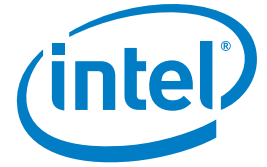


CASE STUDY

Intel® Core™ 2 processor
with vPro™ technology

Dynamic Virtual Client



Cutting-edge client infrastructure

Dynamic virtual client offers Telefónica I+D virtualisation advantages with rich user experience and mobility

Founded in 1988, Telefónica I+D is the largest private research and development centre in Spain and the most active company in Europe in terms of research projects in the information and communication technology sector. Recently it rolled out application streaming and virtualisation to simplify management and lower the total cost of ownership (TCO) of its client infrastructure while maintaining the rich user experience demanded by its employees.



Telefonica

“The dynamic virtual client is a win-win solution for us. On the one hand it allows us to reap all the benefits of the as-a-service software model – simpler management, lower TCO, greater IT productivity. On the other hand, our employees can continue to work with the rich, graphically-attractive application interfaces they are used to.”

Manuel J Cristobal & David Cantelar,
Project Managers at the Telefonica I+D
Services for the workplace division

CHALLENGES

- **Controlling cost and complexity.** Simplify management and reduce total cost of ownership of the client infrastructure
- **Giving users what they need.** Ensure that flexibility and rich, multimedia user experience are maintained, and mobility is not compromised

SOLUTIONS

- **Dynamic virtual client.** Application streaming and virtualisation based on Microsoft App-V* with desktops and notebooks based on Intel® processors with vPro™ technology
- **Best of both worlds.** Complete balanced computing model that delivers the best features of the thin and rich client

IMPACT

- **Rich user experience.** Meets employees' high expectations for usability and performance while improving system availability and end-user productivity
- **Centralised management.** Simplifies maintenance of the client infrastructure while lowering TCO and improving security, meaning IT can focus on more strategic projects

A diverse, flexible client infrastructure

Telefónica I+D contributes to Telefónica Group's competitiveness and modernity through technological innovation. To achieve this, the company's 1,000+ employees rely heavily on desktop and notebook PCs to develop new products and services for both internal and commercial use. These clients run a variety of Microsoft Office* applications, Internet browsers and software development tools, and are used by employees across different offices in Madrid, Barcelona, Valladolid, Granada and Huesca in Spain, as well as in Mexico and Brazil.

This client environment needs to offer employees the flexibility they need to do their jobs. For example, downloading role-specific applications as needed. However, this can cause headaches for the IT department. Rogue applications contribute to image complexity, making PCs difficult and costly to maintain and security tricky to ensure.

Seeking a virtualised infrastructure

To help simplify management and lower the TCO of the client infrastructure, Telefónica I+D wanted to introduce virtualisation. The company already benefits from server virtualisation, as well as running terminal services for internal training courses, but wanted an additional solution that utilised virtualisation to provide application services.

Virtual desktop infrastructure (VDI) was not suitable for Telefónica I+D's needs, since currently the potential benefits are outweighed by the required hardware and software investment. There are some limitations in terms of performance, since traditional thin client computing models shrink the PC image to run it as just another workload on a server in the data centre. Additionally, VDI cannot always render graphically-rich user interfaces quickly enough, causing problems for end users or forcing them to run what is effectively a pared-down application – either way, unacceptable for users.



The dynamic virtual client enables click&run on almost any application, avoiding installation and compatibility issues

The dynamic virtual client

Telefónica I+D went back to the drawing board to find a solution that met all of its requirements: lower TCO, centralised management, high performance, a PC-like user experience, and mobility. After extensive evaluation of alternatives, it decided on application streaming and virtualisation using Microsoft Application Virtualization (App-V)* with desktops and notebooks based on Intel® processors with vPro™ technology.

Known as dynamic virtual client computing, this model enables Telefónica I+D employees to stream applications on-demand to their desktops or notebooks. This self-service portal, accessible to the whole company, is called TApps*. Streaming technology combined with application virtualisation provides a complete, balanced computing model that delivers the best features of the thin and thick client.

Intel® vPro™ technology benefits

Telefónica I+D adopted Intel vPro technology as its standard PC platform to increase manageability and security across its desktop and notebook environment. Intel vPro technology provides hardware embedded capabilities that allow PC management units to reduce significantly the number of desk-side visits needed for PC problem management. It also enables remote power on/off PC diagnostic and repair, as well as improvements in inventory, power management and other IT department operations.

Some of these capabilities will be further exploited by App-V* to improve streaming

and license management policies and procedures, which are an essential part of application management and delivery.

Dynamic virtual client architectures and Intel vPro technology offer the best solution to reduce cost and complexity and improve service levels. This is down to the fact that both application management – by virtualisation and streaming capabilities, and PC platform management – by means of Intel vPro technology capabilities, are addressed. This provides a complete solution for desktop and notebook operations.

Meeting employees' requirements

The dynamic virtual client meets Telefónica I+D employees' high expectations for usability and performance. Applications execute using the client's CPU, graphics and memory, so the user experience is identical to a standard desktop or notebook, losing none of the rich multimedia functionality. Moreover, users can access applications very quickly since there is no full installation, only the download of the installed application in a virtualised container. The user only has to access the TApps portal or install and use an inhouse-developed desktop widget, in which any user can always select the application they want to use at any moment.

Since there is no need for a full installation, the operating system (OS) is not modified. Therefore, performance does not decrease as more applications are downloaded. This also helps to improve system availability, since applications have minimal interference on the desktop or notebook OS. Also, a user is experiencing problems with an application can just download it again in real-time at the click of a button. All this helps to improve employee productivity.

Spotlight on Telefónica I+D

Telefónica I+D is the innovation company of the Telefónica Group. Projects it has worked on in recent years include public phones, large fixed and mobile network management systems, data switches, Internet access services, developments for digital homes and connected cars, the prepaid system for mobile phones, and interactive a la carte digital television.

Far-reaching benefits for IT

This less intrusive set-up also helps improve the productivity of the IT department, since reducing installation and compatibility issues helps reduce the number of calls to the IT helpdesk. Security patches and upgrades are applied to a single master image and delivered from a single managed repository, making it easier to ensure security is up-to-date.

For the IT department, centralised management enables them to keep a record of exactly which applications are being used, making it easier for them to keep software licensing costs in line with actual usage. All this helps to lower the TCO of the client infrastructure and frees up the IT department to concentrate on more strategic projects.

Virtualising into the future

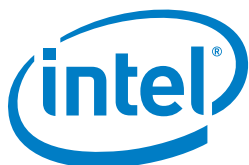
Streamed client computing is a viable and excellent alternative to thin client architectures, effectively addressing concerns related to TCO, manageability, usability, performance and mobility.

As the next logical step after application streaming, it is being considered OS streaming to facilitate even easier management of the client infrastructure. The success at Telefónica I+D has also prompted the wider Telefónica Group to consider rolling out dynamic virtual client.

Find a solution that is right for your organisation. Contact your Intel representative or visit the Reference Room at www.intel.com/references.

Virtualization:

Dynamic Virtual Client: Optimize client usage and increase agility through secure virtualization and dynamic policy-based management



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