Recent and Forthcoming FreeBSD Releases

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W3 Servers

IRELAND (November 1993)

CURIA Irish Literature archive

IEunet Networking Information regarding Ireland, and Links to the rest of Europe.

Trinity College Dublin Dept of Mathematics

IONA Technologies Ltd. info about their Object Request Broker software product and some bits and pieces of Irish news

The University of Limerick Information on Natural Language Processing and some research projects in the Department of Computer Science and Information Systems. (Not using http yet)

Plan

- How the FreeBSD project runs.
- How our releases are structured.
- How we got to FreeBSD 7.
- FreeBSD 7.1 and 7.X.
- What's to come next.

A bit about me

- Work in Hamilton Institute NUI Maynooth.
- Background in maths and sysadmin.
- About 1995 wanted to build xterms.
- Looked at cheap ways of doing it.
- Found FreeBSD.
- Got involved in bugfixing.
- In 2000 became a committer.

The Blurb

FreeBSD is an advanced operating system for modern server, desktop, and embedded computer platforms. FreeBSD's code base has undergone over thirty years of continuous development, improvement, and optimization. It is developed and maintained by a large team of individuals. FreeBSD provides advanced networking, impressive security features, and world class performance and is used by some of the world's busiest web sites and most pervasive embedded networking and storage devices.

FreeBSD Project Structure

- Users (unknown number).
- Contributors (thousands?).
- Committers
  - doc: 54,
  - ports: 157,
  - src: 204.
- Elect or coopt various special groups
  - bug busters,
  - core,
  - security team,
  - . . .

FreeBSD Releases

- The most recent version of FreeBSD is -current.
- Take branches off that to perform releases from.
- When happy with recent branch it is called -stable.
- But branches are labeled 3.X, 4.X, 5.X, 6.X, 7.X.
- In theory, a release is a point on one of the branches.
- Old stable branches are maintained.

FreeBSD Releases

The big changes.

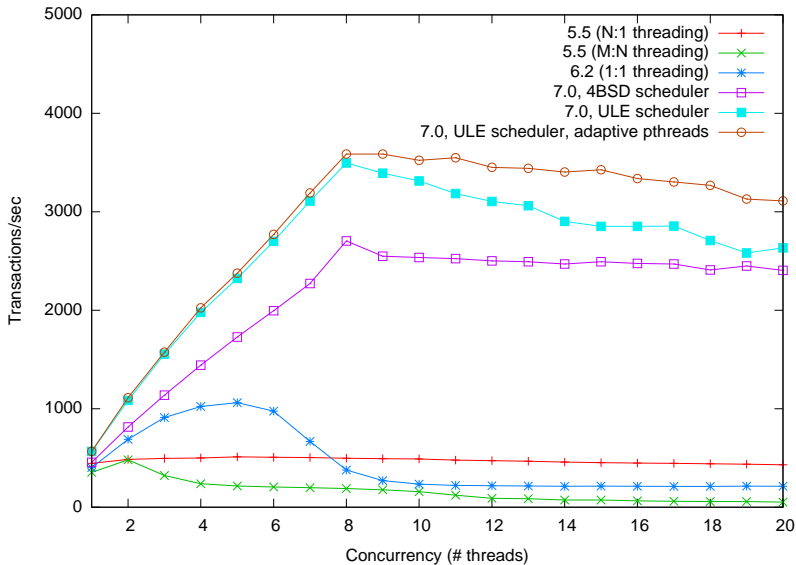*FreeBSD 3.0 – 3.5* October 1998 – June 2000:
CAM, ELF, SMP, . . .

FreeBSD 4.0 – 4.11 March 2000 – Jan 2005:
Jail, IPv6, . . .

FreeBSD 5.0 – 5.5 January 2003 – May 2006:
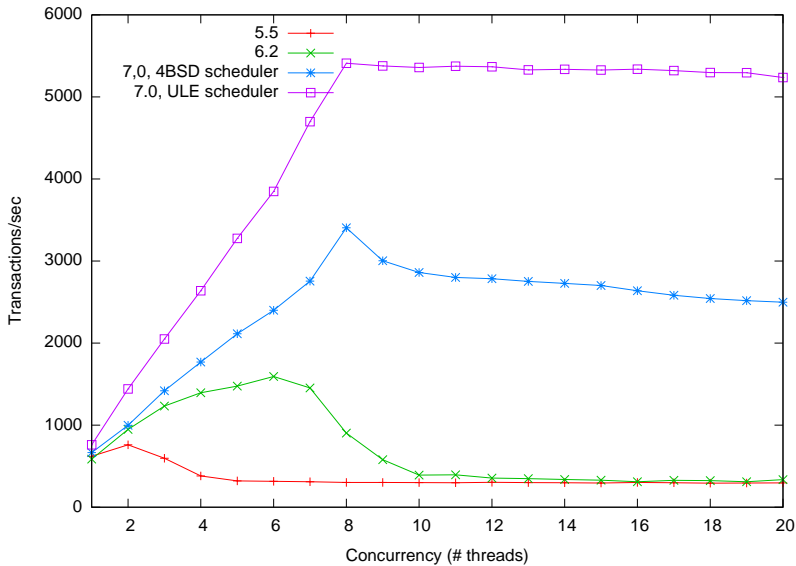SMPng, new threads model, . . .

FreeBSD 6.0 – 6.4 November 2005 – November 2008:
Stabilize and extend kernel locking.

FreeBSD 7.0 – 7.1 February 2008 – January 2009:
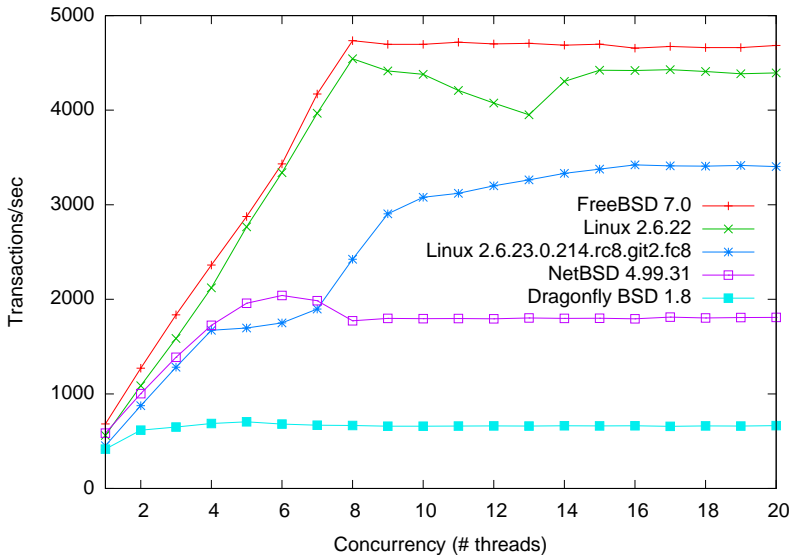Getting it all tuned.

MySQL sysbench on 8-core opteron

PostgreSQL sysbench on 8-core opteron

PostgreSQL sysbench on 8-core xeon

Back to 7.0

- ZFS,
- malloc,
- faster UFS, NFS, . . .
- Auditing framework,
- faster CAM, iSCSI initiator,
- socket buffer sizing,
- SCTP,
- BPF JIT,
- link aggregation, fast spanning tree, TSO, LRO, 10Gbps drivers, . . .

So, what's in 7.1?

- DTrace,
- Multiple routing tables,
- Binding processes to CPU(sets),
- Tuning of TCP/UDP and Raw socket performance,
- Kernel based NFS locking,
- More ethernet drivers (ale, age, ae, jme, et, igb/em split, ndis improvements),
- More WiFi support (malo, wpi improvements, . . .),
- Other drivers (cmx smartcards, uslcom, glxsb crypto driver)

Random selection of other stuff in 7.1

- ddb scripts and capture,
- textdumps,
- ethernet improvements (autoneg, WoL, . . .),
- more SCTP/BPF/ipfw refinements,
- bigger faster dummynet,
- ASUS EeePC support,
- traceroute -a, ping6 -R, ping -o, traceroute6 -N,
- more malloc tuning,
- resolver allows underscores.

Imported Software

- OpenSSH 5.1p1
- amd 6.1.5,
- BIND 9.4.2-P2,
- bzip 1.0.5,
- CVS 1.11.22.1,
- file 4.23,
- less 4.1.6,
- ncurses 5.6-20080503,
- ntp 4.2.4p5,
- sendmail 8.14.3,
- Gnome 2.22,
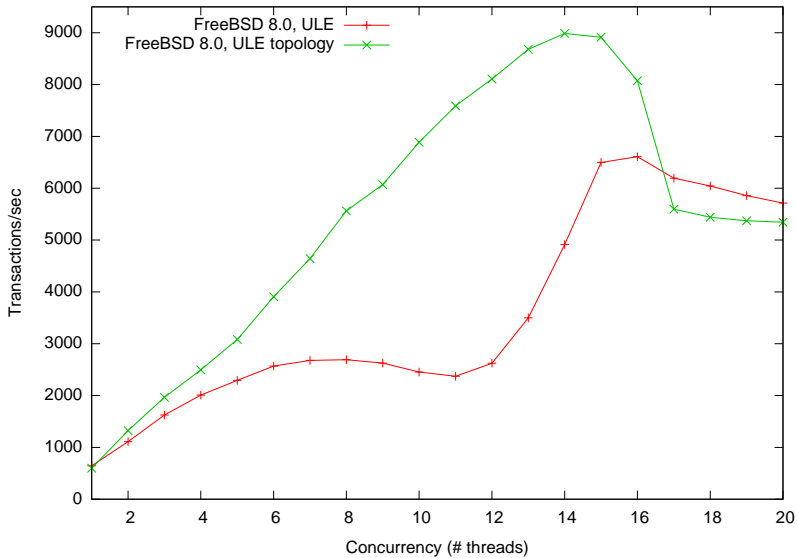- KDE 3.5.10.
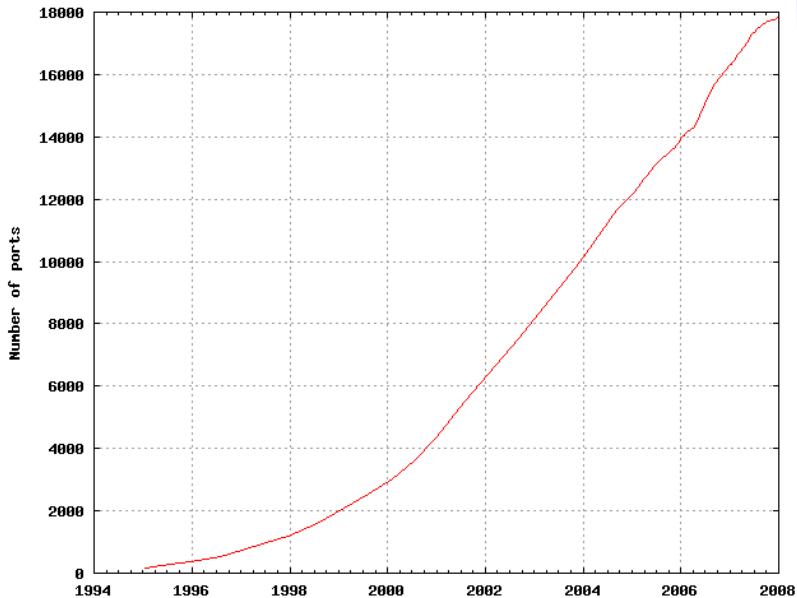
What's coming?

7.2

- yet more tuning,
- multi-IPv4/IPv6/SCTP jails,
- OS HAL for ath driver,
- cpucontrol.

8.0

- vimage,
- zero copy BPF,
- new USB stack,
- TCP improvements (pluggable CC),
- better boot0 for USB/PXE/...,
- better xen support, superpages, ULE topology stuff, ...

pgsql sysbench on 16-core xeon (4 cores/package)

FreeBSD 8.0, ULE
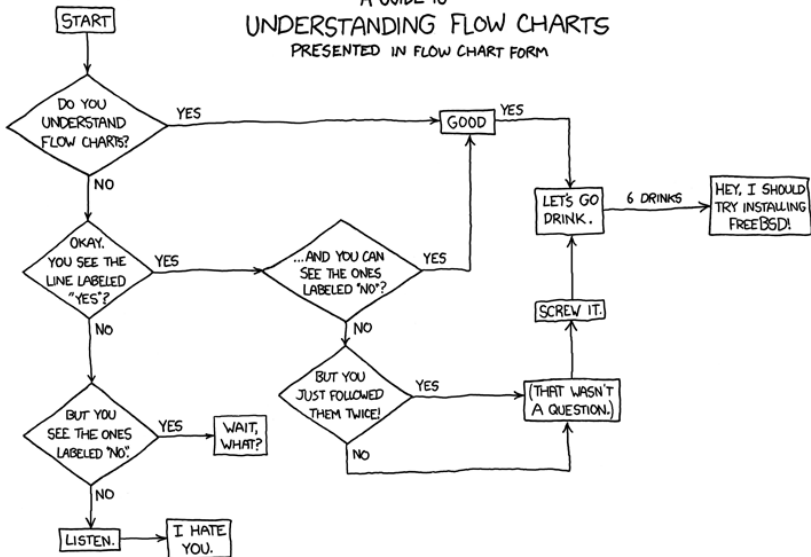FreeBSD 8.0, ULE topology

Other stuff I haven't mentioned

- GEOM (gjournal, gvirstore, gmultipath),
- Architectures (sun4v, arm, mips, ppc),
- Linuxulator,
- Superpages,
- MAC,
- Capabilities.

Finding out more

- Mailing lists `freebsd-stable@FreeBSD.org`
- Web pages `http://www.FreeBSD.org/`
- Forums `http://forums.FreeBSD.org/`
- YouTube FreeBSD channel.
- EuroBSDCon 2009, 18-20 September.
- Also FreeSBIE and PC-BSD.