Rump Kernels, Just Components
FOSDEM 2014

Antti Kantee <pooka@fixup.fi>
@anttitkantee

Fixup Software Ltd.
rump kernel CANs ...

... driver container
... unmodified NetBSD kernel drivers
... runs anywhere
... interconnection agnostic
... component-oriented
... application interfaces
... any other interfaces
rump kernel CANNOTs ... 

... execute programs
... create/modify vm spaces
... deal with privileged instructions
... schedule/preempt threads
original focus: \textit{kernel development}

\Rightarrow

\textit{run-anywhere driver+app stacks, shoehorn into them as you please}
so !policy

rump kernels ...

... run when called
... are indifferent to vm
... do not use privileged instructions
... use host threads

very integration
tick tock

1: anykernel
2: hypercalls
platform hypercalls:

any machine architecture (ISA)

posix (and javascript)
linux kernel
xen
i/o hypercalls: networking

dpdk
netmap
snabb switch
tap
tap'ish
xen
i/o hypercalls: block devices

read/write

aio

xen
be lazy
do not be lazy!
too little is less than more
coding is easy

(disclaimer1: making it work is hard)
(disclaimer2: keeping it working is also hard)
Lester says:

*test or die*
contributions, always wanted

use, give feedback
contribute to NetBSD
fund/develop: e.g. tcp/ip or zfs
http://rumpkernel.org/

https://github.com/rumpkernel/

#rumpkernel (irc.freenode.net)
rumpkernel-users@lists.sourceforge.net
@rumpkernel