

IoT over Satellite Solutions: Enable Smart AgroTech

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Solving AGRI Problems



Crop Inventory: Location. Size of Plot. Acreage.



Fertilization: Targeted Fertilization. NPK ratio.



Crop Health: Remedial Action.



Product Certifications: Compliance checks.



Security/Safety: Abnormal activity and fire detection, etc.



Irrigation: Soil moisture content.

The Networked Farm



Source: icrisat.org

Intelligent Silos: Real time monitoring of harvested product in storage.

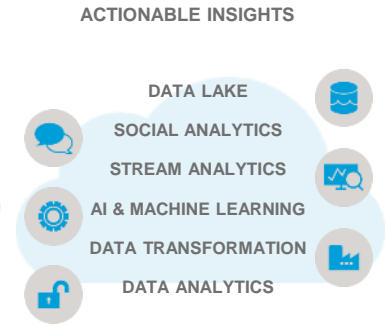
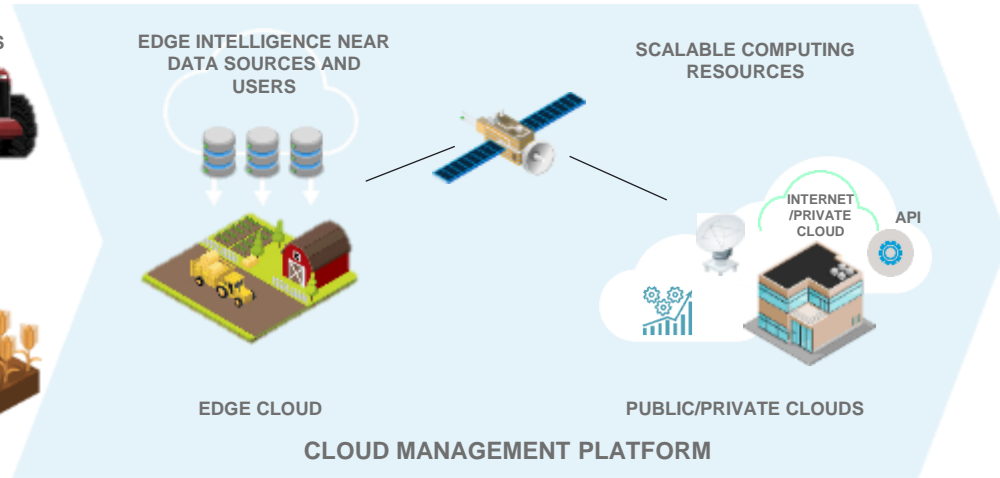
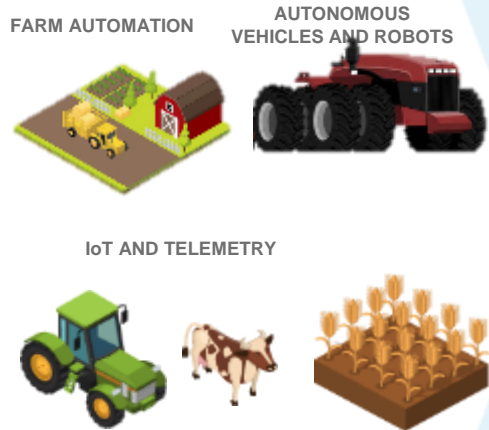
Drone & Soils Sensors: Soil monitoring and field mapping with infrared photos for crop tracking

Farm Robots: Automated machines use for treating and harvesting crops.

Satellites and Mobile radio Antennas: Data collected in field is passed to the cloud and control of automated machine send back to the farm.

Analysis Platform: Merge local data, with weather and global environment data to provide farms with information to better manage crops or livestock.

IoT Value Chain



Enabling Connected Agriculture



Environmental Monitoring: Real time information on nutrient moisture and pH levels. Track trends and predict irrigation needs. Enabling water conservation while ensuring there isn't over or under watering of crops.



Farm Automation: Automated irrigation systems. Targeted treatment in an autonomous and scalable manner.



Farm Machinery: Telemetry reporting. Predictive maintenance. Autonomous machinery.



Connected Farms: Bridge connectivity gaps combining VSAT long Haul link with local coverage (Private LTE, WiFi). Bring the cloud to farm with edge compute, and data analytics.

Coffee Nutrient Analysis



Use Case

- Coffee plantation imaging and ground sampling with over 88,000 data points analyzed over 6 years
- NPK prediction for accurate fertilization usage
 - NPK – Nitrogen, Phosphorus, Potassium
- Promotes proper and targeted use of fertilizer
- Prevents excessive amounts of fertilizer being used which contributes to the reduction of harmful greenhouse gases



Wildfire Detection

Use Case

- Many farms in fire prone areas, like California, are un-insurable.
 - Early detection of wildfire with a large array of sensors connected to a VSAT enabled Gateway reduce the risk of large wildfire by dispatching fire fighter at the early stage of the fire.
- IoT Sensors placed at perimeter of remote farming locations setup to detect smoldering hazes can provide valuable early detection information
 - Gives farmers time to move livestock and employees out of harms way



Farming Automation & Precision

Use Case

- Automation
 - Un-manned Tractors/Harvesters
 - Able to work potentially 24 hours since sensors can “see in the dark”
- Precision
 - Multiple tractors working a single field with no overlap
 - Fertilizer placed at exact correct depth, directly under where the seed will be planted, to reduce waste from traditional broadcast fertilizing, reducing cost and environmental harms.



Our Value Proposition

- Serving a range of use cases from low data rate IoT to high data rate VSAT solutions
- Easy to install FPA for low data rate IoT, supporting major IoT protocol.
- State of the Art easy to commission VSAT terminal for high data rate.
- Providing a flexible service enablement model for immediate market access
- Reducing the upfront capital investments and operational complexity
- Leveraging ST Engineering capabilities to deliver applications tailored to the farming industry.



Bringing it all together

Smart AgroTech



Sensors in the field

Drone Imagery

LoRa data aggregation

VSAT connectivity for cloud computing

AI analytics platform

Questions?

Get in touch

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