



ARUBA ENTERPRISE WITH 3BMETEO: A DEDICATED CLOUD SOLUTION FOR ITALY'S LARGEST WEATHER PORTAL



SOLUTIONS ADOPTED

- ✓ Dedicated Cloud
- ✓ Data Center Infrastructure

3BMeteo has been in the professional meteorology business for 15 years. 3BMeteo services are designed to meet the demands of its high-tech clientele. The team is made up of professional meteorologists and developers working 7 days a week to develop new updates for apps and services, as well as modelers responsible for optimizing forecasting systems and creating new physical and mathematical scenarios.

One of the company's main priorities is its relationship with the public, thanks to a dedicated media department working day in, day out, with Italy's main radio stations, television channels and newspapers. The control room team provides professional advice for different industrial sectors, and currently represents Italy's largest operating hub.

The requirements

The relationship with Aruba Enterprise came about due to the need to improve the technological performance of the infrastructure from which 3BMeteo's services are provided. This led to the need to assess an updated IT solution in order to **improve the quality of the portal**.

Given the proximity of the Aruba data centers, the possibility of having both **geographical redundancy**, and the ability to host the part of the **solution connected to meteorological satellites** in such a data center network was taken into account.

The Solution

To meet these requirements, a Dedicated Cloud solution was developed and designed, in other words, an IaaS infrastructure dedicated exclusively to 3BMeteo, in addition to further services managed by the Aruba Enterprise Service Management team. These services relate to the system management of the infrastructure and the virtual environment, therefore Aruba's responsibility, provided in accordance with ITIL guidelines aimed at guaranteeing the highest level of quality and effectiveness in process management. The solution ensures top performance for processing and **collection of data used to generate the weather forecast**. Collection is made possible thanks to data models received from the European Centre in Reading and the Met Office that are reprocessed by the servers at the Global

Cloud Data Center in Ponte San Pietro, before being interpreted by professional meteorologists and made available in the form of daily weather forecasts on the well-known 3Bmeteo website. In addition, thanks to the installation of a satellite dish at the same data center, satellite images from across the globe are received as frequently as every 5 minutes. From a technical point of view, the IT infrastructure is designed in active-active configuration across three sites – one located at the Ponte San Pietro Data Center (DC-IT3), close to Bergamo, the second at the Arezzo Data Center (DC-IT1) and the third at another Data Center in Arezzo (DC-IT2): this fundamental feature offers maximum reliability in continuity of service – technically speaking, **complete fault tolerance**.

The benefits

The solution involved a series of improvements, starting with **increased resilience** implicit in an active/active infrastructure, like the one implemented. The service uptime is guaranteed by state-of-the-art technology used in the Data Centers and SLAs guaranteeing **continuity of service**

when faced with any kind of adverse event. Alongside the Dedicated Cloud solution, a **total application refactory specifically for 3BMeteo** was also provided, with a view to making the most of the distributed infrastructure, active on several nodes at the same time, thereby offering **maximum**

computing power as well as the aforementioned fault tolerance.

Thanks to the type of Dedicated Cloud used, the old (monolithic) application architecture actually became **a more agile, efficient microservice architecture, facilitating:**

- ✓ faster development of all internal and external services;
- ✓ the migration of key parts of these services, such as Load Balancing, Authentication (Zero Trust) and Application Logic in Edge, which are now essential as they offer greater flexibility, scalability and security to a system and a growing business like 3BMeteo. Another important element is the

considerable attention paid to green issues: first of all, the proximity of 3BMeteo's headquarters to the Aruba Global Cloud Data Center, one of the three sites housing 3Bmeteo infrastructure, has allowed a more efficient and successful direct relationship, making the two organizations a marriage made in heaven. Using a provider that uses renewable energy to offer its services also offers huge benefits: Aruba is GO certified – meaning that it uses energy from 100% renewable energy sources, as well as being able to produce more energy for itself thanks to its hydroelectric plant and photovoltaic systems within the technological campus.

Future plans

3BMeteo strives to break out of its comfort zone and try new services and technologies, with a team that is always searching for new ways to maximize the opportunities for technological evolution. Having reached the highest level in **Cloud modelling on distributed clusters**, the

next challenge is to take the **parallelization of modelling aspects** to the next level. **The development of certain parts of the infrastructure towards dedicated graphic processors (GPUs, Graphic Processor Units)** is currently being assessed.

“To ignore the fact that one of the best and most innovative data centers in Italy has sprung up just a stone's throw away from our corporate headquarters would have meant missing a great opportunity. We therefore made sure that we took that opportunity, totally rethinking our infrastructure, modernizing it from A to Z. Together with Aruba Enterprise, we have come up with a tailor-made solution, fitted to suit our specific unstable, disjointed requirements, as dictated by the sector in which we are working. We have achieved a solution that is a perfect match between our demands for resilience and tolerance to unpredictable traffic spikes and the flexibility of smarter management thanks to full integration with the Cloud and working in harmony with edge computing.”

Andrea Pernici – CTO 3BMeteo

