

br**iforum**





Citrix Ardence Disk Streaming

Operating System provisioning for Servers and Workstations, the right OS at the right time for the right computer"

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Ardence Disk Streaming Platform



- Diskless/Network boot, Diskstreaming technology
- Client (Desktop/Server) is mounting a disk volume on the network via PXE
- Private and standard images

Ardence Demo Video

Advantages of Ardence



- Rapid Software (OS/Apps) Deployment, easy server and workstation provisioning
- Flexible provisioning: On Demand Capacity, Hardware Re-purposing
- Instant upgrades or roll-back of Operating System and (security/hotfix) updates
- High Availability and Load Balancing of Ardence streaming servers
- Disaster Recovery for virtual and physical machines
- Secure server/workstation
- Windows XP, 2000, 2003, Linux RH and Novell/Suse supported

Advantages of Ardence



- Vista support (standard image VCD needed)
- Intel x32 and x64 support
- Clean Operating System after every restart (with standard image)
- Systems with the same image are 100% identical
- Support of multiple images per system, inclusive boot menu
- Lowering TCO, maintenance, provisioning, easy DR
- Less expensive disk-storage needed with standard images (VDI/DDI)

Disadvantages of Ardence



- No work off-line capability
- High-speed LAN recommended (100Mb>)
- Not all platforms supports
- Multiple PXE/BootP solutions in same network segment will give issue's
- More expensive disk-storage needed with private images
- Imaging disadvantages apply to this technique

Scenario's for Ardence:



- Citrix Presentation Servers
- Terminal Servers
- Web Servers
- Back-up Servers
- Development/Test environments
- LAB environments
- Educational environments
- Public workstations
- (Very) Secure environments
- VDI / DDI solutions

Today

2007

2008

Ardence 4.1 +SP1

- Management API (MAPI)
- Ardence Secure Edition For 4.X
- Integrated PortBlocker
- Linux Client (32 & 64 bit)
- 64 bit Client Support (x64 Architecture)
- Vista Support

Ardence 5.0

- Admin Tool Enhancements
- PXE Boot Options
- Redundant Network Support
- 64bit Ardence Server Support
- Scalability Enhancements

Ardence 5.1

- User-based vDisk Selection
- vDisk Management Improvements
- Logging, Reporting, and Monitoring Improvements
- Localization

Why did Citrix buy Ardenne ?

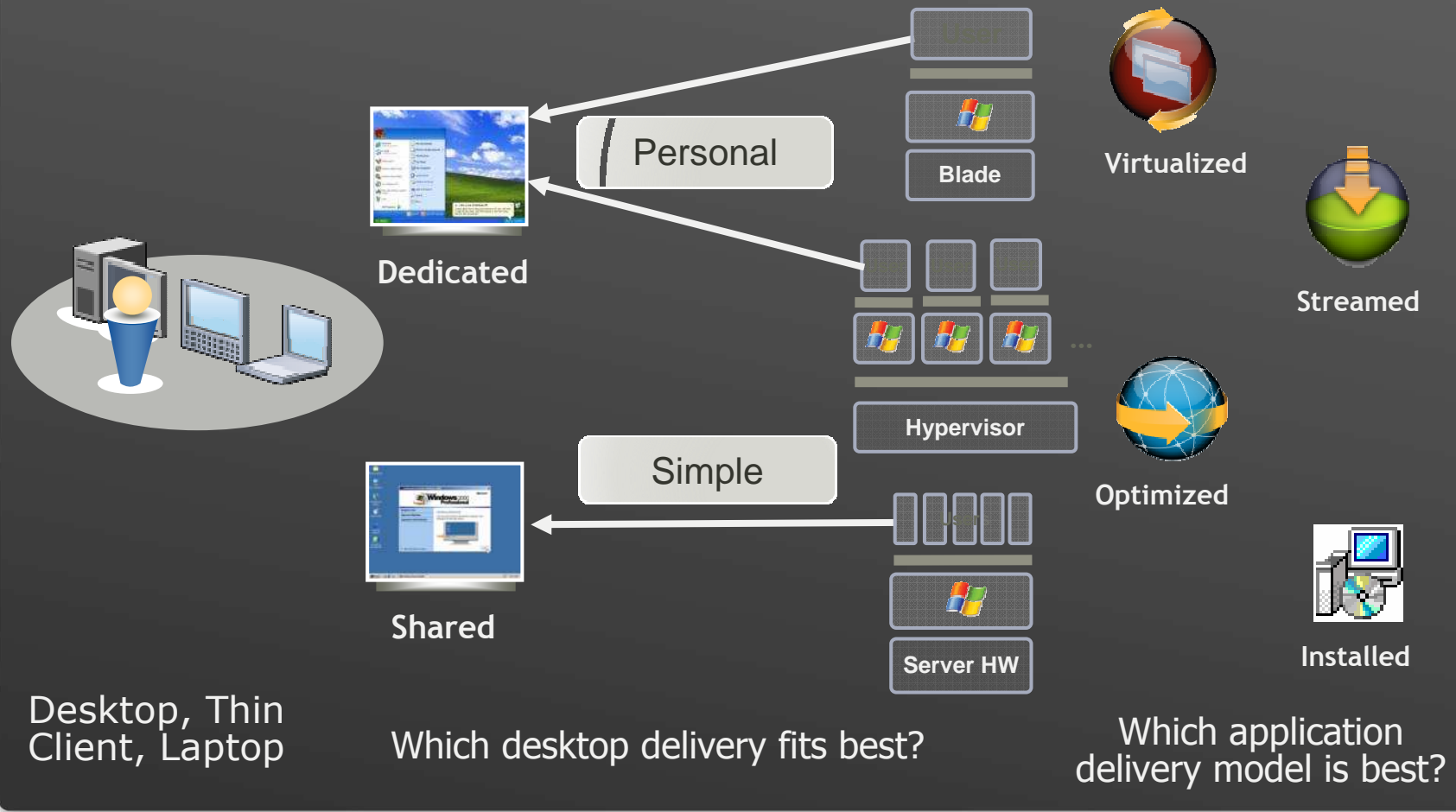


- Future of Ardenne
- Citrix Dynamic Desktop Initiative (DDI) explanation and role for Ardenne with DDI
- Easy and secure migration scenario to a new Presentation Server platform

Why did Citrix buy Ardenne ?



VDI/DDI



Pricing

- Desktop Client (XP, Vista) \$ 250,00
- Desktop Client incl HA \$ 400,00
- Data Center Client \$ 600,00
- Data Center Client incl HA \$ 1000,00

Microsoft Vista Enterprise Centralized Desktop

Contest:

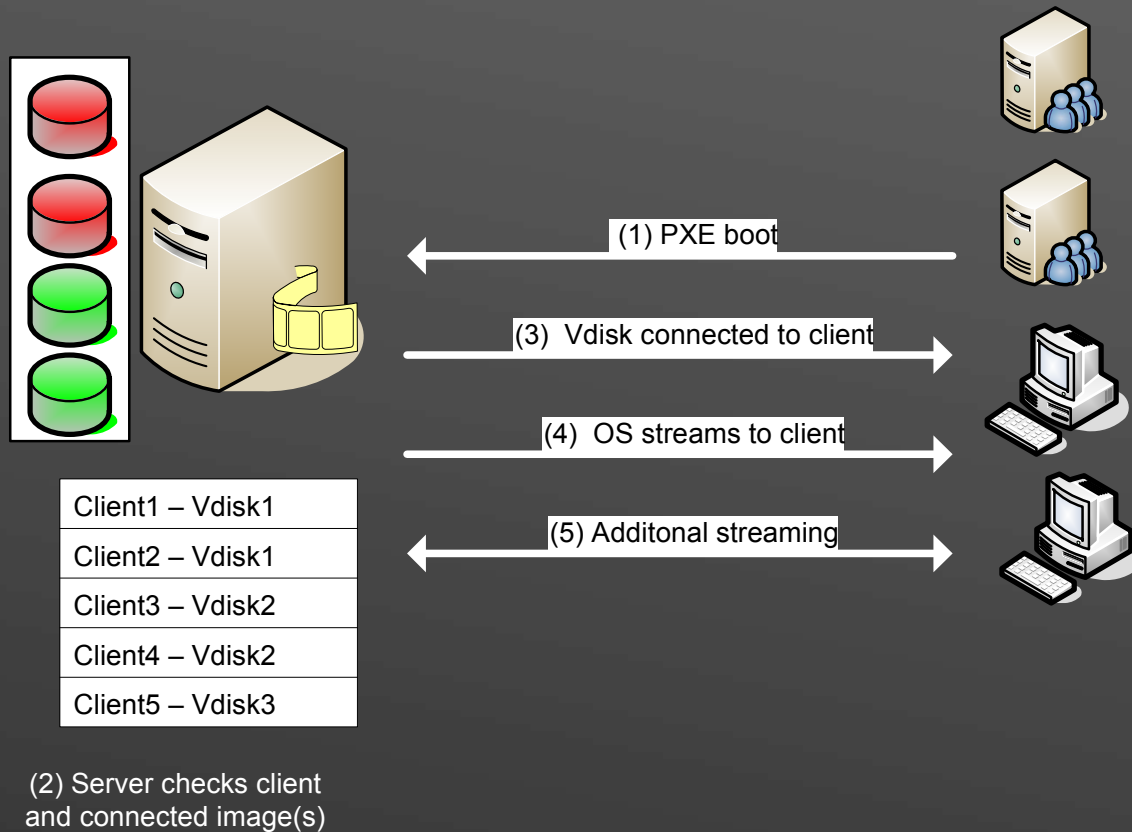
I need 2 people in front (none dutch speaking!)
 who can pronounce the best:
 "Spruijt, van Bragt and Grolsch-beugel"

The winner gets a real big dutch beer! ;-)



Ardence Technical Overview

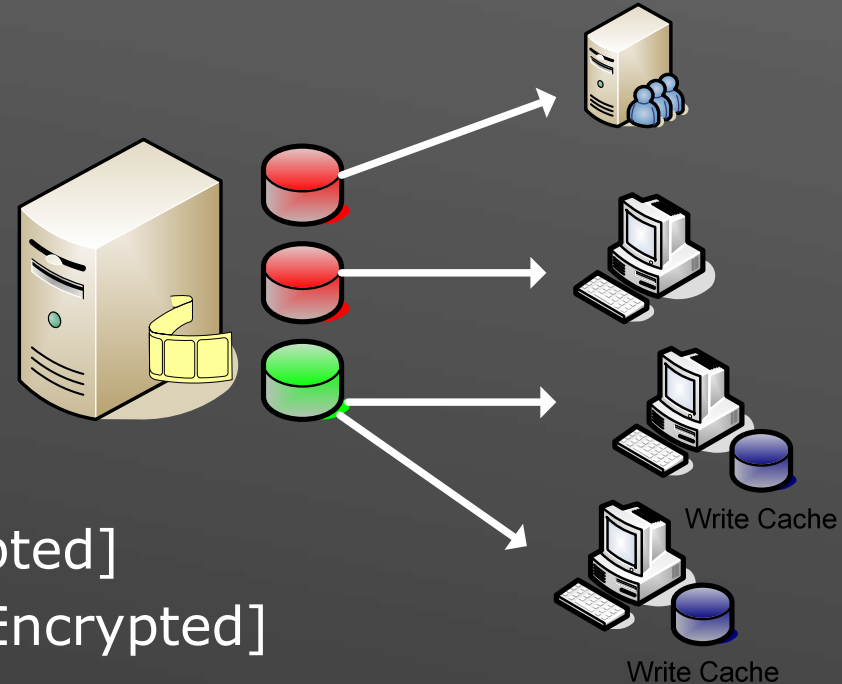
Ardence Technical Overview



Ardence VDisks

2 Types of images (Vdisk):

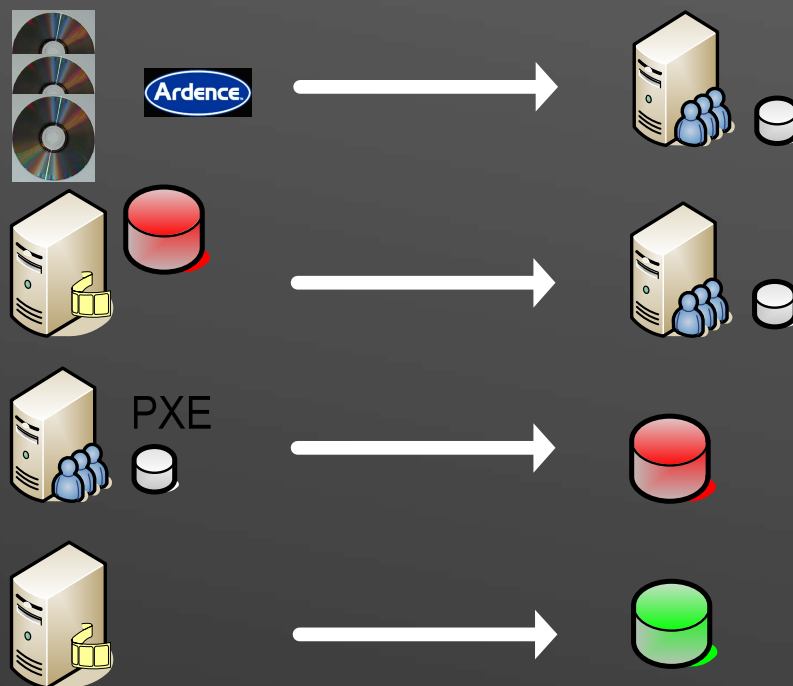
- Private image
- Standard image



Ardence Cache

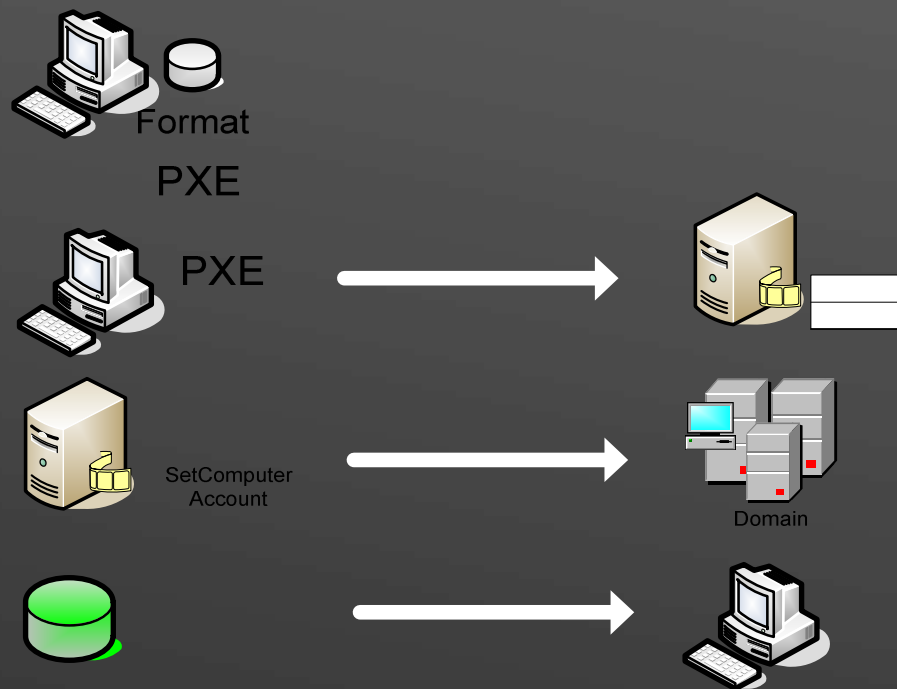
- Cache on Server Disk [Encrypted]
- Cache on Client Hard Drive [Encrypted]
- Cache in Client RAM

Creating an image



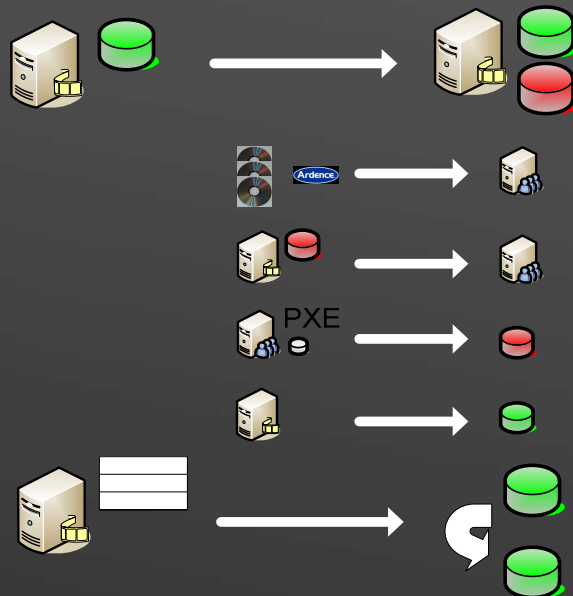
Video Demo:
[Create image](#)

“Installing” a new system

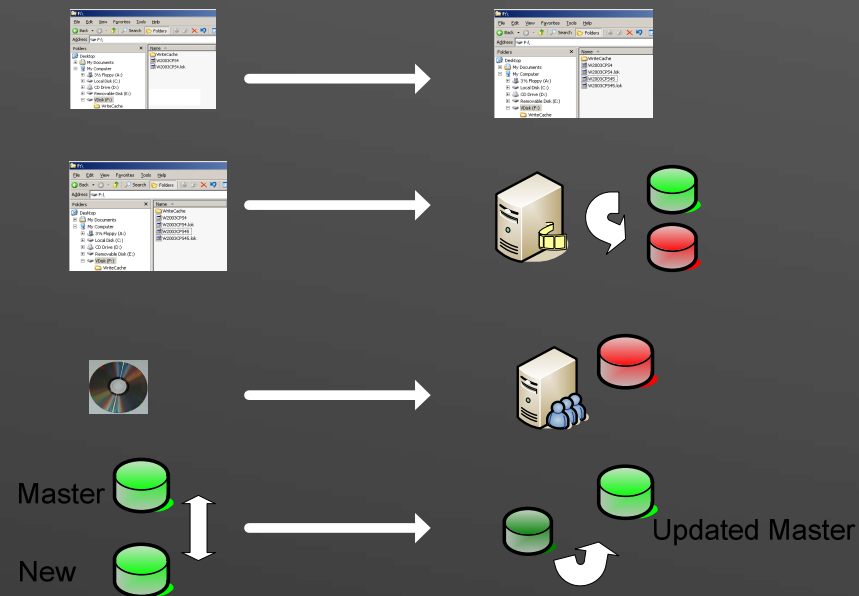


Updating Image

Complete VDisk Update



Incremental Update



Advanced features:



- Common Image
 - Image for multiple hardware platforms
 - Using a common NIC that should be inserted in every system
- High Availability
 - Using multiple Ardence Servers for load balancing & fault tolerancy
 - Additional license required
 - FileShare, SAN or NAS necessary
- Management API
 - Script possibilities of actions in the Ardence Console
- Client boot menu

Video Demo:

[Ardence demo 6](#)

Why Ardenne came in the picture?

- Difficulties to keep servers 100% identical
- Difficulties to create and maintain unattended installation of Citrix Server
- Long period for new applications are available for end users
- No OTA process and environments available
- No quick rollback scenario's available
- Dynamic requirements for some applications (exams, specific lessons, report card processing)
- Just a few persons with real Terminal Server knowledge available

Advantages:

- Dynamic application of Citrix Servers (extending silo's)
- Clear and easy maintenance of Citrix Servers
- Modifications can only be done on one place
- Easy implementation of updates and hotfixes
- Easy rollback scenario's
- Restart of the server is much quicker
- After a restart system is back in clean state
- Servers are always 100% identical
- Addition of a new sever is done in a few minutes

- Personalizing Citrix Presentation Server
- Personalizing other software products like RES Powerfuse, SMS Client, HP OVO Client
- Microsoft Softgrid Prechaching
- Two PXE systems: Ardenne for Citrix Server and WDS for Vista Client
- Performance of the Server in comparison to a traditional installed server
- LAN bandwidth usage
- How much customization is necessary for user applications

Challenges

- Servername is added into registry
- MF20.DNS contains Servername
- Local Host cache should be recreated
- Local Resource Manager database

Implementation

- Image system for imaging: Remove MF20.DSN, LHC, RM DB's, CTX services manual
- Script at System Startup that add MF20.DSN with actual server name, recreates LHC, change registry settings with actual server name and starts the CTX services

Personalizing other software products



- RES Powerfuse -> uses actual computer name
- SMS Client -> unique ID: ccmdelcert.exe & smscfg.ini
- HP OVO Client -> uses actual IP address
- MS SoftGrid -> uses actual computer name

- Best performance using Precache inside VDisk
- Because of many application updates (so new sequences) precache most used application at system startup (using script) on local client drive (also used as Ardenne Write Cache disk)

- Two HP DL360G5, DualCore Xeon 3 Ghz, 4 GB Memory, 36 GB RAID 0+1 disk
 - 1 Traditional installed
 - 1 Booted with Ardence VDisk
- W2003, CPS4, RES Powerfuse 7.03, Softgrid TS Client 4.1
- WinTask: MS Excel 2007, MS Word 2007 & MS Powerpoint 2007
- Denamik LoadGen

Performance results



Totals Physical 30 Users

Phase	Min Time	Max Time	Average	Standard Deviation	Amount
LoadBot initializing	0,027	0,151	0,043	0,033	27
Building Citrix session	0,041	0,248	0,062	0,048	27
Connecting Citrix Session	0,511	1,867	0,854	0,333	27
User logon	2,129	4,350	3,046	0,579	27
Finished Logon	2,143	4,366	3,064	0,582	27
Starting & Using Excel	648,000	2454,000	1471,407		27
Starting Word	551,000	706,000	633,741		27
Using Word	23881,000	34606,000	27988,963		27
Starting & Using Powerpoint	642,000	1278,000	1278,000		27
Total Session	25829,000	31372,111	31372,111		27

Totals Ardence 30 Users

Phase	Min Time	Max Time	Average	Standard Deviation	Amount
LoadBot initializing	0,031	0,062	0,034	0,007	27
Building Citrix session	0,046	0,077	0,051	0,01	27
Connecting Citrix Session	0,482	1,076	0,783	0,164	27
User logon	1,699	4,023	3,059	0,562	27
Finished Logon	1,731	4,039	3,080	0,56	27
Starting & Using Excel	650,000	2509,000	1260,462		27
Starting Word	579,000	721,000	643,962		27
Using Word	22033,000	30795,000	26425,308		27
Starting & Using Powerpoint	651,000	1707,000	1027,192		27
Total Session	24254,000	34019,000	29356,923		27

Performance results



Totals Physical 45 Users

Phase	Min Time	Max Time	Average	Standard Deviation	Amount
LoadBot initializing	0,015	0,062	0,030	0,010	45
Building Citrix session	0,031	0,093	0,045	0,013	45
Connecting Citrix Session	0,515	1,155	0,711	0,117	45
User logon	2,734	5,342	3,711	0,570	45
Finished	2,750	5,358	3,727	0,570	45
Starting & Using Excel	645,000	2524,000	1585,889		45
Starting Word	539,000	706,000	630,711		45
Using Word	21588,000	33106,000	27751,333		45
Starting & Using Powerpoint	642,000	1811,000	1138,622		45
Total Session	23625,000	37497,000	31106,556		45

Totals Ardence 45 Users

Phase	Min Time	Max Time	Average	Standard Deviation	Amount
LoadBot initializing	0,015	0,359	0,041	0,050	45
Building Citrix session	0,031	0,390	0,058	0,053	45
Connecting Citrix Session	0,437	1,187	0,587	0,151	45
User logon	2,797	6,215	3,972	1,011	45
Finished	2,812	6,231	3,988	1,011	45
Starting & Using Excel	671,000	2678,000	1460,822		45
Starting Word	523,000	700,000	609,200		45
Using Word	23226,000	35873,000	27836,044		45
Starting & Using Powerpoint	641,000	2179,000	1171,022		45
Total Session	25420,000	39211,000	31077,089		45

Performance results



Totals Physical 60 Users

Phase	Min Time	Max Time	Average	Standard Deviation	Amount
LoadBot initializing	0,015	1,828	0,072	0,238	60
Building Citrix session	0,031	1,890	0,091	0,246	60
Connecting Citrix Session	0,562	4,374	0,884	0,545	60
User logon	0,953	13,974	4,723	2,520	60
Finished	0,953	14,973	4,821	2,755	60
Starting & Using Excel	637,000	2630,000	1553,667		
Starting Word	535,000	715,000	631,267		
Using Word	20736,000	33106,000	26879,033		
Starting & Using Powerpoint	643,000	1918,000	1183,233		
Total Session	24530,000	37961,000	30247,200		

Totals Ardence 60 Users

Phase	Min Time	Max Time	Average	Standard Deviation	Amount
LoadBot initializing	0,014	0,523	0,044	0,066	60
Building Citrix session	0,029	0,597	0,060	0,075	60
Connecting Citrix Session	0,437	1,240	0,630	0,177	60
User logon	2,570	30,099	7,942	7,797	60
Finished	2,585	31,099	8,155	8,166	60
Starting & Using Excel	648,000	7258,000	2433,167		60
Starting Word	537,000	2560,000	28129,500		60
Using Word	22051,000	37287,000	28129,500		60
Starting & Using Powerpoint	643,000	3971,000	1750,533		60
Total Session	25956,000	41557,000	33183,467		60

- **Whitepaper Brian Madden**
 - <http://www.brianmadden.com/content/content.asp?ID=571>
- **Whitepaper Ruben Spruijt**
 - <http://www.virtuall.nl/articles/ProductInformation/Ardence/>
- **Review Ardence OS Streaming Sbc.VanBragt.Net**
 - <http://sbc.vanbragt.net/mambo/deployment/ardence-os-streaming-4-2.html>
- **Video Ardence labs**
 - www.virtuall.nl/videos/ardence
- **Video's Virtuall demo environment**
 - www.virtuall.nl/videos/ardence
- **Ardence, Delivering Value in a CPS environment**
 - http://www.ardence.com/uploadedfiles/ardence_video/cps/howitworks.html
- **Understanding VDI landscape and the impact of Ardence OS Streaming**
 - <http://www.ardence.com/WorkArea//showcontent.aspx?id=1527>
- **BrianMadden Live,**
 - <http://www.brianmadden.com/live/A-conversation-with-Ardences-Pete-Downing>
 - <http://www.brianmadden.com/live/A-conversation-with-Ardence-about-life-after-being-acquired-by-Citrix>

Questions??