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# Quick Reference guide

## Citrix Presentation Server 4.0

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When started deploying Presentation Server 4.0 for customers I needed to refresh my knowledge and had to learn some of the new features. As I learn fast but forget easy I decided to make a quick guide to most Citrix PS4.0 features, basic farm management, customizing a farm and some best practices to design a basic PS4.0 farm. This is not an official Citrix document, but it will give you some fast information and additional links.

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# 1. Access Suite Components

Although Citrix Access Suite is not the scope of this guide its important to know how Citrix positions its products. Presentation Server is sold as part of the Access Suite, but it is also sold as stand alone product.

## 1.1 Presentation Server 4.0, Enterprise edition

Citrix Presentation Server is the industry-standard way to virtualize the delivery of business applications through a centralized and secure architecture. Presentation Server allows IT staff to centrally deploy and manage business applications while providing secure access to users from any location, on any network or device. It provides an exceptional foundation on which to build highly scalable, flexible, secure, manageable access solutions that reduce computing costs and increase the utility of any information system.

Presentation Server runs on Microsoft Windows Server 2003, Microsoft Windows 2000 Server, and a variety of UNIX operating systems. Presentation Server enables access to virtually any custom or commercially packaged Windows, Web, UNIX, or Java application from any device, over any connection, without requiring multiple desktops or software emulation packages. The conferencing feature enables sharing of published applications.

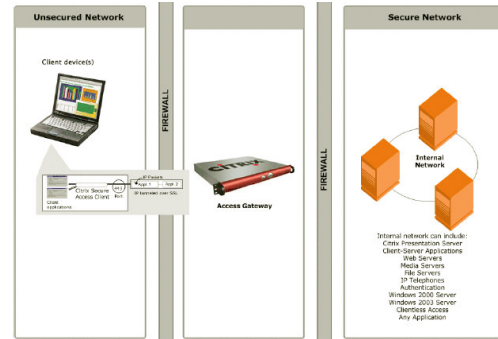
## 1.2 Citrix Access Gateway 4.2 with Advanced Access Control

Citrix Access Gateway™ is a universal SSL VPN appliance (net6 device) that provides a secure, always-on, single point-of-access to all applications and protocols. The standard Access Gateway device is called NV2000 and supports 2000 concurrent SSL encrypted ICA sessions.

- Port 443 is opened for VPN network traffic
- Ports 9001 and 9002 traffic for the Administration Portal and Administration Tool
- Port 9005 is opened for notifications from the server running Advanced Access Control, such as when the Access Gateway cluster is refreshed, when the Logon Point changes, or when a session has expired or needs to be deleted

Citrix Access Gateway licenses are included with Access Suite and Access Suite, Step-Up Edition purchase. Access Gateway appliance is optional and sold separately.

Advanced Access Control is a separate product installed on a webserver (like IIS). Uses End Point analytics to check the client and apply different to rules based on existing software, authentication or device type. You can use smart access policies within Presentation Server to specify which functionality a client gets.



## 1.3 Citrix Password Manager 4.1

Password Manager enables single sign-on solution for accessing password protected applications. Password manager can be used for legacy applications, web portal and other applications.

Passwords are retained in an encrypted store. Password Manager can automatically change application passwords at desired intervals.

## 1.4 Other Citrix products

Citrix NetScaler Application Switch/Gate/Accelerator

Hardware based solutions for Application Acceleration, Application Security (including SSL VPN) and Switching. See NetScaler 9000 Series Overview at <http://www.layer7solutions.com/> for a comparison. See also [Integration Options for Citrix NetScaler and Citrix Access Suite](#)

Citrix Access Essentials

Is on-premises software specially designed, packaged, and priced for organizations with up to 75 Windows users that provides secure remote access and enables simple centralized management of information resources. Citrix License and TS Cal's are included.

Citrix Application Gateway

Deliver applications to the screens of IP phones and wireless devices.

Citrix Access Gateway types and licenses

At the moment there are 4 types of Citrix Access Gateway appliances :

- Citrix Access Gateway 2000/5000
- Citrix Access Gateway Enterprise, Netscaler 7000 or 9000.

On Access Gateway 2000 and 5000 you can run Standard or Advanced licenses

On Access Gateway Enterprise you need Enterprise licenses

Citrix Presentation Server licenses

XPe Enterprise edition, includes all features like CPU/Memory management, installation manager and isolation environments

XPa, Advanced edition, includes load management

XPs, Standard edition

See [Comparative matrix](#)

Citrix® GoToMeeting™ meet, train and collaborate online.

Citrix® GoToAssist™: remote technical support solution to provide support and services over the Internet, on demand and securely.

Citrix® GoToMyPC®: provide secure, encrypted remote access to desktop-based resources.

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## 2. Presentation Server 4.0 components

### 2.1 Presentation Server Console

Still the primary tool to manage Applications, users, printers, load, policies, resources. Licensing has moved to License management console

### 2.2 Access Suite console

Ability to view/configure different Access Suite products (Presentation Server/Web Interface/Password Manager/Access Gateway Enterprise).

Furthermore you can create reports, compare hotfixes and access a diagnostic facility. If you have more farms you can centrally manage them from one console.

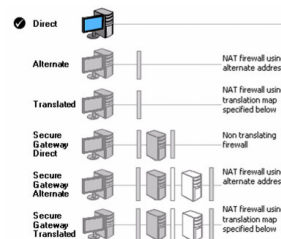
On first time use the configure and discovery wizard is started. Here you can select which Citrix servers/web interface config servers to contact. For contacting the Web Interface configuration server, you need a server running Citrix XML service.

Access Suite console is based on 2 MMC snap-ins, 1 (PS administration) for Presentation Server/Web Interface/Licensing and 1 (Access Suite) for Password Manager and Access Gateway Enterprise. For installation you need to install CitrixMMC.msi for Presentation Server administration. For Password Manager, install the ASC\_MPM\_Console\_Install.msi and for Access Gateway Enterprise, run the setup.exe and select the console.

### 2.3 Web Interface

Within Access Suite console you can edit several settings of the Web Interface.

- Manage Server farms : configure which and how (xml) farms are contacted
- Authentication : select smartcard, passthrough, explicit access and if desired change password option.
- Manage secure client access: Secure gateway settings and DMZ properties (like alternate/translated addressing)
- Manage client deployment : Select which client to use. Local, native (activeX), java fallback or RDP.
- Manage client connections: specify performance options (like color depth), pda synchronization and kiosk mode)
- All Tasks: workspace control (how sessions reconnect/log off) and local site tasks (IIS, central configuration)



If you want to use more Web Interface servers to ensure availability you can use Network Load balancing ([How to Configure Windows Network Load Balancing and Web Interface](#))

### 2.4 Licensing

Licensing for Access Suite products has been integrated into one single license component which can be managed with License Management Console. License Management Console requires IIS or Apache.

For small or medium farm you can use an existing Web server (shared). Large farms requires a dedicated license server

If you have Subscription Advantage you can upgrade your older Citrix licenses for free. Even if your SA is expired you have the ability to upgrade if your SA expiration date was later as the eligibility date of the product: PS4.0 Windows 32 bit it is april 2005, PS40 64 bit 30 sept 2005

Installing licenses:

Download license file from mycitrix (license server hostname is case sensitive! ). Copy file to C:\Program Files\Citrix\Licensing\MyFiles\  
Open license console <http://hostname/lmc/index.jsp> and choose upload license file.

In most environments it is not necessary to cluster a license server. When license server is not available a 30 day grace period is entered in which you can still connect to the Citrix products and you can rebuild your license server.

To install licensing on a cluster enabled server:

```
msiexec /i D:\Licensing\ctx_licensing.msi  
CTX_CLUSTER_RESOURCE_DLL_PATH="C:\ctxlic"  
REGISTER_CTX_LS_CLUSTERING="Yes" /!v "F:\install.log"
```

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## 3. Features Presentation Server 4.0

### 3.1 Printer Management

To configure which printer driver (universal/native) to use, create a *policy* in PSC. In the policy you can also specify how client printers are connected (autocreation, properties, routing). You can create different policies to assign different printers (*session printer/proximity printing*) to usergroup or ip subnets etc.

Printer driver replication, mapping and compatibility is still managed within Printer Management of PSC.

If you use session printing, printer auto creation or the universal driver be sure to install Presentation Server 4.0 hotfix rollup 1 and the latest hotfixes resolving print issues.

For a overview of new features see [Printing Enhancements PS40](#)

### 3.2 Application Isolation Environment

AIE makes it possible to install and/or run applications in a so called "Isolation Environment" in which an application runs with its own registry and files. During install all registry and files associated are redirected to a reserved folder and registry key. AIE can solve application conflicts and multi user issues (hklm/.ini files) .

Default path for AIE installations

Files : %Program Files%\Citrix\AIE and %APPDATA%\Citrix\AIE

Registry : HKLM\software\Citrix\AIE and HKCU\software\Citrix\AIE

AIE feature of PS4 can be used in two ways:

1. You can Install and then Run an application in AIE
2. You can run a "normally" installed application in an AIE.

#### 1. Install & Run

Step1: create Isolation Environment

Step2: Aiesetup [/d] [/n] [/q] [/w] AIENAME Setupapplication [application parameters]. You can also use Installation Manager to install MSI's into an isolation environment

Step3: use AIERUN.EXE "AIENAME" "path to application" or publish the application. In Published application wizard select 'isolate application' . In isolation settings select correct AIE, select 'application was installed into environment' and select appropriate application

#### 2. Run a normally installed application in AIE

Use this to solve a multi-user application issues such as when an application stores user-specific settings in Local Machine registry.

Step1: create Isolation Environment

Step2: use AIERUN.EXE "AIENAME" "path to application" or publish the application and select the AIE in which to run

One extra advantage of AIE is the ability to copy an installation (files and registry) to another server and have a running application without configuration.

### 3.3 Virtual Memory Optimization

Enabled in PSC under farm/server Memory/CPU Utilization Management

Before enabling be sure to install hotfix [PSE400R01W2K3055](#)

Rebases DDL's in memory and Binds Executables

Rebasing changes a DLL so that it loads at an optimal base memory address to avoid collisions and relocations.

Binding process modifies executables so that it knows which dll's are needed and where they are stored in memory

Memory optimization will be performed under a scheduled task (runs ctxbace -optimize) which starts at time configured under PSC.

Executables and logs are located in \Program Files\Citrix\Server Resource Management\Memory Optimization Management

Exclusion: programs not working well under optimized memory can be excluded by adding them to the exclusion list under PSC, Farm properties, Memory optimization, exclude Applications. This can also be accomplished by adding the executable to the registry HKEY\_LOCAL\_MACHINE\SOFTWARE\Citrix\SFO\ComponentExclusionList.

DLL's cannot be added to the exclusionlist. They have to be added manually to the registry : HKEY\_LOCAL\_MACHINE\SOFTWARE\Citrix\SFO\ProcessExclusionList

To remove existing optimizations from DLL's you have to download the DeleteOptimizations utility from [www.RTOsoft.com](http://www.RTOsoft.com)

You can view statistics of optimized memory optimization in Report center (Access suite console). For in-depth information you can use RTO Optimization Console (<http://www.rto.com/enter.asp?ID=386>)

CTX106023/CTX106699

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### 3.4 CPU Optimization

- CPU reservation is defined as a percentage of your server's CPU resource that is guaranteed to be available to a user. If all of such a reserved allocation is not being used, other users or processes can use the available resource, as needed. Note that approximately 20% of the CPU resource is reserved and not available to users. The percentages stated here are of the available, not the total, CPU resource.
- CPU shares are percentages of the CPU time. By default, CPU utilization management allocates eight shares for each user. If two users are logged onto a server (and no console session), each of the users gets 50% of the CPU. If there are four users with eight shares each, each user receives 25% of the CPU time.

Change shares/reservation per user: HKEY\_LOCAL\_MACHINE\SOFTWARE\Citrix\CTXCPU\policy.

NT AUTHORITY\SYSTEM

Server1\user1,cpu.shares=16 (16 shares)

Server1\user3,cpu.reservation=20000 (20%)

Services

CTXCPUUtilMgmt User/Session Synchronization

CTXCPUUtilMgmt Resource Management

Citrix CPU Utilization Mgmt/CPU Rebalancer (with win2003 multiprocessor systems) default not started

### 3.5 Virtual IP Addresses

With the virtual IP Address feature, you can assign a static range of IP addresses to a server and have these addresses individually allocated to each session so that configured applications running within that session appear to have a unique address. Also, you can configure applications that depend on communication with localhost (127.0.0.1 by default) to use a unique address in the localhost range (127.\*)

### 3.6 Session Reliability/ Session Reconnect

In farm properties you can "Enable users to view sessions during broken connections" and adjust the default port (2598).

To control how sessions can be reconnected (disconnect, this client only) use ICA advanced connection tab in Citrix Connection Configuration or you can edit this in Web interface workspace control.

Be aware that if you enable session reliability port 2598 will be used for session traffic instead of 1494 for normal ica traffic.

### 3.7 Policies

- In the policy console you can specify different policy regarding to bandwidth limiting, client devices functions, printing, users Workspace and security
- With "Apply policy to" you can specify different filters like Client IP address range, Client name, Users/groups and Server names.
- The policy with Highest rank is effective for the applied filter. Use increase priority to get a higher ranking.
- Within the search option you can select a user/client adress and view the Resultant Policy check effective policysettings

### 3.8 Local Accounts used by Presentation Server

Ctx\_ConfigMgr : Configuration Manager

Ctx\_Sma\_user : starts Citrix SMA Service en Citrix Print Manager. SMA: Suite Monitoring and Alerting

User Rights Ctx\_sma\_user/Ctx\_Configmgr:

Allow log on locally

Impersonate a client after authentication (only SMA)

Load and unload device drivers (only SMA)

Log on as a batch job

Log on as a service

Local Policy : Security Options : enable Strengthen default permissions of internal (global) system objects

Make Ctx\_SmaUser/Ctx\_ConfigMgr member of Power Users group

Dcom (Component Services)

Dcomcnfg.exe

My Computer/Properties/Launch & Activation Permissions / Edit Default / Add the Ctx\_SmaUser (local launch & local activation

DCOM objects : *Citrix IMA Service* object, Security, Add Ctx\_SmaUser (Allow Local Access / Allow Remote Access permissions.

DCOM objects : *Citrix SMA Service* object, Security, Add Ctx\_SmaUser (Allow Local Launch / Local Activation / Local Access / Allow Remote Access permissions.

[Howto Recreate ctx\\_sma\\_user CTX106393](#)

### 3.9 PDA synchronization

1. Open the properties of a policy in which you want to enable PDA synchronization.
2. Enable the rule Client Devices > Resources > PDA Devices > Turn on automatic virtual COM port mapping.
3. Disable the rule Client Devices > Resources > Ports > Turn off COM ports (or set it to "Not Configured").

### Publish WCESMgr.exe as Published application

PSE400W2K3012 required

ActiveSync 4 is not support on PS40 32bits windows edition, ActiveSync 3.x is not supported on the server console

ActiveSync is not a multi-user or Terminal Services aware application, but Presentation Server 4.0 utilizes the new virtual IP feature in combination with additional program enhancements to create Terminal Services compatibility. Although virtual IP is used to enable PDA synchronization with ActiveSync, no explicit virtual IP configurations are required by an administrator for PDA synchronization to function. [CTX821115](#)

## 4. Farm management

### 4.1 Ports

Licensing	27000
Session Reliability	2598
PSC communication	2513
Member/Datacollector	2512
CLient to ica browser UDP	1604
ICA session	1494
Server to SQL	1433
Citrix SSL Relay	443
Citrix XML Service	80

### 4.2 Datastore

The datastore contains persistent data for all servers in the farm like printerdrivers/mappings, Published Application configuration and PS administrator accounts. In most environments a central database (like SQL) is preferred. If you use a local Access datastore there is always one Citrix server who's different from the others, has to be backedup and must be monitored if other apps leaves enough resources to the datastore activity. Because each Citrix server creates a local host cache, users can still connect if the central database becomes unavailable. With Ps3.0/4.0 there is no timeframe limit where the farm stops functioning when the datastore is unavailable (provided the server is able to connect to the license server). However you are not able to make changes in the farm when the datastore is not available.

#### SQL tips

Use simple recovery model to prevent transaction logs getting to large (alternative: use truncate option, which is also started when backing up transaction log)

Use Mixed-mode authentication

Assure the sql account you use to install Citrix is table owner of the datastore

### Dscheck

validate/clean utility for datastore (download latest version at Citrix.com under Tools)

```
dscheck [ /full | /clean ] [ Servers | Apps | Printers | Groups | MSLicense | Folders | Licenses ]
```

additional options available, for example:

```
dscheck /full Printers /purge_replications - Removes all printer replications from the data store.
```

```
dscheck /full Printers /purge_client_printers - Removes all Client Auto-Create printers pending deletion from the data store.
```

```
dscheck /full Printers /purge_drivers - Removes all drivers that are not associated with any servers from the data store.
```

### Dsmaint

```
dsmaint config [/user:username] [/pwd:password] [/dsn:filename]
```

```
dsmaint backup destination_path
```

```
dsmaint failover direct_server
```

```
dsmaint compactdb [/ds] [/lhc]
```

```
dsmaint migrate [ { /srcdsn:dsn1 /srcuser:user1 /srcpwd:pwd1 } [ { /dstdsn:dsn2 /dstuser:user2 /dstpwd:pwd2 } ]
```

```
dsmaint publishsqlids {/user:username /pwd:password}
```

```
dsmaint recover
```

```
dsmaint recreatelhc
```

```
dsmaint verifylhc [/autorepair]
```

### 4.3 Zones

Zones in a server farm perform two functions:

- Collecting data from member servers
- Distributing changes to all servers in the farm

All member servers must belong to a zone. By default, the zone name is the subnet ID on which the member server resides.

The zone *data collector* maintains all load and session information for every server in its zone. Each data collector has a connection open to all other data collectors in the farm. This connection is used to immediately relay any changes reported by servers that are members of the zone by that zone's data collector to the data collectors of all other zones.

You can edit zone settings in the farm properties of PSC. Be aware that moving a server to another zone requires a reboot

### 4.4 Installation Manager

You can deploy the following installs:

MSI Windows installer packages, a transform can be used to customize installation

MSP mostly patches/upgrades

ADF created by Citrix packager : installation recordings , unattended installations, and other files.

You can deploy more packages at a time by creating a package group. Within the properties of the package group, you can change the sequence of installation

### 4.5 Resource manager database setup

Create sql database and configure a user account (role db\_owner)

for the database. Create a System DSN "Rmsummarydatabase" on the database connection server.

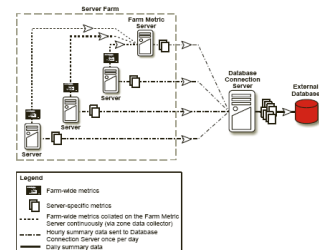
Select which server to act as metric servers and enable summary database.

### 4.6 Load evaluator

In most environments the Default evaluator (userload) is most effective. When you use different hardware or different Applications, you can use a Advanced or custom evaluator. Within a custom evaluator you can choose custom rules and load levels. Two of them

IP range and scheduling can only be used in conjunction with an other load evaluator.

The following diagram represents a typical server farm utilizing the Resource Manager summary database. It shows the flow of both server-specific and farm-wide summary data from the farm servers to the summary database through the Database Connection Server.



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## 5. Customizing your farm

### 5.1 Server Cloning

- Delete the Wfcname.ini file, if it exists, from the root drive of the server.
- Stop IMA service and configure it set the start up type to manual.
- delete Resource Manager local database C:\Program Files\Citrix\Citrix Resource Manager\LocalDB\RMLocalDatabase.mdb
- Set the Security ID of the server with your chosen SID generator (sysprep).
- Image/mirror your server
- Rename the new server with a unique name.
- Manually start the Citrix IMA Service and set the service to start automatically.
- Verify that the server is successfully added :executing qfarm
- Modify the following registry values:  
HKEY\_LOCAL\_MACHINE\SOFTWARE\Citrix\IMA  
change value "ServerHost" to "[newservername]"  
HKEY\_CLASSES\_ROOT\AppID\{BBBF5400-E091-11D8-AD76-005056C00008} – (note: this subkey may be alphanumericly different- you may need to search for Ctx\_SmaUser to find the correct sub key)  
change value "RunAs" to "[newservername]\Ctx\_SmaUser"
- Reboot the server.
- Add server to correct Zone and Load evaluator

### 5.2 Cycle booting

Although multiuser servers became much more reliable with Windows 2003, I still prefer a weekly reboot to ensure stability and additionally perform some scheduled maintenance. Because PMC only offers a reboot schedule I prefer a scheduled task with some cleaning options:

```
C:\sysmgr\Reboot.cmd
@echo off
msg * Server will be restarted in 5 minutes
net stop spooler /y
sleep.exe 240
tsshutdn /REBOOT
rem net stop "Independent Management Architecture" /y
rem echo y|chkdsk C: /f/r
REM tip: change logon disable/enable can conflict with tsshutdn/shutdown
```

```
C:\sysmgr\postreboot.cmd
@echo off
rem delete remaining profiles and defrags disk C:
delprof /r /q /d:1
defrag c:
del %windir%\*.tmp /q
REM tip: disable console error message to ensure remaining sessions don't disturb the reboot
```

### 5.3 Tweaking your server

MIAB Tweak/Performance <http://www.dabcc.com>  
Total Control Template <http://portal.loginconsultants.nl/forum/index.php>

#### **Basic "must have" terminal server tweaks:**

```
Delete roaming profile on exit
[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon]
"DeleteRoamingCache"=dword:00000001
```

```
Disable DrWatson
[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\AeDebug]
"Debugger"=""
```

```
Hide console errors [HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Windows]
"ErrorMode"=dword:00000002
```

```
Disable printlogging (errors only)
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Print\Providers]
"EventLog"=dword:00000001
```

```
Redirect folders
[HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\User Shell Folders]
"Favorites"="H:\\My documents\Favorites"
"My Pictures"="H:\\My documents\\My Pictures"
"Personal"="H:\\"
```

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## Optimizing Visual settings for performance(w2k3)

Classic Start menu

[HKEY\_LOCAL\_MACHINE\Software\Microsoft\Windows\CurrentVersion\Policies\Explorer]  
"NoSimpleStartMenu"=dword:00000000

No Balloons

[HKEY\_CURRENT\_USER\Printers\Settings]  
"EnableBalloonNotificationsLocal"=dword:00000000  
"EnableBalloonNotificationsRemote"=dword:00000000  
[HKEY\_CURRENT\_USER\Software\Microsoft\Windows\CurrentVersion\Policies\Explorer]  
"NoSMBalloonTip"=dword:00000001  
"NoAutoTrayNotify"=dword:00000001

Visual settings

[HKEY\_CURRENT\_USER\Control Panel\Desktop]  
"DragFullWindows"="0"  
"FontSmoothing"="0"  
"UserPreferencesMask"=hex:b0,12,01,80  
"AutoEndTasks"="1"  
"WaitToKillAppTimeout"="10000"  
[HKEY\_CURRENT\_USER\Control Panel\Desktop\WindowMetrics]  
"MinAnimate"="0"  
[HKEY\_CURRENT\_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\Advanced]  
"WebView"=dword:00000000  
"ListViewAlphaSelect"=dword:00000000  
"TaskbarAnimations"=dword:00000000  
"ListViewWatermark"=dword:00000000  
"ListViewShadow"=dword:00000000  
"ClassicViewState"=dword:00000001

### Optimizing Server performance

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Control\Session Manager\Memory Management]  
"DisablePagingExecutive"=dword:00000001

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Control\File System]  
"NtfsDisableLastAccessTime"=dword:00000001

## 6. More information

### 6.1 Presentation server 4.0 documentation

[Administrators Guide](#)  
[Access Suite Deployment Guide](#)  
[Advanced concepts Guide](#)  
[AccessSuiteConsole](#)

### 6.2 Feature Assessment Presentation Server 4.0

[Web Interface and Secure Gateway](#)  
[Application Isolation Environments](#)  
[CPU/Memory Optimization](#)  
[Virtual IP](#)  
[Printing Enhancements](#)  
[Proximity Printing](#)

### 6.3 Troubleshooting Citrix

[Brief Troubleshooting Guide CTX106727](#)  
[Troubleshooting and Explaining Citrix ICA Shadowing CTX040083](#)  
[Troubleshooting Client Clipboard Issues CTX086028](#)  
[Troubleshooting Resource Manager Issues CTX104629](#)  
[Troubleshooting Isolation Environments CTX107864](#)  
[Troubleshooting Installation Manager Issues CTX104859](#)

### 6.4 Issues Operations Systems

[Microsoft Windows Server 2003 R2 Known Issues CTX109680](#)  
[Microsoft Windows 2003 Service Pack 1 Known Issues CTX106058](#)  
KB899409 logon hotfix  
KB901115 system beep  
KB910362 stop code 000000ab

Pauses/slowness during logon/logoffs Windows 2000/2003

<http://support.microsoft.com/default.aspx?scid=kb:en-us:324446>

### 6.5 Useful Citrix related links

<http://www.dabcc.com>  
<http://www.brianmadden.com>  
<http://www.thomaskoetzing.de>  
<http://support.citrix.com/>

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## 7. Farm Design

### 7.1 build a “fits almost everywhere” farm

In most cases you will work at organizations which are of a small to medium size (<1500 users) and in which the following conditions are true:

- there are more sites in the company but centralized servers are preferred (exchange/files/print..)
- WAN network has enough capacity to host several citrix sessions (most links are 1Mbps or more nowadays)
- WAN network is secured (IP VPN) or dedicated to your company
- IT tasks are centralized
- The company has about 10-20 mainstream applications (like Office, Internet explorer, terminal emulator, SAP) and some tools (winzip/acrobat reader/calculator). Furthermore the company has several less used, often updated and/or some less stable applications

If this is the case my recommendation : Keep it fast and simple :

- Use 1 Centralized Farm
- Use 1 Zone
- Use 1 Datastore server (SQL server)
- Use 1 Licenseserver (dedicated or shared on a webserver) for Citrix Acces suite licensing
- Install Terminal server License service on your Domain controller(s)
- Use 1 dedicated datacollector (“most preferred”, Citrix server) and set 2 preferred backup datacollectors. Locate less used servers for the datacollector role and point your ICA dns record to it
- Use 2 or more Citrix servers for Published Applications which are less used or often updated. This is called *Application Silo*. Scale up when necessary and split into different Silo's if preferred
- Use 2 or more (depending how many/type of users) Citrix servers for the *Desktop Silo*. This servers are installed identically and contain most used business apps
- Be sure you have the ability to package/test and let users accept changes (build a test/package environment)
- Add additional Citrix Access Suite products if desired (Web Interface, Access Gateway, Password Manager)

### 7.2 Hardware considerations

#### *Virtualizing*

If you want to virtualize start with your test/package environment and if desired you could virtualize your Application silo and a load balanced Web Interface.

Because your production environment, consisting of desktop servers, is fully utilized (if sized properly), installed identically and wisely (with packages/sysprep etc.) there aren't that much gains to achieve with virtualising

#### *Few Big servers or many small ones*

In my opinion it's best to buy 'smallized' servers which are known as bestsellers (blades, dl360, x336 etc) . Larger servers requires Advanced server editions and are harder to tweak/tune. More small servers give you the ability to take servers in maintenance and if a servers crashes less people suffer from it and you have less chance to have a black hole effect

Today a small server means in my opinion:

- dual Xeon processor
- 4 gb memory
- 2 hotplug 15k scsi disks (36/72gb)
- Scsi controller with write caching capabilities
- 2 gigabit nic's

#### *Network*

Consider controlling your network traffic by implementing traffic shaping and Quality of Service. ICA traffic should not conflict by traffic of printers or fat clients (burn cd's/copying digital pictures). Can be done by configuring routers or buying specialized products (like packetshaper)

### 7.3 Software Considerations

- If you want to use 64 bit's Windows be sure to increase physical memory. You want to host more users and the OS needs a lot more memory. When hosting more users disk I/O may become a bottleneck.
- Citrix Enterprise Edition offers, compared to other editions, Application Packing and delivery, Load Balancing, Resource manager and CPU/ memory optimization . If you run a serious production environment you want it
- If you run a publish desktop and want to make live easy buy a central management tool like RES Powerfuse. With this kind of tools you can control and secure an environment very easily
- Install only what you want to use. On production Citrix servers you should consider not installing:
  - Packager
  - Program Neighborhood agent (if not used)
  - Citrix Acces Suite console
  - Document center
  - autoupdate ICA client (cudutil.exe, disable database)

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