

All types of wireless in Linux are terrible and why the vendors should feel bad

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Who Am I?

Peter Robinson

Linux user since 1996

Arm Linux since ~ 2010

Red Hatter since 2012

Red Hat lead of Device Edge and IoT since 2016

Why am I talking about Wireless

Maintainer of linux-firmware in Fedora

Maintainer of aarch64 kernel in Fedora

Working on numerous Edge and IoT devices

Enabling 100s of Arm / Edge / IoT devices with
upstream Linux / generic distros

What is this talk?

Not a rant

A discussion

The Linux wireless experience is not pleasant!

The “main” wireless vendors/drivers

iwlwifi - Intel

brcmfmac - Broadcom/Infineon(Cypress)/Synaptics

mwifiex - Marvell/NXP

rtlXXXX - Realtek

athXXk - Qualcomm

mt7xxx - Mediatek

iwlwifi

Used to be the “best wifi for linux”

Bluetooth firmware updates regularly break WiFi

“But it’s fixed in -next”

Err, but it’s rc1 so it won’t be fixed in stable releases for ~ 6 months?!?!

Regularly stop supporting older devices for CVEs

brcmfmac

The “ménage à trois” of WiFi

AKA the Good, the Bad and the Ugly!

Broadcom sold to Cypress, then again to
Synaptics

Good: Cypress updated firmware regularly, now
part of Infineon they’ve gone quiet.

Bad: Broadcom “every time we update firmware
we need to speak to legal”

Ugly: Synaptics “We don’t sell to Linux vendors so
we don’t have to support firmware on Linux”

Terrible: Bluetooth!!

mwifiex

Old HW support only

Sold the IP to NXP but Marvell is still producing
new IP

Forks of similar but not the same
NXP modules not supported upstream

Similar to the prior trio of HW IP

rtlwifi

More hardware, more drivers tossed into staging

Newer rtw88/89 improving but only PCI

Still no firmware for a lot of the modules

No drivers, not even in staging for a lot of SDIO

Firmware regularly regresses stable kernels

athXX and mt7xxx and others

Firmware regularly regresses stable kernels

Firmware regularly just crashes for things like WPA3, 5Ghz, if you look at them the wrong way

How do we fix these?

How do we fix issues with vendors?

How do we encourage them to care about general Linux users for stability and vulnerabilities?

How do we remove the terrible “Stockholm syndrome” with Linux wireless?