Esri Road Map for Utilities and Telecommunications

An Esri® White Paper
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Introduction

The ArcGIS® platform has emerged over the past several years as a true information technology platform. A platform connects people so they can obtain information, according to *The Age of the Platform* author Phil Simon. All of today's popular platforms—Facebook, iTunes, Amazon, etc.—do this. Platforms also share a notion of identity. They know who you are. Once you establish your identity on a platform, other platforms can identify you without a login. Platforms also attract application developers. Esri partners have been building applications off the ArcGIS platform for decades. Today, the technology makes developing, deploying, and accessing maps easier than ever. ArcGIS Marketplace has emerged as a go-to site for discovering and getting apps for use on the ArcGIS platform.

What does this mean for your utility or telecommunications company?

A lot. Platforms have changed the way society shares information, communicates, and collaborates. People move seamlessly among desktops, web browsers, tablets, and smartphones. Not long ago, utilities and telecommunication companies were wondering how to take advantage of huge asset information inventories in their geographic information system (GIS), and they were looking to strategies to do so. They struggled to collect and communicate network information to and from field crews, regulators, customers, and other stakeholders. The ArcGIS platform fixes this by enabling anyone to discover, use, make, and share maps from any device, anywhere, at any time.

The ArcGIS platform consists of three parts:

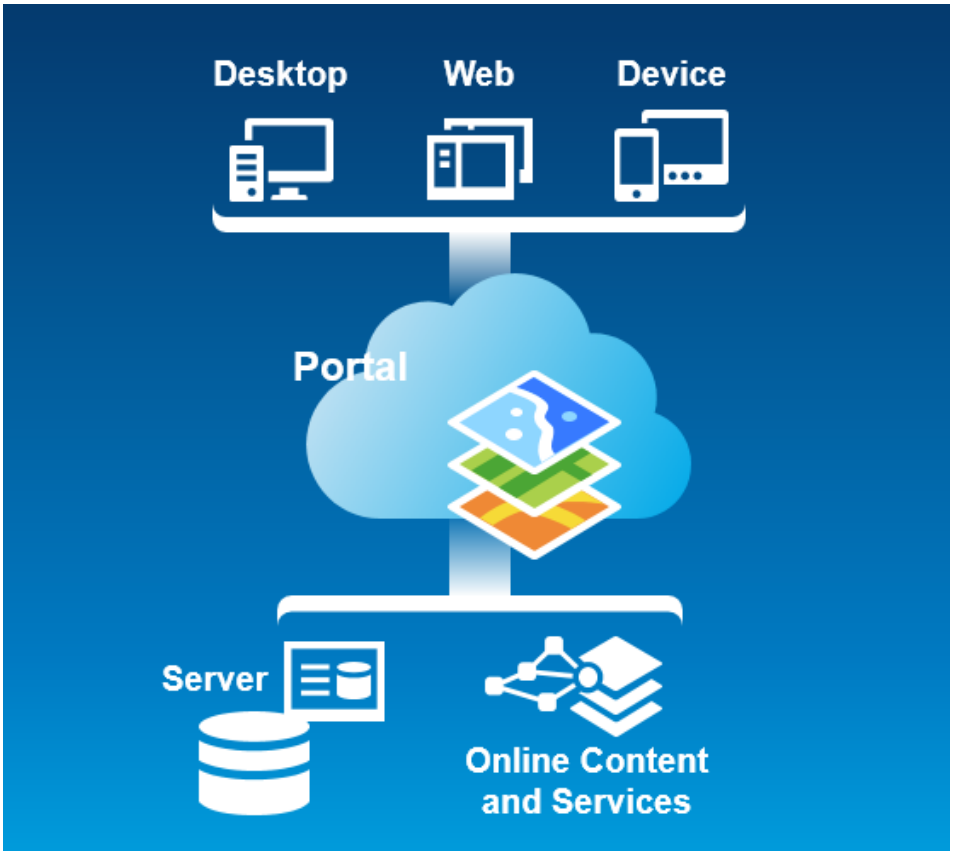

Figure 1: The ArcGIS Platform Diagramed

1. The Portal

The portal is the foundation of the ArcGIS platform. There are two types of portals:

ArcGIS Online
ArcGIS[SM] Online is a cloud-based infrastructure.

Portal for ArcGIS
Portal for ArcGIS is Esri's on-premises implementation of ArcGIS Online.

Many organizations use a hybrid of both portal types.

Regardless of portal type, your ArcGIS portal provides the hardware and software needed to connect people so they can obtain the geographic information they need.

2. Server and Online Content Services

Information is stored on a server and/or hosted on online content services. This is where network asset information resides, and where utilities can obtain information from outside companies. For instance, you may want a state's vegetation wetland overlays, a city's paving schedules, a county's fire hazards, and Esri's free basemaps.

3. The Clients

Your GIS professionals, such as those in your mapping department, use ArcGIS for Desktop. Everyone else in your organization accesses ArcGIS on the web and on mobile devices.

The ArcGIS platform is a secure, single source of actionable information. There is no limit to the number or type of users who can access it, and they can do so on any device in three clicks or fewer. ArcGIS makes it easy for you to capture your staff's institutional knowledge, which can be included in asset records and configurable rules. In essence, the ArcGIS platform delivers one corporate view of the truth.

What Should I Do Today?

1. Implement the Platform Now

Most utilities still view GIS as a traditional client/server application. This means they implement ArcGIS for Desktop and ArcGIS for Server. Sharing is possible but more difficult. They implement nearly all spatialized applications within ArcGIS for Desktop or as custom web apps via ArcGIS for Server. They then build out their data model schema to be all inclusive. The data model becomes more and more complex while support becomes more difficult.

To begin implementing the platform, set up your portal, either ArcGIS Online or Portal for ArcGIS or a hybrid, and then create your organizations and groups. Esri has made this easy by building standard electric, gas, and telecom organizations. Give your colleagues access and permissions to these, and the portal is ready to go.

You can publish your asset data to the portal as an Esri web map even without deploying the latest technology. The web maps enable you to share, collaborate, and communicate your data to anyone—on any device, anywhere. Web maps point back to your authoritative data. You can embed them directly into your website via the ArcGIS platform, making it easy to get your utility's authoritative data to the right people in the company.

Editing data takes place as it did before the platform; there is no change. It just works with the platform now.

See how easy it was for Seneca Resources to implement the platform in this four-minute video at video.esri.com/watch/3784/seneca-resources-corporation.

2. Upgrade to ArcGIS 10.2.1 for Desktop

Because it's critical to keep current, upgrade to ArcGIS 10.2.1 for Desktop, which focuses on your workflows. This version directly addresses what users and partners

identified they needed out of ArcGIS for Desktop, including updates for reconcile and conflict management, the geometric network, and replication. Esri developers recommend utility and telecommunication users keep using ArcGIS 10.2.1 for Desktop as they continue to build patches for this release. In addition, they recommend users keep current with other Esri products, including ArcGIS for Server.

3. Take Advantage of Template Maps and Apps

The best way to begin leveraging your platform is to download Esri's organizational models from the ArcGIS Resources site. This helps you understand how to take advantage of the focused solutions Esri offers.

The Esri solutions site has numerous template maps and apps available for addressing the common issues facing today's electric, gas, and telecommunication companies. The ArcGIS for Gas Utilities site, for instance, shows solutions for emergency response, regulatory compliance, and leak surveying. And Esri adds to these workflows each month. Visit solutions.arcgis.com/utilities to obtain best practices.

For more information on the ArcGIS templates for utilities and telecommunication companies, visit solutions.arcgis.com/.

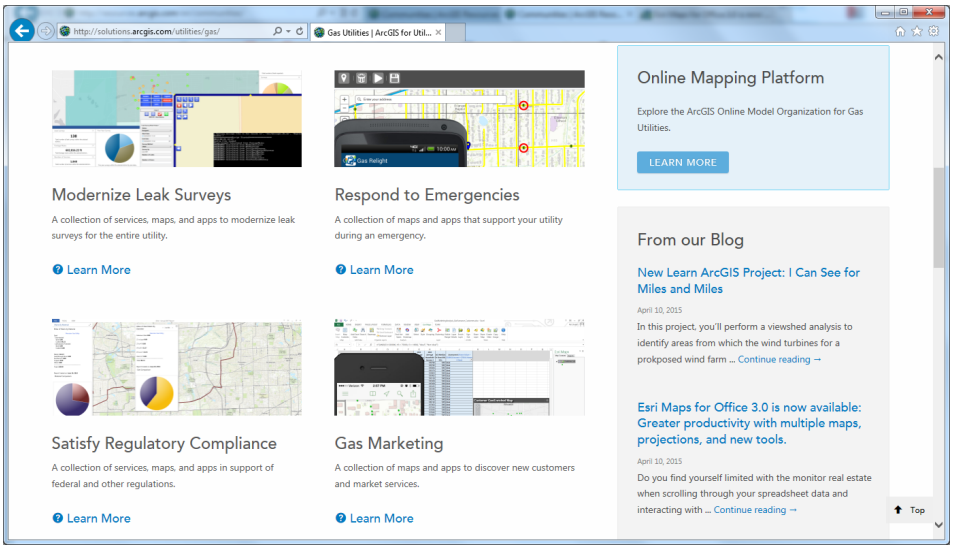

Figure 2. Esri Solutions for Gas Utilities Website

4. Take a Look at ArcGIS Pro

ArcGIS Pro is Esri's latest addition to the platform. It is a standalone desktop application that runs alongside ArcGIS for Desktop. Although users cannot edit network data, they can use ArcGIS Pro for 2D and 3D mapping, creating projects and tasks, performing spatial analysis with simple wizards, and generating web maps.

Learn more at pro.arcgis.com/en/pro-app.

5. Spatially Enable Your Real-Time Data

Sensors are increasing rapidly, enabled by the Internet. The ArcGIS platform brings all your real-time data into maps, providing an intuitive approach to understanding your network. You can show critical live data, such as real-time crew locations, advanced metering infrastructure (AMI) customer data, and SCADA and distribution management system (DMS) feeds—all on a map—by using Esri's ArcGIS GeoEvent™ Extension for Server. Best of all, you can access this map from any device.

Learn more about what ArcGIS GeoEvent Extension for Server can do for you at esri.com/software/arcgis/arcgisserver/extensions/geoevent-extension.

What Are My Next Steps?

Once your organization upgrades (or plans to upgrade) to ArcGIS 10.2.1 for Desktop and you have downloaded and tried a couple of relevant utilities solutions, your next steps are your choice.

Esri strongly suggests you continue using ArcGIS 10.2.1 for Desktop. However, you may take advantage of continued advancements in other areas of the platform, such as ArcGIS 10.3 for Server, which has many exciting improvements (e.g., inclusion of portal, new services for real-time data and 3D, and monitoring tools).

Utilities and telecommunication companies have sustained growing interest in mobile GIS applications, as they move away from desktop-only analysis and updates. Esri offers many out-of-the-box mobile applications, including Collector for ArcGIS, Explorer for ArcGIS, and Operations Dashboard for ArcGIS. New applications are always on the way. Some organizations also use Esri's ArcGIS Runtime SDKs to build their own mobile applications. Look for regular updates and releases to support utility- and telecom-specific workflows, such as emergency response.

Esri solutions engineers are also determining the next map and app releases for ArcGIS for Utilities. Projects under way include continually building on the foundational offerings, as well as providing your utility with additional solutions in such areas as customer care and emergency response. Look for Esri blogs, web updates, and e-mails for information related to these solutions. They are an excellent starting point for understanding utility- and telecom-specific uses of the ArcGIS platform and the capabilities your portal offers.

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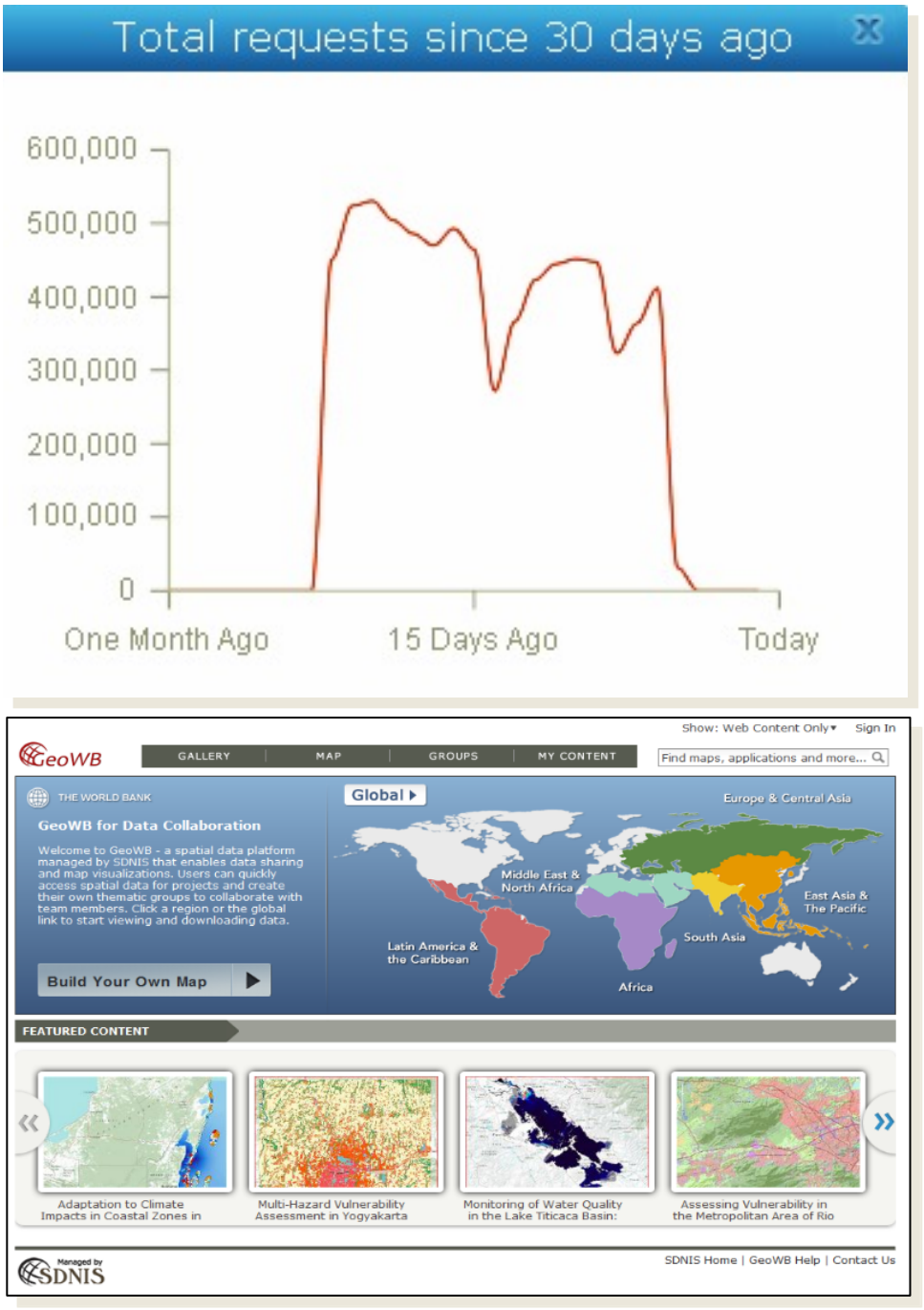

Figure 3. ArcGIS makes sharing maps and information easy.

The Road Ahead

As your ArcGIS portal makes information and GIS capabilities available across your organization through centralized map and app sharing, you'll see gains in functionality. That being said, you have additional means to provide even more functionality by extending the platform. For instance, your utility could make the network available

wherever users wish to access information—including on mobile devices and offline—to update and analyze data.

Currently, Esri is redesigning its core network management infrastructure from the ground up. ArcGIS Pro will be the first out-of-the-box client for this new network model. This work continues to expand the platform's capabilities and reach, so your utility or telecom can complete its work regardless of the device you prefer to work on. The goals driving this redesign, which you can take advantage of on the new core infrastructure, include the following:

- Enhanced performance and scalability
- Reduced cost of ownership
- Greater efficiency and productivity
- Higher quality data
- Improved enterprise interoperability

The network-management project will expand functionality toward meeting common utility and telecom business drivers, including these:

1. Data/Asset Management

- **Performance and scalability—**Optimized data and transactional models that reduce the number of queries and administrative overhead, while adding capabilities such as parallel and partial posting
- **Data quality—**Editing tools that understand the utility and telecom data models and enhanced QA/QC capabilities as part of the core model

2. Planning and Analysis

- **Expanded information model**—Includes phase, life cycle, and source management
- **Integration functionality**—Allows more seamless extraction of data and connectivity information for subsequent loading into external modeling and analysis packages (e.g., OMS, DMS)

3. Field Mobility

- **Offline capabilities**—Takes the network in the field for editing and tracing
- **Mobile applications and SDKs**—Allows management of transactions in the field, including taking transactions offline

4. Operational Awareness

- **Alternative network views—**Supports both geographic and schematic representations of the data
- **Ability to override device status**—Enables you to run analyses in "normal" and "operational" modes depending on requirements

Please note: To prepare well for this new network management capability, your organization must migrate to ArcGIS 10.2.1 for Desktop.

Much more information will become available to complement these highlights prior to the actual release. Esri anticipates the release occurring as early as Q4 of 2015 or as late

as Q1 of 2016, coinciding with the release of ArcGIS 10.4 and ArcGIS Pro 1.2. This initial release will include a complete information model but may have limitations (on the transactional side) that will be addressed in subsequent releases.

Summary

Action you can take now includes the following:

- Deploy your portal, either ArcGIS Online or Portal for ArcGIS.
  - Create named users.
  - Work with web maps.
  - Deploy applications.
  - Familiarize yourself with additional pattern uses.
  - Download applications for ArcGIS for Electric Utilities, ArcGIS for Gas Utilities, and ArcGIS for Telecommunications.
  - Use the ArcGIS for utilities maps and apps to guide your implementation.
- Upgrade to ArcGIS 10.2.1 for Desktop and stay current with patches.
- Deploy your utility solutions available at solutions.arcgis.com.
- Explore ArcGIS Pro.
- Integrate real-time data via ArcGIS GeoEvent Extension for Server.
- Continue to check out the Esri website for additional enhancements to the ArcGIS platform.
- Join the conversation on GeoNET, Esri's social media site.
- Keep up to date with Esri announcements regarding the network management project.

Esri inspires and enables people to positively impact their future through a deeper, geographic understanding of the changing world around them.

Governments, industry leaders, academics, and nongovernmental organizations trust us to connect them with the analytic knowledge they need to make the critical decisions that shape the planet. For more than 40 years, Esri has cultivated collaborative relationships with partners who share our commitment to solving earth's most pressing challenges with geographic expertise and rational resolve. Today, we believe that geography is at the heart of a more resilient and sustainable future. Creating responsible products and solutions drives our passion for improving quality of life everywhere.

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