



FreeBSD is not a Linux distribution

PHILIP PAEPS
PHILIP@FREEBSD.ORG

PHILIP@FREEBSDFOUNDATION.ORG

Who am I?

Kernel hacker and conference organiser repeat-offender

Consultant -

- Device drivers
- Real-time operating systems
- Electronics / wireless
- Professional paranoid

Director of the FreeBSD Foundation





What is FreeBSD?

Complete Operating System

Tools and source code

More than 24,000 3rd party open source software packages

Complete documentation

An open source community





Who uses FreeBSD?

NetApp WhatsApp

Dell/EMC/Isilon Juniper Networks

Dell/KACE Verisign

Panasas Perseus Telecom

Apple Sony

Limelight Networks XipLink

Swisscom McAfee

Sentex NYI

Microsoft Yahoo





Why use FreeBSD?

Innovation

Great tools

Mature release model

Excellent documentation in many languages

https://www.freebsd.org/doc/zh_CN/books/handbook/

Business friendly licence

Open community





FreeBSD 使用手册

FOMBED 使用于等

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FreeBSD 使用手册

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The PreeBSD Documentation Project
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BSD history: 30+ years in 3 minutes

Chaos reigned

MULTICS

UNIX(Bell Labs)

Berkeley Tools tapes

ex/vi

Pascal compiler

Tools for UNIX

CSRG, DARPA and the Internet

Removal of last bits of AT&T code

Rewrite of all non open source

code

386BSD

BSDi

AT&T lawsuit

BSD is free!





Flavours and branch dates

NetBSD Broad platforms support (1993)

FreeBSD Rock Solid Performance (1993)

OpenBSD Security (1996)

PC-BSD Desktop (2006) (now TrueOS)





Produce a whole system

Operating system

Device drivers

Compilers and associated tools

Debugging tools

Editors

Packaging system

Ready for coding when install is done





Filesystems

UFS

- Traditional Unix filesystem
- High performance
- Snapshots
- Journaled Soft Updates

ZFS

- Zetabyte filesystem
- Volume manager
- RAID
- Fully up to date in FreeBSD





Security features

Jails

Light weight VM

MAC and Audit frameworks

Capsicum

- Capabilities for UNIX
- Sandboxing





Innovative compiler technology

LLVM/Clang

LLD

LLDB

Complete replacement for gcc/g++

Moving compilers into the 21st Century





DTrace

Complete system transparency

See inside any call or return

System calls

Disk, NFS, networking subsystems

DTraceToolkit





Networking

Pluggable TCP stacks

- BBR (latest from Google)
- RACK
- CUBIC
- NewReno

IPFW and PF and Dummynet

netmap

VALE

VXLAN





Virtualization

Ready to use images

- VMWare
- Virtual Box
- o qemu
- HyperV

bhyve

- Native hypervisor
- Runs Linux, Windows and FreeBSD images
- Also used on Mac OS (xhyve)
- BSD Licensed





More new features

Scaling

- More Cores
- Queues
- NUMA

ARM64

MPTCP

DCTCP

BBR (the latest in TCP congestion control)

SecureBoot/UEFI





How the Project works

Democratically elected core team

Mentorship for commit bit

Hats

We have no dictator





Becoming a committer

Join the mailing lists

Clone or checkout the code

- o svn.freebsd.org
- o github/freebsd

Submit patches or reviews.freebsd.org

Get a mentor

Get proposed to core@

Granted a commit bit (all commits ReviewedBy)

Be freed from mentorship

Find a mentee





The BSD licence

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BSD licence vs. GPLv2

226 words

Open

Unrestrictive

Not viral

2968 words

Restricts what you can do with your own code

Viral





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