Building the Modern Utility

A Business Case for the ArcFM Solution and Esri's Utility Network Platform

Introduction

The ArcFM Solution together with Esri's Utility Network (UN) platform provides a new frontier for the modern utility. With the advent of any new platform comes a potential for better solutions, faster results, and lower cost to implement. Esri's new Utility Network (UN) platform is no exception. The UN boasts better frameworks and APIs giving ArcFM new ways to meet the demands of a modern utility and provide additional value over its predecessor. In fact, so much has changed with this new platform that utilities can now look beyond the value of a better system-of-record and start seeing this as a key technology for digital transformation. In other words, the ArcFM Solution and the UN can be applied in new ways; supporting use-cases previously unattainable and better return on investment (ROI). To move into this new frontier, utilities will need to adjust their business cases based on the following value propositions gained from the ArcFM solution on Esri's Utility Network platform:

Performance and Scalability

While building a business case for a new platform, core technology gains are the first thing to considered. We all want faster computers, bigger phones, and connected devices. It's an upgrade from the older model and makes our lives easier. It's no different with ArcFM Editor XI on the Utility Network. It's much faster and more scalable than its predecessor. With the addition of 64-bit architecture; anyone using ArcFM Editor XI to view facility data or run analytics will see a new level of performance. And ArcFM Editor XI uses the UN's new indexing system, accommodating to larger networks and expediting complex operations. What this translates to is ArcFM Editor XI providing quicker turn-around for end-users getting their work done, reduced as-built backlogs and faster updates to mission-critical systems like OMS.

Accommodates the Modern Workforce

Along with faster technology, Esri built the Utility Network with a services-based architecture, which is a pattern that provides platform capabilities and APIs through web-services. This pattern is easier to implement and maintain, and superior in platform accessibility. A business case for the ArcFM Solution and the UN should include cheaper and easier ways for engineers and field crew to leverage GIS data in their every-day work. The UN has made it much easier, through web-services, to

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supply network data and analytics directly to apps with the ArcFM Solution. These apps could be anywhere, on any device, day or night. This, in turn, offers network and operational intelligence directly to field crews, preventing lengthy inquiries and paper processing. It also supports a safer work environment by enabling quicker communication to the office on network specific operations via GIS. Therefore, a business case for the ArcFM Solution and the UN should include coverage of more use-cases and workflows and a greater effect on the workforce through the propagation of location-based network information.

Foundation for a Digital Twin

The Utility Network is the foundation for a digital twin. This means it's capable of handling much more detail than its predecessor. That detail can be used to model a more accurate representation of your network; a "digital-twin" of the real thing. Having a more accurate network model isn't inherently valuable until you put it to work within the ArcFM Solution. Having greater detail in the network means ArcFM Editor XI can readily visualize more intricate components, from substations to renewables to network sensors and real-time data feeds. This, in turn, leads to better decision making using ArcFM's analytics. Also, this allows ArcFM to produce more detailed maps to work with and finer granularity to the types of changes or adjustments that can be modeled. And parallel to better maps, this detail produces more accurate schematics for engineering. Finally, having greater detail in GIS will remove a complicated layer of ETL (extract, transform, load) for integrations between ArcFM and operational systems such as ADMS which lower the total cost of ownership for data exchange and improve ArcFM's ROI.

Improved Network Interrogation

The Utility Network has gone well beyond the connection of points and lines. Part of developing a digital-twin is giving those points and lines meaning relative to each other. To support this, the Utility Network was developed to have an innate understanding of each network's connected devices, the commodity they deliver and hierarchy within the network. Esri calls this platform capability "sub-network management" and it provides ArcFM with quick access to logical network information, tracing capabilities, validation results, and operational scenarios. What once took a great deal of compilation and tooling is now readily accessible via workflows within the ArcFM Solution. The UN also provides an enhanced topological engine that allows ArcFM Editor XI to analyze networks in new ways. For example, new functions like Explicit Associations let ArcFM connect and locate meters that

are logically connected (instead of physically connected) to a transformer. Concepts such as Containment are also baked into the Utility Network so ArcFM can support key workflows needed to manage underground conduit systems and complex communications networks. All said, the ArcFM Solution offers new gains in how it uses a more intelligent network.

Better Data Quality

The Utility Network also provides more robust frameworks to analyze and detect data validation errors. These frameworks are embedded into the utility network and ensure that all GIS edits follow the same rule-base, business logic and security. This alone can bolster a business case eliminating data latency and improving accuracy. ArcFM extends these frameworks with out-of-the-box Validation Rules and specific workflows designed for the GIS editor while making map corrections and importing as-built work. ArcFM tools like Session Manager, ensure map corrections and edit sessions are wrapped in the proper workflow, getting necessary approvals before being posted or further quality checks from asset management integrations. Using these new frameworks along with tools like Session Manager, ArcFM can validate any number of processes such as the validity network edits or the adherence to business rules and standards.

Considering Hi-fidelity Data

While the Utility Network opens the doors to a hi-fidelity data model, that doesn't mean it has the data to support it. Utilities are finding their current paper-laden processes is a barrier to realizing a hi-fidelity network. A new requirement has emerged alongside the UN: apps that can create and send hi-fidelity data to the Utility Network. Two vital workflows are being emphasized to surmount this barrier: the design process and the as-built (map correction) process. Both workflows need applications that create higher-fidelity data, and applications that support the Utility Network. The ArcFM Solution XI Series, as a solution designed for the Utility Network, is built with a hi-fidelity data model in mind. Designer XI, an engineering tool, comprises of both compatible units and a hi-fidelity specification catalog. As engineers' sketch designs, high-fidelity data is created and added directly to the Utility Network. ArcFM Mobile, a mobile as-built editing tool, can apply digital inputs, such as barcodes, GPS and high-precision editing directly to a Utility Network. Both applications take on the characteristics of the data model from the Utility Network providing digital inputs for efficient operations and easy commissioning. If the value of more detailed data is considered within a business case, it needs to coincide with applications that can handle that type of data input and support the Utility Network..

Conclusion

Moving forward with the ArcFM Solution and Esri's Utility Network should be considered an essential part of any digital transformation strategy. It's a paradigm shift in the capabilities and user-experience and requires thoughtful planning and consideration. The value of a digital twin, a performant and scalable platform, better data quality and incorporation of modern network concepts provide a clear level of value for the ArcFM Solution and the Utility Network..

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