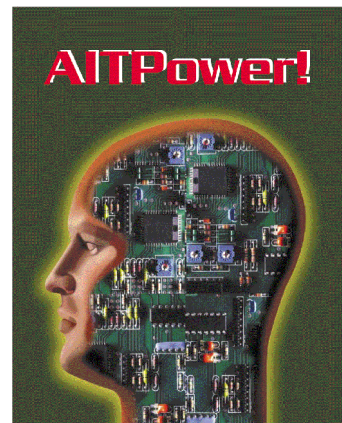


# Linux for Suits

(But Polo and Tee Shirts Too!)

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AITP North Central Florida Chapter #298  
Gainesville, FL  
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<http://nersp.cns.ufl.edu/~sftware/aitp/apr2005/linux4suits.pdf>



# Abstract

In this presentation, the speaker will discuss how **Linux** is becoming an important component of production IT infrastructure, a viable desktop alternative, a very capable software development environment, and a prevalent embedded devices OS.

Linux - It's not about **Free**. It's about **Freedom**. The Freedom of **Choice**. The Freedom of **Speech**. The Freedom to **Collaborate**. The Freedom to **Innovate**.

Linux is over 10 years old. Is it legacy? "**Legacy = It Works!**"



# Disclaimer

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The title for this presentation was inspired by the Doc Searls Linux Journal column, "Linux for Suits". A free enewsletter, "Doc Searls' Suitwatch", is also available:

<http://www.linuxjournal.com/xstatic/community/suitwatch>



# Agenda/Topics

- Introduction
- Linux in Production
- Linux on the Desktop
- Linux for Software Development
- Linux for Devices
- Summary and Q&A
- Appendix and Additional Information



# Introduction

- Speaker has been running Linux since 1993, starting with the SLS distribution, kernel 0.99pl13, on a "screaming" 386-25 with a "whopping" 8MB of memory and "exhaustive" 60MB of disk space.
- SLS, the "Softlanding Linux System", was considered one of the first "public" Linux distributions.
- Slackware is the oldest Linux distribution that is still actively maintained and supported. SLS is considered the "parent" of Slackware.



# Introduction

"The Official Release of Slackware Linux by Patrick Volkerding is an advanced Linux operating system, designed with the twin goals of ease of use and stability as top priorities. Including the latest popular software while retaining a sense of tradition, providing simplicity and ease of use alongside flexibility and power, Slackware brings the best of all worlds to the table."

"Originally developed by Linus Torvalds in 1991, the UNIX®-like Linux operating system now benefits from the contributions of millions of users and developers around the world."



As of October, 2004, Slack/390 is an official Slackware Port: <http://slack390.org/>

# Introduction

- Initial foray into Linux was primarily for learning and experimentation. After a few short hours, I was sold on the capabilities and features of Linux, especially when compared to PC DOS, Windows, and yes, even OS/2!
- Learning more about Unix and C is all well and good, but Linux is best able to run on minimal hardware, has TCP/IP networking "built-in", and is **very** stable, especially compared to the other PC operating systems I've used.



# Linux in Production

- "One of the things I love about Linux is that I haven't had to think about this machine at all since we put it into production. No worries, no issues.... Not like my Windows servers that I'll be patching and rebooting this weekend..." - Dan
- The above was posted on Fri., 04-22-2005, to the LINUX-L discussion list, hosted at UF, "Platform Independent Linux List! <LINUX-L@LISTS.UFL.EDU>".
- Result from uptime command for a UF prod. Linux server:  
15:47:53 up 353 days, 1:31





# Linux in Production

- Computerworld, February 28, 2005, had a news story titled "The Business Case for Linux":  
<http://www.computerworld.com/softwaretopics/os/story/0,10801,100013,00.html>
- Cendant Corp.'s Travel Distribution Services (TDS), Chicago Mercantile Exchange Inc. (CME), and Orbitz, Inc. are the companies mentioned.
- Cost savings, improved reliability, and better transaction speed, were all discussed in the article.



# Linux in Production

- Production Linux servers/services include:
  - Web servers (primarily Apache)
  - Firewall/QOS/networking infrastructure, etc.
  - Mail servers (including Sendmail, Postfix, etc.)
  - File servers (FTP, NFS, Samba, etc.)
  - Print servers (CUPS, etc.)
  - Database servers (Berkeley DB, mySQL, Oracle, DB2, Postgres, aka PostgreSQL, etc.)
  - Grid/HPC research (some via z/VM on zSeries)



# Linux in Production

- Production Linux servers/services include:
  - Application servers (Java, Tomcat, Tuxedo, etc.)
  - Spam/virus scanning (supporting mail servers)
  - Directory services (including LDAP)
  - Authentication servers (including Kerberos)
  - Others?
- Last rack server purchased for UF CNS had Slackware pre-installed, from ASA Computers, Inc. Prior tower server had Red Hat pre-installed, from Dell, Inc.



# Linux in Production

## IBM Uses Linux extensively:

- 4000+ production servers world-wide.
- More if research and development servers included.
- Linux running on iSeries, eServer Open Power, pSeries, xSeries, zSeries, eServer Blades, etc.
- IBM reports a good return on their Linux investment.
- IBM software available for Linux includes WebSphere, DB2, Lotus, Tivoli, Rational - over 300 packages at last count.
- IBM announced year 2005 "CICS for Linux" availability.



# Linux in Production

"Linux Means Business":

- Google.
- ISPs (Internet Service Providers).
- United States Postal Service (USPS).
- Schools, Colleges, Universities, etc.
- Financial institutions.
- Media companies.
- Automotive industry.
- A good "Linux in Business" site:  
<http://mtechit.com/linux-biz>



# Linux on the Desktop

- Running Linux exclusively on the desktop, with Slackware the preferred distribution.
- New laptops/desktops get Windoze partition shrunk, and Linux installed, usually in a matter of minutes!
- Vendors like EmperorLinux, Inc., focus on Linux on Laptops. More vendors probably would, if not for the "MS tax" ;-). Vendors like Penguin Computing, Inc., focus on Linux on servers and workstations.



# Linux on the Desktop

- Many different Linux distributions available. Choice is good. Choose what works best for you! I choose Slackware.
- Many open source and proprietary Linux applications are available. Whatever your need, there is probably a viable package available. For example, Adobe has an Acrobat for Linux download available, without source code, but many Linux distributions include the open source "xpdf" package to view PDF files.



# Linux on the Desktop

- Web browsers included with the Slackware 10.1 distribution include Lynx (text mode browser), Konqueror (with KDE), Mozilla, and Netscape.
- The next version of Slackware is scheduled to replace Mozilla with Firefox and Thunderbird.
- The Gaim Instant Messaging open source client is popular, and includes support for multiple protocols via modules, including AIM, Yahoo!, MSN, Jabber, IRC, Napster, Gadu-Gadu, and Zephyr.





# Linux on the Desktop

- "Office" applications include OpenOffice.org (recommended). KDE ("The K Desktop Environment") includes "KOffice Workspace" Office Suite. There are others - Google "linux office suites", for example.
- For work with z/OS, I utilize x3270, an excellent open source tn3270 client, with SSL/TLS support. For work in z/OS Unix System Services, or work with other Linux/Unix boxes, I utilize OpenSSH, ssh client (secure shell telnet). The OpenSSH package includes scp (secure copy), sftp (ftp client replacement), sshd (ssh daemon/server), etc.



# Linux on the Desktop

- "Groupware" (E-Mail, Calendaring, Collaboration, Tasks and Contact Management) applications include Evolution from Novell:  
<http://www.novell.com/products/desktop/features/evolution.html>
- Supported mail protocols include IMAP, POP, SMTP and Authenticated SMTP, as well as Microsoft Exchange 2000 and 2003.



# Linux on the Desktop

- To "try before you buy (into)" Linux, a recommendation is to try the KNOPPIX GNU/Linux distribution. Boot from the CD, to validate hardware detection, etc.
- All hardware components of the IBM ThinkPad T40 are working, including analog modem, USB, CD-RW/DVD, 1400x1050 display with ATI Radeon Mobility 9000 M9 graphics card, touch pad, sound card, 100/1000 ethernet card, Atheros wireless card, etc.



# Linux on the Desktop

- If you still need to run Windows apps, Linux can still be your primary OS, with easy access to these apps via a linux rdesktop client (<http://www.rdesktop.org/>), virtual infrastructure (commercial) software like VMware (<http://www.vmware.com/>), or QEMU, a generic and open source processor emulator (<http://www.qemu.org/>), or Wine, an open source implementation of the Windows API on top of X and Unix (<http://www.winehq.org/>).
- Others? (Bochs, an IA-32 emulator, Hercules, a S/390 and zSeries emulator.)



# Linux on the Desktop

- If you want to keep Windows as your primary OS (why? ;-), take a look at cygwin, <http://www.cygwin.com/>. "GNU + Cygnus + Windows = cygwin". Cygwin is a Linux-like environment for Windows. It consists of two parts:
  1. A DLL (cygwin1.dll) which acts as a Linux API emulation layer providing substantial Linux API functionality.
  2. A collection of tools, which provide Linux look and feel.
- Cygwin is not a way to run native linux apps on Windows. You have to rebuild your application from source if you want to get it running on Windows.
  - Cygwin is not a way to magically make native Windows apps aware of UNIX ® functionality, like signals, ptys, etc. Again, you need to build your apps from source if you want to take advantage of Cygwin functionality.



# Linux for Software Development

- Software development tools installed on the ThinkPad include IBM Software Evaluation Kit (SEK) for Linux, which contains trial code from IBM DB2®, Lotus®, Rational®, Tivoli®, and WebSphere® software:  
<http://www-128.ibm.com/developerworks/offers/linux-speed-start/>
- Also installed is Oracle PeopleSoft PeopleTools 8.44, which includes BEA WebLogic (web tier) and Tuxedo (application tier). IBM DB2 UDB for Linux is used for the database tier, for the PIA (PeopleSoft Internet Architecture) 3-tier environment.



# Linux for Software Development

- Most Linux distributions include binutils, with "as", the GNU portable assembler, "ld", the GNU linker, and other related utilities.
- Debuggers include gdb (GNU Debugger), and many others supplied with the various programming tools.
- Integrated Development Environments include Eclipse, now used extensively by IBM, among others.



# Linux for Software Development

- Compilers included with most Linux distributions include GNU C/C++, LISP, Ada, Java, Fortran, etc.
- Interpreted/scripting "languages" include Perl, Python, Java/JavaScript, Rexx, and scripting capabilities of shells such as ash, bash, csh, ksh, tcsh, and zch.
- UF CISE Dept. hosts a CPAN mirror (Comprehensive Perl Archive Network).
- Regina Rexx and Open Object Rexx (aka ooRexx).





# Linux for Devices

- <http://www.linuxdevices.com/> is a great embedded Linux resource. Everything from Linux mobile, VoIP, and smartphones, PDAs, robots, audio/video entertainment devices, tablets and web pads, networking devices, thin clients, and other smart devices, like the Citizen/IBM Linux WatchPad, etc.
- Various embedded Linux distributions/implementations (open source and commercial) are available. A mini Linux distro (BatBox) for the Linksys WRT54G wireless router is an interesting example. And then there's PeeWeeLinux :-).



# Summary

- Linux works very well for production IT services, is a very productive desktop and development environment, and is utilized by more and more device vendors.
- There are an incredible amount of resources available to assist the Linux newbie, or seasoned veteran.
- When it comes to operating systems, you really do have a choice. With Linux, you even get the source code! What's not to like?



# Summary

- "FLU meetings are held on the third Wednesday of each month at 6:30pm in room 240 of Rinker Hall and anyone with an interest is welcome. Food and beverage will likely follow once the meeting closes at some place near University Ave." FLU is the Florida Linux Users Group:  
<http://florida.linuxusers.org/>
- Linux Rocks!
- Thanks! Any questions?



# Appendix/Additional Information

- Association of Information Technology Professionals (AITP):  
<http://www.aitp.org/>
- AITP North Central Florida Chapter #298:  
<http://www.aitp-ncfl.org/>
- The University of Florida (UF):  
<http://www.ufl.edu/>
- UF Computing and Networking Services (CNS):  
<http://www.cns.ufl.edu/>



# Appendix/Additional Information

- Linux at IBM (and thanks for the penguin pins!):  
<http://www.ibm.com/linux>
- KNOPPIX GNU/Linux distribution:  
<http://www.knoppix.org/>
- Eclipse open extensible IDE:  
<http://www.eclipse.org/>
- OpenSSH (network connectivity tools):  
<http://www.openssh.org/>



# Appendix/Additional Information

- Bochs, an IA-32 emulator:  
<http://bochs.sourceforge.net/>
- Hercules, System/370, ESA/390, and z/Architecture Emulator:  
<http://www.conmicro.cx/hercules/>



# Presentation Information

- The Slackware Linux Project:  
<http://www.slackware.com/>
- OpenOffice.org 1.1.4 "Impress":  
<http://www.openoffice.org/>
- IBM ThinkPad T40 2379-D4U:  
<http://www.pc.ibm.com/thinkpad>

