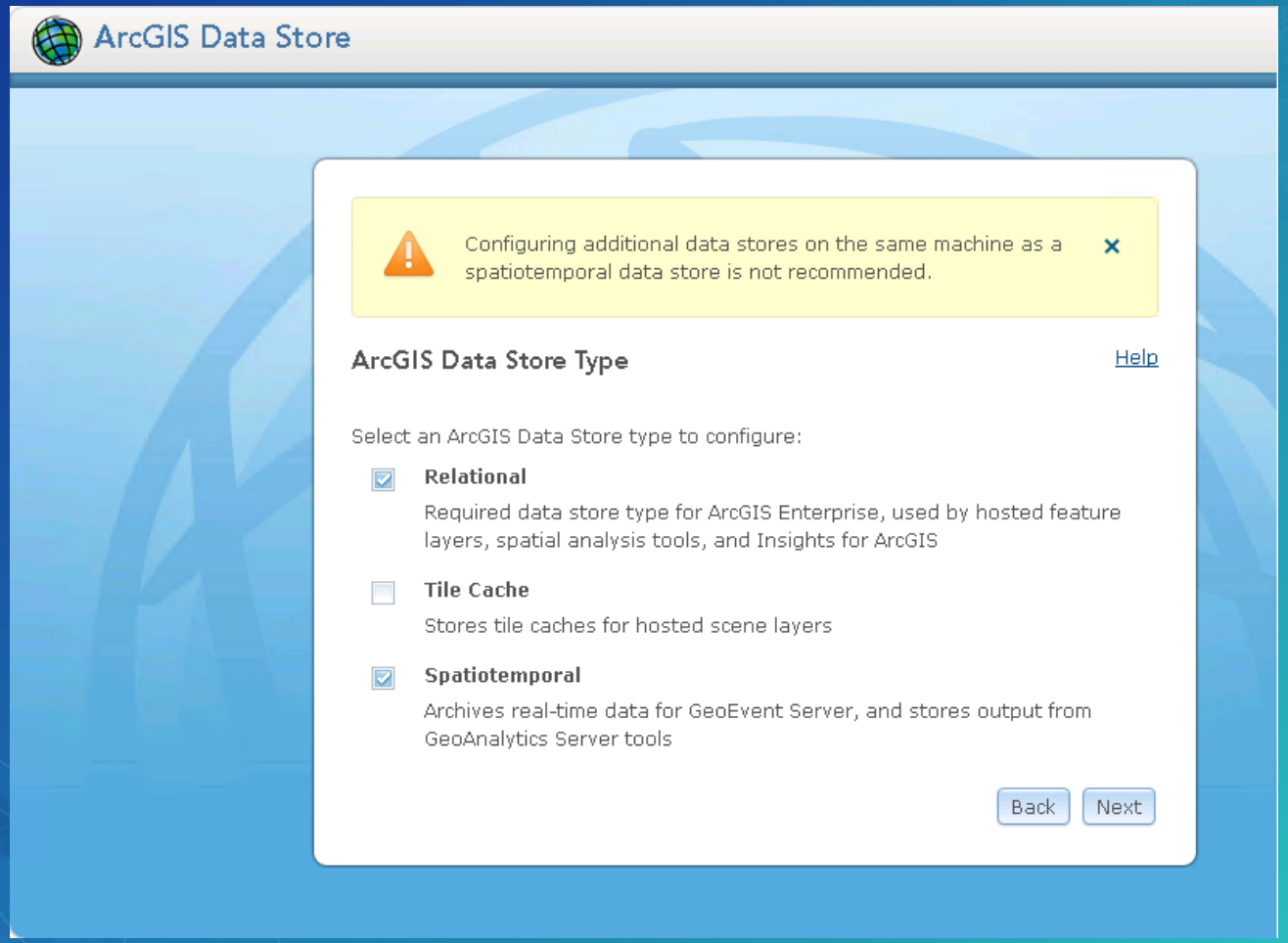
Data Store Configuration Wizard

- **Option to configure additional data store types later**

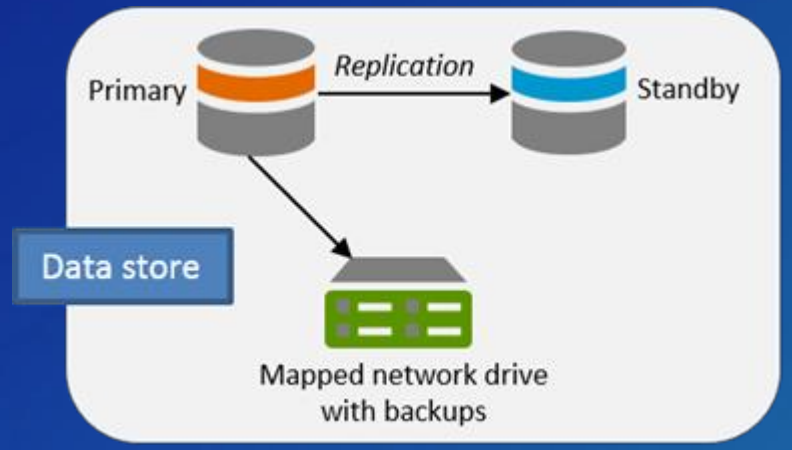


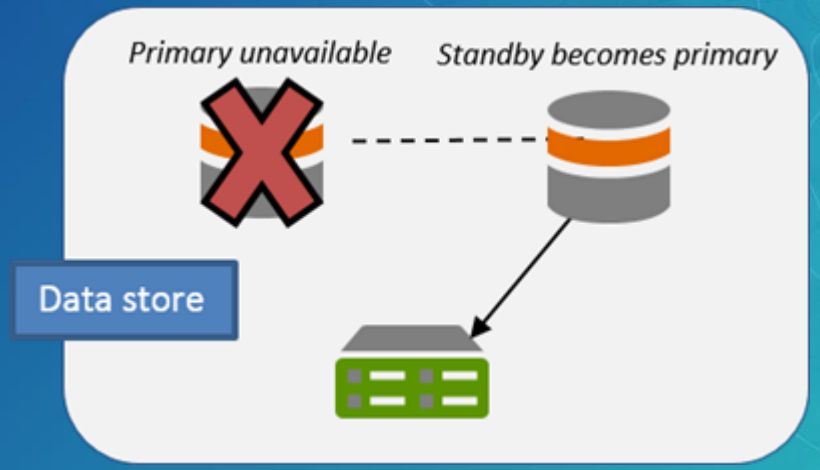
Data Store Configuration Wizard

- **Configuring the spatiotemporal big data store**



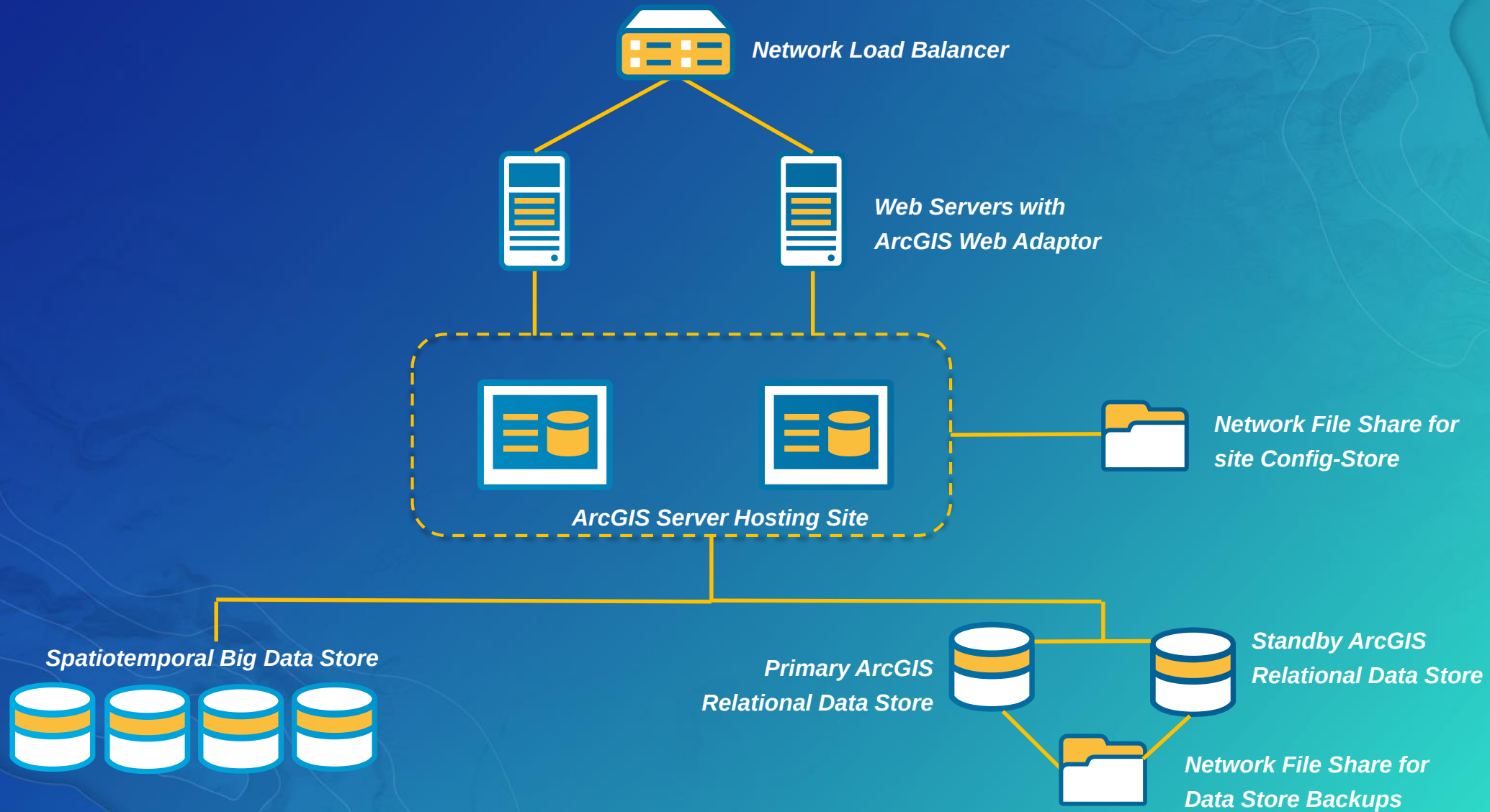
Installing a standby relational and tile cache data store for high availability





- Validate ports are open to second server
- Install ArcGIS Data Store on second server using same Domain Account as Primary Data Store
- Configure ArcgIS Data Store to same ArcGIS Server site
- Verify the Configuration Summary knows that this is a Standby Data Store

Sample Highly Available ArcGIS Server Hosting Site



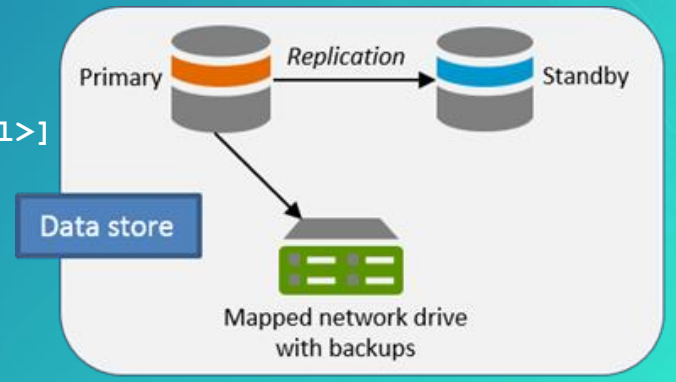
Backing up the data store

Backing up the data store

- **Backups can be taken for all data store types at 10.5 and 10.5.1**
  - **Backups grow and consume disk space over time**
  - **Configure backup location to a shared drive**
    - **Ensure ArcGIS Data Store account has permissions on shared drive**

```
Usage: configurebackuplocation --location <backup-location> [configure-backup-location-options]
Supported configure-backup-location-options:
        [--operation <change | register | unregister>]
        [--store <relational | tileCache | spatiotemporal>]
        [--prompt <yes|no>]

Usage: backupdatastore [backup-name] [--store <relational|tileCache|spatiotemporal>]
 [--prompt <yes|no>]
```



Backing up the data store

- **Backup schedule and retain days**
- **Default values at 10.5.1**
  - **retain days 7, backup schedule every 4 days**

```
Usage: updatebackupretaindays <num-of-days>


Usage: updatebackupschedule [--store relational| tileCache| spatiotemporal]
<--frequency num-of-days> [--starttime HH:MM:SS]
```

Backing up the data store

- **Considerations for enabling / disabling point-in-time recovery for relational data store**
  - **Less disk space required if disabled**
    - **Disabled by default at 10.5.1**
  - **Point-in-time needed for WebGISDr tool**

```
Usage: changedbproperties --store <relational|tileCache|spatiotemporal> [configure-options]
Supported configure-options:
        [--disk-threshold-readonly <disk-threshold-readonly>]
        [--max-connections <max-connection-number>]
        [--pitr <enable|disable>]
        [--heap-size <heap-size-in-MB>]
        [--rebalance <true|false>]
        [--max-rebalance-off <time-in-minutes>]
        [--allocation <true|false>]
        [--prompt <yes|no>]
```

Backing up the data store

- **Exports and backups**
  - **Advantages and differences prior to 10.5.1**
  - **10.5.1 default behavior**

```
Usage: exportmanageddb <destination> <backupName> [backup-options]
Supported backup-options:
        [--stores [relational][,][tileCache]
        [--include-tilecache <true|false>]
        [--prompt <yes|no>]
```

Restoring the data store

Restoring the data store

- **Restoring options**
  - **Restoredatastore**
  - **importmanageddb (prior to 10.5.10)**

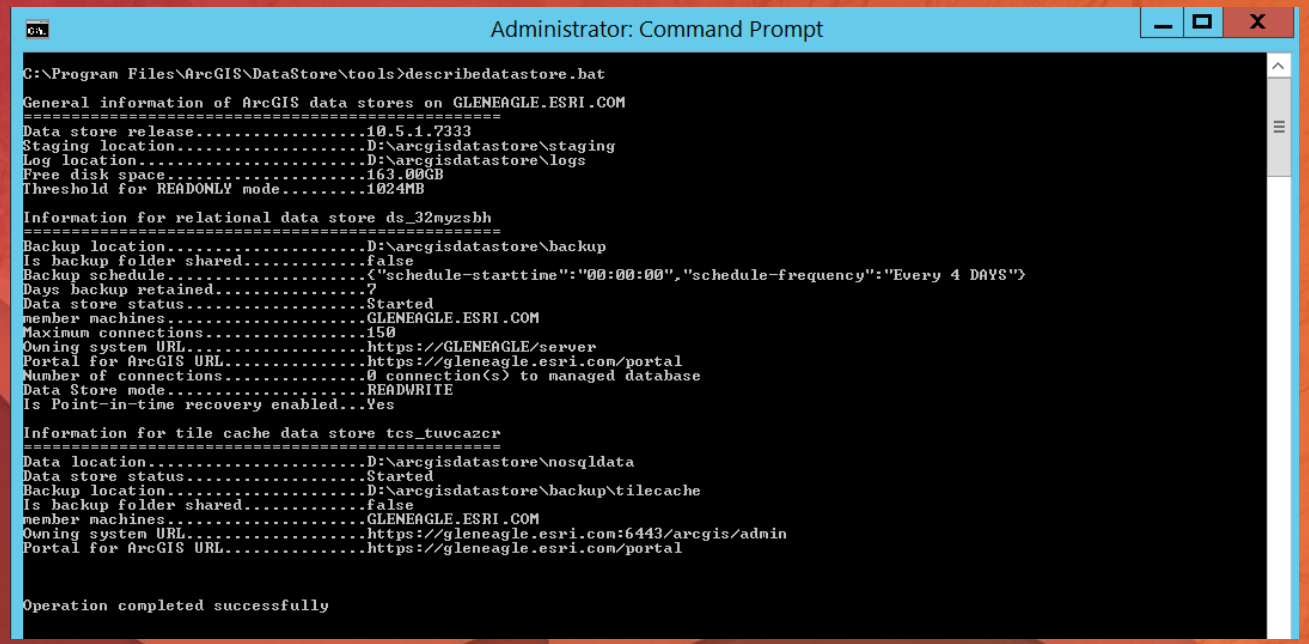
```
Usage: restoredatastore[restore-options]
Supported restore-options (Time need be in UTC):
        [--store <relational|tileCache|spatiotemporal>]
        [--target <most-recent|yyyy-mm-dd-hh:mm:ss>|source-backup-name]
        [--source-loc <source-backup-loc>]
        [--bound <true|false>]
        [--data-dir <data_dir>]
        [--server-url <server_url>]
        [--server-admin <admin_user>]
        [--server-password <admin_password>]
       [--loaddata true|false]
         [--prompt <yes|no>]
```

Moving to the data store to a new machine

Moving ArcGIS Data Store to a different server

- There are times when organizations may need to move the ArcGIS Data Store content to a different server, such as a server hardware upgrade.

- Steps
  - Install ArcGIS Data Store on new server
  - Configure relational ArcGIS data store to ArcGIS Server site as standby Data Store
  - Once configured and data is fully replicated, promote the standby Data Store to primary
  - Remove the standby data store from the site (the original primary)
  - Uninstall Data Store software from original server; decommission.



Demo

Command Line Utilities

Upgrading

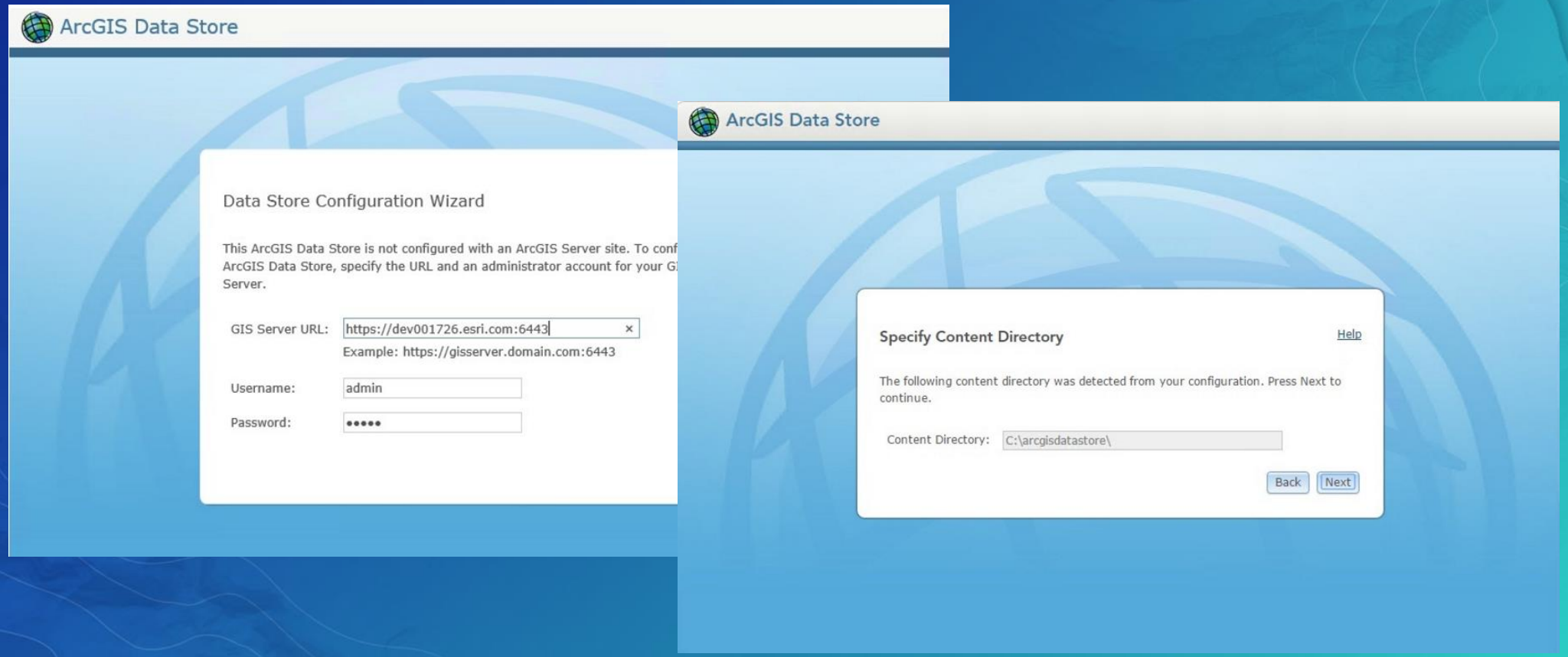
Considerations Before Upgrading

- ArcGIS Server must be upgraded before ArcGIS Data Store
- Stop service and copy entire content directory to a safe location
- Generate an export via exportmanageddb command line utility

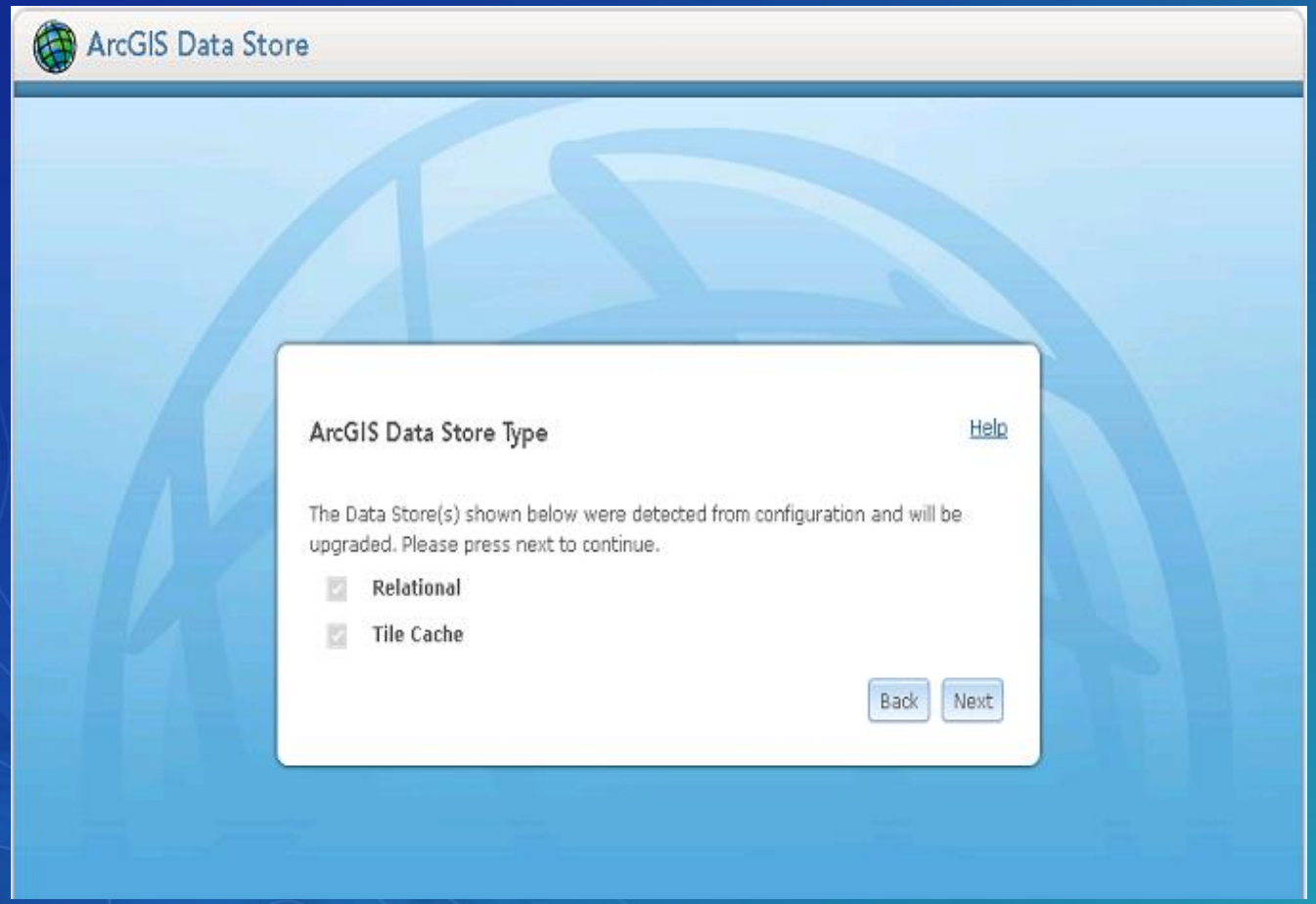
```
Usage: exportmanageddb <destination> <backupName> [backup-options]
Supported backup-options:
        [--stores [relational][,][tileCache]
        [--include-tilecache <true|false>]
        [--prompt <yes|no>]
```

- For relational and tile cache, upgrade primary before standby
- For spatiotemporal
  - Stop all but one spatiotemporal data store, upgrade, and then subsequently start and upgrade the rest one-by-one

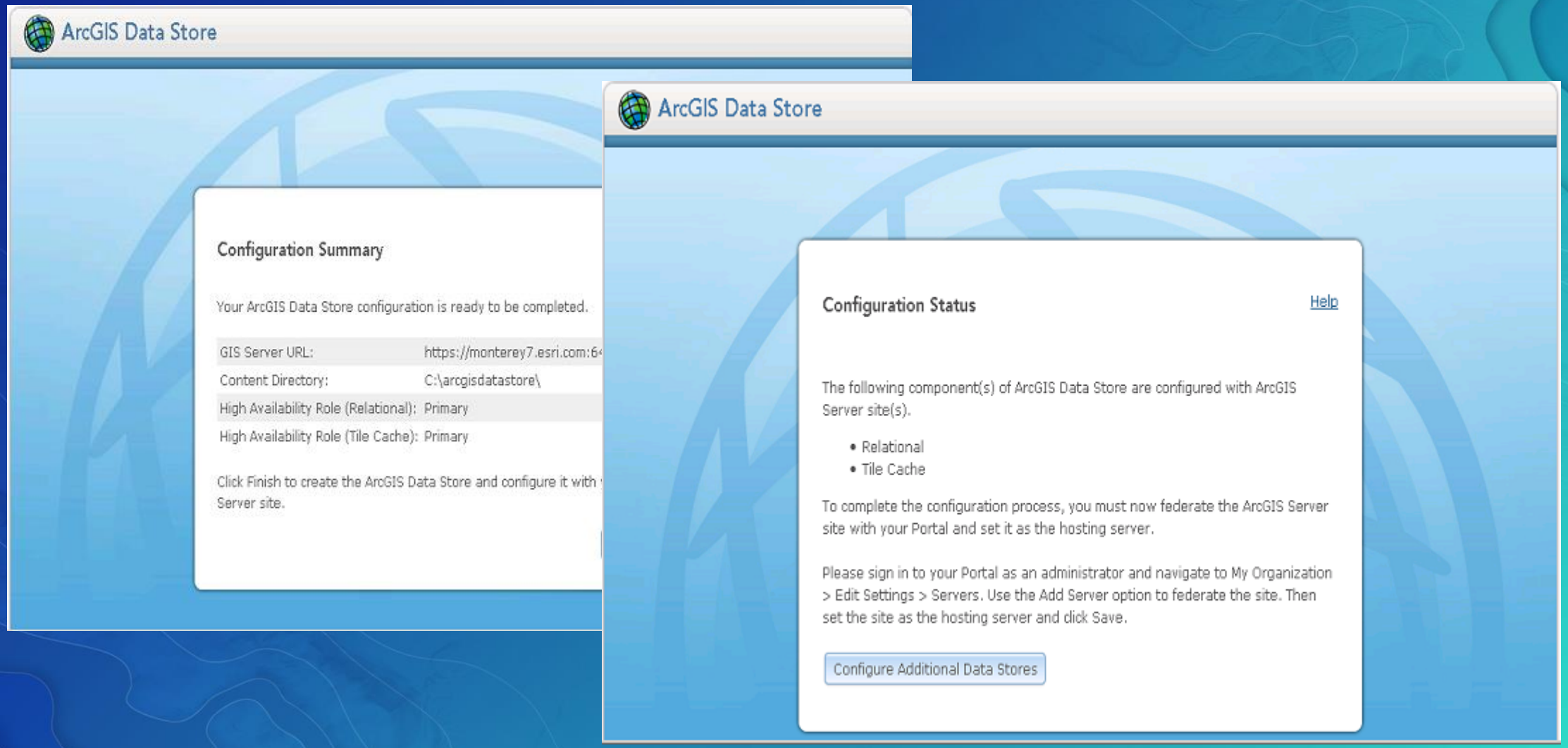
- **Content directory is detected and greyed out**



- **Data Store types to be upgraded are detected from configuration**

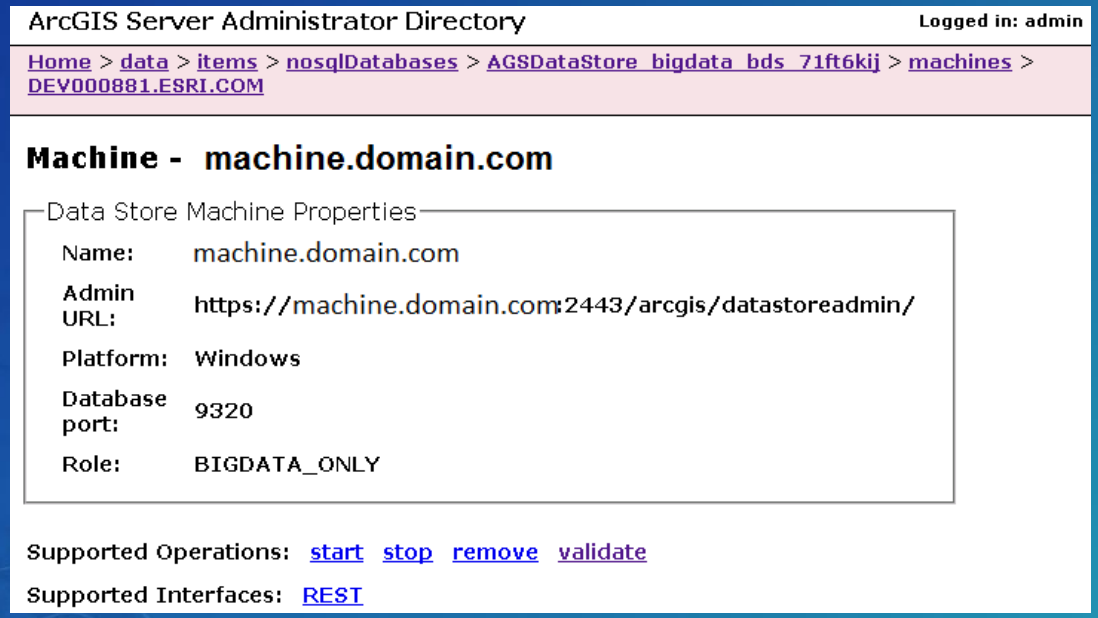


- **Configuration summary and status provided**



After Upgrading

- **Run describedatastore command**
- **Validate data stores**
  - **https://gisserver.domain.com:6443/arcgis/admin/**



- **Verify services still work**

QUESTIONS?

Want to learn more?

- ArcGIS Enterprise Showcase Area – Data Store topics

- ArcGIS Enterprise: Architecture Best Practices
  - Tuesday 10:30am
- High Availability and Disaster Recovery for ArcGIS Enterprise
  - Tuesday 8:30am, Thursday 3:15pm
- Web GIS: Architectural Patterns and Practices
  - Tuesday 10:15am, Thursday 10:15am

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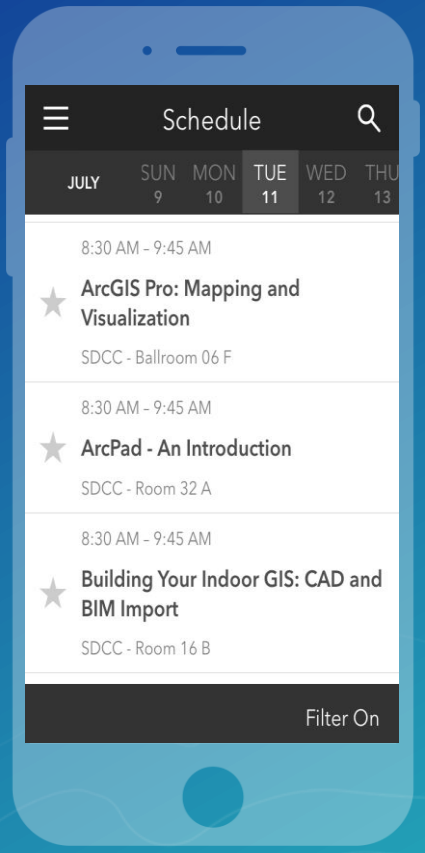
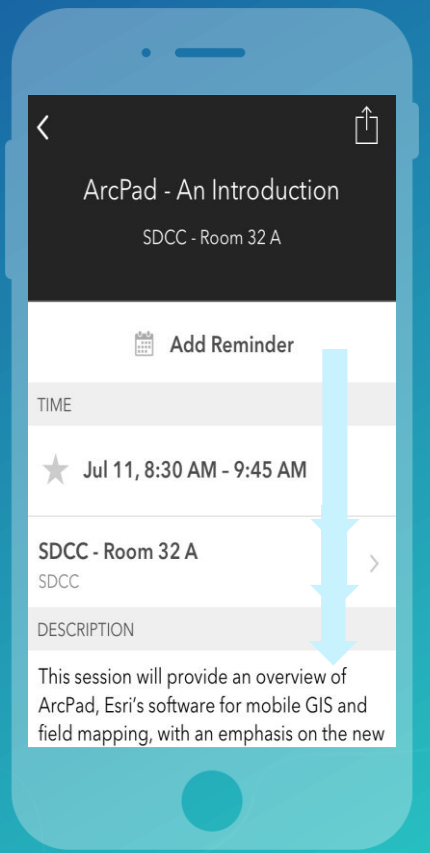
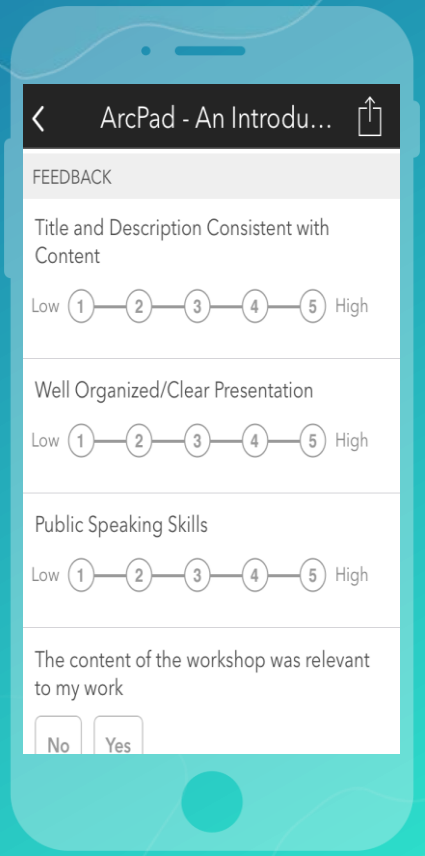


Scroll down to find the survey



Complete Answers and Select "Submit"

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