



Executive Summary

VMEngine delivered a more scalable cloud architecture for UNINETTUNO using flexible instances of Amazon EC2 and the latest AWS services. Using Amazon CloudFront and AWS's geographic regions, UNINETTUNO's distance learning university students can now access course content with no latency issues.

VMEngine Boosts UNINETTUNO Performance for Fast Course Content Delivery on AWS

The International Telematic University (UNINETTUNO), established in 2005 and based in Italy, is a pioneer in web-based learning, and covers a wide array of subject areas such as law, engineering, and economics, psychology, cultural heritage, and communication sciences. As a key member of the European Association of Distance Teaching Universities (EADTU)—the only one in Italy—it helps shape standards for the evolution of distance-learning education across the continent.

University distance learning continues to grow, offering students much better access to a wide range of courses as well as a much more flexible structure that removes the need for in-person class attendance. Critical to any distance learning university's success is the ability to serve students' learning needs on a 24-hour basis. UNINETTUNO's success and reputation depends strongly on its supporting IT systems, which the university focuses on making as advanced as possible.

The university had already successfully migrated from a server-farm-based setup to Amazon Web Services (AWS) 6 years previously, and had then started using AWS for storage and streaming. With the number of students continuing to grow, it knew that it would be essential to anticipate performance issues before they arose, especially for periods of heavy website use, such as the traditionally busy new student enrollment months of September and October.

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- Raimondo Sepe, ICT Director, UNINETTUNO

Optimizing Performance

UNINETTUNO was experiencing rising costs as its manually configured Amazon Elastic Cloud Compute (Amazon EC2) dedicated hosts were too static. It also wanted to benefit from a wider range of the latest AWS cloud services to future-proof its work and increase resilience and scalability. “We can’t run the risk of downtime for even a single day,” says Raimondo Sepe, ICT director, UNINETTUNO. “As such an innovative university, our system has to be on the same level and we knew that AWS could support that.”

UNINETTUNO remained happy with AWS but realized developing in-house expertise in AWS would take time, so it turned to AWS Advanced Services Partner VMEngine to help it identify problem areas and optimize its cloud architecture.

Working with a Proactive Partner

VMEngine first analyzed the university’s platform to spot any issues and provide a roadmap for future development. It discovered that UNINETTUNO’s Amazon EC2 dedicated hosts’ sizing required a lot of CPU and memory. The university was paying for a bigger server than it needed and it had limited ability to scale its content management system.

“Working with VMEngine has helped us enormously,” says Sepe. “From the start of this project, it was essential for us to find a proactive partner that understood AWS and that’s what we got. Its team was always one step ahead, either already resolving an issue, or calling us to highlight something we hadn’t yet spotted.”

Eliminating Performance Issues

By moving to an Amazon EC2 classic set up and using AWS OpsWorks, the university can now scale the number of virtual machines it uses up or down as needed and automate key tasks such as updates and software configurations during low usage periods. This has led to a greatly reduced load on its platform. Thanks to the more flexible architecture, the university no longer has to deal with the lengthy and complex management of its own Windows licenses, saving additional time and cost.

The university can now also increase the number of instances it needs to meet demand. By using time-based instances, capacity can be increased for scheduling nightly backups or decreased at weekends when fewer students are accessing the system.

“We have students from across the world, with many concentrated in Europe, so now we up capacity for when the majority of them are awake”, says Sepe. “Since we only need pay for what we use, when we need it, that’s a great cost saving. And thankfully, our students have not seen any issues in performance.”

Flexible Content Delivery

To further reduce the load on the system, VMEngine deployed Amazon CloudFront to speed static content delivery and increase availability. By using AWS Regions, students can now access content from the edge, regardless of where they are based, and with latency greatly reduced.

“Before, our static Amazon EC2 instances had to handle many thousands of daily content requests, which



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About the Customer

UNINETTUNO provides distance-learning academic courses, including bachelor’s degrees, master’s and doctorates. It employs many highly regarded lecturers from across the globe, supported by highly qualified teaching staff with online courses in Italian, Arabic, English, and French. A huge range of web-based learning and course materials are provided, enhancing the environment of traditional university teaching and providing flexible learning for students, who are at the center of the educational process. The success derives from the psycho-pedagogical model of excellence carried out by the rector of UNINETTUNO, Professor Maria Amata Garito and her team in over 25 years of research.

was a key driver for our full transition to the cloud,” explains Sepe. “As a distance-learning university, one of the main benefits for our students is accessibility, so it’s vital that they can get course content whenever they need it and at fast speeds, which has really improved with VMEngine’s help.”

Amazon CloudFront’s built-in ability to protect against DDoS attacks has helped address security issues, as has the use of AWS WAF—Web Application Firewall. This has allowed UNINETTUNO to automatically control access to content, meaning it can block any suspect activity should it suffer any attack or any other security issues. This safeguards performance of the university’s platform and helps to prevent against possible downtime.

Scaling at the Touch of a Button

Thanks to VMEngine’s fine-tuning of its cloud platform, UNINETTUNO has been able to achieve overall cost savings of 35 percent. The university has also been able to quickly deliver on the vocational training programs it supplies to a range of private and public sector businesses, most recently with Italian energy supplier Enel.

“When we get this type of contract, we suddenly have thousands of new students, and in the past, it would take us a long time to scale enough to meet a customer’s needs,” says Sepe. “By using AWS, we can scale instantly at the touch of a button—a huge time saver for us.”

With its VMEngine-designed roadmap UNINETTUNO plans to use more of AWS services in the future to modernize its applications, migrate all of its databases and further improve deployment times.

“VMEngine has helped us to resolve our most pressing technology issues,” concludes Sepe. “Being able to benefit from its team’s advanced knowledge and ability to derive great benefits from AWS services has been fundamental to us and we could not have found a better partner.”

About VMEngine

For over 13 years, VMEngine has been helping organizations of all sizes with architecting, building, and managing scalable and highly available environments on AWS. The entire VMEngine Team is wholly dedicated to specialization in the AWS area, and this places the company among the reference Partners in the EMEA area.

