

# Firefox OS Architecture - Terminology

- Gaia – the user interface of b2g, written in HTML, CSS and JavaScript
- Gecko – application runtime, implements Web stack
- Gonk – lower-level of b2g, consist Linux kernel and HAL (libusb, BlueZ ..). Simple Linux Distribution

# Booting

- After turning on a b2g phone, execution starts on primary bootloader
- From there the process is usual to Linux – bootloaders bootstrap the next loader in the chain
- At the end of of the process, execution is handed off to the Linux kernel
- First show splash screen
- Different protocols – fastboot, odin

# Kernel (Linux)

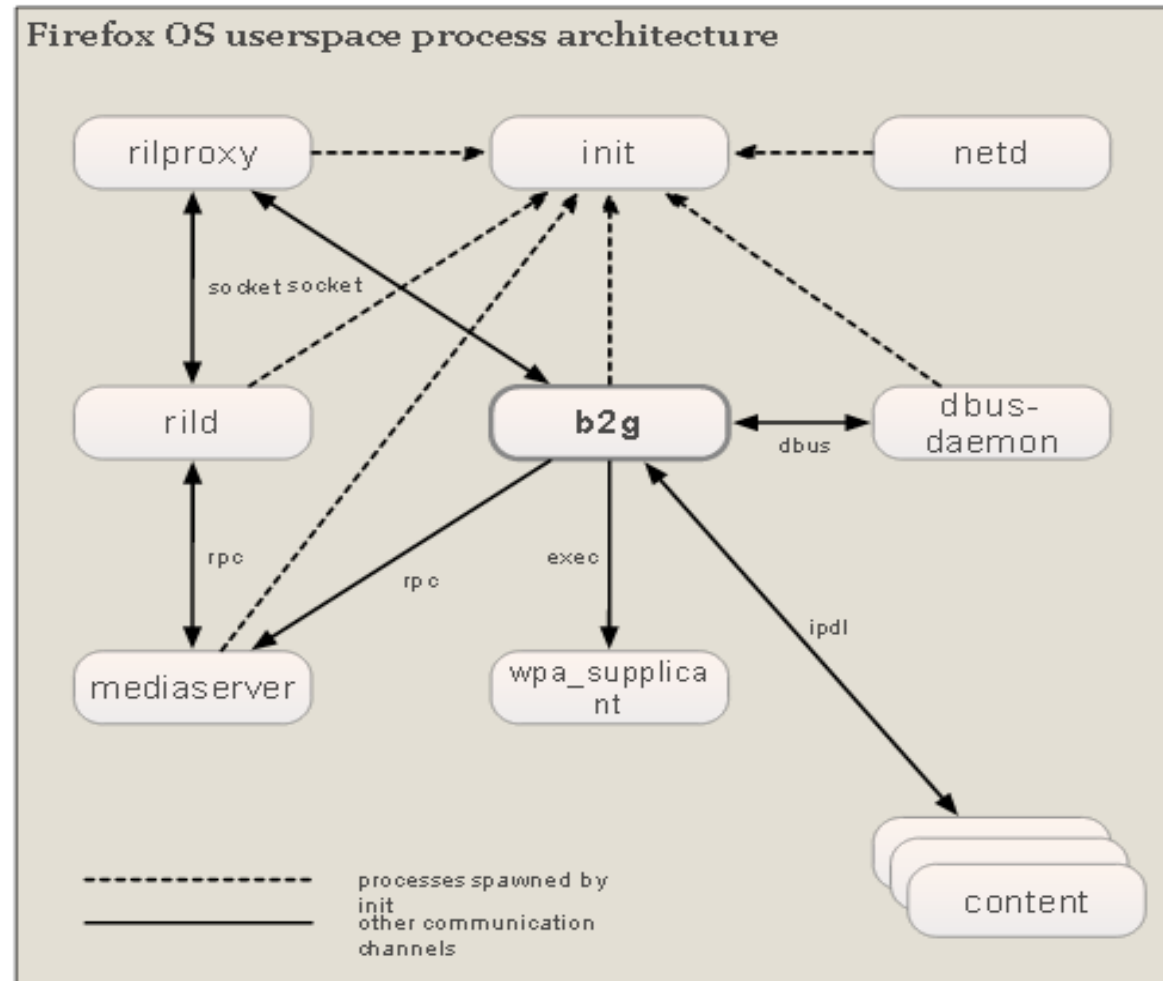
- The Linux kernel is Gonk
- Close to stock
- At the end of kernel startup, a userspace “init” process is launched
- After init process, Linux kernel services system calls from userspace and interrupts

# init process

- Handles mounting the require file systems
- Spawns system services
- After that, it stays around to serve as process manager
- It interprets scripts (init\*.rc files) that consists commands describing what should be done to start various services
- Firefox OS init.rc is typically the stock Android init.rc

# Userspace process architecture

- High-level look at how the various components of Firefox OS fit together and interact with one another.



# b2g

- Spawn number of low-rights content processes
- These processes are where web applications and content loaded.
- Communicate with the main Gecko server process through IPLD, a message-passing system

# rild

- Interface to the modem processor
- Daemon that implements the Radio Interface Layer (RIL).
- Piece of code that's implemented by the hardware vendor to talk to their modem hardware

# rildproxy

- rild client is the rildproxy process
- This acts as a forwarding proxy between rild and b2g



# mediaserver

- Controls audio and video playback
- Gecko talks to it through an Android Remote Procedure Call (RPC) mechanism.
- Some of the media that Gecko can play are decoded by Gecko and send directly to the mediaserver process.
- Other media files are decoded by libstagefight which is capable of accessing codecs and hardware encoders

# netid

- Used to configure network interfaces

# wpa\_supplicant

- Standard UNIX-style daemon that handles connectivity with Wi-Fi access points

# dbus-daemon

- The dbus-daemon implements D-Bus, a message bus system that Firefox OS uses for Bluetooth communication

# Gecko

- Implementation of Web standards
- Implement everything that user sees
- Most action inside Gecko is triggered by user actions. These actions are represented by input events.
- These events enter Gecko through the Gonk implementation of `nsIAppShell`

# Hardware Abstraction Layer

- One of the porting layers of Gecko
- Handles low-level access to system interfaces across multiple platforms using C++ APIs
- These APIs are implemented on a per-platform basis inside the Gecko HAL itself
- This hardware abstraction layer is not exposed directly to JavaScript code in Gecko