Running Linux in a Windows World

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Outline

• Where does Linux fit in an MS Windows world?
• How does Linux compare with MS Windows functionality?
  • As a server
  • On the desktop
• Document interchange/format capabilities
• Standards and market trends
• Cost of ownership comparison
  • Acquisition costs
  • Update and maintenance costs
  • Operating costs
• Security and business risk
• Summary
Linux in a Windows world

- MS Windows and Linux must co-exist and interoperate
  - MS Windows, Apple Mac, and Linux will share the desktop
  - MS Windows and Linux will share the server space
- Many organizations want choice
- Excessive divergence will not be tolerated
  - Means that differences must be transparent
  - Can cause no user disorientation
    - User re-training is costly
    - Support re-training is costly
Comparing two worlds

• Linux as a server
  • Back end systems are transparent to users
  • Microsoft lock desktop to server
    • Market asking for open choice
• Linux on desktop
  • Application driven requirements
  • Need to compare applications and interoperability

• Cost of ownership will be a key issue
  • Difficult financial times dictate need for cost control
Linux v's Windows servers

- Cost and complexity barriers
  - MS Windows server services are highly task oriented
    - Good configuration and management tools
    - Easy to install
  - Linux servers
    - Up to SUSE Linux Server 9 – poorer configuration toolset
    - Required installation expert knowledge

- Performance Comparison
  - Many reports of Linux out-performing MS Windows 200x servers
  - May require more resources for Linux

- Physical products
  - MS Windows Server 2003
  - SUSE Linux Server 9 or Red Hat Enterprise Linux Server 3
Linux/Windows Services

- File and Print
  - MS Windows has native built-in support
  - Linux uses Samba and NFS
- DHCP
  - MS Windows has add-on package with GUI config tool
  - Linux has ISC DHCP server and no config tool (except SLES9)
- DNS
  - MS Windows has add-on DNS server with GUI config tool
  - Linux has ISC BIND. Red Hat/SuSE Linux have own config tools
- Print Server
  - MS Windows has built-in print monitor
  - Linux has CUPS built-in (more powerful)
More Server Features

- **SQL Server**
  - **MS Windows SQL Server is add-on product**
    - Ships with all client drivers (ODBC etc)
  - **Linux has integrated MySQL and PostgreSQL**

- **Web Server**
  - **MS Windows Internet Information Server (built-in)**
  - **Linux has Apache web server with add-on modules**
    - Modules includes: PHP, SSL, auth_ldap, jserv, tomcat

- **Mail and Groupware**
  - **MS Windows Exchange Server is add-on product**
    - Includes MS Windows client drivers and tools
  - **Linux has postfix or sendmail MTA**
    - Groupware solutions are add-ons (phpgroupware, etc.)
Still More Server Features

- Print Serving
  - MS Windows has integrated and built-in Print Monitor
  - Linux has Common Unix Print Systems (CUPS)
- Web Proxy Server
  - MS Windows has add-on package called ISA
  - Linux has built-in SQUID
- Virtual Private Networking
  - MS Windows has built-in IPsec based VPN
  - Linux 2.6 kernel has built-in IPsec support, plus VTUN and stunnel package for user space VPN
- Firewall Support
  - MS Windows has very basic TCP/IP filters built-in
    - Full firewall is third-party add-on
  - Linux has comprehensive IPtables based firewall capability
Authentication and Single Sign-On

- MS Windows Server 2003 has Active Directory
  - Complete with management tools
- Linux has Samba-3, OpenLDAP and Kerberos
  - Can be configured to provide centrally managed identity management services
    - Equivalent – NOT SAME AS Active Directory
  - Management tools need to be added by the Administrator
    - Third-party sources (Except SUSE SLES 9)
      - SLES9 has fully integrated LDAP tools
- Microsoft authentication is fully integrated through Active Directory
  - GSSAPI support includes: SPNEGO, NTLMv2, SASL, etc.
  - Samba provides these also, needs some manual configuration
Server Summary

- Linux has equivalent capabilities to MS Windows Server 2003
  - Mostly transparent to client software
  - Many have configuration tools that are not fully integrated
  - Offers greater choice, functionality and performance
  - Can replace MS Windows Server 2003
    - Some increase in management overhead
    - Open Source means no vendor lock-in
    - Works transparently with MS Windows clients

- Linux servers can be introduced without the desktop user noticing any difference
Linux Desktop v's MS Windows XP Professional

• Weaknesses / Strengths
  • **MS Windows Clients** are all susceptible to viruses, Worms and ActiveX exploits
  • **Linux** has no such vulnerabilities

• Software Choice
  • **MS Windows** has single set of tools for:
    • Desktop interface
    • Microsoft Applications (MS Office, Internet Explorer, etc.)
  • **Linux offers extensive choice in desktop software**
Desktop Software Comparison

- MS Windows XP Professional is the corporate desktop product
- SuSE 9.1 Professional is the corporate desktop product
- Comparison
  - **Software Development Tools**
    - MS Windows Visual Toolkit is an add-on product
    - Linux includes full SDK, compilers, IDE, etc.
  - **Office Toolkit**
    - MS Windows
      - MS Office is an add-on product
      - Organizer is part of MS Exchange client
      - Adobe Acrobat must be downloaded and installed separately
    - Linux includes full choice of Office Suites
      - OpenOffice, Organizers, Acrobat viewer is included
More Comparisons

• Comparison Continued
  • **Financial Management Software**
    • MS Windows has add-on product (MS Money)
    • Linux has built-in choice of GNUCash and KmyMoney
  • **Flowcharting**
    • MS Windows third-party product is Visio
    • Linux has choice of: Dia, Kchart, Kivio
  • **Email Client**
    • MS Windows MS Exchange Client (part of MS Exchange)
    • Linux has choice of:
      • Ximian Evolution (integrated equivalent to MS Exchange Client)
        • Has same look-and-fees
      • Addressbook, organizers, Jpilot (no need to third-party Palm software)
      • Kmail, Mutt and Pine
More Comparisons

• Comparison Continued
  • Graphic Tools
    • Photograph Handling
      • MS Windows – many third party tools as well as integrated tools
      • Linux has gphoto, DigiKam, Kalbum
    • Image Editing
      • MS Windows – Adobe Photoshop (third party add-on)
      • Linux has GIMP, PixiePlus, additional open source choices
    • Scanning
      • MS Windows has TWAIN driver based tools (third-party)
      • Linux has: xsane, gOCR, kooka (built-in)
  • Vector Drawing
    • MS Windows requires third-party tools
    • Linux has a number of built-in choices
More Comparisons

• Comparison Continued
  • Internet Tools
    • Web Browser
      • MS Windows has built-in Internet Explorer
      • Linux has built-in choice of:
        • Mozilla Web Browser
        • Konqueror Web Browser
        • Opera Web Browser
    • Web Page Development
      • MS Windows product is called FrontPage
      • Linus has choice of:
        • Bluefish, Kommander, Mozilla Editor, Quanta
  • Network Neighborhood
    • MS Windows has built-in support through MS Windows Explorer
    • Linux has Network Neighborhood toolset in Konqueror and in Gnome desktop
Document Interchange

- MS Windows tools use mix of industry standard file formats
  - MS Office file format is proprietary
- Linux follows open standards in file formats
  - OpenOffice interoperates with MS Office proprietary file formats
- Some open source products use own file formats
  - Most of these also permit export in industry standard file formats
- Plug And Play
  - MS Windows is more-or-less hot-swap Plug 'n Play
    - Some drives must be installed
  - Linux is hot-swap Plug 'n Play
    - Most drivers auto-install
Standards and Market Trends

- MS Windows is a proprietary toolset
  - Follows open standards wherever there is no other choice
    - Example: Web standards set by W3C
  - MS Office file format is proprietary
    - It's XML format is a proprietary format
- OpenOffice uses completely open standard file formats
  - Also can read/write MS Office files
    - Not perfectly
- The IT Industry needs to insist on the creation and adoption of open public standards for all file formats and protocols
  - Even Microsoft should follow these
Cost of Ownership Comparison - Server

- **MS Windows Server 2003**
  - **Standard Edition** – Approx. $800 per server
    - Add client access licenses
  - **Enterprise Edition** – Approx. $3000 per server
    - Add client access licenses

- **Linux**
  - **SuSE SLES9** – Approx. $800
    - No client access licenses
  - **Red Hat Enterprise Linux 3** – Approx. $800
    - No client access licenses
  - **Note: Red Hat do not sell a desktop suite**
    - Red Hat Fedora is free
Cost of Ownership Comparison - Desktop

- **MS Windows XP Professional**
  - Price Varies from $50 to $300 per desktop
  - Add applications – average $800 per client
  - Addition of MS Visual Studio and all software equivalent to SuSE Linux 9.1 Professional cost is over $3000
  - Requires Software Assurance subscription

- **SuSE Linux 9.1 Professional**
  - Amazon Price - $79.99
  - Includes full set of applications
  - Includes free updates
Security and Business Risk

- MS Windows operating systems (MS Windows 2003, XPP)
  - Susceptible to viruses, worms and application-level exploits
  - MS Word Basic is a high-risk MS Office component
  - Ever present risk that Microsoft will abandon products
  - Ever present risk that third-party vendors will go out of business or will be acquired

- Linux is more secure
  - Not susceptible to viruses, worms
  - Is susceptible to application-level exploits
  - Most applications are well locked down by default
  - Zero risk of vendor going out of business
    - Open Source means anyone can buy support
Update Requirements

- Both MS Windows as well as Linux must be kept up to date
  - Security updates to plug exploits
  - Software updates to keep up with new hardware needs
- Both offer automated update facilities
  - Both on subscription / pay-as-you go basis
- Update cycle
  - Both approximately 18 months
  - Linux updates tend to be more comprehensive
    - But have good backwards compatibility
Summary

• MS Windows comparison with Linux is complex
• Both provide very complete environments
• Linux can interoperate with MS Windows
• Where an organization actively works to eliminate vendor lock-in
  • Both interoperate exceptionally well
• Costs are comparable at the superficial level
  • Linux is more cost effective in more environments that demand more complexity
    • Nearly everything you might need is already bundled into the core product
    • Licensing costs are lower
• Only a Cost versus benefit study can correctly determine ROI for your site
• Are you actively evaluating Linux now?