Harvey OS
Glenda and the Gopher Rejoin

Daniel Maslowski
Agenda

- Introduction
- Plan 9
- Harvey
- u-root
Introduction
Hello, I am Daniel :-)  

Work and education  
- IT security and computer science  
- software engineer  
- infrastructure and web  
- applications and UI  

Open Source contributions  
- hardware and firmware  
- operating systems  
- software distributions  
- reverse engineering
Plan 9 from Bell Labs

Plan 9 is a distributed operating system.

developed by the Unix people
under a free license since 2002

It brought us Unicode, the 9P protocol, and innovation in user interfaces.

wmii, on which the popular i3 window manager is based, stems from Plan 9 ideas.

http://dlc.casita.net/~dlc/vp9cb/04_P9Server.utf8.html
Forks and derivatives

9atom
9front
9legacy

http://man.postnix.pw/9atom/3/intro
https://comp.os.plan9.narkive.com/t9PiG7a0/9atom-vs-9front

Plan 9 README

Grid Computing with Plan 9

Why Some Dead OSes Still Matter

Systems Software Research is Irrelevant
Forks and derivatives cont.

- NIX
  - partitioned many-core systems
- Akaros
  - research system at Berkeley, user-space VMs, can run Linux
- Harvey OS
  - started from a NIX kernel and the LSUB release of Plan 9
- JehanneOS
  - uses Harvey’s build system
- Inferno
  - Limbo programming language
On a phone

Hellaphone by Floren et al

Android replaced by Inferno
Harvey OS
A distributed operating system

- 64-bit OS
- based on Plan 9
- suitable for studying and research
- Unix philosophy: simplicity, clarity, modularity and composability

https://harvey-os.org/
Building

https://github.com/Harvey-OS/harvey/wiki/Building-Harvey

```bash
git clone https://github.com/Harvey-OS/harvey
cd harvey
./bootstrap.sh
CC=clang ARCH=amd64 ./linux_amd64/bin/build
```
Booting

QEMU

```
HARVEY=$(pwd) ./util/GO9PTERM
```

Real Hardware :)
https://github.com/Harvey-OS/harvey/wiki/Booting-Harvey-on-real-hardware-II-(USB)#preparing-the-usb-dongle-1
Impression

```

/sys/src/sysconf.json
/sys/src/test
 terme 3
/sys/src/spatches

/sys/src/test
term p /sys/src/sysconf.json
{
  "Bootmethods": [
    {"Arg": ":",
     "Config": "configtcp",
     "Connect": "connecttcp",
     "Name": "tcp"
    },
    {"Arg": ":",
     "Config": "configrc",
     "Connect": "connectrc",
     "Name": "rc"
    },
    {"Arg": ":",
     "Config": "configlocal",
     "Connect": "connectlocal",
     "Name": "local"
    }
  
  "SyscallBase": 1024,
```
u-root
A universal root filesystem

- many small tools
- all open, meant for studying and understanding
- easily portable
- written in Golang

https://u-root.org/
Getting u-root into Harvey

commit 88cd7c2dde2810e50e918c009691b5afd33204dc
Author: Ronald G. Minnich <rminnich@gmail.com>
Date: Wed Sep 2 08:36:21 2020 -0700

Build in u-root support

This change builds in u-root support. u-root is no longer optional.

Images will now be larger, but you will get a lot of benefit.

The build now includes ALL of amd64/bin -- ed, sam, rio, acme, -- all of it.

patch (excerpt)
Now what?
Have a closer look!

https://harvey-os.org/