

Federal GIS Conference 2014

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Deploying ArcGIS for Server Using Esri Managed Services

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Cloud Overview

What is Cloud: IaaS?

Infrastructure-as-a-Service (IaaS)



- **Provides virtual server instances**
 - Configure virtual servers
 - Configure storage
 - Manage instances
- **Examples:**
 - Amazon Web Services



What is Cloud: PaaS?

Platform-as-a-service(PaaS)



- Set of APIs, services, and product development tools hosted on the provider's infrastructure.
- Developers create applications on the provider's platform over the Internet
- Examples:
 - Microsoft Azure, GoogleApps, Force.com, CloudFoundry

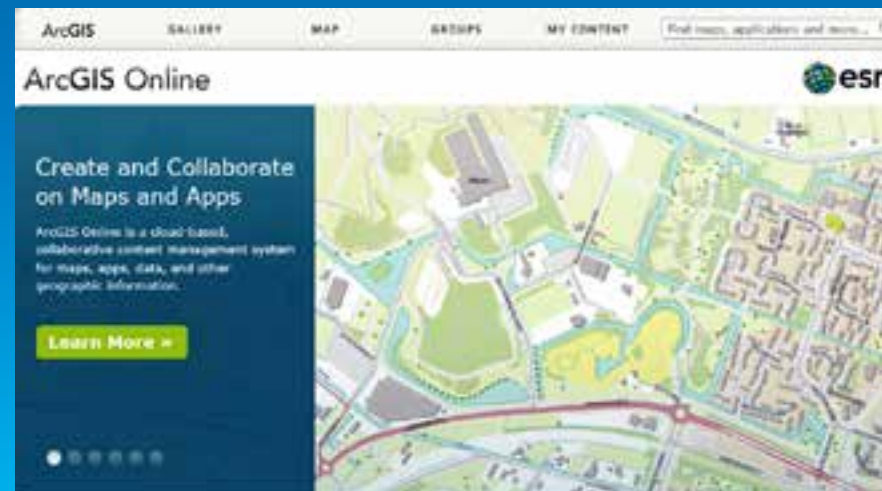


What is Cloud: SaaS?

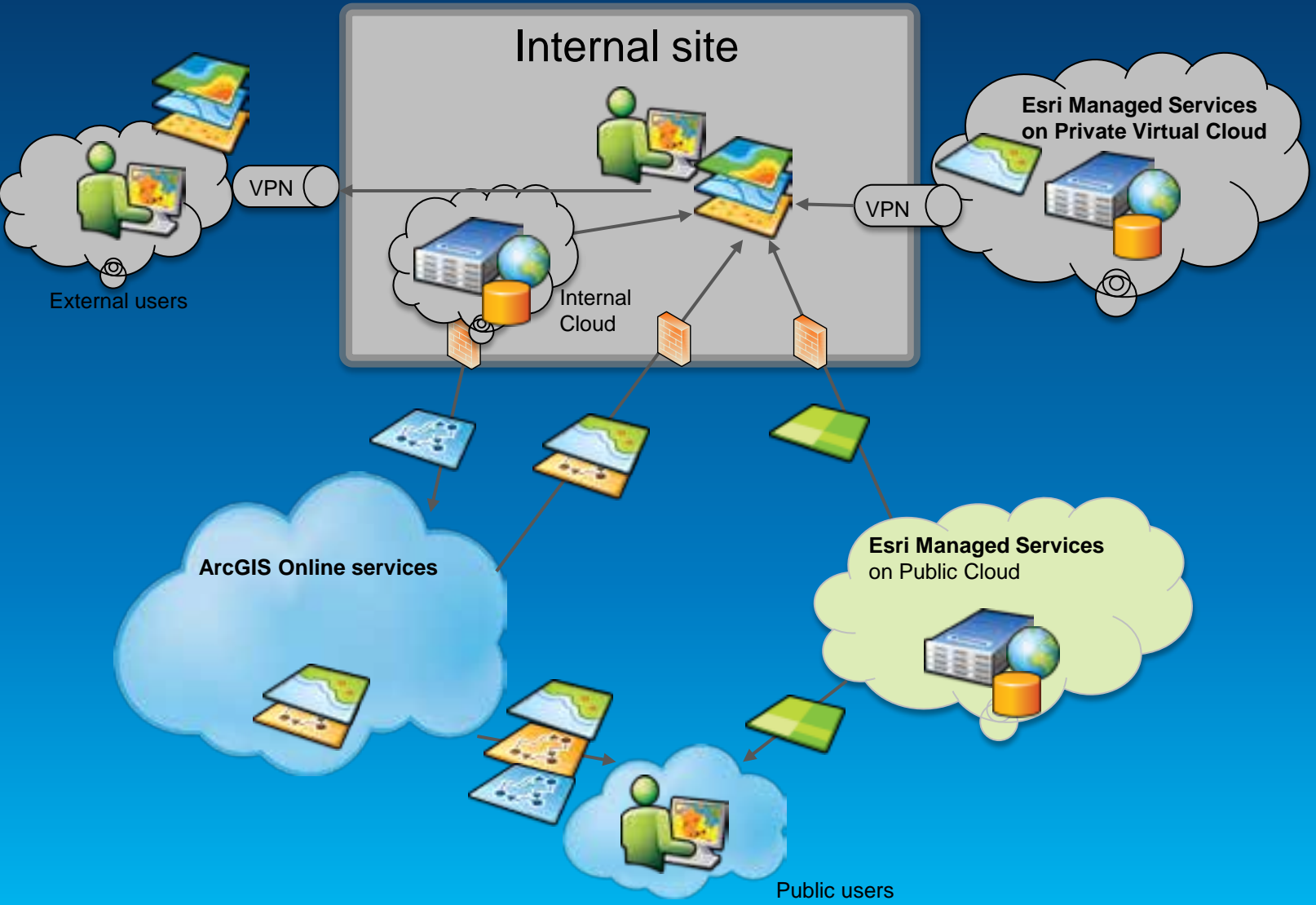
Software-as-a-service(SaaS)



- Vendor supplies the hardware and software infrastructure ... whole applications
- Broad market
- Examples:
 - ArcGIS Online, bao.esri.com, Crimemapping.com, Salesforce.com



Cloud options



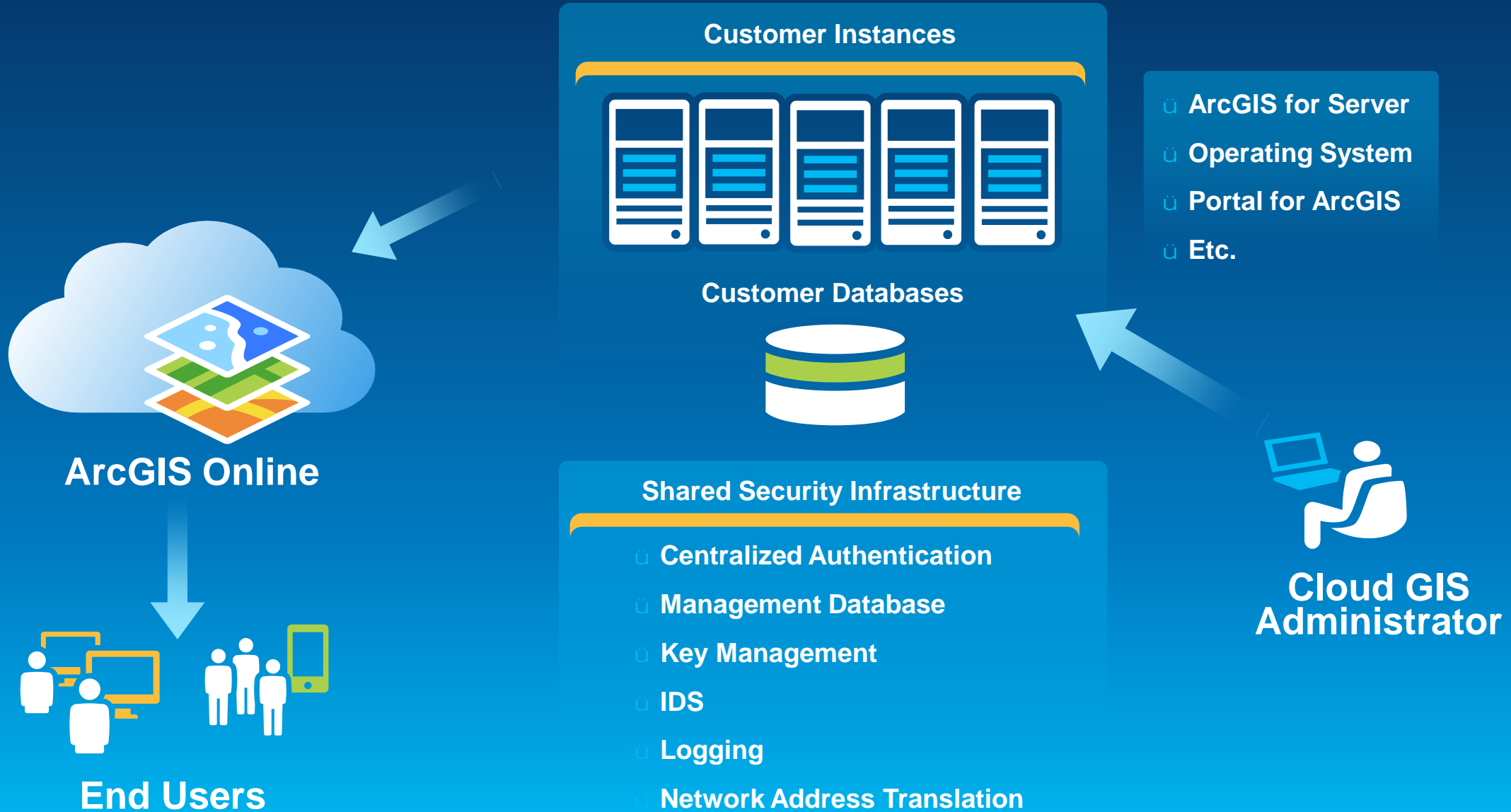
Program overview

ArcGIS Online and Managed Services



ArcGIS Online front-end, Managed Services back-end

Federal Cloud Solution Overview



Esri Managed Services

Cloud based GIS infrastructure support

HIGH AVAILABILITY **INFRASTRUCTURE**
MONITORING **SCALABILITY**
ARCHIVE STORAGE REPORTING
NETWORK SOFTWARE PERFORMANCE TESTING
SYSTEM DESIGN REDUNDANCY DEPLOYMENT
DISASTER RECOVERY **SECURITY** BANDWIDTH
DATA MANAGEMENT **BACKUP**
AGOL INTEGRATION HARDWARE CACHING
CHANGE MANAGEMENT

- Access to Enterprise GIS Expertise
- Scalable Resources
- Rapid Deployment
- Reduced cost of ownership

Experienced, Secure, Reliable, Scalable

Requirements

Deployment Patterns

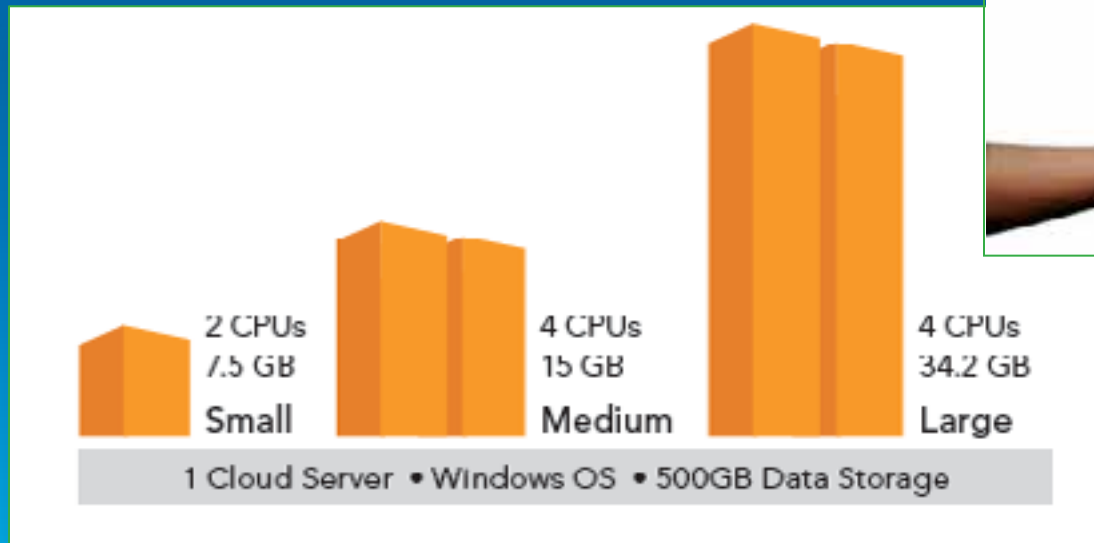


Flexible offerings to support a variety of needs

Deploying ArcGIS for Server

Basic Packages “Sandbox”

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

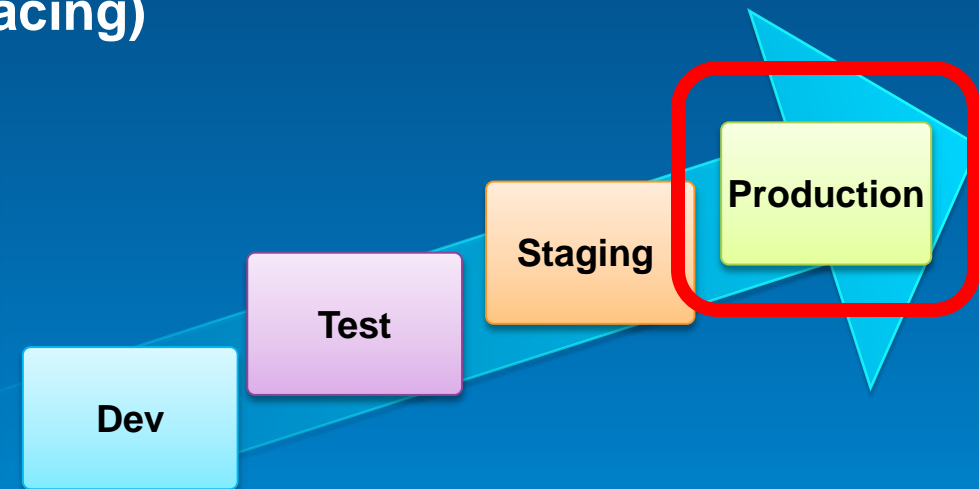
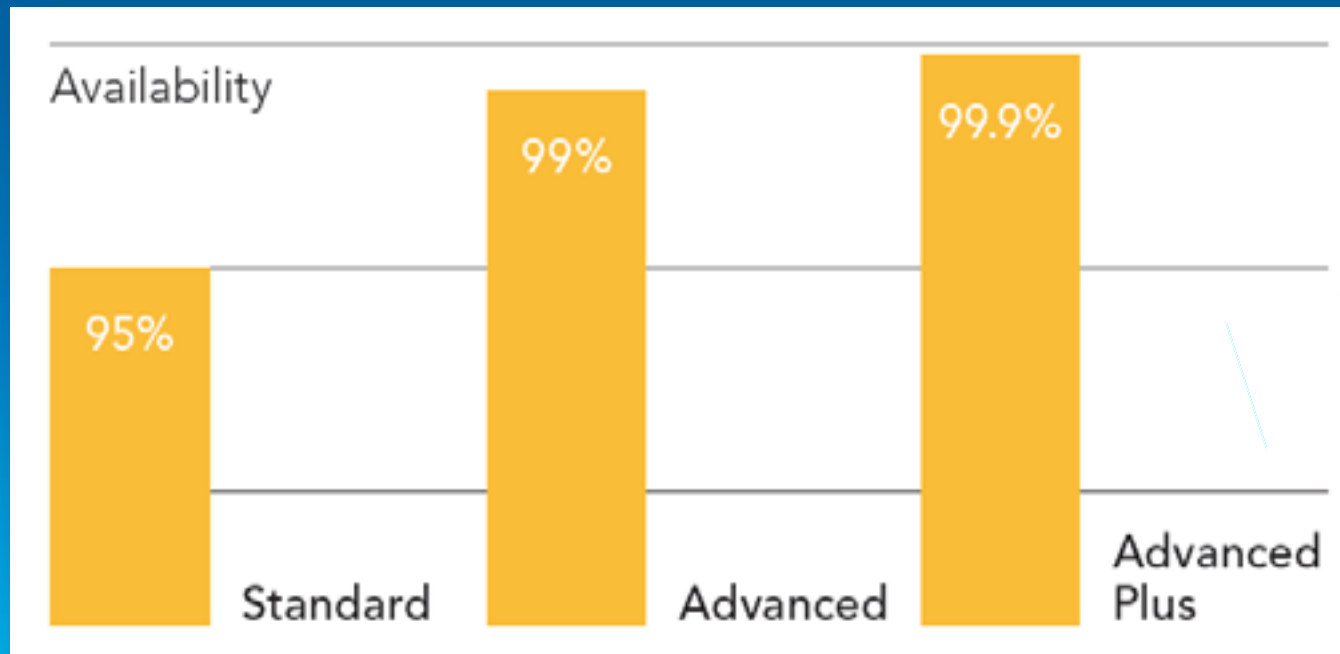


Ideal for development, prototyping...

Requirements

Availability

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



Requirements

User load

- **number of users**
- **think time**
- **peak loads**
- **auto scaling**

Requirements

Application specification

- **Software**
- **GIS services, e.g. dynamic map, cached, feature, gp, custom**
- **DNS specifics**

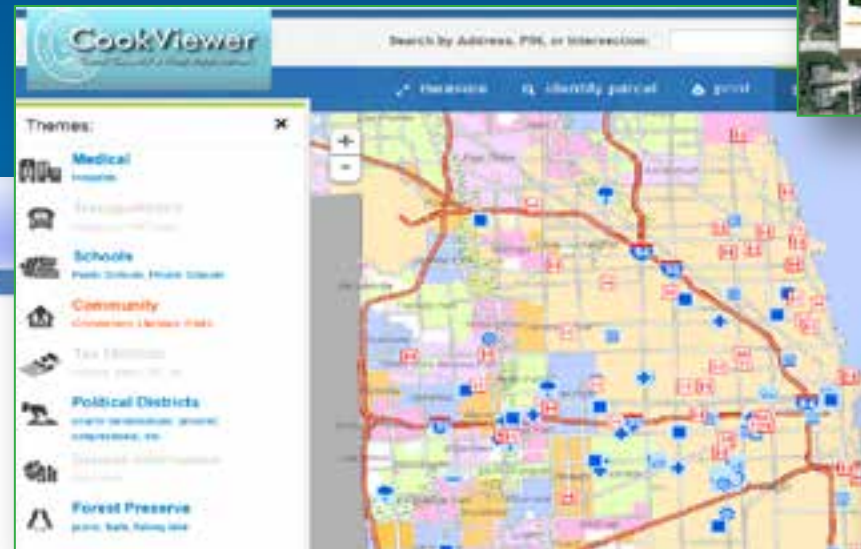
Technical Support

- 24/7
- Infrastructure
- Application
- ArcGIS Server
- Database

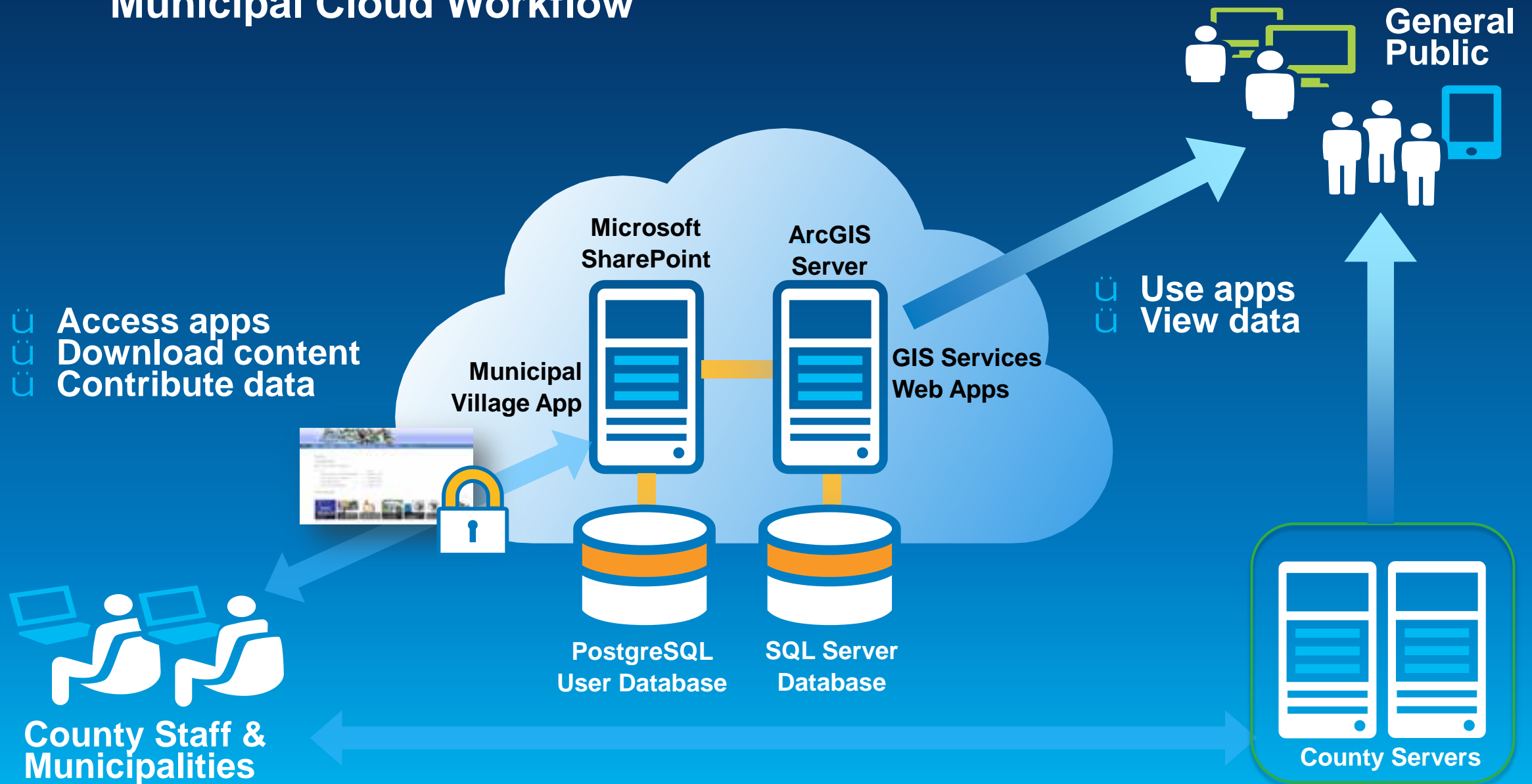
Success stories

Cook County Municipal Cloud

- Portal improves G2G collaboration
- Disaster recovery & imagery data download
- 10 web apps, 8 TB data

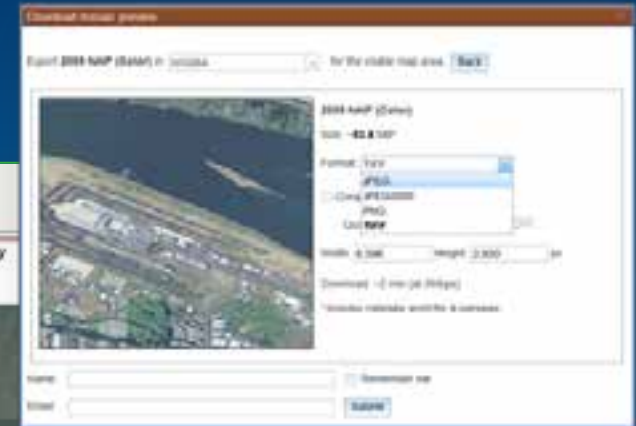
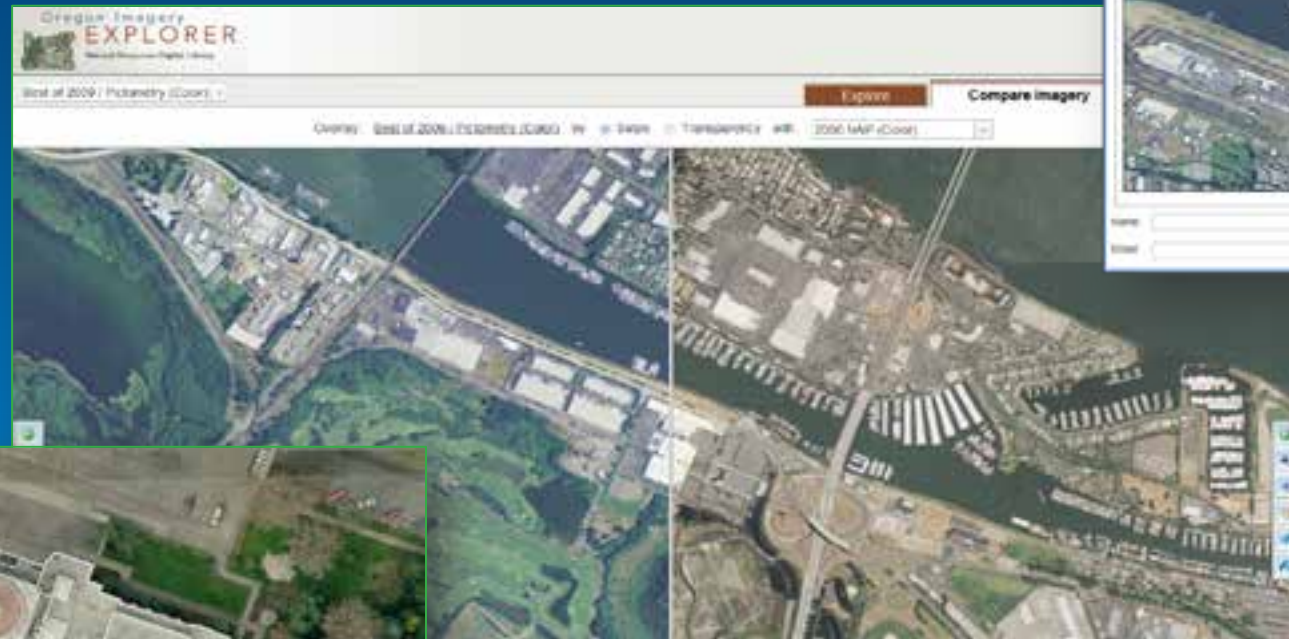


Municipal Cloud Workflow



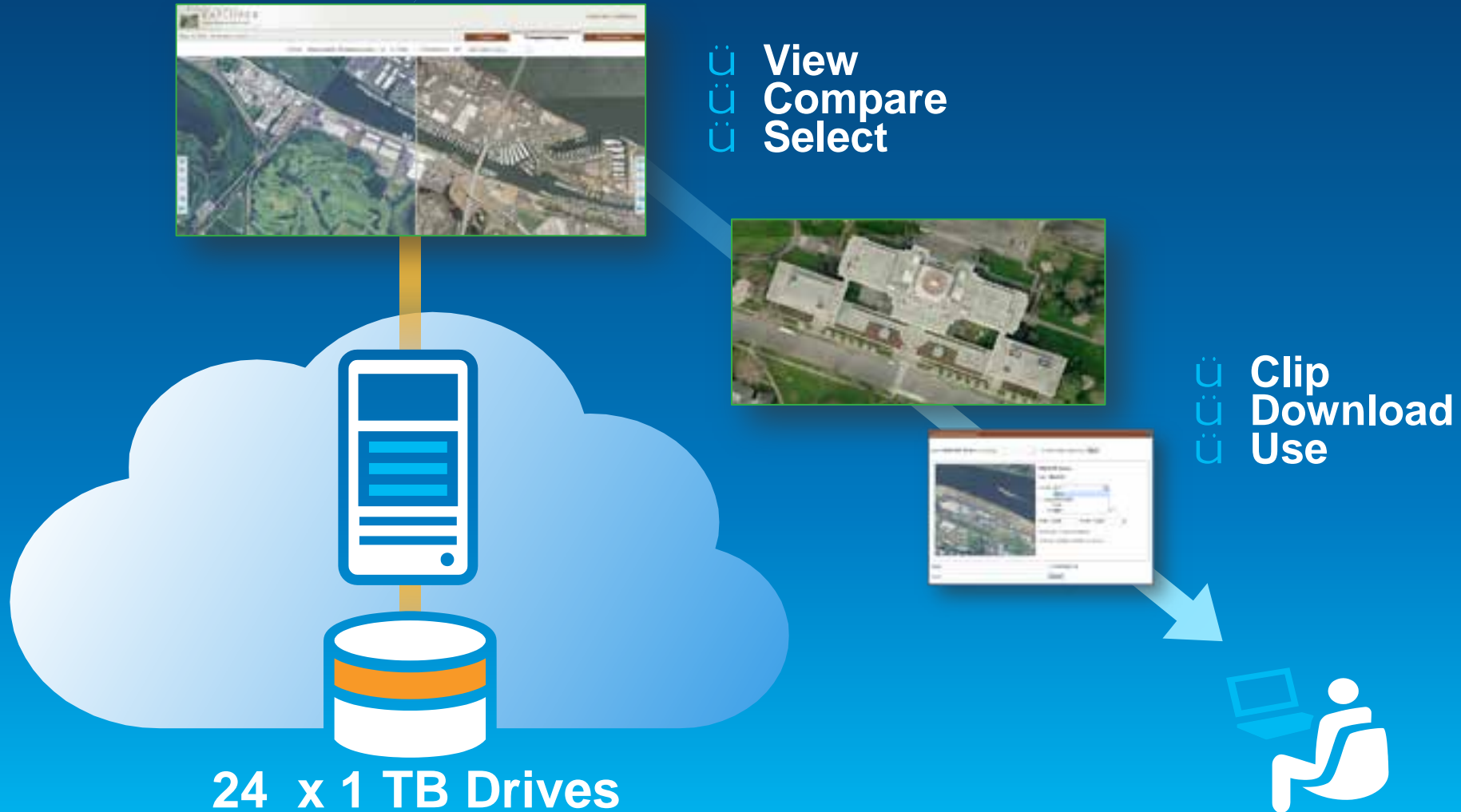
Oregon Imagery Explorer

- Search, download, use large imagery datasets



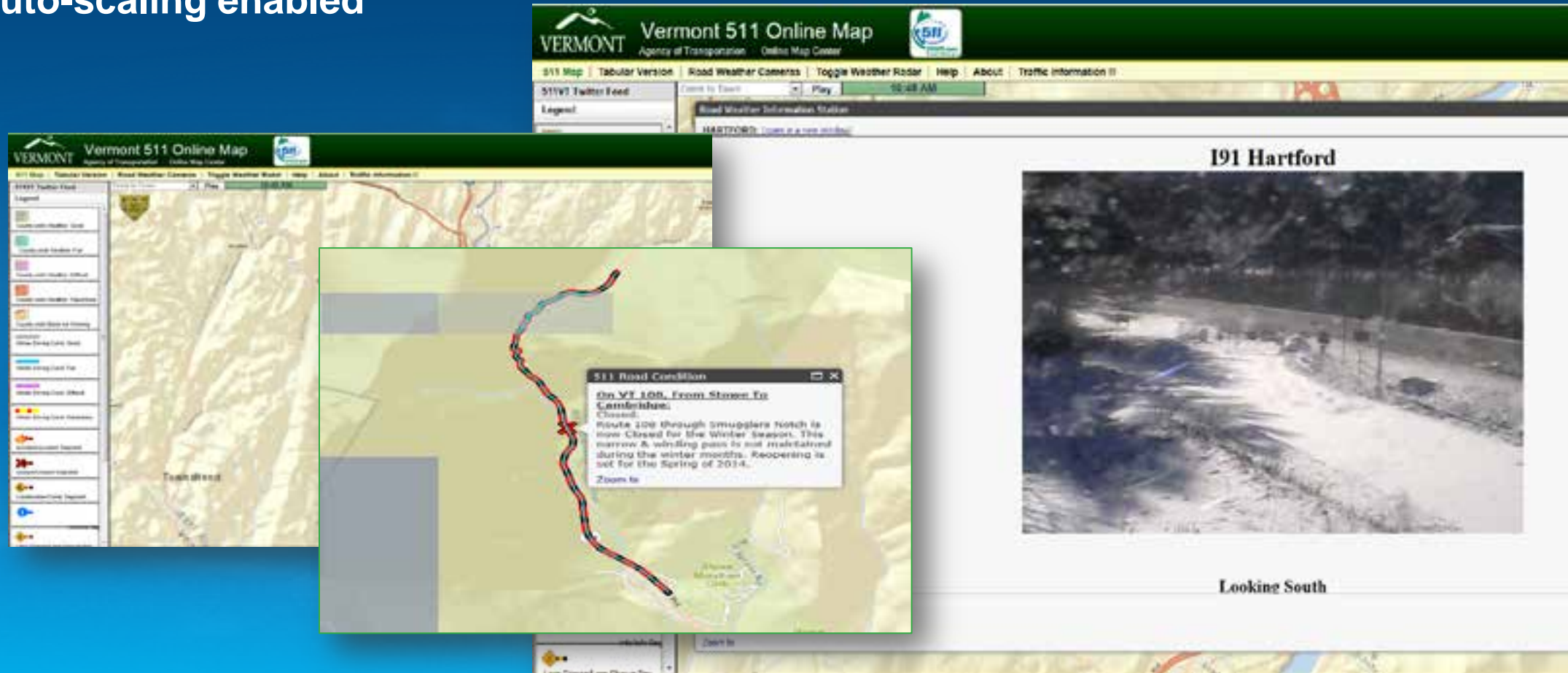
- Simple, easy to use web viewer
- Cached and dynamic image services

Oregon Imagery Explorer Architecture and Workflow

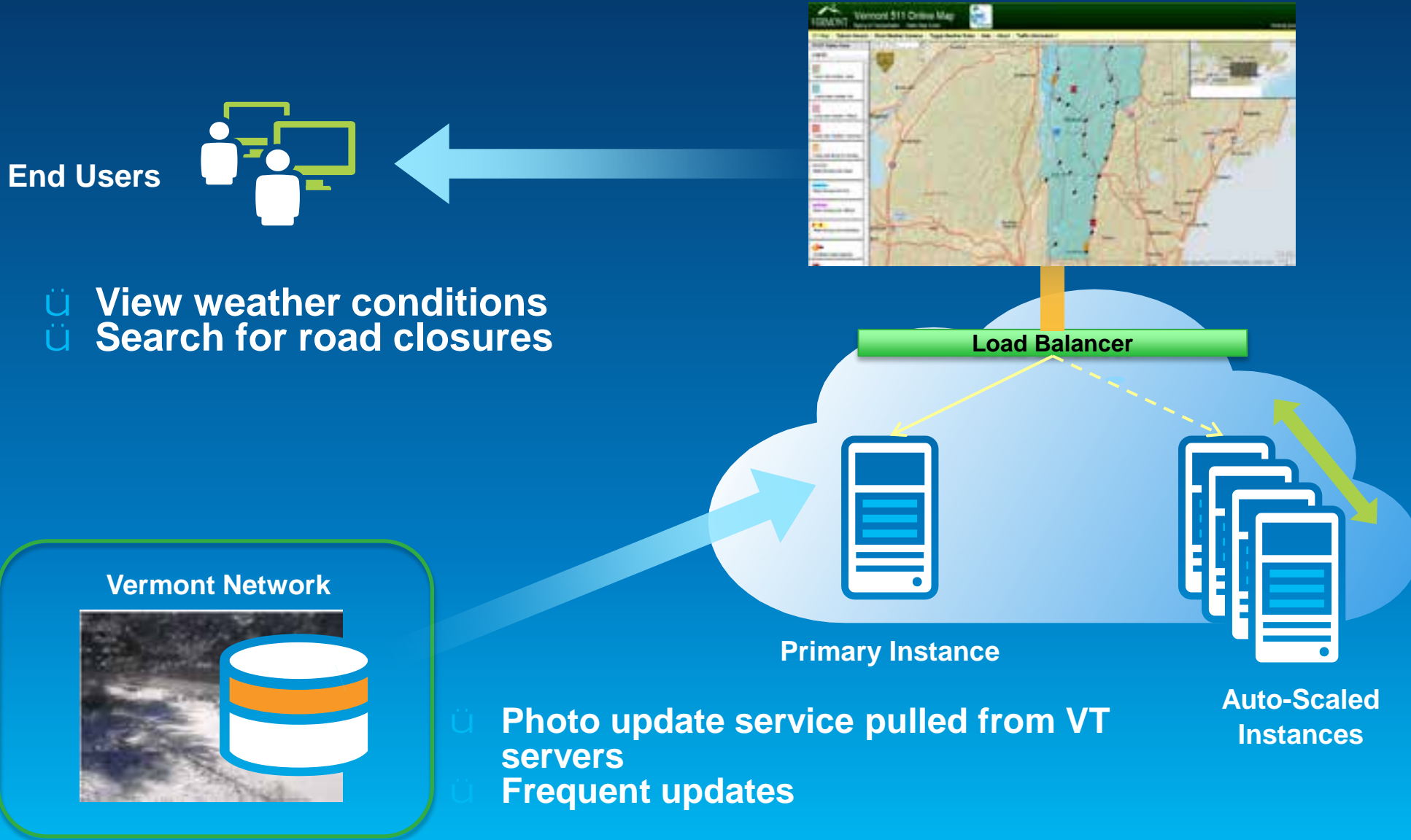


State of Vermont 511

- Road closures and traffic conditions available to the public
- Auto-scaling enabled

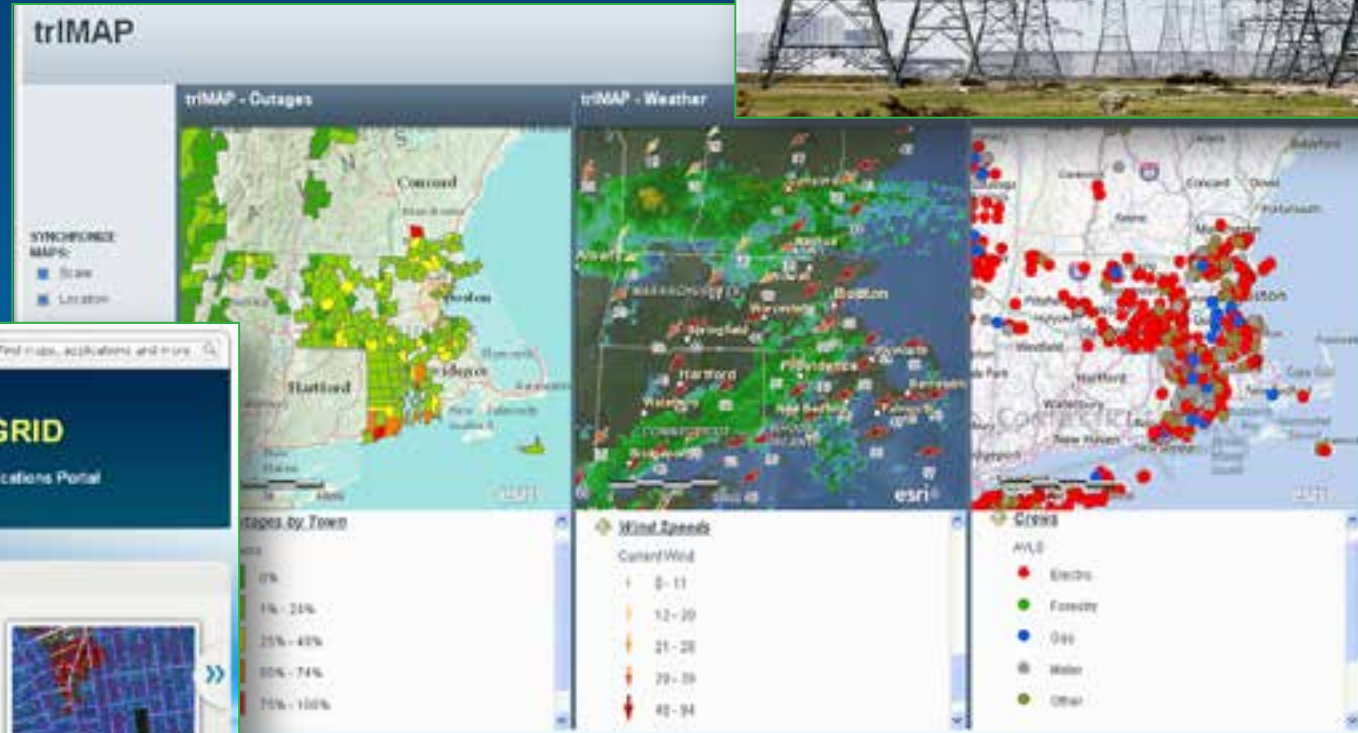


Vermont 511 Workflow



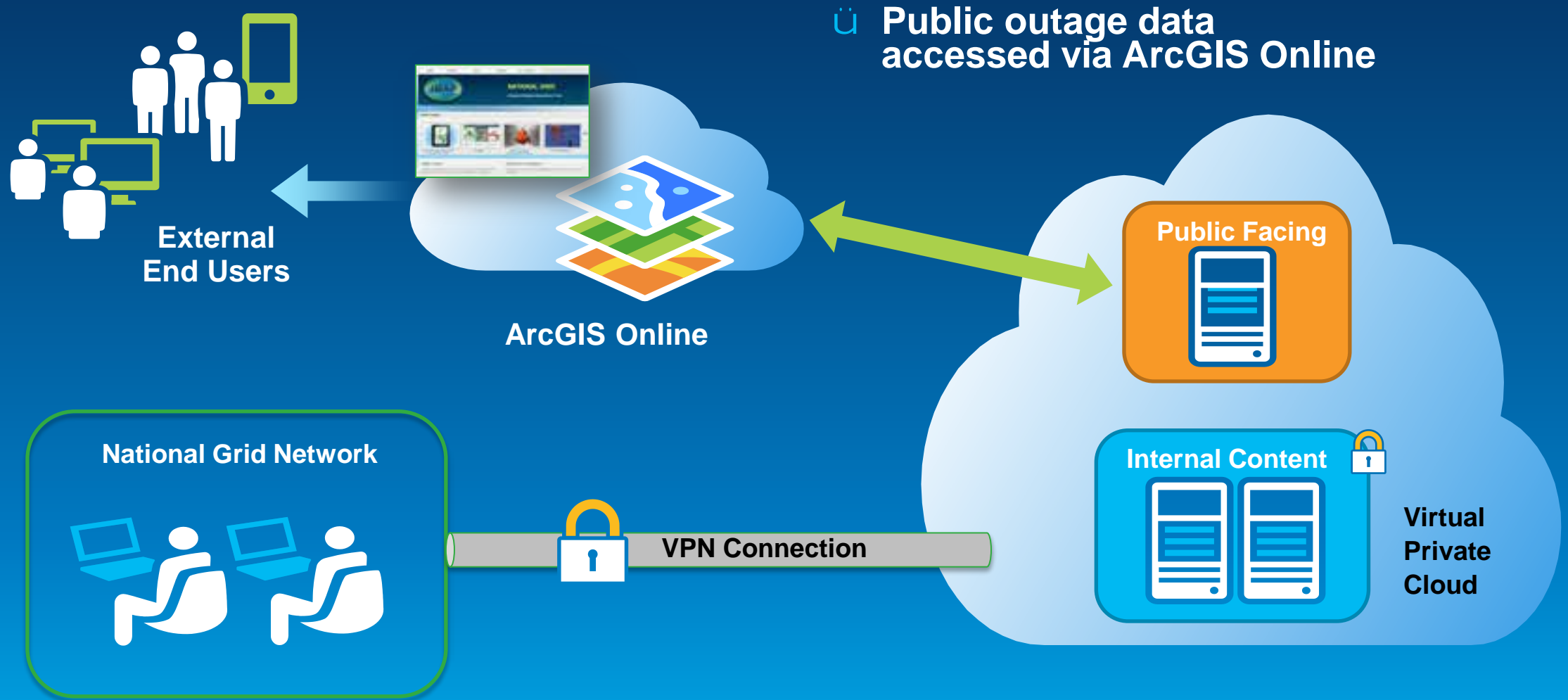
National Grid IMAP

- Sandbox used for prototyping
- Quick, easy access to GIS
- Mobile capabilities



- Hybrid ArcGIS Online + Managed Services
- Secure VPN access

National Grid IMAP Workflow



ü Public outage data accessed via ArcGIS Online

GIS Administrators & National Grid End Users

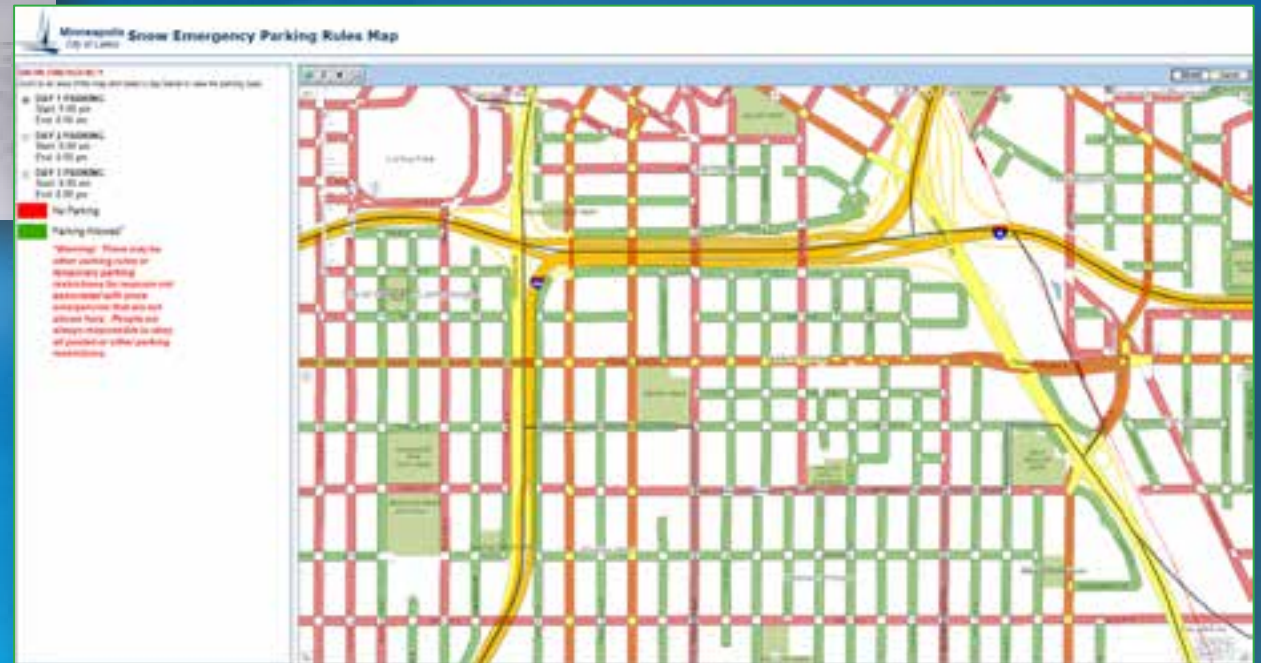
ü Internal content security accessed by National Grid
ü GIS admin publishes and updates new content

City of Minneapolis Snow Emergency

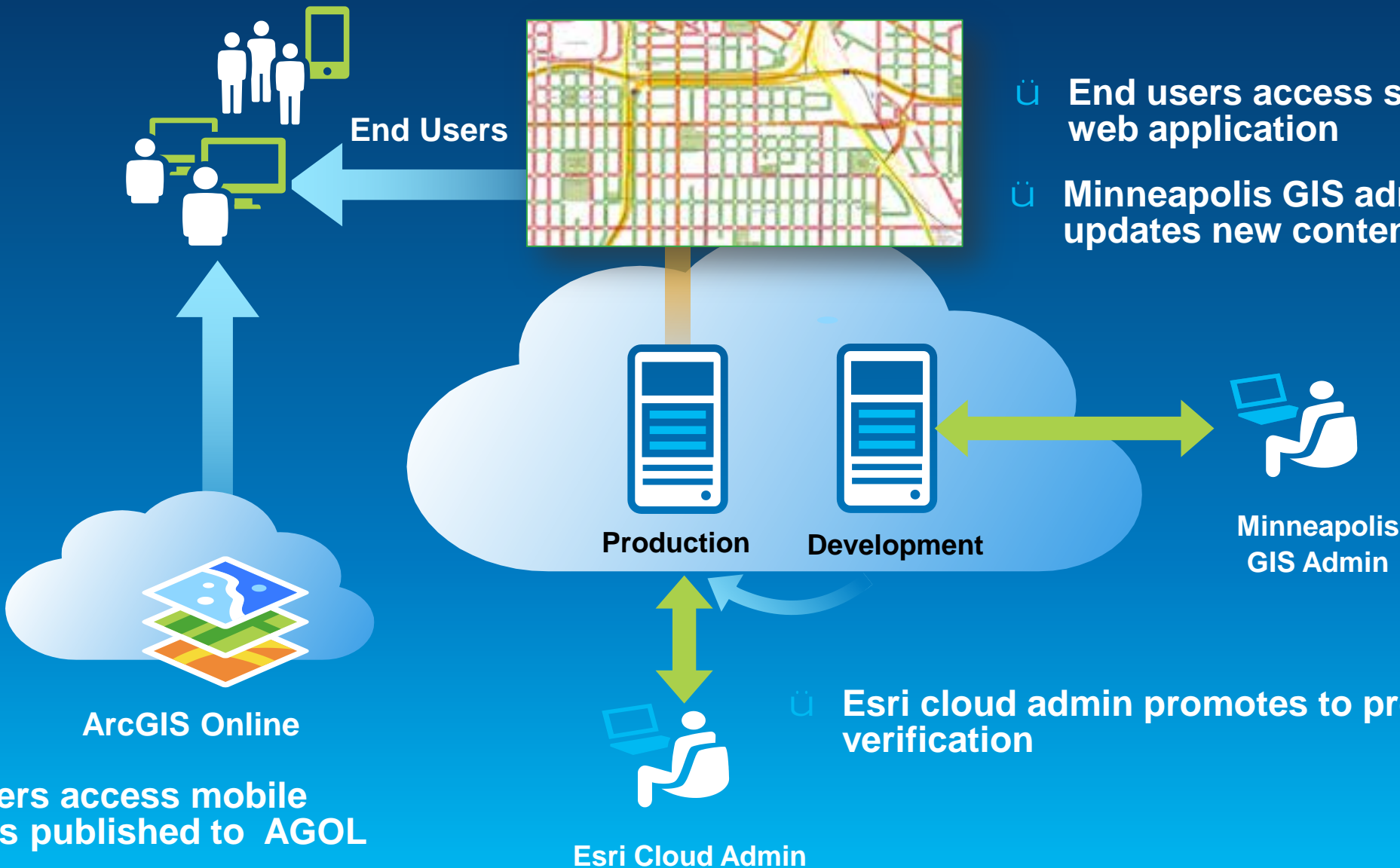


- Scalable environment available during snow emergencies
- Dev and Prod environments

- ArcGIS Online + Managed Services Hybrid



Snow Emergency Workflow



- ü End users access service via web application
- ü Minneapolis GIS admin publishes and updates new content to dev

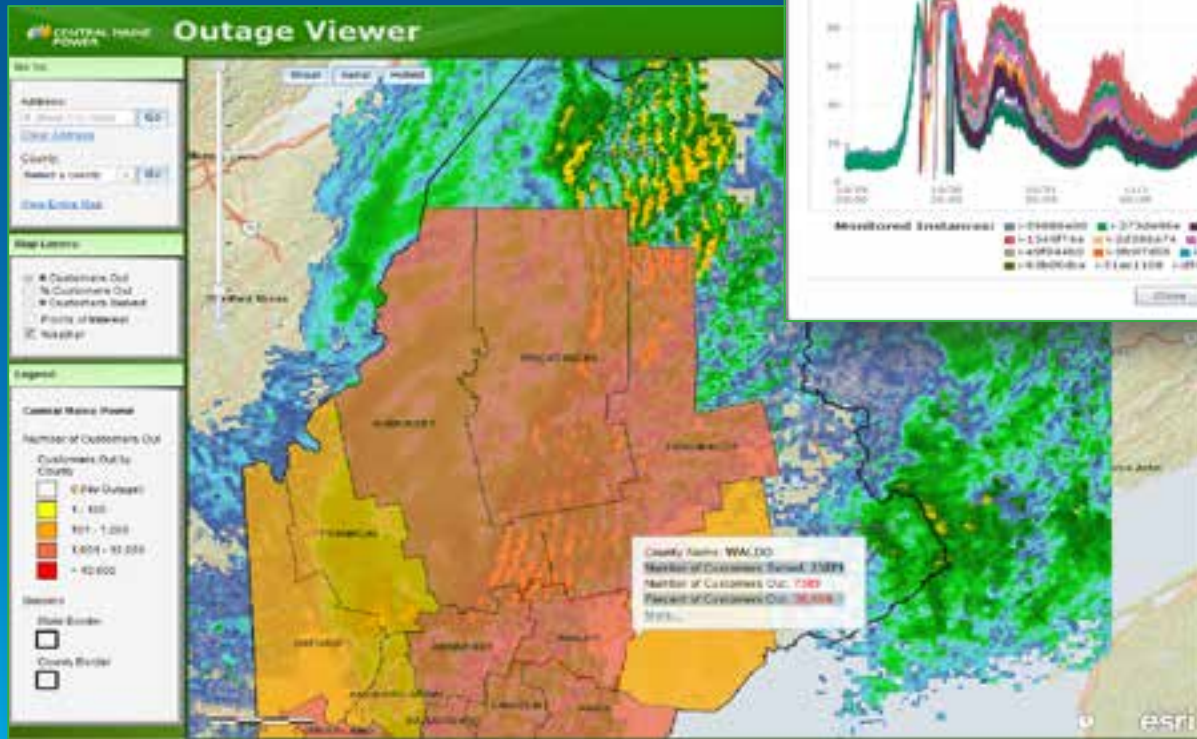
ü End users access mobile services published to AGOL

ü Esri cloud admin promotes to prod after verification

Esri Cloud Admin

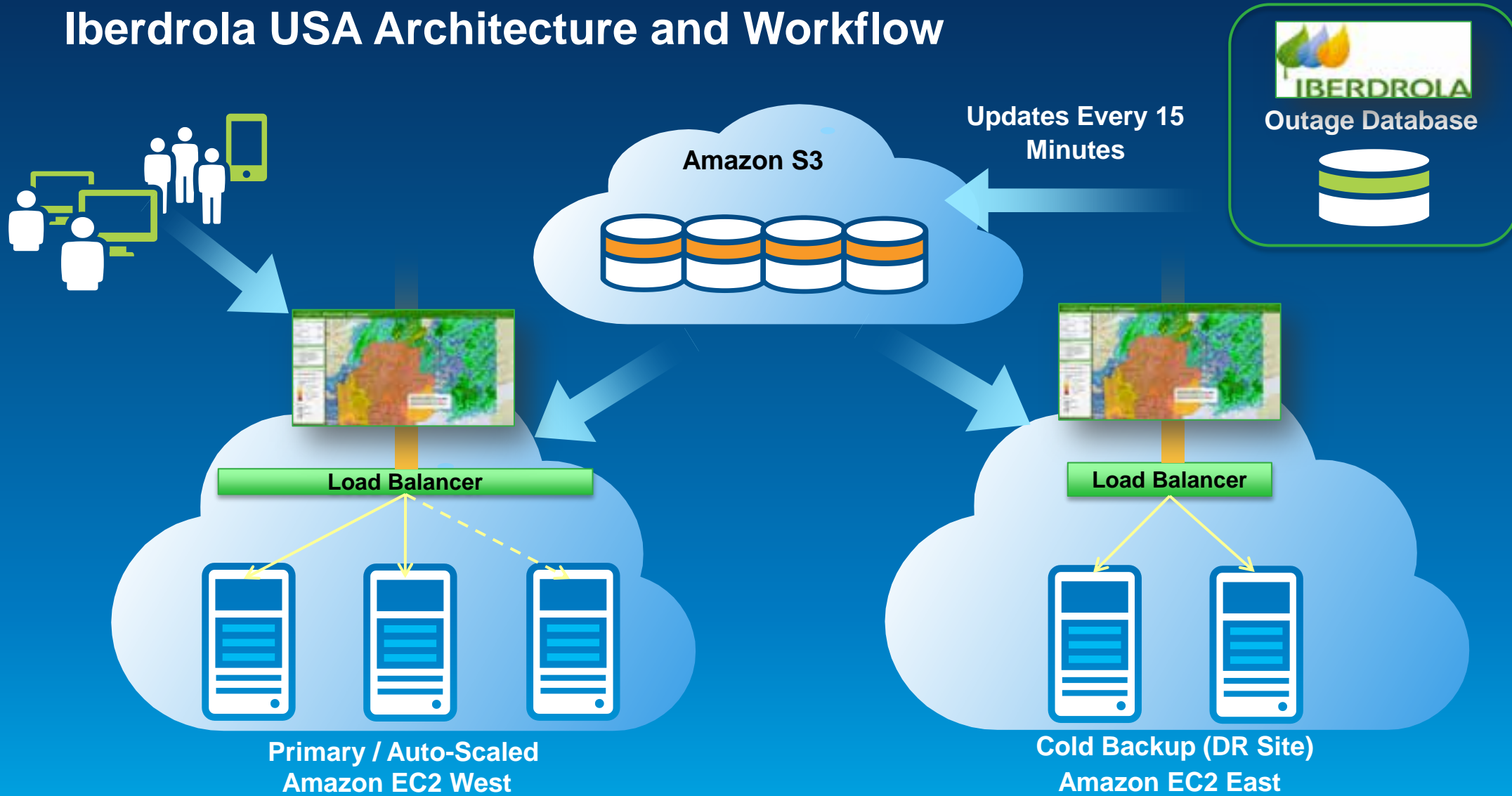
Iberdrola USA Outage Viewer

- Server Auto-Scaling
- Data Update Automation



- High Availability
- Geographic Redundancy

Iberdrola USA Architecture and Workflow



Hurricane Sandy

- 14 additional servers (17 total)
- Central Maine Power - 34 million hits over 3 days
- New York State Electric & Gas – 76 million hits over 3 days



Peak Sandy Hours

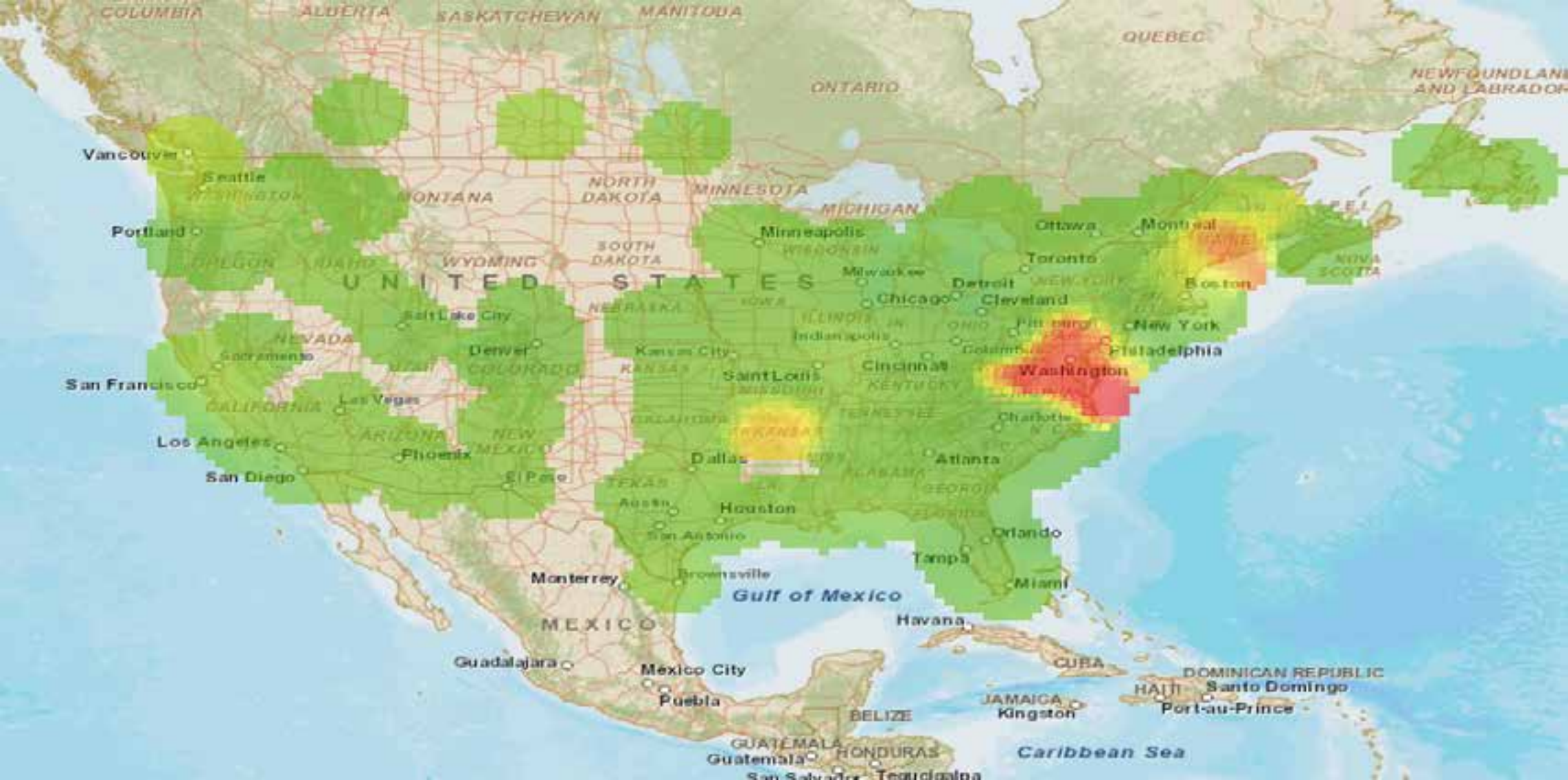
2/10/2014 -11:30 am



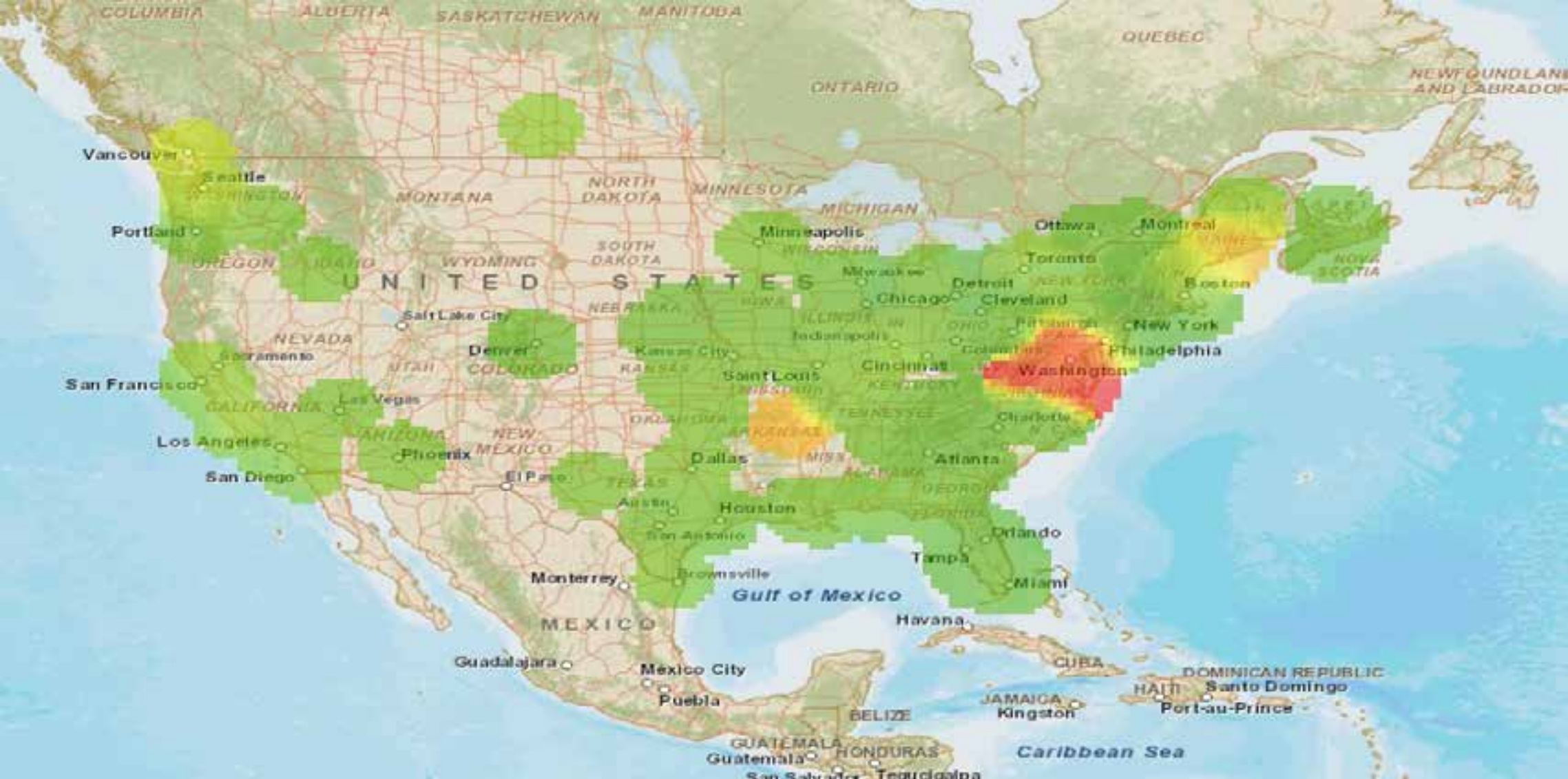
Maine – October 29



Maine – October 30



Maine – October 31



Maine – November 1



Maine – November 2



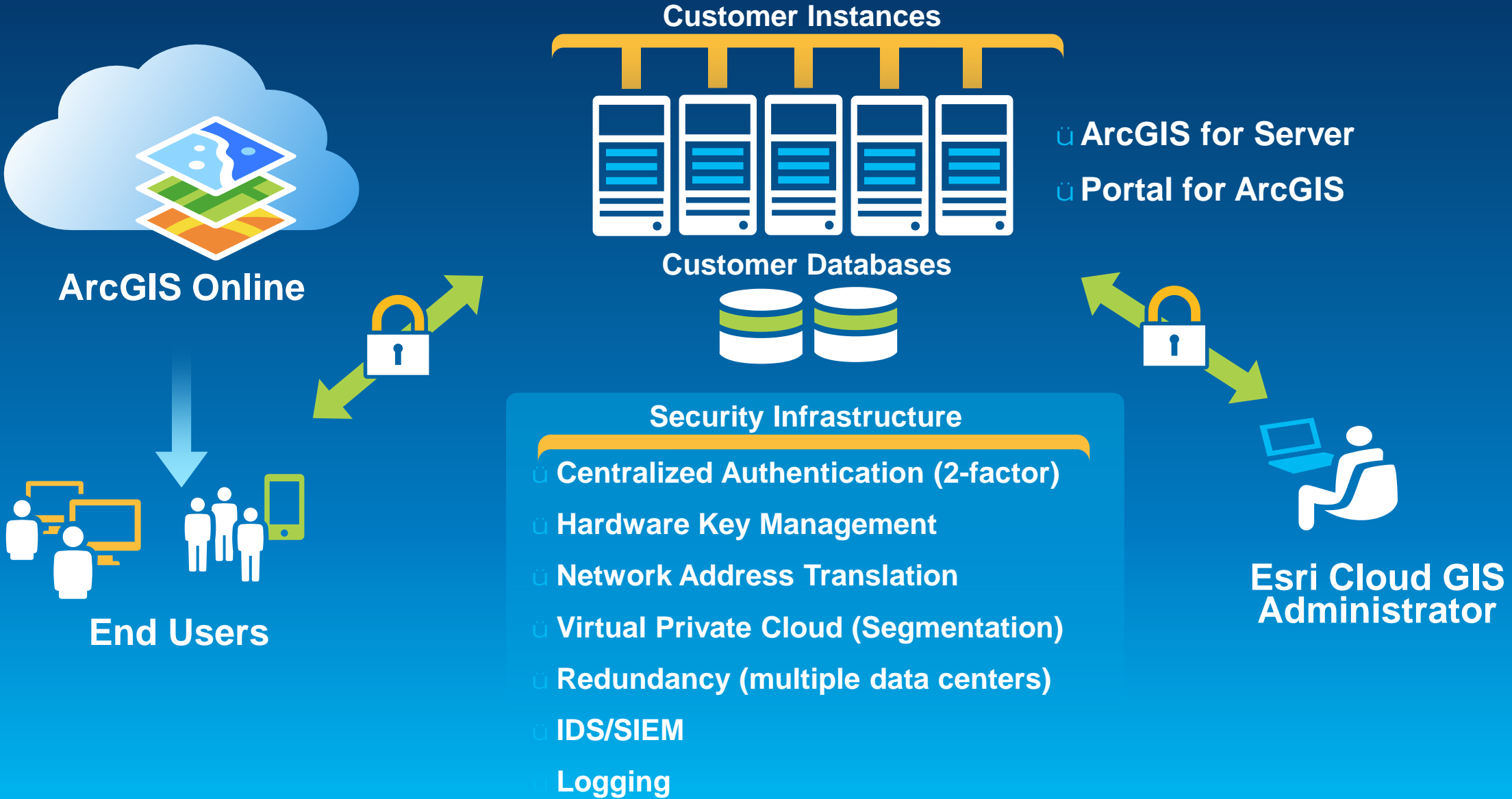
What's new in 2014?

- FedRAMP/FISMA Moderate Security Offering
- ArcGIS Desktop in the cloud support
- Utilize new platforms (Azure, CGI, Verizon, IBM)



**FedRAMP and FISMA
Moderate**

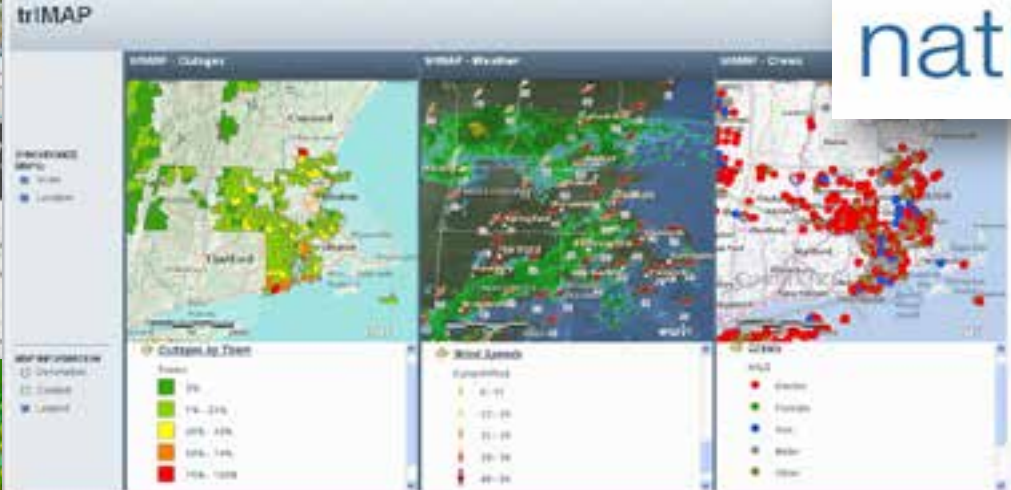
Federal Cloud Accredited Solution Overview



Many successful deployments...



Year	Temp (7)	Temp (7)	Temp (7)
1971	14	18	20
1972	14	20	20
1973	14	20	20
1974	14	20	20
1975	14	20	20
1976	14	20	20
1977	14	20	20
1978	14	20	20
1979	14	20	20
1980	14	20	20
1981	14	20	20
1982	14	20	20
1983	14	20	20
1984	14	20	20
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1995	14	20	20
1996	14	20	20
1997	14	20	20
1998	14	20	20
1999	14	20	20
2000	14	20	20



nationalgrid





Tools

Tools and best practices

- Holistic approach



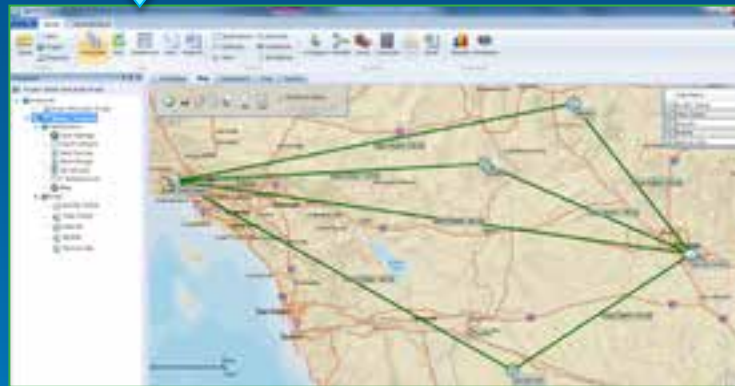
System Design



Requirements



System Designer



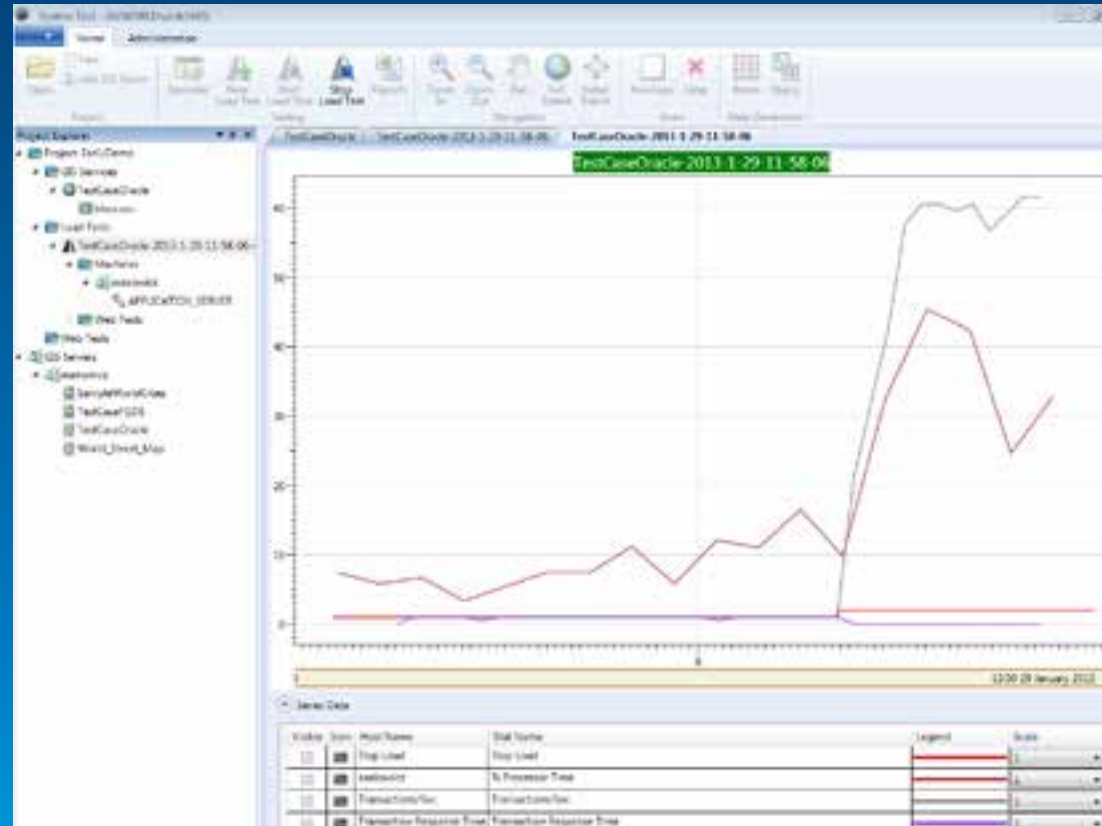
System Configuration



Deploying ArcGIS for Server

System Test

- GIS Services
- Web application



System Monitor

ArcGIS Server statistics

The screenshot displays the ArcGIS System Monitor interface. The top navigation bar includes tabs for System, Process, ArcGIS, DB, Http, RDP, Amazon, and EXT. Below this, there are sub-tabs for Alerts and Reports. The main content area shows the selected server: ASAKOWICZ1 ArcGIS Server, with a last update timestamp of Feb 9, 2014 11:43:14 AM. A search bar is present. Below the search bar, there are filters for Filter, Limit (set to Top 10), and Folder (set to All). The main data is presented in a table with columns for Chart, Name, Info, Folder, Alerting, Status, Type, Errors, Throughput (Tr/sec), Busy Time per Tr (sec), Transactions, Max, Busy, and Free.

Chart	Name	Info	Folder	Alerting	Status	Type	Errors	Throughput (Tr/sec)	Busy Time per Tr (sec)	Transactions	Max	Busy	Free
	Summary (1/1)		/		STARTED	Site	0	0	0	0	0	0	0
	SampleWorldCities		/		STOPPED	MapServer	0	0	0	0	0	0	0
	sqlserver		/		STOPPED	GeoDataServer	0	0	0	0	0	0	0
	CachingControllers		System		STOPPED	GPService	0	0	0	0	0	0	0

System Monitor

HTTP custom requests

System Monitor System Process ArcGIS DB Http RDP Amazon EXT


Alerts Reports

Http: Group: All Response Time Response Code Content Length All Refresh

Search:

asakowicz1_SampleWorldCitie Last Updated: Feb 9, 2014 11:55:52 AM

Chart	Name	Alerting	Value	Sample Interval
	Summary	●	None	60
	ResponseTime	●	1.3	60
	Content-Length	●	13,100	60
	Response-Code	●	200	60



Preview

Reporting

- **Reporting**
 - Monthly usage reporting
 - Hits, visitors, bandwidth
- **Problem and Incident Management**
 - 24/7 monitoring and support
 - System monitors detect outages and alert
 - Support contact details supplied for incident reporting



Summary

Why Esri Managed Services?

- **Expertise**
 - Enterprise GIS experts ready to support your data and apps
- **Scalability**
 - Ability to scale resources quickly due to fluctuations in demand
- **Reliability**
 - System designed to meet customer operational needs
- **Flexibility**
 - High quality offerings designed to extend GIS capabilities

Thank you