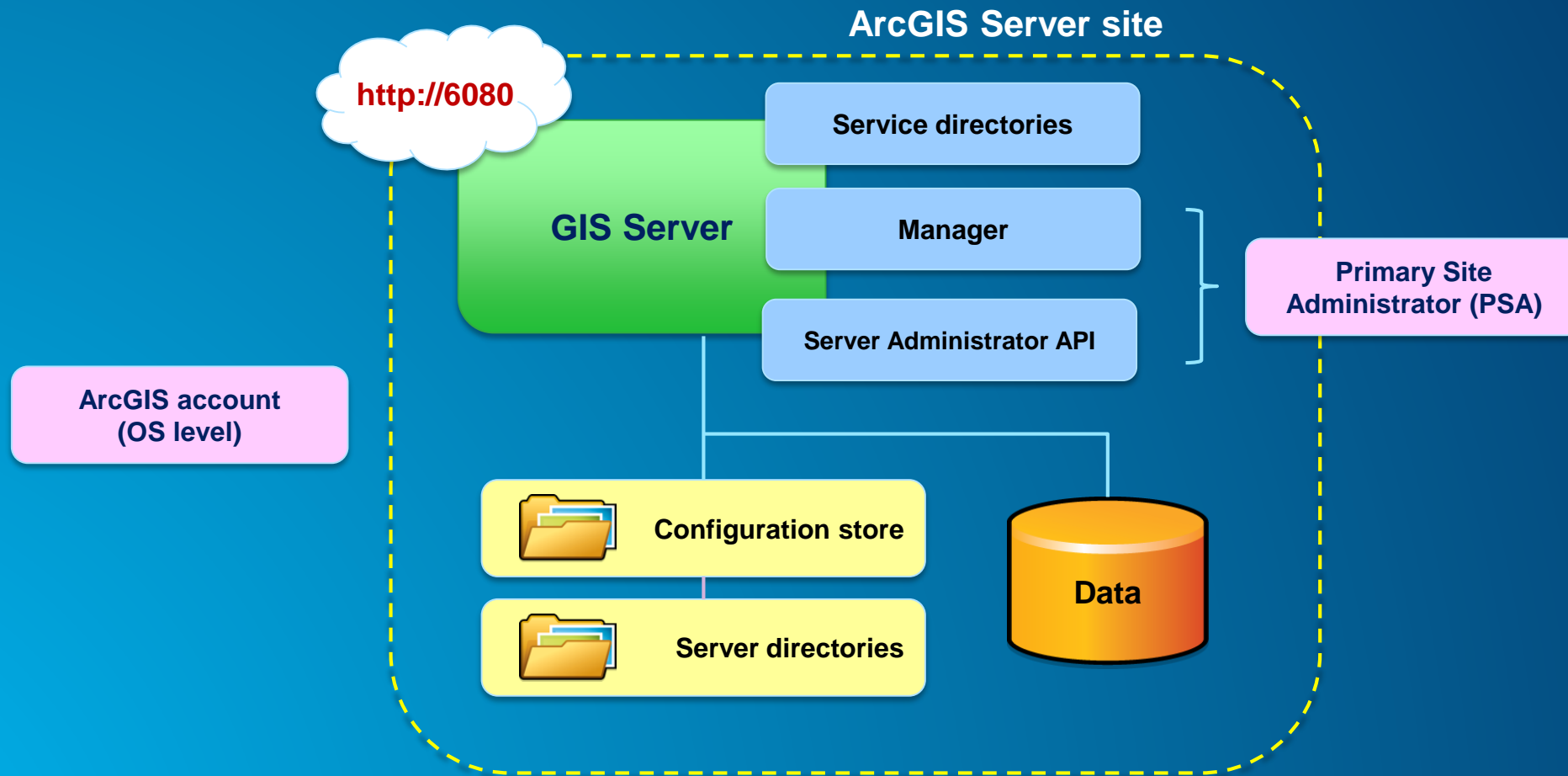esri

Securing ArcGIS Server Services: First Steps

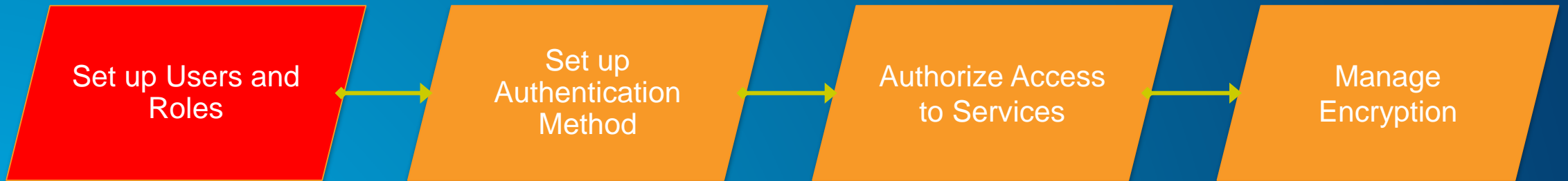Michael Sarhan – Esri

msarhan@esri.com

Agenda

- **Review**
- **Basic Security Workflow**
- **ArcGIS Server Roles and Identity Stores**
- **Authentication**
- **Authorization: Securing Web Services**
- **Encryption and SSL**

Review: ArcGIS for Server Architecture

*Securing ArcGIS Server Services: First Steps*

Simple Security Workflow

Set up Users and Roles → Set up Authentication Method → Authorize Access to Services → Manage Encryption

ArcGIS for Server Access

- **User** → **Valid login to access**

- **Role** → **Grouping of users**
  - **3 types**
    1. **Administrators** **– Full admin control**
    2. **Publishers** **– Publish web services**
    3. **Users** **– View web services**

- **Identity store** → **Defines your users and roles**
  - **User store + Role store**

Permissions

ArcGIS for Server: User considerations

- **Where are your users coming from?**
  - Determines which type of identity store you should use

- **Intranet → Windows Active Directory or LDAP**
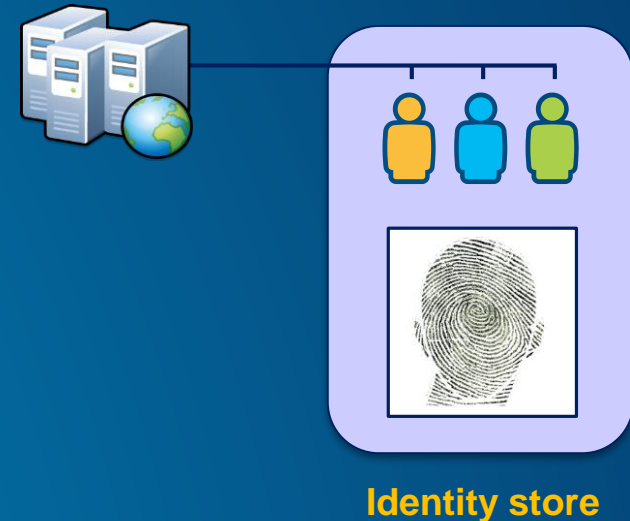
- **Internet → Built-in or custom**

Organizations IT network

External

Internal
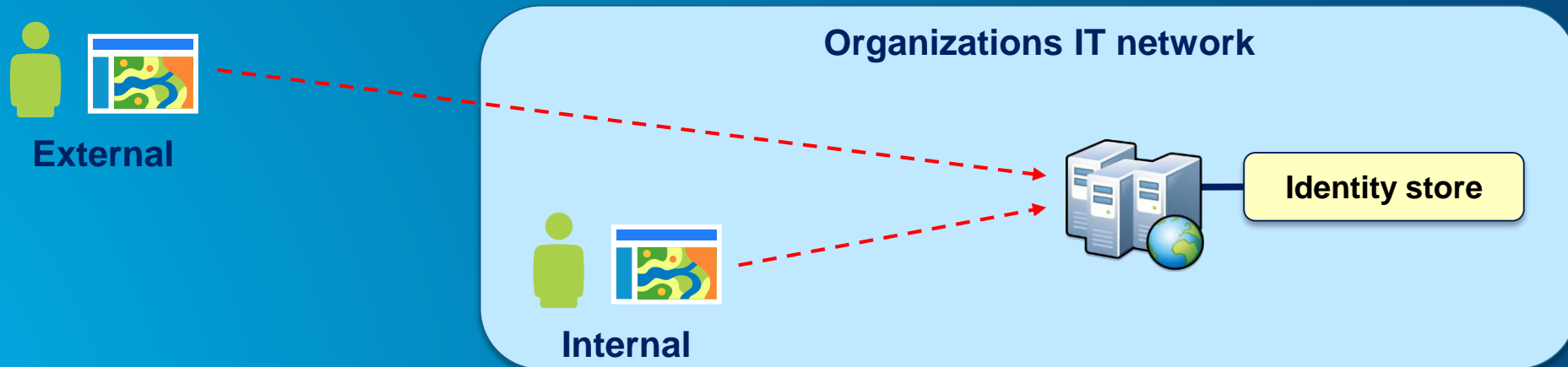
Identity store

ArcGIS for Server: Role considerations

- **How much control do I have on my ArcGIS Server site?**
  - **Managed by me, within my Dept? or**
  - **Managed by my organization's IT Dept**

- **May affect where you define your roles**

Built-in identity store

Enterprise identity store

A

ArcGIS for Server: Identity Store

- **Identity Store** → **Defines your users and roles**
- **3 different options**
    1. **Built-in** (default)
    2. **Register with an enterprise identity store**
        - **Windows Active Directory**
        - **LDAP**
    3. **"Mixed mode"**
        - **Users from enterprise identity store**
        - **Roles from built-in store**

Identity store

Authentication

Show users and roles Server and Portal

Simple Security Workflow

Set up Users and Roles → Set up Authentication Method ← Authorize Access to Services ← Manage Encryption

Authentication Tier/Method

- **Authentication** → **Check and verify user identity**

- **2 options**

1. **GIS Tier**
   - **Uses tokens to authenticate**

2. **Web Tier**
   - **Uses HTTP authentication**
     - **E.g., Basic, Digest, Integrated Windows, Client certificates (PKI), and Custom**
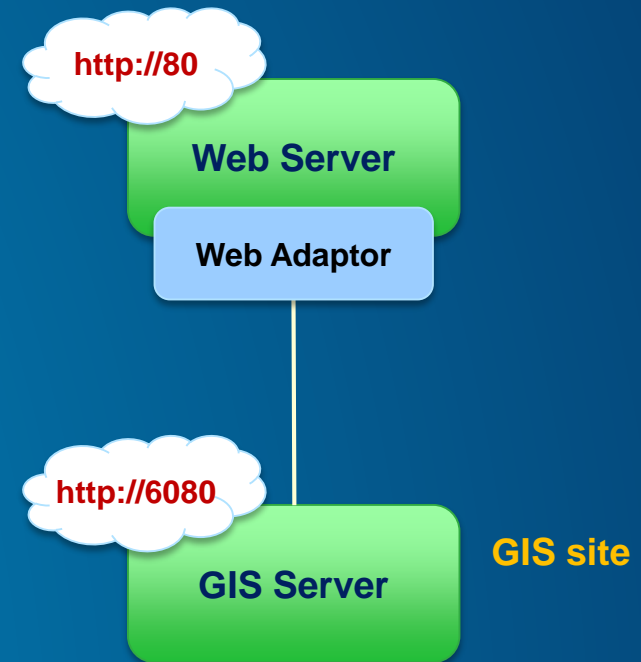
ArcGIS for Server – Web Adaptor

- **Enables ArcGIS Server to work with 3rd party web server**
  - E.g., IIS, Web Sphere, etc.
- **Leverage web server features**
- **Provides more flexibility to control site access**
- **Conceptually like a reverse proxy**

http://80

Web Server

Web Adaptor

http://6080

GIS site

GIS Server

Review 2: ArcGIS Server Architecture

Other components of a Server site

- **ArcGIS Server site**

- **+ Identity store**

- **+ 3rd party web server**

- **+ Web Adaptor**

Web Server

Web Adaptor

GIS Server

Identity store

📁 Configuration store

📁 Server directories
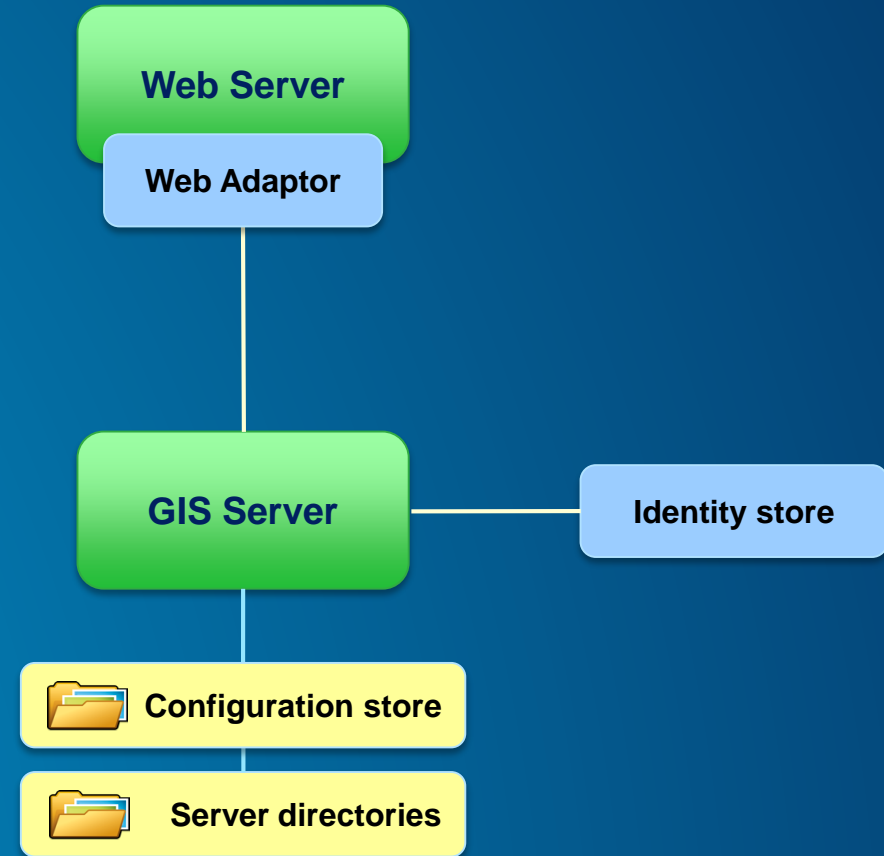
GIS Tier Authentication

- **GIS Server checks credentials**

- **Token → Unique identifier sent from Server to client to identify an interaction session**

Client

Web Server

Web Adaptor

1. Credentials sent to GIS server

3. Esri token sent back to client

GIS Server

Identity store

2. Checked with ID store

📁 **Configuration store**

📁 **Server directories**
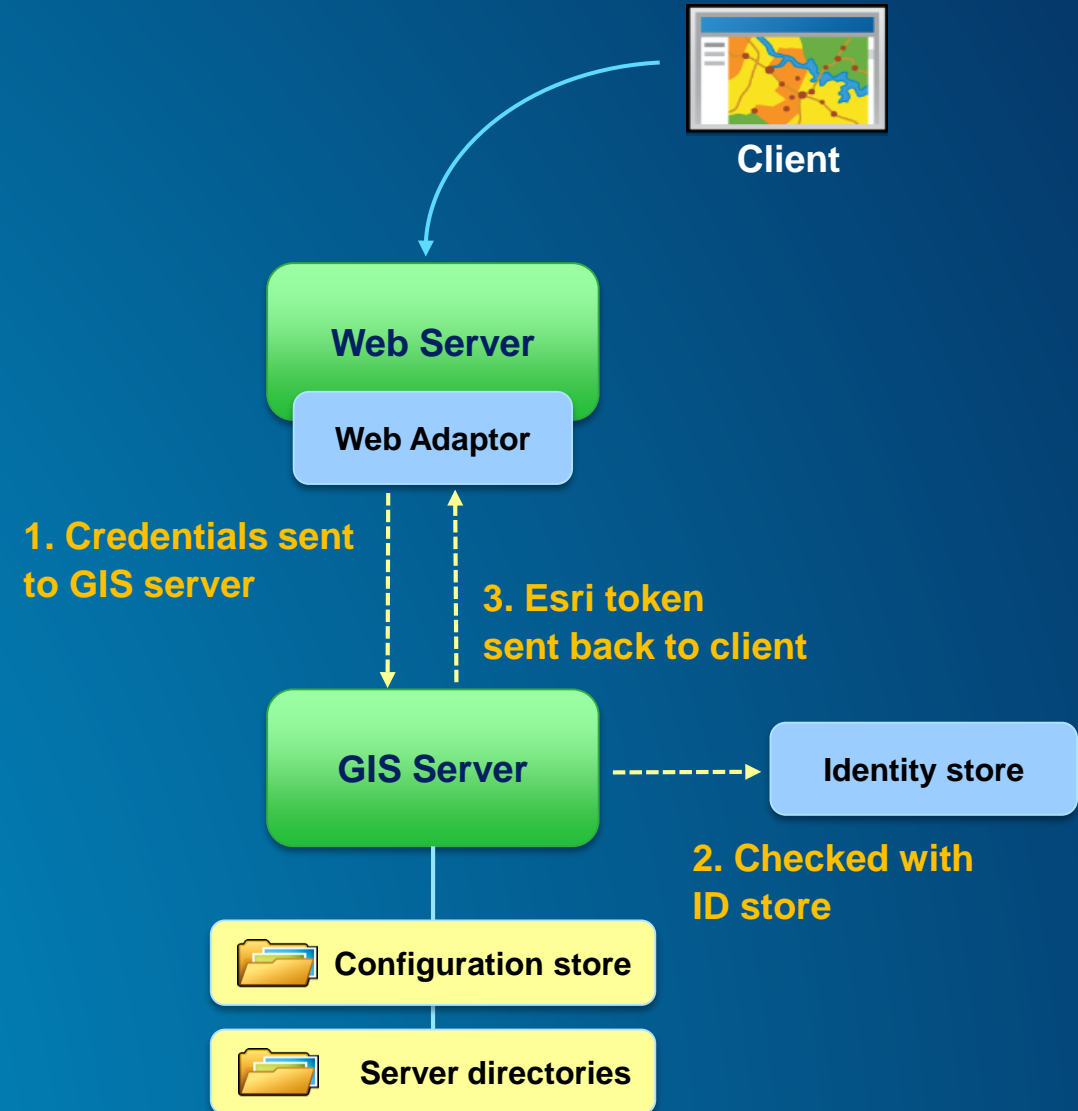
Web Tier Authentication
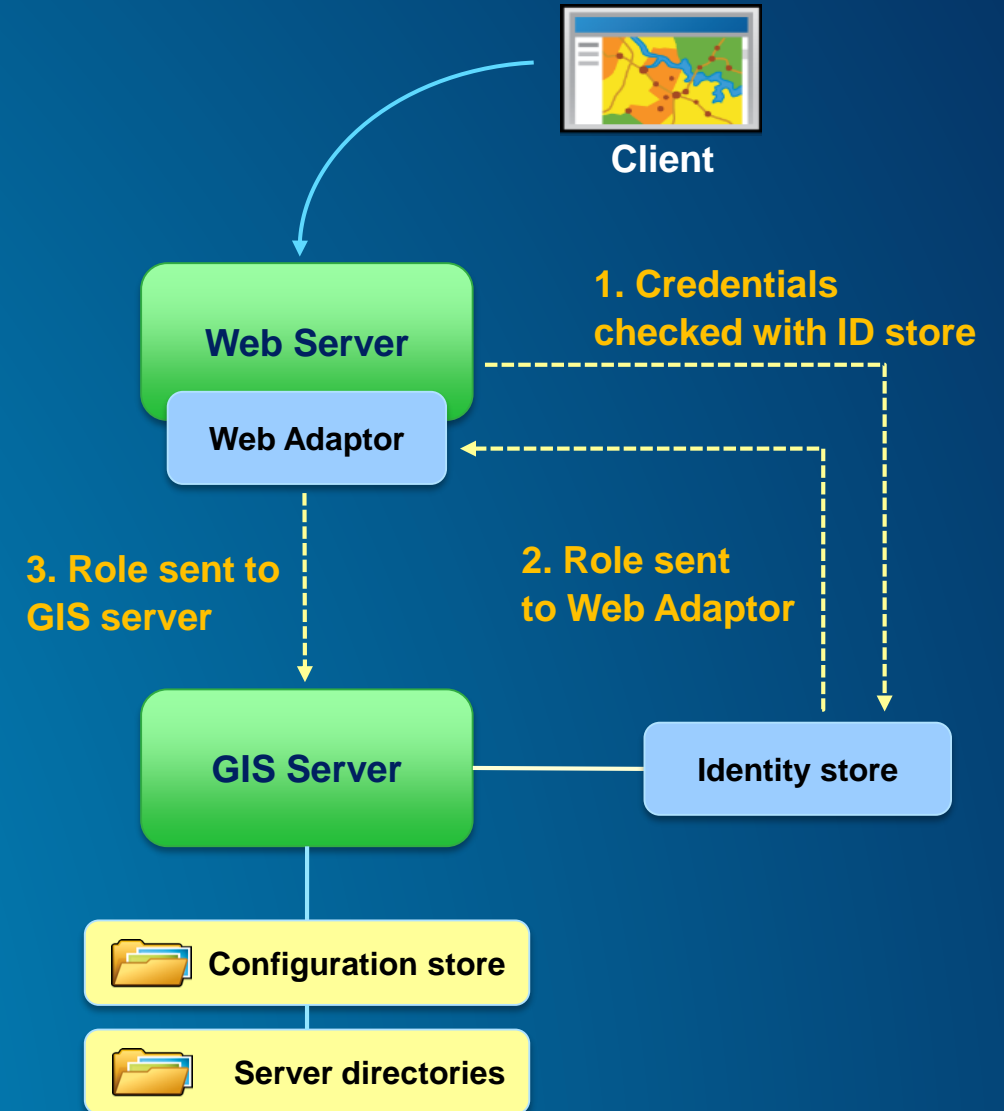
- **Web server checks credentials**
- **Must use Web Adaptor**
- **HTTP authentication**

Client

Web Server

Web Adaptor

1. Credentials checked with ID store

2. Role sent to Web Adaptor

3. Role sent to GIS server

GIS Server

Identity store

Configuration store

Server directories

GIS Tier vs. Web Tier Authentication

	GIS Tier / Token	**Web Tier / HTTP Auth**
Default	Yes	No
Public / anonymous possible	Yes	Yes
Clients Supporting	Esri	All, including OGC
Requirements	Enable SSL	Web Adaptor(s) required Basic – require SSL Digest – special setup IWA – Windows only

Authentication

Show IIS configuration of Web Adaptor
Show how to set-up authentication in wizard

ArcGIS Web Adaptor

Which product do you want to configure with your Web Adaptor?

- ArcGIS for Server
- Portal for ArcGIS

A GIS server is configured with your Web Adaptor.
A portal is not configured with your Web Adaptor.

Next >

ArcGIS Server Manager   ×
Folder: /   ×
Primary Site Administrato   ×
Portal for ArcGIS   ×
ArcGIS Server Manager   ×
https://ags01.ad.demo/se   ×

https://ags01.ad.demo/srvadmin/manager/security.html

ArcGIS Server Manager

Services   Site   **Security**   Logs

Settings   Users   Roles

Help

ArcGIS Server Security

ArcGIS Server security determines who can administer the GIS server, who can publish to the GIS server, and who can use the services.

General ArcGIS Server security settings are displayed below. To change the accounts recognized by ArcGIS Server and set their permissions, click the Users and Roles links above. To set access rules for a service, use the Services > Manage Services page.

Configuration Settings

User Store:

Role Store:

Authentication Tier:

Authentication Mode:

Primary Site Adminis

Username:

Token Settings

Lifespan of Short-lived Tok

Lifespan of Long-lived Toke

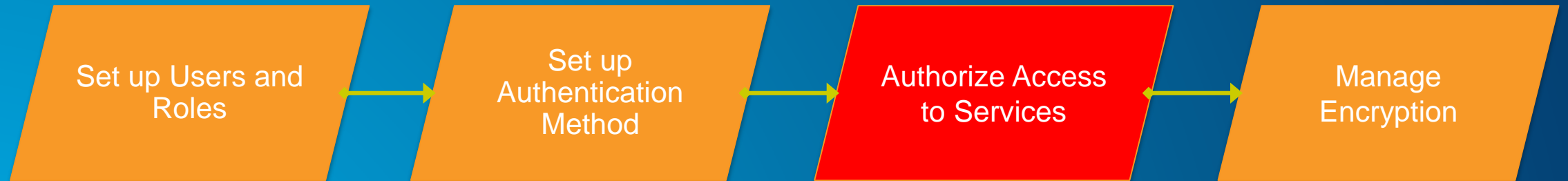### Security Configuration Wizard   ×

Help

User and Role Management

Choose the source of users and roles you will use for ArcGIS Server security.

Choose one of the following options:

- ○ Users and roles from ArcGIS Server's built-in store
- ◉ Users and roles from an existing enterprise system (LDAP or Windows Domain)
- ○ Users from an existing enterprise system (LDAP or Windows Domain) and roles from ArcGIS Server's built-in store

Next   Cancel

---

https://ags01.ad.demo/srvadmin/help/en/0154/0154000005qz000000.htm

Simple Security Workflow

Set up Users and Roles → Set up Authentication Method → Authorize Access to Services → Manage Encryption
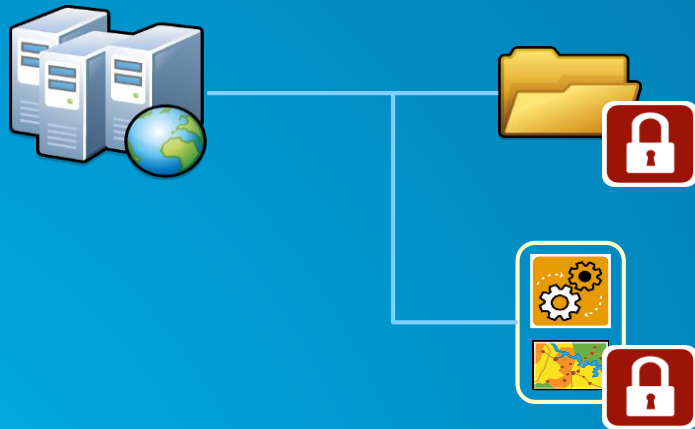
Authorization | What you are allowed to do

Securing GIS Web Services

- **Set permissions for roles on folders and services**
  - Administrators/Publishers grant permissions
- **All new services are public by default**
  - Anonymous access

Authorization

Show securing a web service
Show accessing a secured service in a client application

https://ags01.ad.demo/srvadmin/manager/index.html

esri.com | Web GIS | Sign Out | Help

ArcGIS Server Manager

Services   Site   Security   Logs

Manage Services   OGC Services   KML Network Links   Sharing

Folders

< Search for services in Site (root) >

Publish Service

- Site (root)
- AgManagement
- EmManagement
- System
- Utilities

Edit Permissions

Help

Security settings for: NapervilleElevation

○ Public, available to everyone

◉ Private, available only to selected users

☑ Allow access to all users who are logged in

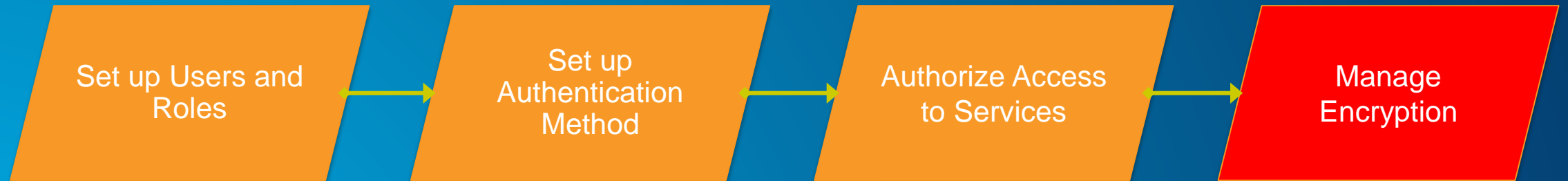Available roles   Allowed roles

Role name:

AD\Administrators
AD\Users
AD\Guests
AD\Print Operators
AD\Backup Operators
AD\Replicator
AD\Remote Desktop Users
AD\Network Configuration Operators
AD\Performance Monitor Users
AD\Performance Log Users

◀ 1 2 3 4 5 ▶

Save   Cancel

...service.

...easily preview the
...in a web application. This

...d by local government

Simple Security Workflow

Set up Users and Roles → Set up Authentication Method → Authorize Access to Services → Manage Encryption

Encryption and HTTPS | Securing communication protocols

Should you be using HTTPS?
Hypertext Transfer Protocol Secure (HTTPS)

Yes!

ArcGIS Server Administrator Directory

Logged in: AD\adAdmin [Administrator] | Signout

Home > security > config > update

API Reference

Update Security Configuration

🚫 **Warning**
Changing Protocol will cause the web server to be restarted.

Security Configuration

Protocol:	HTTPS Only
	HTTP Only
Virtual directories security enabled:	HTTP and HTTPS
	HTTPS Only
Authentication tier:	GIS_SERVER
Allow direct administrator access:	☑
Portal properties:	
Allowed Admin Access IP's :	

Format: HTML

Update

Summary

- **Review**
- **Basic Security Workflow**
- **ArcGIS Server Roles and Identity Stores**
- **Authentication**
- **Authorization: Securing Web Services**
- **Encryption and SSL**

Other Security Sessions

- **ArcGIS Security Authorization Advancements**
  - Monday, February, 9, 3:00 – 4:00 pm, Room 103A
  - Tuesday, February, 10, 11:00 – 12:00 pm, Room 103A

- **Securing Your ArcGIS Server Services: Advanced**
  - Tuesday February ,10 5:15 – 6:15 pm, Room 101

- **Securing Your ArcGIS Server Services: First Steps**
  - Monday February, 9, 1:45 – 2:45 pm, Room 102A
  - Tuesday February ,10, 11:00 – 12:00 pm, Room 209B