Land Parcel Identification System Serves Farmers Efficiently

The agricultural policy in the European Union (EU) involves one of the biggest financial transactions in their annual budget. This calls for a careful and precise registration of those farmers eligible to receive subsidies, plus the amount they are entitled to. In order to make this registration work smoothly, a Land Parcel Identification System (LPIS) has been designed. Each country in the European Union manages and operates their own LPIS. For the Netherlands, this is done by the Ministry of Economic Affairs and Climate, which includes the former Ministry of Agriculture.

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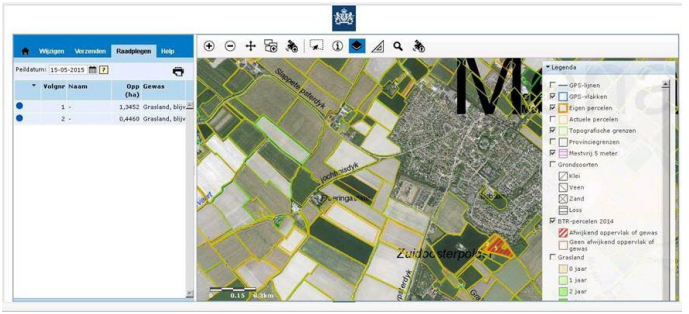


Constrained Declaration Time Period Creates Surge in Applications

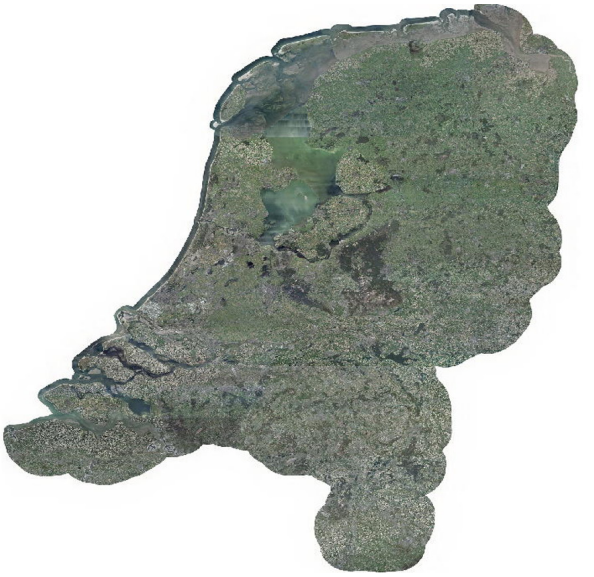
Each year, all current farmers in the Netherlands, approximately 60,000, must log into the system to declare which parcels they have used, what they have grown and, if needed, modify their parcel boundaries. The declaration period is constrained to six weeks, and many farmers wait until the last weekend to submit their data. This results in peak usage in these final days. In order to properly respond to this surge, the application must be fast and reliable at all times. The system supporting LPIS in the Netherlands was initially conceived in 2008, and involved a complex architecture of federated databases and geospatial servers. Keeping up performance and reliability was a challenge, especially at peak times, with a large part of the load coming from the underlying imagery data. This is why the Ministry approached IMAGEM, platinum partner of Hexagon's Geospatial division in the Benelux region.

Imagery Service Operational in 1.5 Hours

Putting in place a powerful imagery service based on ERDAS APOLLO was something IMAGEM has done on many occasions. In this case, the additional challenge was to implement within an existing architecture based on Esri technology. With no room to modify front end or back end architecture, the solution needed to slide neatly into place, and it needed to be done fast. When the order came in, there was a mere four weeks until the start of the submission period.

Upon arriving onsite, the base system was made operational within 1.5 hours. The ability for ERDAS APOLLO to deploy a native Esri Geoservices protocol meant the front-end could directly take in the new service, without recoding.

Furthermore, testing could begin almost immediately after installation. After implementation, the imagery appeared on screen faster than the vectors, which had never been the case before.



Orthomosaic image of the Netherlands

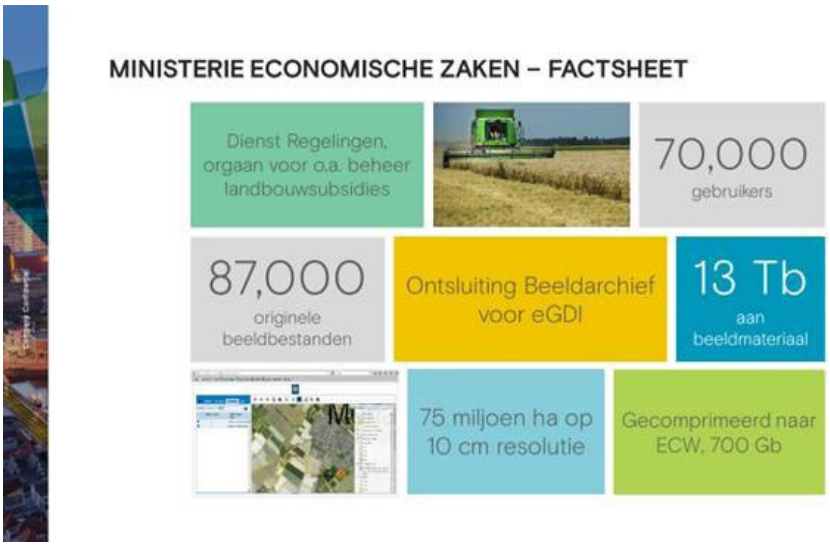
Performing Under Pressure

When the system went into production and farmers began submitting, the solution proved not only to be very fast, but also much more stable than the previous architecture. Even at peak times, with over 8 million page views and 100 GB of data being requested each hour, CPU's would not exceed even 25 percent of their maximum load.

Image Compression Results in Faster, Efficient Delivery

Furthermore, the data was now coming from a few large ECW mosaic images of the country of the Netherlands, which replaced the previous, less-efficient solution that delivered original, full-size imagery from a database. This meant that on top of the gain in speed and stability, data management was significantly reduced, as well as the amount of storage space required.

These few large ECW mosaic images were created from over 87,000 original images of the country of the Netherlands, about 13 Terabytes of data. The compressed ECW mosaic images, about 700 Gb in size, have a spatial resolution of 10 cm per pixel Ground Sampling Distance.



Over 87,000 original images of the Netherlands, about 13 Terabytes of data, were compressed into a single image of 700 Gigabyte file size, displaying 75 million hectares in 10 cm resolution.

Imagery that is compressed into ECW format results in a much smaller single file that can be stored, sent, and displayed even on small devices. ECW technology provides exceptional compression, capable of reducing terabyte-sized files to five percent of their original size, while retaining the image's full visual quality. ECW and JPEG2000 imagery can be streamed efficiently over networks using ECW Protocol.

In conclusion, the Ministry is very satisfied with the solution and the ease with which it was implemented. Furthermore, this successful LPIS implementation paves the way to make use of this architecture for other systems as well.

It also proves that adopting a combined, 'best of breed' approach to your system architecture many times yields a better return on investment than standardizing on a single platform.

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