DAILY BLOGGING EMBEDDED GECKO DEVELOPMENT

FOSDEM'24
FOSS on Mobile Devices Devroom

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3rd February 2024

SAILFISH OS

ABOUT ME

1. Software Engineer for Jolla until a year ago

2. Now a Research Data Scientist for The Alan Turing Institute

`https://www.flypig.co.uk`

SAILFISH OS

1. Linux smartphone OS

2. `glibc`, `busybox`

3. A descendant of Maemo

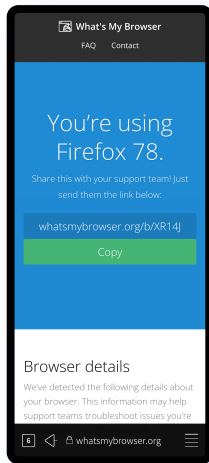4. Default `sailfish-browser` is gecko-based

SAILFISH OS

GECKO

1. Mozilla's rendering engine used in Firefox

2. Released in 2000, Netscape 6

3. Alternative to Blink, WebKit, Netsurf

SAILFISH OS

GECKO ON SAILFISH OS

1. Artefact of Sailfish OS's Maemo history

2. Based on EmbedLite and XULRunner

EMBEDDING GECKO

> *Gecko has limited embedding capability that is not well-documented, not well-maintained and not heavily invested in... We have at various points in history had embedding APIs/capabilities, but we have either dropped them (gtk-mozembed) or let them bit-rot (IPCLite).*
>
> *Chris Lord, February 2016*

SAILFISH BROWSER

sailfish-browser

embedlite-components

qtmozembed

gecko/xulrunner

SAILFISH OS

SAILFISH BROWSER

60 106 lines — Qt — 8 541 lines — sailfish-browser

17 991 lines — embedlite-components

15 766 lines — qtmozembed

8 552 649 lines — 3 033 285 lines — IDL - 135 220 lines — 8 970 646 lines — gecko/xulrunner
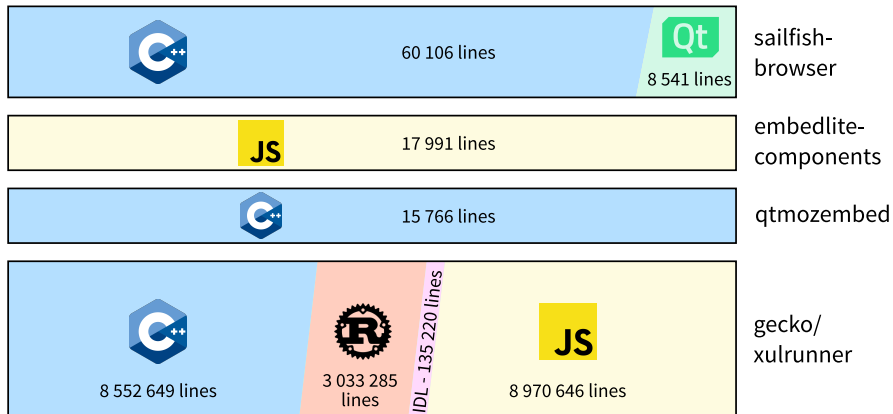
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THE UPGRADE PROBLEM

1. Sailfish Browser ESR 60: February 2021

2. Sailfish Browser ESR 78: March 2022

3. Latest Firefox ESR: 115

4. By my estimate upgrading takes 36 person-months

STARTING OUT

1. In August I decided to attempt the upgrade from ESR 78 to ESR 91

2. Hoping my experience with 60 and 78 might help

3. I didn't want to do it alone

WHAT IS A DEV DIARY?

> *A developer diary is where you write about developer things. It can be the record of what you worked on last, some decisions made by steak-holders [sic] in the product, and or a neat way to accomplish a task. It really comes down to what you want to put in it.*
>
> *Jay Wilson, January 2023*

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HELPING ME CODE

1. Aide-mémoire

2. Build a searchable record of changes

3. Encourage structured thoughts
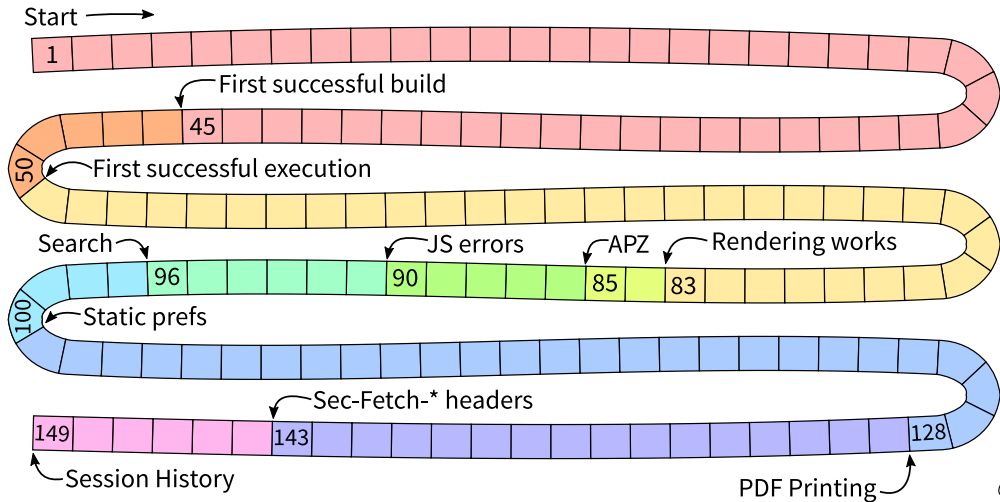
4. Motivate daily work

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INVOLVE THE COMMUNITY

1. Browser upgrades are important

2. Users want to know about progress

3. Allow others to help

DOWNSIDES

1. Coding this way takes about twice as long

2. Daily updates are great motivation, but also a bind

3. Best for tasks that can be split into daily pieces

4. Visual output helps

TIMELINE

Start →

1

First successful build

45

First successful execution

50

Search — 96

JS errors — 90

APZ — 85

Rendering works — 83

Static prefs — 100

Sec-Fetch-* headers — 143

Session History — 149

PDF Printing — 128

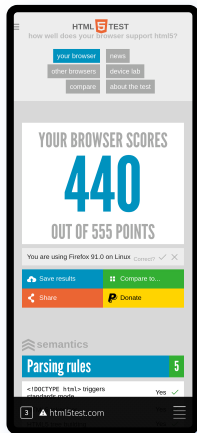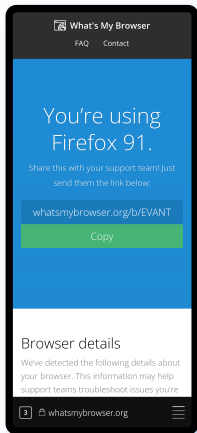SAILFISH OS

COMMUNITY RESPONSE

1. Utterly overwhelming

2. People are so generous and nice

3. Did I join the wrong Internet?

DEMO

SAILFISH OS

CLOSING THOUGHTS

1. Writing a dev diary is great for open source

2. It's not literature, it's code

3. Work a couple of entries in advance

4. Stick to a strict cadence

5. Write about what your tomorrow-self will need to know

SAILFISH OS

THANK YOU!

cnlpete
André Koot
Masanori Ogino
El Stevo
Joan CyberSheep
Meaticus
Venty
Nuuskis
networkException
Ruben De Smet
Maike
fooxl

eson
voidanix
LINMOB
rtr2001
Surya Teja K
Shreyan Jain
MTRNord
flywheel
Spoofy
Santiago

remote
filip.k
treefit
000exploit
DrYak
LINux on MObile
Sthocs
Friprogramvarusyndikatet
piggz
jabato

Fosstonaut
cybette
scops
PeperJohnny
ralf tauscher
quotentoter
Linux
ljo
vige
mkiol
DjBRINE1
Marko
nephros

rainemak
The Turing Way Project
aerique
Nekron
Nik Nagedo
Andrea Scarpino
mal
pherjung
patrickjquinn
Georg Sassen
Project Insanity
freddeclx
ExPLIT

Seven.of.nine
wosrediinanatour
VoxClamantisInDeserto
Ozzelot
DeepBlue V7.X
teve
tortoisedoc
Bundyo
throwaway69
Orologiaio
direc85
Ludovic

cyberlyra
Koutsie
Blort
ikonoklast
decibyte
Dirk Schwieger
Fabrice Desré
Dylan Van Assche
simonschmeisser
tuxsaveus

Adam T
mxr
RenalCalculus
womble
max_power
thaodan
poetaster
Adrian McEwen
LukasBrausch
Juanro

veskuh
Lea Newin
Alexandro Lacadena
fingus
Trolli Schmittlauch
Elisa Beshero-Bondar
Matias
ohnonot
sroub
Sailfish OS News Network

Valorsoguerriero97
Mkz
jfkrnrilfn
Lucien XU
nicolas
Must a don't?
vlagged
OrbitalMartian
simba
Yann Büchau
drewnaylor
kletterli
ApB
HeldeChris
cmsdengl

fmo
rob_kouw
FOSSphones
Ch Meyer
Leszek Lesner
Mikhail Milikhin
attah
deedend
florianm
Gamey
Royce Williams

Thomas Tanghus
Esther Plomp
macadoum
IDonSocial
fosstodon.org
brux0
wosrediinanatour
TronDD

segmengaytionfault
Nicolas Bourdais
J.V.B
Ikraav
Renato Nunes Bastos
hschmitt
Carl Schwan
d.geelen
Thigg
Yener
LEJ.approach
Ulrike Hahn
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FURTHER INFO

Dev Diary `https://www.flypig.co.uk/gecko`

Sailfish Browser `https://github.com/sailfishos/sailfish-browser`

Gecko source `https://github.com/llewelld/gecko-dev`

Sailfish OS `https://sailfishos.org`

Slides source `https://github.com/llewelld/fosdem24-gecko-dev`