

Transformed Pipeline Monitoring with GIS Imagery Management

Project overview

APA Group oversees one of Australia's largest networks of gas transmission pipelines, spanning over 15,000 kilometres and valued at approximately \$26 billion. Ensuring the safety, compliance, and efficiency of this vast infrastructure is a significant challenge. APA needed a cutting-edge approach to streamline monitoring and decision-making processes.

The challenge

Traditional ground patrols were not scalable for monitoring potential gas leaks, vegetation issues, or infrastructure damage across the expansive pipeline network. The manual process was time-consuming and costly, with substantial carbon emissions from vehicle patrols.

To generate more comprehensive and timely monitoring, APA looked to implement remote sensing inspections as an efficient, economical solution. Remote asset inspections provided objective feedback, while eliminating millions of kilometres of driving activity along with associated carbon emissions and HSSE risks every month.

The solution

APA partnered with Esri Australia to implement ArcGIS Image Dedicated, a cloud-based solution that streamlined the processing and analysis of APA's monthly aerial imagery—around 2 terabytes, across 15,000 high-resolution tiles.

By utilising Image dedicated processing server, APA significantly reduced imagery processing time from several days to under a day. This system enabled real time updates as new imagery was automatically served through web mapping services, providing timely access for analysis. During critical incidents like gas leak detections, APA could process and analyse imagery within hours, showcasing the system's effectiveness.

With comprehensive geoprocessing tools, APA built a valuable, long-term imagery repository, enhancing pipeline monitoring and setting a new industry standard.

The results

- **Rapid data processing.** Reduced imagery analysis time from days to hours.
- **Cost savings.** Lowered processing and image handling costs.
- **Improved monitoring.** Enabled comprehensive monthly pipeline inspections.
- **Enhanced decision-making.** APA built a robust, long-term repository of imagery and scalable solutions, providing operational insights without needing specialised database skills.

"The ArcGIS Image Dedicated cloud-based product, combined with processing and performance support from Esri Australia Professional Services, means that the APA GIS team can easily manage the ever-expanding library of imagery without having specialised database and programming skills which would have been required for alternate solutions."

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