



AGRICULTURAL MANAGEMENT SYSTEM FOR AREAS WITH ADVERSE CONDITIONS

TEAM: Rocket Reactors

Challenge:

{ Leveraging Earth Observation Data for Informed Agricultural Decision Making. }



Objectives

- Real Time Monitoring
- Custom Dashboard
- Predictive Analytics
- Decision Support System
- Water Use Optimization
- Disconnected Access (DR)
- Community and Expert Advice

Background

- Climate Variability
- Importance of Food Security and Resilience
- Translating Complex Data into Information
- Prior Effort Issues
- Challenges Facing Farmers

Water problems in adverse locations

- Prolonged droughts and recurrent flooding.
- Pest damage.
- Competition for water.
- Inadequate water supply management.

Motivation: Due to the growing water demand caused by the current climate change. We want to focus our professional capabilities in providing technological solutions that improve the living conditions and access of the global population to water sources over time.

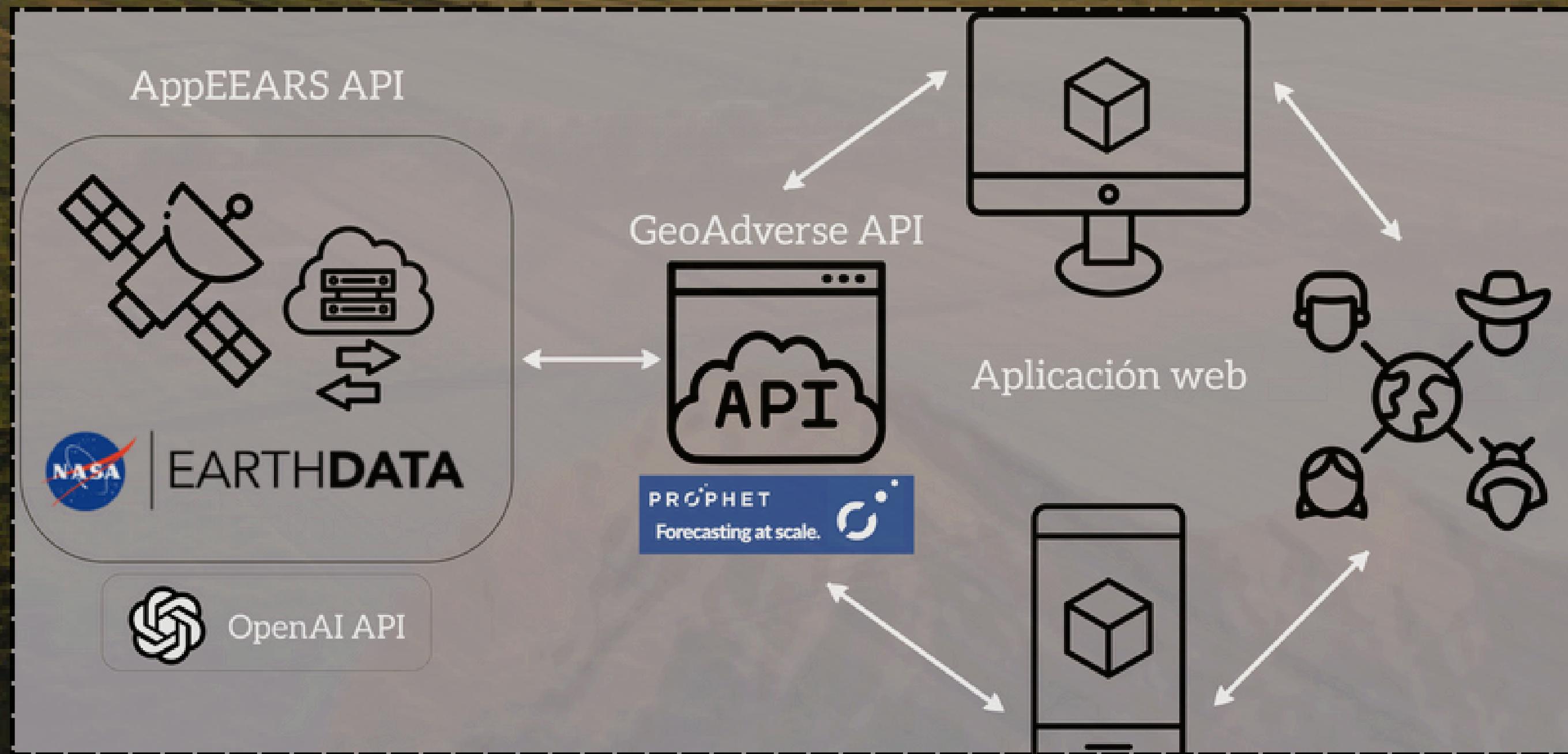


Solution:

Geo-Adverse



The GEO ADVERSE project aims to reduce the uncertainty faced by farmers in areas affected by extreme climatic conditions, such as droughts or floods. Through predictive models based on Earth observation data and geospatial analysis, the goal is to identify optimal locations and seasons for agricultural production, optimizing water use. The system utilizes open data from NASA, including satellite and GIS information, to develop a web application that provides water forecasts and analyses for farmers, environmental consultants, and regional decision-makers. The results are validated in real conditions, and the application is adaptable to other regions in the future.



{ Types of data analyzed }



Vegetation index (NDVI)

Evapotranspiration (ET)

Geotiff file

Soil Temperature (LST)

Soil moisture



Water management



{Technology}



SATELLITE CONNECTIVITY

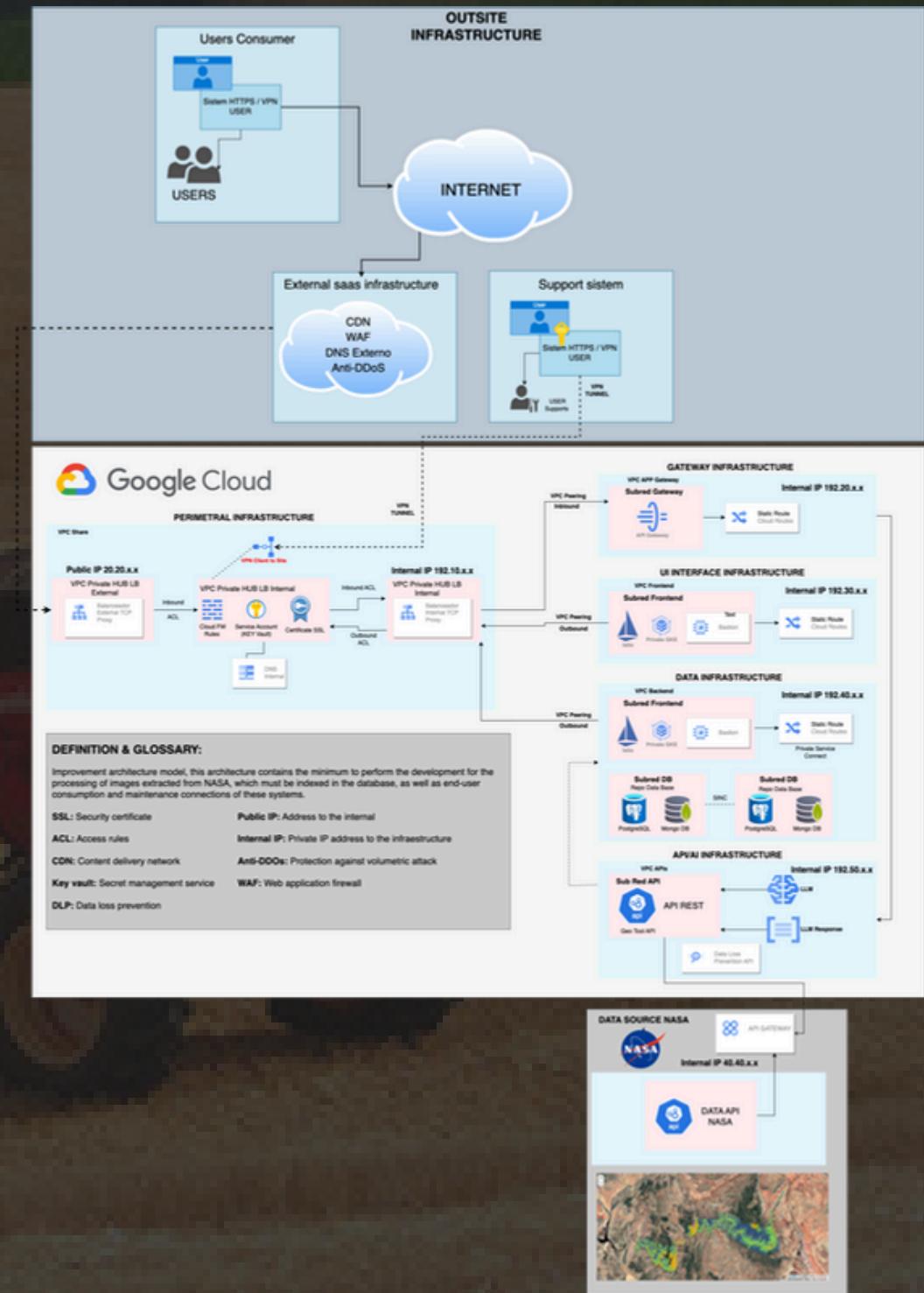
The satellite connectivity system must allow queries via HTTPS, using a provider such as Starlink, so that users can access from phones and computers.

CONECTIVIDAD OT (CONTINGENCIA)

The OT system is designed to operate without wireless connection, ensuring high availability by means of antennas or nodes for local communication with the devices and to be able to provide service.

CLOUD INFRASTRUCTURE

- Architecture and Infrastructure Model
- Security and Data Protection
- Protection of Confidential Information
- Data Query and Processing
- High Availability



{ TEAM }

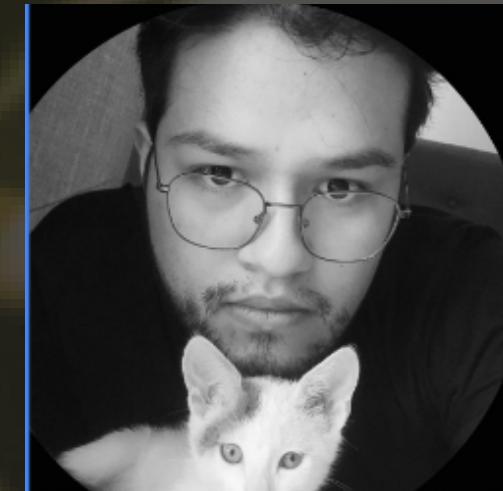
Our team is focused on being multi-disciplinary, complementing skills that can think “outside the box”. Delivering value structure to challenges.



Francisca Cattan

32 years Old

Paqui: PhD candidate at PUC, passionate about strategy games and historical novels. She enjoys historical documentaries and water sports.



Martin Salinas

25 years Old

Mura: Developer by vocation, lover of challenges and cats. Loves programming in his spare time and is an avid science fiction reader.



Freddy Viñales

36 years Old

Freddy: PhD candidate at UCN, specialist in management of heritage sites and fragile ecosystems, fond of mountain sports. Self-taught, he is an enthusiast of hiking and environmental conservation.



Sebastián Olivos

35 years Old

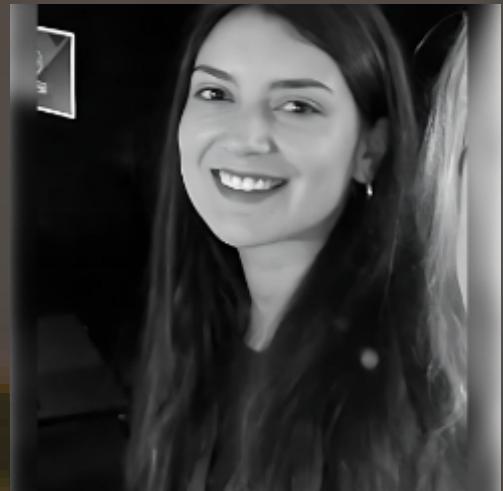
KAN3DA: Network engineer, cybersecurity specialist, professional video game player, black belt in Karate. Passionate about physics and astronomy.



Nicolas Pastenes

33 years Old

Nicolás: Management engineer, polymath in process, loves his pets. He likes rock and meditation, and is a continuous learning enthusiast.



Maria Jesus Yaryes

33 years Old

Lily: Tecnóloga de medicina nuclear, le gustan los maratones que ponen a prueba sus capacidades físicas y adora a sus gatos. También le gusta cocinar y leer novelas de misterio.





Thank You