


How Application Virtualization improved the end user IT experience at Odisee University College

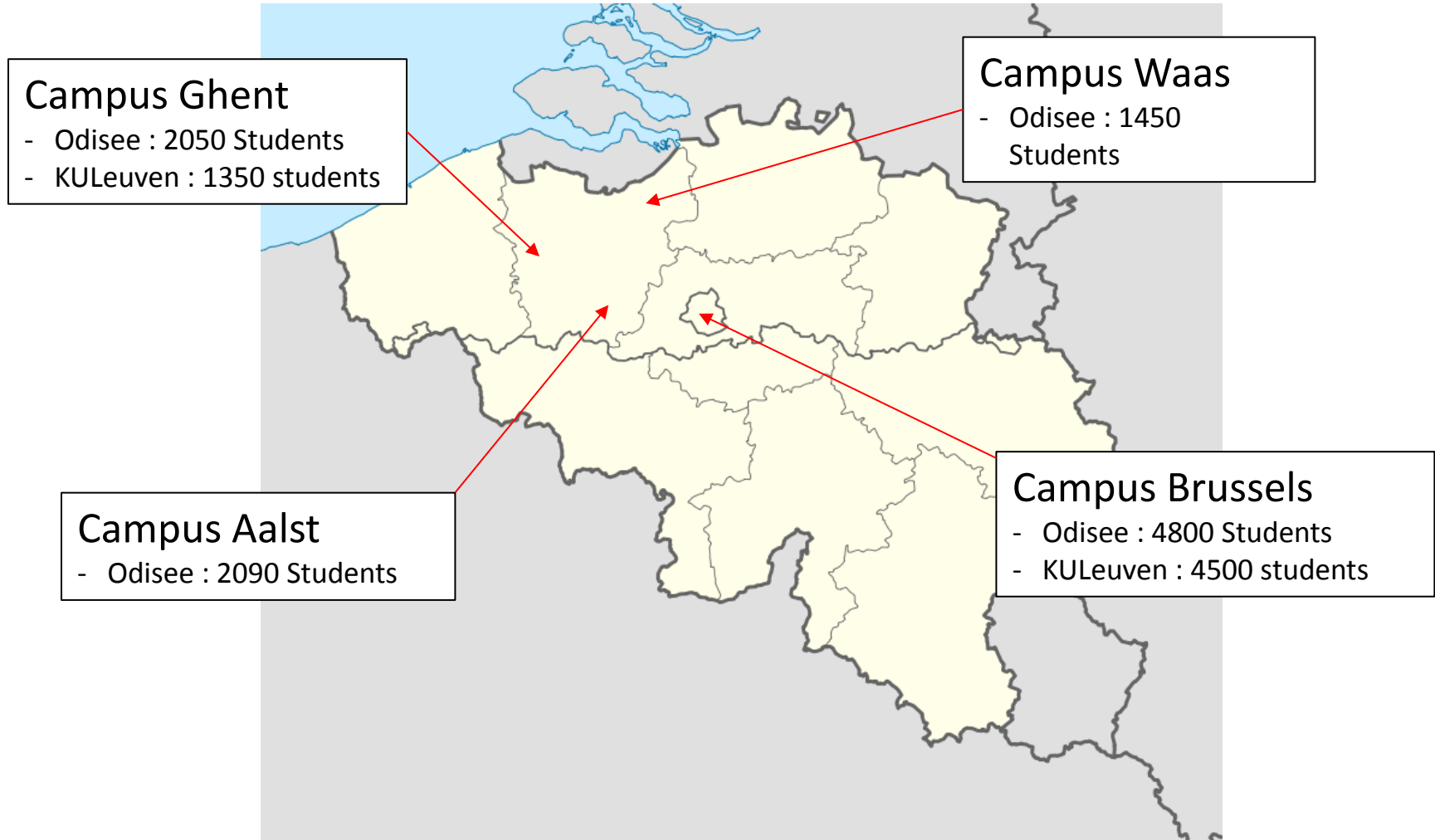
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About Odisee

- University College, Belgium
- 4 major campuses (Brussels, Ghent, Aalst , Sint Niklaas)
- 25 programs, 6 departments
- 28 postgraduate programs
- 11000 Students, 1100 Staff
- Services for KULeuven ()
 - 2 campuses
 - 4 Faculties
 - 7000 Students
 - 750 Faculty members and Staff



About Odisee



Who is Jan Van Calster

- Master in Mathematics (1981) and Computer Sciences (1983)
- Teaching at Bachelor and Master level: Programming languages, Operating systems, Networking (1984-2005)
- Head of the ICT services departement of EHSAL and HUBrussel (2005-2013)
- ICT Servicedesk Manager Odisee (2013-now)
- Jan.VanCalster@odisee.be

What was our problem?

- A lot of software titles to install (over 140 titles)
 - Very large images
 - SCCM helps, but is not always flexible enough
 - Configuration conflicts
 - Last minute additions, even during the academic year
- Flexible scheduling of computer classrooms
 - Eg. In Brussels: 12 computer classrooms
 - Shared between programs
 - Shared between institutes (Odisee and KULeuven)

What was our problem?

- Public computers
 - Libraries
 - Student facilities (open centers)
- Software licensing
 - How many licenses do we need?
 - Controlling licenses (only some courses need certain titles)
 - Metering (Who is using what and how much?)
 - BYOD: what can we offer to students? (Windows, Mac, ..)
 - Temporary use of software (eg. A teacher needs Camtasia for 2 months)

What are the possible solutions?

- VDI/Remote Desktop
 - VMware Horizon (formely Horizon View)
 - Citrix XenDesktop
 - Microsoft VDI and Remote FX
- Virtual Workstation
 - VMware Workstation
 - Microsoft Virtual PC
 - VirtualBox
- Application Virtualisation
 - Microsoft App-V 5
 - Numecent Cloudpaging (formerly Application Jukebox)
 - VMware Thin App

What are the possible solutions?

- VDI (VMware, Citrix, Microsoft RDS)
 - Install and run software on a centralised server
 - Plus Points
 - Flexible and OS independent providing there is a client
 - Logical ‘packets’ of titles (eg. Per Program)
 - Lots of competition in the market
 - Lots of existing users (though not many in academia)

What are the possible solutions?

- VDI (VMware, Citrix, Microsoft RDS)
 - Install and run software on a centralised server
 - Minus
 - Very high cost; new hardware and costly client licenses
 - Configuration conflicts still exist
 - Limited interaction with local machine
 - No control over the use of a single application
 - Offline not possible (or not easily possible)
 - Slow with heavyweight apps such as AutoCad, MatLab etc...
 - Still have a large software image without Application Virtualisation

What are the possible solutions?

- Virtual Workstation
 - Virtual OS environment that runs on the local PC
 - Plus Points
 - Controlled environment for BYOD
 - Independent of client OS
 - Minus
 - Not flexible (large image)
 - Distribution on a large scale is not realistic
 - No control over a single application
 - No control over licensing as all part of one master image

What are the possible solutions?

- Application Virtualisation
 - Deliver applications independantly
 - Plus Points
 - No (or limited) configuration conflicts
 - No local installation of software
 - Easy addition of new apps to the system
 - Minus
 - Packaging can be sometime challanging without support from the vendor
 - Limited to Client OS (without emulation)

What are the possible solutions?

- Distribution of the solution
 - VDI/Remote desktop
 - Deploy the client (SCCM, Download, etc)
 - Client is OS specific
 - Virtual Workstation
 - Deploy the virtualisation client (SCCM, Download, etc)
 - Client is OS specific
 - Download the virtual machine (can be quite large)
 - Virtual Application
 - Deploy the apps (SCCM, Download, Stream)

What are the possible solutions?

- Streaming of Virtual Applications (vendor specific)
 - Requirements:
 - Control who can access a virtual application (LDAP Authentication, use AD groups and users)
 - Control how many users can run a virtual application simultaneously (concurrent licensing)
 - Control how long a virtual application can be used offline
 - Good reporting on the use of virtual applications

What are the possible solutions?

- Distribution of the Virtual Applications (vendor specific)
 - Plus Points
 - Very flexible
 - In Labs
 - In Library
 - On Students on devices
 - On Loan machines
 - Minus
 - First launch takes a little longer (for the initial download)
 - Vendor license restrictions may not allow use on students personal devices

Our Choice

- VDI
 - Ruled out due to the high cost of hardware and licensing
 - Limited implementation to support Mac users
- Remote Desktop (RDP)
 - Ruled out due to impractical distribution, maybe usable in BYOD or specific situations (exams, certain labs: e.g. giving admin rights to students is a masive no no!)
- Application Virtualisation
 - Ideal as long as the solution has flexible license controls (to adhere to individual software license restrictions)

Our Choice

- <http://www.pqr.com>
 - Whitepaper: Application Virtualisation Smackdown
- Independent unbiased report on all possible solutions
- Written by industry experts



ICT altijd binnen bereik

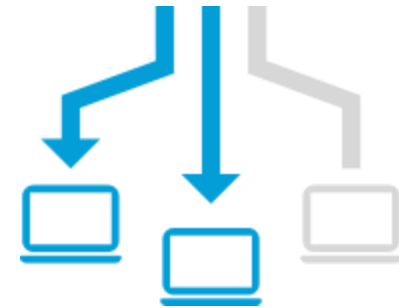
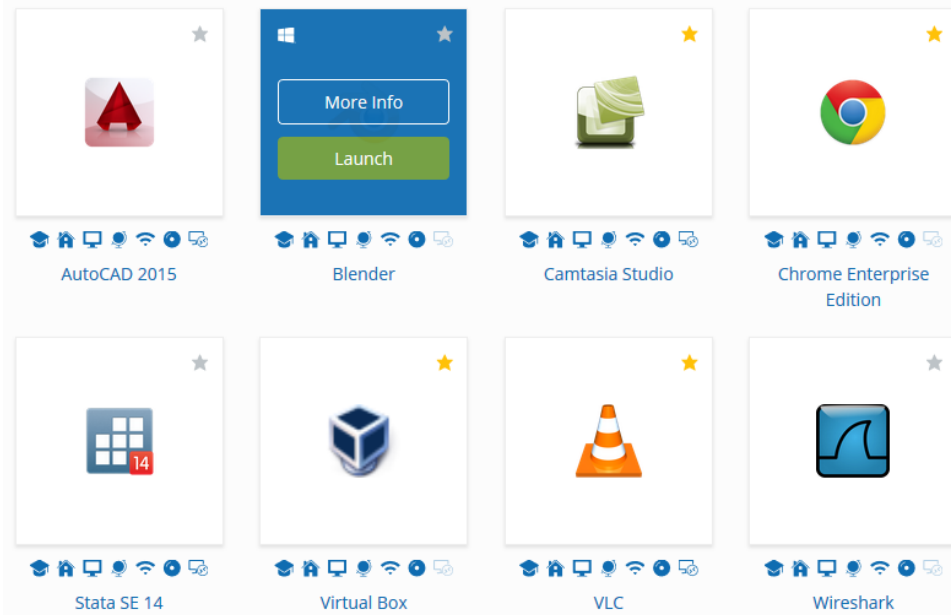
Application Virtualization Smackdown
solutions overview and feature comparison matrix

Category	Functionality	Coreyo	Chirp App Streaming	M.MECENT	Microsoft App-V v4	Microsoft App-V v5	Spoon	Symantec VPMware	ThinApp	Remarks
Virtualization Characteristics										
	The Solution is capable to fully virtualize/isolate Applications	✓	✓	✓	✓	✓	✓	✓	✓	
	The Solution is capable to fully integrate Applications with local Operating System	✓	X	✓	X	X	X	X	✓	
	Configurable virtualization and integration	✓	X	✓	X	X	X	X	✓	
	Solution allows multiple layers of integration(Isolated/virtualized or non-isolated)	✓	X	✓	X	X	X	X	✓	
	Applications will operate without any minimal chance of conflicts	✓	-	✓	✓	✓	✓	✓	✓	Isolation mode = ✓
	Applications integrates and communicates seamlessly with the OS	X	X	✓	X	X	X	X	✓	App-V only Office 2010/2013
Manageability										
	Central management platform for application delivery	X	✓	✓	✓	✓	✓	✓	X	
	The solution is usable in SaaS scenario. SPLA licensing is available; applications are on-demand streamed and delivered as a service, pay per-use.	✓	✓	✓	✓	✓	✓	✓	X	
	Application is delivered in a very efficient way, quick up-and-running. Stream only data which is needed to start application.	✓	✓	✓	✓	✓	✓	✓	✓	
	Application specific license metering, track application usage	X	X	✓	X	✓	✓	✓	X	
	Application virtualization Solution application usage tracking	X	✓	✓	X	✓	✓	✓	X	
	Role based administration	✓	✓	X	X	X	X	X	X	
	Application 'rollback'	✓	✓	✓	✓	✓	✓	✓	✓	
	Application has to be shut down for upgrade	✓	✓	✓	✓	✓	✓	✓	✓	
	Application upgrade, centrally managed	X	✓	✓	✓	✓	✓	✓	✓	

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Our Choice

- Software2 was our preferred solution as it includes:
 - Numecent Cloudpaging
 - Software2 Hub (Self-service AppStore)



Why Software2 and Cloudpaging?

- Configurable virtualisation on a file-by-file level
(even allows software with drivers and services to be virtualised)
- Virtual application can contain dependancies
(eg. Specific Java runtime, C++, .NET Framework etc)
- Optimized launch (only ~10% of the app needs to be downloaded to start -
vastly reducing network traffic)
- Software2 Hub can use AD users and groups to set access rights
- Each virtual app can be distributed in on or offline modes with access
controls and customisable time limited access periods
- Good interactive monitoring and reporting tools

Why Software2?

- OEM partner (Software 2)
 - A lot of experience in Higher Education
 - Very good reviews from other users
 - Very good support, only focused on education (mostly Universities and some colleges)
 - Software2 User Day, 2 - 3 times per year (user community sharing experience, best practice and package recipes!)
 - Community knowledge base and library of solutions
 - They package all our freeware apps
 - Training and support for packaging
 - Self-service AppStore

Our Choice

- Additional benefits (not in the original scope)
 - We can provide applications in different languages to our end-users
 - We can provide additional applications to our end-users (since Software2 package all freeware software)
 - Most virtual packages are portable between Windows versions (so upgrading to Windows 10 should be easy – no need for re-packaging)
 - We can run the multiple versions of applications side-by-side, e.g. SPSS 21 and SPSS 22 on the same PC

Our Choice

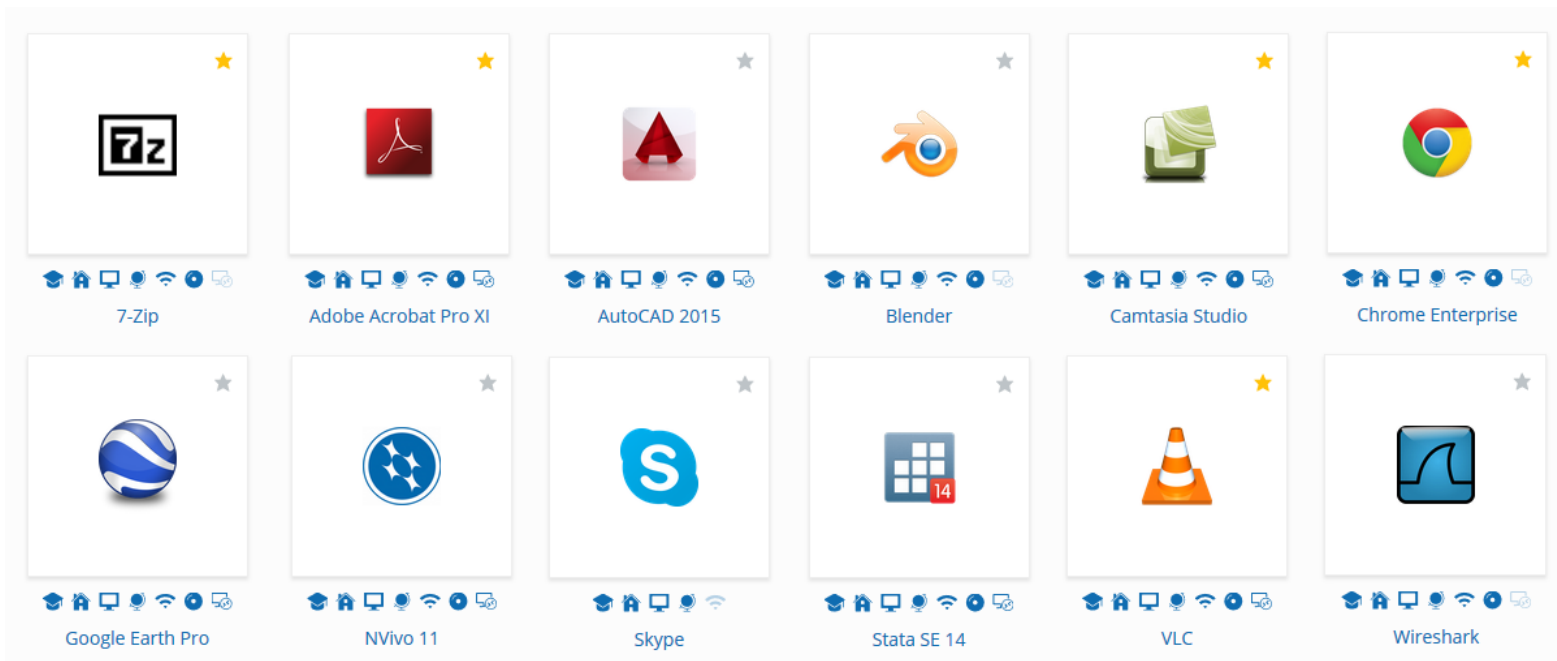
- To keep in mind
 - Cross platform compatibility still requires additional virtualization (RemoteApp or similar)
 - Requires a client to be installed on the end-user machine
 - This is necessary to keep things under control, but can be distributed by group policy
 - Packaging can be time consuming (but is no worse than MSI packaging)
 - Negotiations with software vendors regarding certain licenses can be challenging but not impossible

Our Implementation

- Software deployment group
 - 3 different methods of software distribution
 - Option 1
 - Application as part of the image; always available software, eg. Office, Antivirus...
 - Option 2
 - Application distributed via SCCM
 - » Specialist software in specific labs
 - Option 3 - Cloudpaging : ALL the rest

Our Implementation

- Our AppStore
 - Available to all Students (and Staff)
 - 100+ Applications for Students to use on their own laptops
 - Delivery of Apps to distance learners



The Benefits

- For our students:
 - Wider availability of software in classrooms, labs, library etc
 - Software is available for unmanaged devices (BYOD)
 - Shorter distribution cycle
 - Updates and patches at anytime, not just when we have time
- For the ICT staff:
 - More flexible and easier deployment of software
 - Less software conflicts on end user devices
 - Easier deployment of PCs in classrooms (smaller images)

The Benefits

- For our teaching staff:
 - More flexibility in classroom usage
 - Shorter software deployment cycle
 - Ability to choose
- For our budgets:
 - Better feedback about usage of software titles
 - Ability to budget for our software titles
 - The flexibility on moving licenses around
 - Being able to monitor exactly what we use to tighten up license negotiations

The Benefits

- We are happy with our choice of Software Delivery mechanisms:
 - It's made us more efficient
 - It's given us the flexibility to be more agile
 - It's made our students happy - they can now use software on their devices
 - It's made our lecturers happy - they can use applications in any room
(even if we we only have a few licenses)
 - It's made our IT staff happy – by taking the “fun” out of creating big images
(and praying it all works!)
 - It's enabled all of the above...
...without giving our finance department a heart attack!

The Benefits

- Does Cloudpaging from Software2 solve all our problems?
 - Not all of them...
 - ...but it solves a lot more problems than it creates!

Questions?

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