Assessing Your Enterprise GIS Environment

32nd Annual
South Central Arc User Group Conference
May 3-5, 2022
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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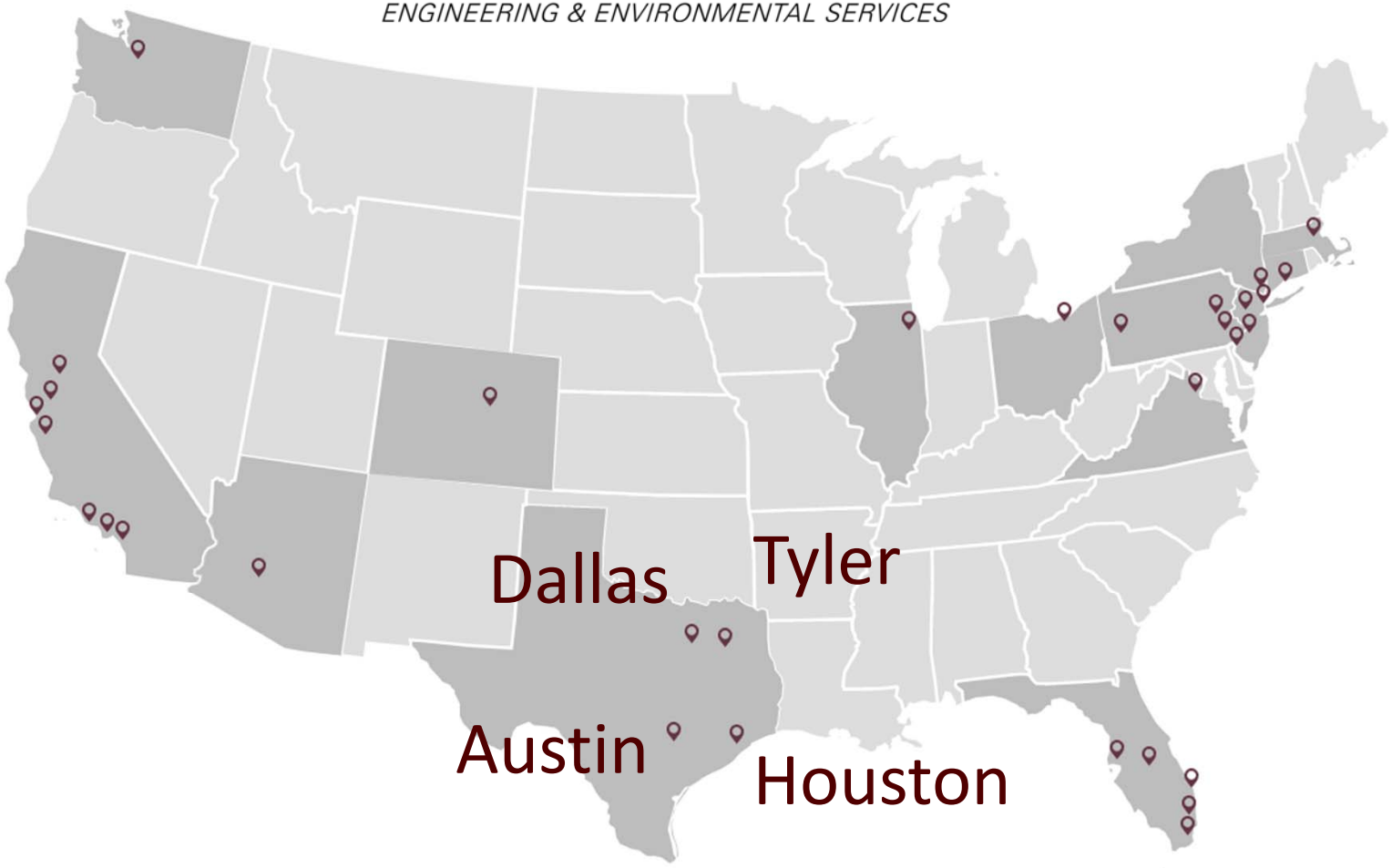
ENGINEERING & ENVIRONMENTAL SERVICES



GEOSPATIAL & DIGITAL SOLUTION SERVICES

GIS Mapping and Analysis

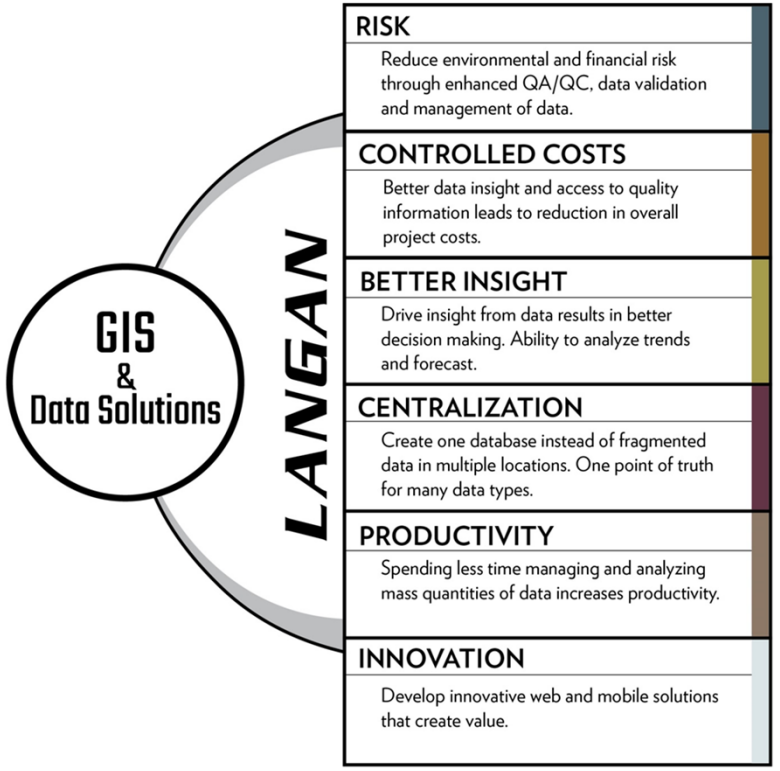
- Field Data Collection / Real-Time Mapping
- Site Analysis
- Data Interpretation, Management and Analysis

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

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A GIS JOURNEY

THE GROWTH OF GIS

Web Apps!

G-I-What?

They Finally Get It!

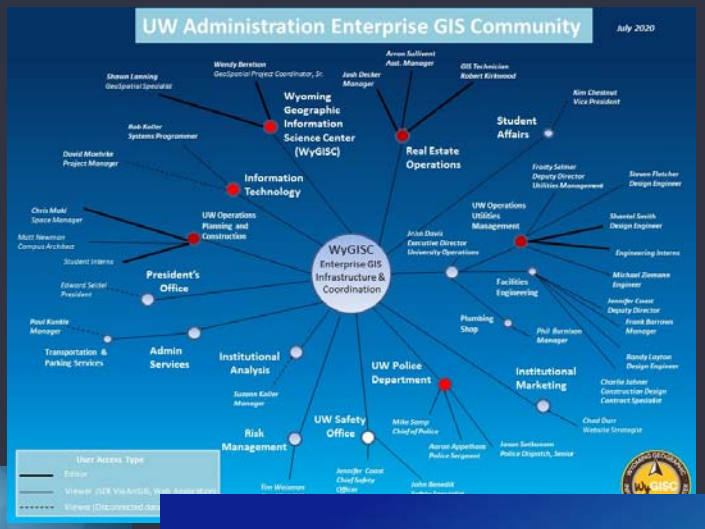
Enterprise!

More Data and Departments!

I got this!
??
GIS “Guru”

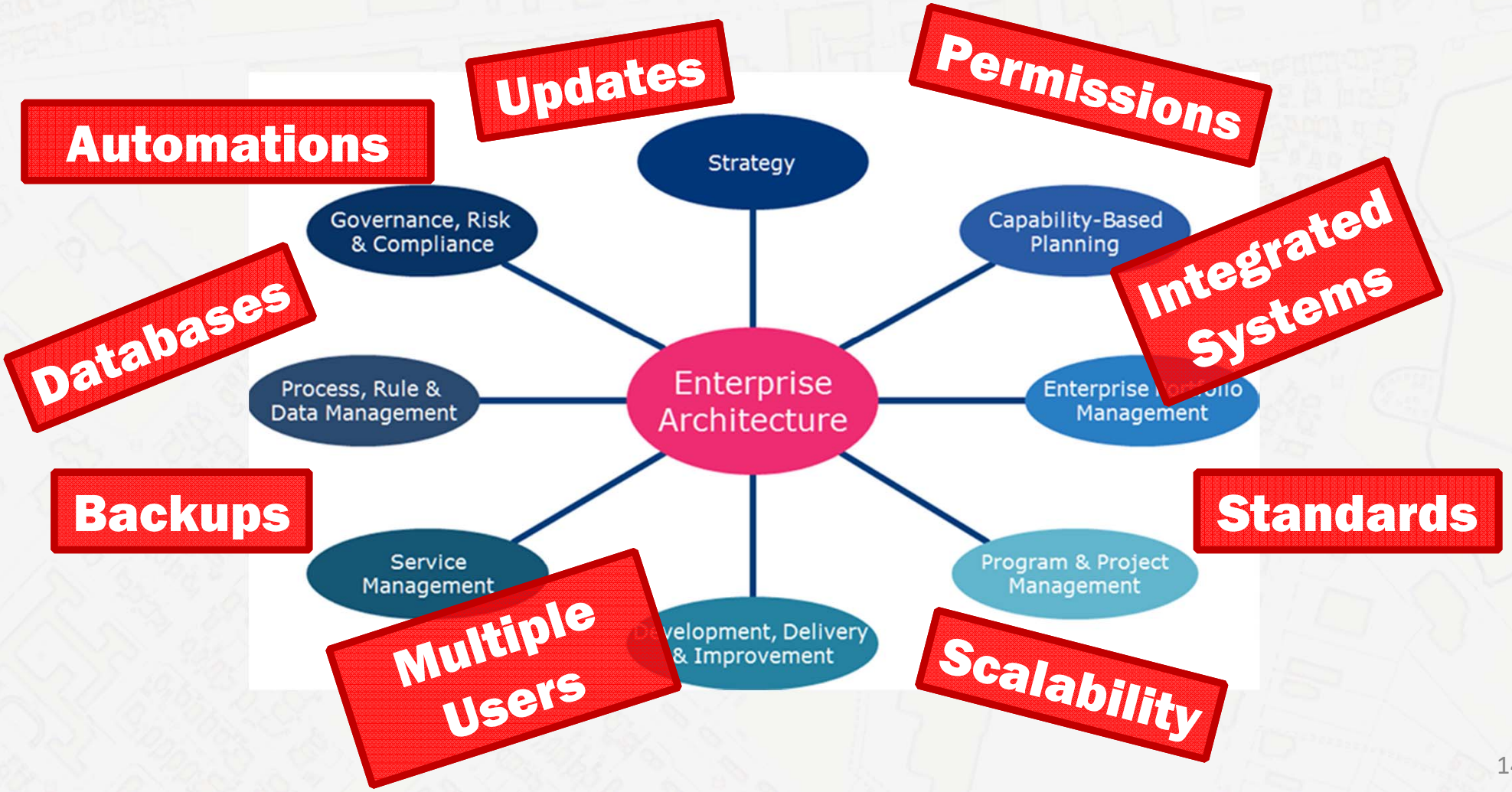
WHAT IS AN ENTERPRISE GIS?

ENTERPRISE GIS

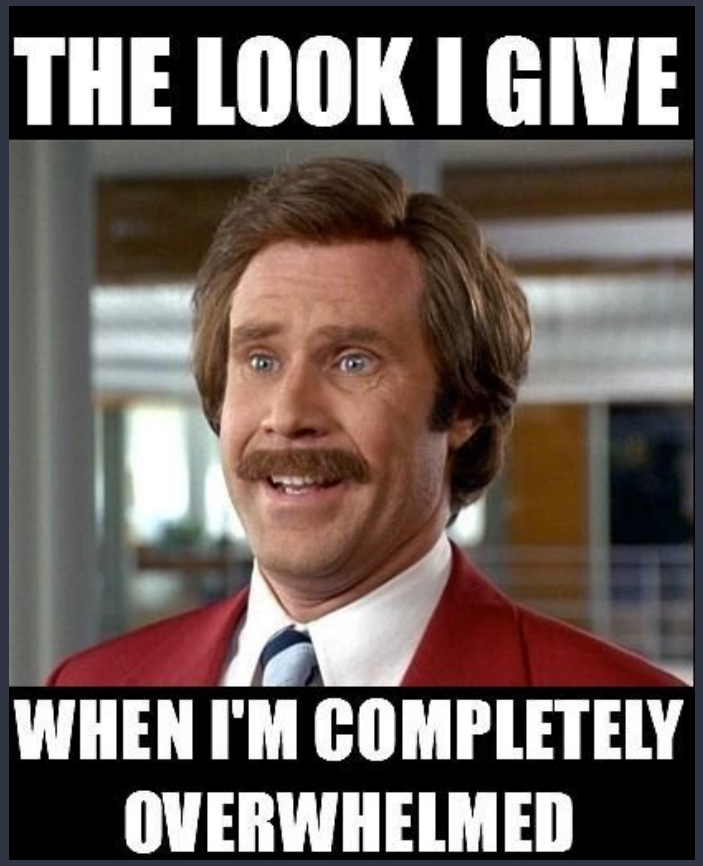


- Complete Data and Applications in the Palm of Your Hands
- Integrations Across Many Departments
- Increased Planning, Architecture, and Support Needs

ENTERPRISE MANAGEMENT



BUT I HAVE GIS SKILLS!



GIS ≠ IT

ASSESSMENT AREAS

esri®

THE SCIENCE OF WHERE™

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BEST PRACTICES

Industry

- Esri Recommendations
- Langan's Experience

Processes

- Manual Checks
- Scripted Process

Custom

- Conversations
- Vision

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SCRATCHING THE SURFACE

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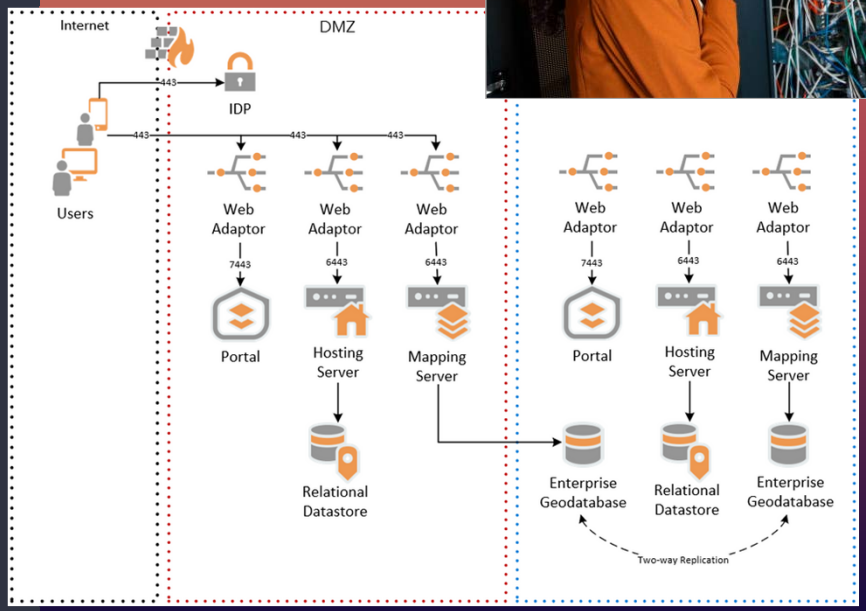
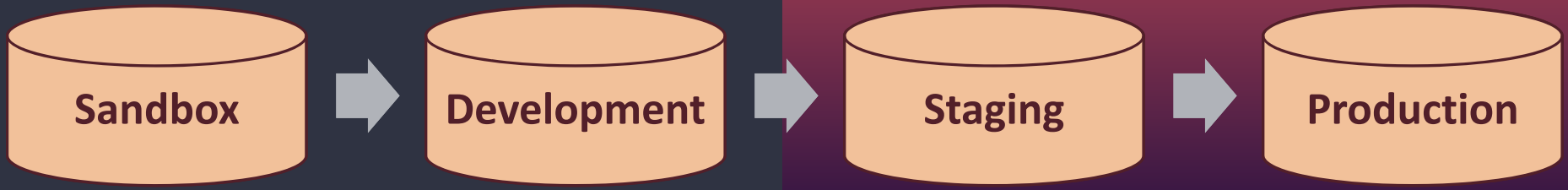
ARCHITECTURE

- 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



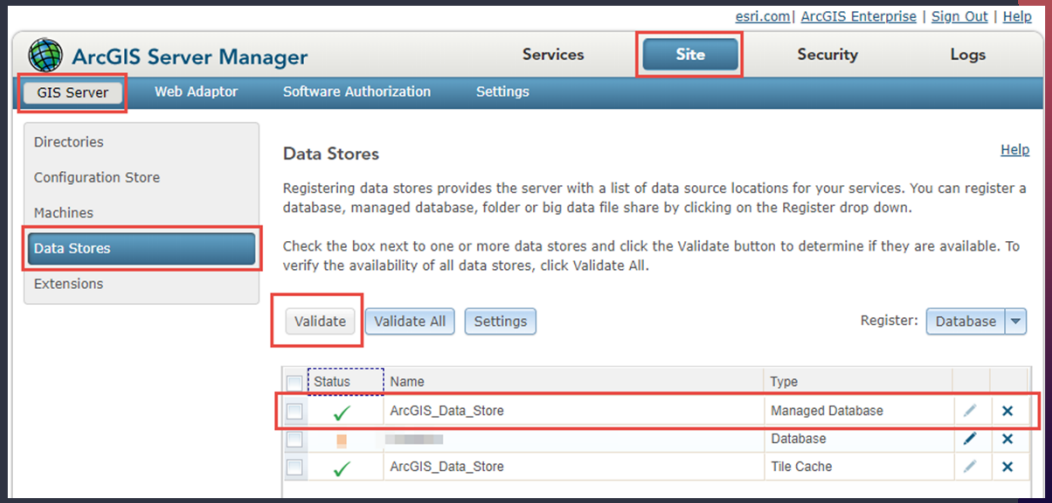
ARCHITECTURE

- 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

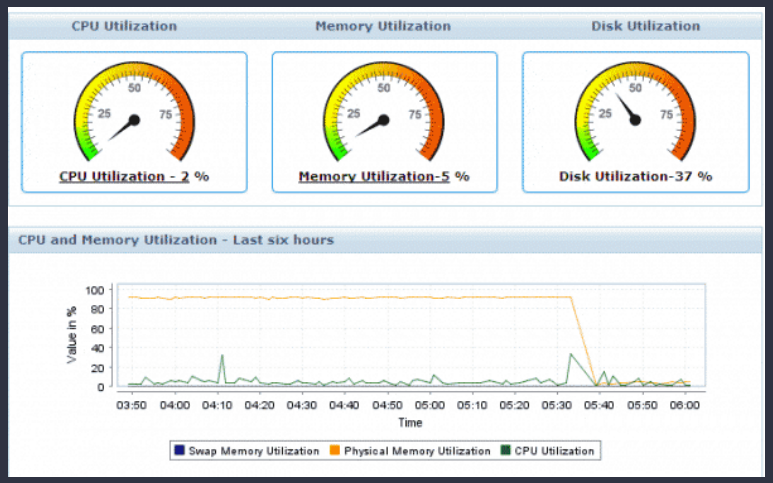


- Location of Config Store and server directories
  - Critical components of ArcGIS Server
  - On network or on the server with ArcGIS Server installed?
  - Performance and Scalability impacts
- Validate Data Stores
  - Checks Connections

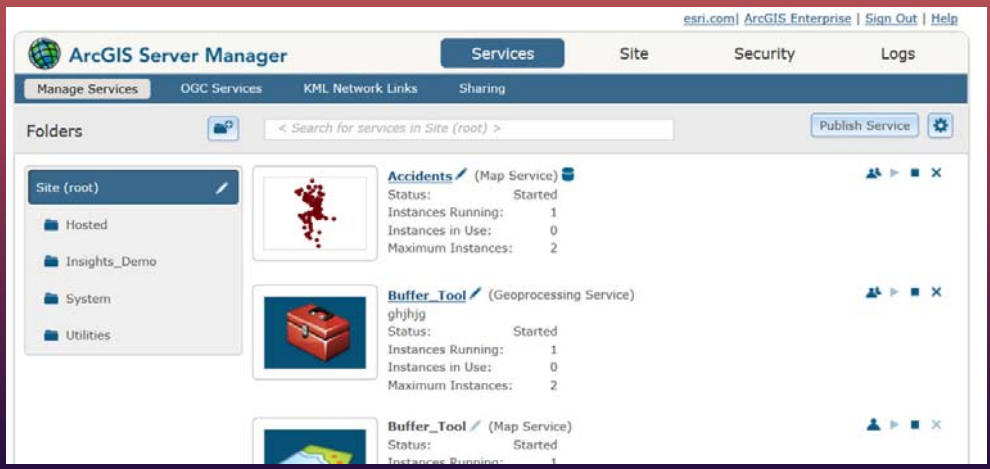
MANAGEMENT & ADMIN: SERVER

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

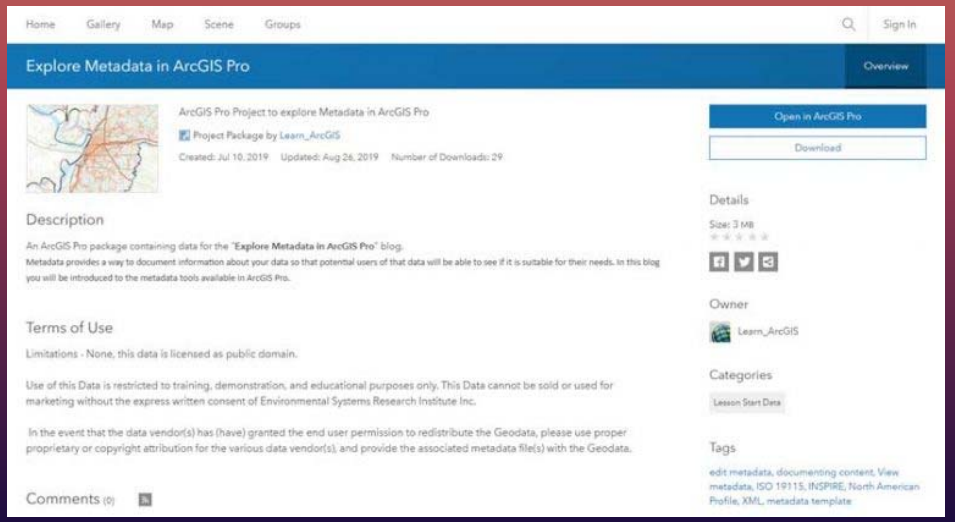


MANAGEMENT & ADMIN: PORTAL

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

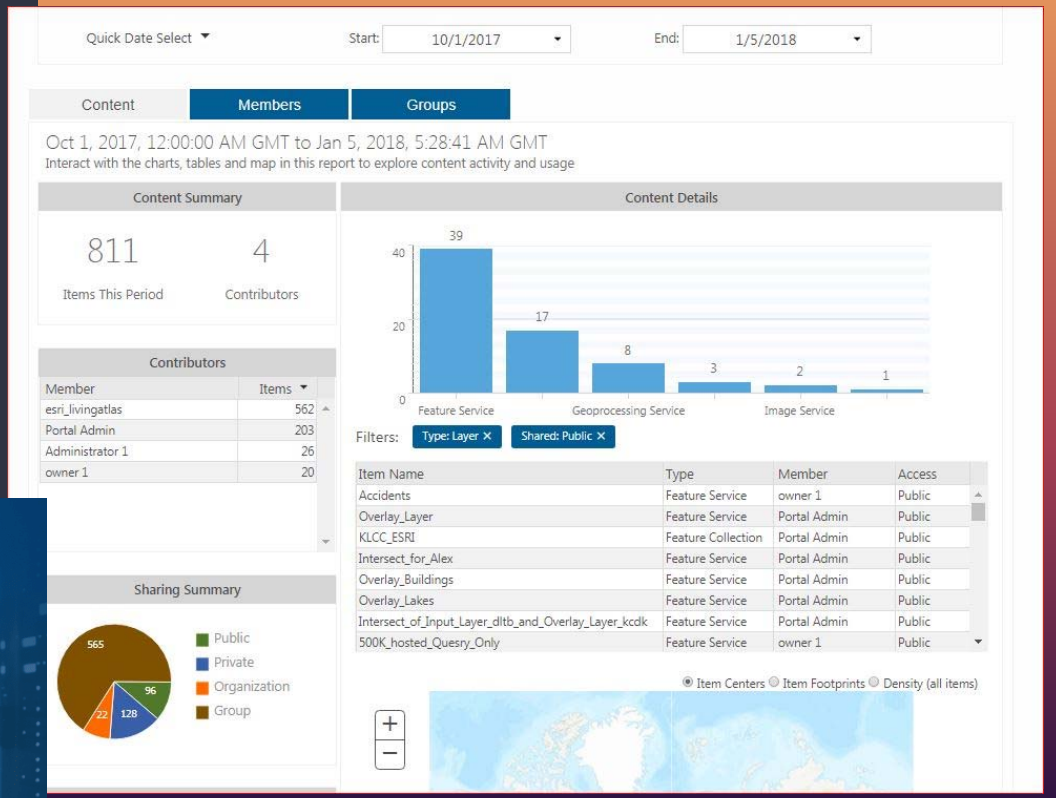
- Portal content directory
  - On the server or the network?
- Metadata Best Practices
  - Thumbnails, Summaries, Tags, Categories, Contacts



MANAGEMENT & ADMIN: PORTAL

ACCOUNTS

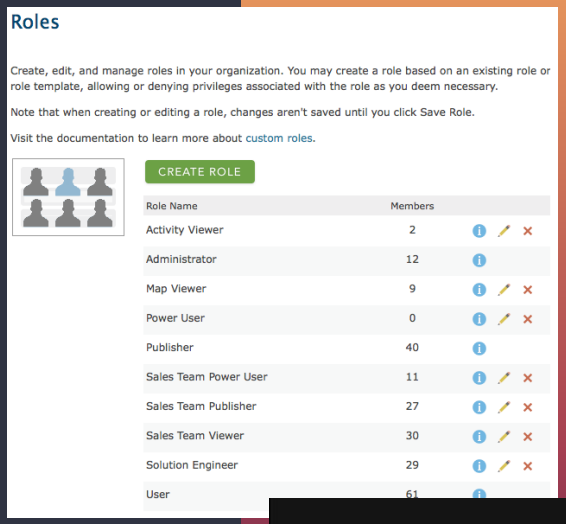
- Licensing
- Regular Reports
  - Permissions
  - Membership Counts
  - Content Counts

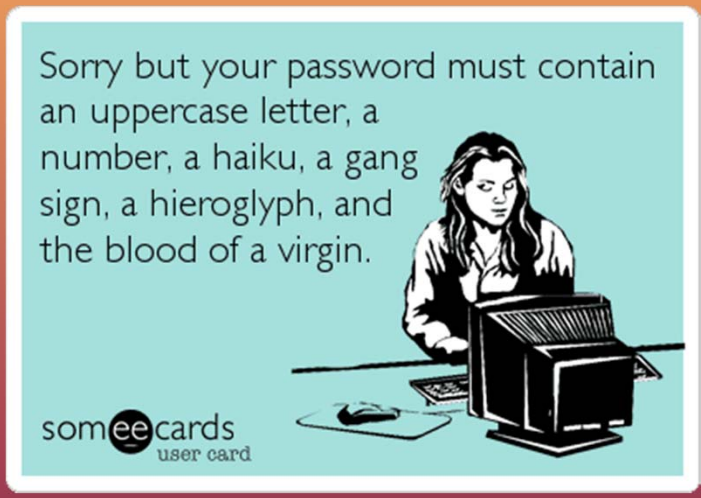


MANAGEMENT & ADMIN: PORTAL

USER SECURITY

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





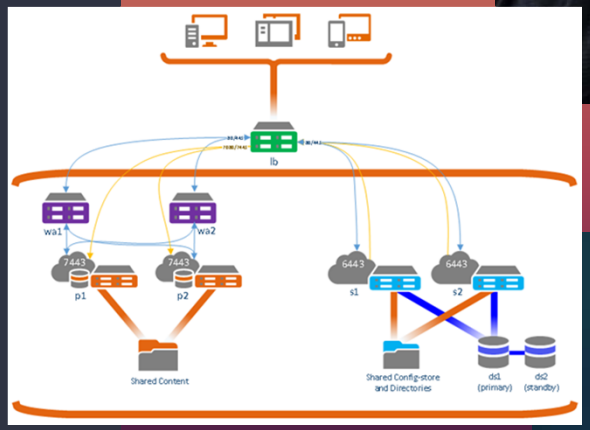
MANAGEMENT & ADMIN: DATA STORE

- 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!

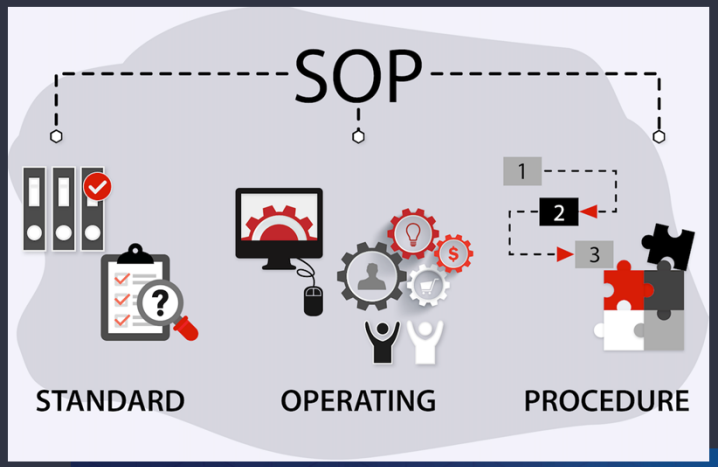
```
C:\Program Files\ArcGIS\DataStore\tools>describedatastore.bat
Information of ArcGIS DataStore ds_snsrwboi
================================================
Data Store Release.....................10.4.0.5524
Backup location........................C:\arcgisdatastore\backup
Is backup folder shared..............false
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..VB2STDS.C2.TEST.LOCAL
Current master machine in cluster...VB2STDS.C2.TEST.LOCAL
Registered spatiotemporal machines..VB2STDS.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 successfull
```

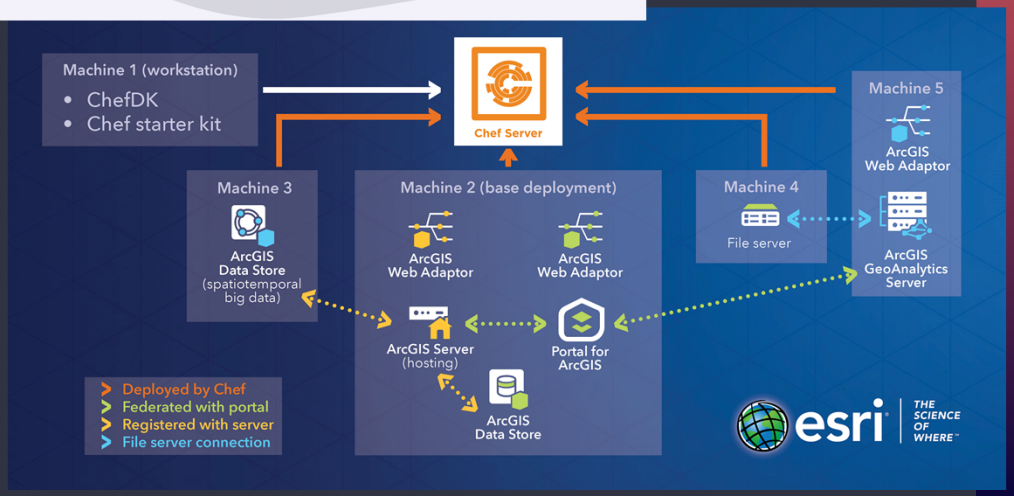
MANAGEMENT & ADMIN: SECURITY

- 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)



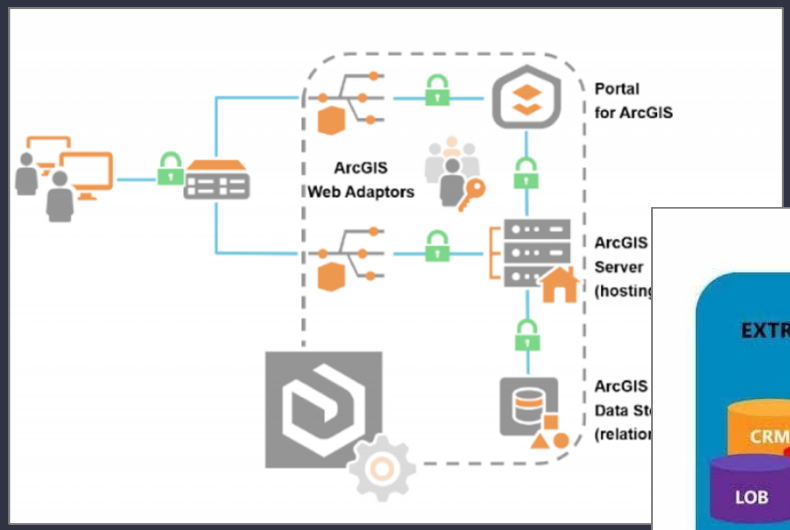
MANAGEMENT & ADMIN: ALL

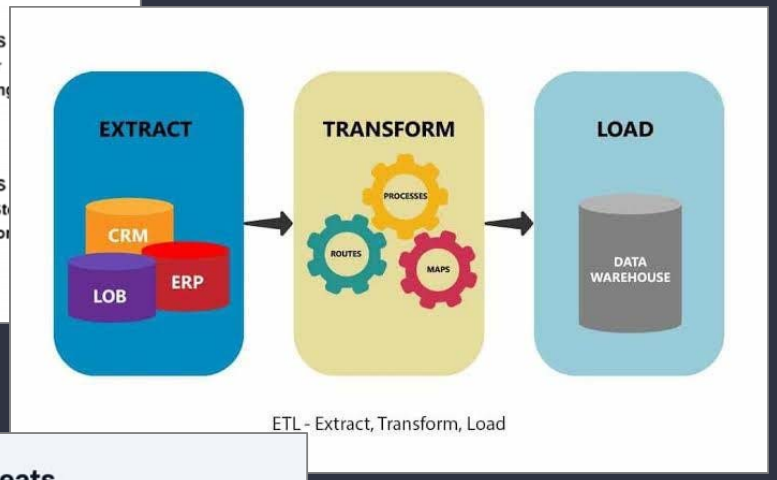




- Internal Documentation
  - Publishing Workflows
  - Content Management
- Check Events Log for Errors
- Validate Federated Servers
- Review Licensed Server Types
  - Base (GIS)
  - Image Server
  - GeoEvent
  - Mission
  - GeoAnalytics

MISCELLANEOUS

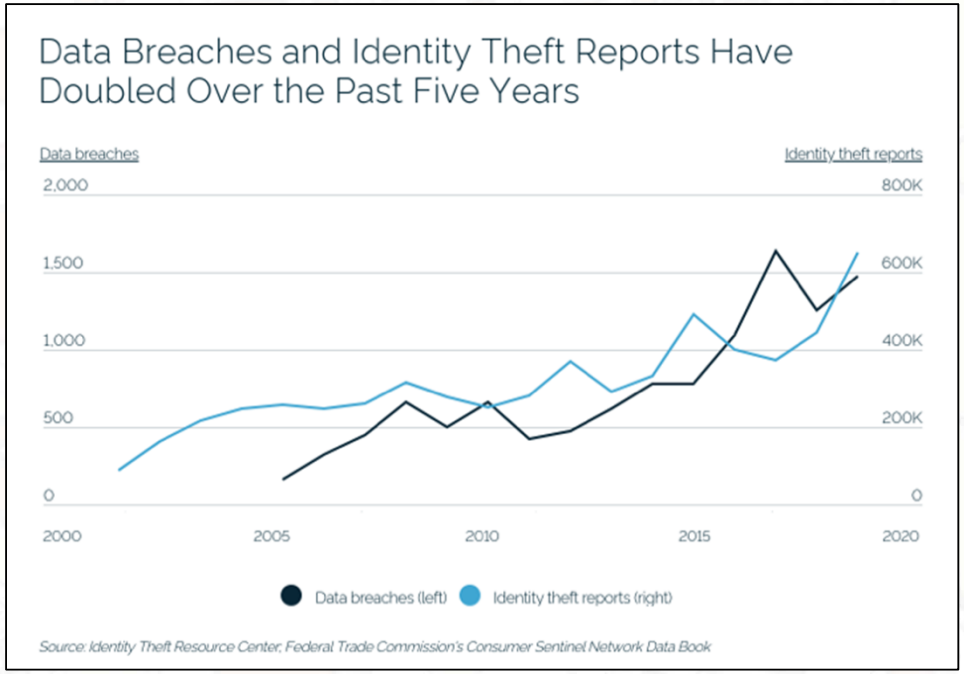




ETL - Extract, Transform, Load

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

BE CONCERNED!



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Technical Excellence Practical Experience Client Responsiveness