Federal GIS Conference

February 9–10, 2015 | Washington, DC

# Designing an Enterprise GIS Strategy

Michael Young & Erin Ross

# Agenda

- Introduction
- Trends
- Strategy
- Compliance
- Mechanisms
- Server
- Cloud
- Esri Managed Cloud Services
- Summary

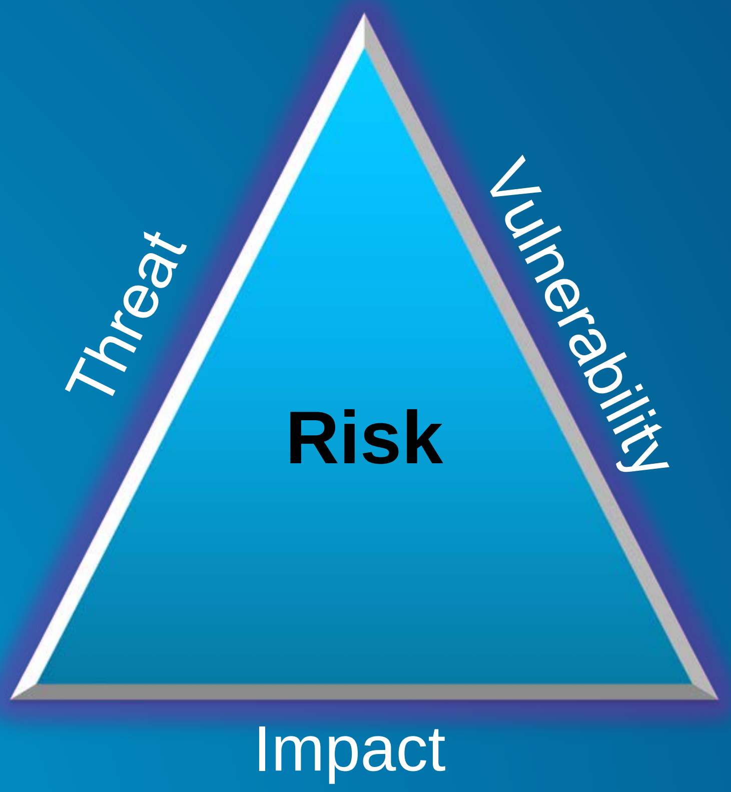
# Introduction

## What is a secure GIS?

FDCC
DIACAP
Directory
HTML5
LDAP
TLS
Active
Administrator
Encryption
JavaScript
Tokens
VPN
Confidentiality
Silverlight
Zero-day
ADF
Availability
Flex
Integrity
SSO
Standards
Cloud
FedRAMP
RBAC
SSL
USGCB
FISMA

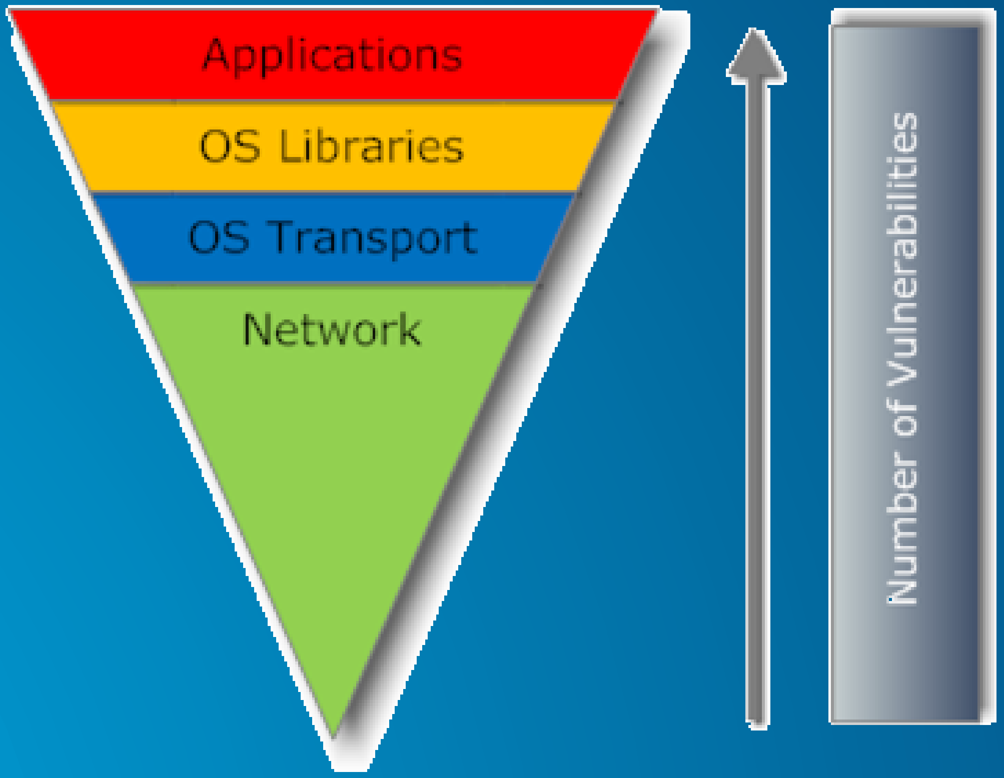
# Introduction

## What is “The” Answer?



# Introduction

## Where are the vulnerabilities?



*SANS Relative Vulnerabilities

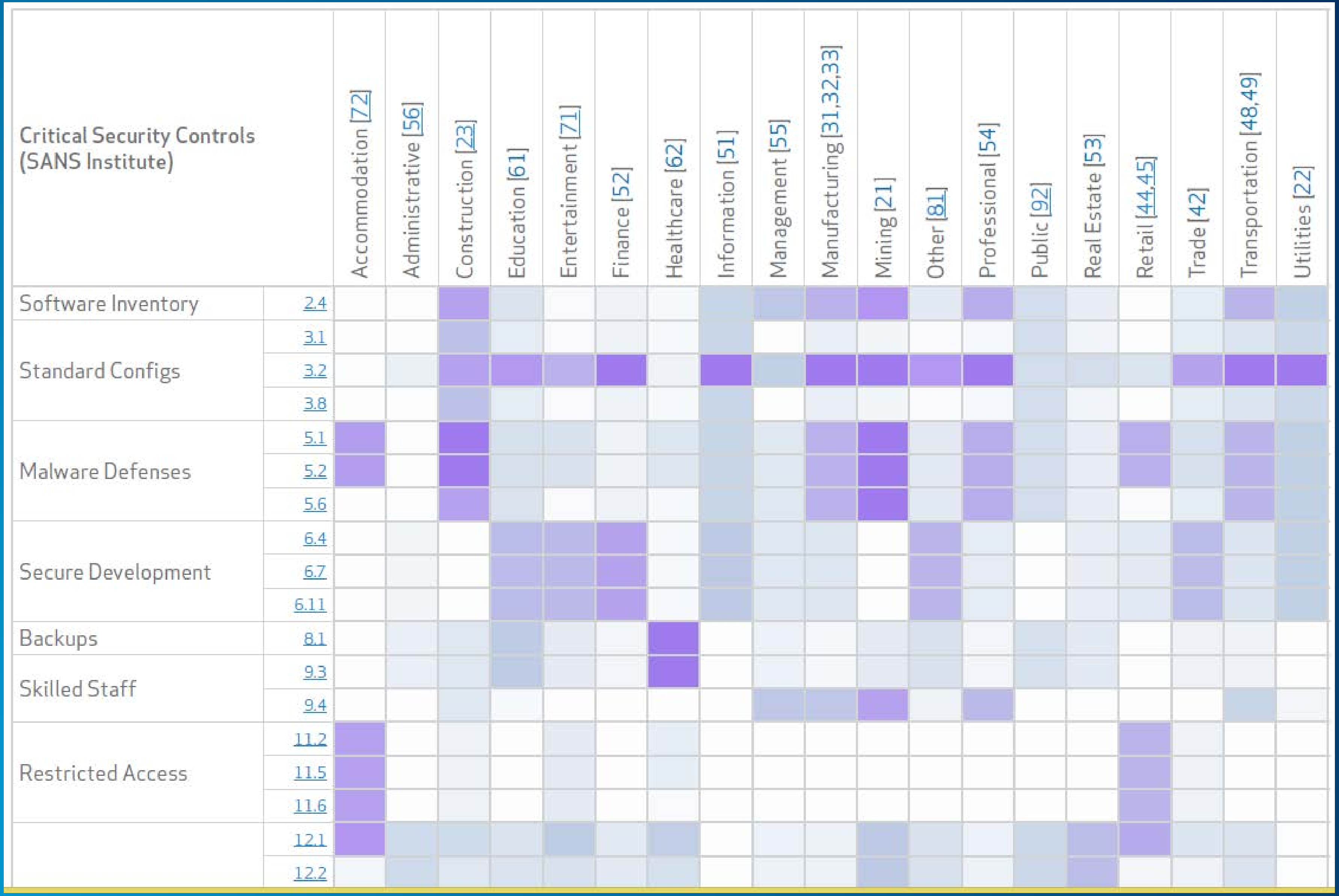
*Application security is critical, but 2014 was a banner year for high visibility, low level component vulnerabilities*

# Trends

# Trends

## Controls by Industry

- **Frequency of incident patterns by industry drives new security control recommendations by industry**
- **Focus on the right security controls**
- **Utilize software vendor security hardening guidelines**



* Verizon 2014 DBIR

# Trends

## Open source security component vulnerability affects 2/3rd of web services

- Scenario
  - ✘ OpenSSL vulnerability (HeartBleed)
  - ✘ ArcGIS Online was indirectly exposed through utilization of Amazon's Elastic Load Balancer
    - ✓ AWS patch their ELB systems within a day of the vulnerability announcement
  - ✓ Many pre 10.3 ArcGIS components contain the vulnerable version, but do not utilize the vulnerable function
  - ✓ ArcGIS Server for Linux before 10.3 was vulnerable (Patch available for 10.1SP1 and later)

- Lessons learned
  - 3rd party / open source components are immersive across cloud and on-premises
  - Many organizations still don't have effective patch management for these underlying components
  - Don't rely on only 1 layer of security, as no individual layer is full-proof
  - Since Heartbleed, other vulnerabilities have been publicized (Shellshock, POODLE, GHOST)
    - Use the Trust.ArcGIS.com to identify how they may affect the ArcGIS Platform

*Lack of appropriate funding slows resolution of vulnerabilities*

# Trends

## 2015 and beyond

- Focus shifting from network perimeter to data
  - Drives need for stronger authentication of who is accessing the data
- Mobile malware continues to grow
- APTs and malware diversification
- Unpatched systems (Windows XP end-of-life)
- Hacking the Internet of Things

# Strategy

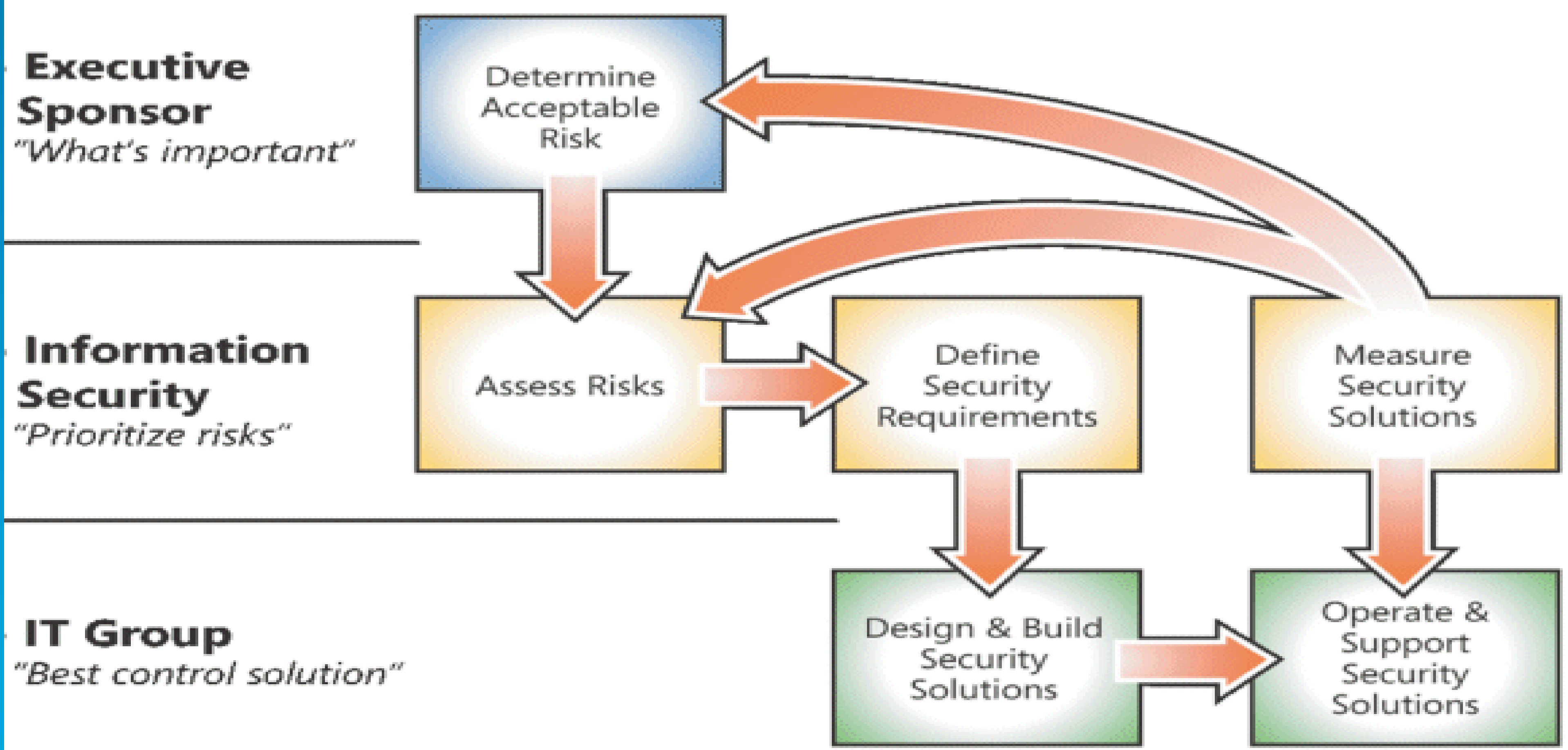
# Strategy

## A better answer

- Identify your security needs
  - Assess your environment
    - Datasets, systems, users
    - Data categorization and sensitivity
    - Understand your industry attacker motivation
- Understand security options
  - Trust.arcgis.com
  - Enterprise-wide security mechanisms
  - Application specific options
- Implement security as a business enabler
  - Improve appropriate availability of information
  - Safeguards to prevent attackers, not employees

# Strategy

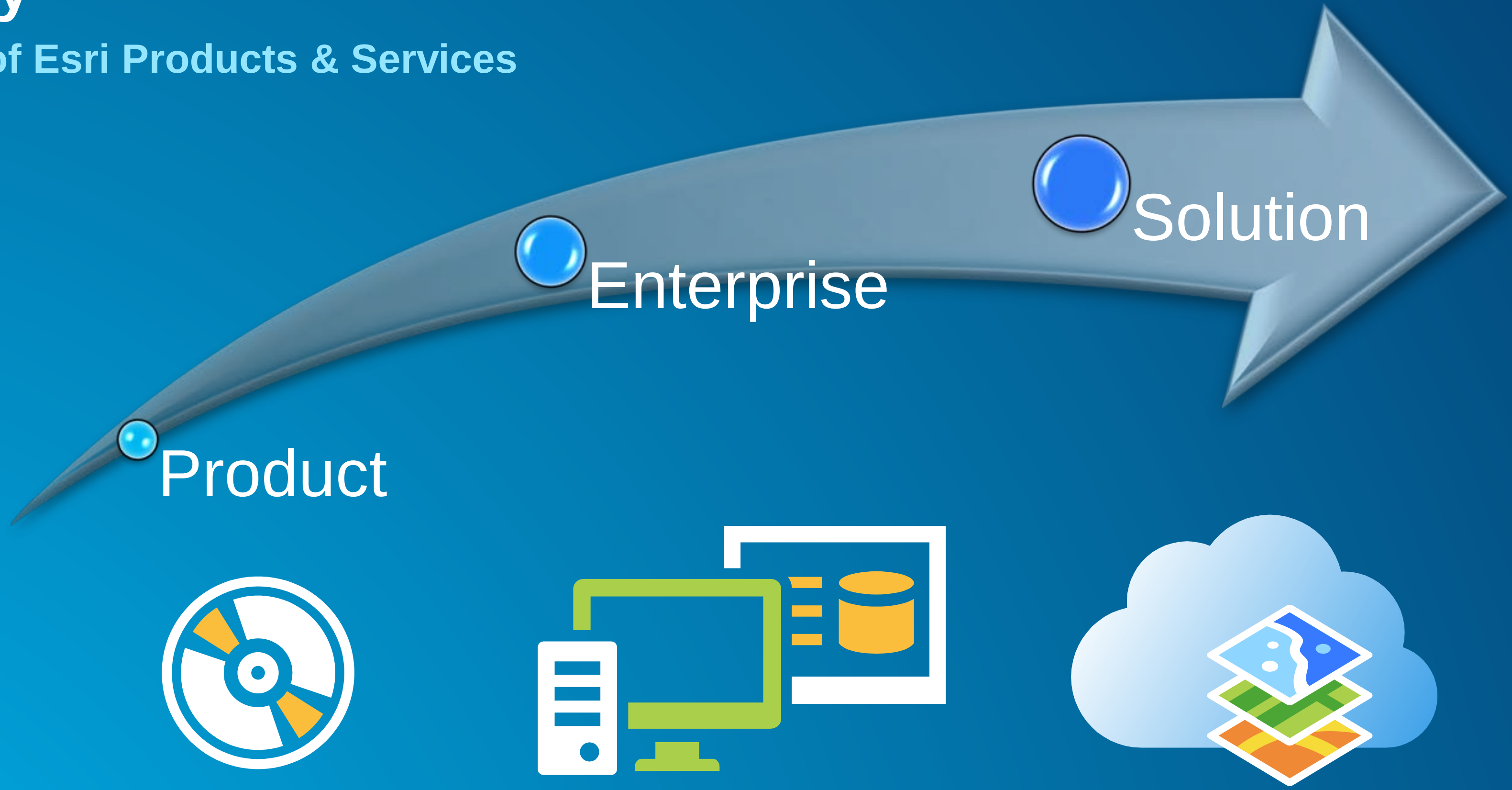
## Enterprise GIS Security Strategy


Executive Sponsor
"What's important"
Information Security
"Prioritize risks"
IT Group
"Best control solution"
Determine Acceptable Risk
Assess Risks
Define Security Requirements
Measure Security Solutions
Design & Build Security Solutions
Operate & Support Security Solutions

*Security Risk Management Process Diagram - Microsoft*

# Strategy

## Evolution of Esri Products & Services



Product

Enterprise

Solution

Isolated Systems

3rd Party Security

Integrated Systems

Embedded Security

Software as a Service

Managed Security

# Strategy

## Esri Products and Solutions

- Secure Products
  - Trusted geospatial services
  - Individual to organizations
  - 3rd party assessments
- Secure Enterprise Guidance
  - Trust.ArcGIS.com site
  - Online Help
- Secure Platform Management
  - SaaS Functions & Controls
  - Security compliance & authorization

Trust ArcGIS

FedRAMP

FISMA Authorization & Accreditation

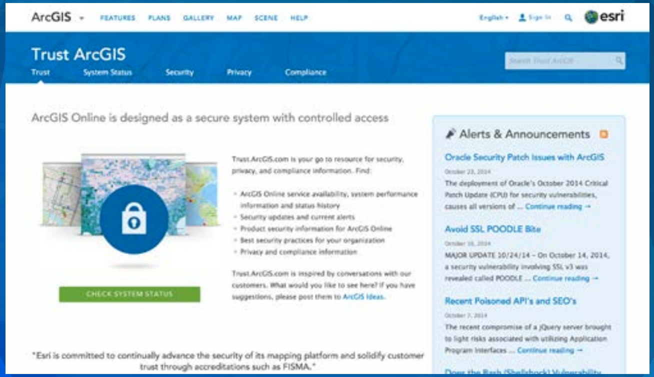
# Strategy

## Creating a Trusted Geospatial Platform

### Expanding Capabilities

- Custom Roles
- Multi-Factor
- SAML
- DISA STIG

### Transparency



ArcGIS Online is designed as a secure system with controlled access

Trust.ArcGIS.com is your go to resource for security, privacy, and compliance information. Find:

- ArcGIS Online service availability, system performance information and status history
- Security updates and current alerts
- Product security information for ArcGIS Online
- Best security practices for your organization
- Privacy and compliance information

Trust.ArcGIS.com is inspired by conversations with our customers. What would you like to see here? If you have suggestions, please post them to ArcGIS Ideas.

"Esri is committed to continually advance the security of its mapping platform and solidify customer trust through accreditations such as FISMA."

Alerts & Announcements

Oracle Security Patch Issues with ArcGIS

October 23, 2014

The deployment of Oracle's October 2014 Critical Patch Update (CPU) for security vulnerabilities, causes all versions of ... Continue reading →

Avoid SSL POODLE Bite

October 16, 2014

MAJOR UPDATE 10/24/14 – On October 14, 2014, a security vulnerability involving SSL v3 was revealed called POODLE ... Continue reading →

Recent Poisoned API's and SEO's

October 7, 2014

The recent compromise of a jQuery server brought to light risks associated with utilizing Application Program Interfaces ... Continue reading →

Does the Bash (Shellshock) Vulnerability

Trust.ArcGIS.com

### 3rd Party Assurance

**Esri Managed Cloud Services**

FedRAMP

Moderate Compliant

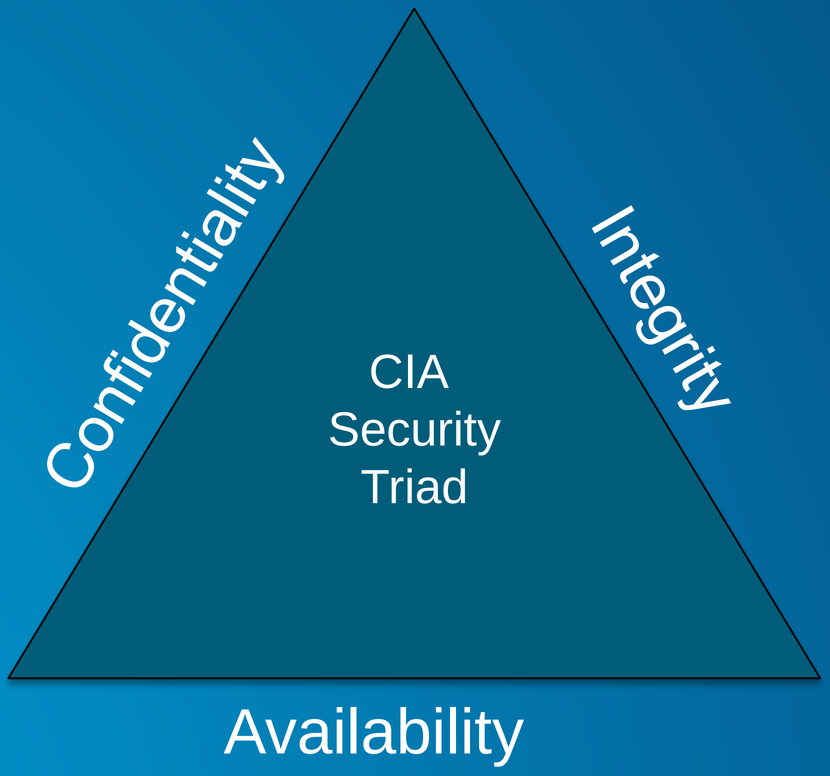
**ArcGIS Online**

FISMA Authorization & Accreditation

Low Authorized

# Strategy

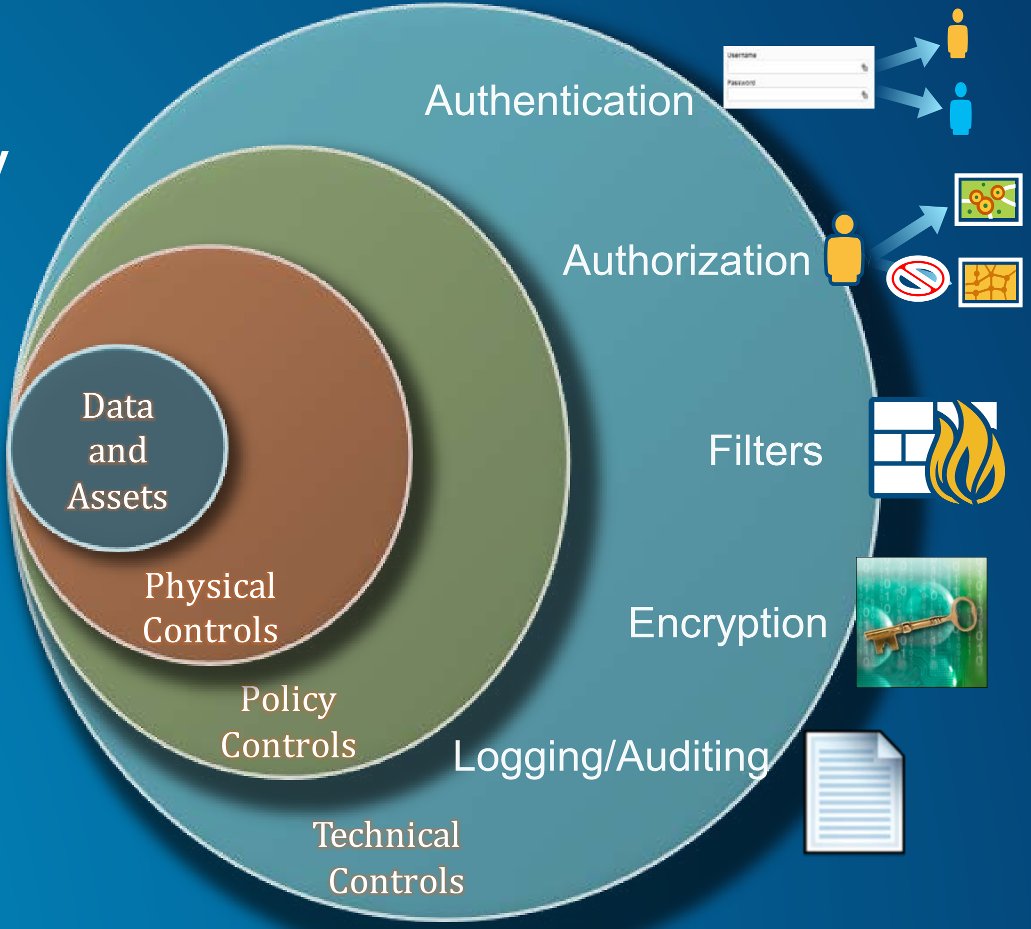
## Security Principles



# Strategy

## Defense in Depth

- **More layers does NOT guarantee more security**
- **Understand how layers/technologies integrate**
- **Simplify**
- **Balance People, Technology, and Operations**
- **Holistic approach to security**



# Compliance

# Compliance

## Corporate Operations

- ISO 27001
  - Esri’s Corporate Security Charter
- Privacy Assurance
  - US EU/Swiss SafeHarbor self-certified
  - TRUSTed cloud certified
- SSAE 16 Type 1 – Previously SAS 70
  - Esri Data Center Operations
  - Expanded to Managed Services in 2012

US • EU
SAFEHARBOR
US DEPARTMENT OF COMMERCE

TRUSTe
CERTIFIED PRIVACY

SSAE-16
AUDITED ✓

# Compliance

## Products and Services

- ArcGIS Online
  - FISMA Low – Authority To Operate (ATO) by USDA
  - FedRAMP - Upcoming
- Esri Managed Cloud Services (EMCS)
  - FedRAMP Moderate (Jan 2015)
- ArcGIS Desktop
  - FDCC (versions 9.3-10)
  - USGCB (versions 10.1+)
  - ArcGIS Pro (Expected Q1 2015)

# Compliance

## Cloud Infrastructure Providers

- **ArcGIS Online Utilizes World-Class Cloud Infrastructure Providers**
  - **Microsoft Azure**
  - **Amazon Web Services**

### Cloud Infrastructure Security Compliance

AICPA Service Organization Control Reports
AICPA
SERVICE ORGANIZATIONS
SOC
aicpa.org/soc
Formerly SAS 70 Reports

SSAE16
SOC1 Type2

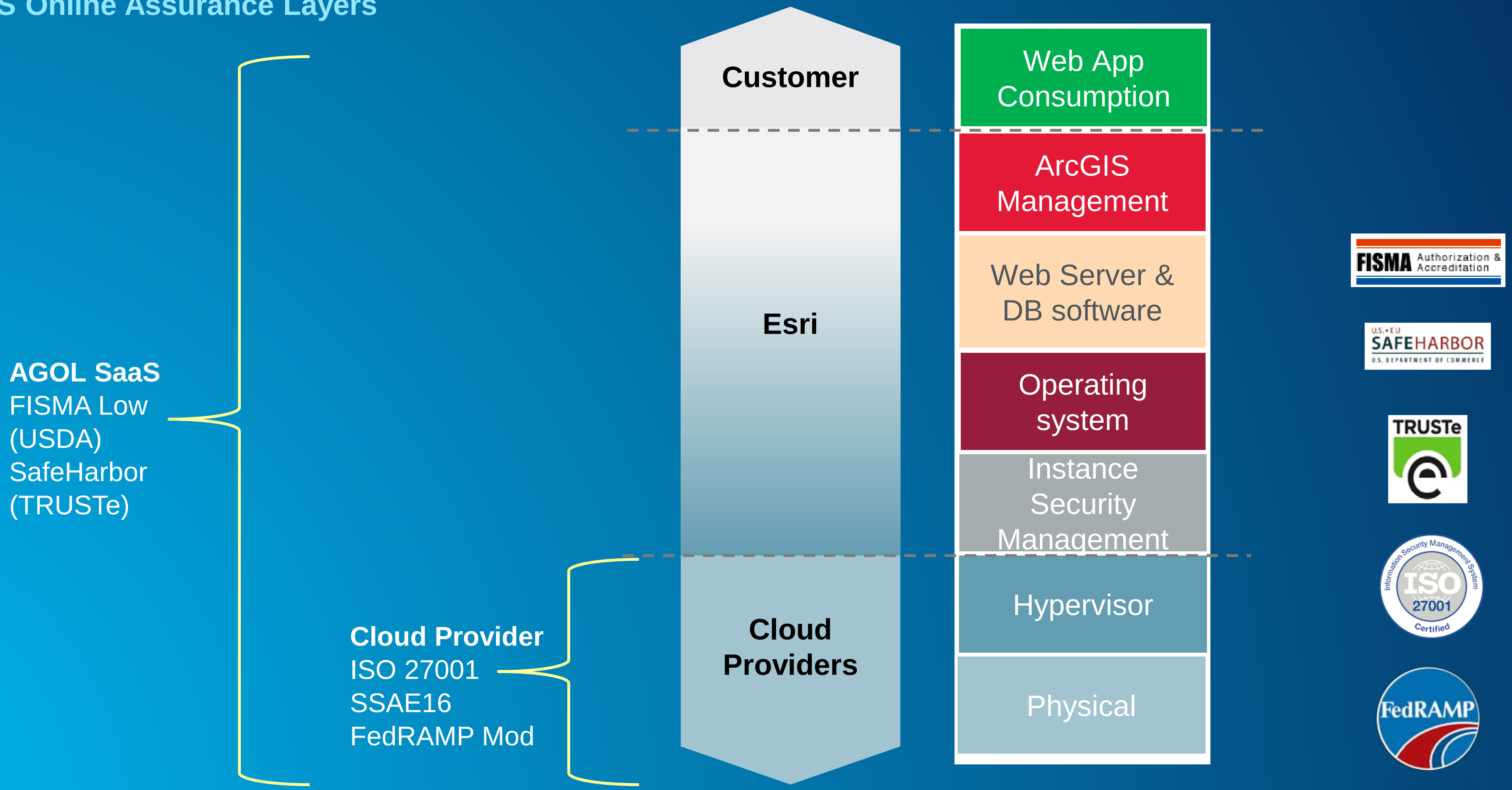
Information Security Management System
ISO
27001
Certified

EXECUTIVE OFFICE OF THE PRESIDENT OF THE UNITED STATES
GSA
CIO COUNCIL
FedRAMP
DEPARTMENT OF DEFENSE UNITED STATES OF AMERICA
NIST
U.S. DEPARTMENT OF HOMELAND SECURITY

Moderate

# Compliance

## ArcGIS Online Assurance Layers



**AGOL SaaS**
FISMA Low (USDA)
SafeHarbor (TRUSTe)

**Cloud Provider**
ISO 27001
SSAE16
FedRAMP Mod

Customer

Esri

Cloud Providers

Web App Consumption

ArcGIS Management

Web Server & DB software

Operating system

Instance Security Management

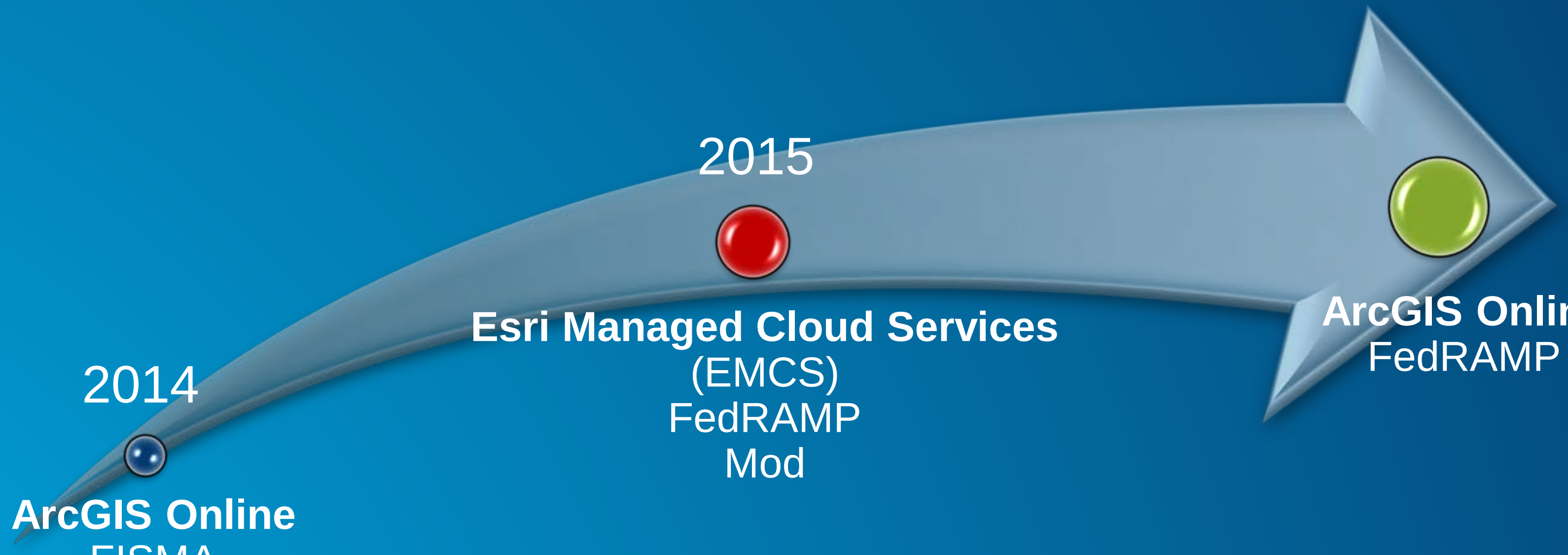
Hypervisor

Physical

FISMA Authorization & Accreditation
U.S.-EU SAFEHARBOR U.S. DEPARTMENT OF COMMERCE
TRUSTe
Information Security Management System ISO 27001 Certified
FedRAMP

# Compliance

## Roadmap



2014

**ArcGIS Online**
FISMA
Low

2015

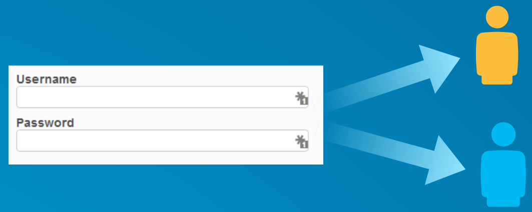
**Esri Managed Cloud Services**
(EMCS)
FedRAMP
Mod

**ArcGIS Online**
FedRAMP

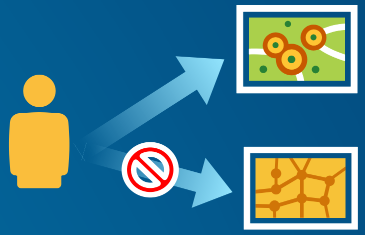
# Mechanisms

LDAP
Advanced
Non-Repudiation
SSL
Logging
Directory
Encryption
VPN
Web-Adapter
3rdParty
Token
TDE
Filters
Integrated
Authentication
COTS
Basic
HTTPS
WAF
SSO
SAML
Authorization

# Mechanisms



Authentication



Authorization

Filters

Encryption

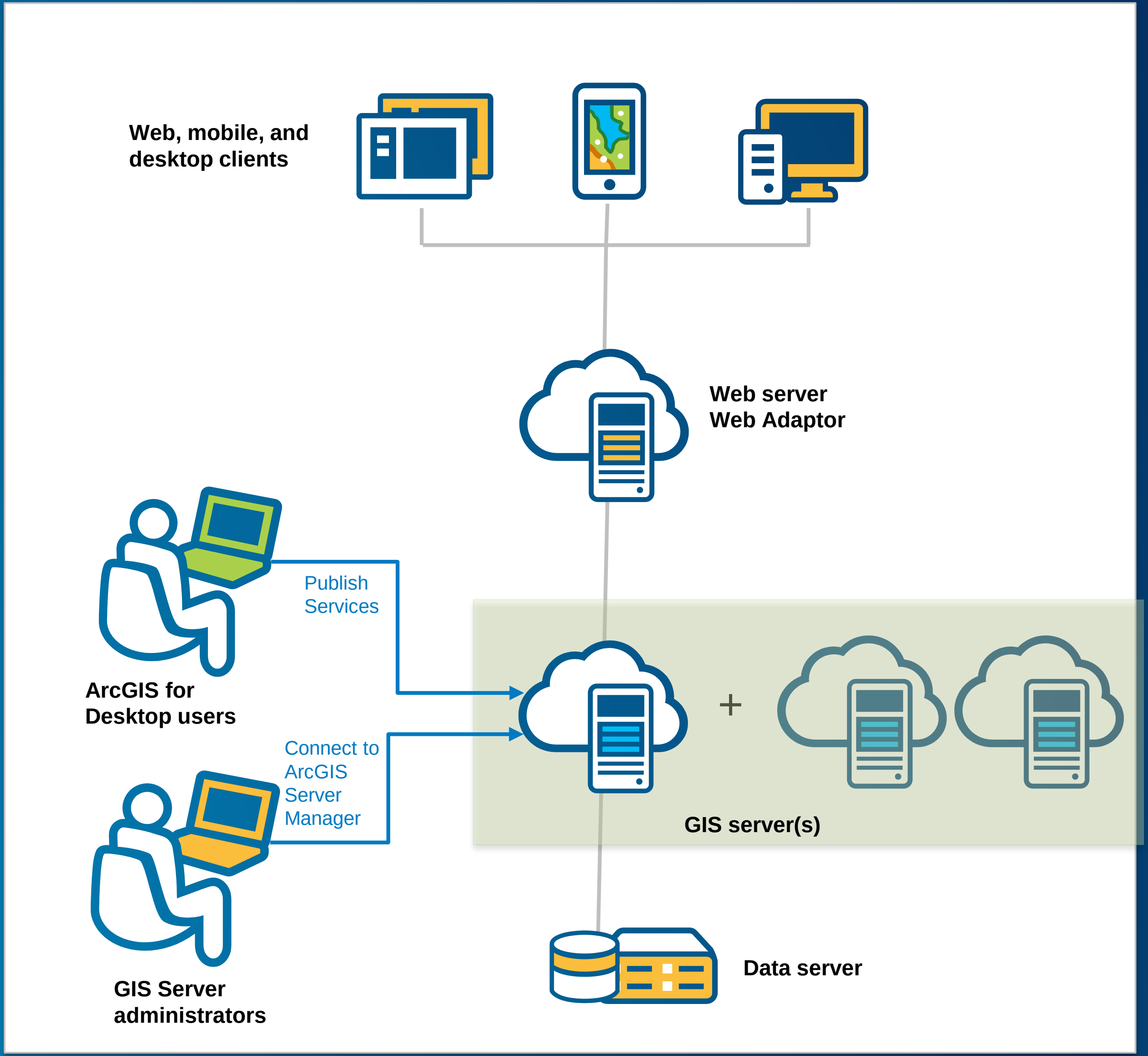
Logging/Auditing

# Mechanisms

## Authentication

- GIS Tier  (Default)
  - Built-in User store
  - Enterprise (AD / LDAP)
  - ArcGIS Tokens

- Web Tier (Add web adaptor)
  - Enterprise (AD / LDAP)
  - Any authentication supported by web server
    - HTTP Basic / Digest
    - PKI
    - Windows Integrated


Web, mobile, and desktop clients
Web server
Web Adaptor
Publish Services
ArcGIS for Desktop users
Connect to ArcGIS Server Manager
+
GIS server(s)
GIS Server administrators
Data server

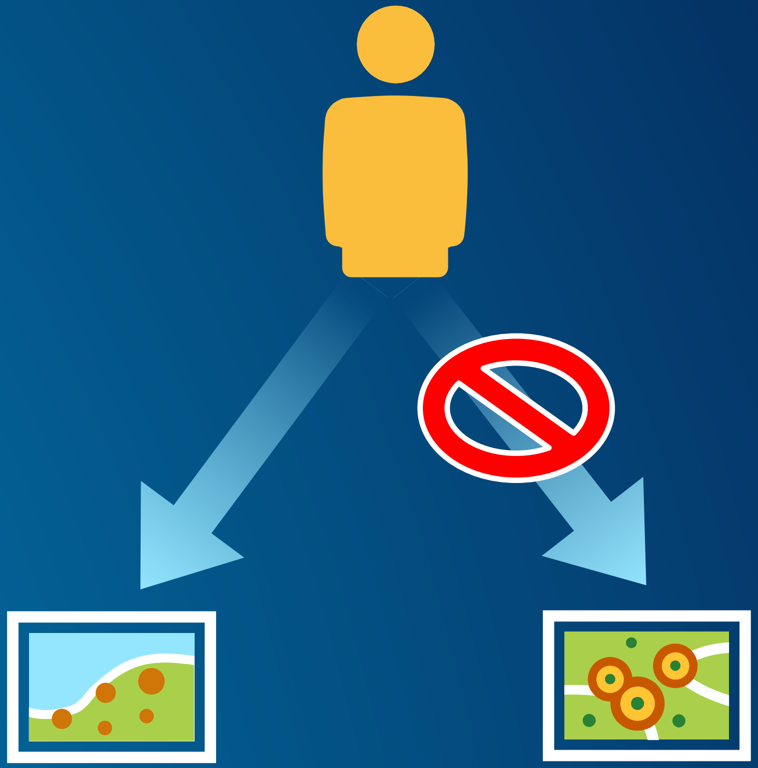
# Mechanisms

## Authorization – Role-Based Access Control

- Esri COTS
  - Assign access with ArcGIS Manager
  - Service Level Authorization across web interfaces
  - Services grouped in folders utilizing inheritance

- 3rd Party
  - Web Services – Conterra's Security Manager (more granular)
  - RDBMS – Row Level or Feature Class Level
    - Versioning with Row Level degrades RDBM performance
    - Alternative - SDE Views

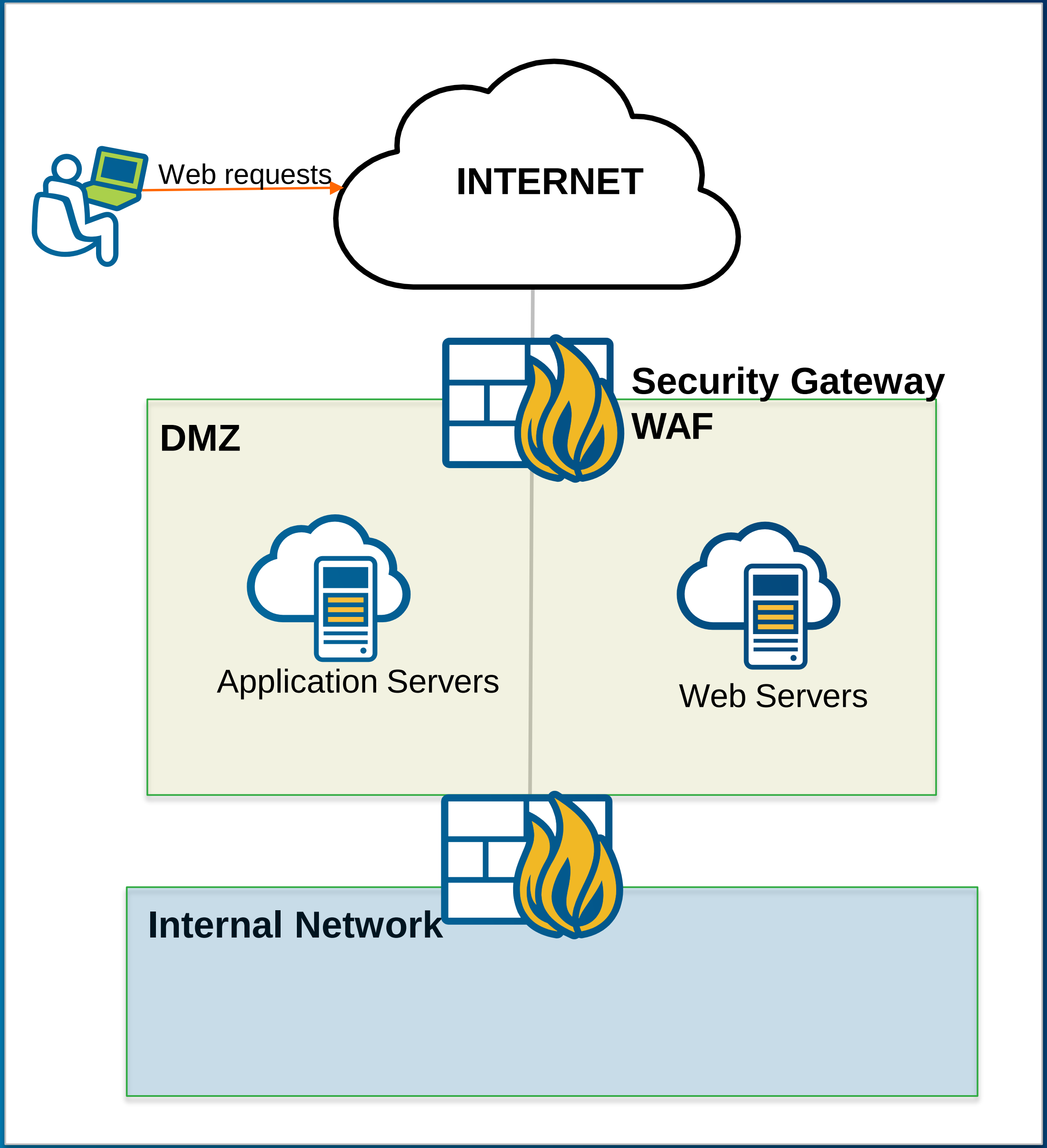
- URL Based authorization
  - IIS 7.0 and above
  - Authorization based on the URL itself



# Mechanisms

## Filters – 3rd Party Options

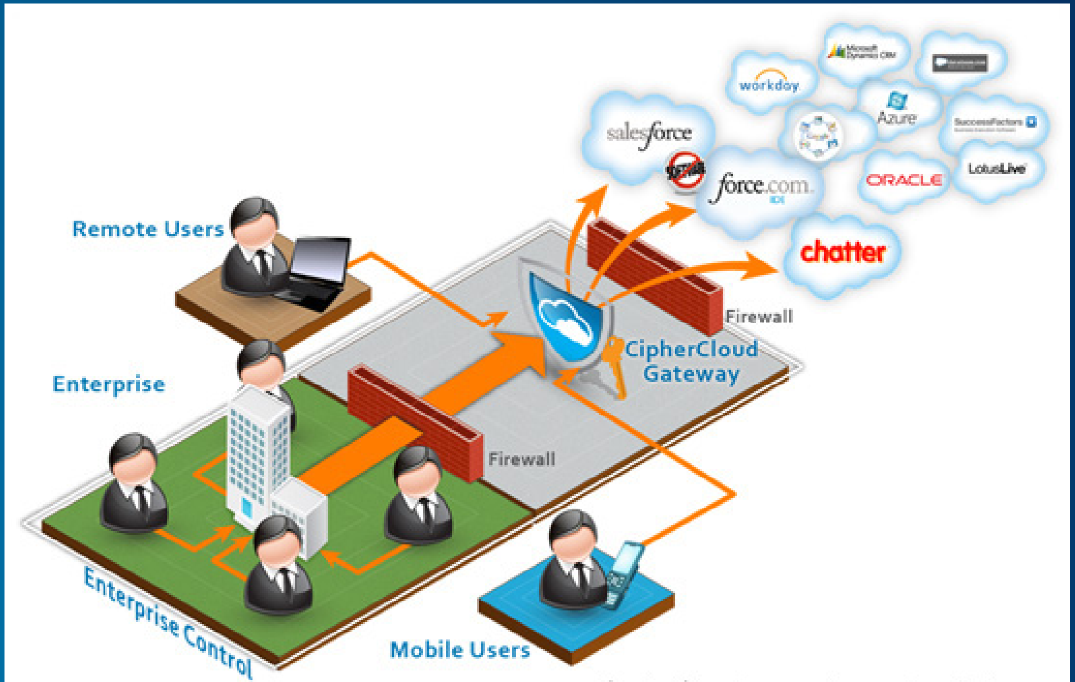
- Firewalls
- Reverse Proxy
- Web Application Firewall (WAF)
- Anti-Virus Software
- Intrusion Detection / Prevention Systems



# Mechanisms

## Encryption – 3rd Party Options

- Network
  - IPSec (VPN, Internal Systems)
  - SSL (Internal and External System)
  - Cloud Encryption Gateways
    - Only encrypted datasets sent to cloud



CipherCloud encrypts sensitive data in real-time, before it's sent to the cloud.

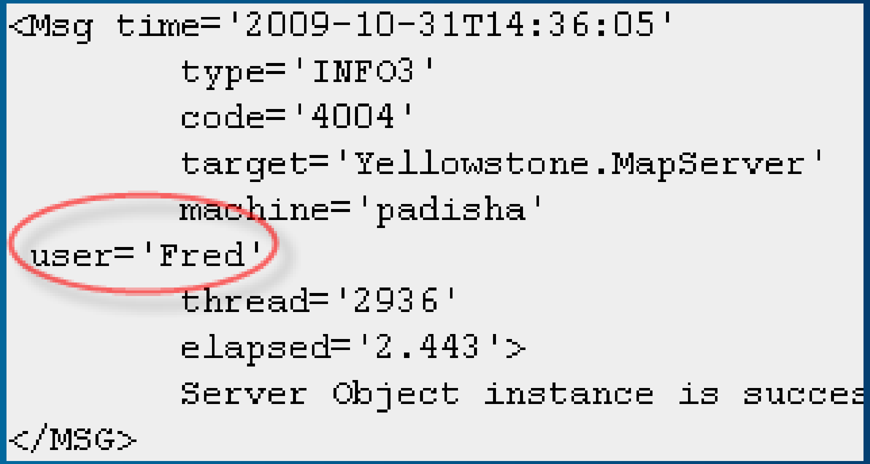
- File Based
  - Operating System – BitLocker
  - GeoSpatially enabled PDF’s combined with Digital Rights Management
  - Hardware (Disk)

- RDBMS
  - Transparent Data Encryption (TDE)
  - Low Cost Portable Solution - SQL Express 2012 w/TDE

# Mechanisms

## Logging/Auditing

- Esri COTS
  - Geodatabase history
    - May be utilized for tracking changes
  - ArcGIS Workflow Manager
    - Track Feature based activities
  - ArcGIS Server 10+ Logging
    - “User” tag tracks user requests
- 3rd Party
  - Web Server, RDBMS, OS, Firewall
  - Consolidate with a SIEM
- 3rd party geospatial service monitors
  - Upcoming – GIS Management pack for MS System Center
  - Esri – System Monitor
  - Vestra – GeoSystems Monitor
  - Geocortex Optimizer

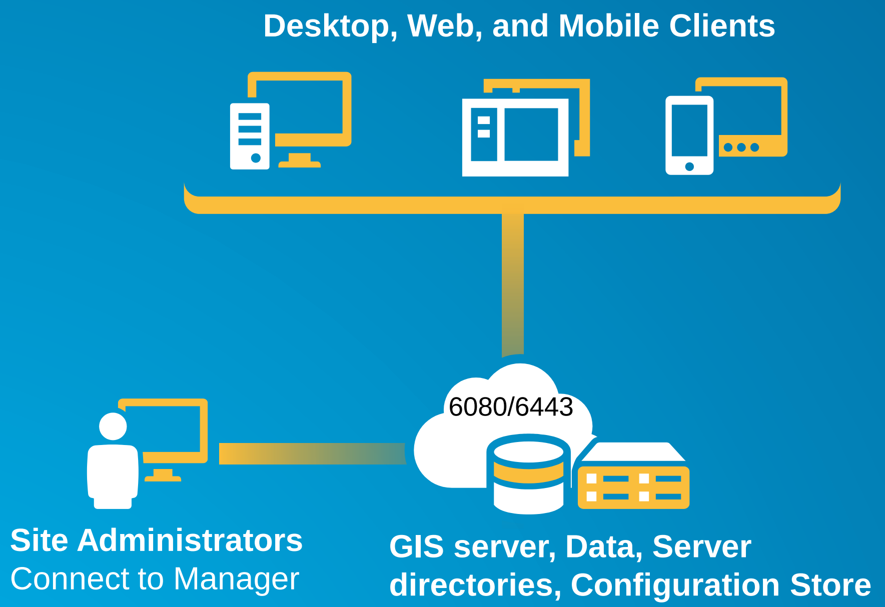


```
<Msg time='2009-10-31T14:36:05'
        type='INFO3'
        code='4004'
        target='Yellowstone.MapServer'
        machine='padisha'
 user='Fred'
        thread='2936'
        elapsed='2.443'>
        Server Object instance is succes
</MSG>
```

# ArcGIS Server

# ArcGIS Server

## Single ArcGIS Server machine



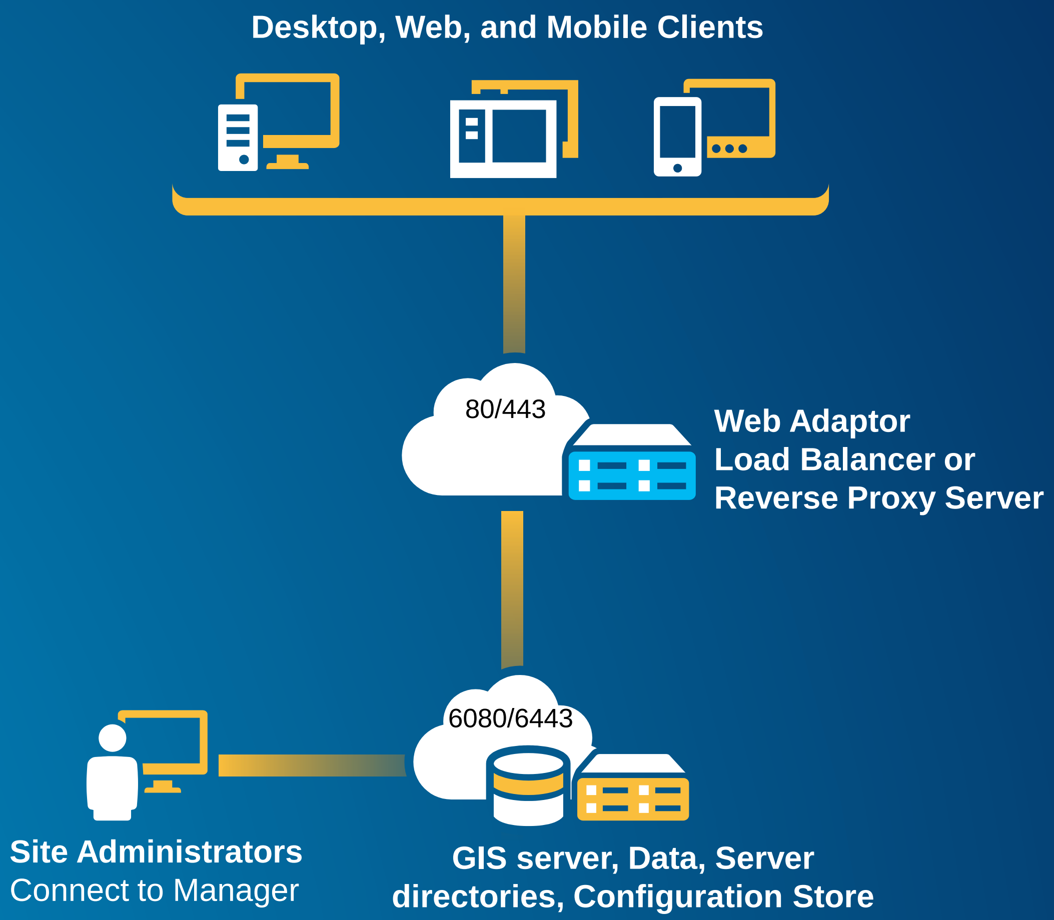
Desktop, Web, and Mobile Clients

6080/6443

Site Administrators
Connect to Manager

GIS server, Data, Server directories, Configuration Store

**Simplified Development/Test Environment (ArcGIS Token Security)**



Desktop, Web, and Mobile Clients

80/443

Web Adaptor
Load Balancer or
Reverse Proxy Server

6080/6443

Site Administrators
Connect to Manager

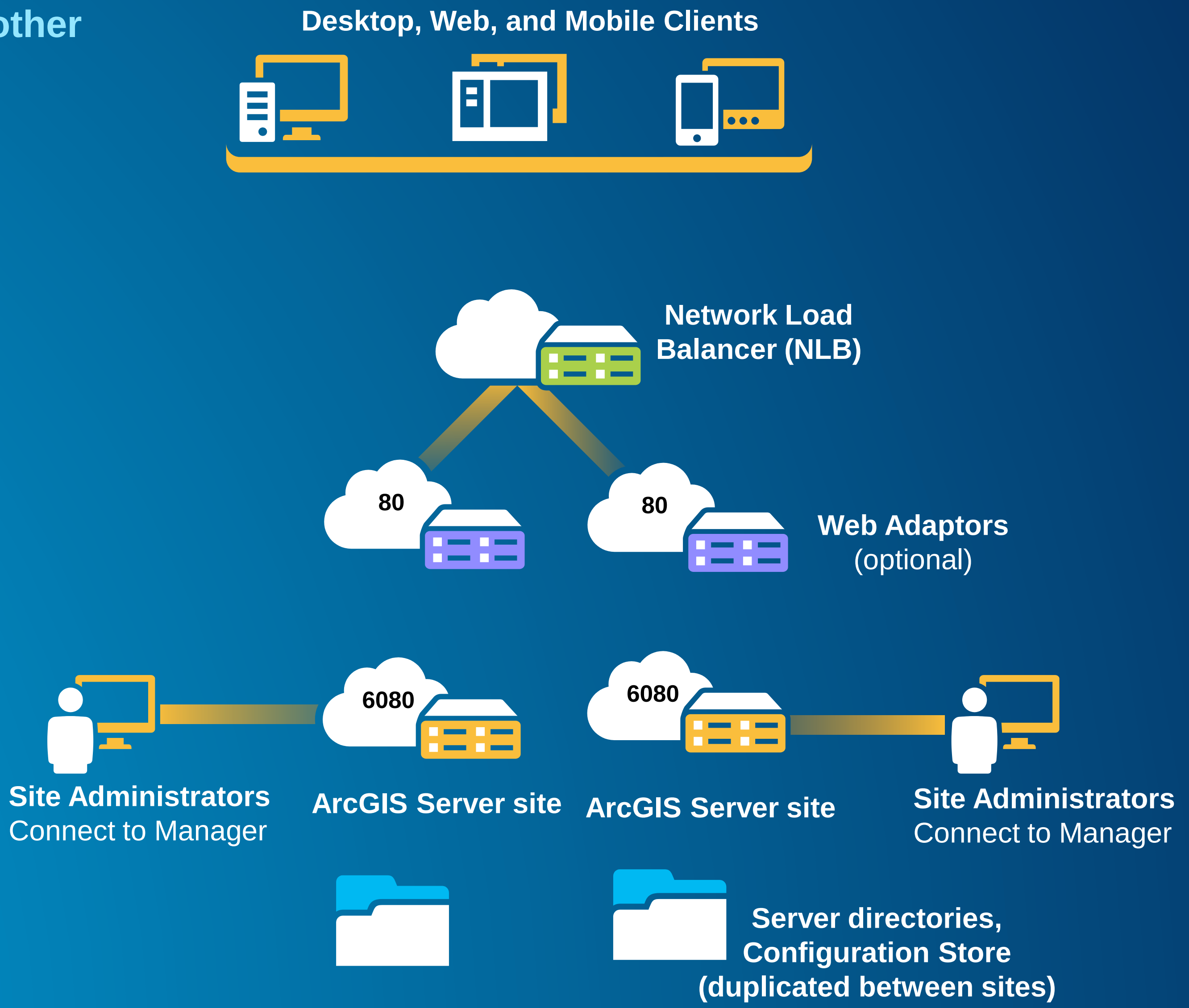
GIS server, Data, Server directories, Configuration Store

**Front-end GIS Server with Web Adaptor & take advantage of Web tier authentication (Integrated, Digest, Basic)**

# ArcGIS Server

## ArcGIS Server HA - Sites independent of each other

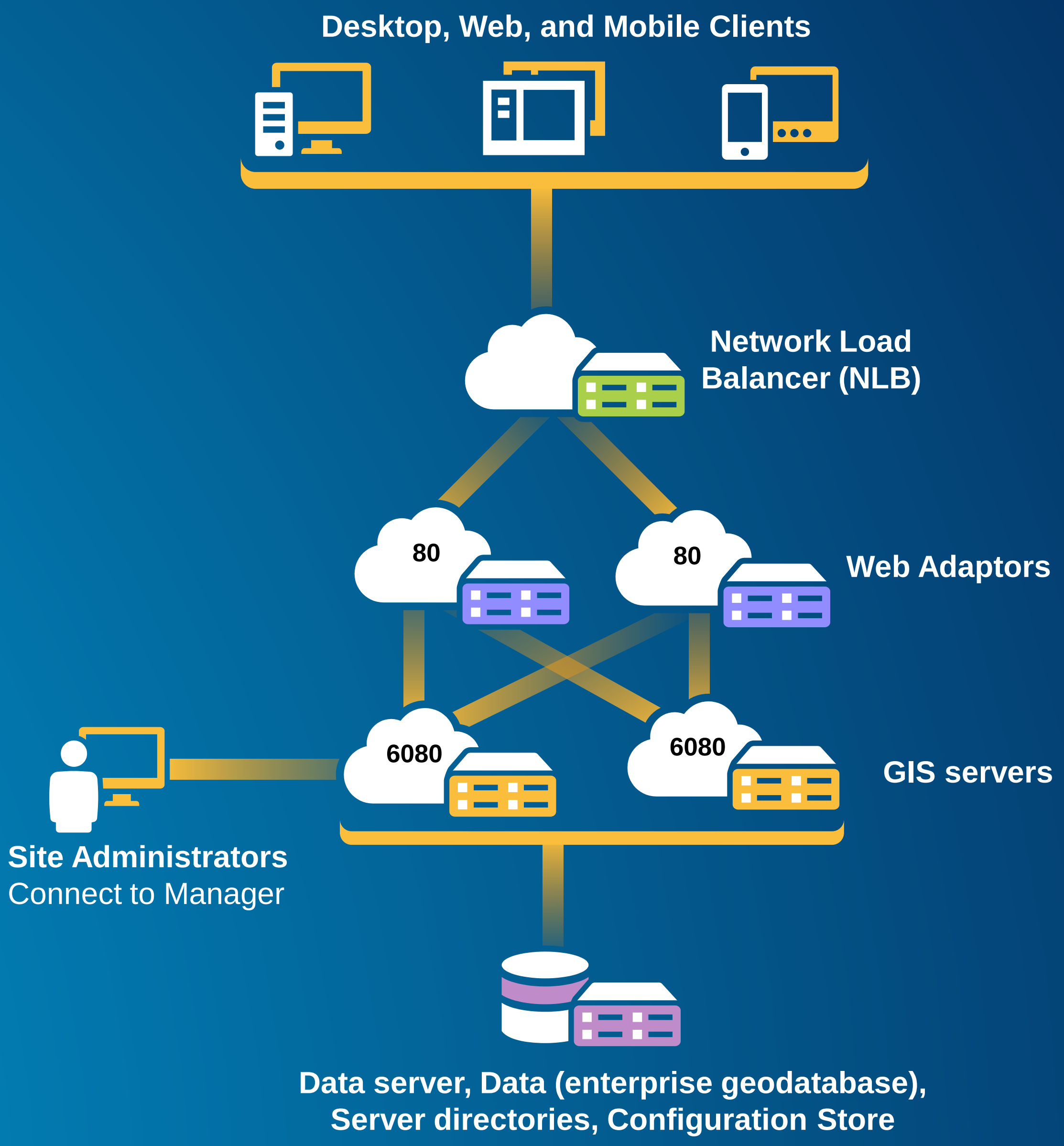
- Active-active configuration is shown
  - Active-passive is also an option
- Separate configuration stores and management
  - Scripts can be used to synchronize
- Cached map service for better performance
- Load balancer to distribute load



# ArcGIS Server

## ArcGIS Server HA – Shared configuration store

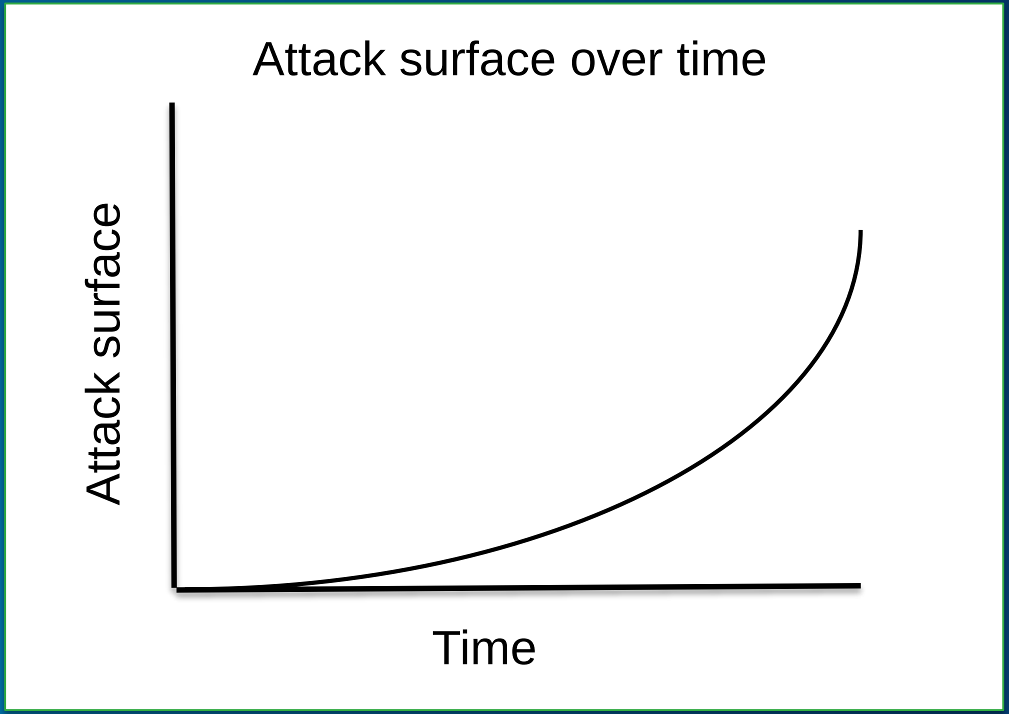
- Shared configuration store
- Web Adaptor will redirect if server fails
- Config change could affect whole site
  - Example: publishing a service
- Test configuration changes


Desktop, Web, and Mobile Clients
Network Load Balancer (NLB)
80
80
Web Adaptors
6080
6080
GIS servers
Site Administrators
Connect to Manager
Data server, Data (enterprise geodatabase), Server directories, Configuration Store

# ArcGIS Server

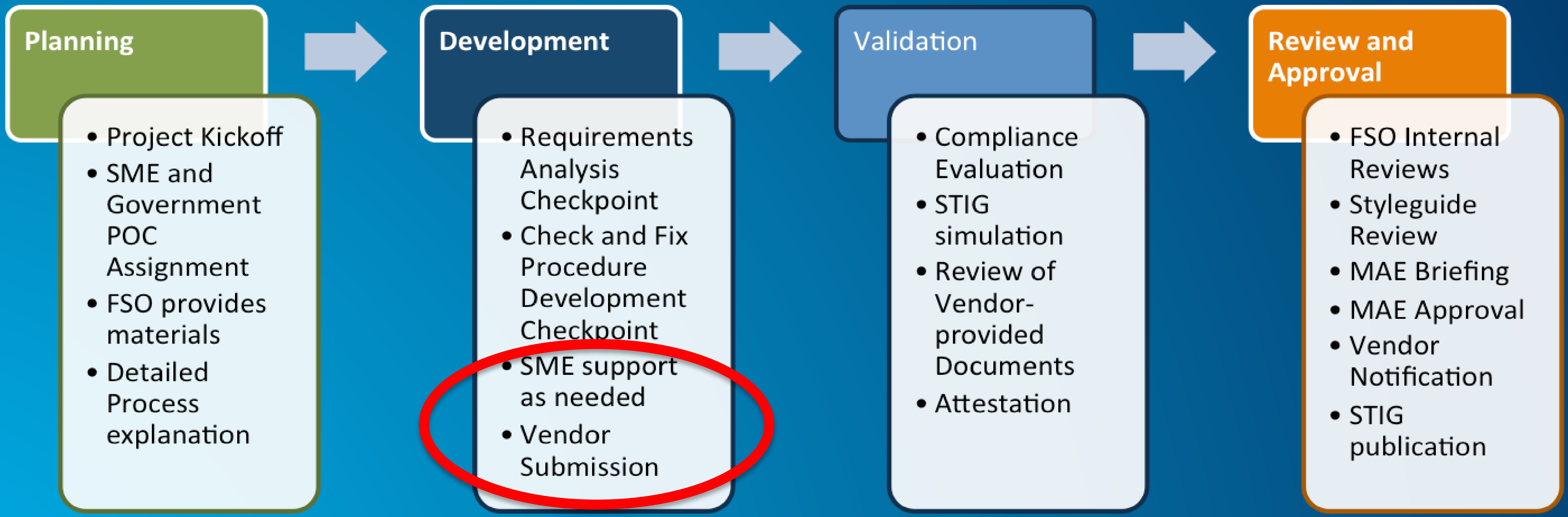
## Minimize Attack Surface

- Don’t expose Server Manager to public
- Disable Services Directory
- Disable Service Query Operation (as feasible)
- Enable Web Service Request Filtering
  - Windows 2008 R2+ Request Filtering
  - XML Security Gateway
  - Does not intercept POST requests
  - REST API only requires GET and HEAD verbs
    - Exception – Utilize POST for token requests
- Limit utilization of commercial databases under website
  - File GeoDatabase can be a useful intermediary (SQL injection does not work)
- Require authentication to services



# ArcGIS Server

## DISA STIG for 10.3



### Planning

- Project Kickoff
- SME and Government POC Assignment
- FSO provides materials
- Detailed Process explanation

### Development

- Requirements Analysis Checkpoint
- Check and Fix Procedure Development Checkpoint
- SME support as needed
- Vendor Submission

### Validation

- Compliance Evaluation
- STIG simulation
- Review of Vendor-provided Documents
- Attestation

### Review and Approval

- FSO Internal Reviews
- Styleguide Review
- MAE Briefing
- MAE Approval
- Vendor Notification
- STIG publication

*Draft STIG Settings Provided to DISA – Undergoing SME Review*

# ArcGIS Server

## Enhancements

- Single-Sign-On (SSO) for Windows Integrated Authentication
  - Works across ArcGIS for Server, Portal, and Desktop
- Stronger PKI validation
  - Leverage multi-factor authentication when accessing applications, computers, and devices
  - Web adaptor deployed to web server forwards to AGS the request and username
- Integrated account management and publishing capabilities
  - Across ArcGIS for Server and Portal in a federated configuration
- Key SQL Injection vulnerabilities addressed
  - Changes made in 10.2 may affect some advanced users that were using database-specific SQL statements in their custom applications
- Add support for
  - Active Directory nested groups & domain forests
  - Configuring Private and Public services within the same ArcGIS Server site

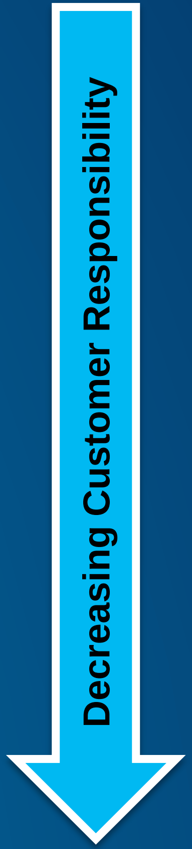
# Cloud

# Cloud

## Service Models

- **On-Premises**
  - Traditional systems infrastructure deployment
  - Portal for ArcGIS & ArcGIS Server
- **IaaS**
  - Portal for ArcGIS & ArcGIS Server
  - Some Citrix / Desktop
- **SaaS**
  - ArcGIS Online
  - Esri Managed Cloud Services

Customer Responsible
End to End

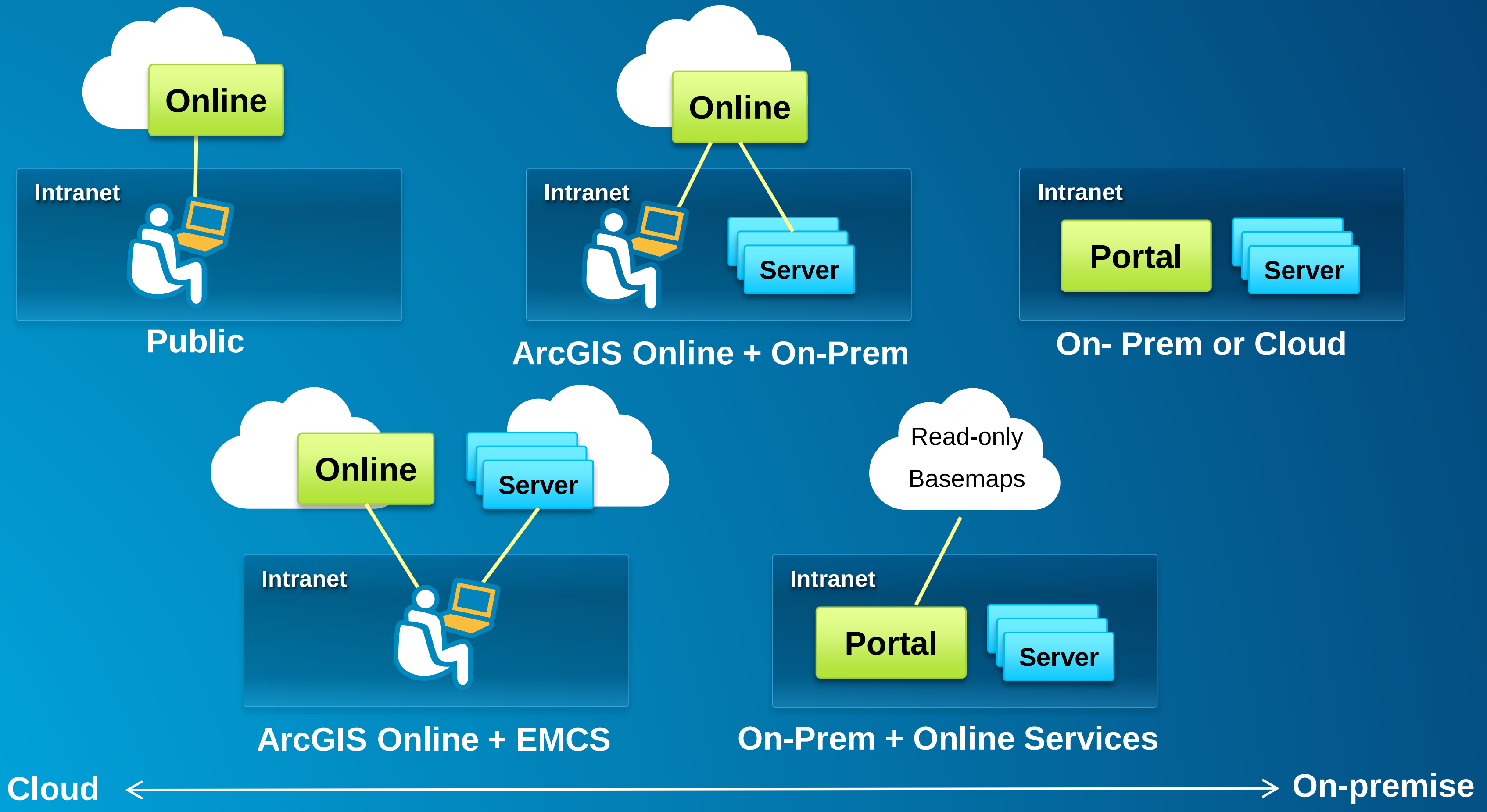


Decreasing Customer Responsibility

Customer Responsible
For Application Settings

# Cloud

## Deployment Models



# Cloud

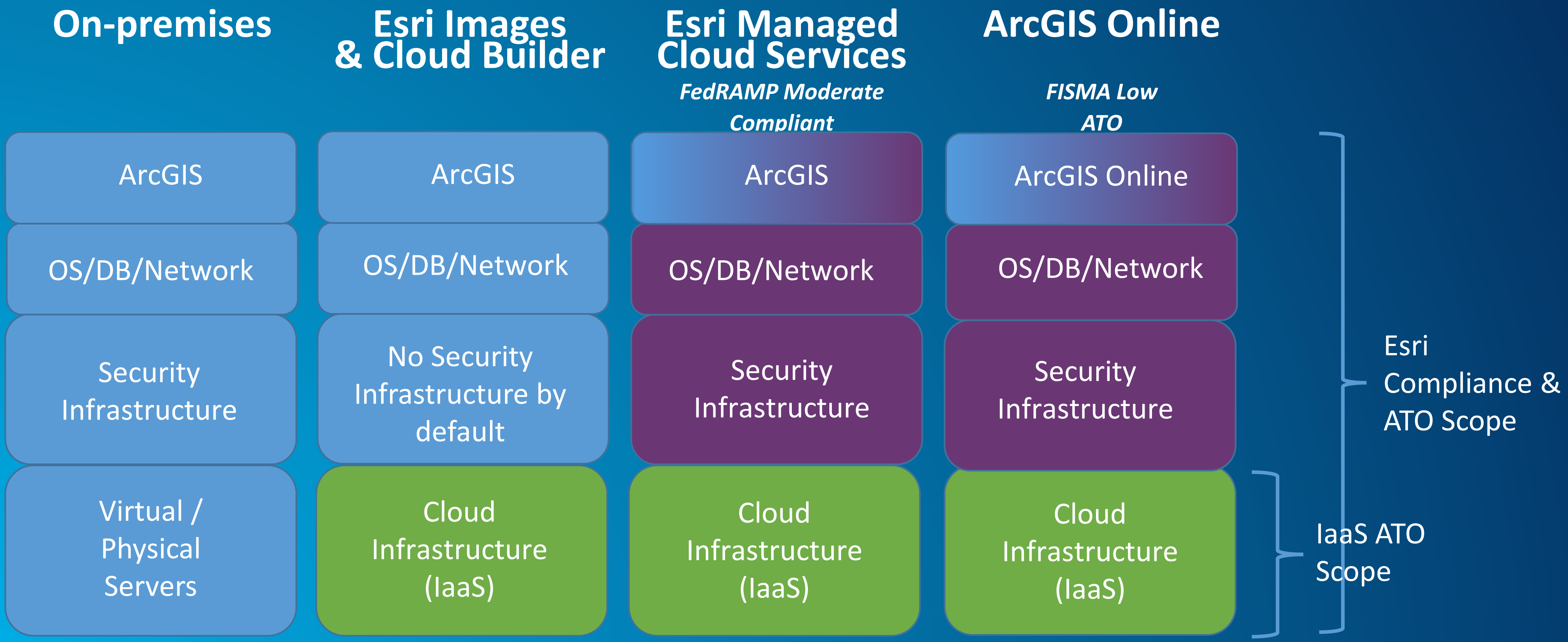
## Management Models

- **Self-Managed**
  - You are responsible for managing IaaS deployment and it’s security

- **Provider Managed**
  - Esri Managed Cloud Services
    - Basic / Advanced / Advanced Plus options
    - New FedRAMP Compliant option part of Advanced Plus

# Cloud

## Responsibility Across Deployment Options



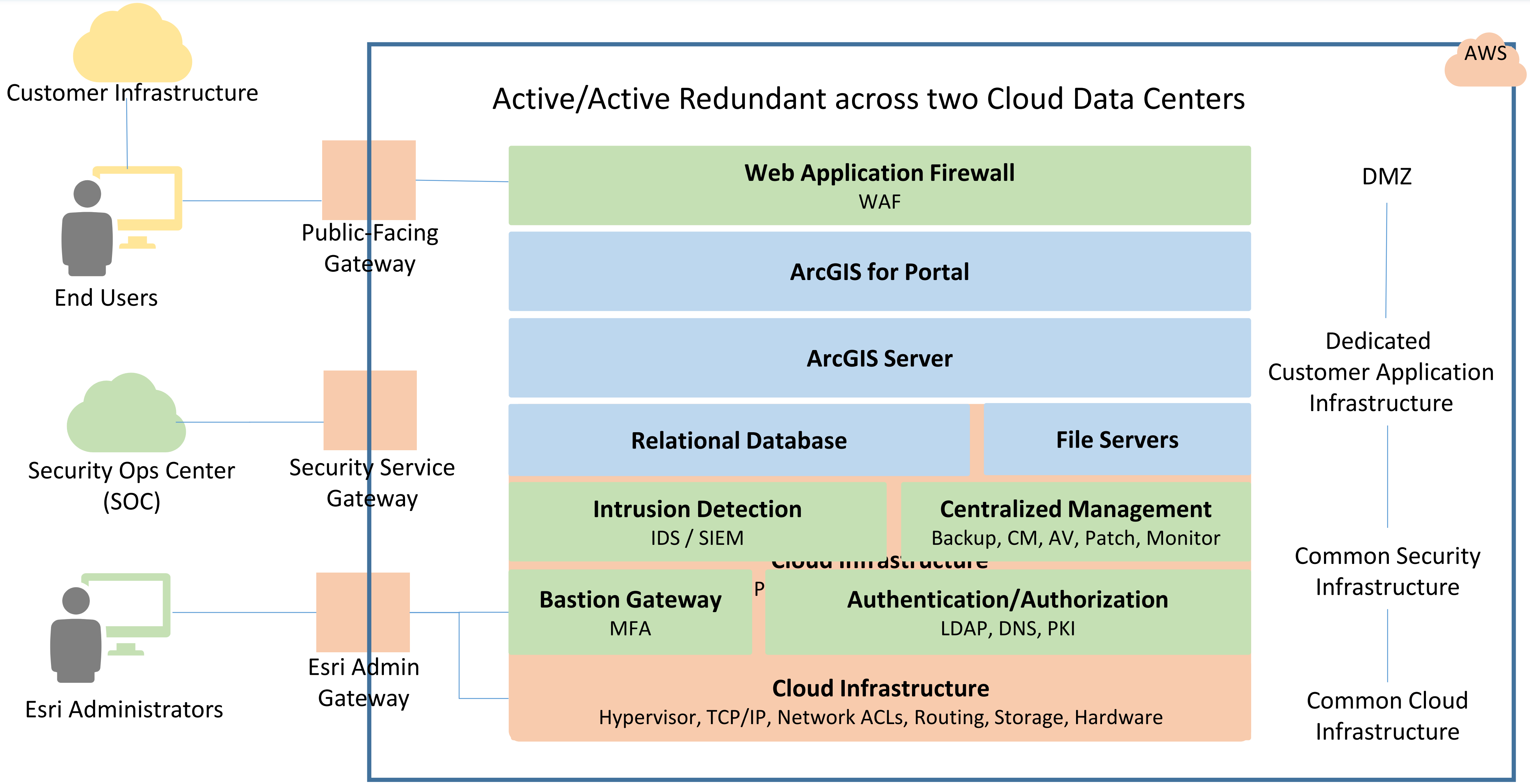
| On-premises | Esri Images & Cloud Builder | Esri Managed Cloud Services<br>*FedRAMP Moderate Compliant* | ArcGIS Online<br>*FISMA Low ATO* |
|---|---|---|---|
| ArcGIS | ArcGIS | ArcGIS | ArcGIS Online |
| OS/DB/Network | OS/DB/Network | OS/DB/Network | OS/DB/Network |
| Security Infrastructure | No Security Infrastructure by default | Security Infrastructure | Security Infrastructure |
| Virtual / Physical Servers | Cloud Infrastructure (IaaS) | Cloud Infrastructure (IaaS) | Cloud Infrastructure (IaaS) |

Esri Compliance & ATO Scope

IaaS ATO Scope

**Customer Responsibility** 🟦 **Esri Responsibility** 🟪 **CSP Responsibility** 🟩

# EMCS Security Infrastructure



Customer Infrastructure

End Users

Public-Facing Gateway

Security Ops Center (SOC)

Security Service Gateway

Esri Administrators

Esri Admin Gateway

AWS

Active/Active Redundant across two Cloud Data Centers

**Web Application Firewall**
WAF

**ArcGIS for Portal**

**ArcGIS Server**

**Relational Database**

**File Servers**

**Intrusion Detection**
IDS / SIEM

**Centralized Management**
Backup, CM, AV, Patch, Monitor

**Bastion Gateway**
MFA

P

**Authentication/Authorization**
LDAP, DNS, PKI

**Cloud Infrastructure**
Hypervisor, TCP/IP, Network ACLs, Routing, Storage, Hardware

DMZ

Dedicated Customer Application Infrastructure

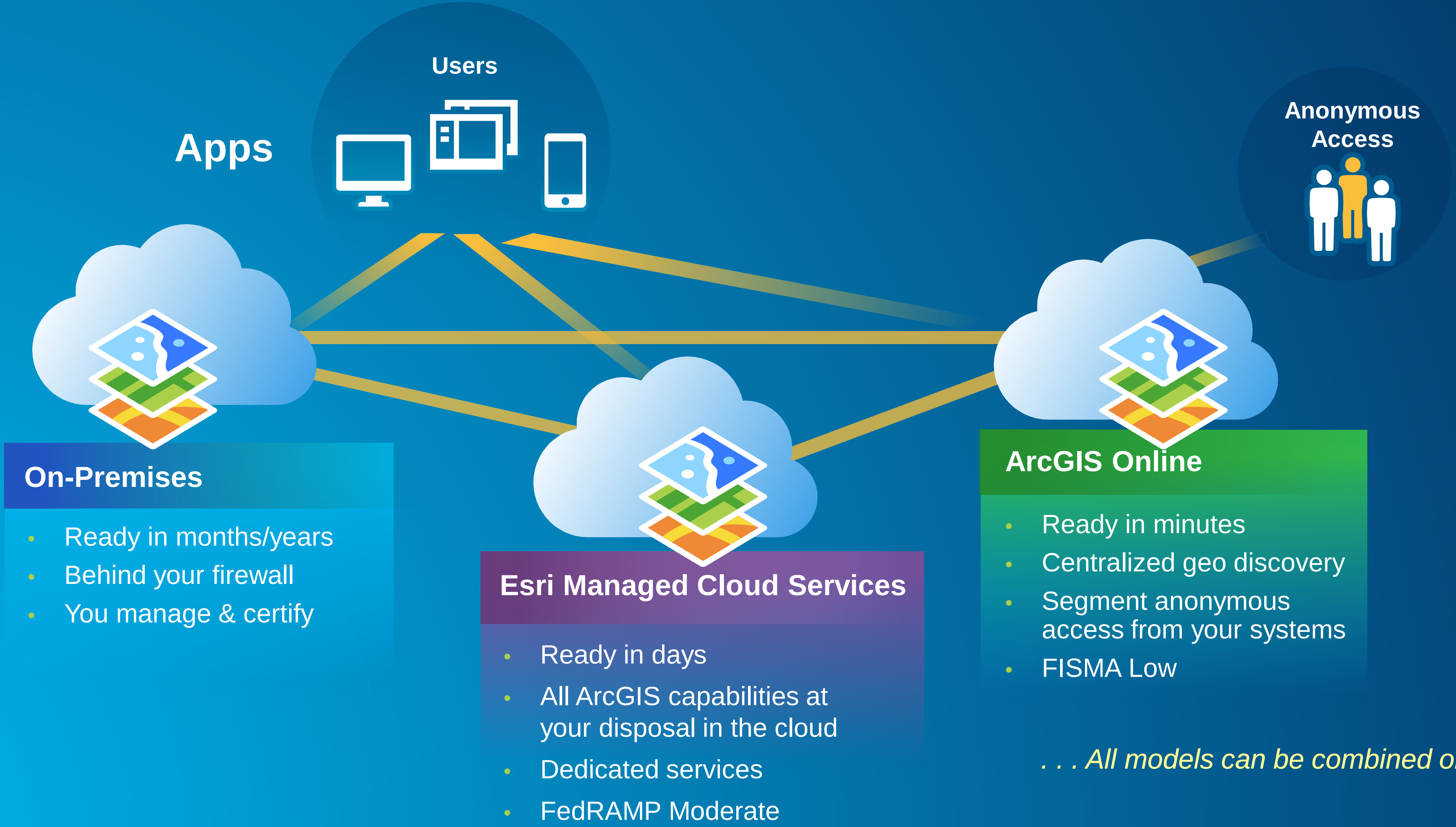
Common Security Infrastructure

Common Cloud Infrastructure

**Legend** **Agency** **Application** **Cloud Provider** **Security**

# Cloud

## Hybrid deployment combinations



### On-Premises

- Ready in months/years
- Behind your firewall
- You manage & certify

### Esri Managed Cloud Services

- Ready in days
- All ArcGIS capabilities at your disposal in the cloud
- Dedicated services
- FedRAMP Moderate

### ArcGIS Online

- Ready in minutes
- Centralized geo discovery
- Segment anonymous access from your systems
- FISMA Low

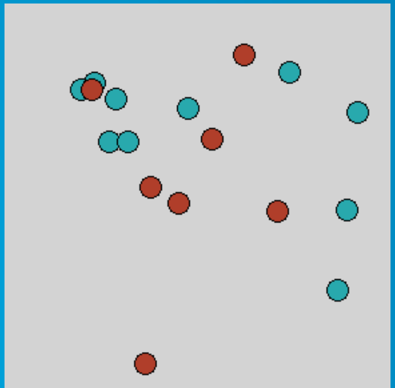
*. . . All models can be combined or separate*

# Cloud

## Hybrid – Data sources

- **Where are internal and cloud datasets combined?**
  - **At the browser**
  - **The browser makes separate requests for information to multiple sources and does a “mash-up”**
  - **Token security with SSL or even a VPN connection could be used between the device browser and on-premises system**

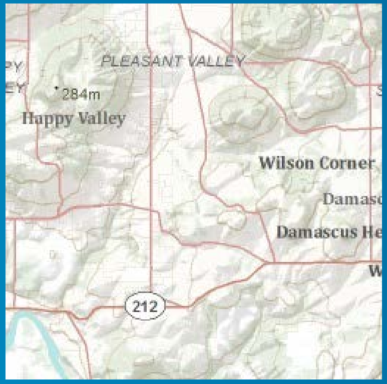
**On-Premises Operational Layer Service**



**https://YourServer.com/arcgis/rest...**

+

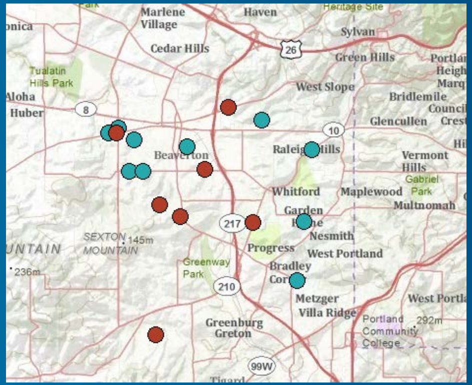
**Cloud Basemap Service ArcGIS Online**



**http://services.arcgisonline.com...**

=

**Browser Combines Layers**



# Cloud

## Standards

- Enterprise Logins
  - SAML 2.0
  - Provides federated identity management
  - Integrate with your enterprise LDAP / AD
  - Added to Portal for ArcGIS 10.3

- API's to Manage users & app logins
  - Developers can utilize OAuth 2-based API's
  - https://developers.arcgis.com/en/authentication/

# Cloud

## Data Locations

### On-premises

ArcGIS Server

Utilized by organizations requiring dedicated infrastructure and/or disconnected from Internet

### Cloud Provider

amazon web services

ArcGIS Server

Shift from cap-ex to op-ex while allowing flexibility of choosing level of multi-tenancy

### ArcGIS Online

Discovery Portal

Provides a centralized geospatial discovery portal and instantly scalable public information dissemination

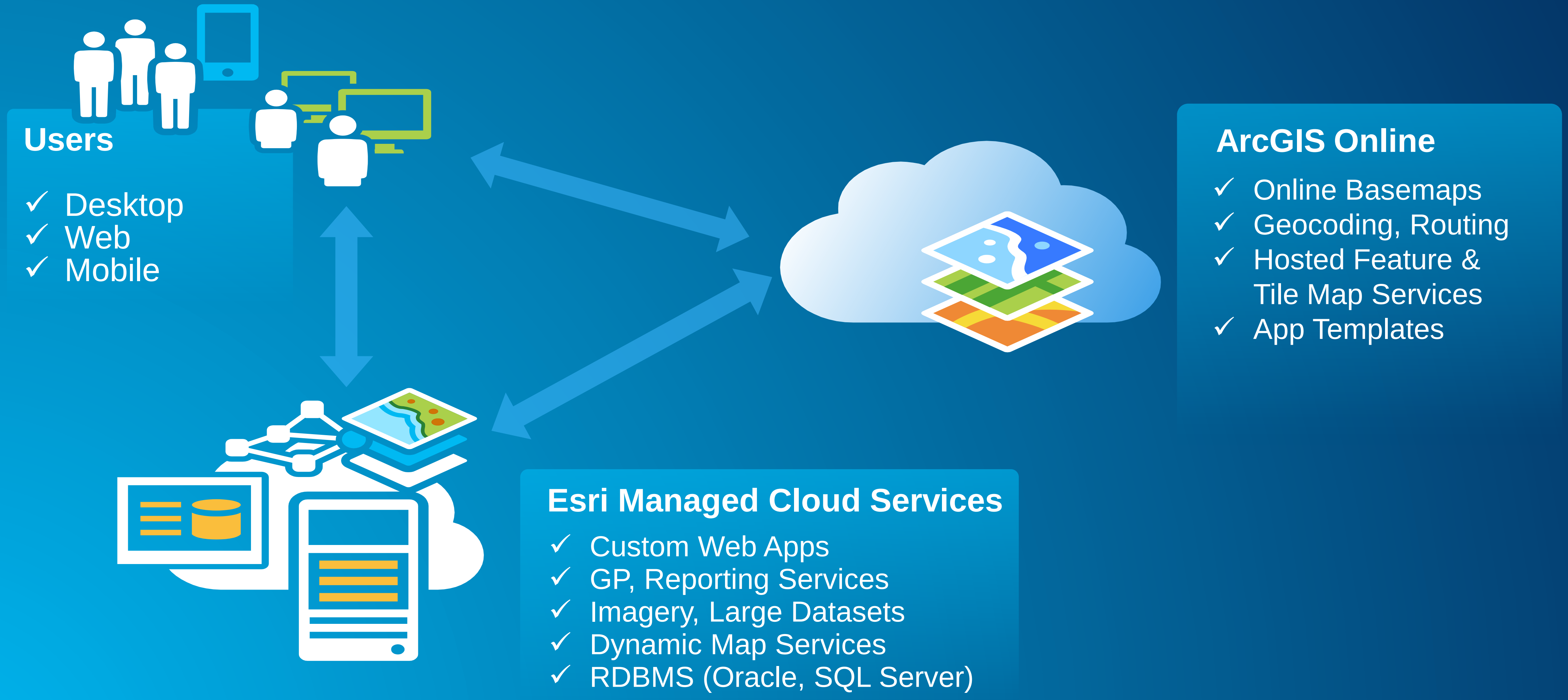
# Esri Managed Cloud Services

Erin Ross

# What is Esri Managed Cloud Services?

Esri cloud GIS experts supporting customer apps & data in the cloud

# ArcGIS Online and Esri Managed Cloud Services



**Users**

- ✓ Desktop
- ✓ Web
- ✓ Mobile

**ArcGIS Online**

- ✓ Online Basemaps
- ✓ Geocoding, Routing
- ✓ Hosted Feature & Tile Map Services
- ✓ App Templates

**Esri Managed Cloud Services**

- ✓ Custom Web Apps
- ✓ GP, Reporting Services
- ✓ Imagery, Large Datasets
- ✓ Dynamic Map Services
- ✓ RDBMS (Oracle, SQL Server)

*ArcGIS Online front-end, Managed Cloud Services back-end*

# What is included?

- Provide Cloud-based GIS infrastructure support, including:
  - Enterprise system design
  - Infrastructure management
  - Software (Esri & 3rd Party) Installation, updates and patching
  - Application deployment
  - Database management
  - 24/7 support and monitoring

# Benefits of Esri Managed Cloud Services

– Increase efficiency and business focus –

– High availability, quality and performance –

– Reduce internal costs –

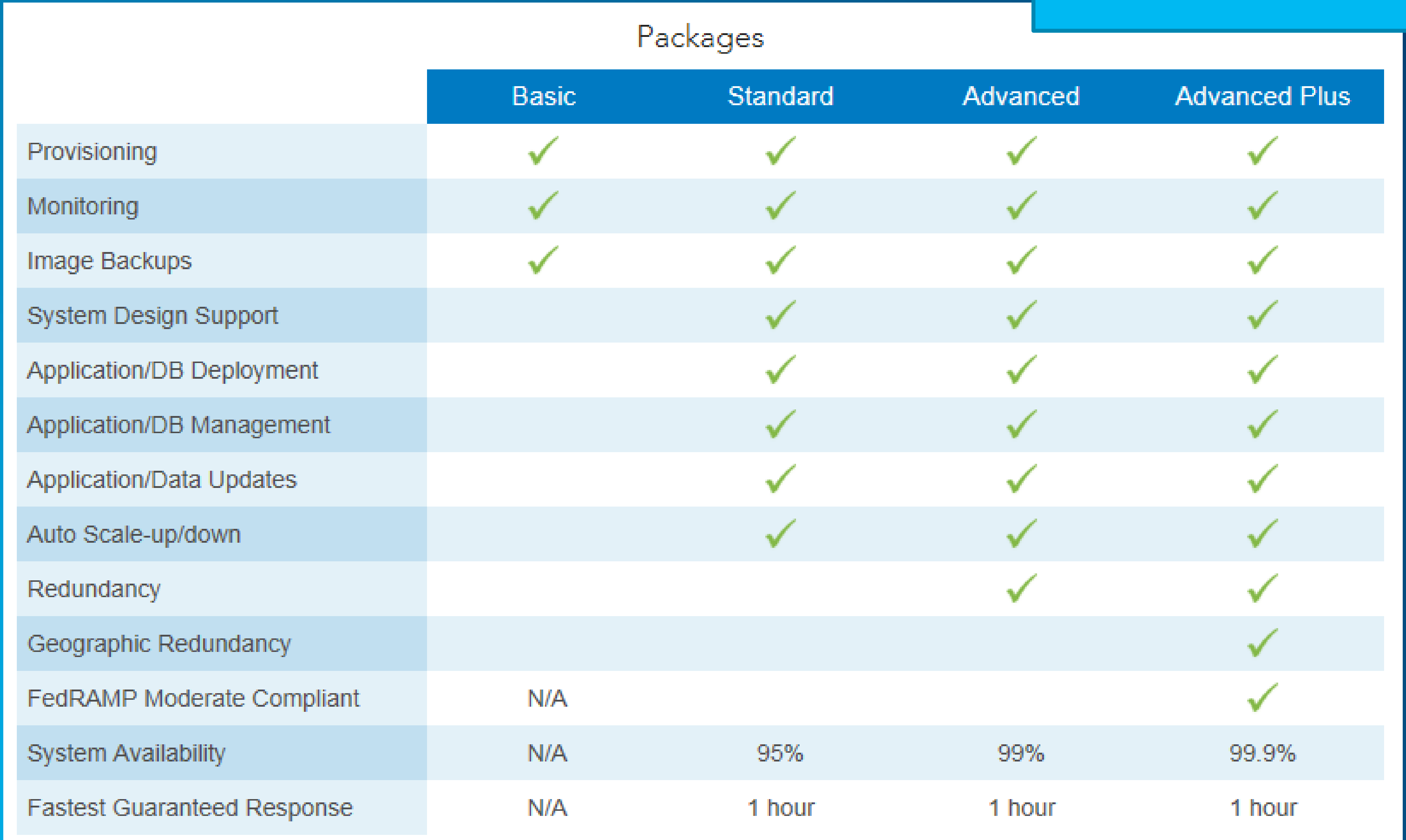
– Preserves data integrity, privacy and availability–

– Increase usage and productivity –

*Cloud GIS experts managing your critical apps and content*

# How is it delivered?

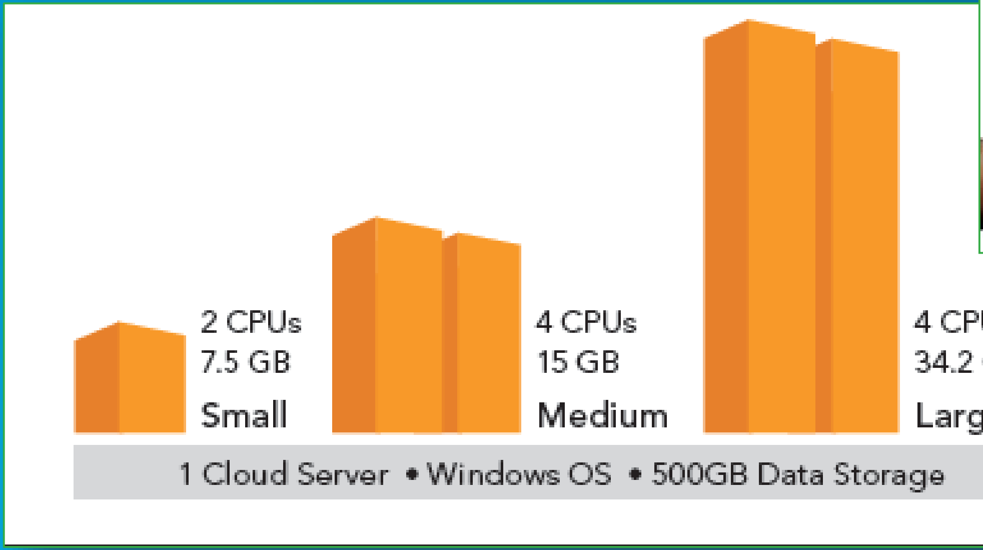
**Available on GSA**



| | Packages | | | |
|---|---|---|---|---|
| | Basic | Standard | Advanced | Advanced Plus |
| Provisioning | ✓ | ✓ | ✓ | ✓ |
| Monitoring | ✓ | ✓ | ✓ | ✓ |
| Image Backups | ✓ | ✓ | ✓ | ✓ |
| System Design Support | | ✓ | ✓ | ✓ |
| Application/DB Deployment | | ✓ | ✓ | ✓ |
| Application/DB Management | | ✓ | ✓ | ✓ |
| Application/Data Updates | | ✓ | ✓ | ✓ |
| Auto Scale-up/down | | ✓ | ✓ | ✓ |
| Redundancy | | | ✓ | ✓ |
| Geographic Redundancy | | | | ✓ |
| FedRAMP Moderate Compliant | N/A | | | ✓ |
| System Availability | N/A | 95% | 99% | 99.9% |
| Fastest Guaranteed Response | N/A | 1 hour | 1 hour | 1 hour |

# Basic Packages “Sandbox”

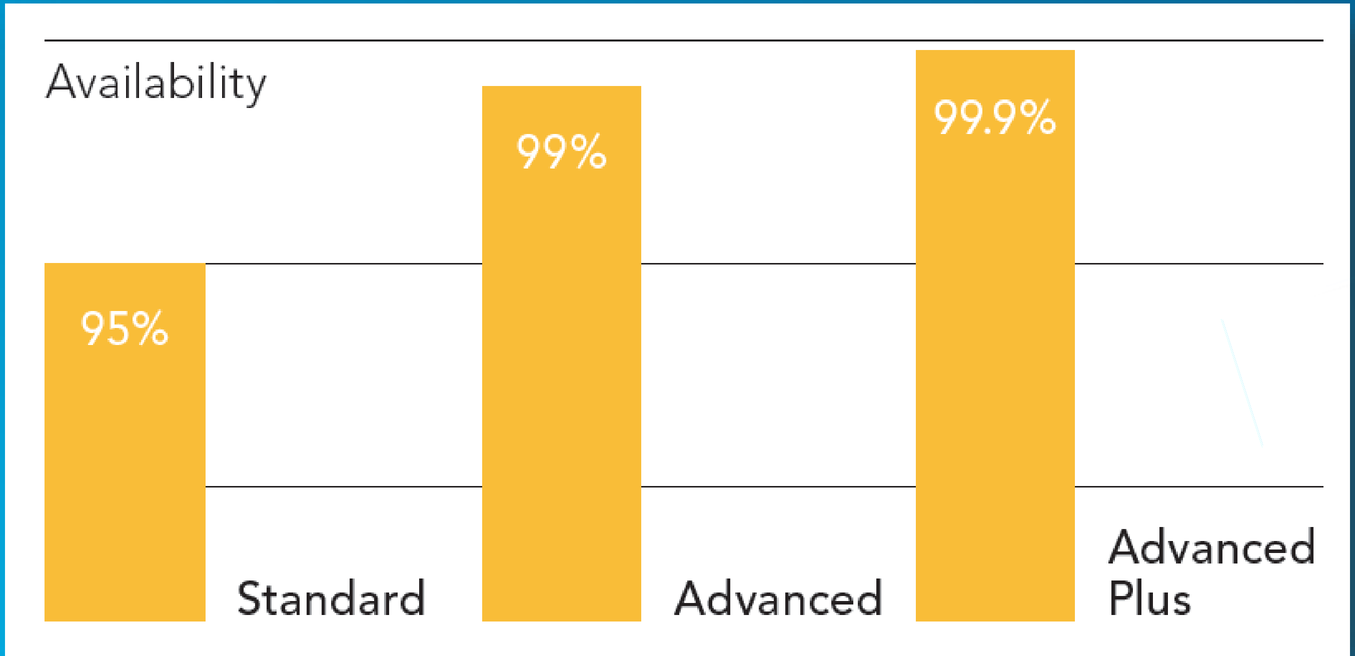
- Ready to use cloud instance of ArcGIS for Server
- Remote access provided to user

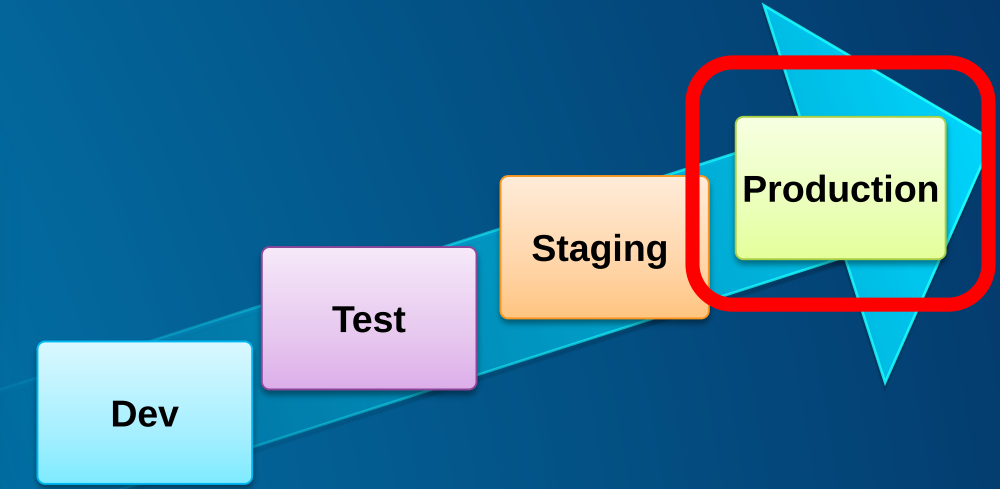


Ideal for development, prototyping...

# Standard, Advanced, Advanced *Plus* Packages

- Esri loads, publishes and deploys on behalf of customer
- 24/7 system monitoring and support
- Ideal for production systems (internal or public facing)

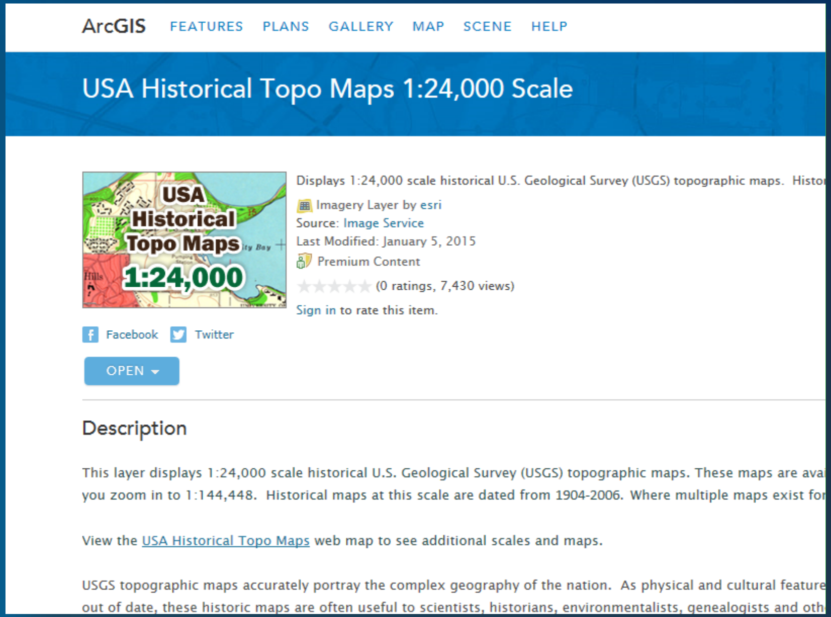




# Esri Managed Cloud Services Use Cases

# USGS Historical Topographic Maps

- More than 175,000 topographic maps published by the USGS since 1884
- 22 TB data x 2 for redundancy
- 1.6 million hits during Esri User Conference
- Consumed by several apps; premium service available in ArcGIS Online



USA Historical Topo Maps 1:24,000 Scale

Displays 1:24,000 scale historical U.S. Geological Survey (USGS) topographic maps. Histo

Imagery Layer by esri

Source: Image Service

Last Modified: January 5, 2015

Premium Content

(0 ratings, 7,430 views)

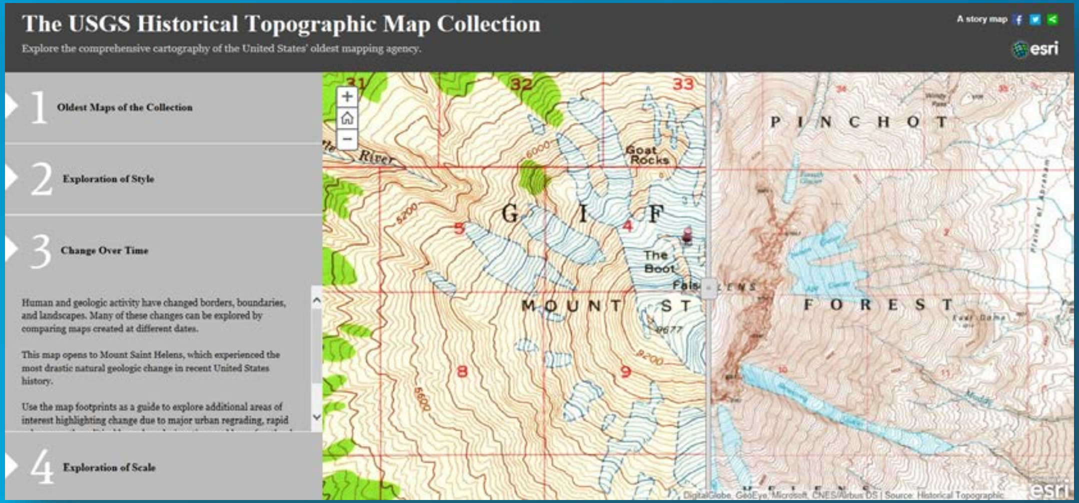
Sign in to rate this item.

Description

This layer displays 1:24,000 scale historical U.S. Geological Survey (USGS) topographic maps. These maps are ava
you zoom in to 1:144,448. Historical maps at this scale are dated from 1904-2006. Where multiple maps exist fo

View the USA Historical Topo Maps web map to see additional scales and maps.

USGS topographic maps accurately portray the complex geography of the nation. As physical and cultural feature
out of date, these historic maps are often useful to scientists, historians, environmentalists, genealogists and oth



A story map
esri
PINCHOT
GIFFORD
MOUNT ST
FOREST
Goat Rocks
The Boot
River
DigitalGlobe, GeoEye, Microsoft, CNES/Airbus DS | Source: Historical Topographic

The USGS Historical Topographic Map Collection

Explore the comprehensive cartography of the United States' oldest mapping agency.

1 Oldest Maps of the Collection

2 Exploration of Style

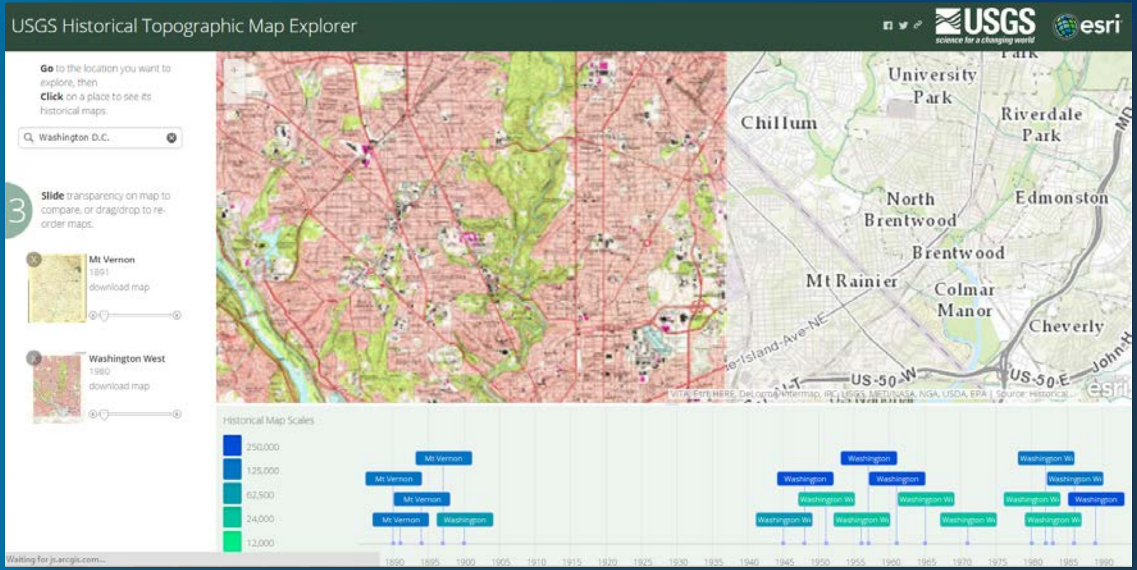
3 Change Over Time

Human and geologic activity have changed borders, boundaries, and landscapes. Many of these changes can be explored by comparing maps created at different dates.

This map opens to Mount Saint Helens, which experienced the most drastic natural geologic change in recent United States history.

Use the map footprints as a guide to explore additional areas of interest highlighting change due to major urban regrading, rapid

4 Exploration of Scale



USGS Historical Topographic Map Explorer

**Go** to the location you want to explore, then
**Click** on a place to see its historical maps.

Washington D.C.

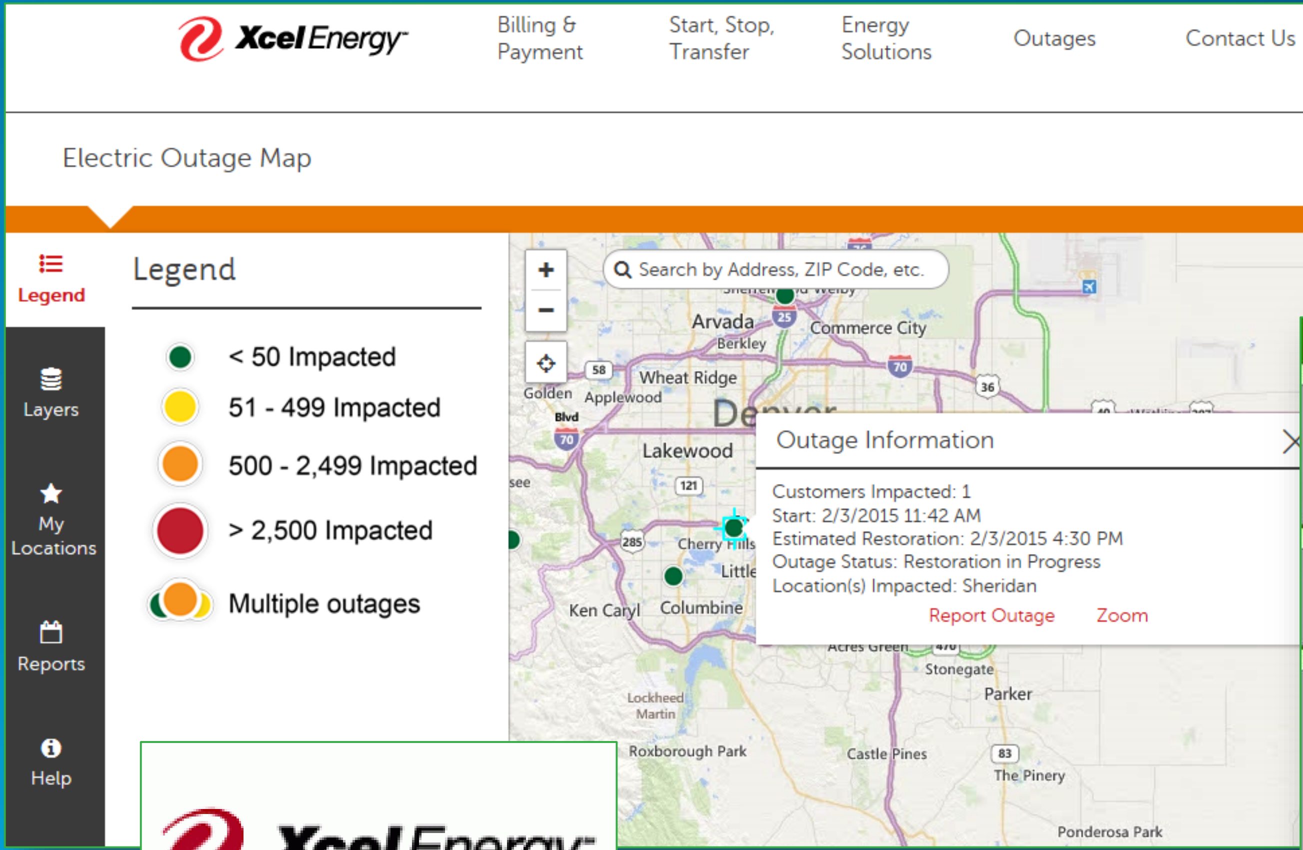
3 **Slide** transparency on map to compare, or drag/drop to re-order maps.

Mt Vernon
1891
download map

Washington West
1980
download map

Waiting for js.arcgis.com...

# Power Outage Viewers



Xcel Energy

Electric Outage Map

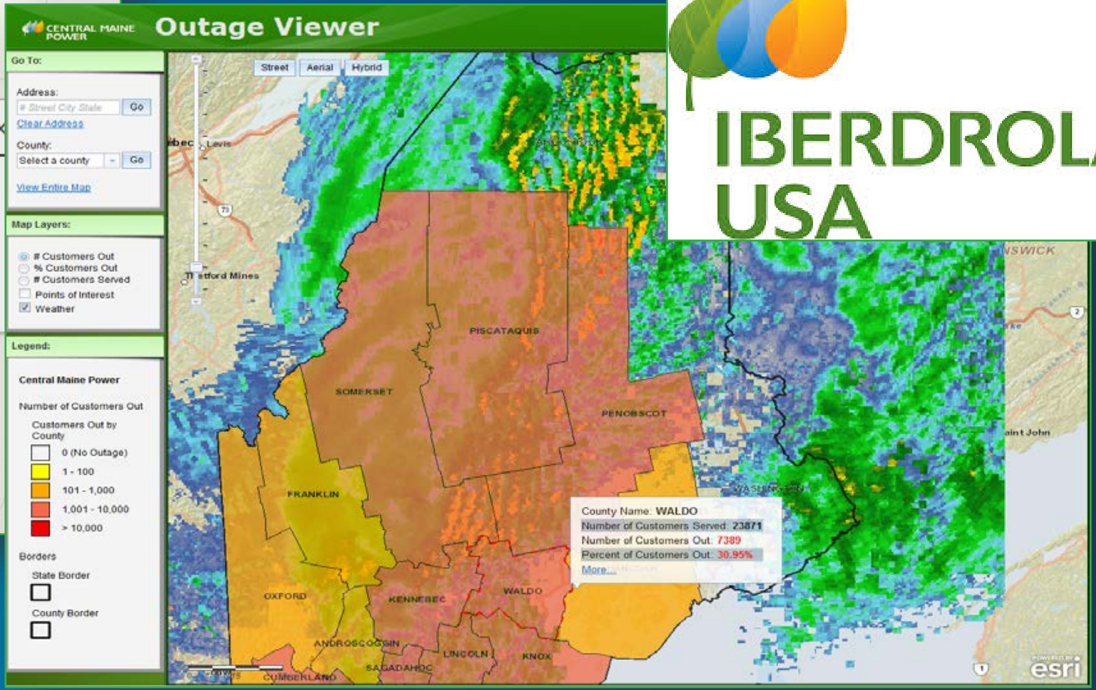
Legend

- ● < 50 Impacted
- ● 51 - 499 Impacted
- ● 500 - 2,499 Impacted
- ● > 2,500 Impacted
- ● Multiple outages

Outage Information

Customers Impacted: 1
Start: 2/3/2015 11:42 AM
Estimated Restoration: 2/3/2015 4:30 PM
Outage Status: Restoration in Progress
Location(s) Impacted: Sheridan

Report Outage Zoom



Central Maine Power Outage Viewer

Go To:

Address: # Street City State Go
Clear Address

County: Select a county Go
View Entire Map

Map Layers:

- ● # Customers Out
- ○ % Customers Out
- ○ # Customers Served
- □ Points of Interest
- ☑ Weather

Legend:

Central Maine Power

Number of Customers Out

Customers Out by County

- □ 0 (No Outage)
- 🟨 1 - 100
- 🟧 101 - 1,000
- 🟥 1,001 - 10,000
- 🟥 > 10,000

Borders

State Border □

County Border □

County Name: WALDO
Number of Customers Served: 23871
Number of Customers Out: 7389
Percent of Customers Out: 30.95%
More...

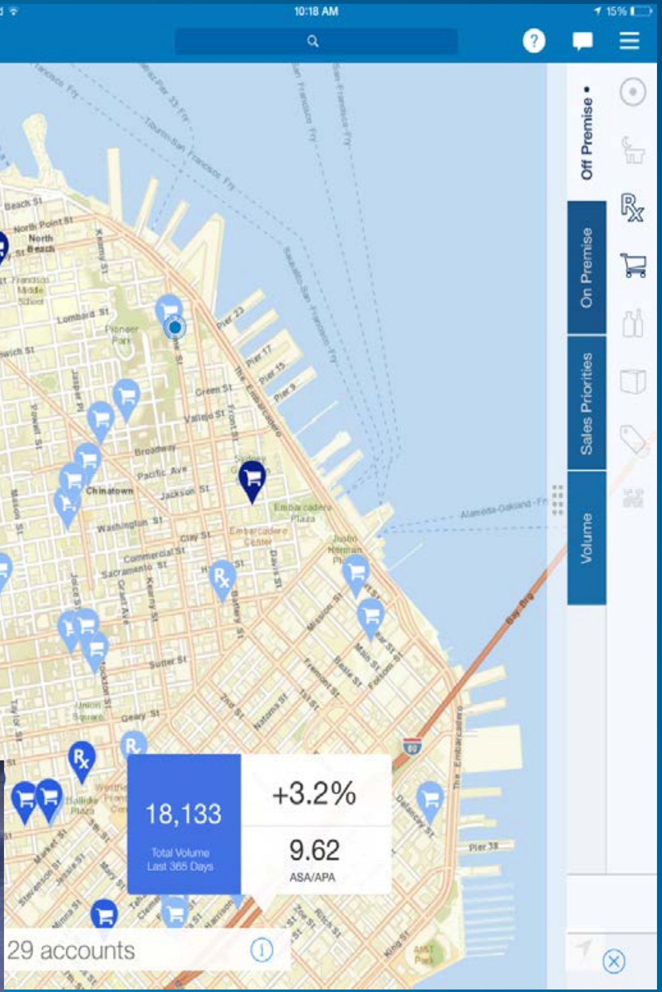
- Highly available, scalable systems ready to perform during major events
- Frequent, automated data updates

IBERDROLA USA

*Bringing critical outage information to the general public*

# Constellation Brands

- **Improve sales by leveraging tools to drive volume and revenue**
- **4th of July deadline**
- **2.7M records updated 2x / week via scripted tools**

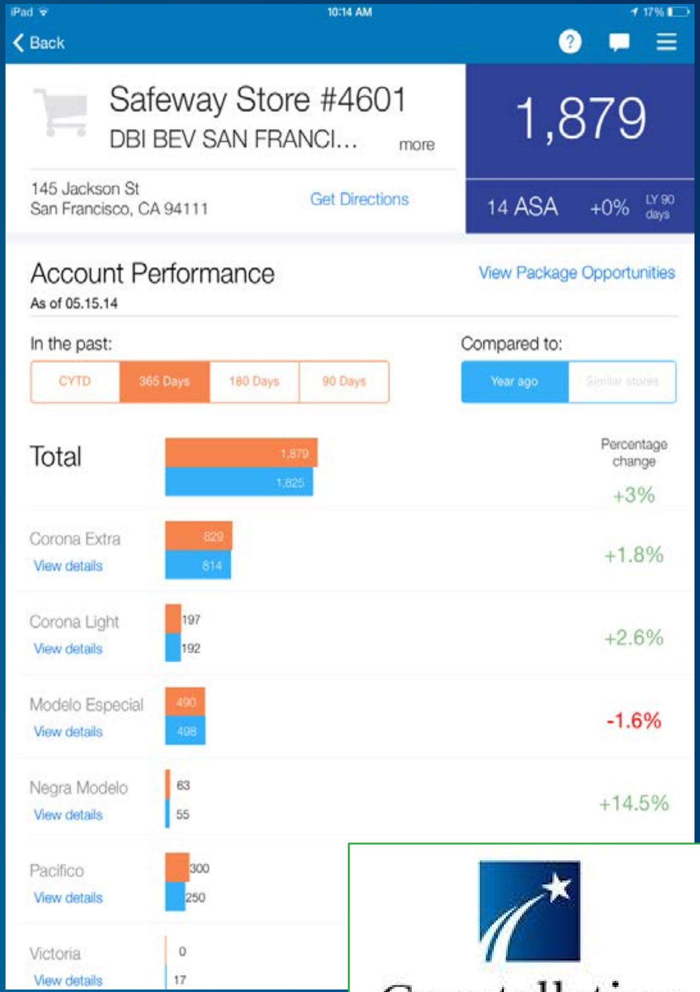


18,133
Total Volume
Last 365 Days

+3.2%

9.62
ASA/APA

29 accounts



Safeway Store #4601
DBI BEV SAN FRANCI... more

145 Jackson St
San Francisco, CA 94111
Get Directions

1,879

14 ASA +0% LY 90 days

Account Performance
As of 05.15.14

View Package Opportunities

In the past: CYTD | 365 Days | 180 Days | 90 Days

Compared to: Year ago | Similar stores

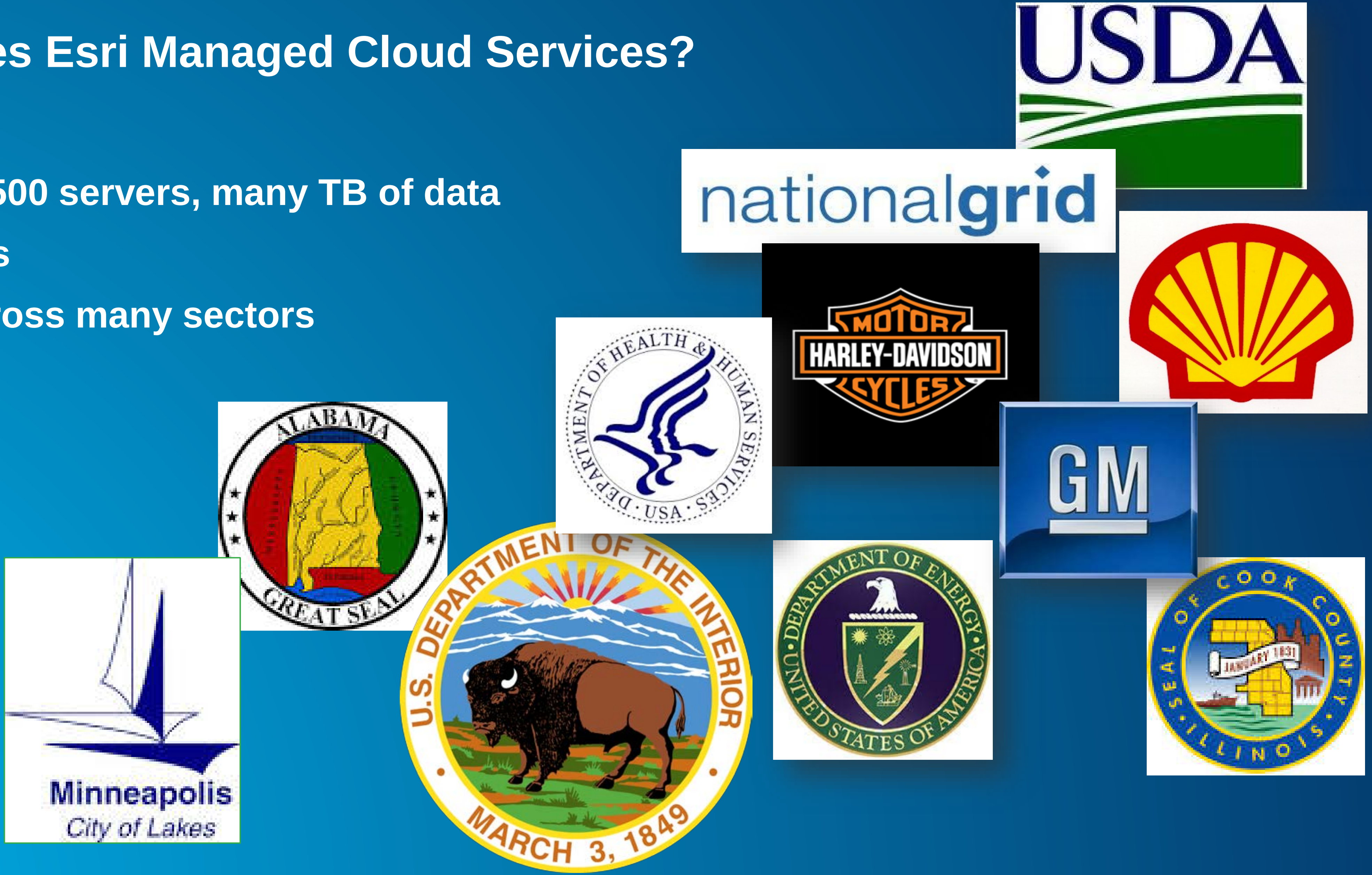
| | | | Percentage change |
|---|---|---|---|
| Total | 1,879 | 1,825 | +3% |
| Corona Extra<br>View details | 829 | 814 | +1.8% |
| Corona Light<br>View details | 197 | 192 | +2.6% |
| Modelo Especial<br>View details | 490 | 498 | -1.6% |
| Negra Modelo<br>View details | 63 | 55 | +14.5% |
| Pacifico<br>View details | 300 | 250 | |
| Victoria<br>View details | 0 | 17 | |

Constellation Brands

*Equipping staff with valuable information to increase sales*

## Who else uses Esri Managed Cloud Services?

- Manage over 500 servers, many TB of data
- 80+ customers
- Leveraged across many sectors



# Summary

# Summary

- Security is NOT about just a technology
  - Understand your organizations GIS risk level
  - Prioritize efforts according to your industry and needs
  - Don’t just add components, simplified Defense In Depth approach

- Secure Best Practice Guidance is Available
  - Check out the ArcGIS Trust Site!
  - ArcGIS Security Architecture Workshop
    - SecureSoftwareServices@esri.com

**Federal GIS Conference**

February 9–10, 2015 | Washington, DC

# Don’t forget to complete a session evaluation form!

# Questions?

Understanding our world.