

# Unix / Linux

## *Very Brief Introduction*

Dr. Wolfgang A. Gehrke

wgehrke@dia.uniroma3.it

Dipartimento di Informatica e Automazione

Università degli Studi Roma Tre

# Overview

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- General Context
- Operating Systems
- Try Yourself
- Some Applications
- Some Environments
- Some Commands

Valuable Information at:

English Wikipedia (> 2.045.000 articles)

Italian Wikipedia (> 358.000 articles)

# Context: Open Source

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**Closed Source but Free of Charge**

REAL freedoms for software: run the program for any purpose, study and modify the program, copy the program, improve the program

# Operating Systems

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**Linux** kernel 2.2, 2.4, 2.6

**Mac OS X** Panther, Tiger, Leopard

**Microsoft** Windows 2000, XP, 2003, Vista



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**Mac OS X** Panther, Tiger, Leopard

**Microsoft** Windows 2000, XP, 2003, Vista

**BSDs** FreeBSD, NetBSD, OpenBSD

**Solaris** from Sun Microsystems and OpenSolaris (ZFS)

**others** wide range from FreeDOS to  
Unixes (AIX, HP-UX, Irix)

# Linux Distributions

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**DamnSmall** 50MB LifeCD

**Debian** server and client

**Gentoo** compile from source

**KNOPPIX** LifeCD

**Mandriva** originally French

**RedHat** mainly server

**SuSE** originally German

**Ubuntu** commercial based on Debian

**many more**

# Give it a try!

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WinApp Cygwin, MinGW

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**LifeDistro** boot from CD/DVD (KNOPPIX), floppy  
(e.g. some router/firewalls), USB flash drive  
(Mandriva)  
without installation on the hard drive

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## Virtualization

1. VMware directly on hardware
2. VirtualBox host and guest
3. XEN paravirtualization for Linux

# Applications

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- Emacs (editor)
- GCC, GDB, C libraries (GNU and FSF)
- GIMP (similar to Adobe Photoshop)
- Mozilla (Firefox, Thunderbird)
- OpenOffice (similar to Microsoft Office)
- T<sub>E</sub>X and L<sup>A</sup>T<sub>E</sub>X (typesetting)



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- T<sub>E</sub>X and L<sub>A</sub>T<sub>E</sub>X (typesetting)
- Adobe Reader, Flash Player
- Opera
- QuickTime, RealPlayer
- Safari

# IDE

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## Integrated Development Environment

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**Integrated Development Environment**

**Emacs** extensible editor mainly on Unix

**Eclipse** Java based with many plugins

**NetBeans** developed by SUN

**Visual Studio** Microsoft Windows platform

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Eclipse advantages:

- Java and JVM
- many supported languages
- several platforms

# Commands

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**cat** **<file>** *also* more **<f>** *and* less **<f>**

**chmod** **<options>** **<DoF>** user, group, others

**cp** **<source>** **<destination>**

**ls** **[-a]** **[-l]** hidden entries start with “.”

**man** **<command>** *also* apropos **<command>**

**mkdir** **<dir>** *also* touch **<DoF>**

**mv** **<source>** **<destination>**

**ps** state of current processes

**pwd** *also* cd **<dir>** *from shell*

**rm** **<file>** *also* rmdir **<dir>**

# Shell

```
cd [dir]
command1 && command2      command1 || command2
(list)    { list; }
((expression))    [[expression]]
for name [ in word ] ; do list ; done
for (( expr1 ; expr2 ; expr3 )) ; do list ; done
select name [ in word ] ; do list ; done
case word in [ [(] pattern [ | pattern ] ... ) list ;; ] ... esac
if list; then list; [ elif list; then list; ] ... [ else list; ] fi
while list; do list; done      until list; do list; done

VARIABLES: v=val  read v  export v  echo $v
REDIRECTIONS: < > «word » | (PIPE)
JOBS: bg  fg  kill
```