IL METEO: Powering innovative weather forecasting with a solid and scalable platform

![IL Meteo]

About IL METEO

IL METEO SRL is the leading weather services company in Italy. It manages iLMeteo.it, one of the country's most visited websites. IL METEO provides services to websites, newspapers, radio, and TV.

Industries: Technology

Location: Italy

IL METEO is improving uptime, reliability, and customer experience while opening up new business opportunities by migrating its platform to Google Cloud.

Did you know that a five-day weather forecast today is as accurate as a one-day forecast was in 1980? Weather prediction has come a long way over the past few decades, with scientists now able to provide useful forecasts up to 10 days into the future. These vast improvements, along with growing awareness of shifting weather patterns, have led to changing demands among everyday users of weather forecasts: people who use them to decide what to wear in the morning, when to go on holiday, or if they should bring an umbrella to work.

"People today want more than just a forecast: they want to be able to track the weather themselves," says Emanuele Colli, CEO of IL METEO, a technology company that specializes in providing services related to weather forecasting. Founded in 2000, IL METEO provides a range of weather-related services for millions across Italy, such as forecasts, in-depth articles, and interactive content.

Now in its 20th year, IL METEO is on the lookout for new and innovative ways to deliver engaging experiences for its readers. Its first step? Upgrading its infrastructure to improve the stability and reliability of its platform, while supporting advanced scientific capabilities. This would lead to a better experience on the platform for its staff, readers, and partners, as well as enabling staff to focus on developing new services and business opportunities. To achieve all this, IL METEO worked with Google Cloud Premier Partner Nohup to migrate to Google Cloud.

"We needed a platform that could deliver high performance, speed, and reliability," explains Emanuele, "in order to enable an optimal experience both for our readers and the advertisers who invest in our products."

Supporting traffic highs and lows with Google Cloud

By the very nature of its work, IL METEO's website sees different levels of traffic based on the season, time of day, or the weather itself. "We have big variations in traffic and our work is dependent on changes in the weather," explains Emanuele. "When there's high pressure, that often brings fine weather and things are very quiet. When there's variability or bad weather, our traffic can easily double."

And it's not just uncertain weather patterns that lead to traffic spikes. Festive occasions such as Ferragosto, a major mid-August public holiday that Italians traditionally spend outside, cause traffic spikes that previously put a lot of strain on IL METEO's infrastructure. High traffic volumes caused services to crash, and the IL METEO team needed to work quickly to get them back online as soon as possible. "These issues always seemed to happen on public holidays or weekends, and sometimes employees had to take time away from their families to help fix problems with services, which wasn't ideal," Emanuele recalls.

With the switch to Google Cloud, IL METEO has noticed considerable improvements in terms of reliability and speed, reporting an average uptime of close to 100%, as well as halved response times. "What we saw from a performance and uptime point of view was far superior to our previous setup," says Michele Cantelli, IL METEO's CTO.

The shift has also been welcomed by IL METEO employees, as Emanuele adds: "When we finally accomplished the first phase of the migration, our team couldn't quite believe it. They were happy about the possibility of never having to deal with major downtime problems again."

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A flexible and elastic infrastructure, phase by phase

IL METEO wanted to continue providing services for its readers while the migration went on, so instead of rebuilding the infrastructure from scratch, Nohup proposed a gradual migration through phases. As Emanuele shares: "Because our readers expect us to always be available, one wrong move could have lost their trust and put our whole business at risk. We decided that the right solution for us was a lift and shift approach."

And the company's scalability needs go beyond traffic variations. At set intervals throughout the day, IL METEO processes raw data from international meteorological centers so that it can predict upcoming weather patterns. "We have maybe half an hour of very intense computing, followed by six hours of near standby of the whole platform," Emanuele explains.

To enable an infrastructure that would meet IL METEO's unique scalability needs, Nohup planned the migration in two phases. The first, which is now complete, involved integrating Compute Engine, Cloud SQL, Cloud Load Balancing, and Filestore with IL METEO's platform. According to Michele, the positive impact of Compute Engine has come from its autoscaling features, alongside significant improvements in reliability. "Compute Engine enables us to autoscale instance groups during periods of low traffic, which means we now use a quarter of the number of instances compared to when we have higher traffic. That's been a huge advantage for us," he says.

Il METEO also uses Cloud Build to implement most of its build pipelines. That includes building docker images and pushing those on Container Registry, as well as implementing continuous delivery on Cloud Run. Meanwhile, Pub/Sub helps Il METEO to coordinate some of its microservices and to process the ingestion and distribution of satellite imagery to partners.

Since completing phase one, IL METEO reports that the all-round elasticity of its new Google Cloud-powered infrastructure has enabled savings of up to 20% per day. The next step, or phase two, will take place over the first quarter of 2020 and see the company working with Nohup to add microservices and micro front ends using Cloud SQL, Google Kubernetes Engine (GKE), and BigQuery.

Stability as a springboard for new business ideas

For Emanuele, the shift to Google Cloud is about so much more than stability alone; it means that IL METEO can keep providing user-centric multi-platform experiences, even while developing its business model to include additional services.

Alongside its migration to Google Cloud, IL METEO has embarked on a series of new business ventures that will help it provide even more value for its readers. One of these ideas: a widget for major Italian ski resorts that will not only provide weather conditions but also inform users about when the last snowfall occurred, the quality of that snow, and which slopes are open. Another idea it's working on? Interactive radars that allow the wider public to play an active role in monitoring the weather.

The company has also started developing its own unique weather APIs and is exploring the idea of using them to distribute forecasts to media partners and companies whose business is dependent on weather conditions. "You can find weather forecasts and temperatures anywhere," says Emanuele. "What we want to do is develop a whole range of complementary products. That is what's going to differentiate us as a media company, not simply a place to check the day's weather."

Finally, IL METEO wants to improve how it communicates air quality, and the weather in general, so that it can play more of an educational role. "We give great importance to communication. Meteorology is a complex subject, and we think it's important to make it as accessible as possible to anyone who wants to understand more," says Emanuele.

All these new projects on the horizon indicate that things are changing at an architectural level, a process that IL METEO believes will be enabled as it moves forward with GKE.

"GKE was the natural choice for deploying Kubernetes clusters," explains Michele. "The technology, alongside our internal app life cycle management policies, allows us to streamline infrastructure management, deployment, and integration between components, even when working with different providers, technology stacks, and frameworks."

"We also really appreciate the fact that GKE is billed per instance, which enables us to define cluster granularity without worrying about cost," he adds.

For Emanuele, GKE supports IL METEO's future goals: "We believe that Google Kubernetes Engine helps us to put together all these pieces to build a complete picture, bringing together our scientific capabilities and the way we distribute our services to readers."

To help its team come up with more ideas for services and business ventures, IL METEO is using G Suite to improve collaboration and all-round productivity. Because G Suite apps can be accessed anywhere, anytime, and from any device, remote employees can easily sync with their colleagues at the office and get involved in the idea-development process.

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—*Emanuele Colli, CEO, IL METEO*

Leveraging technology to enhance the user experience

For IL METEO, the migration to Google Cloud will be a process of continual improvement. "There will be no official 'end date' for this migration. Instead, we'll continue to develop and add components as we go, adding the right capabilities to meet our needs from moment to moment," says Emanuele.

As the company moves forward, it plans to make use of machine learning to improve forecast accuracy. "Machine learning models, together with this platform, will enable us to make more detailed forecasts, especially in more complex weather conditions," explains Emanuele. "We also see it helping us to innovate the way we distribute these forecasts and engage with new markets." An opinion shared by Riccardo Fabbri, General Manager of Nohup: "Alongside increased performance and reliability, the real game changer is technology that allows IL METEO to take the next step," he says.

Now that its platform is ready to take advantage of machine learning capabilities, IL METEO is looking forward to strengthening its brand through innovative weather-related services.

"Ultimately, what really differentiates us is the usefulness of the experience we can give our readers," Emanuele says. "By migrating to Google Cloud, we've not only improved performance, we're now able to focus on developing new lines of business and delivering more of what readers want," he adds. "We see machine learning and artificial intelligence as our next logical step to providing cutting-edge services for our readers and partners."

"A large part of our infrastructure is now based on Google Cloud products," he adds, "and we believe the platform will be a solid foundation for helping us work toward becoming Italy's leading weather services provider."