

Capturing and Delivering Digital Imagery of the Netherlands



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Based in the Netherlands, CycloMedia Technology B.V. visualizes complete cities, states, and countries from public roads, providing geospatial information to central and local governments, homeland security, financial institutions, and construction companies. CycloMedia is the leader in large-scale, systematic visualizations of the environment. The 360° panoramic images from CycloMedia (cycloramas) provide a supplementary view of everything in the environment at street level.



CycloMedia has developed a system capable of photographing the 360° images while driving, ensuring the geometric accuracies are 100% correct. For the imagery to be precise up to one decimeter, CycloMedia developed and fully integrated their unique DCR7 camera and navigation system in-house. An additional challenge was being able to photograph areas at such a large scale. While most mobile mapping companies only have one or two cars, CycloMedia has 30-40 cars collecting imagery. CycloMedia also has a planning department, organizing the large scale data acquisition for the drivers.

Research and development is a significant part of CycloMedia's business. CycloMedia is developing algorithms to automatically process change between captured images. The company continues to develop new hardware, releasing one or two new prototype systems each year. The aim is to have a new enhanced camera system every two years. Throughout the two year cycle, the existing cameras are regularly enhanced. Extra cameras may also be added to the vehicles, such as high resolution sideway cameras being able to detect street signs better.

GROWING CUSTOMER BASE

In the past few years, CycloMedia experienced a growing demand for higher resolution imagery that is frequently updated. New laws in the Netherlands have increased the need for such imagery, requiring every building to be mapped. This includes sheds and extensions on back gardens, which can only be captured with aerial imagery.

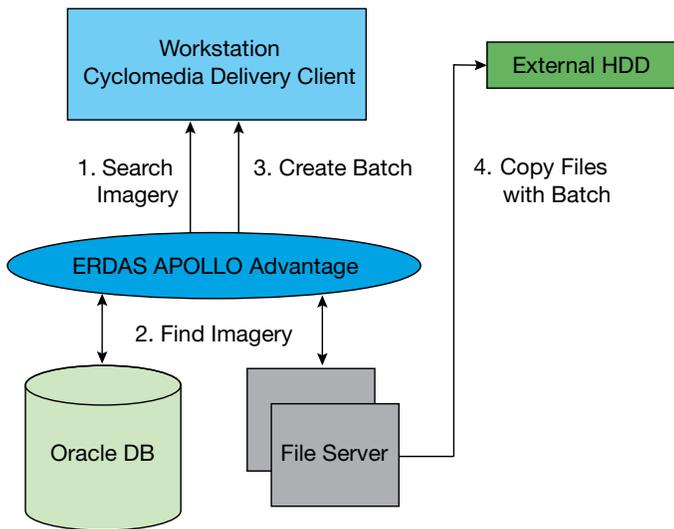
In the Netherlands, there are approximately 420 local councils. Many of these municipalities utilize CycloMedia's imagery to monitor public green space, determine the valuation of real estate and building license applications, formulate development plans, and examine parking and transportation situations. CycloMedia expanded to Belgium last year with the aim to capture all the streets of Flanders by the end of next year.

Real estate companies are also customers of CycloMedia. Many prospective buyers visit the Netherlands' largest real estate website Funda, to view available houses. This website utilizes CycloMedia's imagery. Other customers include police departments that may study CycloMedia's imagery before raiding houses and insurance agents that need to examine crossroads after an accident.

COLLECTING, MANAGING, AND DELIVERING AERIAL PHOTOGRAPHY

In 2008, CycloMedia collected 60 TB of 10 cm aerial photography data of the Netherlands. The aerial data was collected by Blom ASA, who used four aircrafts to collect the data. Currently, 95% of this data has been collected. In early 2009, CycloMedia formed agreements and new partnerships to continue collecting data with a new aerial photography campaign for the next three years.

In January of 2008, CycloMedia formed a team for handling their aerial imagery, and began exploring software solutions for managing, editing, and delivering the large quantities of



geospatial information they were collecting. This process included a market review, requesting a number of suppliers to provide demos. With the first images delivered in April, CycloMedia needed to select, buy, and implement a new system within three months' time. They wanted an "out of the box" solution, as they did not have time for a new system to be developed. With this criterion, Igem BV was able to show them the kind of system they wanted up, built, and ready to be used. Igem is the authorized Hexagon Geospatial reseller in the Netherlands, providing services to customers throughout the country. CycloMedia was eager to implement a Hexagon Geospatial solution, confident in Hexagon Geospatial's strength and rich history in handling raster data.

While CycloMedia did request minor changes, ERDAS APOLLO Advantage was implemented within two weeks. Also purchasing Hexagon Geospatial® software maintenance, CycloMedia recognized the benefits associated with ongoing development and enhancements to this product. An enterprise class, Open Geospatial Consortium and International Organization for Standardization (OGC®/ISO) compliant solution, ERDAS APOLLO Advantage efficiently stores and quickly shares geospatial data throughout the enterprise.

ERDAS APOLLO Advantage quickly handles the requests of CycloMedia's over 250 aerial imagery customers in the Netherlands. Each customer has needs for different data. Within 48 hours, CycloMedia can utilize ERDAS APOLLO Advantage to copy, crawl, index, select, and deliver the data to their clients. ERDAS APOLLO Advantage is currently storing 150,000 stereo pairs for CycloMedia. Upon completion, there

will be 170,000 stereo pairs and 75,000 geo rectified ortho tiles. These tiles are stored in TIFF, ECW, and MrSID formats. CycloMedia plans to continue to collect 75 TB of data each year.

"ERDAS APOLLO Advantage enables us to efficiently store and manage images in different formats and resolution to complete the geospatial value chain, with the ability to grow into new web applications and geospatial solutions," says Pieter Franken, Product Manager Aerial Photography, CycloMedia. "Efficiently managing and rapidly delivering imagery maximizes the commercial potential of our geospatial data investments."

One of ERDAS APOLLO Advantage's first customers, CycloMedia found a solution that truly meets their needs, efficiently managing and delivering their massive amounts of geospatial information to a wide variety of customers (with different data needs). As ERDAS APOLLO Advantage has only been implemented for one year, it is hard to measure the ROI. However, Pieter Franken stated that, "Without this system we would have had to employ two or three more people to handle our data. The solution ensures utmost accuracy, with costs equivalent to one person (or less) on an annual basis. Therefore, our ROI can be estimated at 200 - 300%."



CycloMedia is also an ERDAS IMAGINE® customer, utilizing this solution for their raster operations. ERDAS IMAGINE is used for quality control, mosaicking, and changing colors and formats. Imagem and CycloMedia are in discussions about upgrading ERDAS APOLLO Advantage to ERDAS APOLLO. ERDAS APOLLO was released in the fourth quarter of 2008.

For more information on CycloMedia, please visit <http://www.CycloMedia.nl>. For more information on Imagem, please visit <http://www.imagem.nl>. To learn more about ERDAS APOLLO Advantage please call +1 770 776 3400, toll free +1 866 534 2286, or visit www.hexagongeospatial.com.



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