

Chromium OS  
An Interesting Place to Visit.  
Not sure if you'll want to  
stay

by Aaron Grothe

# Introduction

If you have questions/comments please feel free to ask them anytime. You don't have to hold them until the end of the talk.

Hopefully this will be an interactive and productive session.

# What is Chromium OS?

Is it related to Chrome?

It uses the Chromium browser extensively. Chromium is the Open Source version of the Google's Chrome Browser

Is it related to Chromebooks?

Chromebooks run Google's Chrome OS

Is it related to Chrome OS?

Chromium OS is the Open Source version of Google's Chrome OS

# How is it Different from Chrome OS?

You can build your own version of Chromium OS

Lose verified boot

You lose access to some proprietary components that Chrome OS has such as Flash, Netflix support, etc.

Typically to get Chrome OS you need to buy a Chromebook or Chromebox from Google

No warranty, No Google support, No automatic updates :-)

# Two Paths

There are three groups Chromium OS might interest

#1. People who want a free/open version of Chrome OS to repurpose older Laptop/Desktops or see if they might be able to get buy with a Chromebook

#2. People who are interested in the inner workings of a Google version of Linux and the build/support environment of it

#3. People who are interested in both of the above

# Why is it Interesting?

Lets you see how far you can get with just a browser :-)

Separate partitions for OS and your data. Designed to make it easier to update your OS without affecting data

Uses Chromium for the browser so it uses Google's sandboxing code

Provides a complete working system. It is pretty easy to build the system

Peek at how Google does some things

# Peek at the Kernel

Kernel config file is located at

```
~/chromiumos/src/third_party/kernel-next/chromeos/config
```

Chromium OS Security Module:

```
~/chromiumos/src/third_party/kernel/files/security/chromiumos
```

# What does it take to build?

Need a system that meets the following minimum requirements

X86-64 Linux system (Ubuntu preferred, but works on most Linux systems)

4 Gb of Ram - could possibly get by with less with swap, but your quality of life would probably be less

Disk space - last build for me took 24Gb - this was all source code and VM and USB images

Several hours to build - on my quad core it was about 3 hours



# Lets fire up "my" Build

Lets fire up the version of Chromium OS that I built  
Saturday morning

This it running on my Asus EEE PC

# Is Chromium OS for Me?

If you're running Trisquel on your home machine. Probably.

If you're looking for an OS to recycle an old laptop or desktop PC, maybe

If you're looking for an OS to play with. There have been rumors of a group that is working on putting Firefox OS from phones onto Chromium OS and making a kind of Desktop OS

# What are you Doing with This?

Used it to recycle my old ASUS EEE PC. I retired Maemo off of the machine :-)

Built a small USB stick with several extensions I wanted from the Chromium store. Have it to use as an emergency USB stick. Unfortunately Chromium OS requires the stick be writable

Thinking about putting it on a USB stick and using it on my parent's computer for when XP support ends in April

# Why I might not Want This

There really isn't a "stable" version. You are pulling from the git repo and the quality can range from outstanding to doesn't work

No flash, netflix, 3g/4g support, etc. Some of these can be installed by the user

Your hardware might or might not support Chromium OS

# What does it Run On?

Take a look at some of the "supported" systems in

`~/chromiumos/src/overlay`

"Mario" names map to Google Chrome devices

Mario - Cr-48, Link - Pixel and so on

Way to keep your Cr-48 running latest Chrome OS

Generic x86 and x86-64 machine definitions

Note: There is a build script for the Raspberry Pi

# Does it work on the Raspberry Pi?

Yes and No

It will boot, but it is painfully slow. Remember the Pi only has 512Mb of Ram and a 700mhz cpu. The base build also doesn't use any hardware acceleration for the graphics

Hexxeh was doing some work with this but has stopped recently. Not sure if it will ever work well on the Pi

# Hexxeh?

Hexxeh was one of the first people to offer pre-built images of Chromium OS. He created several versions of it over time. Some of them had enhancements such as flash, java etc. He gave these names like Flow, Lime, etc

He also created stock builds which were named zero and then vanilla

He is now interning at Google working on Chrome OS

His last builds of Vanilla (from April) are still available on his website

# Things I wish I had known

Add Google's DNS servers 8.8.8.8 and 8.8.4.4 to your resolv.conf file had weird DNS timeouts during build before this

Have plenty of disk space. Every image is about 4Gb - my current setup is using over 24Gb of space with one qemu image

Expect your ISP to kill/throttle your connection occasionally you're pulling a lot of data from google when you start

Increase your open file limit from 1024 if it is set to that by default



# More Things I wish I had known

The current version does not support building VirtualBox images. You can try use the `-format=VirtualBox` option in the `build vm` script but `VBoxManage` isn't in the `chroot'd` environment

# Things I'd Like To See

Cannot use Chromium OS with a read only USB stick. Assumes the installation is broken and tries to fix it over and over. COW ram filesystem would be nice

The build system is interesting but it still has some issues. Seems to be rebuilding a lot of stuff every time you kick off a build. Would prefer to see it move to a system like cmake

Would like to see community do a semi-supported version of Chromium OS, similar to how some of the distros support the Chromium browser

# Summary

Google's Samsung Chromebook is usually the top selling laptop on Amazon. Engadget mentions that Chromebooks have captured 20-25% of the under \$300.00 laptop market in the United States

Chromium OS is a cool way to try out and see if a Chromebook might work for you or your parents

It also gives you an example of a complete system that can be rebuilt from source

Q & A

Questions???

# Links

Hexxeh's Chromium OS page

<http://chromeos.hexxeh.net/>

Google's Chromium OS homepage

<http://www.chromium.org/chromium-os>

# Links (continued)

Chromium OS Quick Start Guide

<http://www.chromium.org/chromium-os/quick-start-guide>

My article on HowtoForge on making an almost Chromebook  
(old)

<http://www.howtoforge.com/how-to-make-your-own-almost-chromebook>