

The Debian GNU/Hurd operating system

and a short history of everything 2.0

Lightning Talks KunterBuntesSeminar WiSe12

Justus Winter <4winter@informatik.uni-hamburg.de>

Universitaet Hamburg - Fachbereich Informatik

2012-01-26

©Justus Winter

This work is licensed under a Creative Commons Attribution-ShareAlike 3.0

Unported License. See appendix for more details.

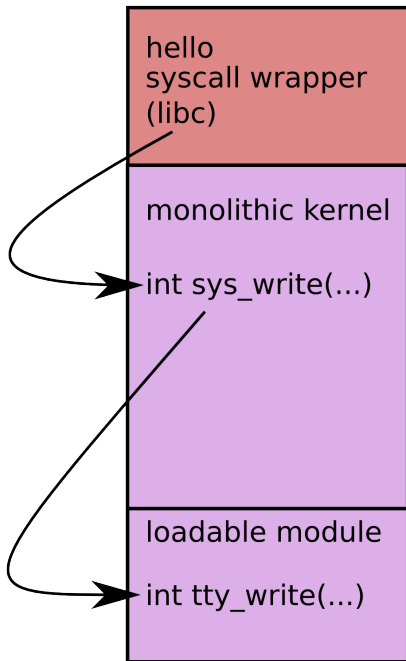
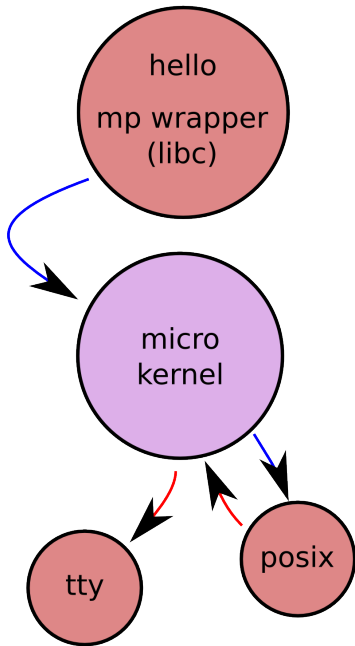
<http://creativecommons.org/licenses/by-sa/3.0/>





WIN GIERRE
L -
N PASS





When you're doing something wrong, like accessing memory that isn't mapped. . .

- in userspace you will get a SIGSEGV that you can handle if you wish
 - or you can choose to ignore it and die
 - or you can inspect the process with gdb
- in kernelspace you will get. . .

< Your System ate a SPARC! Gah! >

 \ ^ ^
 \ (xx)_____
 ()_____)\/\
 U ||----w ||
 || ||

sshd (pid 19569): Protection id trap (code 27)

YZrvWESTHLNXBCVMcbcbcbcb0GFRQPD1

PSW: 00000000000001101111110100001111 Not tainted

r00-03 00000000 10435a40 101820e4 1d9cfba0

r04-07 00000001 0007d0a8 000000c9 1d9cfba0

r08-11 00000000 0007d0b0 00000001 ffffffff2

r12-15 0006ba00 00068c04 0004d800 0006a404

r16-19 00068c04 0006a404 0006b404 00000001

r20-23 00000001 00000003 0007d0ae 1d9cfbae

r24-27 00000000 00000001 1be099e0 10347010

r28-31 00000001 00000004 1de90140 10181ec8

sr0-3 00000000 0000027e 00000000 00000280

sr4-7 00000000 00000000 00000000 00000000

IASQ: 00000000 00000000 IA0Q: 101821b4 101821b8

IIR: 0ed3d240 ISR: 00000280 IOR: 0007d0ae

CPU: 0 CR30: 1de90000 CR31: 103d4000

ORIG_R28: 0006a404

IA0Q[0]: sys_poll+0x1f4/0x214

IA0Q[1]: sys_poll+0x1f8/0x214

RP(r2): sys_poll+0x124/0x214

Userspace
The Hurd
gnumach



features that Hurd gives ⁷ you **by design**

feature	linux equivalent	status	available since
uspace networking	tun/tap	awkward ¹	in teh 90ies TM
uspace vpn	tun/tap	cheating ²	e.g. tinc 1998
uspace fs	FUSE	buggy ³	2.6.14 2005-10-28
debug	KGDB	→ same host ⁴	2.6.26 2008-07-13
containers	lxc	incomplete ⁵	2.6.29 2009-03-23
no global locks	no BKL	done	2.6.39 2011-05-18
uspace drivers	not really ⁶	?	?

¹needs root to setup

²uses tun/tap

³security issues, unprivileged user can dos the system

⁴can only debug stuff from another machine

⁵root inside a lxc container can escape / harm the host

⁶well, there is cups, sane, libusb

⁷theoretically, ymmv ;)

current status and outlook

- the Debian installer is working :)
- native random translator
- smp support is coming (again...)
- 70% of all debian packages, trying to release a technology preview with Debian Wheezy like the kFreeBSD people did with Squeeze
- loads of stability fixes
- join #hurd on freenode - you'll find friendly and intelligent people there
- ... watch out for a Hurd of wild GNUs...



References and license

- This talk and my diagrams are licensed under the terms of the Creative Commons Attribution-Noncommercial-Share Alike 3.0 Germany License
<http://creativecommons.org/licenses/by-nc-sa/3.0/de/>
- I found the photos on Wikimedia Commons :)
 - Linus Torvalds: Paul Fenwick, cc-by-sa/2.0
 - Richard Matthew Stallman: Jérémie Zimmermann, cc-by-sa/2.0/fr
 - Andrew Stuart Tanenbaum: GerardM, cc-by-sa/3.0
 - Hurd of gnus: Copyleft, cc-by-sa/2.5

live demo!!!!11elfelfeins