

Powering self-service access to climate data for meteorological services and climate scientists



EUMETSAT is an intergovernmental organization founded in 1986 which currently operates an extensive system of meteorological satellites that observe the atmosphere, ocean and land surfaces around the globe.

The organization's mission is to supply weather and climate-related satellite data, images and products – 24 hours a day, 365 days a year – to the National Meteorological Services of its Member and Cooperating States in Europe, as well as other users worldwide.

SERVICES

These services help to enhance and safeguard the daily lives of European citizens. They aid meteorologists in identifying and monitoring potentially dangerous weather situations and in issuing timely forecasts and warnings to emergency services and local authorities, helping to mitigate the effects of severe weather and protecting human life and property.

This information is also critical to the safety of air travel, shipping and road traffic, and to the daily business of farming, construction and many other industries.



CHALLENGE

Every day, EUMETSAT satellites observe atmosphere, ocean and land surfaces, gathering terabytes of critical data accurately and reliably for constituents worldwide. After performing an in-depth user consultation and discovery project, EUMETSAT recognized changes in users expectations, needs, and behavior in relation to the use of its data.

More and more users wanted to benefit from self-service provisioning and hosted services on a common data lake ideally in conjunction with their own local IT environments – essentially “bringing users to the data”. These new demands, combined with EUMETSAT's internal IT needs, resulted in the definition of two fundamental domains: mission-critical and general purpose.

Both of these required external elasticity as well as an architecture that would allow a seamless user experience and access to hosted software and data services. To achieve this, EUMETSAT needed the flexibility to bridge a wide range of clouds, tools, vendors, and platforms.



Looking beyond infrastructure challenges, the team at EUMETSAT saw an opportunity to build a community and improve the actual use of the data by extending its service offerings to include modern data provider services.

The goal of this forward-looking initiative is the creation of a 'one stop shop' for users to discover and process data provided through a distributed set of data repositories via self-provisioning services that would seamlessly bring users to the data in real-time. In the future this will extend to community-based data mining and development of new services, enabling researchers to collaborate more easily and move faster on a wide range of critical projects.

SOLUTION

Realizing the shift in how their users consumed data, EUMETSAT initiated a multi-phase program to (1) define needs across mission-critical and scientific oriented use cases, (2) assess services and technology requirements, and (3) develop an operational roadmap for service delivery.

This work in turn kicked off a search for a multi-cloud management and orchestration platform that could unify a broad set of technologies and serve as the low barrier entry point for the autonomous and elastic self-service environment users had been longing for.

EUMETSAT evaluated a wide array of vendors – from open source to commercial providers including established enterprise giants and emerging technology upstarts. In the end, after an extensive RFP and proof-of-concept period, Morpheus Data was selected because they ensured their highest probability for success by blending proven enterprise-class capabilities with the agile response of a DevOps startup.

In Morpheus, EUMETSAT discovered a rich feature set with near-infinite extensibility combined with a nimble operation comprised of savvy, hard-working engineers eager to address the challenges ahead. EUMETSAT's multi-cloud management solution includes the Morpheus multi-cloud management platform and complimentary technologies from partners such as T-Systems, Dell EMC, and VMware.

TECHNOLOGIES INVOLVED

The Morpheus deployment brings together a number of technologies and automates workflow seamlessly.

Key integrations and applications include:

- **Clouds:**

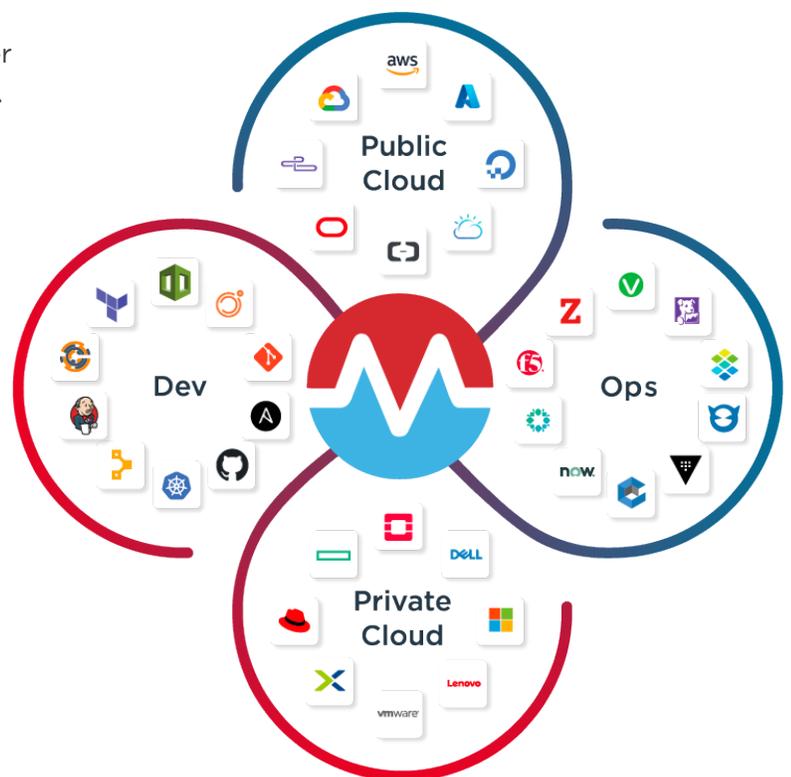
- OpenStack
- VMware
- T-Systems OTC

- **Data Management:**

- EMC ECS and Isilon
- CEPH Storage
- Block Storage
- Avamar Data Protection

- **Networking:**

- VMware NSX
- OpenStack Neutron





RESULTS

As part of the development phase of the EUMETSAT project, Morpheus worked with Dell Technologies and T-Systems International to deliver hybrid cloud management in order to:

- Interconnect multiple OpenStack flavors including VMware Integrated OpenStack (VIO)
- Establish a data management framework with EMC Isilon and ECS for file and object storage
- Protect mission critical data via EMC Avamar data protection
- Create API driven networking for both VMware NSX and OpenStack
- Ensure data sovereignty and compliance when federating external data centers

These unstructured data integrations, together with connectivity into VMware, OpenStack and other public cloud platforms will help EUMETSAT deliver on its self-service vision. Utilizing the Morpheus tool set, EUMETSAT can offer its satellite data in a variety of custom combinations that address clients' needs for self-service autonomy and hybrid cloud integration on their own terms.

Moving forward, the satellite organization plans to operationalize all of the infrastructure currently residing in their dev ops environment which calls for a long-term partnership with Morpheus and other key vendors. The organization also has plans to develop a European weather cloud in the coming year in hopes of interconnecting with major high-performance meteorological computing centers across the continent.

ADVICE FOR OTHERS

"Don't ever assume you know what your users want or need," explains Lothar Wolf, Data Services Competence Area Manager at EUMETSAT. *"You need to investigate for yourself by actively interacting with them directly."*

He also stresses the importance of active engagement with vendors, including testing vendor engineering and support processes early on.

"We found Morpheus' engineering and agile process methodology to be of the highest quality. It's a primary reason we selected Morpheus and has been our most critical success factor."

Their engineers listened to us and provided clear support during every stage of our integration. They even took on more responsibility than they needed to ensure our success."

Learn more at www.morpheusdata.com

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