

# Enabling Web GIS

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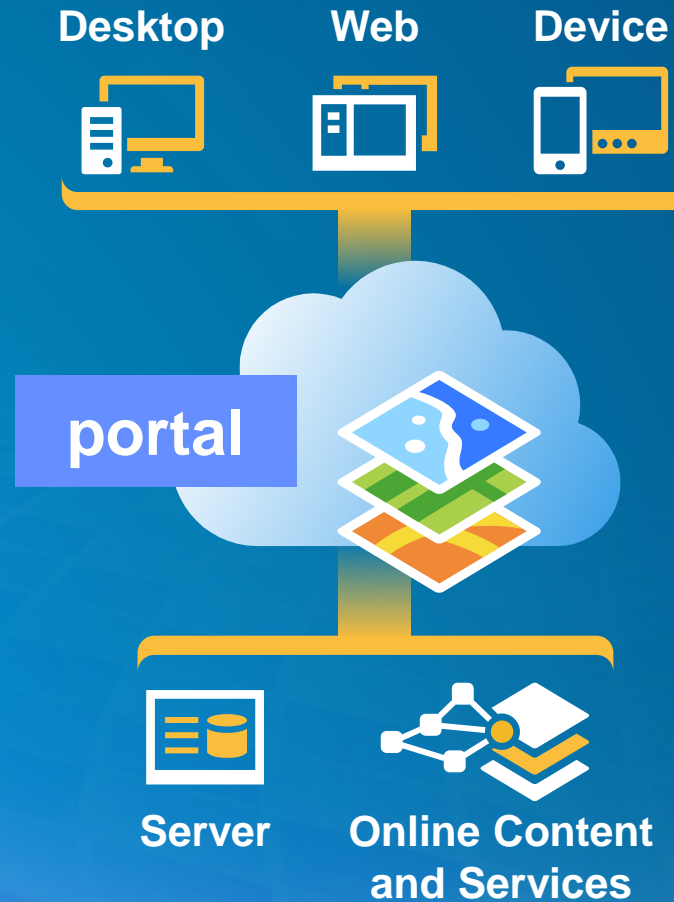
# Enabling Web GIS In Your Infrastructure| Agenda

- Quick Overview
- Web GIS Deployment
- Server GIS Deployment
- Security and Identity Management
- Web GIS Operations

# Web GIS Concepts | Enabling Web GIS

Enabling GIS Everywhere

Simple  
Integrated  
Open



*Available in the Cloud . . .  
. . . and On-Premises*

# Web GIS Concepts | Why

- Central hub for your GIS assets
- Solution when
  - Additional security requirements
  - No public cloud option
- Allows for
  - Enterprise integration (e.g., security)
- COTS product since 10.2
- Extension to ArcGIS for Server
  - 10.3 Included with Standard and Advanced



# Web GIS Concepts | Capabilities

- Browse, search, and discover your GIS assets
- Self-service mapping
- Content creation and management
- Sharing and collaboration
- Data hosting and mapping
- Visualization, Collection, and Analysis
- Ready to use maps and layers



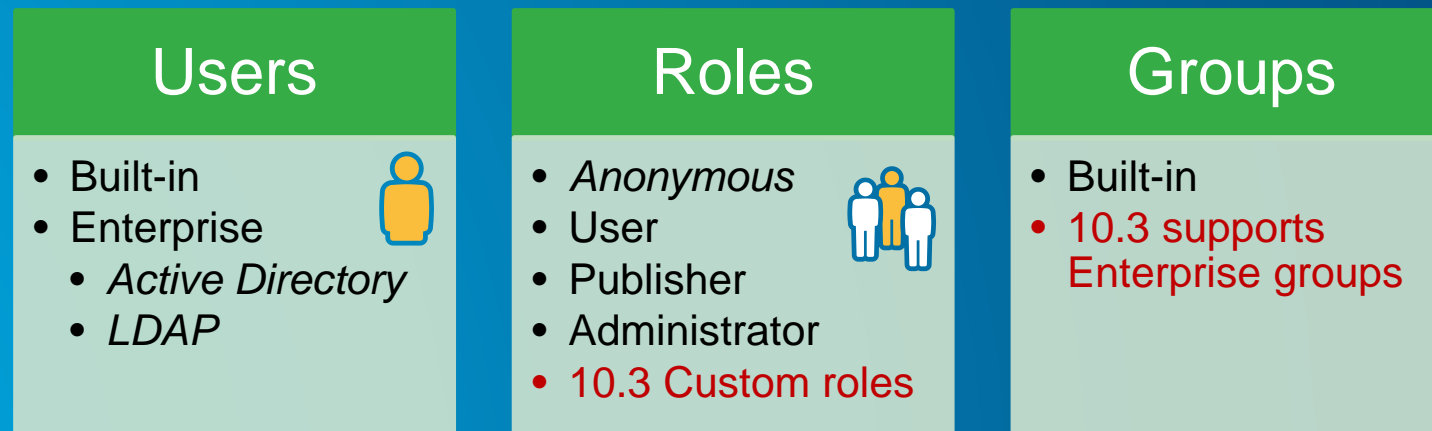
# Web GIS Concepts | Security

## Integrates with Your Enterprise Security Infrastructure

- Authentication

- Supports web tier authentication, including Windows Authentication & PKI
- Supports SSO to your ArcGIS Servers (*federated servers*)
- 10.3+ Web SSO with SAML

- Users, Roles, and Groups

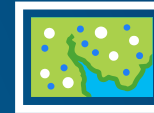


## Web GIS Concepts | Users and Roles

|   | With an ArcGIS organizational account |                |                    | Without account |
|---|---------------------------------------|----------------|--------------------|-----------------|
|   | User role                             | Publisher role | Administrator role |                 |
| Search and use public items   | ✓                                     | ✓              | ✓                  | ✓               |
| Search and use private items  | ✓                                     | ✓              | ✓                  |                 |
| Create and share items  | ✓                                     | ✓              | ✓                  |                 |
| Publish new content as tiled or feature services                          |                                       | ✓              | ✓                  |                 |
| Administer the ArcGIS organization  |                                       |                | ✓                  |                 |
| Manage users and their privileges   |                                       |                | ✓                  |                 |
| Manage items created by others  |                                       |                | ✓                  |                 |
| Use Esri Maps for ... Apps, Collector, Operations Dashboard, and Explorer | ✓                                     | ✓              | ✓                  |                 |

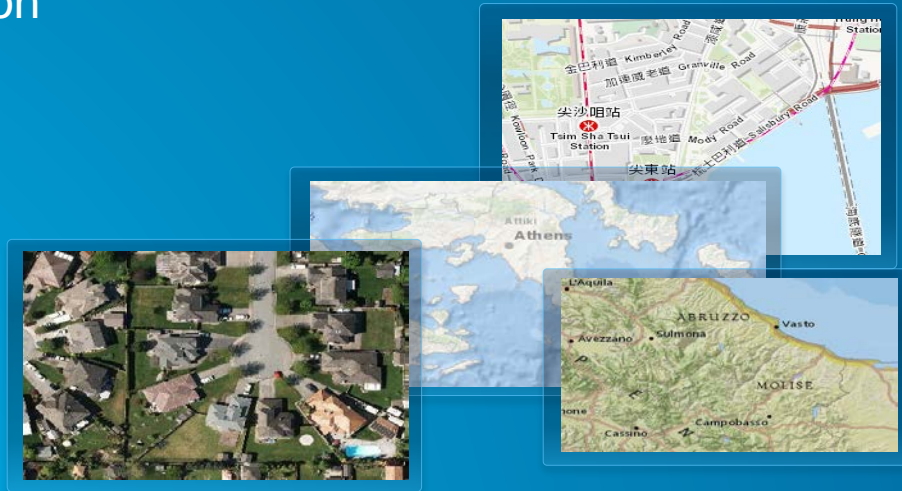
# Web GIS Concepts| Groups

- Groups have membership
- Organize by:
  - Theme or initiative
    - Common and supportive content
  - Functional department/structure
    - Based on organization's business units
  - Projects
    - Specific projects or tasks
  - Ad-hoc
    - Prototyping, non-permanent/temp projects, staging
- 10.3 supports Enterprise Groups



# Web GIS Concepts| Basemaps and Utility Services

- Important part of Portal's resources
- Can be hosted:
  - Online (*by Esri*)
  - On-premises (*by you*)
  - Combination



Basemaps

## Printing



## Geocoding



## Geometry



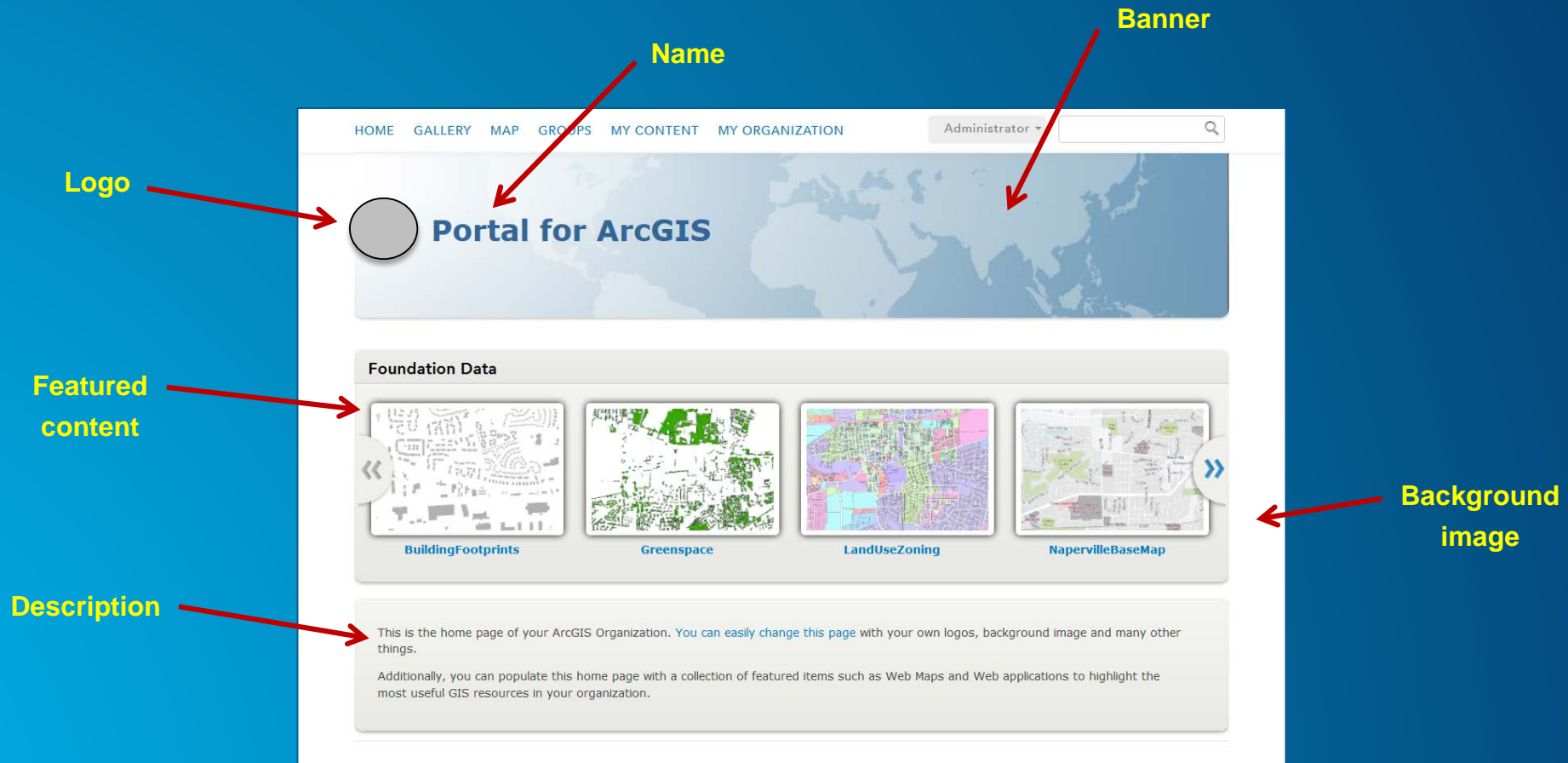
## Route



Utility services

# Web GIS Concepts| Portal as a destination

- Must have Administrator privileges



Demo

# Web GIS Deployment

# Web GIS Deployment | Overview



On-premises

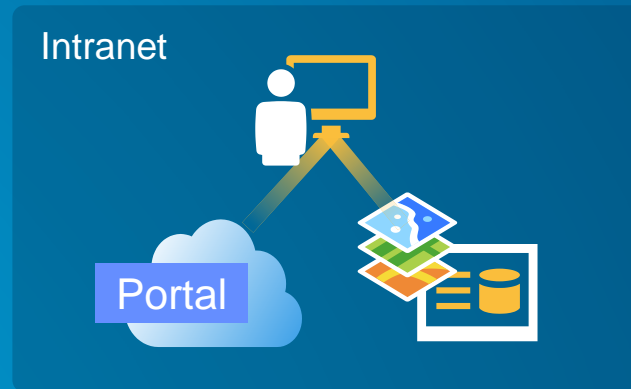


Public Cloud



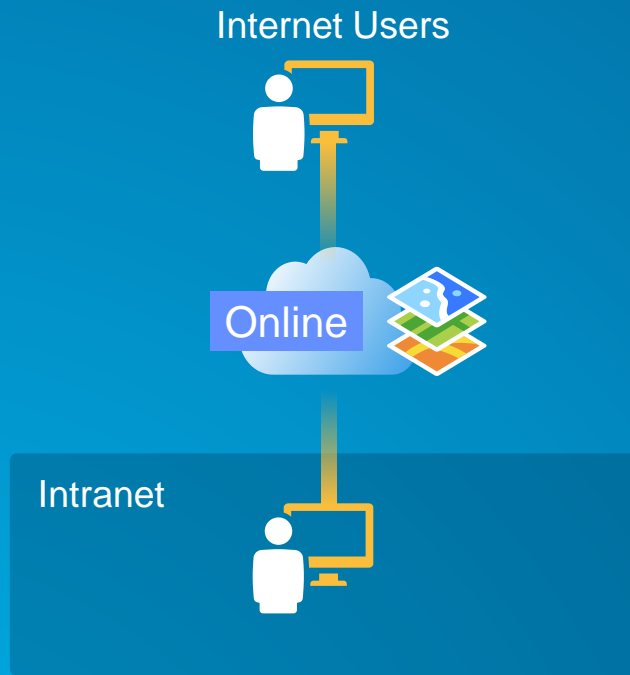
Hybrid

# Web GIS Deployment | On-Premises

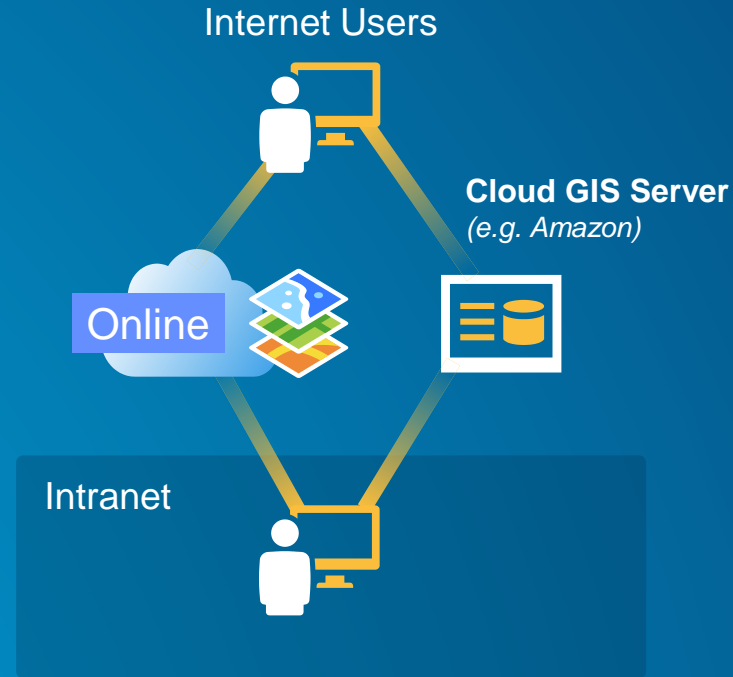


Portal for ArcGIS  
ArcGIS Server  
Basemaps, Geocoding, etc.

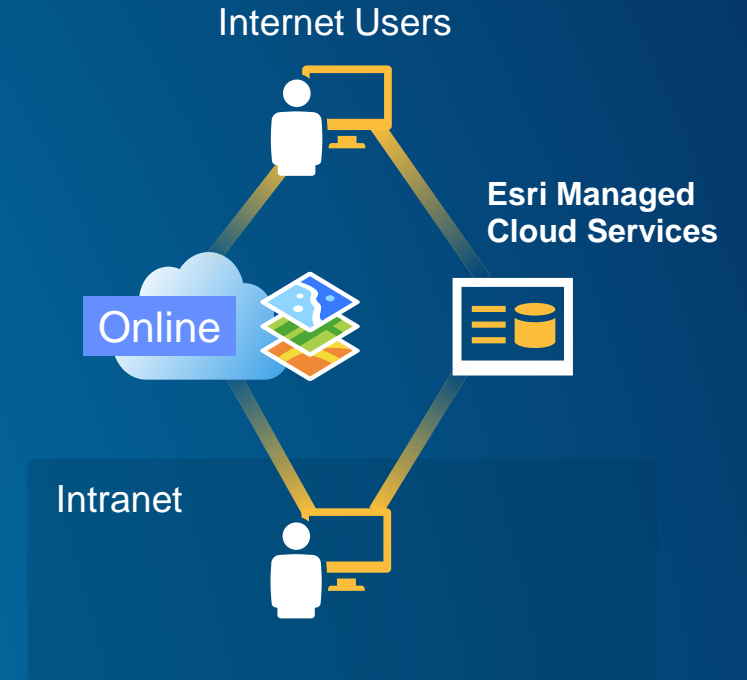
# Web GIS Deployment | Public Cloud



ArcGIS Online

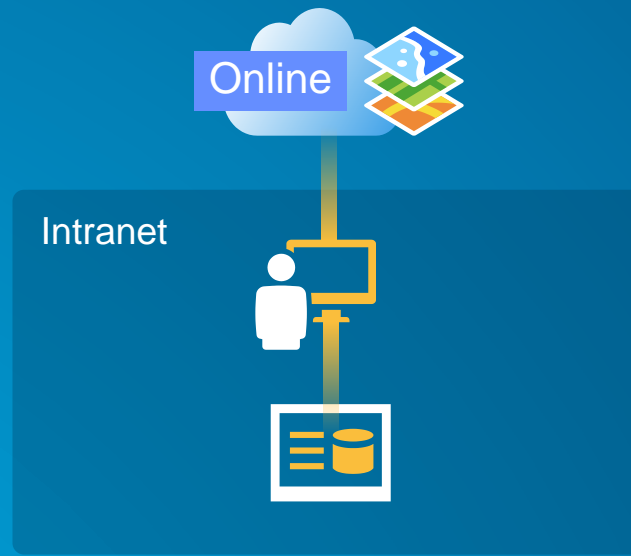


ArcGIS Online  
w/ Cloud GIS Server(s)



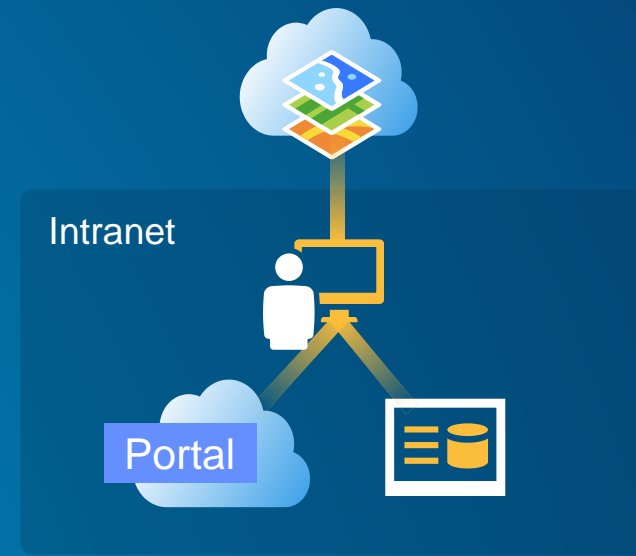
ArcGIS Online  
w/ Esri Managed Cloud Svcs

# Web GIS Deployment | Hybrid



Hybrid Pattern #1

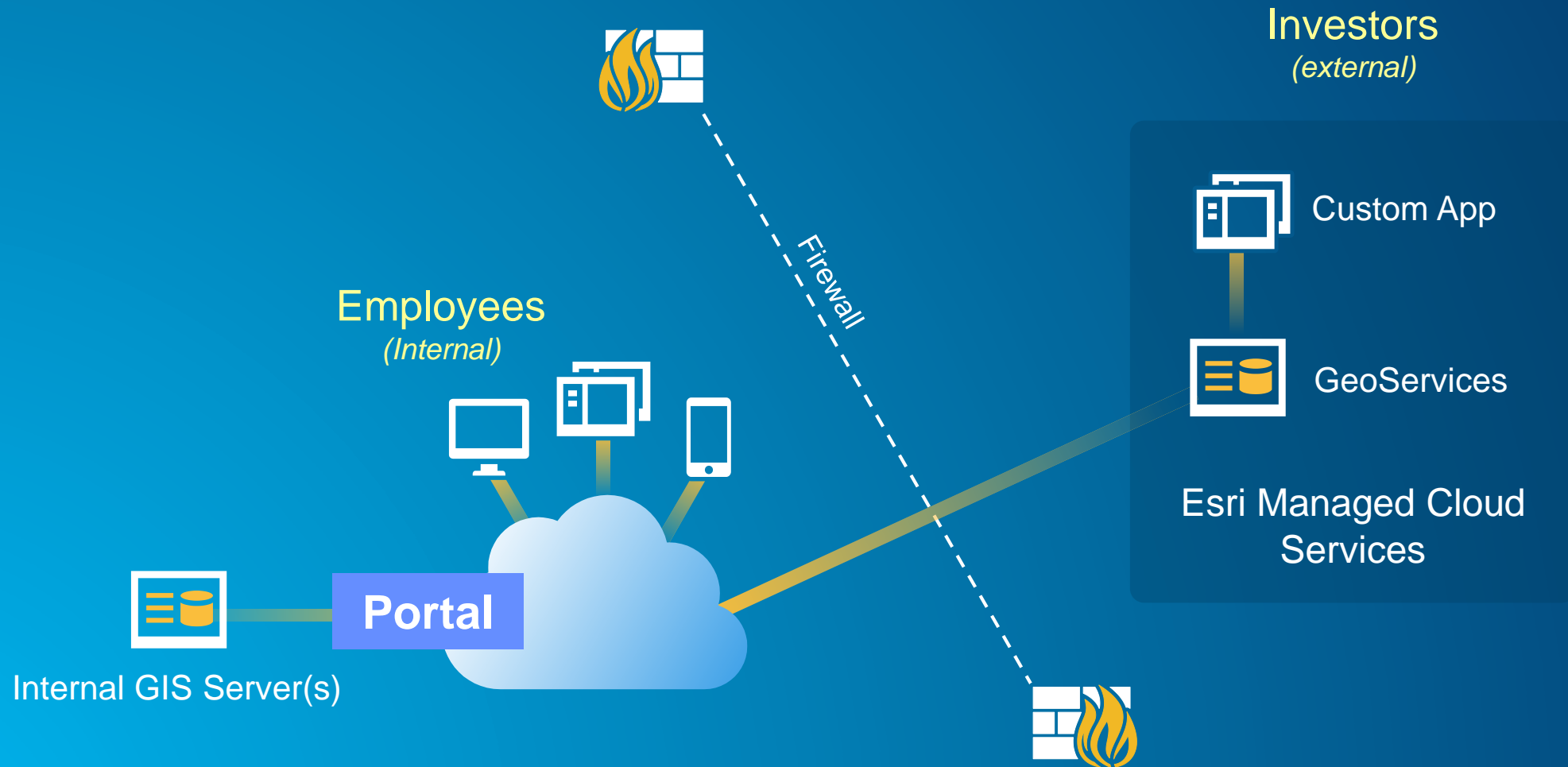
- Fast Start & No Additional Software
- Likely Lower TCO
- Some “Metadata” Stored in Cloud
- Some Functionality Loss
- Issues with non-CORS Browsers



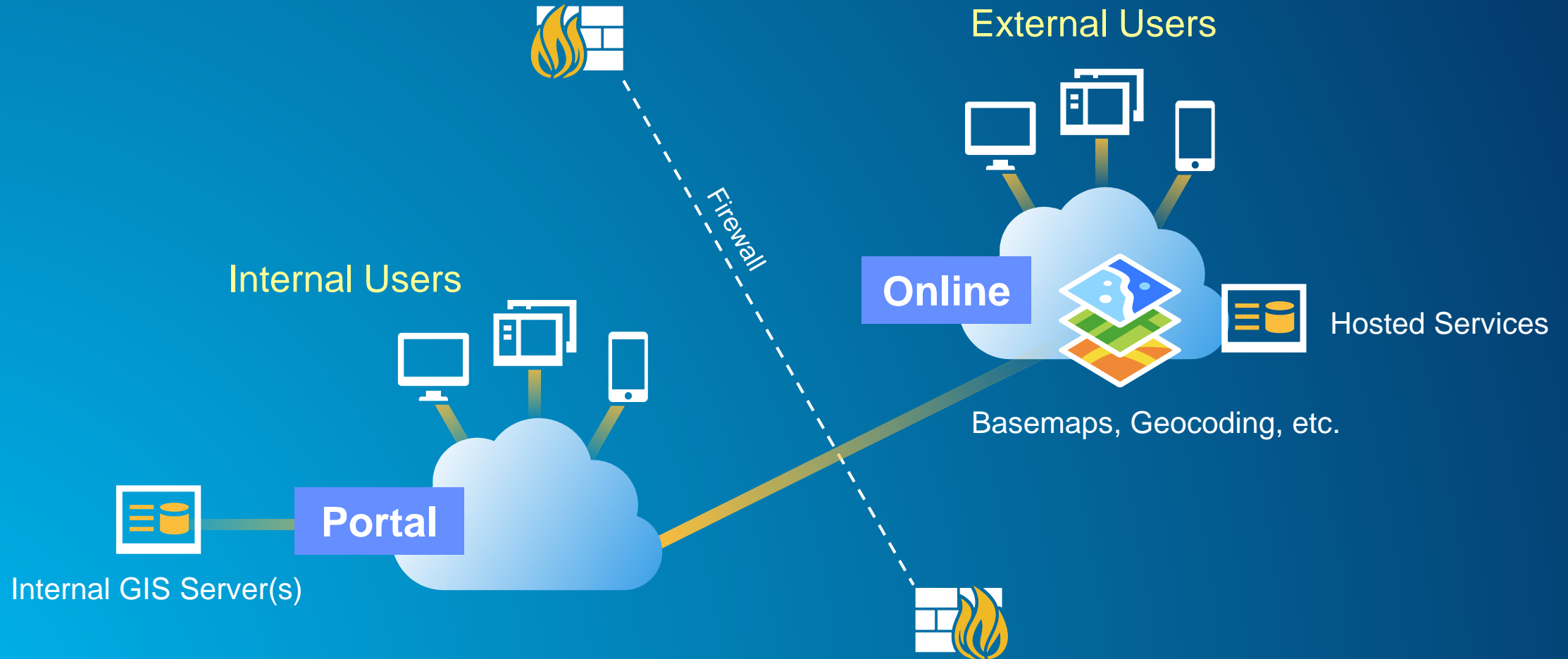
Hybrid Pattern #2

- More Control
- All Data & Metadata On-Premises
- More Security Integration Options
- Additional Software to Manage
- Architecture Becomes More Complex

# Web GIS Deployment | Example



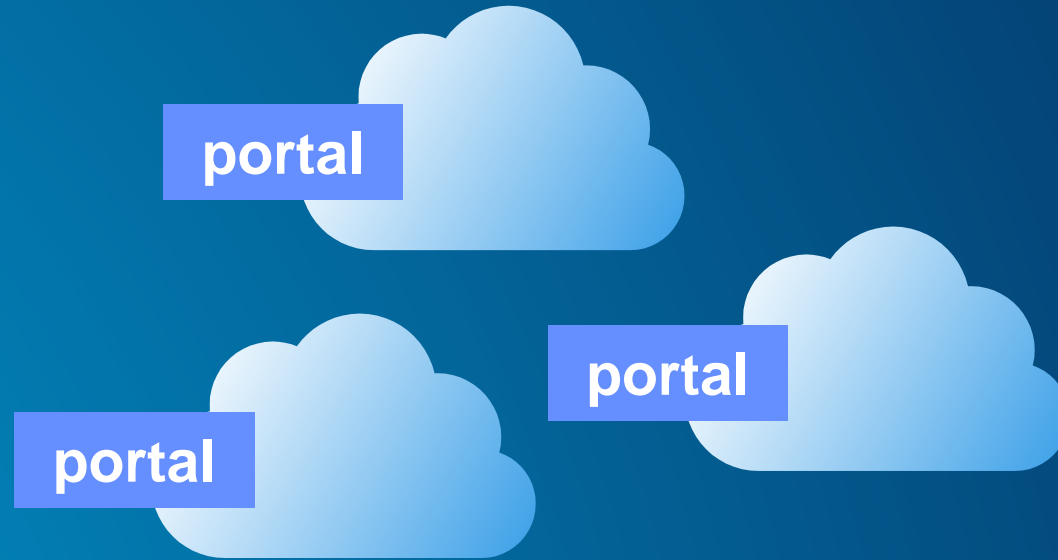
# Web GIS Deployment | Internal & External Web GIS



# Web GIS Deployment | Multiple Portals



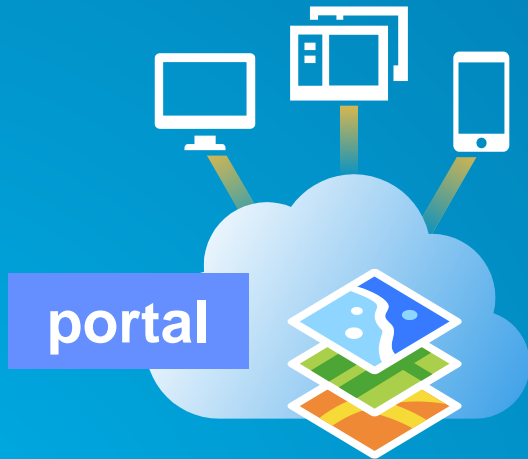
One Portal



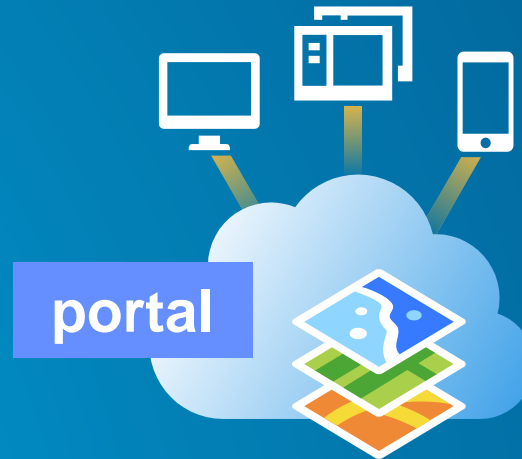
Many Portals?

# Web GIS Deployment | Multiple Web GIS Deployments

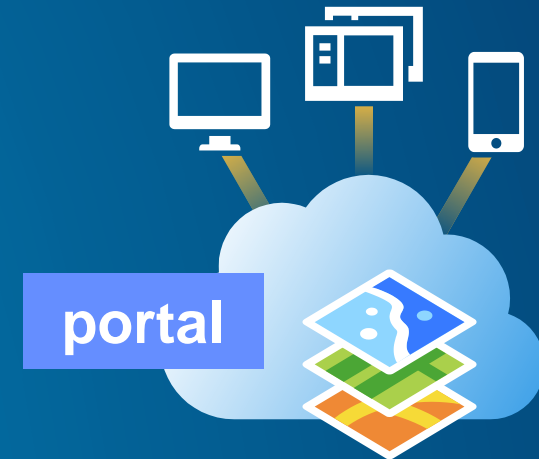
Department A Users



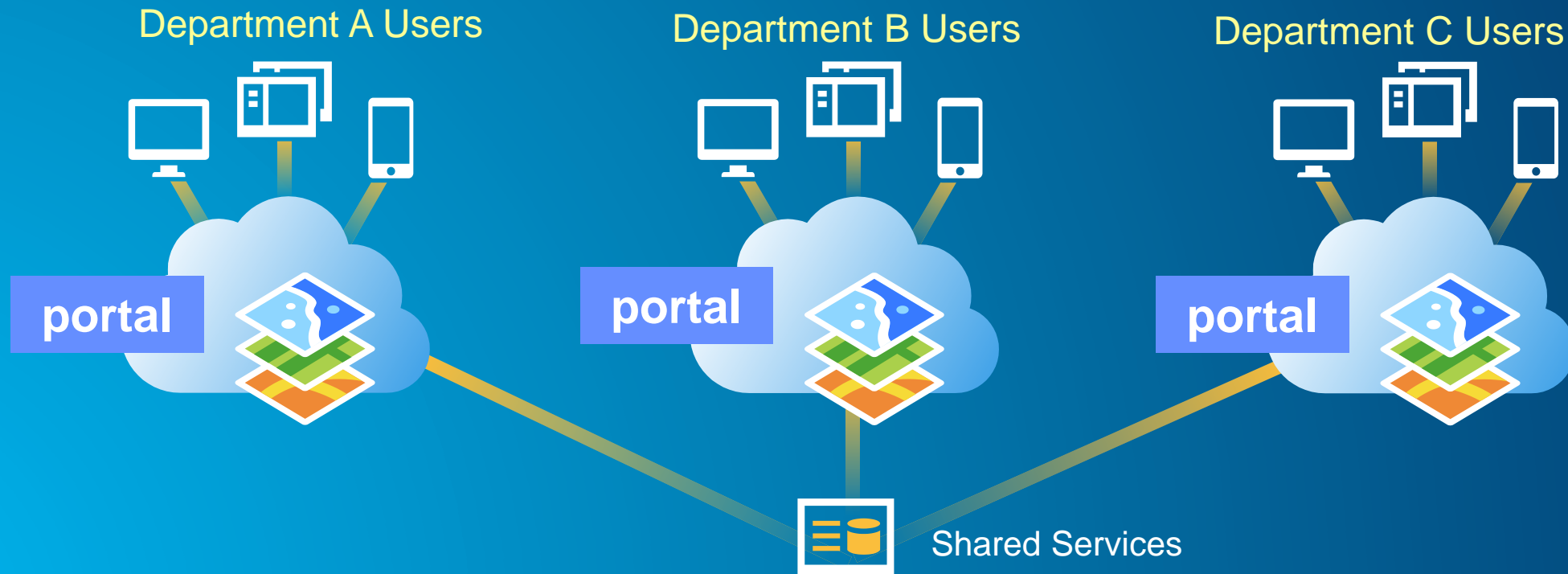
Department B Users



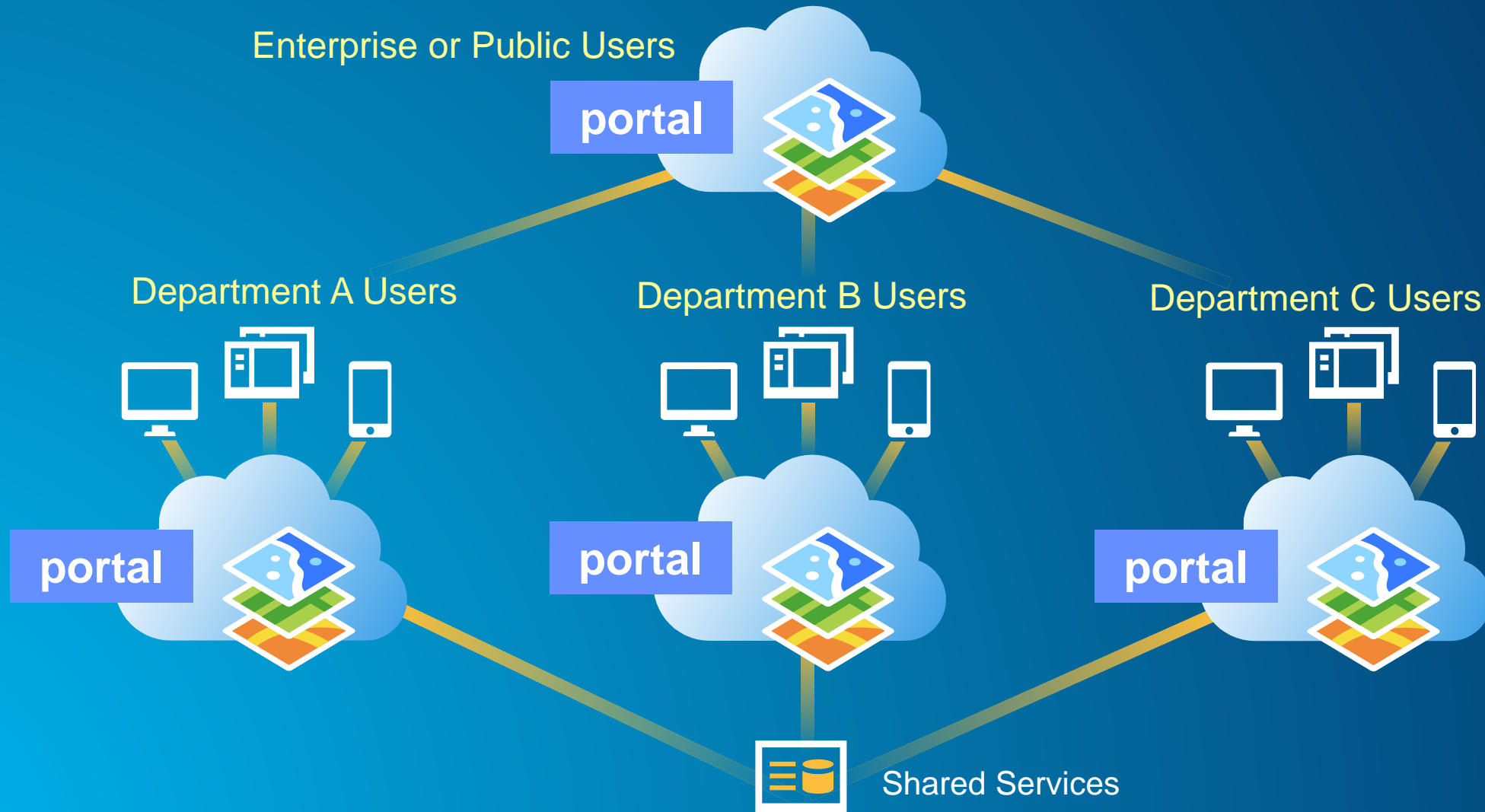
Department C Users



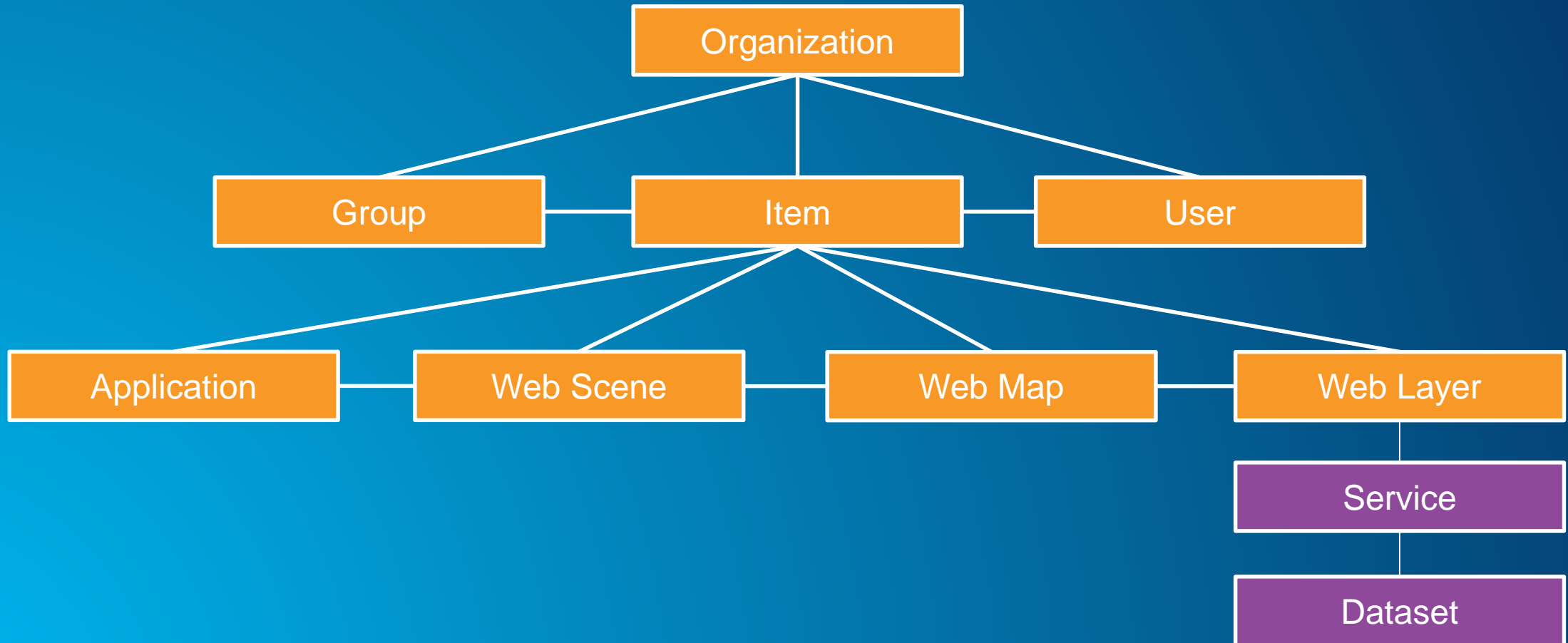
# Web GIS Deployment | Multiple Web GIS Deployments



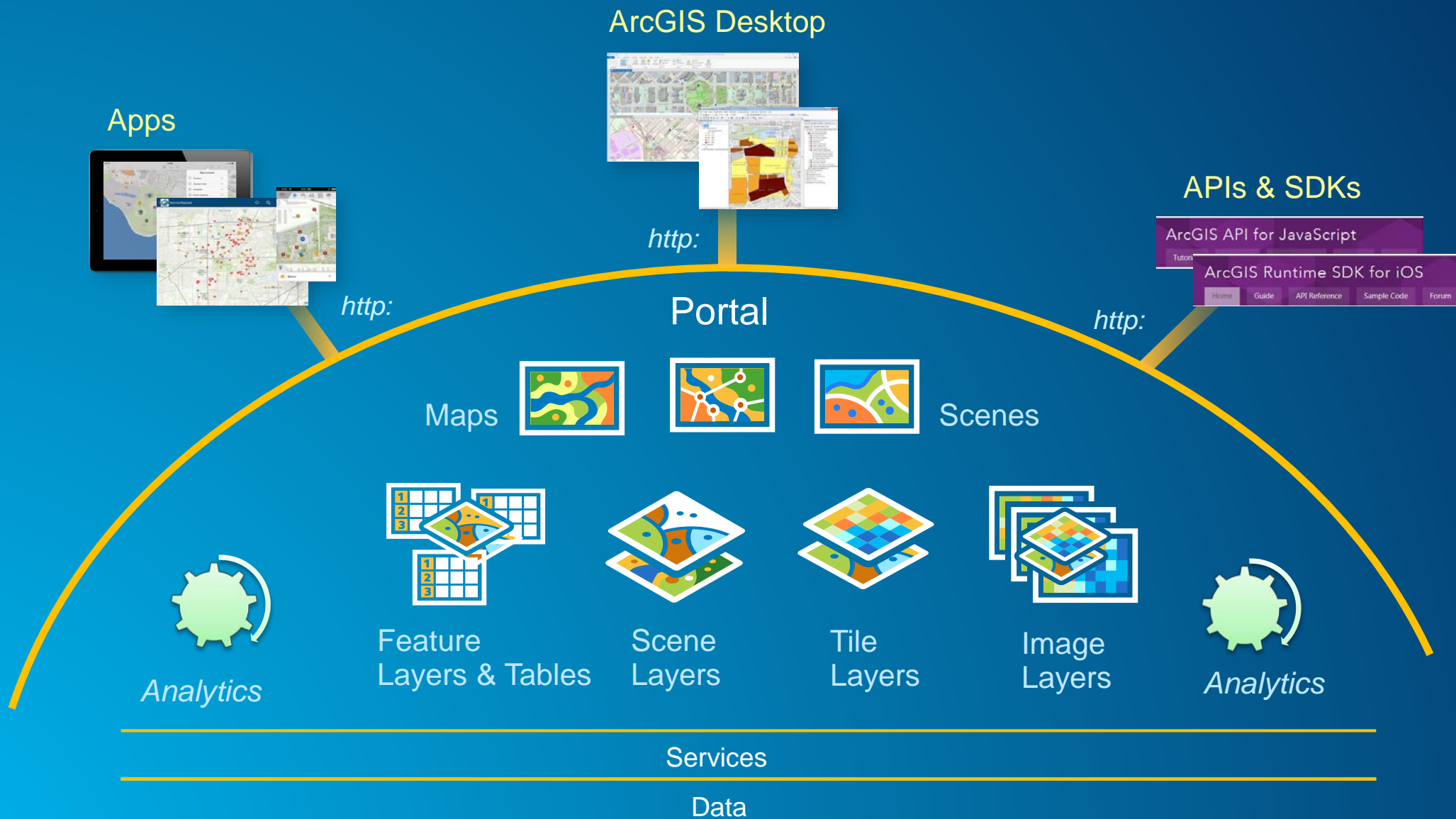
# Web GIS Deployment | Multiple Web GIS Deployments



# Web GIS Deployment | The Web GIS Information Model



# Server GIS Deployment

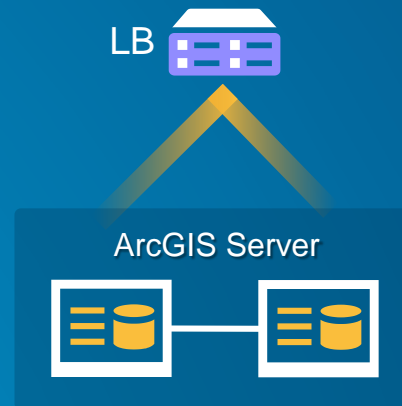


# Server GIS Deployment | Everything On One Machine



*“Wow, this is easy!”*

# Server GIS Deployment | Workload Separation



All Workloads

*Visualization*

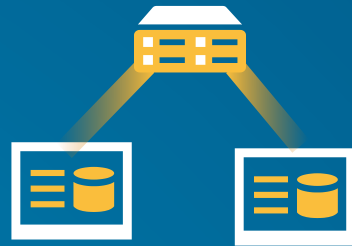
*Analysis*

*Imagery*

*Caching...*

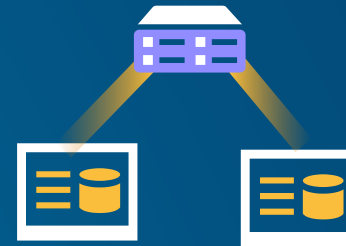
# Server GIS Deployment | Load Balancing

ArcGIS Web Adaptor



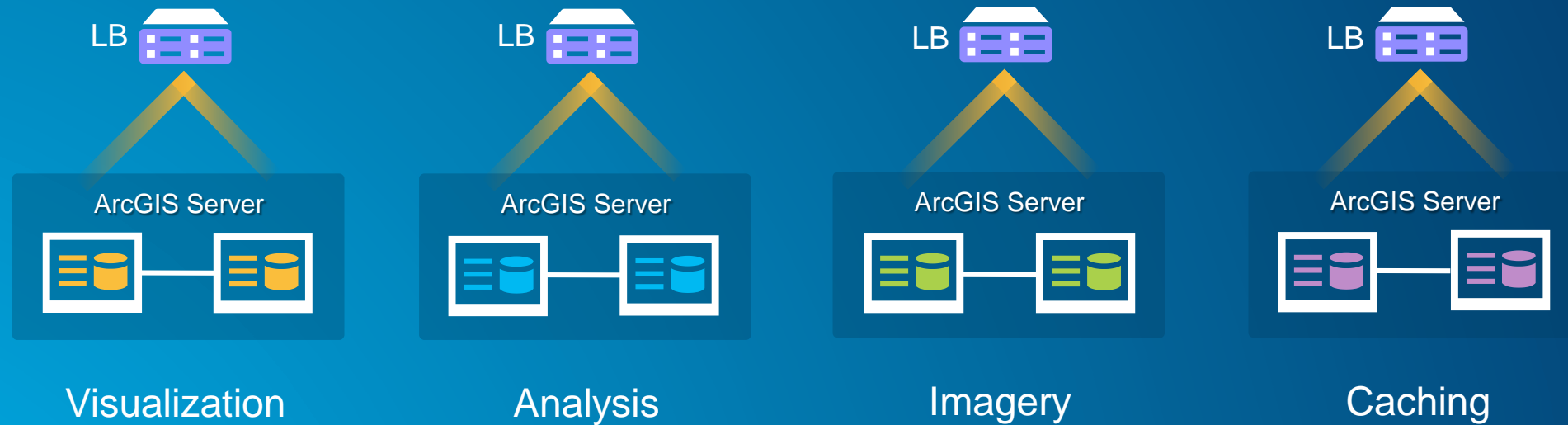
- Provided by Esri
- Works w/ ArcGIS Server sites *(not silos)*
- Discovers new machines dynamically
- Typically a single point of failure
- Can't load balance Portal for ArcGIS

3<sup>rd</sup> Party Load Balancer



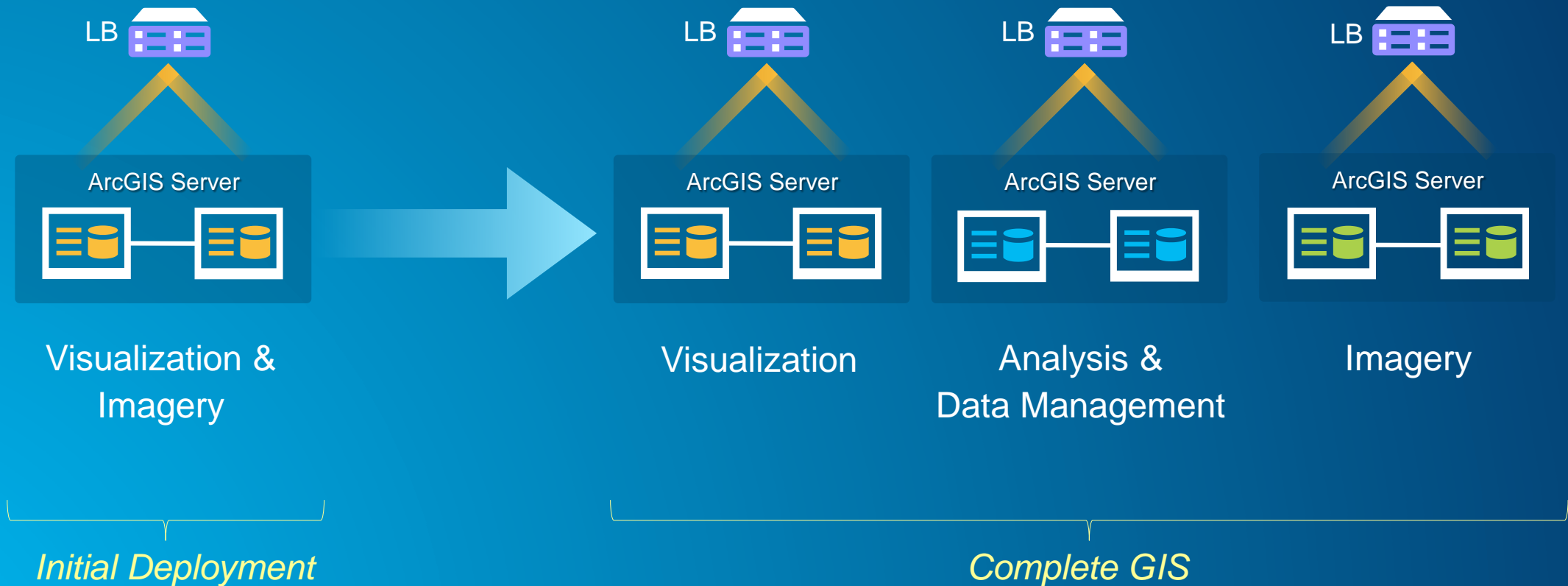
- Not provided by Esri *(e.g. F5, CSM, NGINX)*
- Works w/ ArcGIS Server sites & silos
- Doesn't discover new machines dynamically
- Typically already fault tolerant
- Can load balance Portal for ArcGIS

# Server GIS Deployment | Workload Separation

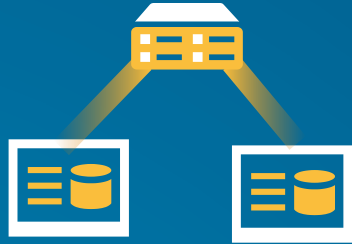


*Additional Sites May Include...* Real-time & Data Management

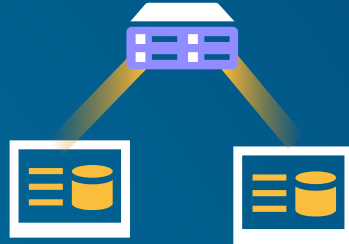
# Server GIS Deployment | Workload Separation ... can evolve



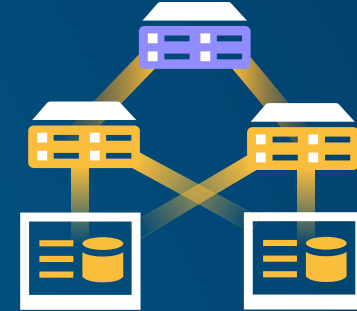
# Server GIS Deployment | Server & Portal Patterns



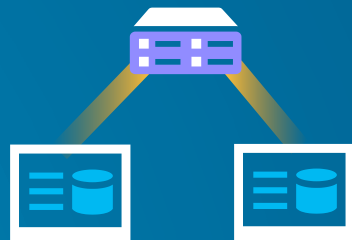
Server  
w/ Single Web Adaptor



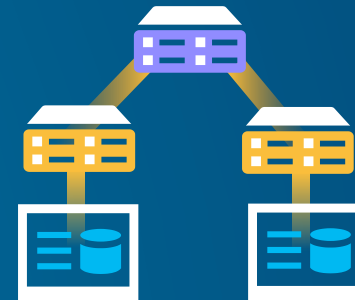
Server  
w/ 3<sup>rd</sup> Party LB



Server w/ Multiple  
Web Adaptors & 3<sup>rd</sup> Party LB

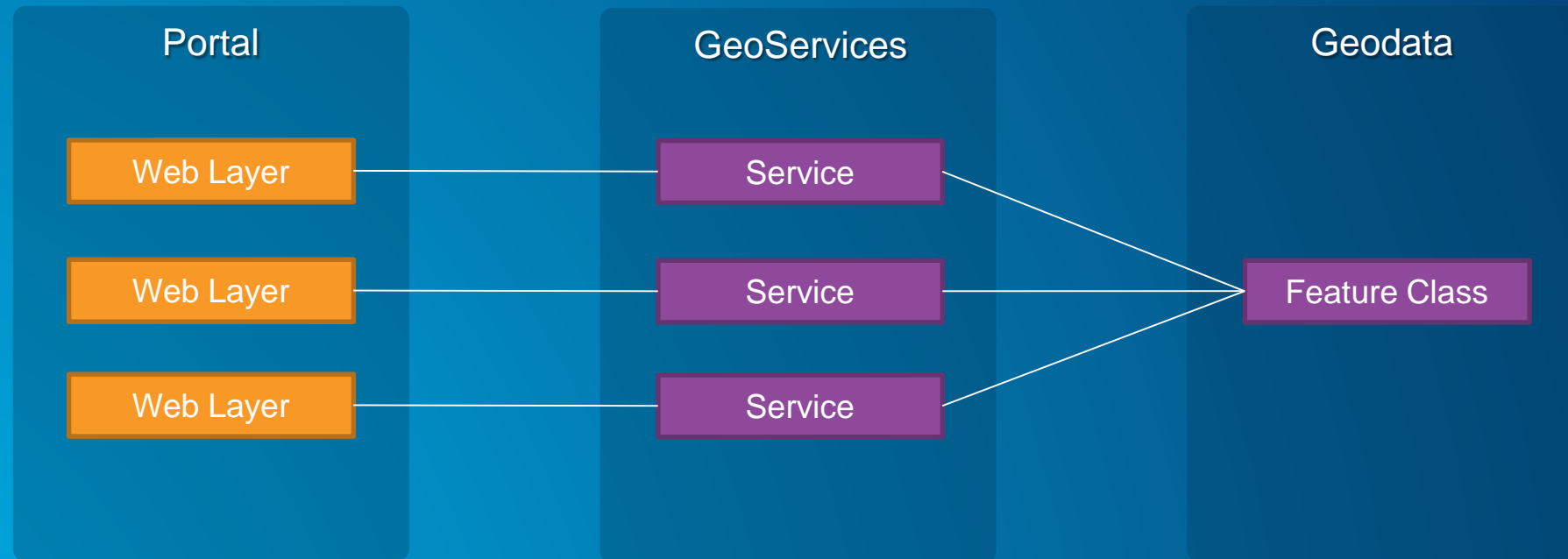


Portal w/ 3<sup>rd</sup> Party LB

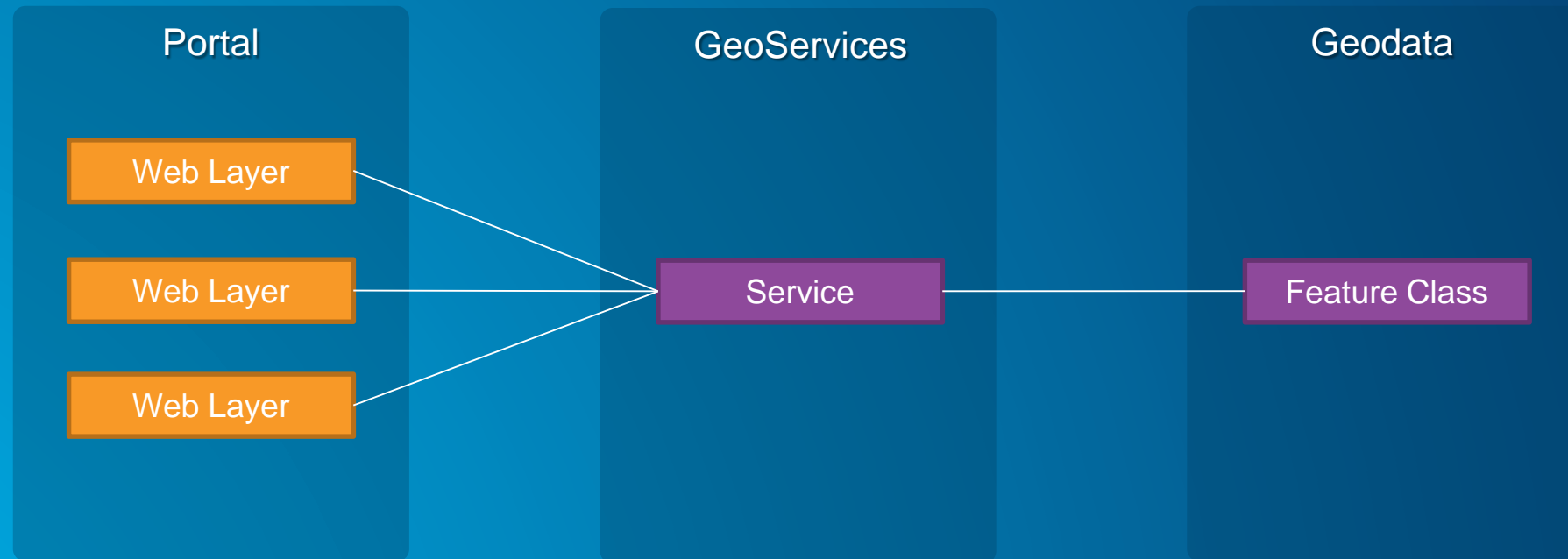


Portal w/ Multiple  
Web Adaptors & 3<sup>rd</sup> Party LB

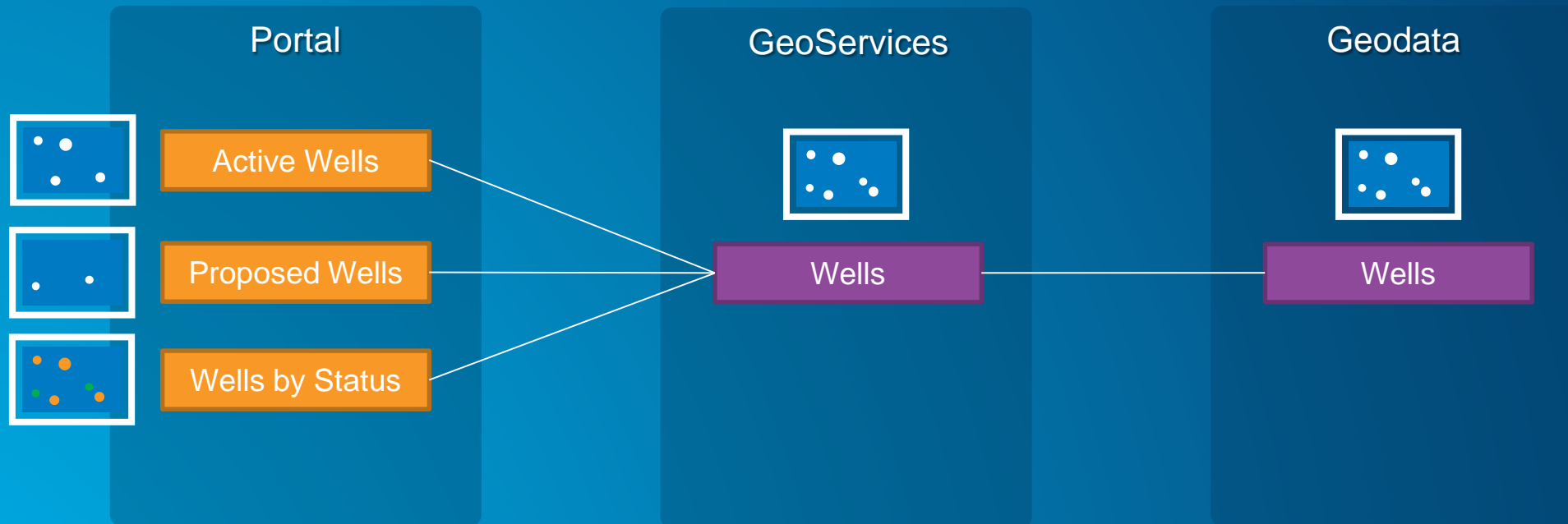
# Server GIS Deployment | The Role of Portal & Web Layers



# Server GIS Deployment | The Role of Portal & Web Layers

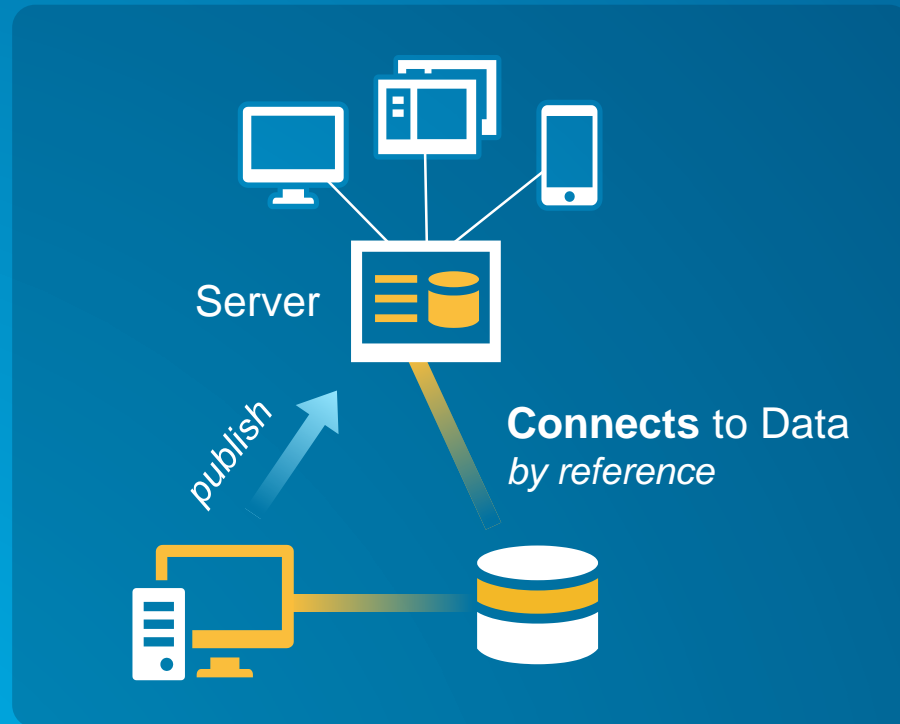


# Server GIS Deployment | The Role of Portal & Web Layers



# Server GIS Deployment | Publishing Methods

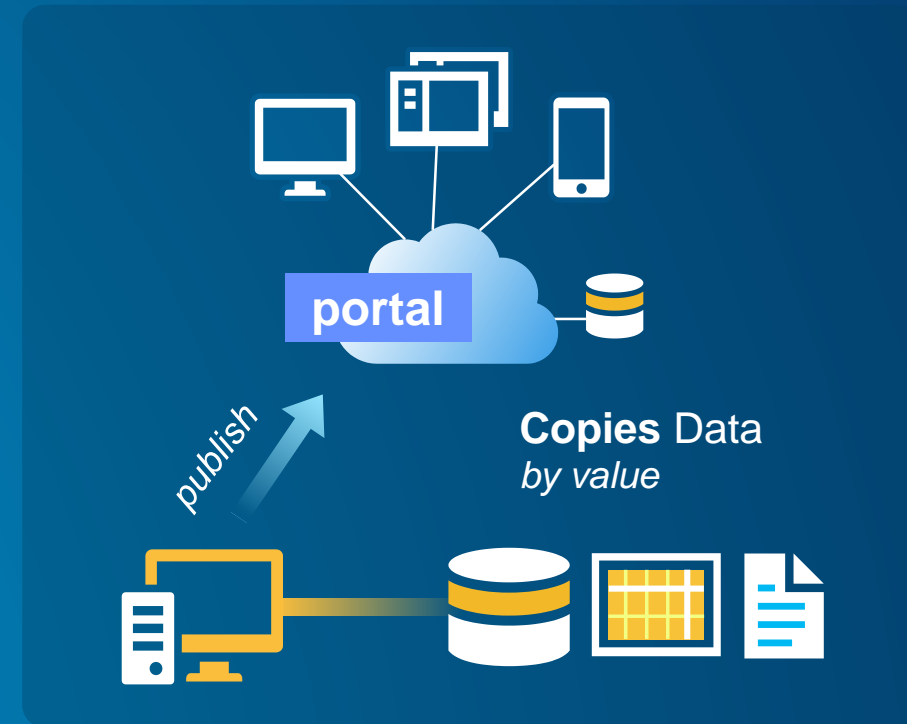
## By Reference



ArcMap

Enterprise GDB

## By Value

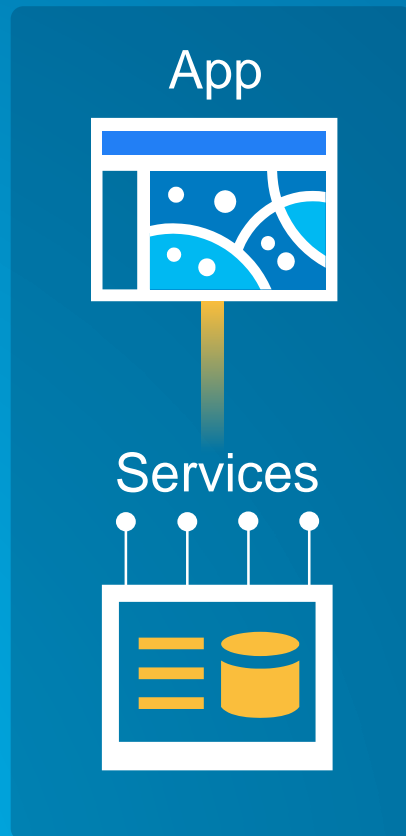


ArcMap  
ArcGIS Pro  
Maps for Office  
Portal Website

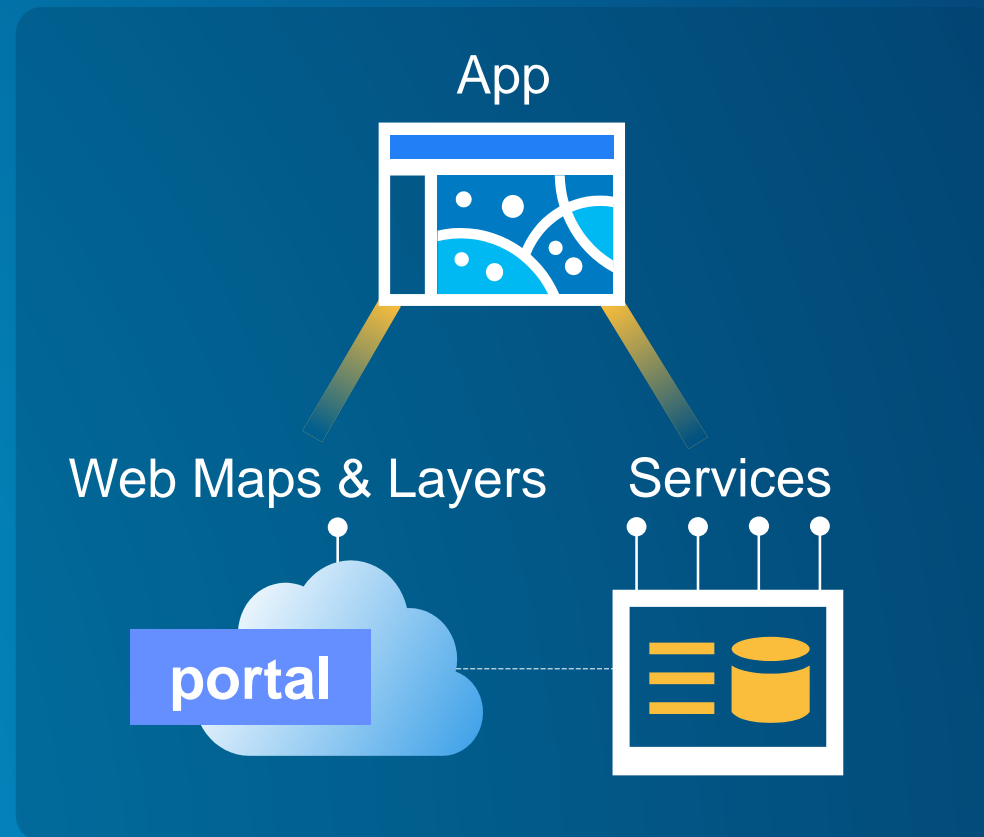
Gedatabases  
Spreadsheets  
Shapefiles  
...

# Server GIS Deployment | Publishing Patterns

## Server Pattern

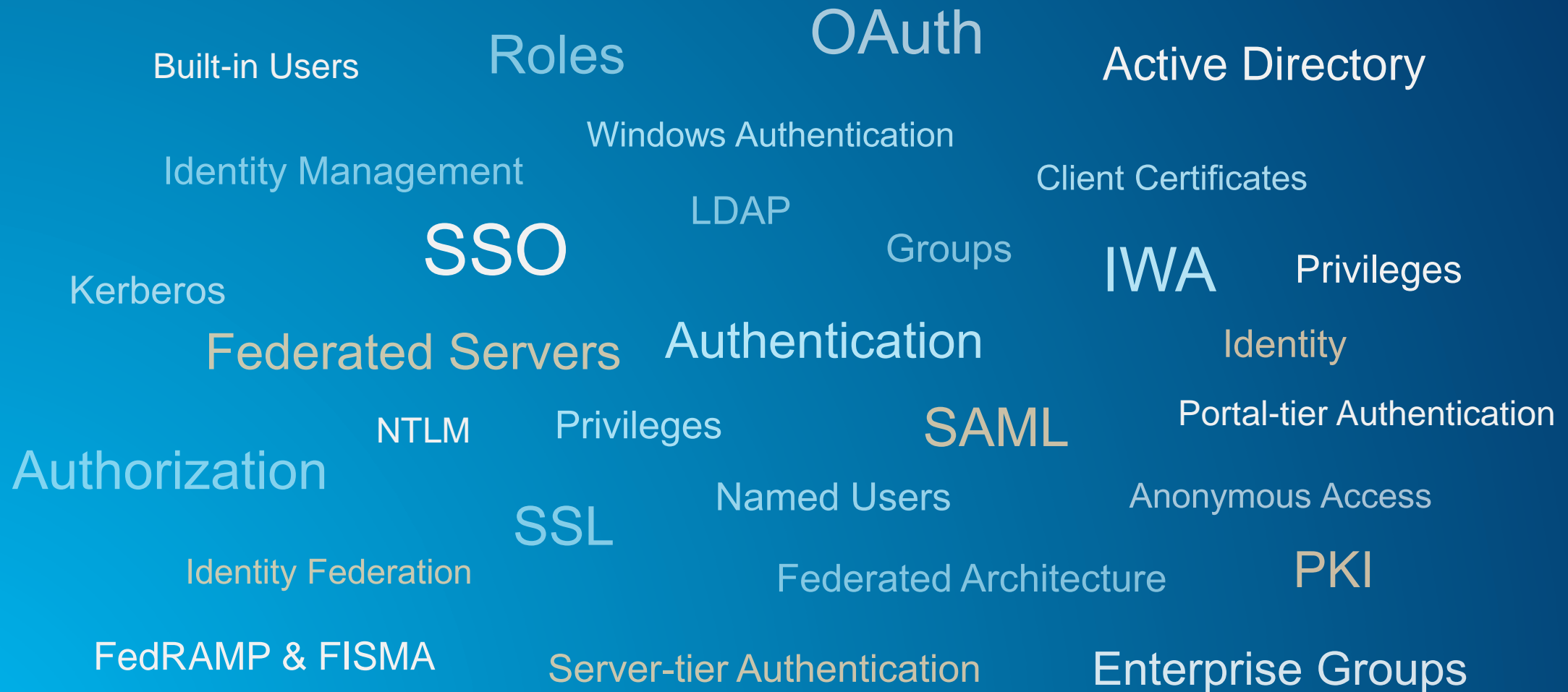


## Web GIS Pattern

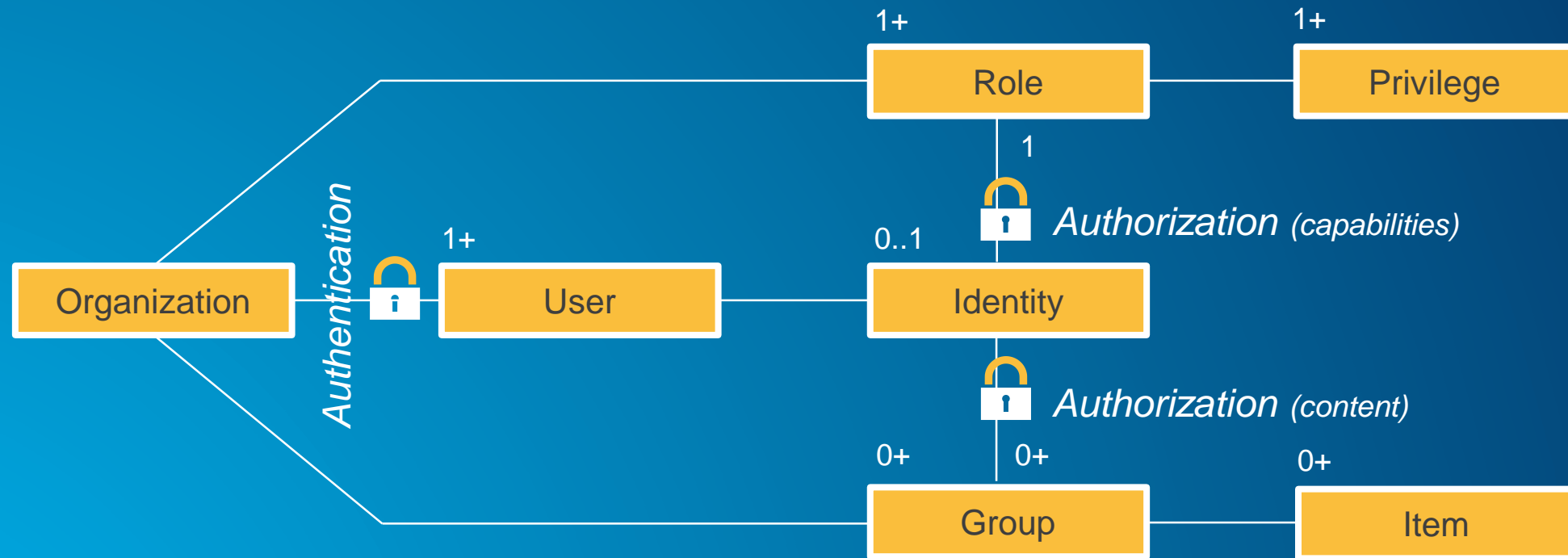


# Security and Identity

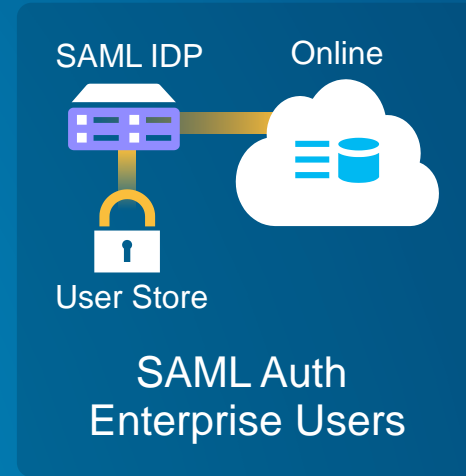
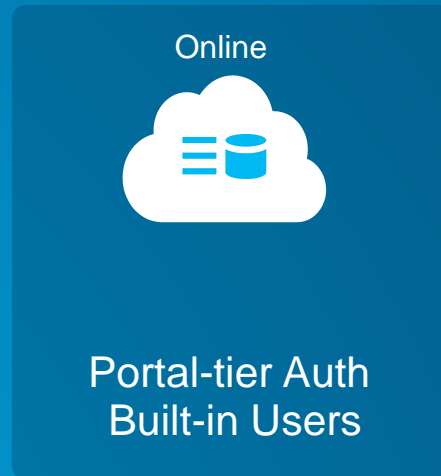
# Security | Terminology



# Security | Key Concepts



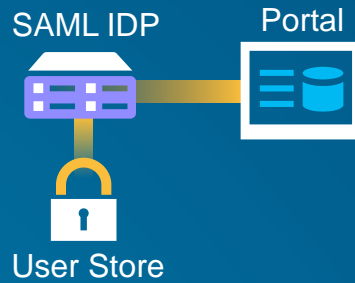
# Security | Online Authentication Patterns



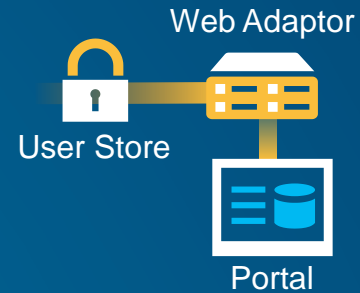
# Security | Portal & Server Authentication Patterns



Portal-tier Auth  
Built-in Users



SAML Auth  
Enterprise Users



Web-tier Auth  
Enterprise Users



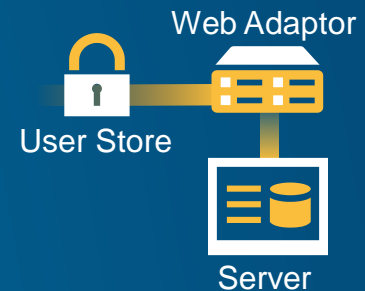
Portal-tier Auth  
Enterprise Users



Server-tier Auth  
Built-in Users

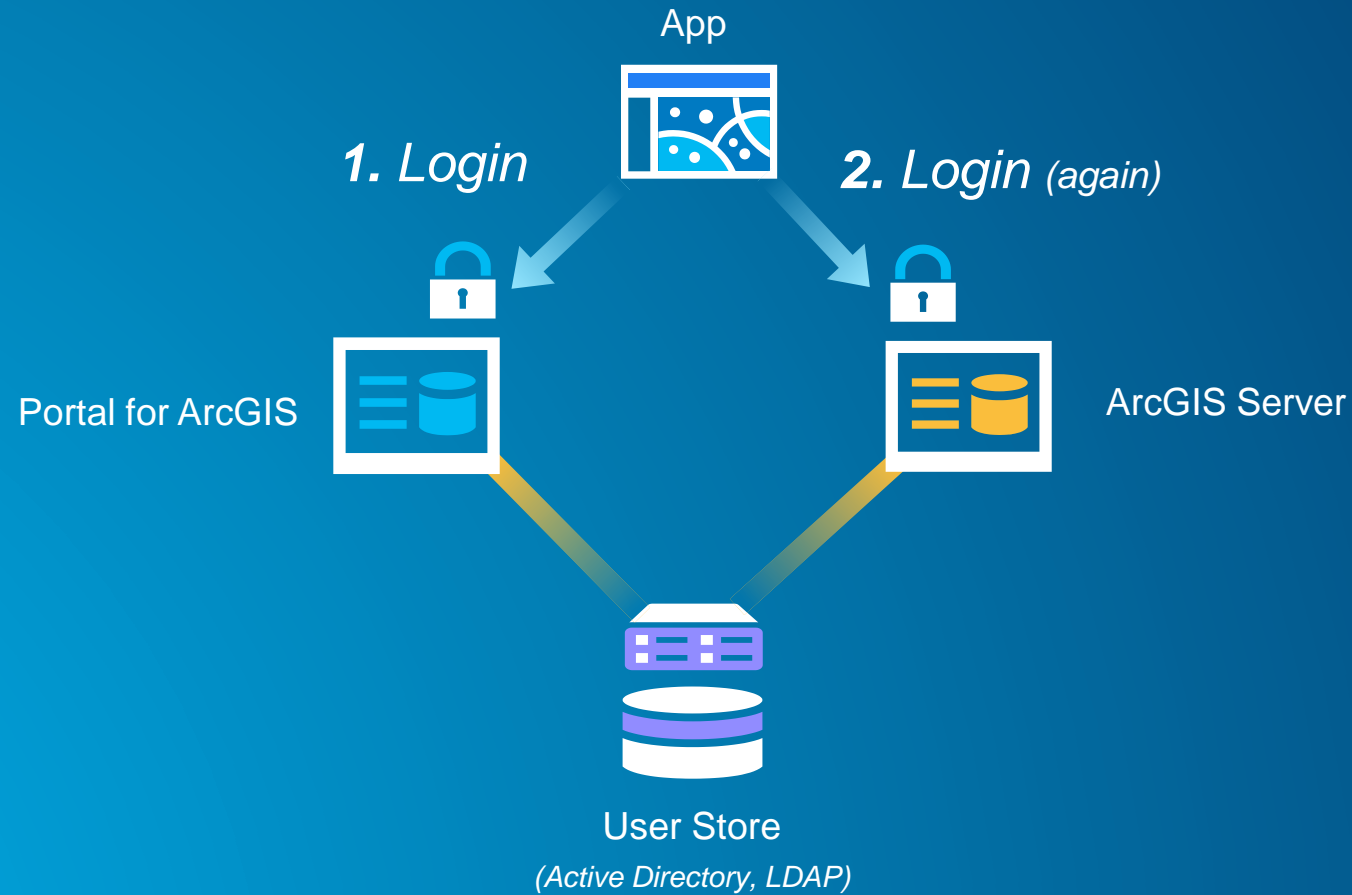


Server-tier Auth  
Enterprise Users

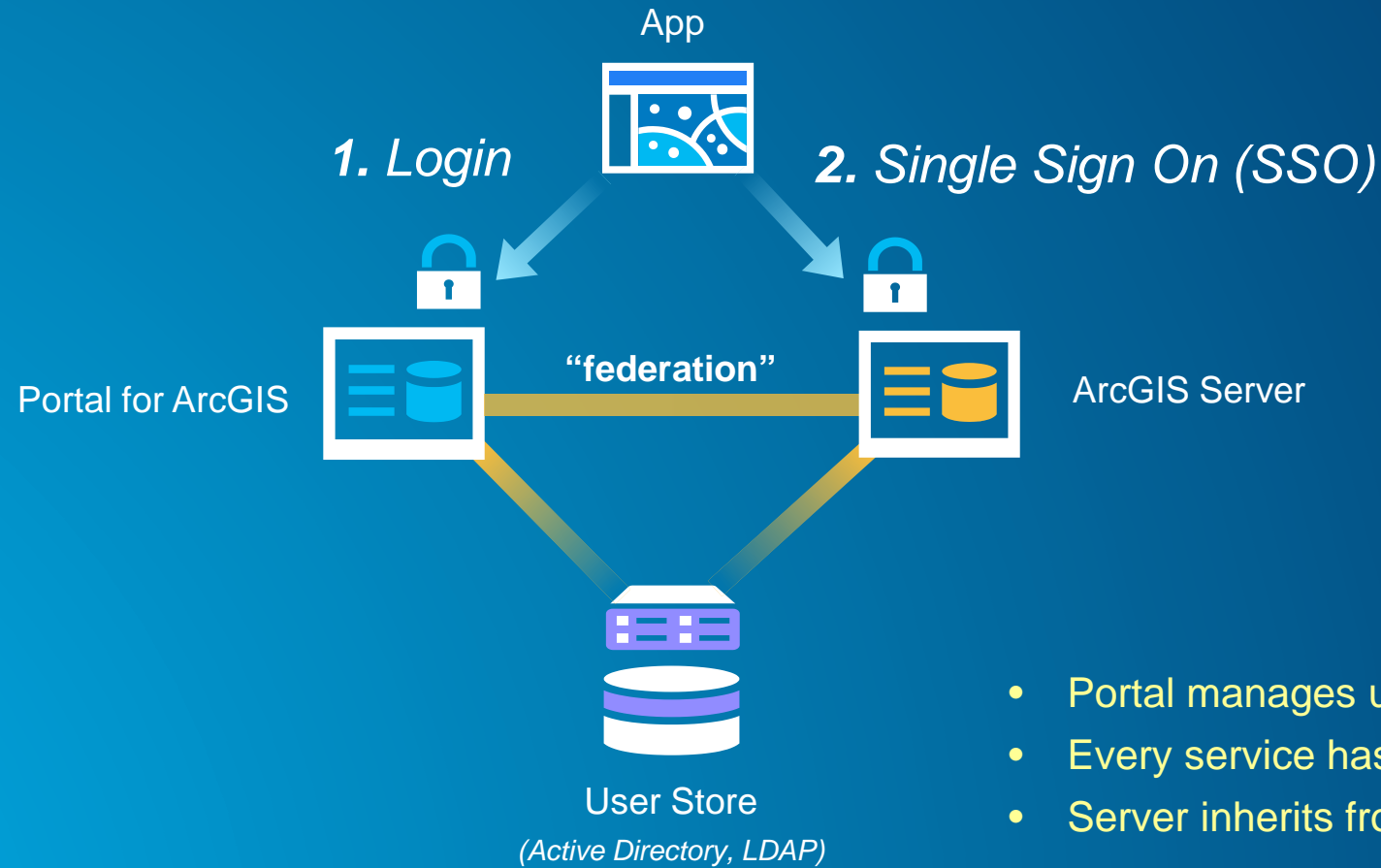


Web-tier Auth  
Enterprise Users

# Security | Federating Portal & Server

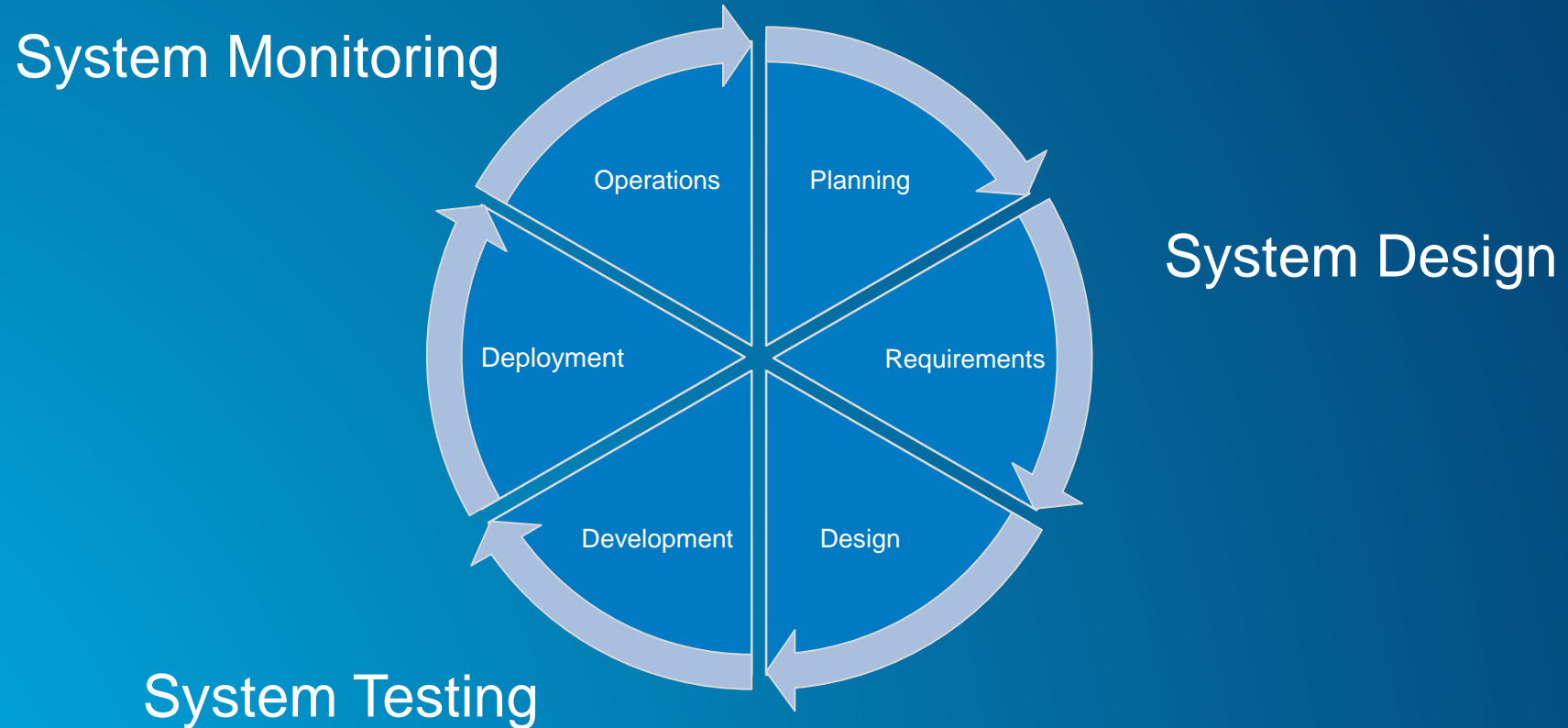


# Security | Federating Portal & Server



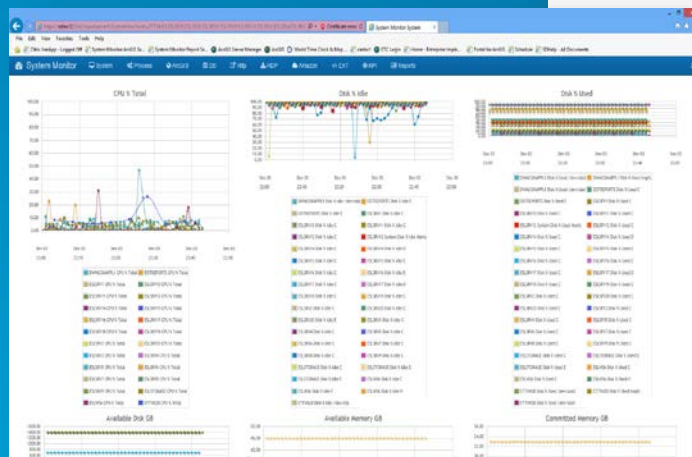
# Web GIS Operations

# Web GIS Operations | System Management



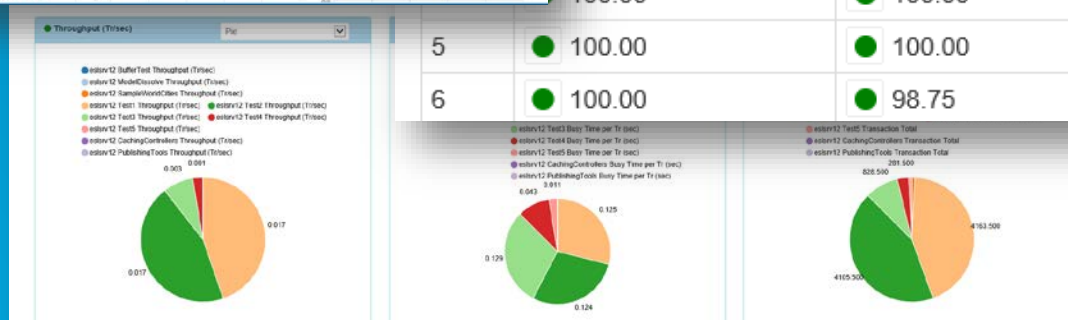
# Web GIS Operations | System Monitoring

## Key Performance Indicators:



● Process ● ArcGIS ● DB ● Http ● RDP

| Coverage                     | % Uptime                     | % Alert                      |
|------------------------------|------------------------------|------------------------------|
| <div><div></div>100.00</div> | <div><div></div>100.00</div> | <div><div></div>100.00</div> |
| <div><div></div>100.00</div> | <div><div></div>100.00</div> | <div><div></div>0.00</div>   |
| <div><div></div>100.00</div> | <div><div></div>100.00</div> | <div><div></div>0.00</div>   |
| <div><div></div>100.00</div> | <div><div></div>100.00</div> | <div><div></div>0.00</div>   |
| <div><div></div>100.00</div> | <div><div></div>100.00</div> | <div><div></div>0.00</div>   |
| <div><div></div>100.00</div> | <div><div></div>98.75</div>  | <div><div></div>0.00</div>   |



Network



Hardware



Web Server



ArcGIS Server

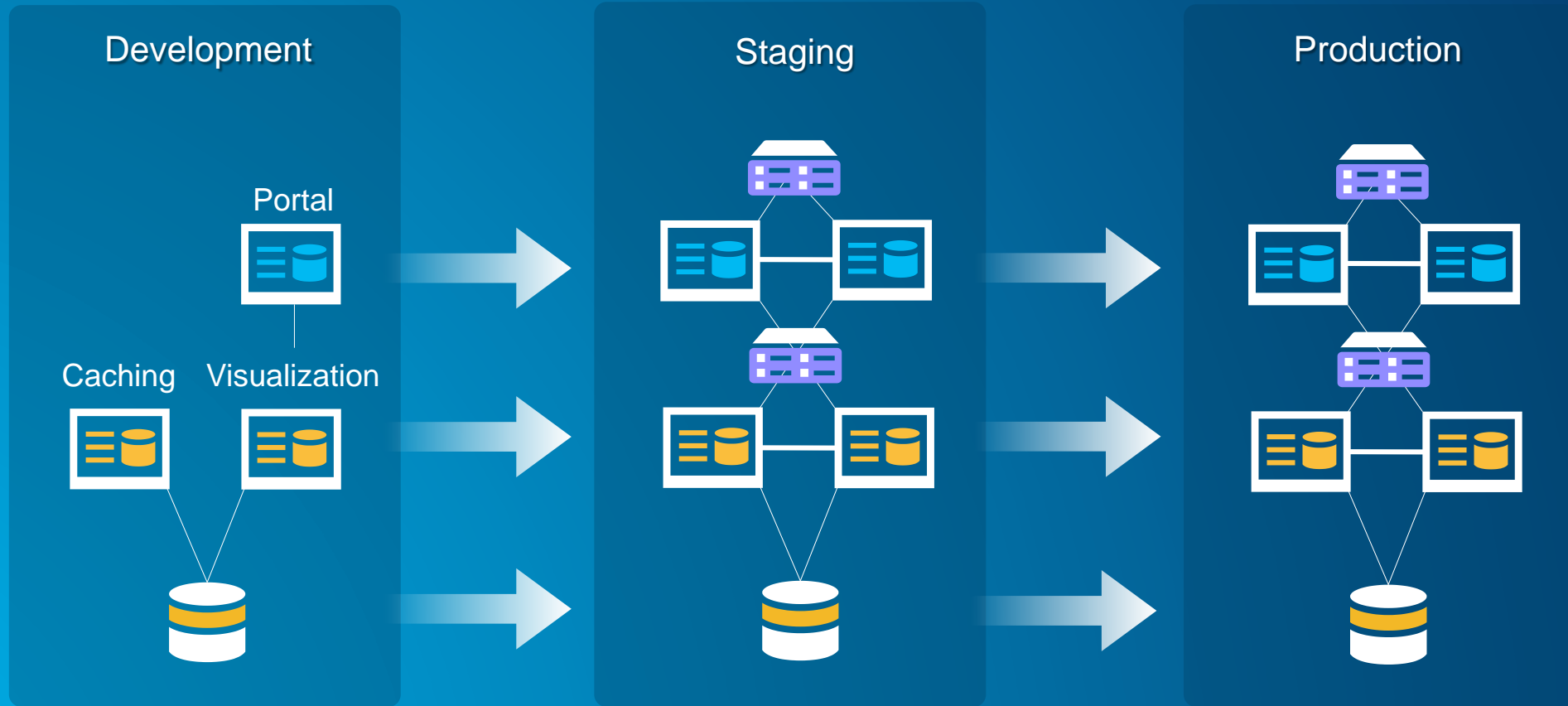


Geodatabase



RDBMS

# Web GIS Operations | Managing Tiered Environments



# Web GIS Operations | Key Takeaways

- System management never stops, especially with Web GIS
- Good monitoring practices are key to business continuity & growth
- Managing tiered environments is becoming complex, we don't have all the answers



Understanding our world.