

EMPOWERING DELTA DRONE BY LEVERAGING AWS CLOUD



CLIENT BACKGROUND

Delta Drone is a leading French manufacturer of UAV's, headquartered in Grenoble, and is an industry leader in Drone research and development, UAV training, data processing & manufacturing, operations and commercial deployment of UAV's.

INDUSTRY LANDSCAPE

The use of unmanned aerial vehicles in the commercial sector is growing rapidly. Utility firms are using drones equipped with infrared and video cameras to not only locate visible defects in remote zones, but also problems otherwise not seen without extensive investigation or manual intervention. While power companies have started using drones to remotely survey power lines, their applications are spreading to a wide variety of industries, including military for border patrol, mining for land survey, agriculture for crop survey, archaeology for imaging, and energy and utilities for resource mapping.

THE OPPORTUNITY

Delta Drone's customers included large utility firms, who frequently send a field team to survey their high-tension power-lines which stretched for kilometers across remote zones. They were looking to save time and the effort of manual intervention in these zones to detect obstructions or potential hazards along their power lines.

To counter this, they use Delta Drone UAVs to capture images of power-lines and detect if vegetation and buildings are within safe distance. Drones typically capture over 15,000 images per day, generating about 180GB of image data daily that requires processing and intrusion detection analysis. They needed a partner with capabilities to develop a scalable intrusion detection platform on the Cloud.

*Wipro developed a 3D
imaging-based fault detection
analytical platform for Delta
Drone, to automatically detect
defects in real-time without
manual intervention leveraging
intelligent algorithms.*

SOLUTION

Wipro developed an image post-processing pipeline using photogrammetry and image processing algorithms to detect the invasions from raw captured images and corresponding geo-location data. We also enabled automation and on-demand scaling of the image post-processing pipeline leveraging AWS components such as Simple Workflow Service (SWF), S3 elastic storage and EC2 infrastructure.

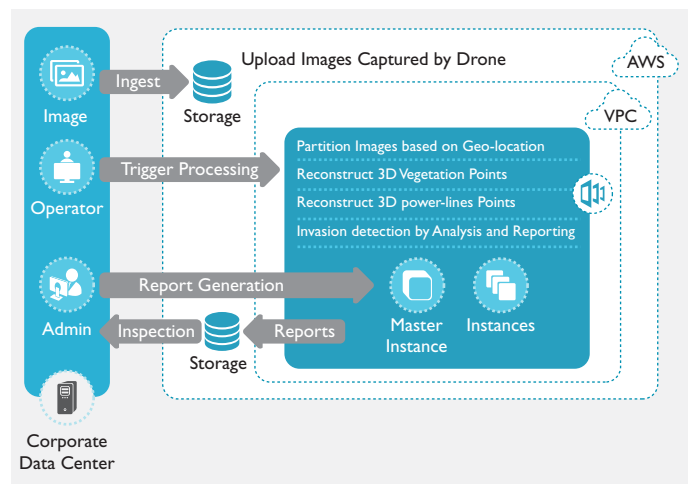
Highlights of the engagement include:

- ◆ **Picture Partition algorithms** – To group images into corresponding trunks based on geo-location information
- ◆ **Photogrammetry Reconstruction** – To generate the 3D point cloud of the vegetation and the camera calibration
- ◆ **2D Line Detection** – To detect the power-lines in the images and outputs the 2D image coordinates
- ◆ **3D Line Reconstruction** – To recreate the power-line with 3D co-ordinates
- ◆ **Invasion Analysis** – To group the invasion points into clusters and report which provides the severity, side and geo-location of the invasion cluster
- ◆ **Pipeline Automation** – Dynamic scaling and configuration of resources to scale horizontally and run multiple pipelines in parallel
- ◆ **Auto Scaling** – Dynamic load balancing with auto provisioning uses minimum resources and only when needed

BUSINESS IMPACT

Wipro's invasion detection platform on the AWS cloud-enabled Delta Drone's customers achieve:

- ◆ **Business Agility** – On-demand scaling, reducing the invasion reporting time
- ◆ **Improved Decision Making** – With continuous real-time data insights
- ◆ **Better Risk Management** – Through minimal human interference and safe intrusion detection
- ◆ **Cost Savings** – Reduced image processing infrastructure costs with the cloud, allowing the client to only pay for what he needs when he needs it



Wipro's Solution in action on the AWS Cloud

About Wipro Ltd.

Wipro Ltd. (NYSE:WIT) is a leading Information Technology, Consulting and Business Process Services company that delivers solutions to enable its clients do business better. Wipro delivers winning business outcomes through its deep industry experience and a 360 degree view of "Business through Technology" - helping clients create successful and adaptive businesses. A company recognized globally for its comprehensive portfolio of services, a practitioner's approach to delivering innovation, and an organization wide commitment to sustainability, Wipro has a workforce of over 140,000, serving clients in 175+ cities across 6 continents.

For more information, please visit www.wipro.com or write to us at business.tomorrow@wipro.com

© WIPRO LTD. 2014

"No part of this booklet may be reproduced in any form by any electronic or mechanical means (including photocopying, recording and printing) without permission in writing from the publisher, except for reading and browsing via the world wide web. Users are not permitted to mount this booklet on any network server."

DO BUSINESS BETTER

CONSULTING | SYSTEM INTEGRATION | BUSINESS PROCESS SERVICES

WIPRO LIMITED, DODDAKANNELLI, SARJAPUR ROAD, BANGALORE - 560 035, INDIA. TEL : +91 (80) 2844 0011, FAX : +91 (80) 2844 0256, Email: info@wipro.com

North America Canada Brazil Mexico Argentina United Kingdom Germany France Switzerland Nordic Region Poland Austria Benelux Portugal Romania Africa Middle East India China Japan Philippines Singapore Malaysia South Korea Australia New Zealand