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
  - **Acqusition 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 tollerated
  - **Means that differences must be transparent**
  - **Can cause no user disorietentation**
    - 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 dekstop 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 fo 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 <u>or</u> 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**
  - **Li nux has ISC DHCP server and no config tool (except SLES9)**
- DNS
  - **MS Windows has addo-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-onpackage 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 incldued

More Comparisons

- Comparison Continued
  - **Financial Mangement Software**
    - MS Windows has add-on product (MS Money)
    - Linux has built-in choice of GNUCash and KmyMoney
  - **Flowcharting**
    - MS Windows thrid-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-fee
      - 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 proprietart**
- 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 wherer there is no other choice**
    - Example: Web standards se tby 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
  - **Exnterprise Edition – Approx. $3000 per server**
    - Add client access licenses
- Linux
  - **SuSE SLES9 – Approx. $800**
    - No client access liceneses
  - **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?

End
Q&A