



# The Computerworld Honors Program

Honoring those who use Information Technology to benefit society

## Final Copy of Case Study

**YEAR:**  
*2012*

**STATUS:**  
*Laureate*

**Organization:**  
BANSEFI

**Organization URL:**  
[www.bansefi.gob.mx](http://www.bansefi.gob.mx)

**Project Name:**  
Distance education improvements in customized classrooms by means of virtual desktops

**What social/humanitarian issue was the project designed to address? What specific metrics did you use to measure the project's success?**

UNED is the first Spanish public university by number of students, academic offer, experience and prestige on distance education. It develops activity at 62 Associated Centers in Spain and 12 Foreign Centers in the rest of Europe, America and Africa. It a global university with over 35 years of experience that has continuously innovated and adjusted to changes and student needs wherever they were. Nowadays, UNED has more than 260,000 students and 8,500 teachers and tutors dedicated to teaching, research, professional occupation and knowledge diffusion. With these numbers, it is necessary to think about the great heterogeneity and dispersion of improvable resources, which would facilitate the educational activity of the university community at UNED. One of the target areas to be improved in the exposed work is the technological one, and more concretely, this project tries to homogenize practice laboratories used by UNED students in the Associated Centers.

**Please describe the technologies used and how those technologies were deployed in an innovative way. Also, please include any technical or other challenges that were overcome for the successful implementation of the project.**

Deployment of a virtual desktop infrastructure (VDI) using VMware technology integrated in a classroom with VMware View thin clients. Different products, such as VMware as ESX, VSphere, VMware Composer and VMware View, have been used. They allow us to define a unique virtual

desktop template, deploy it in several devices and associate each of them to classroom users, remaining reachable from the thin clients in the classroom. The whole hardware infrastructure has been mounted using HP computers such as a DL380 server with scaled storage capabilities to lodge all the virtual machines and information about necessary resources defined in the project. Users' computers are HP thin clients.

**Please list the specific humanitarian benefits the project has yielded so far.**

1) To provide a work environment for students to do their practices, without the necessity of installing the above-mentioned environment in their computers, and concentrate only on the practices. UNED has more than 60 Associated Centers where different degrees are taught. The teachers are in the Head Office of UNED in Madrid and these work environments can be delivered to Associated Centers, in order to be used by students to do their practices in any Center where they are and with the environment they need. 2) To allow equality of all the students to develop their practices, because the same environment will be accessible to all of them, no matter the Associated Center they are in. 3) Improvements on the amount of time used by technicians to deploy the necessary software. 4) Reduced costs in new software installation. Associated Centers technicians receive the templates for the practices from the Head Office and deploy them easily in the Centers infrastructure. 5) Reduced costs in hardware maintenance. Less time is needed for updates. 6) Reuse of technological resources of fewer capabilities on client side. Moreover, this technology allows us to deploy several templates in the same computer, so it is possible to use the same desktop for different practices. These changes of template are done quite easily.

**Please provide the best example of how the project has benefited a specific individual, enterprise or organization. Feel free to include personal quotes from individuals who have directly benefited from the work.**

Firstly, the main beneficiaries are the students, because they do not have to strain in the preparation of the environment. In many cases, this previous work made the subject was abandoned by the students, when its target had not anything to do with the configuration of the above-mentioned environment. UNED has more than 260.000 students, so there are a huge number of beneficiaries. And secondly, Associated Center technician staff has seen their work reduced in terms of computer configuration and updates. The architecture allows deploying the same template in as many terminals as they need, and the change between an environment and another one is easily made changing the above templates. In addition to this, users do not have privileges to modify the environment, so the problems are considerably reduced too.