

Requirements Acquisition in Open Source Development: Firefox 2.0

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motivation

- ▶ open source software *seems* to represent a departure from the conventional approach:
 - ▶ marketplace of ideas vs top-down command-control

- ▶ reality only partly matches
 - ▶ formal governance
 - ▶ paid developers
 - ▶ face-to-face meetings

background

- ▶ requirements acquisition does seem to be different
 - ▶ “itches” to be scratched (Raymond [25])
 - ▶ from users, via bug reports, discussions (Reis & de Mattos Fortes [26]; Feller & Fitzgerald [])
 - ▶ following commercial “state of the art” (Nichols & Twidale [22])
 - ▶ *asserted* by developers rather than elicited (Scacchi [27]; German [9]; Noll [23])

subject

Study subject: Firefox web browser



- ▶ large user community
- ▶ high quality, featureful product
- ▶ mature organization and processes

method

1. select features from release 2.0
2. examine on-line resources to discover:
 - ▶ when feature first proposed
 - ▶ who proposed it, in what role
 - ▶ initial implementation
3. categorize feature as:
 - ▶ asserted by developer, from personal experience
 - ▶ asserted by developer, from knowledge of user needs
 - ▶ derived from user contribution
 - ▶ motivated competition
 - ▶ derived from extension

results

In Firefox release 2:

- ▶ 9 of 14 features asserted
- ▶ 3 derived from user contribution
- ▶ 2 motivated by competition



feature first mention

Feature	First Mention	Classification
Visual Refresh	Mozilla Themes dev. forum, Nov '02 [6, 8]	asserted (user needs)
Phishing Protection	Bug 329292 (RFC), Mar '06 [28, 29]	competition, asserted (user needs)
Enhanced Search	PRD Nov '06, citing Google Search Toolbar [20]	derived from extension
Improved Tabbed Browsing	Bug 308396 (RFC), Sep '05 [10]	asserted (user needs)
Session Resume	Bug 19454 (RFE), Nov '99 [33]	asserted (personal exp.)
Web Feed Preview	LiveBookmarkThis extension, Sep '04	derived from extension
Spell Checking	Bug 16409 (RFE), Oct '99 [7]	user contributed
Live Titles	Developer blog, Jan '06 [19]	asserted (personal exp.)
Improved Add-ons Manager	Mozilla wiki, Jul '05 [11]	asserted (personal exp.)
Javascript 1.7	PRD [20]	asserted (personal exp.) [4]
Search Plugins	Bug 308674 (RFE), Sep '05 [35]	competition
Updated Extension Mech.	Bug 285848, Mar '05 [17]	user contributed
SVG Text Support	Bug 282579 (issue) [24]	user contributed
Windows Installer	Bug 231062 (RFE) [1]	asserted (user needs)

feature first mention: issues

Feature	First Mention	Classification
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visual-refresh: user needs or developer knowledge?

- ▶ “That’s a nice surprise that Phoenix is able to use some of the XP visual style (tabs, scrollbar, status bar, button). However, it is not complete. The scrollbar looks slightly different. The Tabs and Status bar doesn’t use the VS original text color.
Is there any plan to support XP VS more completely?” -

ExNihilo [8], posting to MozillaZine Firefox Features discussion forum.

- ▶ “I think that Phoenix will support as much of it as is possible and as much as hyatt (unless you’re volunteering) has time to implement. I think it’s sufficient now but as with all things Phoenix, we’re going to improve for as long as the project lives.” - Asa Dotzler [6]

(asserted, based on knowledge of user needs.)

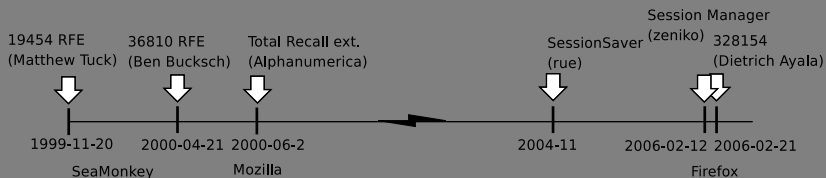
phishing protection: asserted or competition?



- ▶ “We’d like to land the SafeBrowsing anti-phishing extension on the trunk for consideration as the base for an anti-phishing feature in Firefox.” - Fritz Schneider [28]
- ▶ “Any plans to land this on the branch? ... IE7 will have anti-phising and we don’t want them to have one up on us now do we? Especially something so important to a lot of users.” - Kurt Schultz [29]
- ▶ “So, yes, we are aiming to have some sort of anti-phishing capability in place for Fx 2 in order to provide enhanced features to help people stay safe out there, and to be competitive.” - Chris Beard [2]

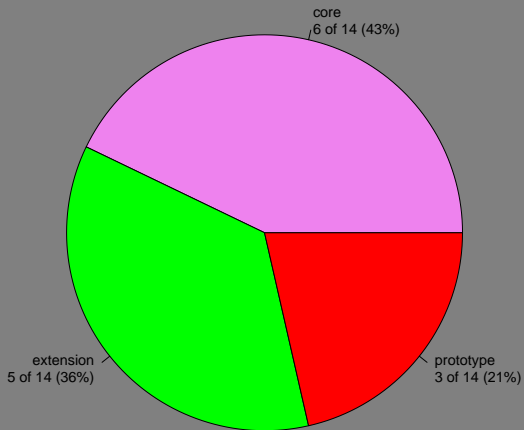
(motivated by competition)

session resume: what is true origin?



(SeaMonkey)

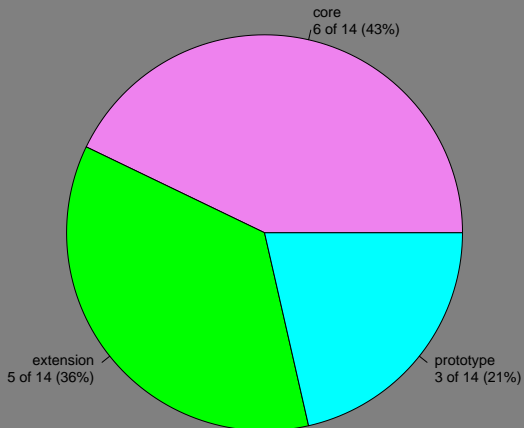
first mention: summary



feature first implementation

Feature	Initial Implementation	Classification
Visual Refresh	core	asserted (user needs)
Phishing Protection	Google Safe Browsing extension [13]	competition, asserted (user needs)
Enhanced Search	Google search toolbar extension [14]	derived from extension
Improved Tabbed Browsing	prototype [10]	asserted (user needs)
Session Resume	extensions: SessionSaver [3], Tabbedbrowser SessionManager [36], Tabbedbrowser Extensions [15]	asserted (personal exp.)
Web Feed Preview	extensions: RSS Reader Panel [16], Sage [34])	derived from extension
Spell Checking	extensions: SpellBound [30], Torisugari [31])	user contributed
Live Titles	prototype[18]	asserted (personal exp.)
Improved Add-ons Manager	core	asserted (personal exp.)
Javascript 1.7	core	asserted (personal exp.) [4]
Mycroft[21]	core	competition
Updated Extension Mech.	core	user contributed
SVG Text Support	core	user contributed
Windows Installer	prototype[5]	asserted (user needs)

first implementation: summary



observations

- ▶ extensions are a form of assertion
total 9 features asserted, or almost 65%
- ▶ few features derived directly from user input (21%)
but developers are also users, so assertions do reflect user needs
- ▶ developer-users are *experts*
narrow view [32, 12]

conclusion

conclusions

- ▶ requirements *are* asserted in OSS projects
- ▶ but, this may not be so unusual

limitations

- ▶ one project
- ▶ *all* Firefox developers are probably users
- ▶ outsider view
- ▶ author not a trained historian

acknowledgments

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