

ASSESSING YOUR ENTERPRISE GIS ENVIRONMENT

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Fort Worth, TX

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LANGAN





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STAR WARS DAY™
MAY THE 4TH
BE WITH YOU

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OUTLINE

- A GIS Journey Story
- What is an Enterprise GIS?
- Assessment Areas



ABOUT LANGAN

Integrated Engineering Solutions
One-Stop Shop

50+
Years in Business



37
Locations



1400+ Employees

Projects in
100+
Countries



100+
Awards

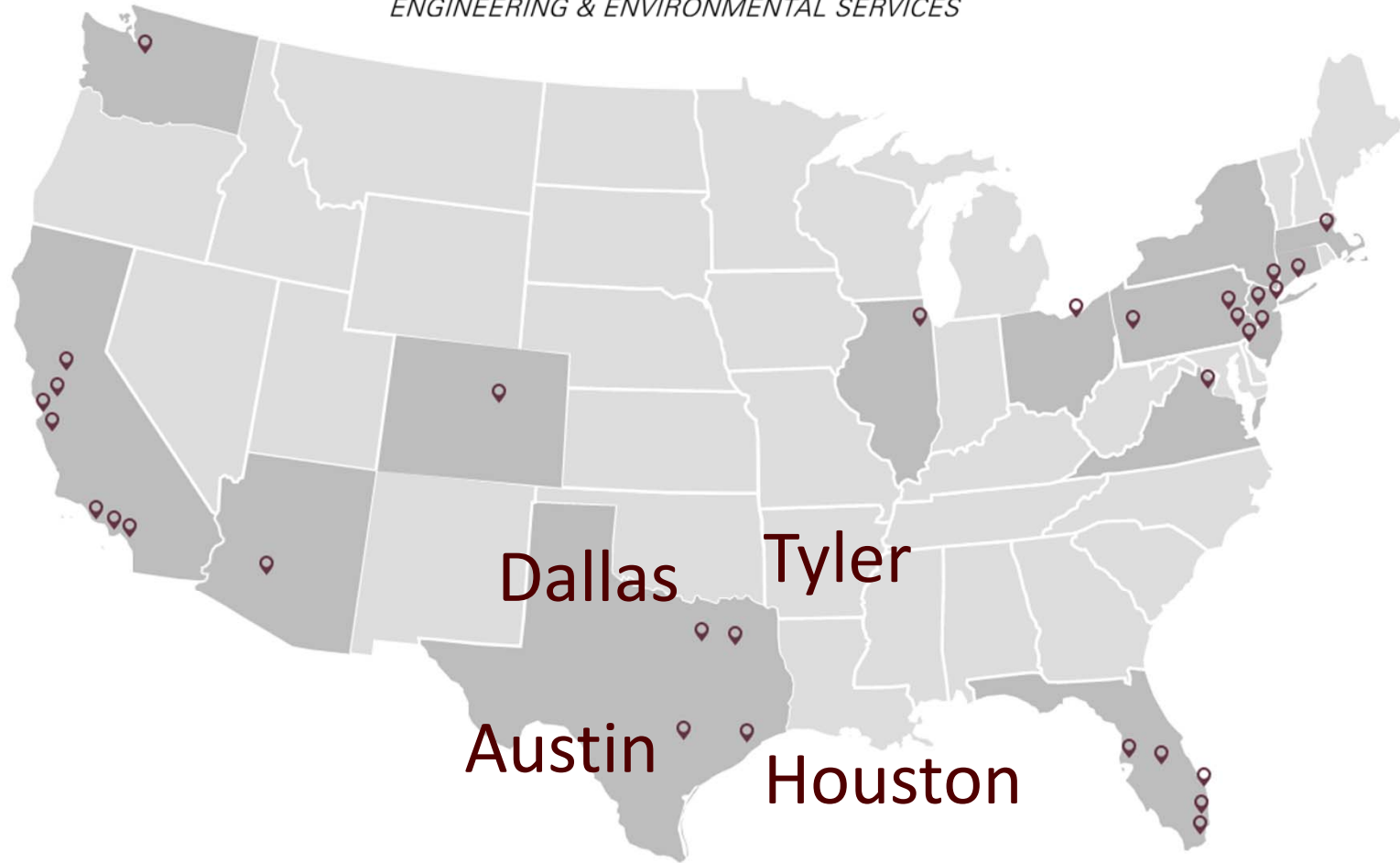
Technical Excellence

Practical Experience

Client Responsiveness

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ENGINEERING & ENVIRONMENTAL SERVICES



GEOSPATIAL & DIGITAL SOLUTION SERVICES



GIS Mapping and Analysis

- Field Data Collection / Real-Time Mapping
- Site Analysis
- Data Interpretation, Management and Analysis



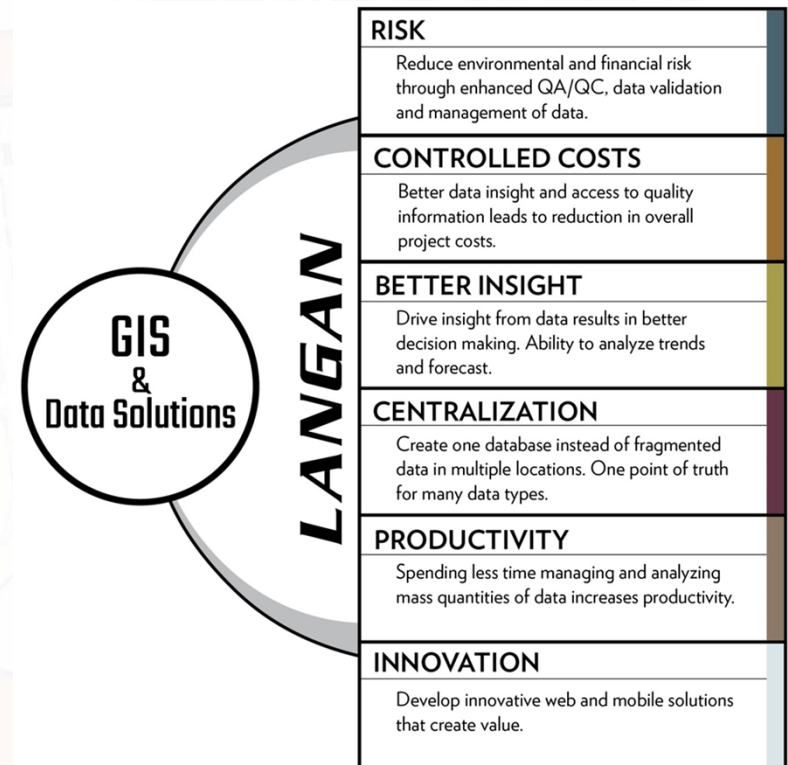
Data Visualization

- Data Dashboards and Web Viewers
- Historical Data Acquisition
- Spatial and Non-Spatial Data Integration
- Map-Based Document Management



Custom Solutions

- Process/Workflow Development
- Enterprise Software Integration
- Litigation Support
- Asset Management



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DEVELOPMENT SERVICES



Advanced Solutions

- Process Automation
- IoT / Real-Time Data Capture & Reporting
- AI / Machine Learning



Custom Tools

- Web & Mobile Application Development
- Custom Viewers & Websites
- Interactive Data Exploration



IT Infrastructure Support

- System Architecture Design & Implementation
- Enterprise Systems Integration
- Data Extract, Transform & Load (ETL) Services

A GIS JOURNEY

THE GROWTH OF GIS

Web Apps!

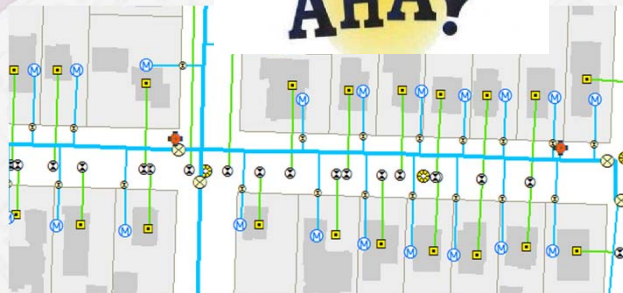


Enterprise!

More Data and
Departments!



They Finally
Get It!



G-I-What?

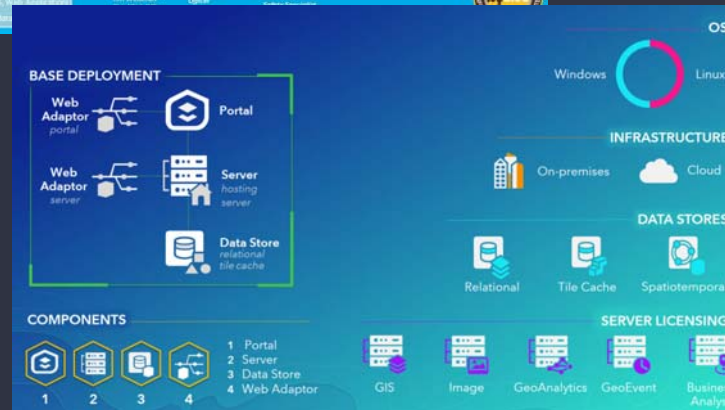
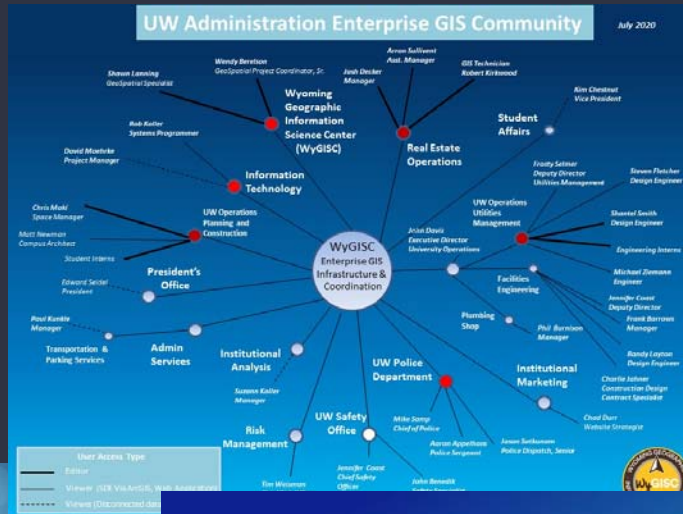




GIS "Guru"

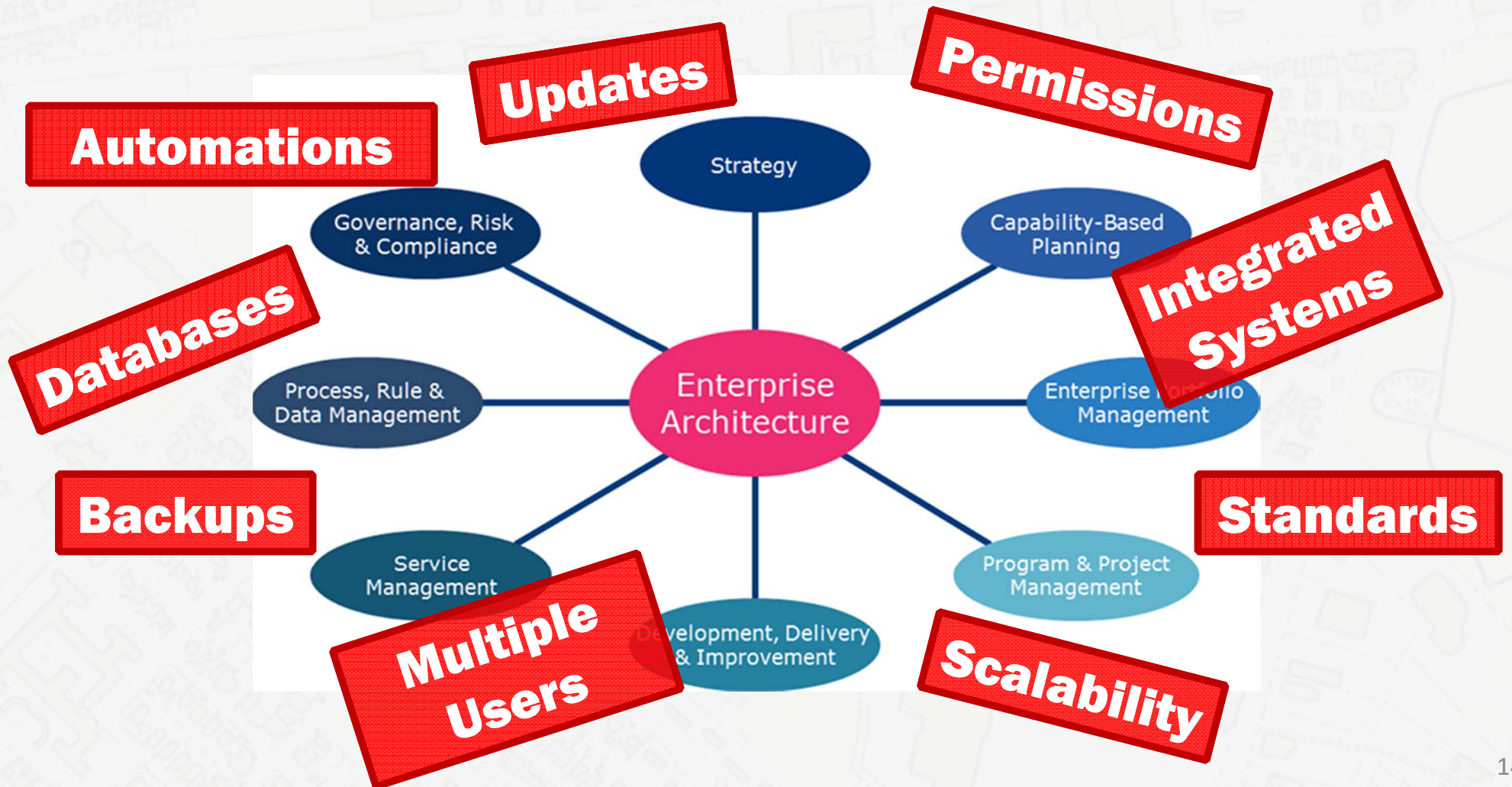
WHAT IS AN ENTERPRISE GIS?

ENTERPRISE GIS



- Complete Data and Applications in the Palm of Your Hands
- Integrations Across Many Departments
- Increased Planning, Architecture, and Support Needs

ENTERPRISE MANAGEMENT



BUT I HAVE GIS SKILLS!

THE LOOK I GIVE



**WHEN I'M COMPLETELY
OVERWHELMED**

GIS \neq IT

ASSESSMENT AREAS



esri®

**THE
SCIENCE
OF
WHERE™**



ArcGIS
Enterprise

=



ArcGIS
Web Adaptor

+



Portal
for ArcGIS

+



ArcGIS
Server

+



ArcGIS
Data Store

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BEST PRACTICES

Industry

- Esri Recommendations
- Langan's Experience

Processes

- Manual Checks
- Scripted Process

Custom

- Conversations
- Vision

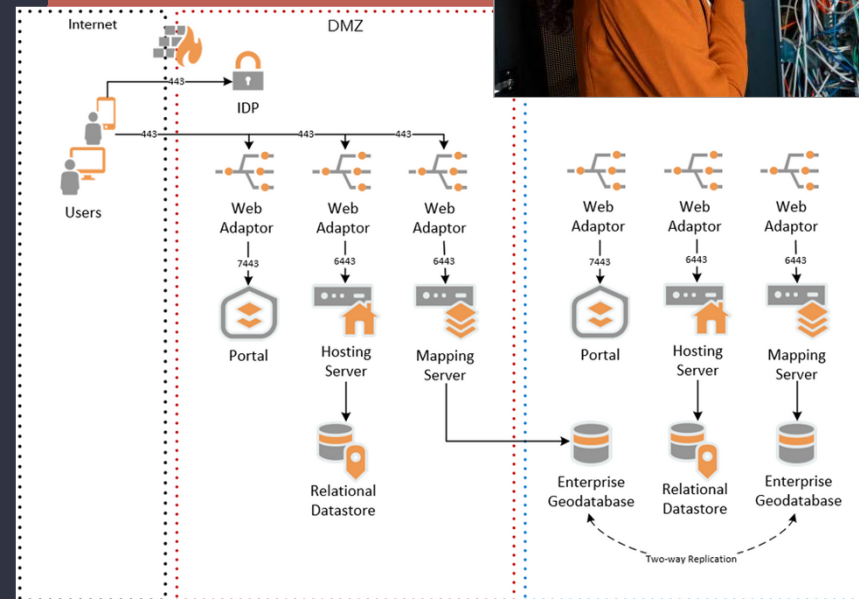
SCRATCHING THE SURFACE



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ARCHITECTURE

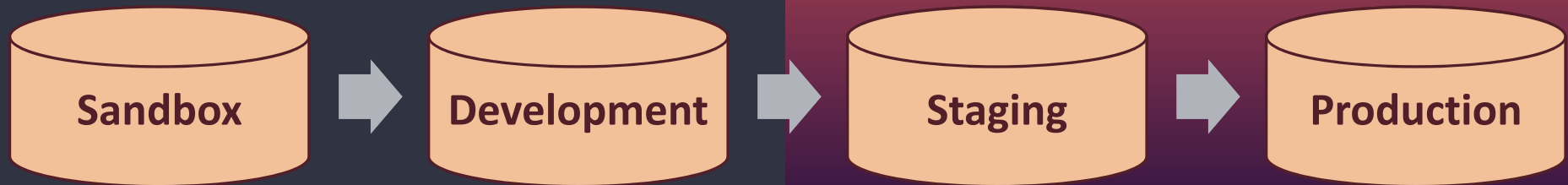
- Hardware and Virtual Machines
- Business Requirements
- Initial Architecture Needs
 - Usage Dictates Architecture (How many)
 - Sizing Based on Performance and Usage (How big)
 - Hosting on ArcGIS Server or federated servers
 - Minimal vs. Optimal Requirements
 - Storage Capacity & Location
 - High Availability / Redundancy



ARCHITECTURE



- Scaling
 - Ensure meet business and performance needs
- Multi-Tier Deployment Strategy
 - Sandbox, Dev, Staging, Production



MANAGEMENT & ADMIN: SERVER

- REST Services directory security control
- Disable ArcGIS Server Administration Through Web Adaptor

- Location of Config Store and server directories
 - Critical components of ArcGIS Server
 - On network or on the server with ArcGIS Server installed?
 - Performance and Scalability impacts
- Validate Data Stores
 - Checks Connections

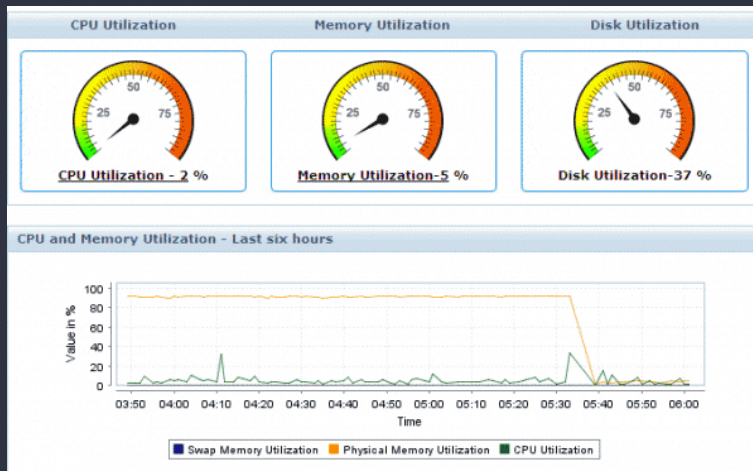
The screenshot shows the ArcGIS Server Manager web interface. The 'Site' tab is selected in the top navigation bar. In the left sidebar, the 'Data Stores' link is highlighted. The main content area is titled 'Data Stores' and includes a 'Validate' button, which is also highlighted. Below the buttons is a table listing data stores with columns for Status, Name, and Type.

Status	Name	Type
✓	ArcGIS_Data_Store	Managed Database
✗		Database
✓	ArcGIS_Data_Store	Tile Cache

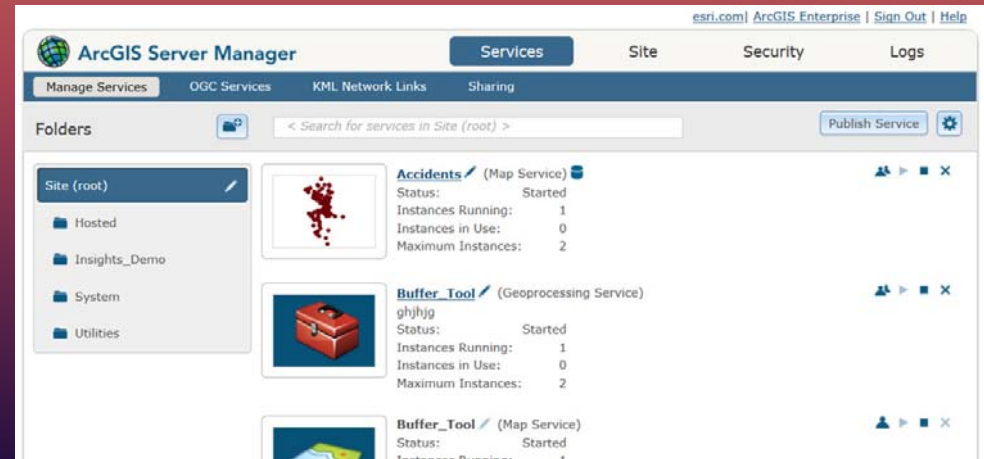
MANAGEMENT & ADMIN: SERVER

Resource Usage Monitoring

- IT Infrastructure:
 - CPU
 - Memory
 - Disk Utilization
 - Uptime
 - Network Utilization



- ArcGIS Software:
 - Services Usage
 - Number of Service Instances
 - Scaling at Process Level
 - Service Load Times

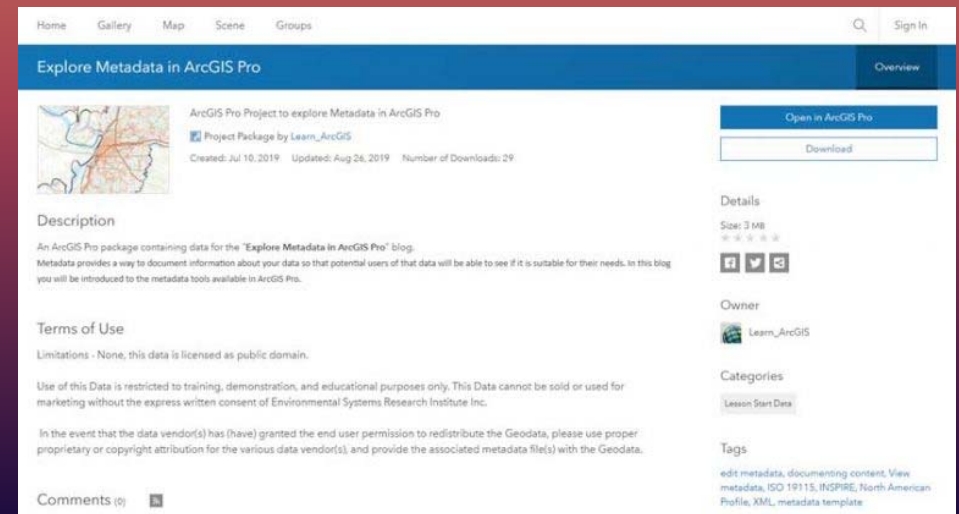


MANAGEMENT & ADMIN: PORTAL

CONTENT

- Custom Apps & Widgets
 - Sharing Permissions and Usage
- Publicly Shared Items
- Orphaned Services
- Content Sources
 - Where/How stored
 - Hosted Data Store vs. Other Sources
- Archival/Clean Up Policies
- Deprecated Content

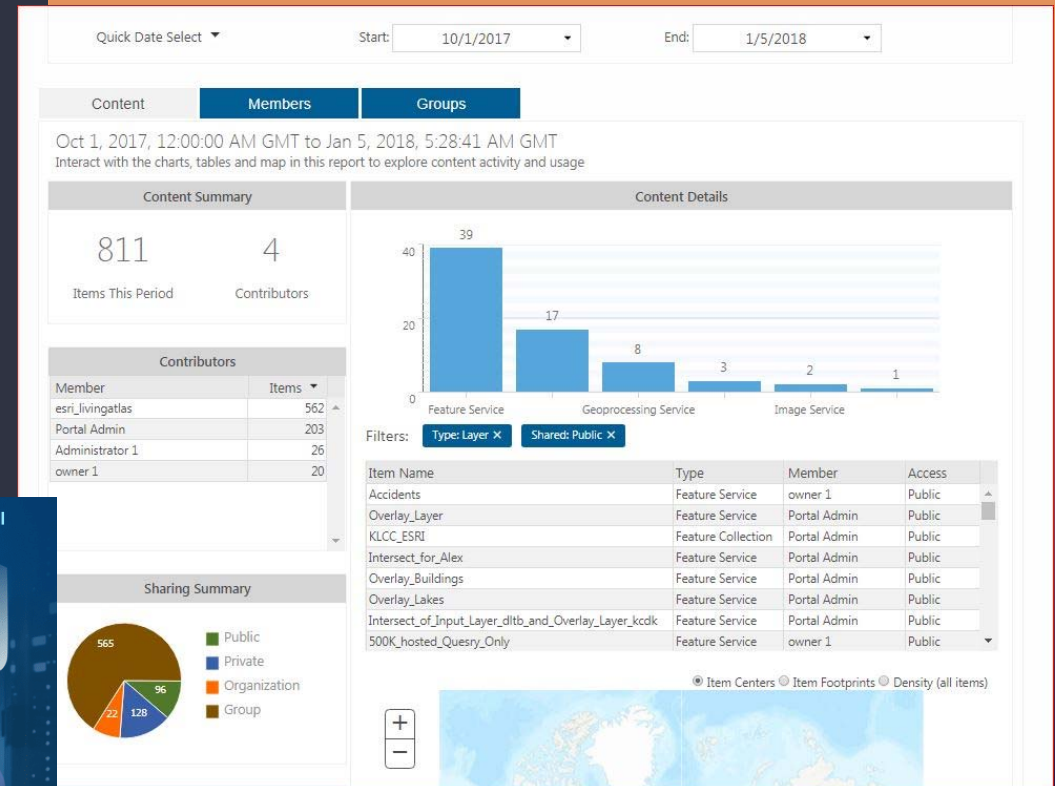
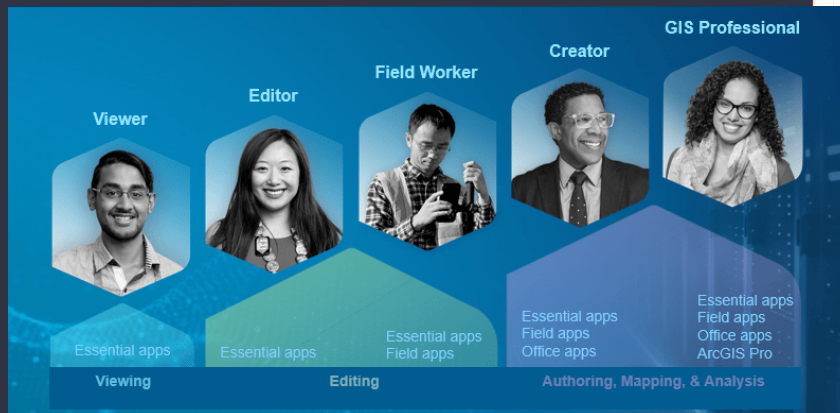
- Portal content directory
 - On the server or the network?
- Metadata Best Practices
 - Thumbnails, Summaries, Tags, Categories, Contacts



MANAGEMENT & ADMIN: PORTAL

ACCOUNTS

- Licensing
- Regular Reports
 - Permissions
 - Membership Counts
 - Content Counts



MANAGEMENT & ADMIN: PORTAL

USER SECURITY


- Single-Source Logins/SSO
 - SAML, ADFS, Okta, Duo
- Custom Roles/User Types
- Potential Security Concerns
 - Master & Shared Accounts

Roles

Create, edit, and manage roles in your organization. You may create a role based on an existing role or role template, allowing or denying privileges associated with the role as you deem necessary.

Note that when creating or editing a role, changes aren't saved until you click Save Role.

Visit the documentation to learn more about [custom roles](#).

 [CREATE ROLE](#)

Role Name	Members	
Activity Viewer	2	i ✎ ✕
Administrator	12	i
Map Viewer	9	i ✎ ✕
Power User	0	i ✎ ✕
Publisher	40	i
Sales Team Power User	11	i ✎ ✕
Sales Team Publisher	27	i ✎ ✕
Sales Team Viewer	30	i ✎ ✕
Solution Engineer	29	i ✎ ✕
User	61	i

Sorry but your password must contain an uppercase letter, a number, a haiku, a gang sign, a hieroglyph, and the blood of a virgin.

someecards
user card



Who's watching?



The one
who pays



Family



Friends



Friends
Of family



Family
Of friends

MANAGEMENT & ADMIN: DATA STORE

- Run *DescribeDataStore* Tool
 - Review for unusual results
 - Failed recovery, backup locations, etc.
 - Regular routine
- Ensure ArcGIS Server license not expired on Data Store
- Backup configuration and schedule
 - Prefer not same server!

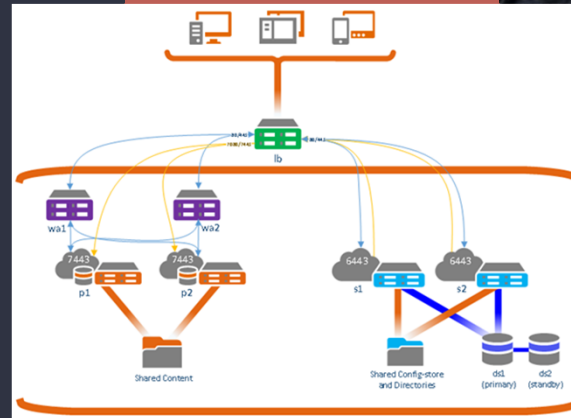
```
C:\Program Files\ArcGIS\DataStore\tools>describedatastore.bat
Information of ArcGIS DataStore ds_snsrwboi
=====
Data Store Release.....10.4.0.5524
Backup location.....C:\arcgisdatastore\backup
Is backup folder shared.....false
Staging location.....C:\arcgisdatastore\staging
Tile cache data location.....C:\arcgisdatastore\nosqldata
Log location.....C:\arcgisdatastore\logs
Max allocation off time.....60 minutes
Machines in spatiotemporal cluster..UB2STD.S.C2.TEST.LOCAL
Current master machine in cluster..UB2STD.S.C2.TEST.LOCAL
Registered spatiotemporal machines..UB2STD.S.C2.TEST.LOCAL
Owning system URL.....https://vb2gis.c2.test.local:6443/arcgis/adm
in
Portal for ArcGIS URL.....https://vb2web.c2.test.local/portal
Free disk space.....30.00GB

Operation completed successfully
```



MANAGEMENT & ADMIN: SECURITY

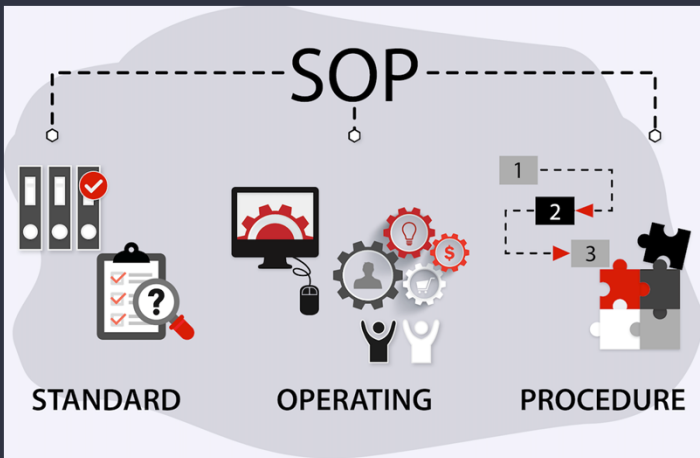
- Regularly Run *serverScan.py* & *portalScan.py* Reporting Tools
- Check for Security Patches/Updates
- Check primary Service Account
- Port Forwarding & Firewall Configuration
- Disaster Recovery
 - Run *WebGISDr Backup Tool*
 - Set up and ensure regularly ran
 - Incremental & Full Backups (Nightly, Weekly, Monthly)



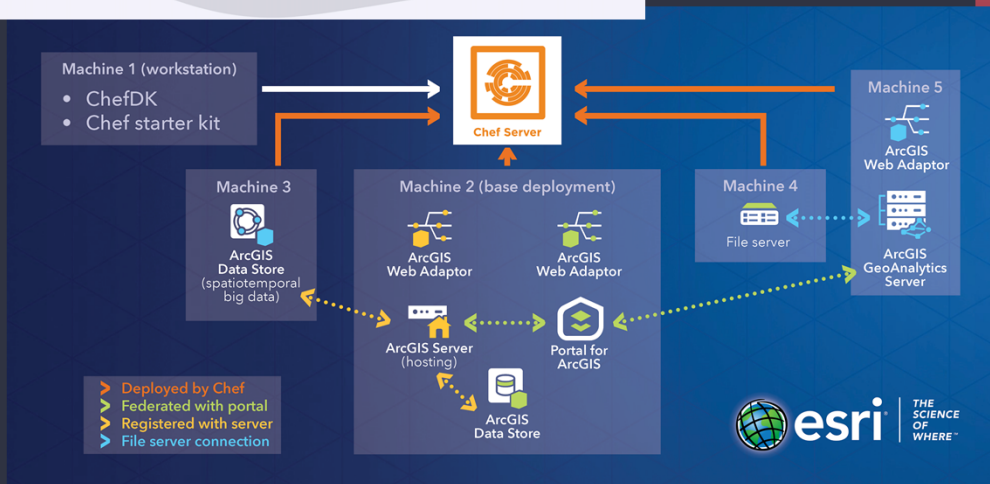
Backup



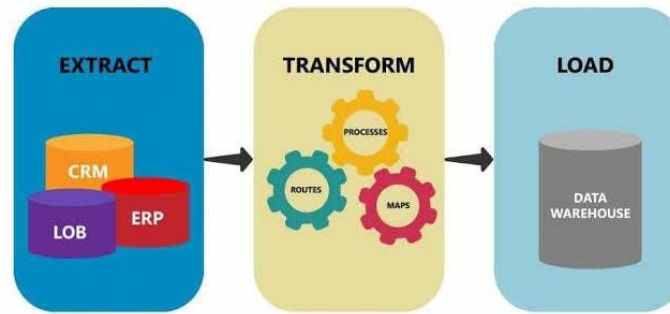
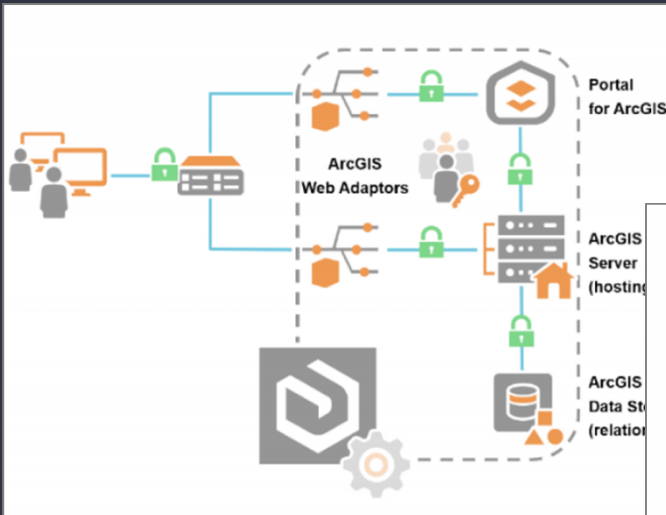
MANAGEMENT & ADMIN: ALL



- Internal Documentation
 - Publishing Workflows
 - Content Management
- Check Events Log for Errors
- Validate Federated Servers
- Review Licensed Server Types
 - Base (GIS)
 - Image Server
 - GeoEvent
 - Mission
 - GeoAnalytics



MISCELLANEOUS



ETL - Extract, Transform, Load

Infrastructure Security Threats



- Create Infrastructure Diagram
- Licenses
- Security Patches
- ETL Scripts
- Process Automation Scripts
- SSL Certificates

BE CONCERNED!

Global GIS Market



Market Growth Rate
(2020–2030)

11.6%

North America

Largest Market By Region (2020)

APAC

Fastest-Growing Market
By Region (2020–2030)

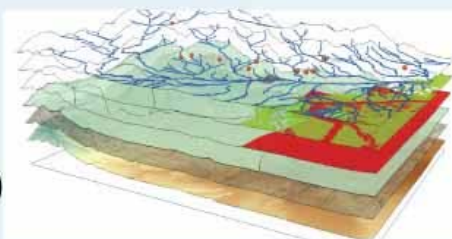
MARKET SIZE

2020

\$8,185.9
Million

2030

\$24,607.7
Million



**PRESCIENT & STRATEGIC
INTELLIGENCE**
Where knowledge inspires strategy

Data Breaches and Identity Theft Reports Have Doubled Over the Past Five Years

Data breaches

2,000

Identity theft reports

800K

1,500

1,000

500

0

2000

2005

2010

2015

2020



Data breaches (left)



Identity theft reports (right)

Source: Identity Theft Resource Center, Federal Trade Commission's Consumer Sentinel Network Data Book

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cakin@langan.com

Technical Excellence

Practical Experience

Client Responsiveness