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Developing a Real-Time GIS Strategy

Brian Baldwin

Do you have a strategy?

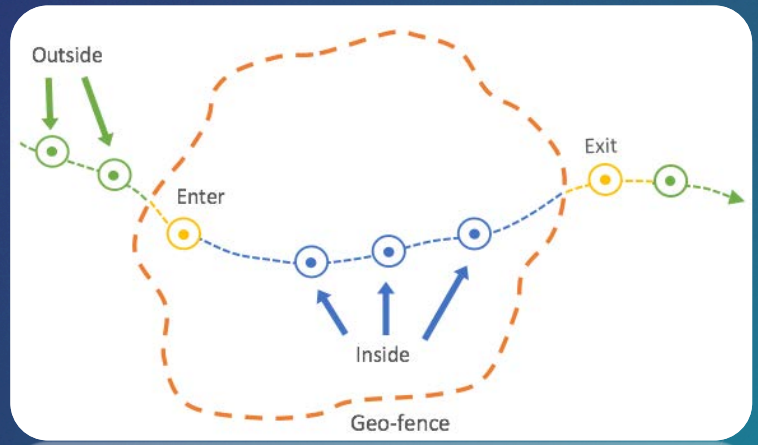
Best Practice: Real-time GIS Strategy

Display, analysis, and dissemination of streaming location data and attributes from sensors, devices, and social media feeds

Ingest | Analyze & Filter | Disseminate

Attributes from fixed sensors
(Electric Meters)

Locations from moving assets
(Police Cars)



Create alerts when moving assets across a predefined bound

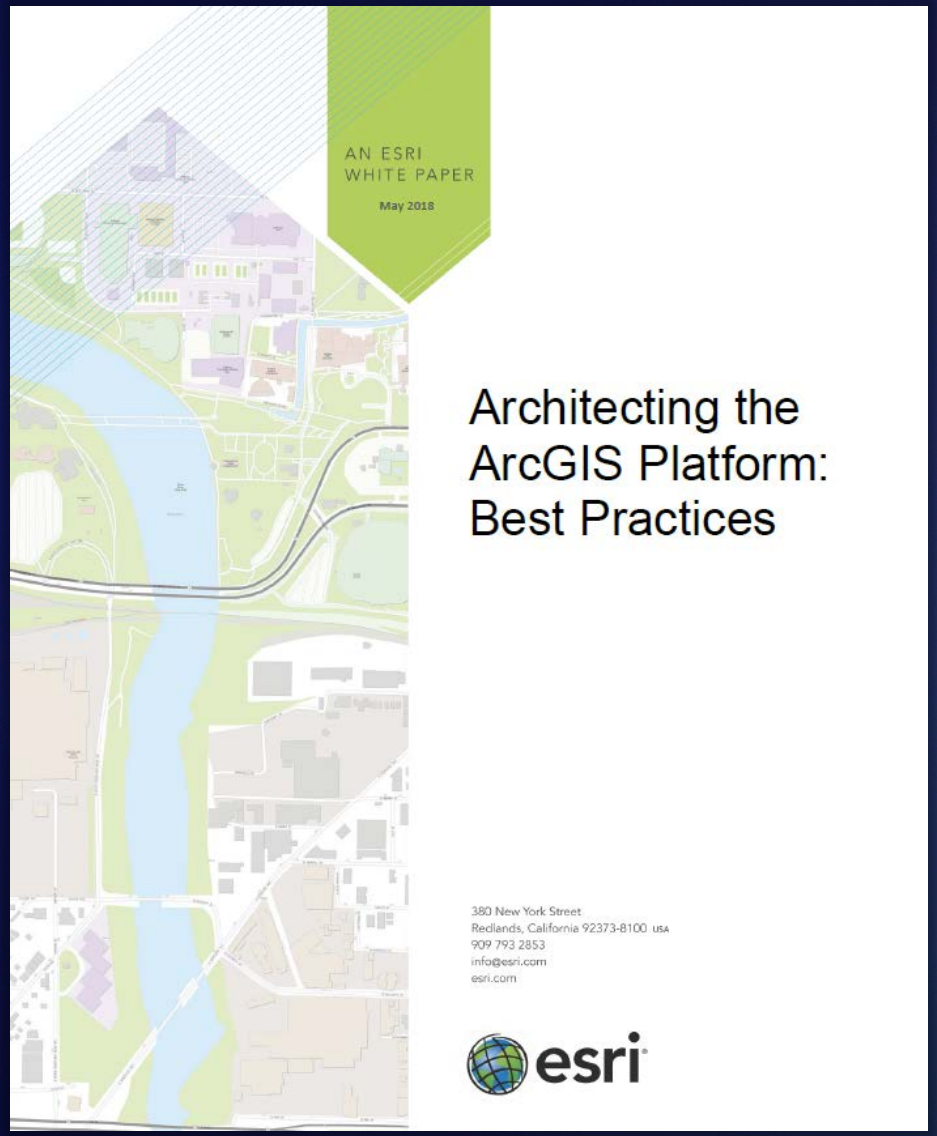
Easy as…

1 - 2 - 3

1. Ingest
2. Transform
3. Disseminate

Do you have a strategy?


We
~~Do you~~ have a
strategy!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Architecting the
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380 New York Street
Redlands, California 92373-8100 USA
909 793 2853
info@esri.com
esri.com
esri


Load Balancing
May 2018
Architecting the ArcGIS Platform: Best Practices
Load balancing is a technique for distributing client workloads across multiple computing resources (such as physical servers, virtual servers, or clusters). Load balancing, either by software or hardware devices, is a recommended best practice to balance system utilization, reduce risk, simplify service delivery and growth, and improve the security of backend servers.
Introduction
Distributed GIS
May 2018
Architecting the ArcGIS Platform: Best Practices
A distributed GIS is an integrated set of GIS deployments working together and sharing content as part of a trusted collaboration. Implementing a distributed GIS is an effective way to leverage authoritative data, foster communication and engagement across user types, and glean insights from data to generate powerful location intelligence. A distributed GIS also preserves departmental control over data and workflows while contributing to and supporting the needs of the enterprise.
A Modern Approach to Sharing Information
Public (everyone)
Partners (secured)
ArcGIS Online
City
select content
ArcGIS Enterprise
Police
City
Water
Fire
Public Works
Real-time GIS Strategy
May 2018
Architecting the ArcGIS Platform: Best Practices
Real-time GIS allows organizations to tap into streaming data from sensors, devices, and social media feeds for simultaneous analysis and display. With real-time GIS, maps and databases are continuously updated, trends are observed as they form, and key personnel are alerted the moment activity or performance reaches a critical threshold. Organizations that embrace location in their real-time capabilities can quicken decision making and responsiveness.
Introduction
Real-time location data is increasingly important in modern enterprises, enabling organizations to track the location, performance, and status of the assets and environments relevant to their missions. Real-time GIS lets organizations manage, analyze, and disseminate this data as observations occur. By treating real-time GIS as a core capability, organizations can enhance their operational awareness and maximize the impact of their decisions.
Recommendations
Plan an approach to ingest and manage real-time data, transform that data into actionable information through analytics, and disseminate the intelligence to the right people as part of a real-time GIS strategy.
Orchestrate real-time data ingestion from a wide variety of locations and sources, so decision makers and operations teams can access information as events occur. Ingestion can mean the consumption of real-time data streams for immediate display, as well as the persistence of observations for later analysis and use. ArcGIS ingests data regarding the location, performance, and status of teams, assets, products, environments, and services from Internet of Things (IoT) sensors and devices, as well as social media feeds and web APIs. Choose from a variety of patterns to manage the ingestion of real-time data that will contribute to operational awareness and business performance. Broadcast event data with a stream service to provide immediate event visualization, and optionally archive the data to an enterprise relational database or spatiotemporal big data store.
Once real-time data is ingested, analyze and filter incoming data on the fly so decision makers can address changes as they occur. High-volume and high-velocity data can be overwhelming, even when displayed on a map. Use location-based and attribute-based filters to evaluate incoming data and determine its relevance and importance. For example, apply a spatial filter based on a geo-fence to determine if an asset is inside, outside, entering, or exiting an area (see figure 1). Additionally, to increase intelligence and insight, analyze and enrich incoming data using processors capable of performing mathematical, spatial, and geometric operations. Transform and enrich real-time data to make it more relevant and actionable to decision makers.
Outside
Exit
Enter
Inside
Geo-fence
Figure 1: Use of a spatial filter to determine the location of a moving asset in relation to a geo-fenced area
Decision support is enhanced when organizations disseminate real-time data that has been transformed into actionable information. Dissemination occurs through notifications, including a variety of output options that can be addressed to the appropriate user, application, or system for action. For example, the location of moving assets (such as active snow plows) or the status change of stationary assets (such as radiological sensors) can trigger a notification to key personnel via text message and/or to another system for action via a web API.
It is important to consider real-time data from moving and stationary assets to optimize business performance and improve decision support. Organizations need access to current and actionable information, which is increasingly being streamed from sensors and devices. Organizations that embrace the location aspect of their real-time data are able to react more quickly to dynamic situations and make faster, more informed decisions.
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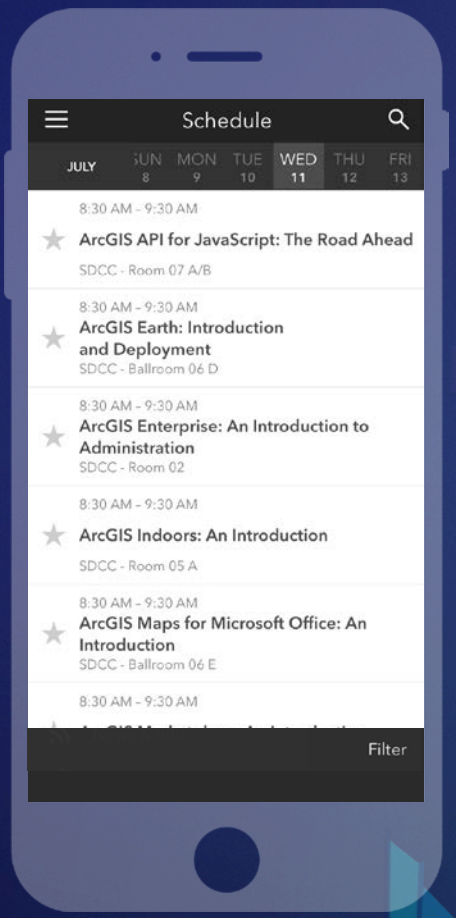
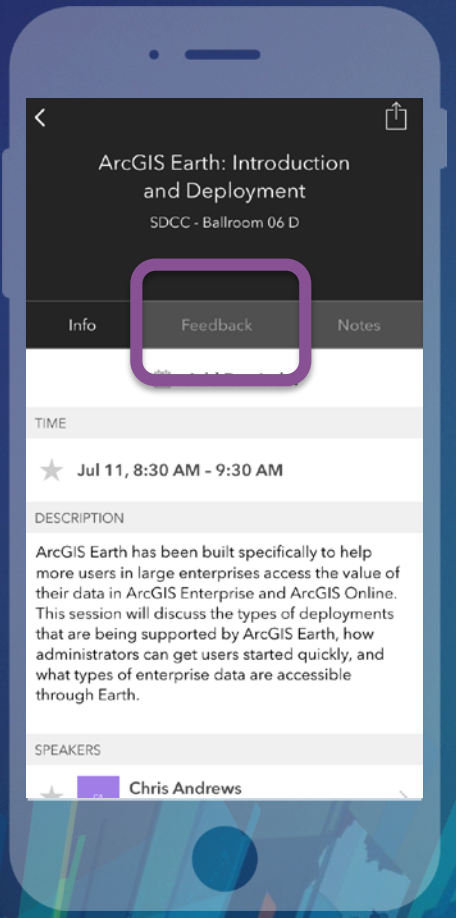


Select the Feedback tab



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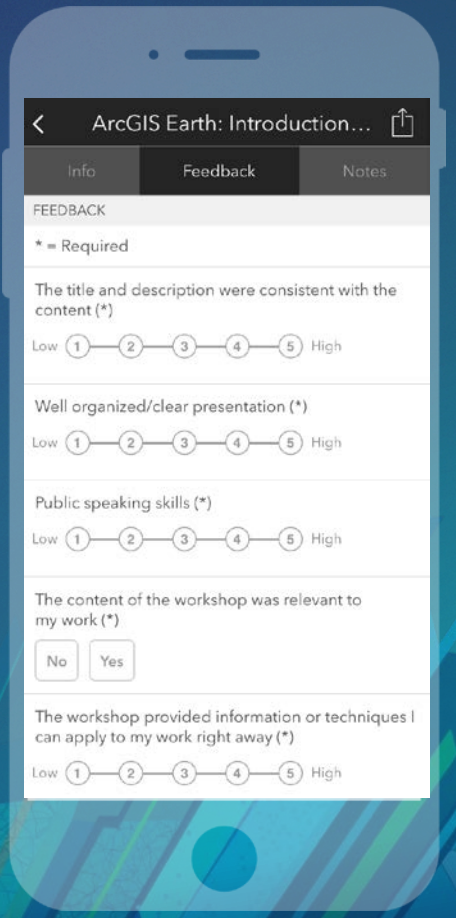


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