Managing Multi-user Windows (Citrix) from a System Manager's View

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Abstract

This session will cover my experiences and advice on installing and managing a multi-user Windows OS, specifically Windows 2000 with Terminal Services and Citrix. It is presented from the prospective of a terminal based multi-user OS Systems Manager, specifically an Open VMS Systems Manager, me. I will cover hardware and software requirements, application installation, email integration, backups and cloning, and integration with other OSes.

Introduction

- Who am I?

- What are my systems?

- What is my corporate environment?

Who am I?

- VMS and Windows Systems Manager for the Kittle's Home Furnishings in Indianapolis, IN

- Nineteen years experience as an OpenVMS Systems Manager

- 13 years experience as a Windows System Manager

- Four years experience with multi-user Windows (Citrix)

What are my systems?

- Hardware

  - 2 Alpha Server 4100 5/300 – 2 CPU, 3GB RAM, 110GB of disk space (total for cluster), OpenVMS 7.3-1

  - 2 Alpha Server 1000 4/200 – 1 CPU, 512MB RAM, OpenVMS 7.3-1

  - 2 Dell PowerEdge 2650 – 2 CPU, 2.2GHz, 2GB RAM, Win2k Server, Citrix MetaFrame XP FR2

  - 2 Compaq Proliant - 2 CPU, 1GB RAM, Win2k Server, Citrix MetaFrame XP FR2

  - Assorted other Windows Servers and Workstations

What are my systems?

- Software

  – FMS – Home grown app

  – MS Office (Excel, Word, PowerPoint, Outlook, Visio, Project)

  – PowerTerm (terminal emulator)

  – Usual PC applications – WinZip, Acrobat Reader, ...

What is my corporate environment?

- History

  - In 1999 all sales and most corporate users were still on terminals only

  - In 1999 company used about 20 PC and about 15 Macs

  - After Y2K ended we were ready to roll out Windows to more users

What is my corporate environment?

- In 2000
  - Purchased 1 Proliant Citrix server
  - Used old PCs and Macs as "Citrix clients" for about 20 users
  - Added a few Windows thin clients (TC)
  - IS kept local "fat clients" for most of our work
  - HR kept PCs and private network

What is my corporate environment?

- Present
  - 4 Citrix servers
  - 100 peak concurrent users daily
  - 150 Citrix Clients

Advantages to Citrix

- Central control
  - Concise domain organization
  - All file transfers are local
  - Easy to monitor and regulate what apps are available to any given user
  - Shadowing!!!

Advantages to Citrix

- All servers at corporate head quarters

- No PCs to maintain!!

- Redundancy

- User's Windows environment is the same EVERYWHERE

Advantages to Citrix

- Network bandwidth
  - 17 locations
  - At least 2 stations at most locations
  - Wireless 802.11b equipment at 15 locations
  - More than one printer at every location
  - At least 5 Citrix stations and 8 users at one 56Kbps frame location

Disadvantages to Citrix

- Some applications will not run properly
- Installing a new app on some or all servers for only 1 person
- Peripherals don't always work
- All computing is dependant on network

Cost

- Server hardware
  - Dual processor
  - Lots of memory
    - About 250MB for Windows
    - About 37MB per user (PEAK load!)
  - Fast disk drives
    - We use a 2 disk raid 1 (shadow) setup
    - 4GB system partition
    - 12GB application partition
  - Fast network – 100Mb at least, 1Gb if you can

Cost

- MS Windows Server license (about $800 per server)

- MS SQL Server for Summery DB

- TS CAL – 1 for every seat

Cost

- Citrix user license
  - Concurrent use
  - 3 types of license
    - Citrix XPs - ~ $220
    - Citrix XPa - ~ $260
    - Citrix XPe - ~ $300
    - Comparison matrix at
      http://citrix.com/site/PS/actions/compareIt_p.asp?familyID=19&productID=186

Cost

- Citrix user license
  - 3 types of license
    - From Citrix Web Site

    Citrix MetaFrame Presentation Server, Standard Edition

    Citrix MetaFrame Presentation Server, Standard Edition delivers the level of control that departments, workgroups and small organizations need to extend the reach of Microsoft® Windows® 2000 Server and Windows Server™ 2003 to any device. With MetaFrame Presentation Server, Standard Edition, smaller organizations can centralize IT management and control and provide workers with secure access to applications anytime, anywhere, over any connection.

    Citrix MetaFrame Presentation Server, Advanced Edition

    Citrix MetaFrame Presentation Server, Advanced Edition provides small to medium-sized organizations with additional scalability, manageability and application availability to meet growth requirements.

    Citrix MetaFrame Presentation Server, Enterprise Edition

    Citrix MetaFrame Presentation Server, Enterprise Edition provides large organizations and multi-national corporations with greater scalability, rapid application deployment, and comprehensive management and monitoring capabilities.

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Cost

- Applications
  - Same as with fat clients with network install (peak concurrent)
  - You can use security to enforce who has access to what

- Install server
  - Does not need to be a server class machine
  - Does not need a lot of disk space
  - Can be a dual boot machine

Redundancy – Best practices

- At least 3 servers – you can start with 2

- All apps on all servers (or at least 3)

- Roaming profiles

- The farm

- Citrix Desktop published app

Remote access over the Internet

- NAT and alternate addressing

- Only 2 ports open on firewall

- Internet bandwidth

- Security setting of client

Installation

- Install Win2K Server

- Configure Win2K Server including IP

- Install all Win2K Server SP

- Change local drive letters

- Install Citrix MetaFrame

- Configure MetaFrame and farm
  - Create farm – First server only
  - Choose DB type (local or remote) – First server only
  - Join existing farm – All servers but first

- After first server we cloned

Maintenance

- Nightly reboots – you can stager for multiple shifts

- Setup to NOT cache profiles

- App installs – Here is why you need 3
  - Day 1, end of day, take server1 out of production use – remove from published apps
  - Day 2, beginning of day, make Disaster Recovery (DR) backup of server1 – We use Norton Ghost
  - Day 2, install or upgrade app – only 1 change at a time
  - If in doubt reboot
  - Day 2, test new app and general test of server1
  - Day 2, put server1 back into production via published apps

  Cont.

Maintenance

App installs – Here is why you need 3 (cont.)

- Day 3, run with full load on server1 before installing anywhere else
- Day 3, end of day, take server2 out of production use – remove from published apps
- Day 4, beginning of day, make Disaster Recovery (DR) backup of server2 – We use Norton Ghost
- Day 4, install or upgrade app – only 1 change at a time
- If in doubt reboot
- Day 4, test new app and general test of server2
- Day 4, put server2 back into production via published apps
- Day 5, run with full load on server2 before installing anywhere else
- Repeat above steps for server3

Maintenance

- Backups
  - Only need Disaster Recovery Images
  - No nightly backups needed
- Routine maintenance – Defrag, delete temps, ...

Tips and tricks

- Citrix Management Console
  - Keep a CMC running for quick access
  - RMS
    - Setup email alerts for critical events
    - Use audible alarms for email alerts
    - Adjust thresholds and settings to fit your server and site
    - Keep a separate Watcher window
  - Shadow from here
  - Can be run on non-Citrix server or PC
  - Load Evaluators (Load Balancing)
    - Give each Citrix server its own
    - Only use "Server User Load" – at least to start
    - Make load numbers 10 times expected peak users
  - Shadow policy allows selective (by user or group) use of shadowing
  - Lots of extra policy configuration in an Active Domain

Tips and tricks

- Whatsup Gold by IPSwitch

- Keep max registry size large enough
  - My Computer – properties – advanced – performance options – VM change – max registry size
  - At least 100 MB for 40 users
  - We use 200MB

- Monitor user startup apps through My Computer – manage – system tools – software environment – startup programs (use advanced view)

- May need to change security settings on HKEY LOCAL MACHINE – such as for MDAC

Tips and tricks

- May need to let all users have Read / Write access to ini files in application dir

- Can drop a .bat file into profile desktop dir to make changes the user must execute

- Can create a .bat to replace a desktop shortcut to wrap program in special environment

- Keep profiles lean and clean

- Disable all Web Browser disk caching

Tips and tricks

- ## User setup
  - Use "net" commands to create much of new user accounts
    - Sterilized sample of our code
      ```
      net user
      net group   /add /domain
      net group  /add /domain
      d:
      cd \personal
      mkdir
      net share
      cacls /t /g "Domain Admins":f
      cacls  /e /g  :f < \\file\ansy.txt
      cd
      mkdir "My Documents"
      mkdir Profiles
      cd Profiles
      copy \\file\Nuser_setup_files\ptdef.*   *.*
      ```

Tips and tricks

- User setup
  - Redirect "My Documents" to be on personal share on file server – My Documents – properties – target
  - In User Manager set "Disconnect" to 10 minutes
  - Can set idle timeout if desired

- Single server architecture makes cloning easier

- Good application for blade

- Thin clients make life easy - Commodity

Integration with VMS – Advanced Server

- Looks just like a NT 4.0 server

- All print shares done on a VMS

- VMS files shared via VMS home dir share

- DB dumps CSV files in VMS home dir to read into Excel for viewing and further manipulation

- Terminal emulation to Telnet from Citrix to VMS

- VMS mail is forwarded to Exchange account for those that have one

- VMS only users are listed in Exchange Global Address Book for easy addressing

- Data updates to and from Windows apps via VMS utility shares

Network considerations

- Rule of thumb is 20 Kbps per ICA session minimum

- We fit a lot more than that, but they may be a little slow

- Latency is as important as through put

- ISDN great

- Frame (56Kbps) good

Network considerations

- Connection between farm and other servers (email, file,...) very important
  - At 100 Mb ports and 3Gb backplane it seemed that network was bottleneck
    - Moved to Gb ports
    - Each Citrix server must talk to
    - Clients
    - Mail server
    - File server
    - Print server
    - Domain controllers
    - Citrix farm

Questions ????????

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