




# Mozilla & Firefox


**Sylvestre Ledru**

- 
- ▮ N'hésitez pas à m'interrompre !
  - ▮ (désolé, c'est la seule phrase en Français)

# Who am I ?

35

- Curriculum
  - DEUG MIAS (first year)
  - DUT informatique de gestion
  - IUP MIAGE
  - DESS informatique distribuée (Paris XII)



# Who am I ?

## Before Mozilla

- PhD in Australia & Paris XII (3 months)
- Worked for two years in a Geophysics company in Melbourne



# Who am I ?

## Before Mozilla

- Inria on Scilab (+ Digiteo + Scilab Enterprises) for 7 years
- Debian for 8 years – LLVM/Clang for 4/5 years
- Mozilla for two year – Release manager
- Lead of the release management & stability teams
- Lead of the Mozilla French branch

# About:Mozilla

- Adventure started by Netscape (~1994)
- Failed against Microsoft (Internet Explorer)
- Decided to open the sources of Netscape

- Documentary  Netscape:  
Code rush:

<https://www.youtube.com/watch?v=u404SLJj7ig>

# About:Mozilla

- Brought by AOL in 1998
  - AOL gave some money to the Mozilla Foundation
  - in 2003
  - Mozilla was nothing
  - Massive refactorings
  - Firefox 1.0 released 10 years ago
- A game changer (popup blocker, tab, etc)





# About:Mozilla

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- About 1050 employees
- 12 offices (Mountain View, SF, Toronto, Taipei, Paris, etc)
- Revenue of \$314M (2013)
  - Mainly from the search deal
  - Google before 2015, now Yahoo
- Salaries ?
  - Important competition with Fb, Twitter, Google, etc
  - Bonus





About:firefox



# About:Firefox

- Web browser with ~500 million users
- About 12.5M Lines of code
- Only (major) browser developed by a non-profit
- Support 4 operating systems:
  - Microsoft Windows XP => 10 (32 & ~64 bit)
  - GNU/Linux
  - Mac OS X
  - Android
- iOS – not based on Gecko



# About:Firefox

- Third browser in term of market share
- 12 to 22 % market share  
(don't trust them)
- Chrome started in 2008



# About:Code

Gecko is the based of Firefox  
And ... Thunderbird, Seamonkey and  
Firefox OS

... has had 271 370 commmits made by 3,655  
contributors

Representing 13 831 234 lines of code

# About:Code

Language	Code Lines	Comment Lines	Comment Ratio	Blank Lines	Total Lines	Total Percentage
C++	4,672,191	759,328	14.0%	994,916	6,426,435	38.1%
JavaScript	2,582,781	406,071	13.6%	398,976	3,387,828	20.1%
C	1,908,830	569,284	23.0%	340,596	2,818,710	16.7%
HTML	1,433,843	44,196	3.0%	130,543	1,608,582	9.5%
XML	615,470	15,551	2.5%	46,428	677,449	4.0%
Java	382,887	91,187	19.2%	73,538	547,612	3.2%
Python	338,610	102,401	23.2%	90,145	531,156	3.2%
Autoconf	173,533	2,456	1.4%	24,893	200,882	1.2%
CSS	144,758	2,106	1.4%	27,408	174,272	1.0%
Assembly	136,031	19,223	12.4%	24,615	179,869	1.1%

## Activity

### 30 Day Summary

Aug 20 2015 — Sep 19 2015

4558 Commits

396 Contributors

including 38 new contributors

### 12 Month Summary

Sep 19 2014 — Sep 19 2015

56950 Commits

Down -778 (1%) from previous 12 months

1180 Contributors

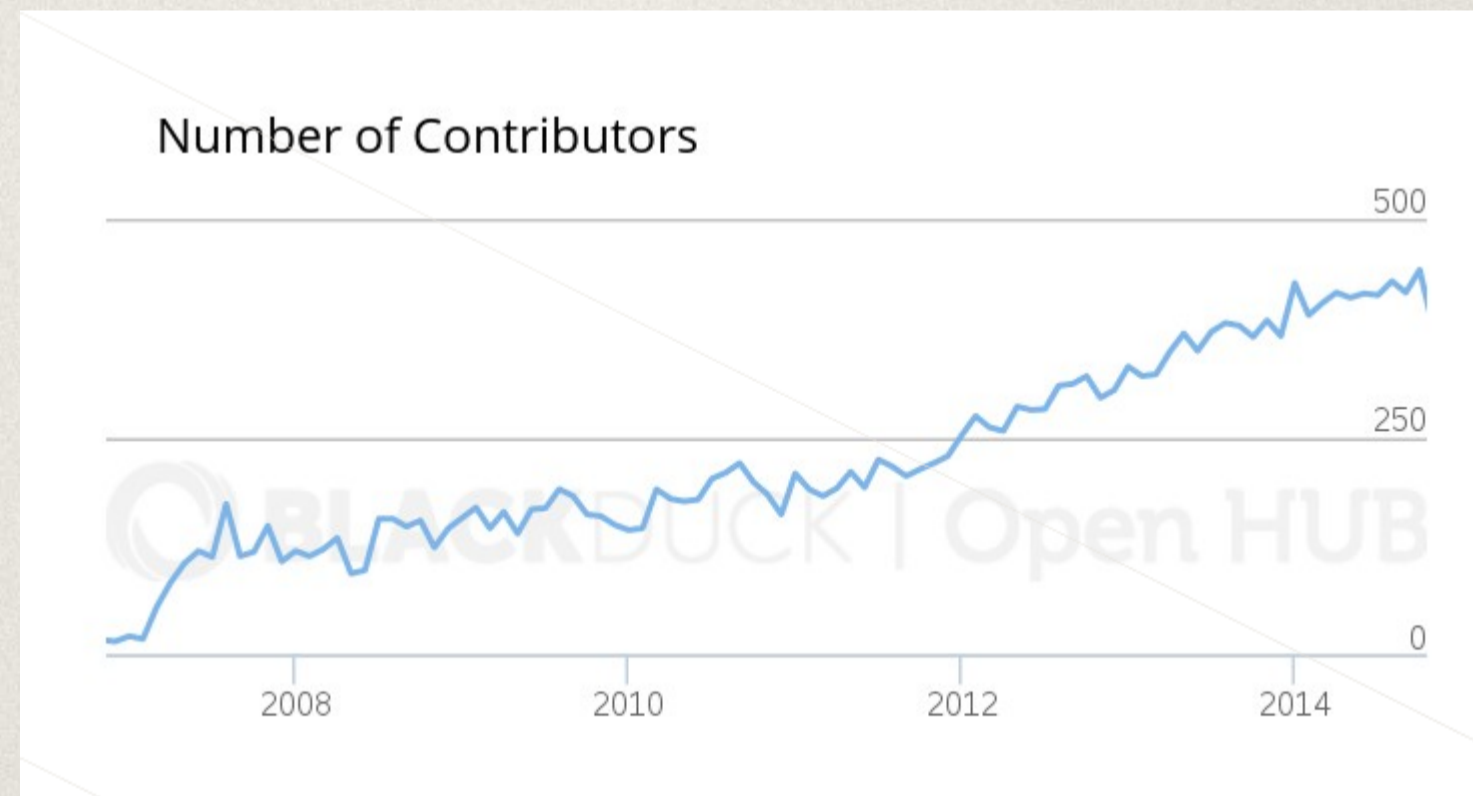
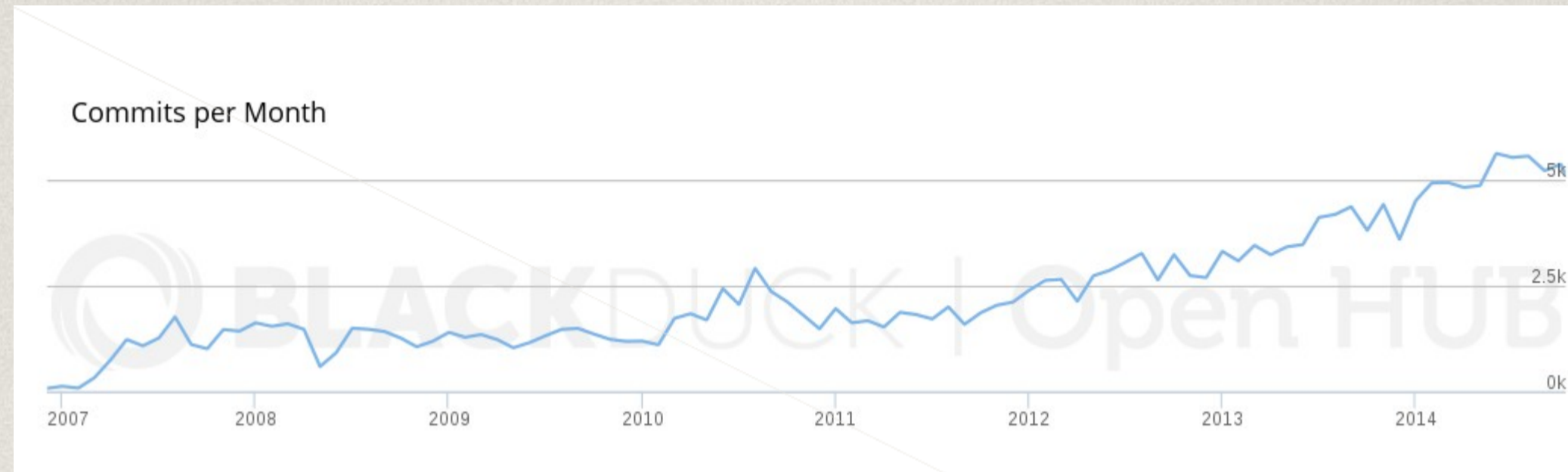
Down -30 (2%) from previous 12 months

Source : openhub

[https://www.openhub.net/p/firefox/analyses/latest/languages\\_summary](https://www.openhub.net/p/firefox/analyses/latest/languages_summary)

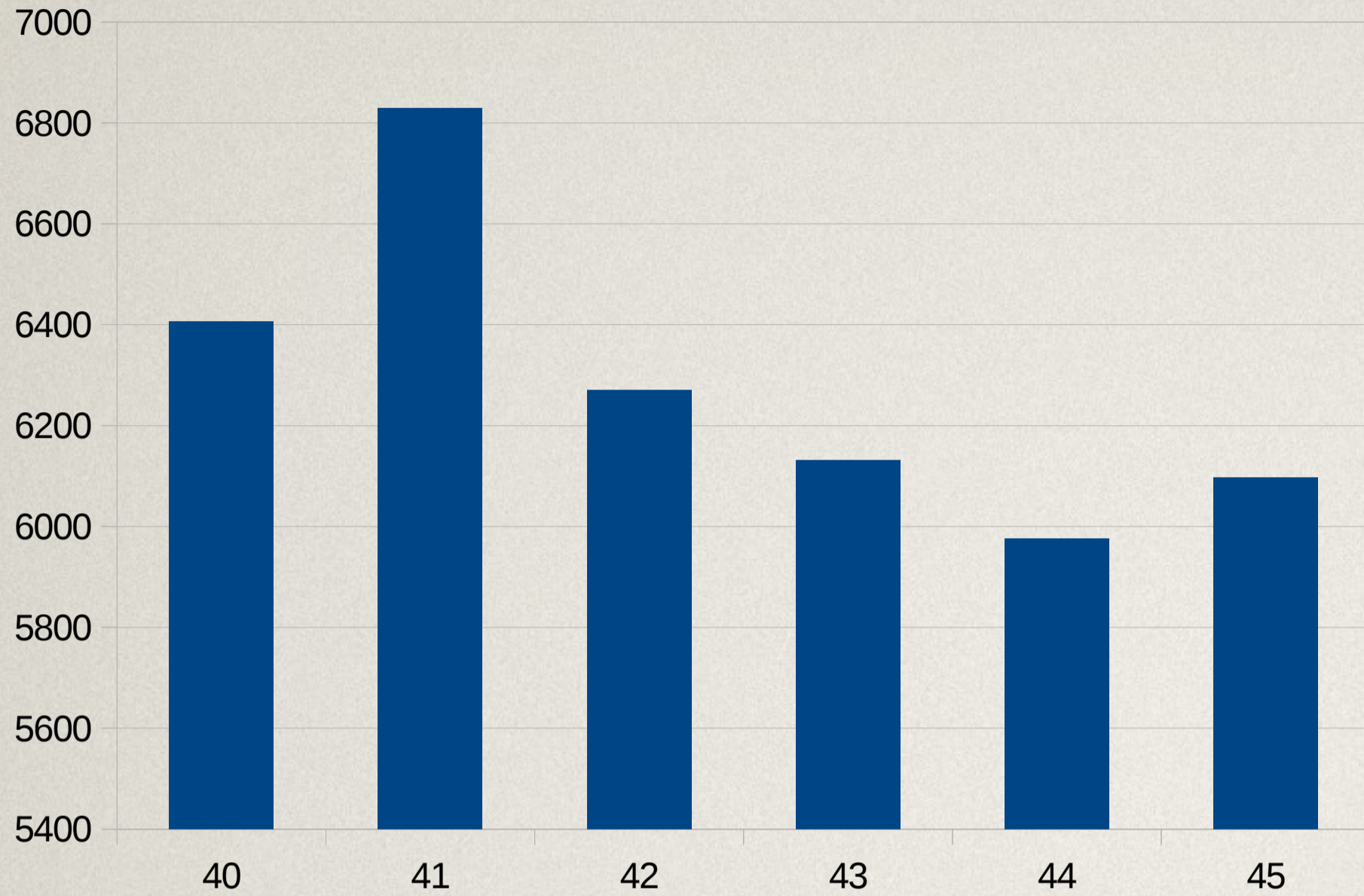
# Some Lovely Graphs

Healthy open source project?

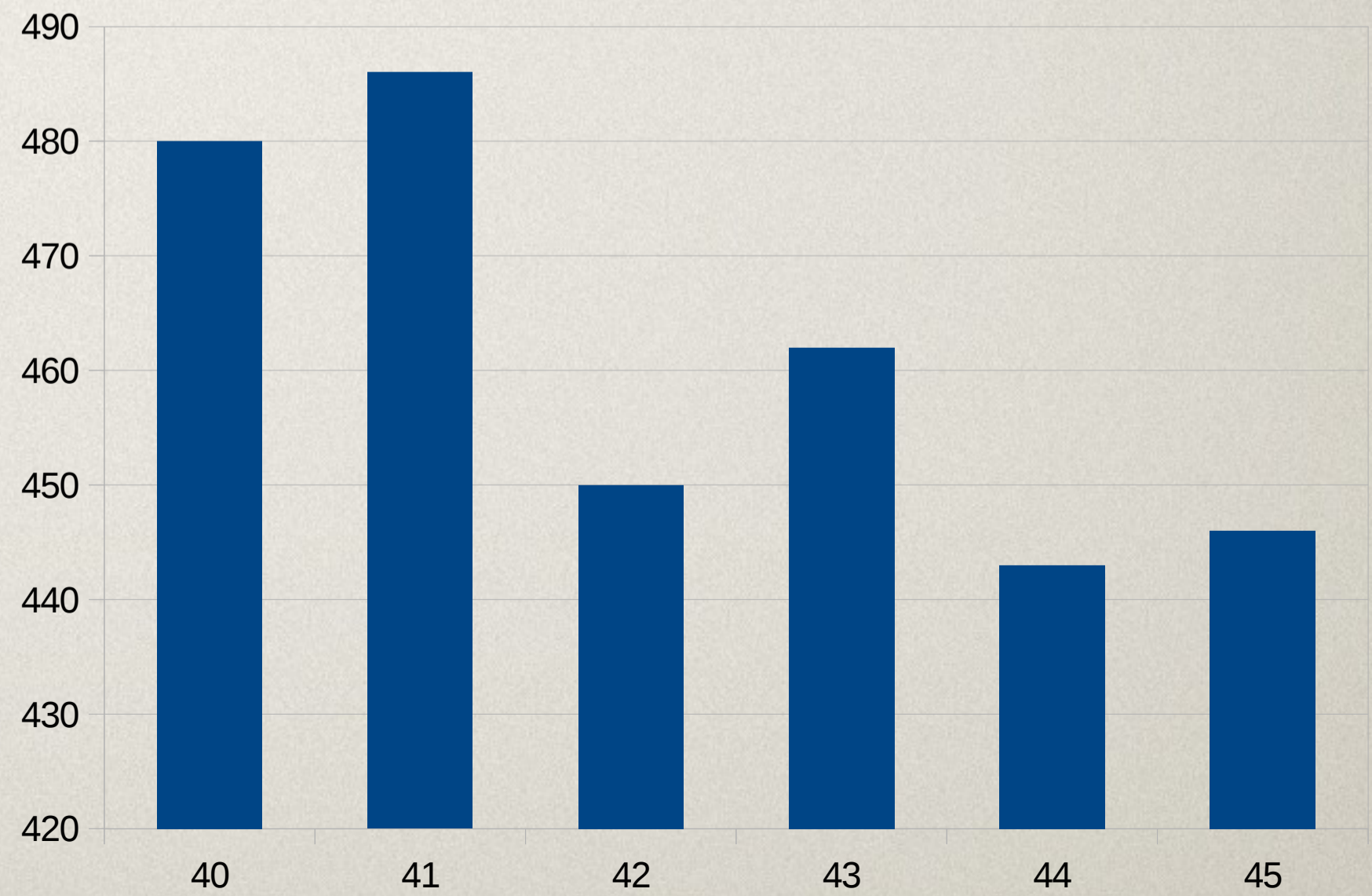


# More contribution stats !

Changeset per version



Developers per version





# Firefox Releases

- One major release every 6 weeks
- ESR – lock-step with major releases, security focus
- In parallel, 3 other feedback *branches* :
  - Nightly - updated daily with recent code changes
  - Developer Edition (a.k.a Aurora) + aurora on mobile - updated on change
  - Beta – 2 per week Desktop – 1 for Mobile
- Managed by 3 people



# Train model





# More about ESR

Major ESR (Extended Support Release) version is created every 8 months, with two cycles of overlap with the prior version

- Security (high/critical) every 6 weeks (in sync with Firefox)
- Used by some GNU/Linux distributions (example: Debian), major companies, university, etc
- Active community mailing list, various sized orgs
- Base for Thunderbird & Seamonkey



# Many companies & projects contributing


- Tor
- Google
- Microsoft
- Telefonica
- Red Hat
- Cisco
- Adobe
- FreeBSD
- ...

# Release management

Making sure that Firefox releases are released in good shape and on time, deciding when to build & when to wait for patches.

Coordinate work between :

- Quality Engineering
- Stability
- Release Engineering
- Firefox Developers
- L10n
- Security
- User Advocacy
- Addons
- Marketing
- ...

[[  ]]


mozilla wiki

Log in Request account

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**New feature!** You can now embed Google documents ([how-to](#)), calendars ([how-to](#)), presentations ([how-to](#)) and spreadsheets ([how-to](#)).  
[Read more](#) about January's MozillaWiki releases.

## Release Management

 **Firefox**

### Quick Links

- [Release Calendar](#)
- [Release Process](#)
- [Current and Past Releases](#)
- [Public Firefox Merge/Release Scheduling Calendar](#)
- [Release Scheduling Calendar](#) [\(more detailed\)](#)

Hello!



# Quality

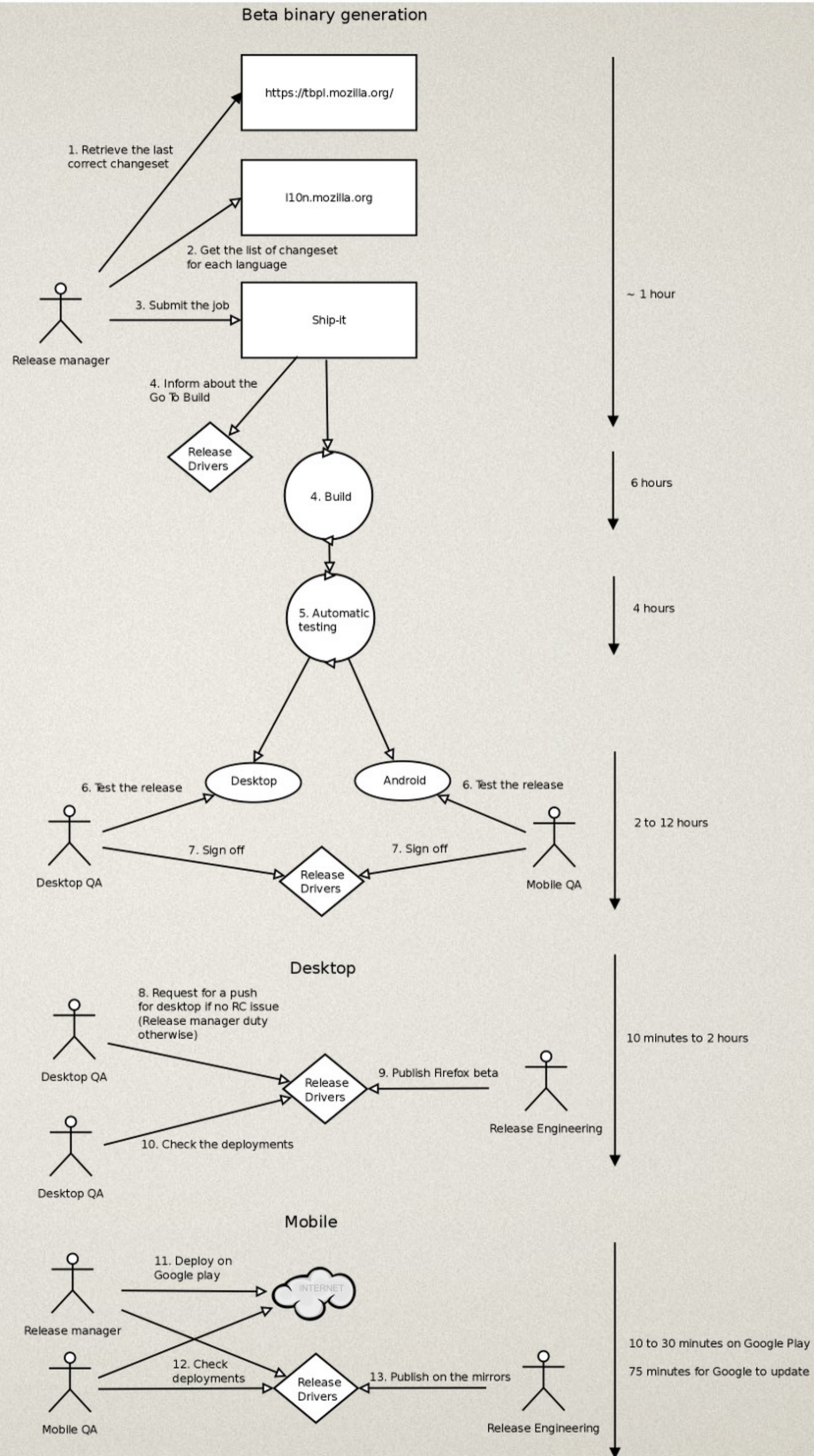
- A web browser is comparable to an OS (network, JIT, video, sound, parallel, etc)
- Complex code base with legacy code
- Hard to test all cases + test suites are time consuming



Time to release



# About: Beta Reliable Process Works





# Release Week

- Our final RC has shipped to Beta pop
- Collect feedback from users, crash data
- Checking for crash or other last-minute risk
- Sign off for release
- Release notes prepared and reviews
- Merge branches, kick off Beta 1 of version
- DevEd updates disabled for the week



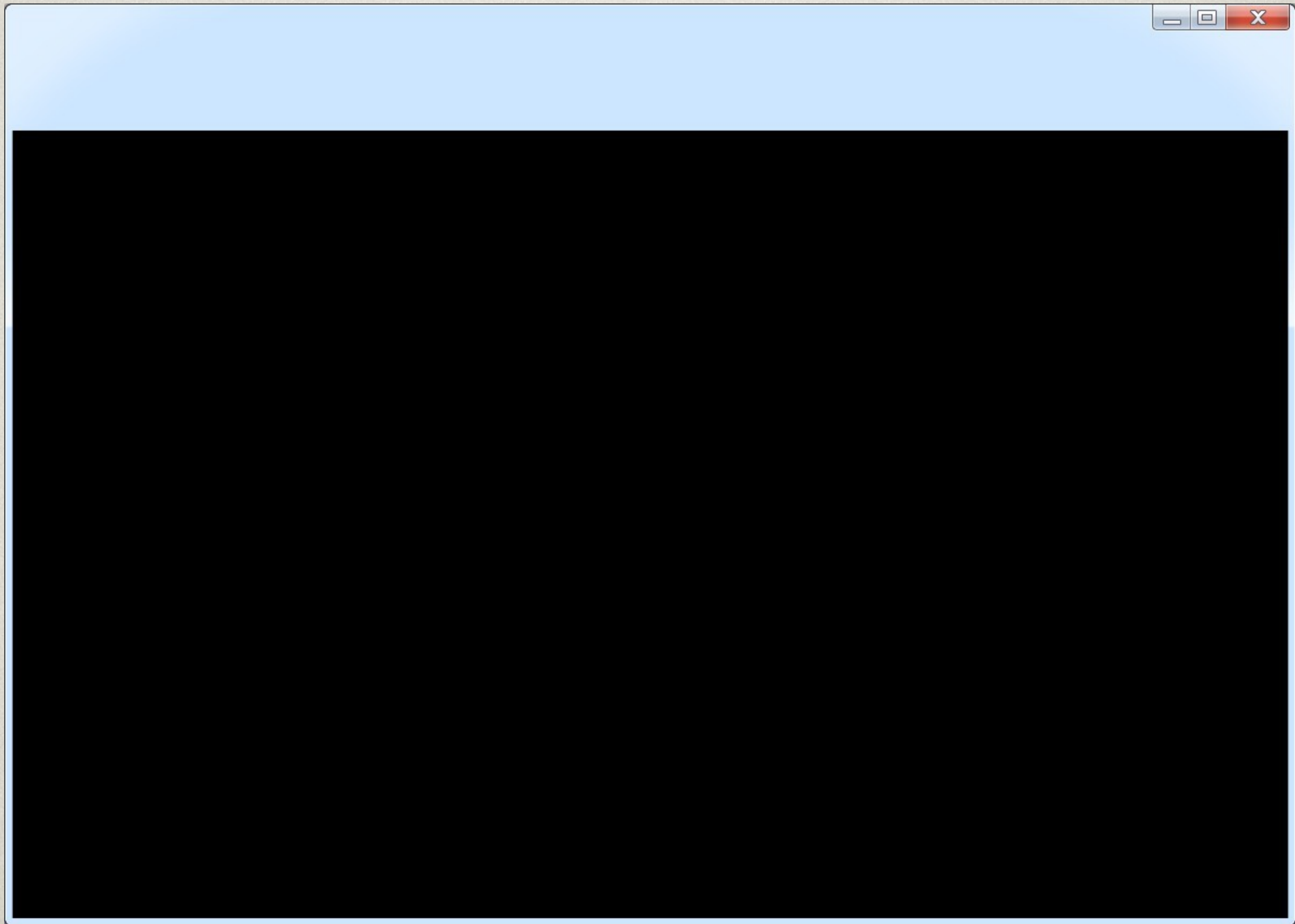


# Release Day

- Published Tuesday at 15:00 European time
- Updates only enabled for 25% users for 24 hrs
- Start watching Bugzilla, Input, crash data

# Post-Release Feedback

- Even with all that, we have had failures



# Post-Mortem: OMTC

- Example : OMTC « Off-main-thread compositing »
  - Enabled on Mac OS X for a while (Firefox 24)
  - Enabled on Windows during the 33 cycle
  - A few top crashers fixed during the aurora & beta cycle
  - Sign off of all teams for the 33 release
  - For some users, black screen instead of Firefox

# What Happened: OMTC

- Some graphic drivers are older, not supported
- We can't test on all devices/systems
- Our telemetry didn't catch any issues
- Our aurora/beta users probably update their graphic drivers and/or user newer ones
- Hard identifying the signal from the noise
- Some users who had the bug think « it is so big that someone will already have reported this »

# Lessons Learned: OMTTC

- Potential solutions :
  - Do more testing on older devices
  - Get more data of users configurations (graphic cards, drivers versions, etc)
  - Could there be an automated test for a black screen?



# What works – Train model

- Releases are no longer a “big deal”
- Missing a train is also not a “big deal”, less pressure to push features that aren't ready
- Flags for enabling/disabling help get test coverage over a few cycles on any release channel
- Small changes can have impact – shorten update throttling, push out more betas



How to contribute



# Basic rules

Don't be shy. We have all been beginners at some point

- RTFM
- Find a mentor/friend to guide you
- Use Firefox nightly

Report bugs - <https://bugzilla.mozilla.org/>





# Think small

- Try to build Firefox
- Start with a small bug
- Easy example : remove a C/C++ warning
  - Don't try to fix a big issue
  - *You will probably fail*
- Workflow/procedure represent an important part of the contribution process

# Demos

- <http://www.joshmatthews.net/bugsahey/>  
<https://people.mozilla.org/~sledru/reports/fx-scan-build/report-nsCellMap.cpp-ShrinkWithoutCell-5-1.html#EndPath>



# Questions ?

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