FreeBSD is not a Linux distribution

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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

Dell/EMC/Isilon

Dell/KACE

Panasas

Apple

Limelight Networks

Swisscom

Sentex

Microsoft

WhatsApp

Juniper Networks

Verisign

Perseus Telecom

Sony

XipLink

McAfee

NYI

Yahoo

FreeBSD

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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

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FreeBSD 使用手册

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!

FreeBSD

FreeBSD FOUNDATION

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

FreeBSD

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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
- 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

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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
- svn.freebsd.org
- github/freebsd

Submit patches
- reviews.freebsd.org

Get a mentor

Get proposed to core@

Granted a commit bit (all commits ReviewedBy)

Be freed from mentorship

Find a mentee

FreeBSD

The BSD licence

```
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 */
```

GPLv2

BSD licence vs. GPLv2

226 words

Open

Unrestrictive

Not viral

2968 words

Restricts what you can do with your own code

Viral

Learn more about FreeBSD

Website: www.freebsd.org

FreeBSD Foundation: www.freebsdfoundation.org

GitHub: github.com/freebsd

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FreeBSD Handbook

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