CYIENT

GIS EAM TRANSITIONING TO ESRI UN WITH MAXIMO INTEGRATION USING MAXIMO SPATIAL

Overview

Our customer, a large water utility in the UK, embarked on a major transformation program focused on significantly improving its asset management life cycle capabilities, including implementing the latest Esri Utility Network (UN) and IBM Maximo integration. They partnered with Cyient to design, implement, and migrate their existing legacy GIS to Esri's ArcGIS UN and integrate it with the new EAM system, IBM Maximo (MAS 8.x).

Esri UN is a next-generation GIS solution for utilities, offering several benefits over the Geometry Network (GN), such as improved data quality, enhanced network performance, increased operational efficiency, and better decision-making. However, for utilities using the legacy Esri GN with IBM Maximo integration, the transition requires a major revamp to accommodate the new Esri UN structure. Cyient's solution uniquely addressed all these challenges by offering multiple solutions to integrate Maximo with Esri UN seamlessly.

The Challenge

Esri's UN Feature layer structure is completely different from that of the GN

The Esri GIS-Maximo integration has been designed to work with the GN Feature layer, where every feature layer is mapped to one asset type in Maximo. Once Esri moved to the UN, all feature layers have been merged into a single layer—the "Device" feature layer. Hence existing Maximo-asset type mapping with the GIS feature layer will not work

Given these major changes, many utilities are still undecided about migrating to the UN. For many, it is tempting to stay with ESRI GN and not risk transitioning to the UN which entails redesign and rebuilding of Maximo integration. However, this would just be a short-term gain, for Esri UN is the future of network visualization & analysis and Utilities will have to find a solution for Maximo-Esri UN integration sooner or later



The Cyient Solution

Drawing on our decades of experience in GIS projects and extensive expertise in Esri UN migration, Cyient has developed a unique solution framework for the transition. It targets not just UN migration but also integration of Esri UN with Maximo to address UN integration-related challenges. Our solution offers multiple options to seamlessly integrate Maximo with Esri UN.

There are the two key solution approaches in Cyient's Esri UN-Maximo integration:

 The Device layer in ESRI UN holds all asset data and its corresponding attribute values. This layer contains specific attributes such as AssetGroup and AssetType, which can be used for mapping with Maximo asset types and corresponding attribute records. It is assumed that there is already a unique key between Esri and Maximo to correlate the same asset on both sides. By using Definition Query in Esri, the Device layer can be further broken down into sub-feature layers by applying filters on AssetGroup and AssetType and selecting relevant attributes for the AssetGroup. Each of these subfeature layers can be published as a separate feature service. Maximo can consume each of these feature services and map them to individual asset types and their relevant attributes.

[Please refer to the below diagram #2 for a detailed explanation of how Definition Query is used in Esri to fetch a set of records for an AssetGroup. This record is imported into a Geodatabase. To publish this record set as an independent feature class service, a separate project file (.aprx) is created and published.]

 In the second option, the entire Device feature layer in Esri UN can be made available to Maximo as a single feature layer service without breaking it into multiple sub-feature layers. Maximo can then consume the whole Device layer as a single feature service. The Device layer data can be segregated and transformed into Maximo data structure for each asset type and its corresponding attributes using various conditions and filters in the Maximo "JSON Mapping" application. The inbound integration batch job in Maximo will use the trigger field in GIS for the feature service query to auto create or sync Esri UN records in Maximo.



Diagram 2: Use of Definition Query to Segregate Asset Group Records



The Results

The proposed solution offered several benefits to our customer:

- Cost-effective, stable, and risk-free interface design
- High performance and scalability to accommodate future asset growth plans for utilities
- Enforced data integrity and reduced data entry errors
- Support and enhancement of field workforce solutions, such as Maximo Scheduler and Maximo Mobile capability

- Dynamic visualization and analysis of assets in the MAP application in Maximo
- Optimization of asset performance, maintenance, and replacement work
- Enhanced work planning, scheduling, and routing
- Improved regulatory reporting and audits due to enhanced GIS capability
- Support for outage management and emergency response



DESIGNING TOMORROW TOGETHER

The utilities industry is evolving rapidly, and embracing automation, integration, and digital transformation is the key to staying ahead of the curve. Utility businesses must push boundaries, collaborate to innovate, and strategically invest in solutions that support the journey toward more digital and automated integrated systems. This will provide new value streams for utilities businesses.

In the digital utilities space, Cyient has been providing many turn-key services for its customers. These include a packaged-based offering on Esri ArcGIS UN implementation, migration and integration with IBM Maximo Enterprise Asset Management Suite and other digitized applications. Cyient's utilities practices have extensive industry and digital experience. Together with customers, we are designing futuristic solutions that help utilities create new business value.

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