intertrust

Planet OS Datahub: Environmental science data

Case Study

Industry

Energy Automotive Agriculture Insurance Climate science

Location

Worldwide

Solution

Intertrust Planet OS Datahub® Intertrust Platform™

Introduction

Intertrust Planet OS Datahub (Datahub) is an environmental data service for data-driven applications and analyses, which provides APIs and data pipelines to access the world's premier providers of weather, climate, and environmental datasets. Datahub indexes over 2,200 different variables, with historical and forecast data, global data, and regionspecific data.

Using Datahub, users can integrate disparate spatiotemporal datasets into data-driven workflows. Each of the datasets in the catalog includes visuallyrich summaries that contain key metadata attributes and a downsampled dataset preview.

Datahub aggregates these datasets, indexes each dimension of every dataset, re-chunks them, and makes them queryable through a visual interface.

Features

- Access the planet's key environmental data via a single robust API
- Securely integrate climate and weather data into data-driven workflows
- Use for weather modeling, risk forecasting, predictive maintenance, agricultural sensing, and more
- Enhance productivity by reducing time spent in data discovery and data reformatting

Benefits

Datahub offers a constantly growing data catalog of most requested datasets, including datasets from weather observations, numerical models, and empirically derived products. There are currently over 100 open datasets with hundreds of Climate and Forecast (CF) standard variables in the catalog.

Volume

- 2,000+ unique parameters
- 12 TB/day average archive growth
- 18 PB total archive volume
- 40 TB/day average distribution volume

Velocity

• GOES-R Series satellites provide images of weather patterns, hurricanes, and severe storms every 30 seconds.

Variety

Data features: Grid / Point / Profile / Time Series / Trajectory

- Data formats: CSV / GRIB / HDF / NetCDF / SHP / TAR / XML / ZIP
- Data protocols: FTP / HTTP / OPeNDAP / S3 / THREDDS
- Data providers: ECMWF / ESA / Met Office / NASA / NOAA / Private
- Data types: Analysis / Forecast / Observations / Reanalysis

The solution

Planet OS Datahub runs on the Intertrust Platform™, which facilitates secure data exchanges and collaboration between businesses and partners, allowing them to secure, govern, and monetize their data, across any cloud service, IoT system, or infrastructure. Backed by Intertrust's patented technologies in Data Rights Management and software security solutions, Datahub offers clear communication and protection around its datasets, making them completely trustworthy. Planet OS Datahub runs on the Intertrust Platform[™], which facilitates secure data exchanges and collaboration between businesses and partners, allowing them to secure, govern, and monetize their data, across any cloud service, IoT system, or infrastructure.



Intertrust Platform is an interoperability layer that provides secure links for diverse datasets and devices - from edge to cloud.

Intertrust Platform[™]

The Platform leverages container orchestration technologies such as Kubernetes and Docker to make deployments cloud-agnostic.



Identity and access management

Device and user identity, authentication, and authorization; maintains platform objects and their relationships.



Data virtualization

Data object definitions, permissions, restrictions. Provides data interfaces, manages DBs and virtualized datasets.



Secure execution environment

Secure network-isolatable environments for workload execution and controlled, interactive data exploration.



Time series database

Scalable, efficient, high performance database designed for time series data.

Use cases

The Yield Agriculture | Australia

The Yield is an Australian agricultural technology company. Its AgTech solutions are being applied across the food chain to help increase yield, reduce waste, mitigate the risk and costs associated with bad weather, and aid environmental sustainability.

The Yield uses the Datahub API to acquire spatial subsets of GFS forecast data that corresponds to its customers' farm locations. This data is then integrated into its applications and analytical models.

- Implement secure and efficient data orchestration
- Work across hundreds of data silos and clouds securely
- Ensure complete data governance and maintain data privacy protection

NASA OpenNEX Climate Data | USA

The OpenNEX climate data access tool was produced by Intertrust Planet OS in collaboration with the NASA Earth Exchange (NEX) team with the goal of improving access to data for climate assessment.

The climate access tool requires no programming knowledge, and produces CSV or NetCDF files that can be used for climate science work in languages like Python, R, Matlab, or simply Excel.

5Fathom Insurance | Worldwide

5Fathom is a consulting firm focused on bringing next-generation data analytics solutions to the reinsurance industry.

Datahub delivers a customizable deployment tailored to the data needs of 5Fathom's customers.

- Data aggregation: Weather data from over 740 public, proprietary, observed, and reanalyzed, historical, current, and forecasted data sources
- Data curation: Precise, accurate, and curated weather datasets for location-based risk analyses
- Data predictions: Deep, automated insights leveraging cognitive and machine learning technologies

RWE Renewables Wind Farms | Europe

RWE's Gwynt y Môr wind farm is one of the world's largest offshore wind farms, with 160 turbines capable of producing 575MW of energy.

To streamline the farm's Operations and Maintenance, Intertrust deployed a combination of Datahub and Powerboard™ to acquire and visualize data from multiple operational systems, including IoT data, turbine SCADA, and observed and predicted weather conditions. This provides operators and finance personnel a common, cloudbased operating picture that can be accessed from any location.



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Building trust for the connected world.

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