

**Release Version 3**

# The 2X Software Server Based Computing Guide



**2X Software Ltd.**



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## Contents

<b>ADVANTAGES OF 2X SERVER BASED COMPUTING SERVER BASED COMPUTING – LESS ADMINISTRATION, HIGHER AVAILABILITY, AND BIG SAVINGS</b>	<b>4</b>
<b>2X THE FAST TRACK TO EASY AND COST-EFFECTIVE THIN CLIENT COMPUTING</b>	<b>4</b>
<b>WHAT IS 2X APPLICATIONSERVER &amp; LOADBALANCER?</b>	<b>5</b>
<b>WHAT IS 2X VIRTUALDESKTOPSERVER?</b>	<b>5</b>
<b>WHAT IS 2X THINCLIENTSERVER?</b>	<b>5</b>
• <b>SINGLE FARM SOLUTION WITH ONE TERMINAL SERVER</b>	<b>6</b>
• <b>SINGLE FARM SOLUTION WITH ONE VIRTUAL HOST</b>	<b>7</b>
• <b>SINGLE FARM SOLUTION WITH TWO TERMINAL SERVERS</b>	<b>8</b>
• <b>SINGLE FARM SOLUTION WITH MIXED DESKTOPS</b>	<b>9</b>
• <b>LOAD BALANCING VDI SOLUTION</b>	<b>11</b>
• <b>LOAD BALANCING CITRIX SOLUTION</b>	<b>12</b>
• <b>DIRECT MODE CLIENT CONNECTIONS</b>	<b>13</b>
• <b>GATEWAY (REGULAR / SSL) MODE CLIENT CONNECTIONS</b>	<b>14</b>
• <b>MIXED MODE (DIRECT / REGULAR / SSL) CLIENT CONNECTIONS</b>	<b>15</b>
• <b>SINGLE FARM SOLUTION WITH PUBLIC &amp; PRIVATE 2X CLIENT GATEWAY</b>	<b>16</b>
• <b>SINGLE FARM SOLUTION WITH DUAL 2X CLIENT GATEWAY</b>	<b>18</b>
• <b>SINGLE FARM SOLUTION WITH CITRIX &amp; MS TERMINAL SERVER</b>	<b>20</b>
• <b>MULTIPLE FARM SOLUTION</b>	<b>22</b>
• <b>HIGH AVAILABILITY WITH MULTIPLE GATEWAYS AND 2X WEB-PORTALS.</b>	<b>23</b>
• <b>HIGH AVAILABILITY WITH A SINGLE OR DUAL F/W DMZ.</b>	<b>26</b>

<b>A. INSTALLATION TYPE</b>	<b>29</b>
SINGLE TERMINAL SERVER:	29
MULTIPLE TERMINAL SERVERS:	29
<b>B. MODES</b>	<b>30</b>
SSL MODE	30
REGULAR MODE	30
DIRECT MODE	30
<b>C. TERMINOLOGY</b>	<b>31</b>
• <b>INTRODUCTION TO 2X THINCLIENTSERVER</b>	<b>32</b>
<b>WHICH EDITION DO I NEED?</b>	<b>32</b>
<b>2X THINCLIENTSERVER IS AVAILABLE IN 2 EDITIONS:</b>	<b>32</b>
ENTERPRISE EDITION	32
FREE EDITION	32
<b>EXAMPLE A: HOW DO I SET 2X THINCLIENTSERVER UP?</b>	<b>32</b>
<b>EXAMPLE A: COMMON MISTAKES</b>	<b>34</b>
<i><b>EXAMPLE B: VIRTUAL XP DESKTOPS</b></i>	<b>35</b>
<b>EXAMPLE B: HOW DO I SET IT UP?</b>	<b>35</b>
<b>EXAMPLE B: COMMON MISTAKES</b>	<b>36</b>
<i><b>EXAMPLE C: 2X DESKTOP WITH PUBLISHED APPLICATIONS</b></i>	<b>37</b>
<b>EXAMPLE C: HOW DO I SET IT UP?</b>	<b>37</b>
<b>EXAMPLE C: COMMON MISTAKES</b>	<b>38</b>
<b>EXAMPLE D: MULTIPLE OS, MULTIPLE DESKTOPS</b>	<b>39</b>

## Introduction

# ➤ Advantages of 2X Server Based Computing

**Server Based Computing – Less administration, higher availability, and big savings**

**Less Administration** – Central management of users, patches (only server-based) software, (updates and upgrades) data, and backups

**Higher Security** – Elimination of viruses, Trojans or other vulnerabilities on clients, central management of security settings on the server and centralized backups  
**Hardware Independence** – Support of virtually all client devices and computer hardware and very low system requirements

**Easy Access** – Employees, customers and Partners telework / roam more easily using published desktops and applications

**Reduction in TCO** – Total Cost of Ownership reduction by up to 50%

### **2X the fast track to easy and cost-effective Thin Client Computing**

- **2X ApplicationServer for Windows Terminal Services** – Allows Windows applications to be tunneled seamlessly onto remote desktops, saving on administration & support.
- **2X VirtualDesktopServer** – Provides vendor independent virtual desktops and applications, accessible from anywhere while saving on administration & support.
- **2X LoadBalancer for Terminal Services / Citrix** – Provides load balancing, increased security and redundancy for Terminal Servers & Citrix servers.
- **2X ThinClientServer for Windows / Linux** – Converts PCs to thin clients & centrally manage thin client devices from any vendor.

## Introduction

### ➤ What is 2X ApplicationServer & LoadBalancer?

2X ApplicationServer & LoadBalancer is an easy-to-use centralized GUI Application that allows configuration of 2X ApplicationServer and 2X LoadBalancer. 2X ApplicationServer enables you to publish individual applications to your users' machines seamlessly, while 2X LoadBalancer is an automated load balancing/tunneling solution for Terminal Services & Citrix that enables you to distribute user sessions across terminal servers in such a way that the best performing terminal server is always selected to handle the incoming connection.

### ➤ What is 2X VirtualDesktopServer?

2X VirtualDesktopServer is an application providing vendor independent virtual desktops and applications, accessible from anywhere. 2X VirtualDesktopServer allows you to publish full desktops and applications in a virtual environment with improved desktop manageability, security and performance.

For more information on which Virtual Desktop Infrastructure providers we support please visit <http://www.2x.com/virtualdesktop/vdsapproved.html>

### ➤ What is 2X ThinClientServer?

2X ThinClientServer provides a complete solution for the central deployment, configuration and management of thin clients, and provides load balancing and redundancy of terminal servers.

A small footprint Linux distribution is deployed to thin clients (all popular thin clients are supported) OR to normal PCs, allowing you to convert existing PCs to thin clients. Thin client settings (screen size, which terminal servers to log into, etc.) can be controlled centrally.

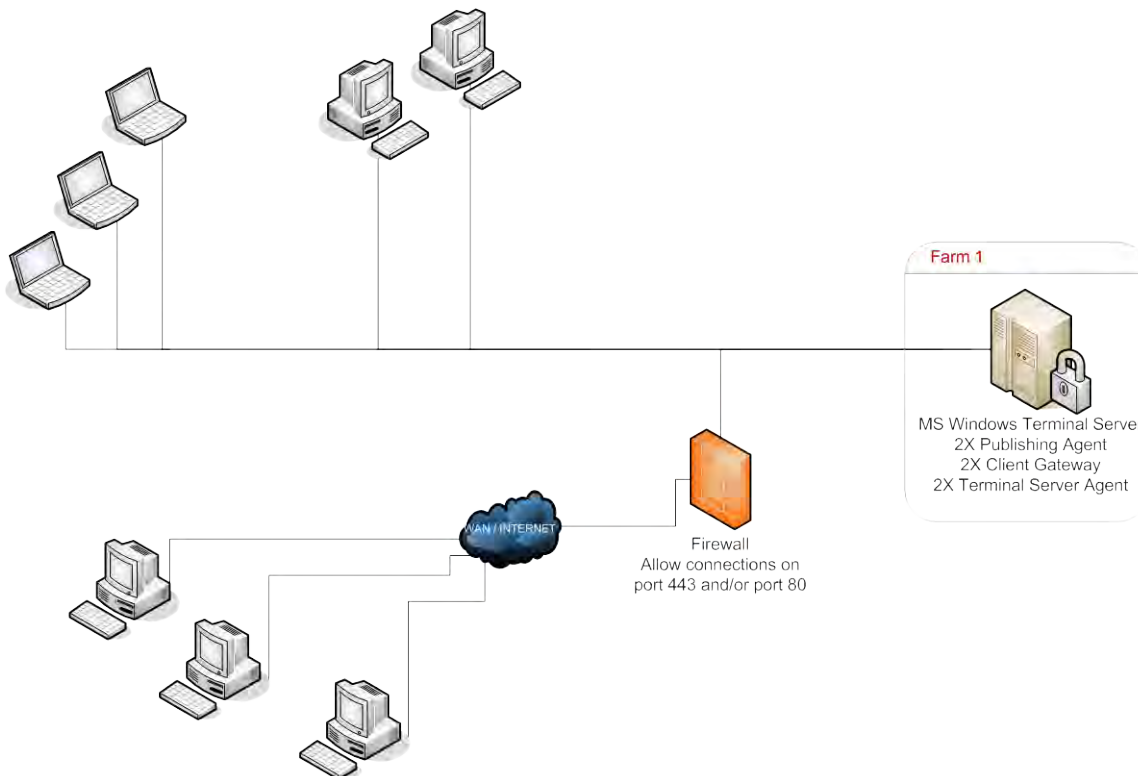
2X ThinClientServer is thin client vendor independent: You can use old computers, new low cost computers and dedicated thin client devices from different vendors - and manage all these thin clients through one consistent and open interface.

Rather than have to commit to one particular thin client vendor and be forced to buy all your hardware from that vendor, you can get flexibility to choose what's best for you and the possibility to re-use your old computer hardware.

## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

### > Single Farm Solution with one Terminal Server

This solution is implemented when one will need to publish applications and desktops from a single Terminal Server.



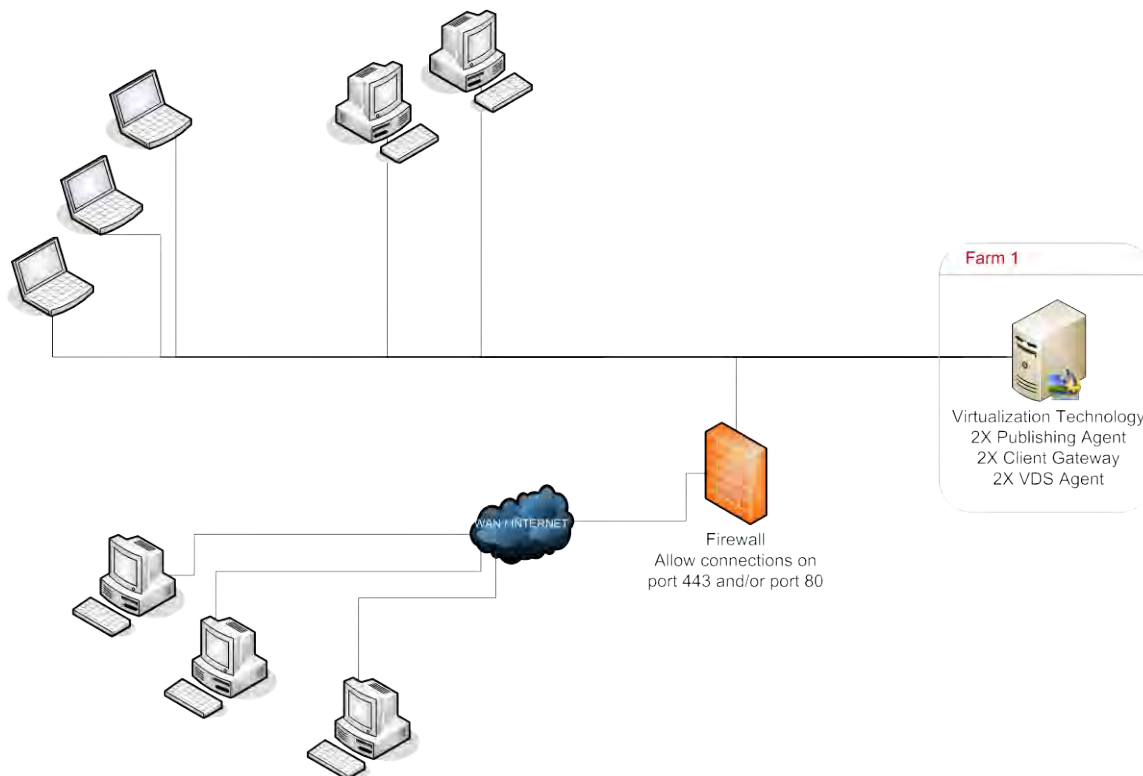
#### COMPONENTS

MS Terminal Server	
Component	Installed
2X Client Gateway	Yes
2X Publishing Agent	Yes
2X Terminal Server Agent	Yes
2X VDS Agent	No


## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

### > Single Farm Solution with one Virtual Host

This solution is implemented when one will need to publish virtual desktops from a single Virtual Host.



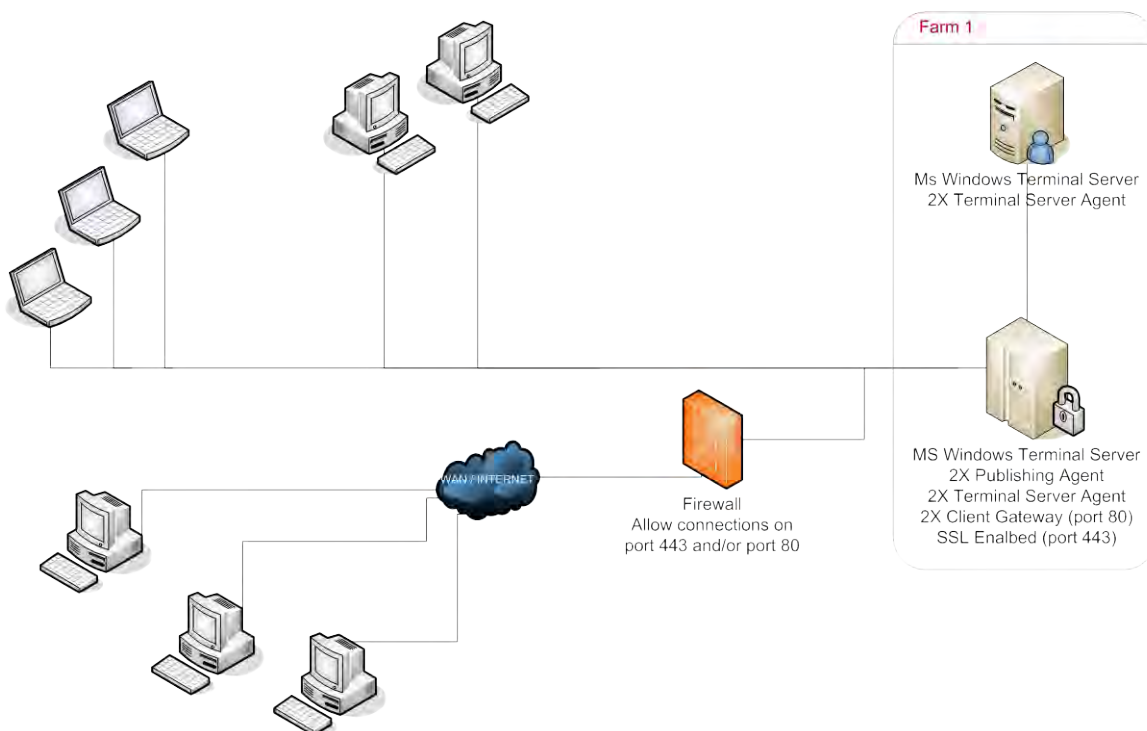
#### COMPONENTS

	<b>Virtual Host</b>	
	<b>Component</b>	<b>Installed</b>
	2X Publishing Agent	Yes
	2X Client Gateway	Yes
	2X Terminal Server Agent	No
2X VDS Agent	Yes	



## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

### ➤ Single Farm Solution with Two Terminal Servers

This solution can be implemented by any organization that needs to load balance published applications and desktops between two terminal servers.



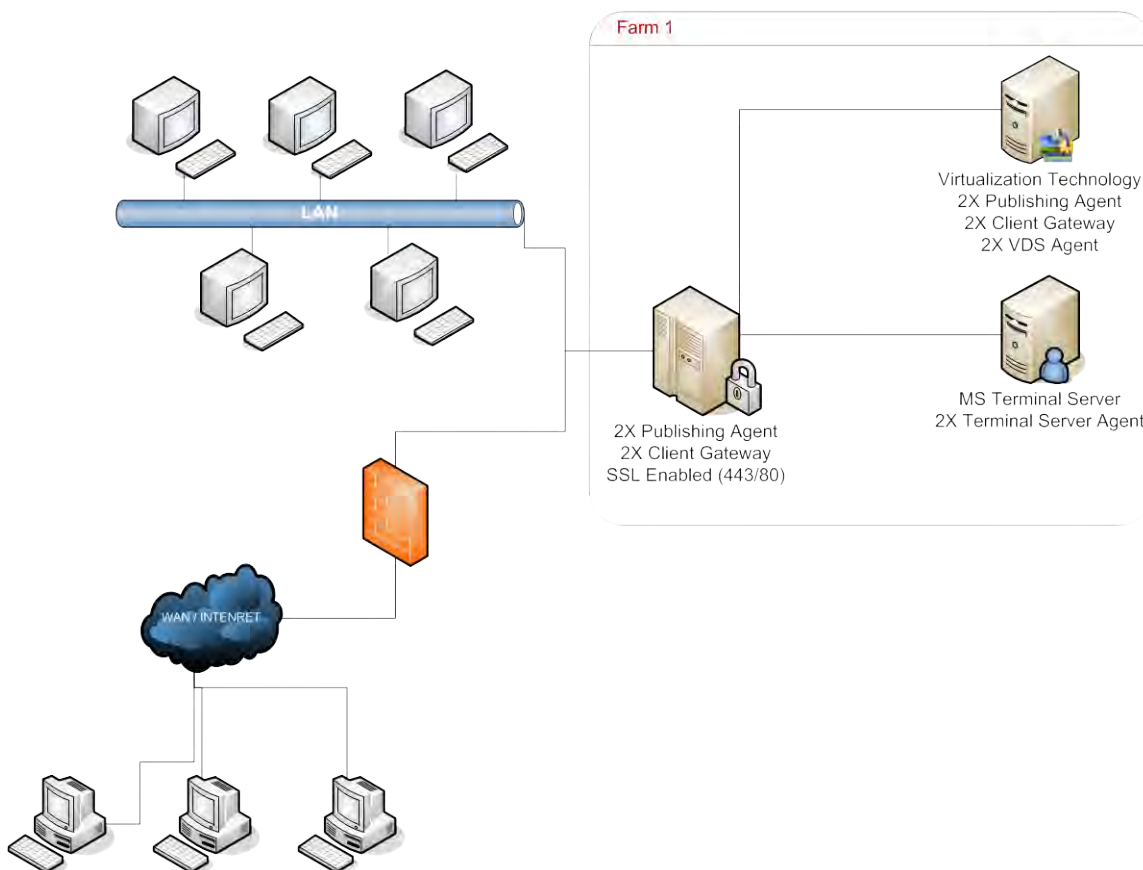
#### COMPONENTS

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2X Publishing Agent	No										
2X Terminal Server Agent	Yes										
2X VDS Agent	No										



## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

### > Single Farm Solution with Mixed Desktops


By using this solution you are able to publish virtual desktops from the virtualization technology and remote desktops from the Microsoft Terminal Server.



#### COMPONENTS

	<b>MS Windows Machine</b>											
	<b>MS Terminal Server</b>											
	<table border="1"> <thead> <tr> <th>Component</th> <th>Installed</th> </tr> </thead> <tbody> <tr> <td>2X Client Gateway</td> <td>Yes</td> </tr> <tr> <td>2X Publishing Agent</td> <td>Yes</td> </tr> <tr> <td>2X Terminal Server Agent</td> <td>No</td> </tr> <tr> <td>2X VDS Agent</td> <td>No</td> </tr> </tbody> </table>	Component	Installed	2X Client Gateway	Yes	2X Publishing Agent	Yes	2X Terminal Server Agent	No	2X VDS Agent	No	
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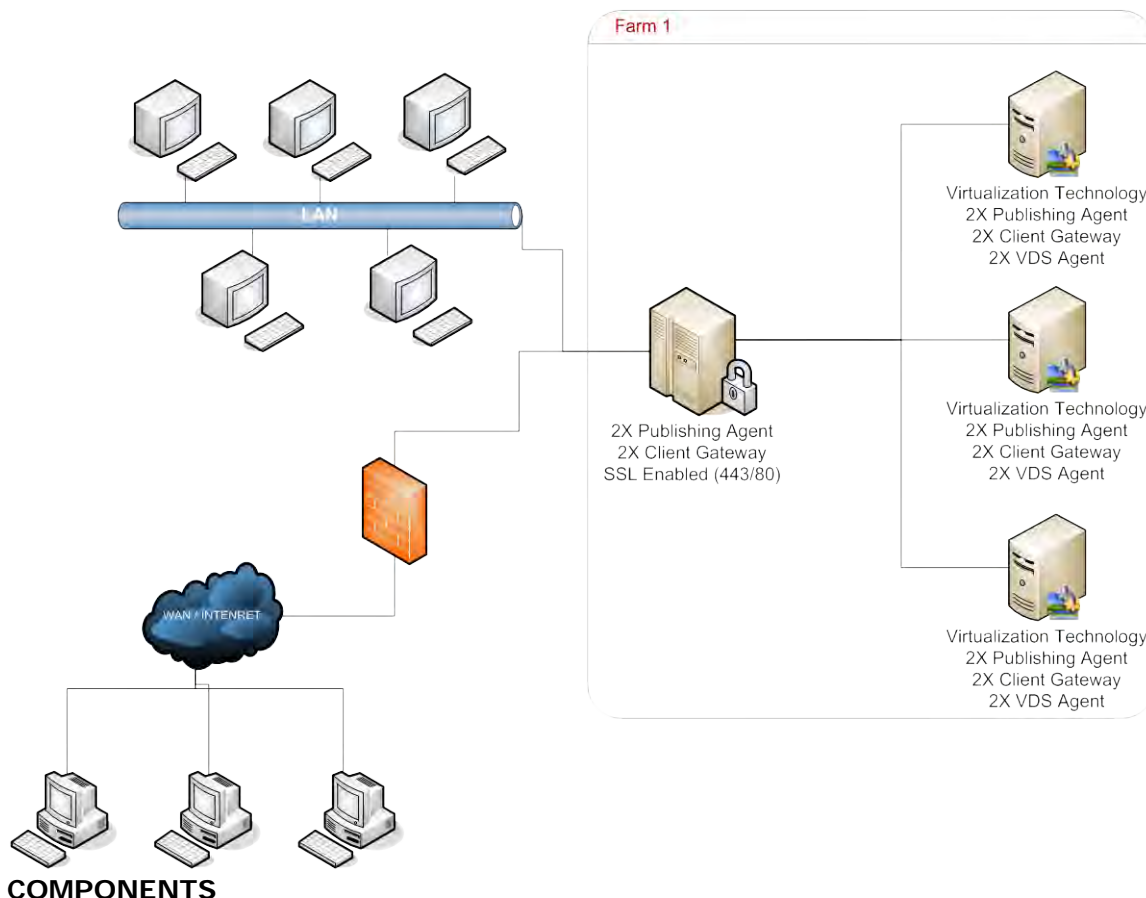
## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

	<b>Virtual Host</b>	
	<b>Component</b>	<b>Installed</b>
	2X Client Gateway	No
	2X Publishing Agent	No
	2X Terminal Server Agent	No
2X VDS Agent	Yes	

## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

### ➤ Load balancing VDI Solution

2X VirtualDesktopServer is an easy and affordable solution to load balance multiple virtualization technologies. The virtualization technologies can differ from each other.



MS Windows Machine	
Component	Installed
2X Client Gateway	Yes
2X Publishing Agent	Yes
2X Terminal Server Agent	No
2X VDS Agent	No

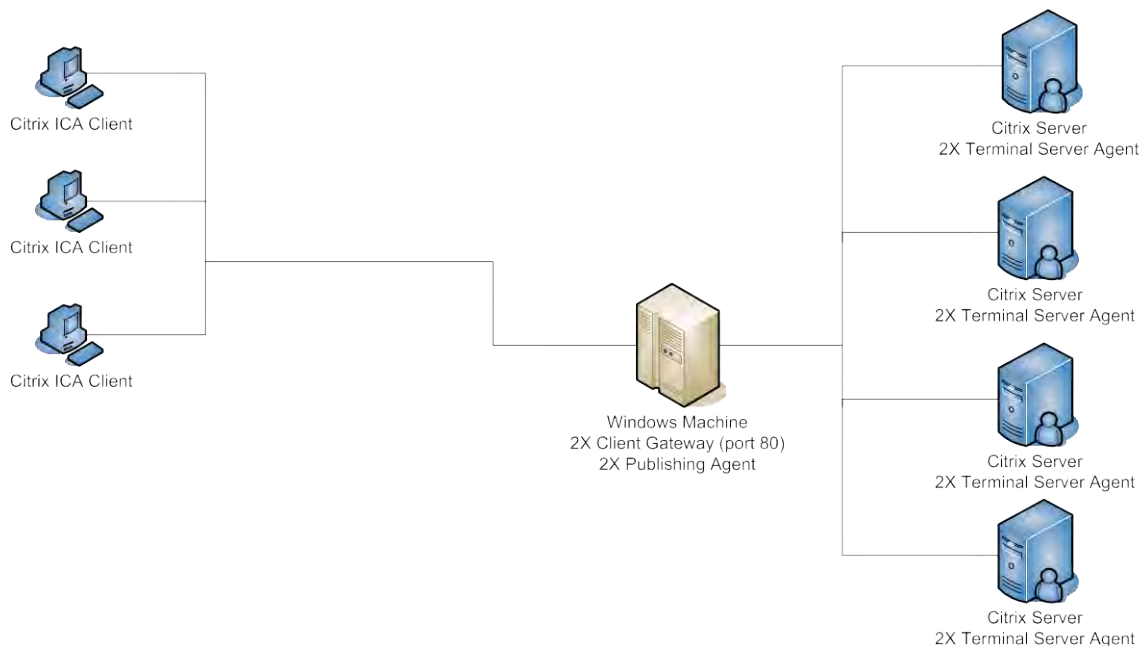
  

Virtual Host	
Component	Installed
2X Client Gateway	No
2X Publishing Agent	No
2X Terminal Server Agent	No
2X VDS Agent	Yes



## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

### ➤ Load balancing Citrix Solution

2X ApplicationServer & LoadBalancer is an easy and affordable solution to load balance Citrix Servers. Install 2X Client Gateway and 2X Publishing Agent on a MS Windows Machine. Then install 2X Terminal Server Agent on each Citrix Server. Citrix ICA connections will be tunneled through the 2X Client Gateway.



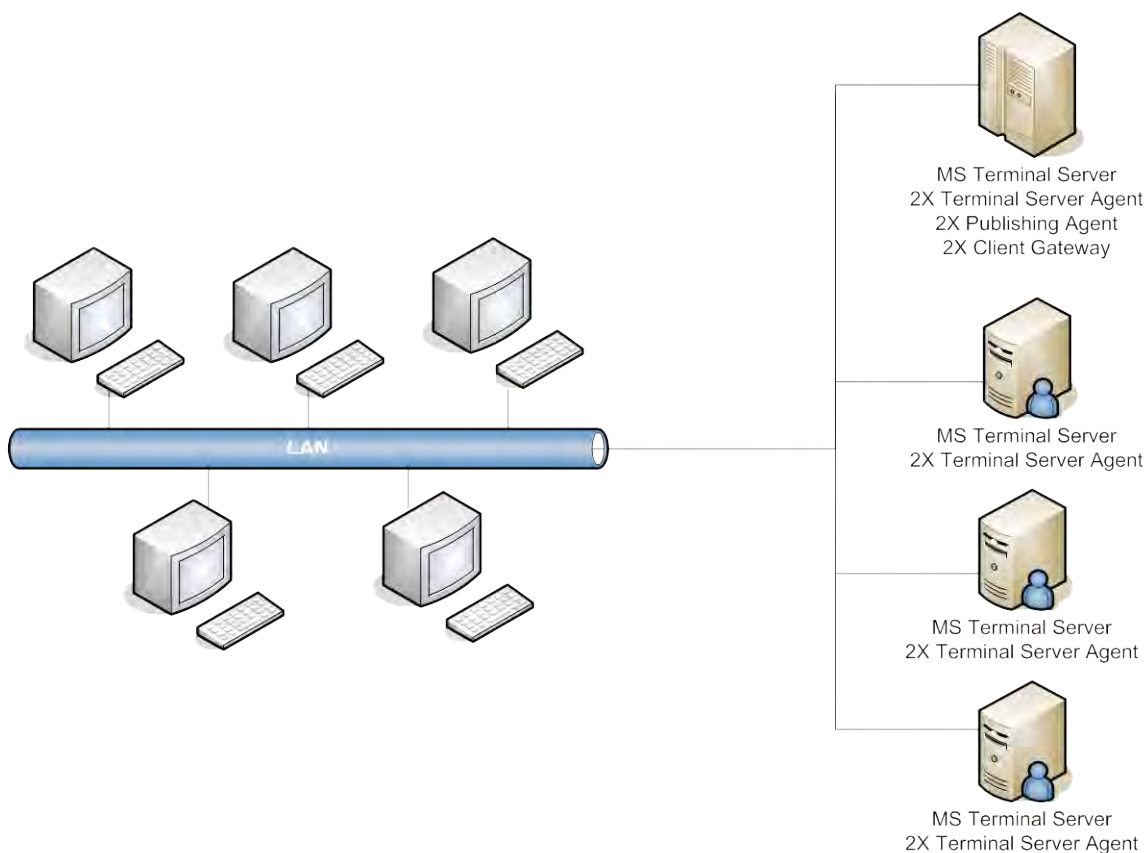
#### COMPONENTS

	<b>MS Windows Machine</b>	
	<b>Component</b>	<b>Installed</b>
	2X Client Gateway	Yes
	2X Publishing Agent	Yes
	2X Terminal Server Agent	No
	2X VDS Agent	No
	<b>Citrix Server</b>	
	<b>Component</b>	<b>Installed</b>
	2X Client Gateway	No
	2X Publishing Agent	No
	2X Terminal Server Agent	Yes
	2X VDS Agent	No



## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

### > Direct Mode Client Connections

Clients can connect using the direct mode with any MS Terminal Server. Clients will first ask the 2X Publishing Agent for the best available Terminal Server and they will connect directly to the preferred MS Terminal Server. This type of connection is ideal for a LAN environment.



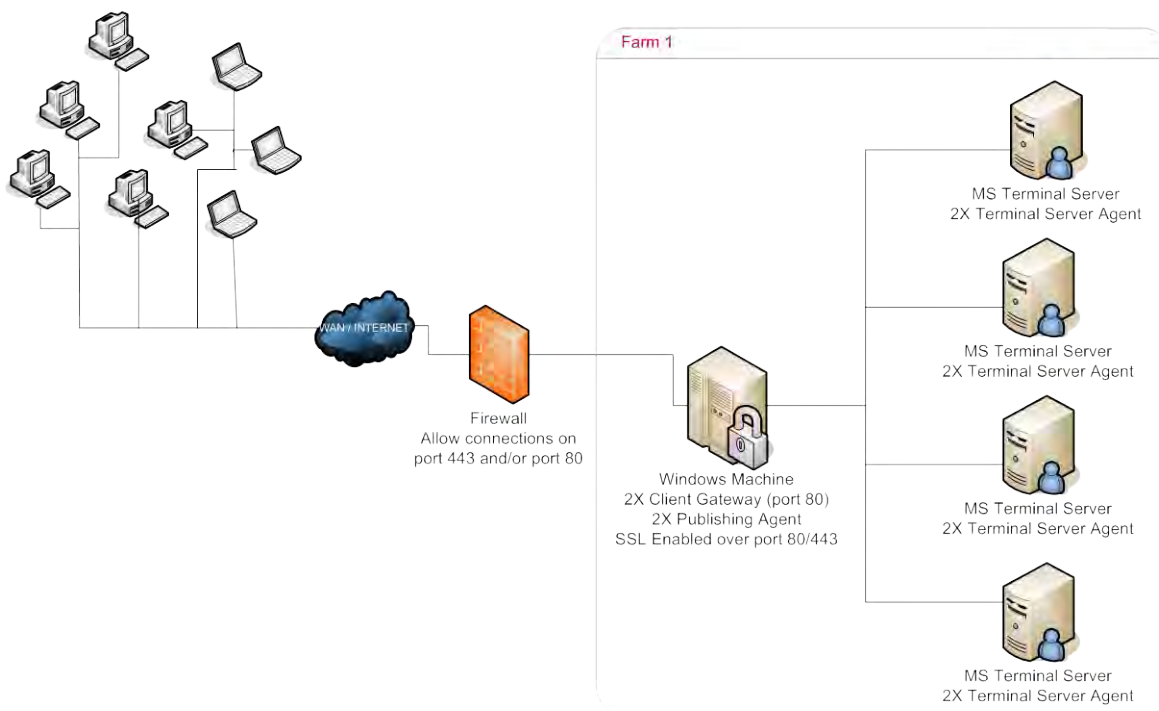
#### COMPONENTS

	<b>MS Terminal Server</b>	
	<b>Component</b>	<b>Installed</b>
	2X Client Gateway	Yes
	2X Publishing Agent	Yes
	2X Terminal Server Agent	Yes
	2X VDS Agent	No
	<b>MS Terminal Server</b>	
	<b>Component</b>	<b>Installed</b>
	2X Client Gateway	No
	2X Publishing Agent	No
	2X Terminal Server Agent	Yes
	2X VDS Agent	No

## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

### ➤ Gateway (Regular / SSL) Mode Client Connections

Clients can connect using Gateway or SSL mode with the 2X Client Gateway machine. This machine will listen for RDP over SSL connections and will forward traffic to the MS Terminal Server according to their load status. These connection modes are ideal for roaming clients (connecting over the internet).



#### COMPONENTS

MS Windows Machine	
Component	Installed
2X Client Gateway	Yes
2X Publishing Agent	Yes
2X Terminal Server Agent	No
2X VDS Agent	No

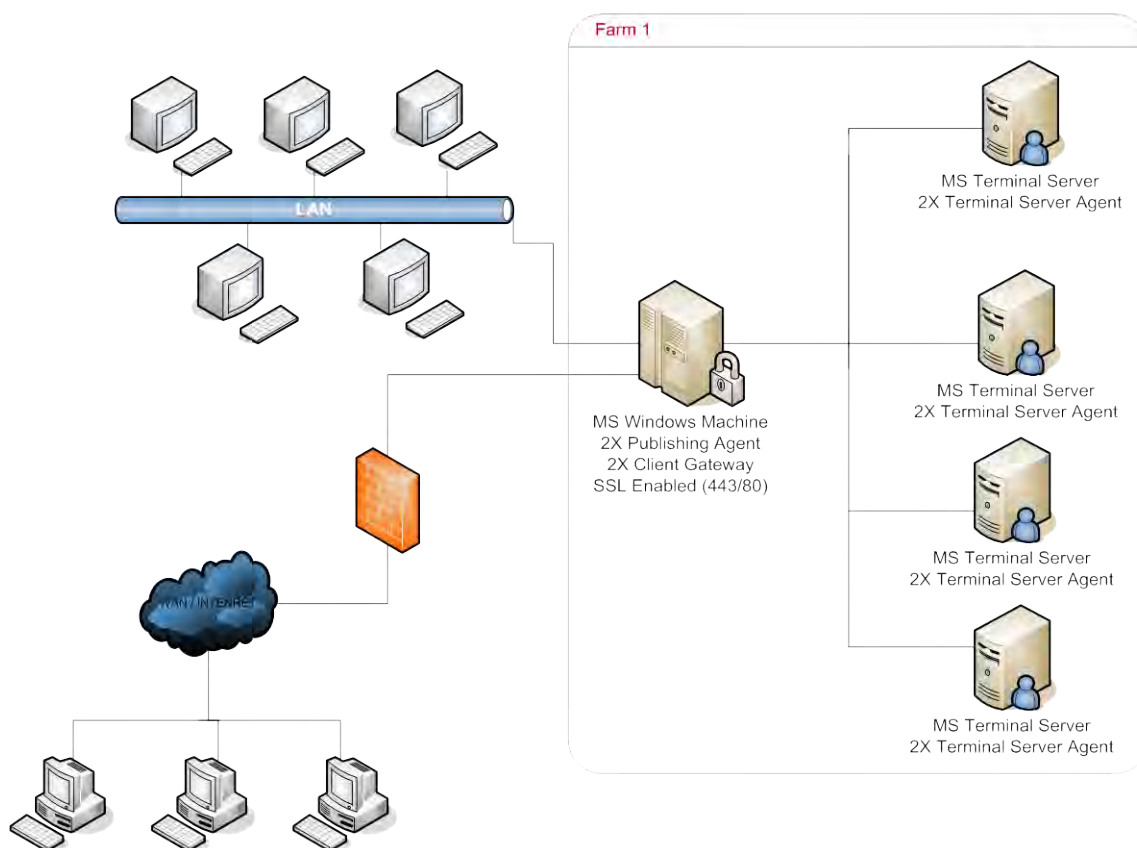
  

MS Terminal Server	
Component	Installed
2X Client Gateway	No
2X Publishing Agent	No
2X Terminal Server Agent	Yes
2X VDS Agent	No

## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

### ➤ Mixed Mode (Direct / Regular / SSL) Client Connections

LAN clients could connect with the MS Terminal Server in a direct mode while WAN client could connect using SSL mode. 2X ApplicationServer & LoadBalancer is able to handle different modes concurrently.



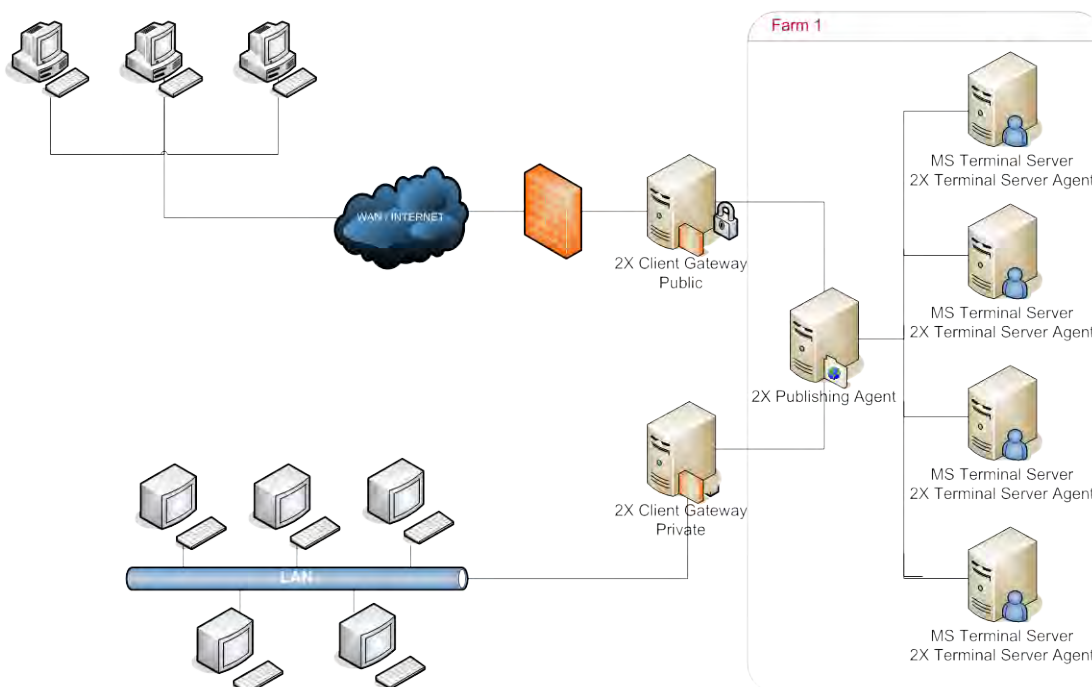
#### COMPONENTS

MS Windows Machine	
Component	Installed
2X Client Gateway	Yes
2X Publishing Agent	Yes
2X Terminal Server Agent	No
2X VDS Agent	No

## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

### > Single Farm Solution with Public & Private 2X Client Gateway


This solution is ideal for environments where one would like to dedicate a machine (2X Client Gateway Public) to accept WAN RDP connection and another machine (2X Client Gateway Private) to accept LAN RDP connections. Both 2X Client Gateways must be configured to connect with the same 2X Publishing Agent (using the Advanced Client Gateway Settings).



#### COMPONENTS

	<p><b>MS Windows Machine (Public &amp; Private)</b></p> <table border="1"> <thead> <tr> <th>Component</th> <th>Installed</th> </tr> </thead> <tbody> <tr> <td>2X Client Gateway</td> <td>Yes</td> </tr> <tr> <td>2X Publishing Agent</td> <td>No</td> </tr> <tr> <td>2X Terminal Server Agent</td> <td>No</td> </tr> <tr> <td>2X VDS Agent</td> <td>No</td> </tr> </tbody> </table>	Component	Installed	2X Client Gateway	Yes	2X Publishing Agent	No	2X Terminal Server Agent	No	2X VDS Agent	No
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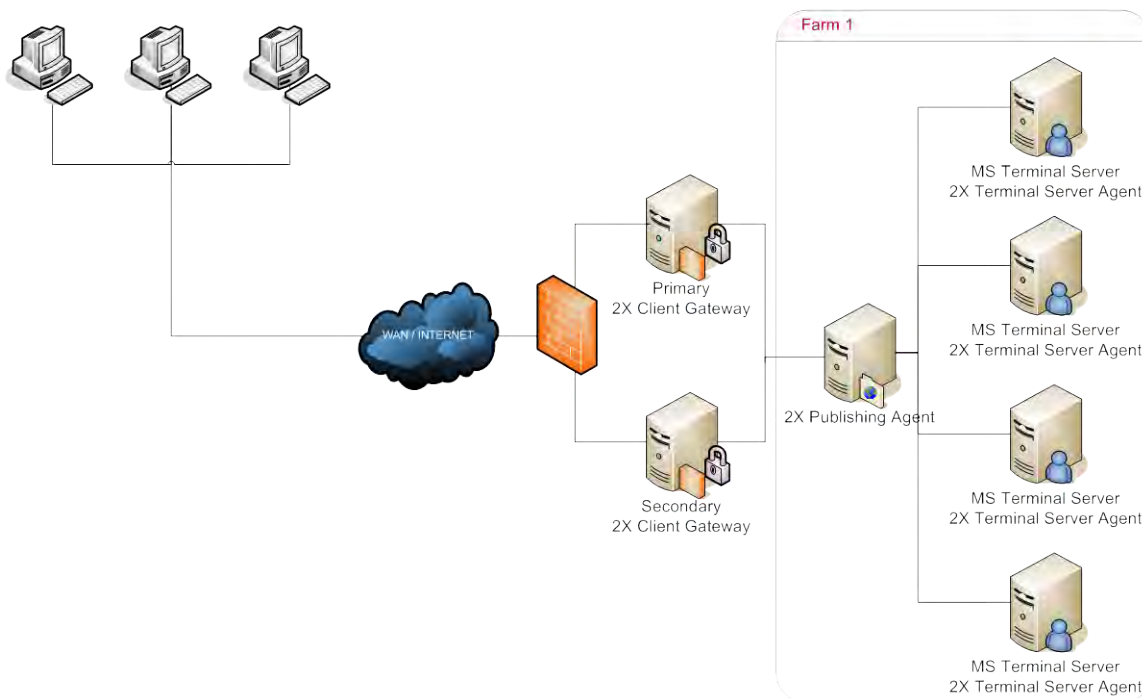
## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

	<b>MS Terminal Server</b>	
	<b>Component</b>	<b>Installed</b>
	2X Client Gateway	No
	2X Publishing Agent	No
	2X Terminal Server Agent	Yes
2X VDS Agent	No	



## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

### ➤ Single Farm Solution with Dual 2X Client Gateway


This solution is ideal for high availability environments. Clients must be configured to connect with a Primary and a Secondary Server. Primary and Secondary 2X Client Gateways must be configured to connect with the same 2X Publishing Agent (using the Advanced Client Gateway Settings). When the primary 2X Client Gateway is not available, clients will be able to connect with the secondary 2X Client Gateway.



#### COMPONENTS

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2X Terminal Server Agent	No										
2X VDS Agent	No										

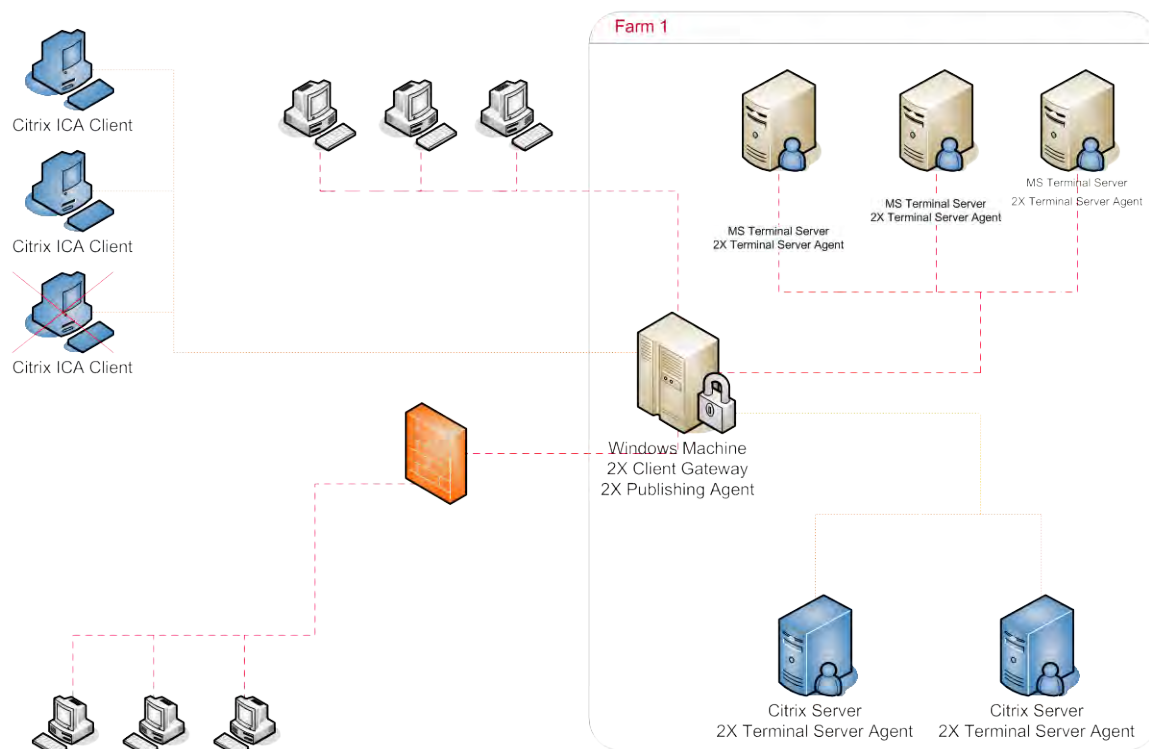
## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

	<b>MS Terminal Server</b>	
	<b>Component</b>	<b>Installed</b>
	2X Client Gateway	No
	2X Publishing Agent	No
	2X Terminal Server Agent	Yes
2X VDS Agent	No	


## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

### ➤ Single Farm Solution with Citrix & MS Terminal Server


2X ApplicationServer & LoadBalancer product is ideal for a Citrix & MS Terminal Server Environments. This scenario is ideally used when migrating from Citrix to 2X solutions. 2X Terminal Server Agent must be installed on the MS Terminal Servers and Citrix Servers.



#### COMPONENTS

	<b>MS Windows Machine</b>	
	<b>Component</b>	<b>Installed</b>
	2X Client Gateway	Yes
	2X Publishing Agent	Yes
	2X Terminal Server Agent	No
	2X VDS Agent	No

	<b>MS Terminal Server</b>	
	<b>Component</b>	<b>Installed</b>
	2X Client Gateway	No
	2X Publishing Agent	No
	2X Terminal Server Agent	Yes
	2X VDS Agent	No

## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

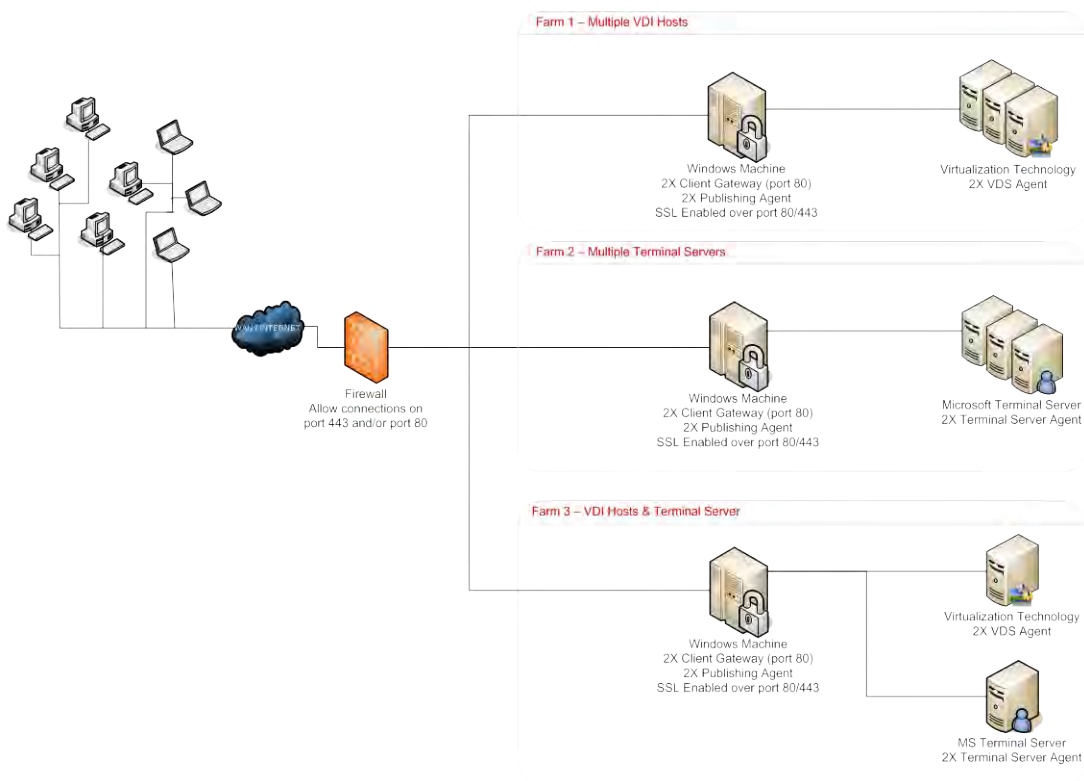


### Citrix Server

Component	Installed
2X Client Gateway	No
2X Publishing Agent	No
2X Terminal Server Agent	Yes
2X VDS Agent	No

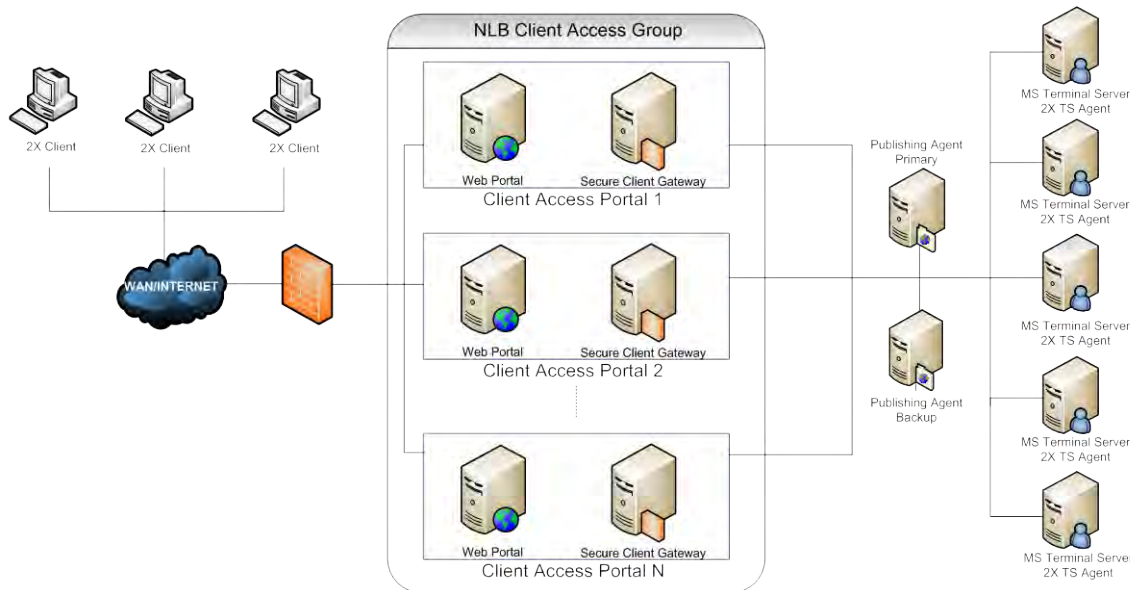
## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

### Multiple Farm Solution



## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios


### ➤ High Availability with Multiple Gateways and 2x web-portals.





This solution is ideal for high availability environments with more than 300 concurrent users connected in SSL mode. Each client gateway should optimally handle 300 to 500 concurrent user connections\* and this can be scaled horizontally accordingly.

\*300 users through SSL tunnelled gateway mode, 500 standard, 2X gateway connections  
Assuming the gateway machine is only acting as such (no other demanding services using these machines)

All Secure Client Gateways must be configured to connect with the same Publishing Agent and Backup Publishing Agent (using the Advanced Client Gateway Settings see above).

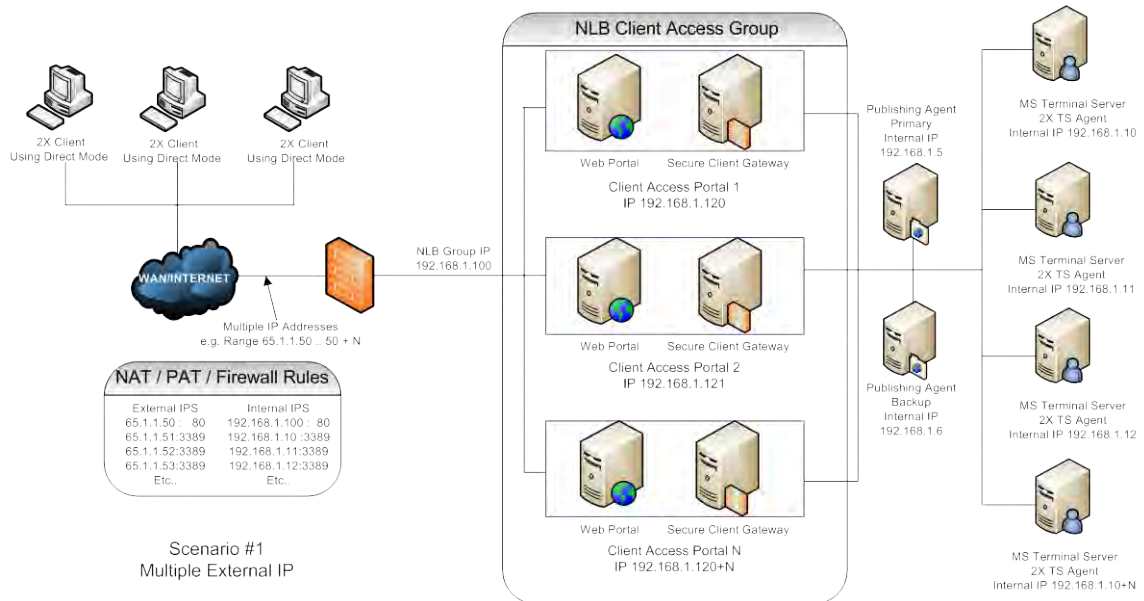
 <p>Web Portal      Secure Client Gateway</p> <p>Client Access Portal n</p>	<p><b>MS Windows Machine</b></p> <table border="1"> <thead> <tr> <th>Component</th> <th>Installed</th> </tr> </thead> <tbody> <tr> <td>2X Client Gateway</td> <td>Yes</td> </tr> <tr> <td>2X Publishing Agent</td> <td>No</td> </tr> <tr> <td>2X Terminal Server Agent</td> <td>No</td> </tr> <tr> <td>2X VDS Agent</td> <td>No</td> </tr> <tr> <td>MS IIS 6</td> <td>Yes</td> </tr> <tr> <td>2X Web Access Portal</td> <td>Yes</td> </tr> </tbody> </table>	Component	Installed	2X Client Gateway	Yes	2X Publishing Agent	No	2X Terminal Server Agent	No	2X VDS Agent	No	MS IIS 6	Yes	2X Web Access Portal	Yes
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## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

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2X Terminal Server Agent	No														
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## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

### ➤ Multiple Client Gateways, Publishing Agents and Web Portals using Direct Mode for Terminal Server



This solution combines the HA solutions with a non-gateway connection. Each client gateway will only be used until a connection is made to an available Terminal Server\*. All Client Gateways must be configured to connect with the same Master and Backup Publishing Agent (using the Advanced Client Gateway Settings). Since Direct mode is going to be used but externally the client has no access to the internal IPs the direct mode address needs to be overridden in the TS settings in the farm.

\*Terminal Servers will be exposed on the internet via an NAT / PAT / Firewall Solution that must include the rules shown in the diagram.

It is important to note that in direct mode connections preclude SSL connections.

## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

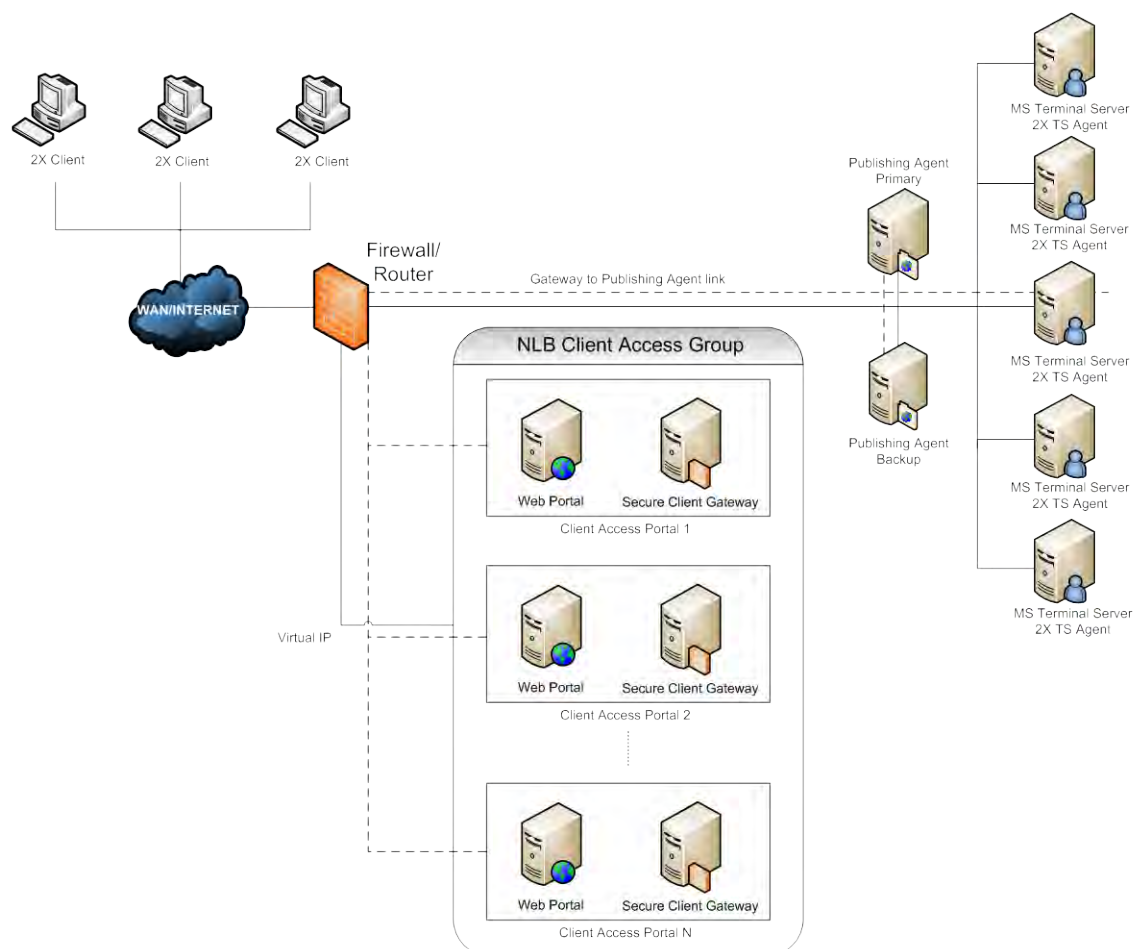
### ➤ High Availability with a single or dual f/w DMZ.

Many companies use the DMZ layout to separate the servers that handle exposed services from the ones that handle internal ones.

There are two types of DMZs single and dual firewall DMZs the latter being the more expensive but more secure. (In the dual firewall approach many people suggest using two different firewall technologies to avoid one weakness or one type of attack breaking both firewalls.)

The firewall between the gateways and the intranet must allow the gateways and the systems to connect to the publishing agents using the standard port.

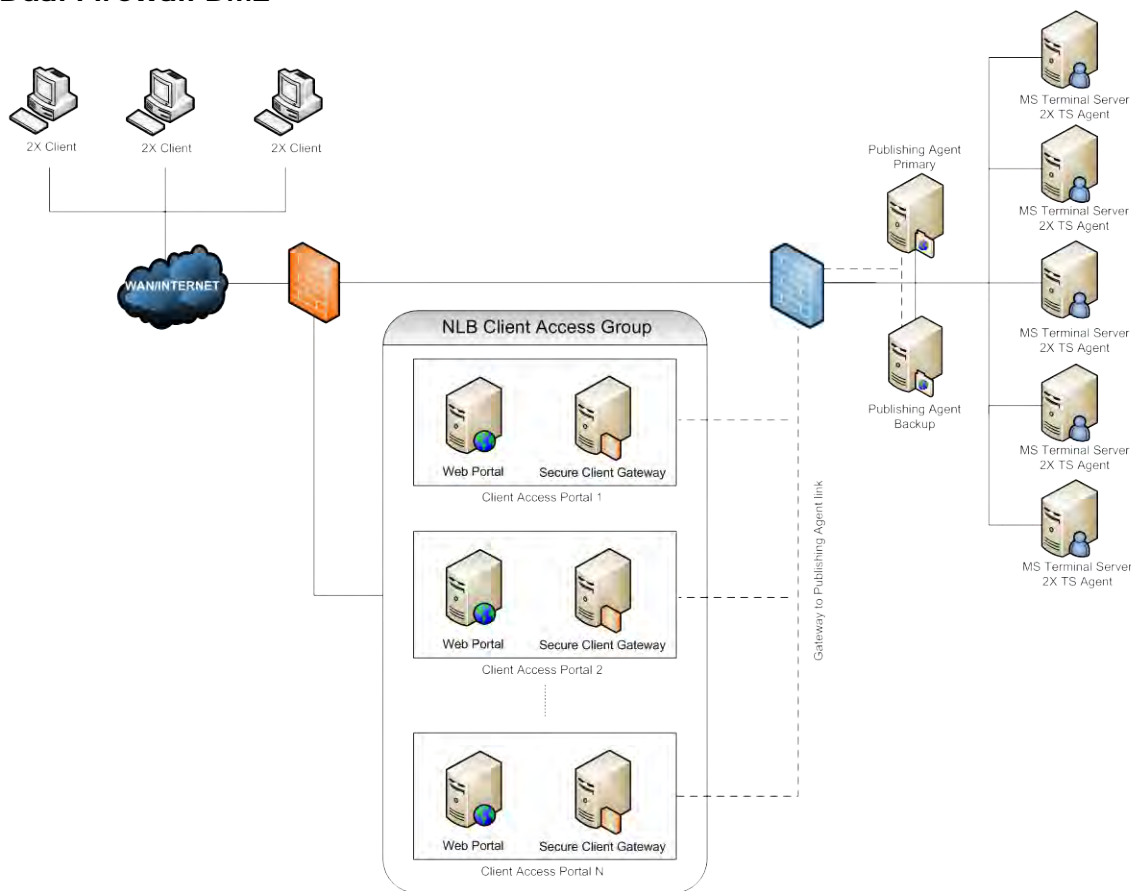
#### Single Firewall DMZ





In a single firewall DMZ scenario, the firewall system must be capable to route a connection properly from the 2x Gateways to the Publishing Agents. It is also responsible for the connections from internet to the virtual IP presented by NLB or other generic- protocol load balancing solution.

## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios




### Dual Firewall DMZ



In a dual firewall scenario the settings are simpler and the protection from external malicious agents higher.

 <p>Web Portal      Secure Client Gateway</p> <p>Client Access Portal n</p>	<p><b>MS Windows Machine</b></p> <table border="1"> <thead> <tr> <th>Component</th> <th>Installed</th> </tr> </thead> <tbody> <tr> <td>2X Client Gateway</td> <td>Yes</td> </tr> <tr> <td>2X Publishing Agent</td> <td>No</td> </tr> <tr> <td>2X Terminal Server Agent</td> <td>No</td> </tr> <tr> <td>2X VDS Agent</td> <td>No</td> </tr> <tr> <td>MS IIS 6</td> <td>Yes</td> </tr> <tr> <td>2X Web Access Portal</td> <td>Yes</td> </tr> </tbody> </table>	Component	Installed	2X Client Gateway	Yes	2X Publishing Agent	No	2X Terminal Server Agent	No	2X VDS Agent	No	MS IIS 6	Yes	2X Web Access Portal	Yes
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## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

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2X Publishing Agent	No										
2X Terminal Server Agent	Yes										
2X VDS Agent	No										
	<p><b>Standard Firewall solution</b></p>										
	<p><b>Alternate Firewall solution (optional but suggested) For better isolation from attacks</b></p>										

## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

Additional Reference

### A. Installation Type

#### Single Terminal Server:

- 2X Console [2XConsole.exe]
- 2X Client Gateway [2XProxyGateway.exe]
- 2X Publishing Agent [2XController.exe]
- 2X Terminal Server Agent [2XAgent.exe]



#### Multiple Terminal Servers:

##### 2X ApplicationServer and LoadBalancer Console

- 2X Console [2XConsole.exe] & 2X Publishing Agent [2XController.exe]

##### 2X Terminal Server Agent

- 2X Terminal Server Agent [2XAgent.exe]

##### 2X Client Gateway

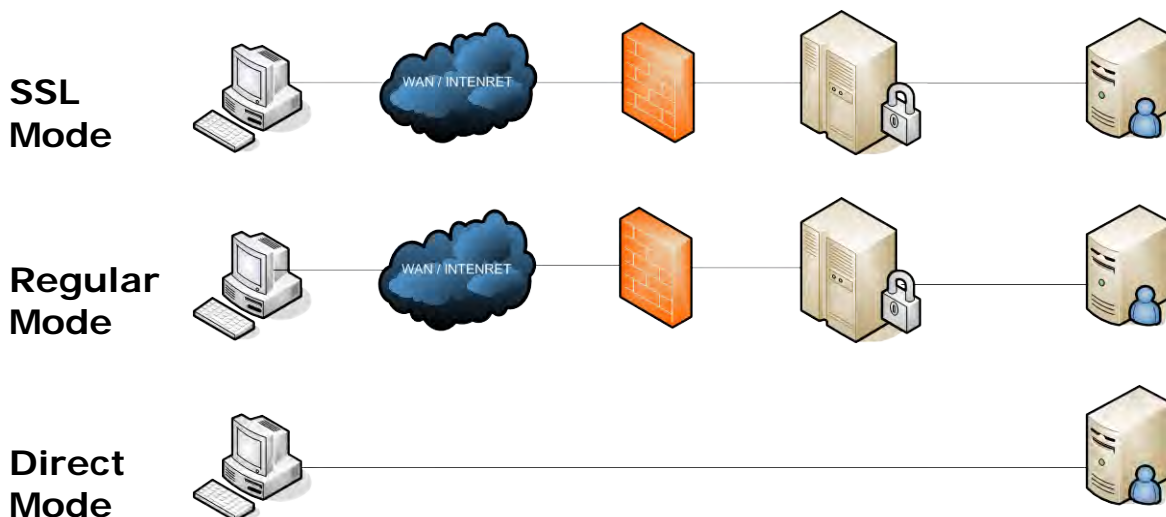
- 2X Client Gateway [2XProxyGateway.exe]

## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios



### B. Modes

#### SSL / REGULAR / DIRECT MODE



When used in Regular or SSL mode, the 2X Client Gateway machine is the only machine that needs to be exposed to the outside. This greatly reduces the requirements for external IP addresses and ports that must be accessible from the outside, in case you have multiple terminal servers. In Direct mode the 2X Publishing Agent simply finds the best terminal server and passes that information back to the client and the client connects directly to the terminal server.

## 2X VirtualDesktopServer / 2X ApplicationServer & LoadBalancer Scenarios

### *C. Terminology*

- **2X Console** - provides a centralized GUI application that allows configuration of 2X ApplicationServer and 2X LoadBalancer.
- **2X Publishing Agent**– 2X Publishing Agent provides load balanced applications and desktop publishing.
- **2X Terminal Server Agent** – collects the information from the Terminal Server required by the 2X LoadBalancer and will transmit to it when required.
- **2X Client Gateway** - Tunnels all traffic needed by 2X applications on a single port and provides secure connections.

## 2X ThinClientServer / Terminal Server Scenario

# Introduction to 2X ThinClientServer

## ***Which Edition do I need?***

***2X ThinClientServer is available in 2 editions:***

### **Enterprise Edition**

2X ThinClientServer Enterprise Edition provides a complete feature set for the administrator to provide thin clients with connections to the broadest range of server-based terminal services, including:

- 1 Windows Terminal Services
- 2 Linux Terminal Server
- 3 2X Application Server
- 4 Citrix Published Applications
- 5 Citrix Desktop

Enterprise Edition License holders also have access to commercial grade support via online support services.

### **Free Edition**

2X ThinClientServer Free Edition provides a free alternative to Enterprise Edition, with all the features of the Enterprise Edition but:

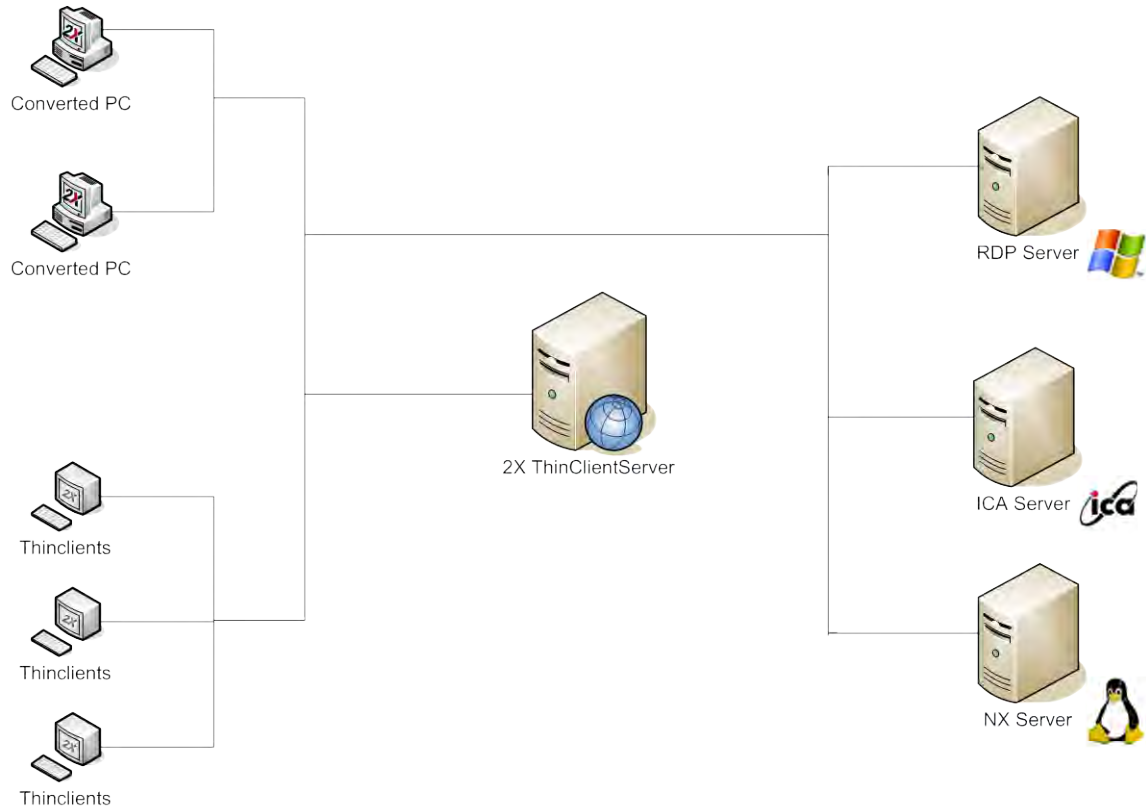
- 5 Connections are allowed after the 120 days trial period
- Support available only via user-to-user forums on <http://forums.2x.com>.

## ***Example A: How do I set 2X ThinClientServer up?***

You will require the following:

- Windows Server 2000/2003
  - Windows Terminal Services
  - 2X ThinClientServer PXES or Enterprise edition
1. On the Windows Server, install the Terminal Services; this is done via Add/Remove programs. This will require a reboot
  2. Install 2X ThinClientServer. Note this can be on the same machine or a separate machine
  3. Configure 2X ThinClientServer as per the manual and set up a connection profile for Windows RDP
  4. Ensure any users who will be testing/using this have been granted Remote Desktop user permissions
  5. If you have DHCP configured for PXE, then PXE boot, if not, then download and burn the ISO image to CD and boot from the CD
  6. Boot and Login

## 2X ThinClientServer / Terminal Server Scenario



Example Configuration A - PCs and ThinClient accessing Microsoft Terminal Servers

## 2X ThinClientServer / Terminal Server Scenario

### ***Example A: Common mistakes***

You attempt to login but you return to the login screen

- Check in the connection profile settings that the IP address or fully resolvable name is listed. Note localhost or 127.0.0.1 will fail
- Check that RDP is enabled (If testing with Windows XP, RDP is disabled as default and must be enabled under My Computer properties)
- Try with the Windows XP or other RDP client to connect and login
- Remote desktop permissions have not be granted to the user – Check the user permissions
- Ensure the port 3389 (default) is allowed through any firewalls in between the client and Terminal Server.

## 2X ThinClientServer / Terminal Server Scenario

### ***Example B: Virtual XP Desktops***

Desktop virtualization is being used increasingly as a replacement for conventional desktop builds. There are many advantages to this type of installation, as the user will see the exact same desktop as they would with a local install. However, it is easier to manage and control from a Network Administrator role. 2X have recently published a guide on desktop virtualization available on:

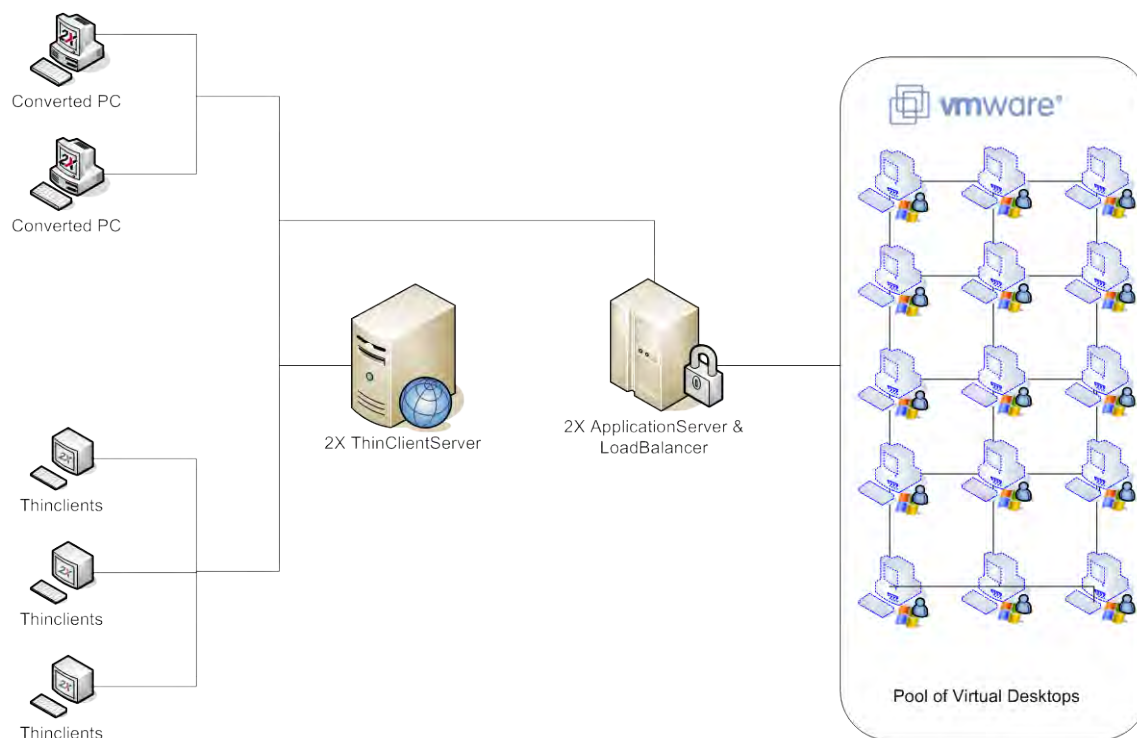
<http://www.2x.com/virtualdesktop/index.html>

### ***Example B: How do I set it up?***

You will require the following:

- VMware server
  - 2X ThinClientServer
  - Windows XP desktop Operating System
  - Linux or Windows Server to host VMware Server and 2X ThinClientServer
  - 2X LoadBalancer (only if wanting to use Pools of machines) (This is a new feature for Sept 06)
1. Install the VMware Server
  2. Create a virtual machine and install your Windows desktop OS
  3. Configure the desktop and enable remote desktop connection – My Computer, Properties, Remote tab
  4. Install and configure 2X ThinClientServer. This can also be a virtual machine if you wish.
  5. Create a connection profile and assign the user to the profile and the IP address of their virtual desktop
  6. Test and login

## 2X ThinClientServer / Terminal Server Scenario



Example Configuration B - PCs and ThinClient virtual XP desktops

### **Example B: Common mistakes**

You attempt to login but you return to the login screen

- Check in the connection profile settings that the IP address or fully resolvable name is listed. Note local host or 127.0.0.1 will fail.
- Check that RDP is enabled (If testing with Windows XP, RDP is disabled as default and must be enabled under My Computer properties).
- Try with the Windows XP or other RDP client to connect and login.
- Remote desktop permissions have not be granted to the user – Check the user permissions.
- Ensure the port 3389 (default) is allowed through any firewalls in between the client and Terminal Server.

#### **VMware Server**

- Ensure you have enabled the network card and can connect to the segment of the network for the virtual machine. If you are unsure how the settings work, bridged is normally the easiest option. As long as the physical server can connect to the network, bridged should work either with DHCP if available, or static (static is recommended to match the setting in the connection profile on 2X ThinClientServer).

## 2X ThinClientServer / Terminal Server Scenario

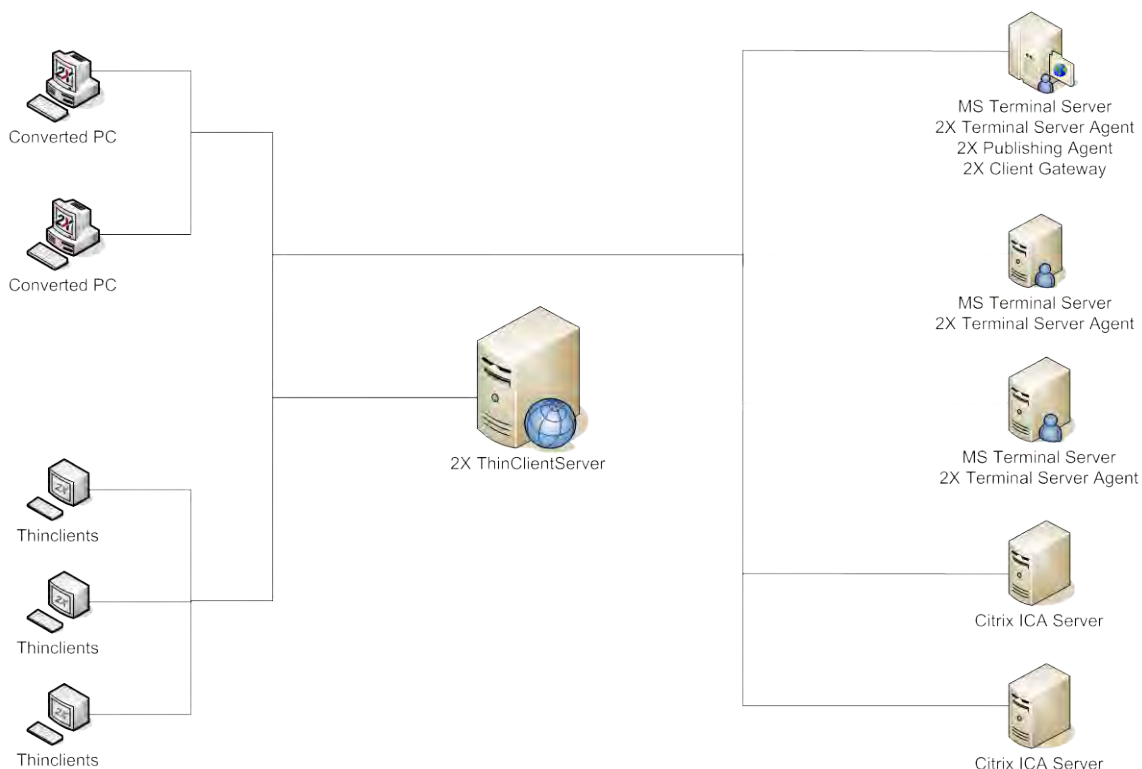
### Example C: 2X Desktop with Published Applications

Eliminate the headaches of managing clients, locking down desktops and using group policies. With 2X ThinClientServer you can now provide a Readonly Linux desktop to your clients and grant access just to the applications they need. This can be done using either 2X ApplicationServer or Citrix Presentation Server in conjunction with 2X ThinClientServer.

### Example C: How do I set it up?

You will require the following:

- 2X ThinClientServer PXES or Enterprise edition (Citrix requires Enterprise)
  - 2X ApplicationServer or Citrix Presentation Server
  - Windows Terminal Services
  - Windows Server
1. Install and configure 2X ThinClientServer, the connection profile will either use 2X Published Applications or Citrix published applications. The Terminal Server IP address should be the address of the machine hosting 2X ApplicationServer or the Citrix Server with the PNagent installed
  2. Install and setup 2X ApplicationServer or Citrix Presentation Server
  3. Boot your ThinClient
  4. You should be presented a read only Linux desktop with a list of applications available to that user.



Example Configuration C - PCs and ThinClients with Published Applications

## **2X ThinClientServer / Terminal Server Scenario**

### ***Example C: Common mistakes***

When using Citrix, ensure that you have configured the applications to be available on the desktop/start menu and configured a folder name. Also ensure the PNagent is working on the Citrix web interface.

If you experience problems when logged into the 2X Desktop, test that 2X ApplicationServer is working by using the Windows or Linux client.

## 2X ThinClientServer / Terminal Server Scenario

### Example D: Multiple OS, Multiple desktops

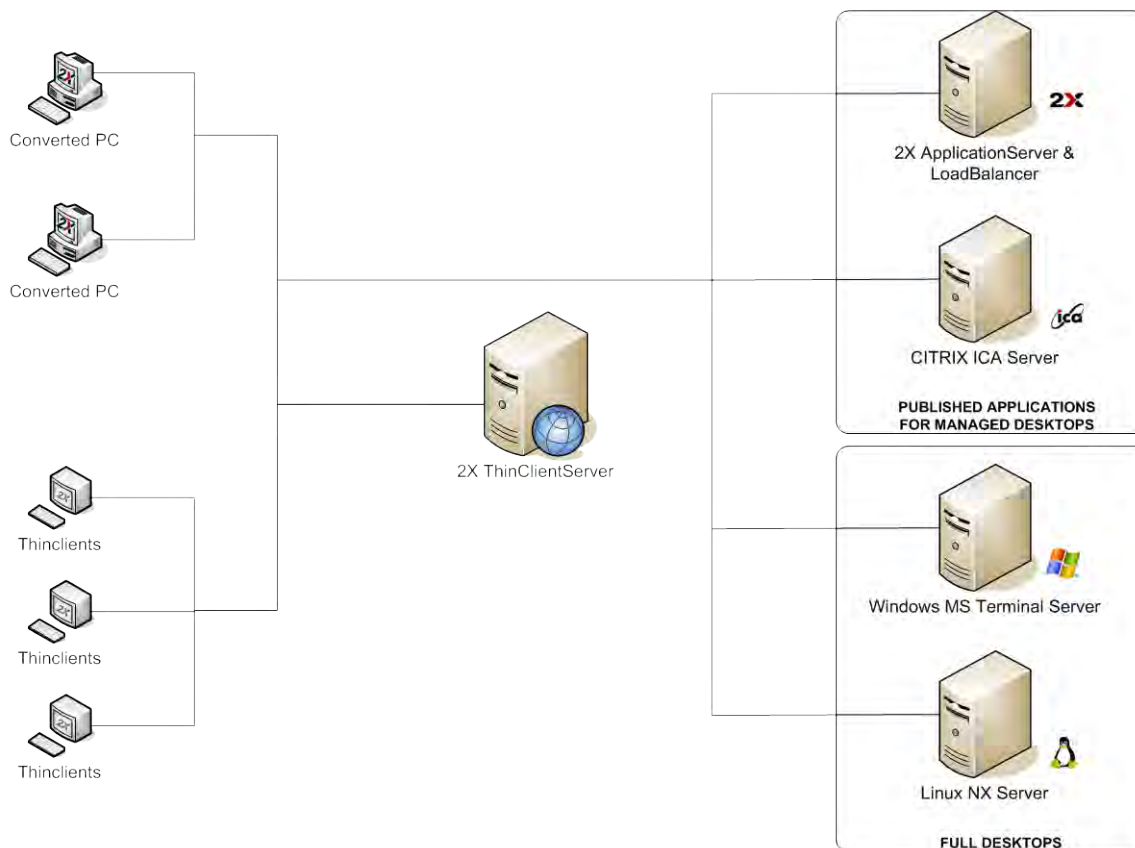
In bigger IT environments you will be faced with a mixture of applications, desktops and operating systems. In some cases this can be on a departmental basis, e.g. sales department uses Windows, but the support department uses Linux. How best to manage this?

2X ThinClientServer can be configured with multiple connection profiles to which groups of users or individual users can be assigned.

As seen in the previous examples we can connect to different types of desktops and published applications including:

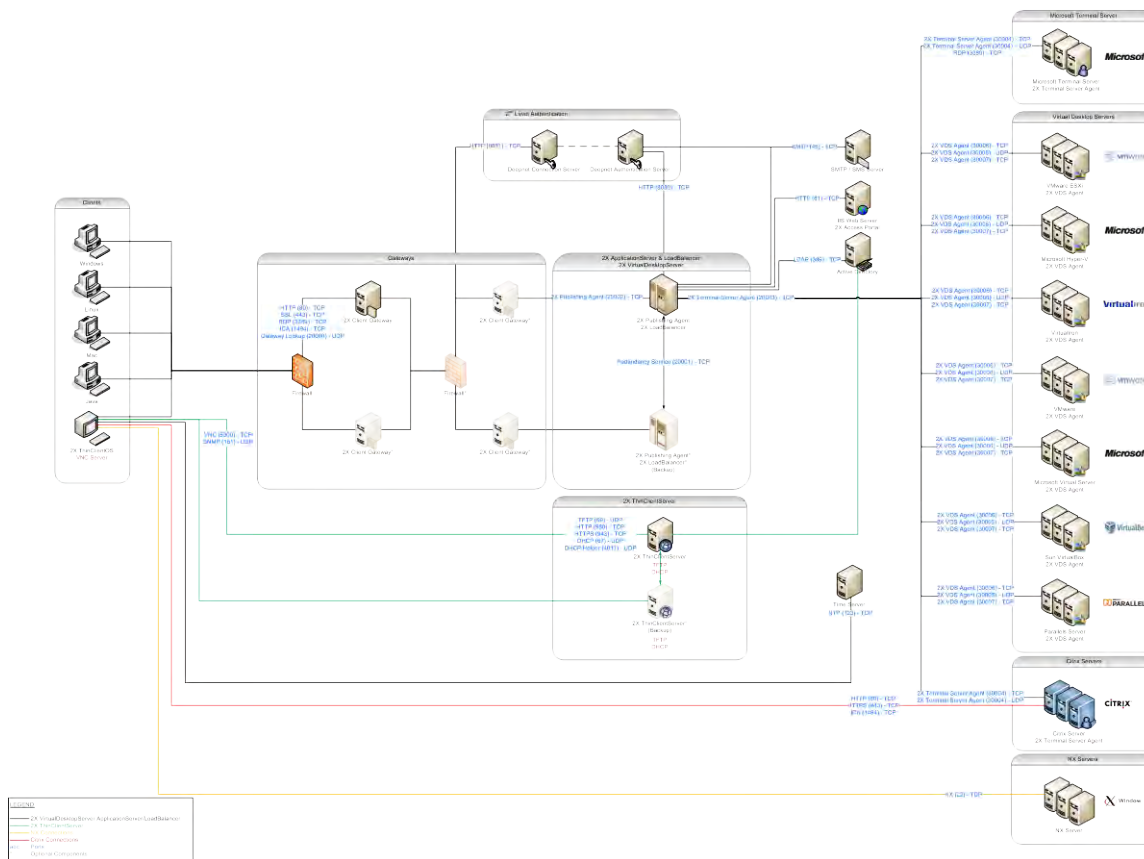
- Windows Terminal Services
- Citrix Desktops / Citrix published applications
- 2X ApplicationServer
- Virtual Windows Desktops
- NX based desktops

The result is a true OS independence!



Example Configuration D - PCs and ThinClient accessing different environment

### Ports used by 2X Solutions



\* 2X Client Gateway and 2X Publishing Agent can be installed on the same machine. If 2X Client Gateway and 2X Publishing Agent are installed on different machines make sure that 2X Client Gateway has access to the 2X Publishing Agent port (TCP 20002) otherwise it will not be able to retrieve the published applications list and load balance the application requests.  
 \*\* RDP Port (3389) cannot be used if the machine on which the 2X Client Gateway is installed has terminal services enabled.

### Ports used by 2X Solutions

