How Application Virtualization improved the student and staff IT experience at Odisee University College

Cloud computing, collaboration, standardization.

1. SUMMARY

Odisee is a Flemish University college, based close to Brussels, Belgium, and a member of the KU Leuven Association. The university was created on January 1, 2014 through the merger of Hogeschool-Universiteit Brussel (HUB) and the Katholieke Hogeschool Sint-Lieven (KAHO, Ghent).. Odisee currently has an enrolment of 11,000 degree programmes along with 9,500 postgraduate programmes covered by 1,100 administration and academic staff across 6 Clusters. At campuses in Brussels and Ghent, Odisee also service KULeuven University students (7000 enrolments) and Academic staff (750 members). The University College currently employs Microsoft System centre more commonly known as SCCM to distribute applications to the 4000 PC's situated in a mixture of Labs, open access Labs and staff/administrative desktop and laptops. All of these machines are required for the Universities main function in bringing mainstream applications to the students, teaching staff as well as applications necessary to deliver the day to day working of a successful University.

2. THE PROBLEM

Odisee is committed to 'Improving the Student IT Experience' and as part of this program the proactive management of the software estate and innovative ways of delivering software to users would contribute positively to an all-around improvement in IT delivery.

Odisee had reached a point where the infrastructure for managing software delivery needed to be brought in line with students expectations for modern software application delivery – anytime, anywhere on demand.. One particular problem to remedy - the completion of a new request for a software application by a user - was impacting on the ability of the IT team to meet SLA's. With lots of software applications to release, the ongoing testing and release cycle was consuming more and more resource. This is could have contributed to user dissatisfaction with their IT Service and was a key area to improve.

Distributing software in the 'old' way also created very large distribution packages. Like most universities it is difficult to predict in advance in which classroom needed what software packages In some cases an average of 140 software titles were installed on classroom PC's. Managing this many applications across 1000's of PC's could cause further issues; applications not working as they should, incompatible software packages, conflicting requirements etc.

Moreover, to facilitate planning of computer classrooms, the installation of software titles in more classrooms than actually needed could result in either violation of licensing agreements or in extreme instances buying more licenses than actually needed.

Some software titles could be licensed to certain groups of students (e.g. ICT students) and installed in dedicated labs However, this could restrict them from using this software in open labs environments or in BYOD situations. It was clear that challenging the way the university delivered software to students could provide an enhanced student experience

3. APPLICATIONS ANYWHERE, ANYTIME AND ANY DEVICE

In the field of education there is much diversity between institutions. There is no standard of software delivery with most university IT teams adopting their preferred method of software delivery. The needs of the university and requirements of the student need to be considered more

comprehensively in the age of Bring Your Own Device (BYOD). BYOD is commonplace nowadays but for many this has sometimes stopped at providing WIFI access to student and staff's own devices.

Historically, the idea of Universities collaborating to share packages were applicable has been difficult because of the vast array of different technologies that are used.

The project, which sought a new technology to meet the correct requirements was funded by the University to find the most efficient way of delivering applications to students and staff without the need for physical installation of the software package. This was made all the more important due to complex license models and the inflexibility of moving licenses around the University IT estate.

Maximizing benefits of Application Virtualisation

4. AMBITIONS

The project was designed to deliver many ambitions the University had when it came to delivering software to staff and students. The most important ones being:

- Use IT to improve the student experience
- Deliver applications to the desktop quickly and efficiently
- Reduce log on times and IT administration
- Improve timetabling and asset management
- Reduce software license costs
- Easily support applications on campus and BYOD
- Focus on proactive student support
- Remove the need for multiple and/or large desktop images.

With a focus on the student experience; the solution needed to efficiently deliver applications to the university managed estate, and the students unmanaged devices in a way that enabled tight control over licenses.

High performance on machines using CAD/GIS/STEM was essential, as Odisee required a method of delivery with no compromises, where the application could be locally executed on the device making use of some of the powerful hardware already purchased for labs that required heaver weight applications.

Another key requirement of the solution was to enable more informed decision making of

- what software titles were being used
- who was using software;
- the ability to structure software purchases more efficiently by knowing how many of software application were being used and in what quantity.

Finally, an easy way for students and staff to access this large array of software without the need for complicated installation on a University owned device. Likewise the solution needed to be user friendly on a student/staff owned device (on or off campus) whilst giving IT control of offline access and license control.

5. SOLUTION AND IMPLEMENTATION

An evaluation began and some investigation of the market in 2014 and after discussion with teams in the Faculties, a project proposal came together that would see all 4 faculties join forces with the aim of implementing a managed software delivery service that would be centrally run from IT.

The team agreed that the following requirements were crucial for a modern software management and delivery infrastructure:

- Quick turnaround of packaging an application (hit more SLA's)
- Simple console for ad-hoc deployment of apps
- Ability to add set list of applications to unattended PC install
- Web-based self-service kiosk for users (AppStore)
- Delivery of software to unsupported workstations (BYOD)
- Offline access; users must be able to use software when away from campus with no connection
- Support for legacy applications on newer operating systems
- Security (applications must be managed to adhere to licensing regulations)
- Easy to update/patch applications (software kept up to date smoothly)

The contenders

- Citrix ZenApp – Discounted as out of budget range
- Microsoft App-V – Discounted as failed to meet all technical challenges
- Numecent/Software2 Application Jukebox – Finalist through to POC

The Application Jukebox system provided an advanced application virtualisation technology, arguably offering Odisee greater flexibility than other application virtualisation products on the market. It had already been implemented and used extensively at some of the Europe's largest universities with significant results.

Application Jukebox provides a mechanism to deliver, manage and virtualize applications to a client machine from a centrally administered server. Odisee aimed to reduce the cost of application delivery, while improving service levels, simplifying management, and improving reliability and user experience.

With Application Jukebox, Odisee student could access and work on their applications as if they were installed locally. There are no reported performance issues and no complicated proprietary web interfaces they would need to navigate. Once activated, the university software applications appear in their Start Menus or on their desktop – just like local applications.

Applications are now delivered to end-user machines across their networks, meaning students can access the applications anywhere, whether on campus, at home or on the move. Critically, for the IT team, applications still remain centrally controlled and can be revoked at any time.

The main anticipated benefits of the App J (Application Jukebox) system would include:

- **Faster software installation and more reliable PCs**
  Reimaging of PCs is currently taking at least 6-8 hours. This is mainly down to the size of the image(s) and the amount and size of the Software applications available on the PCs. Using the application virtualisation software, PCs could be re-imaged in much less time than before, with a more reliable build.
- **Better and faster PC performance / running of applications**
  PC performance is improved as software packages do not have to be installed on the PC image. Software would be deployed on-demand, which means that PCs would be running quite lean, compared to the huge number of current applications that are currently sitting on the PC. Traditionally, the more applications you install locally, the more bloated the registry and system folder will get. This makes the computer slower and increases the risk of failures. Application virtualization leaves the registry and the system folder untouched. Moreover, the application still behaves as if it was locally installed, and there's generally no compromise on performance, so users can make full use of 3D graphics, HD content, high-CPU performance and any other local resources. Advanced configurable virtualisation means the user experience remains the same without any conflicts with the end machine.
- **Improved speed and flexibility of software deployment.**
  Currently the image is agreed for each academic year, making if difficult to deploy new software or version upgrades etc. within the academic year. Application Jukebox would

allow new software/versions to be easily deployed throughout the academic year, ensuring a more flexible response to teaching /academic needs.

- **Improved software license purchasing decision process**.
  By using Application Jukebox's reporting tools, it is possible to see what software application has been used. Application usage is metered within the system on a 'per user per second' basis, so a wealth of data is available for analysis. This data is then fed into Software2's Hub, where management dashboards are created with up-to-the-minute application usage information.
- **Enhanced student experience;**
  Improved student experience – potentially any Windows application to any managed machine. In addition, software applications could be found in a consistent way, across the whole University.
- **Full License Management leading to the maximisation of software resources**
  Administrators can keep track of exactly how many licences are being used at any given time and redistribute them where necessary. By maintaining a central pool of licences and allowing users to take from the pool wherever they are, as and when they need them, resources can be maximised and vast amounts of money saved. For example, expensive licences that are needed for teaching in School computer labs can be easily switched to other areas, such as the LRC, when the computer labs are closed.
- **Secure remote access to applications / Support for the Universities BYOD strategy**
  Applications are delivered to end-user machines across their networks, meaning users could eventually access applications anywhere, whether at home or on the move. However, applications still remain centrally controlled and can be revoked at any time. A self-service portal could therefore, longer term, make it easy for students to access the software they need on their own devices and laptops.

6. CONCLUSIONS

Application Jukebox has vastly improved the way we are delivering applications to;

- Odisee end users

- Odisee Students on university devices

- Odisee Students on their own devices

- Odisee Staff and administration desktops

Odisee now have the ability to stream any Windows application to any compatible device and have vastly improved performance against SLA's in the process.

7. AUTHOR'S BIOGRAPHY

Jan Van Calster – has a masters degree from the University of Leuven in Mathematics and applied Computer Sciences and has worked for HUB and now Odisee as they are now known as since 1983. Jan has taken on two roles in that time period serving as a member of the teaching staff; teaching networking courses up until 2004 where after that period he took on the new role of ICT Manager and now serves at the ICT Service Desk Manager.

His Linkedin profile can be found here : https://be.linkedin.com/in/janvc