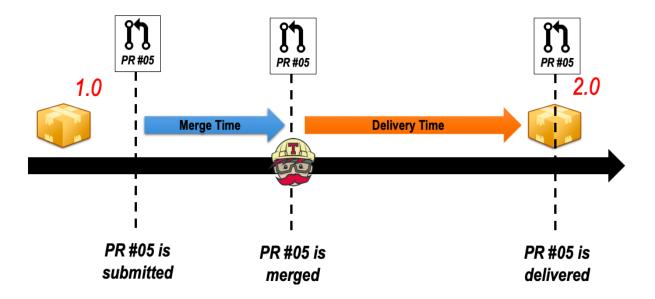
Understanding Delivery Time of Pull-Requests

Once a pull request is merged (i.e., reviewed, tested and ready to be delivered), this pull request may still wait a long time to be delivered to end users of a software project. We call this time delivery time (see Figure 1). In this study, we intend to understand the factors that may accelerate or delay the delivery of merged pull requests. Our research team is from Brazil, New Zealand, and Australia.

This questionnaire is part of broad research effort that studied 87 large open-source projects to investigate the factors that most impact the time that is necessary to deliver merged pull requests to end users of a software project through an official release.

The survey will ask you a few general and specific questions (i.e., we will show you data that is derived from haraka/Haraka project).

Figure 1 - The basic life-cycle of a pull request.



1. By answering this survey, you will be entered into a draw of six \$50 Amazon gift cards. If you'd like to participate in the draw, please leave your email address below.

2. Have we correctly identified you as someone who contributes or contributed to a project that uses Continuous Integration? *
Marcar apenas uma oval.
Yes No Pular para a pergunta 31
Demographic Questions
3. For how long have you been developing software?
Marcar apenas uma oval.
0 1 2 3 4 5 6 7 8 9 10
Years or mor
4. Out of your projects which use Continuous Integration (CI), which project have you most contributed over the last years?
5. What is the ratio of projects that you have worked on that used CI?
Marcar apenas uma oval.
0 - 20%
20 - 40%
40 - 60%60 - 80%
80 - 100%

	0	1	0	2	4	_	6	7	0	0	10	
	0	1	2	3	4	5	6	7	8	9	10	
Years												or more
7. Wha	t are y	our ma	in activ	ities o	n the p	rojects	s you c	ontribu	ute to?			
Margue	todas	que se a _l	plicam.									
Tes		,										
	view											
	velopm	ent										
	nagem											
 Outro: [
Marque —	todas	omains que se a	plicam.	tware o	develor	oment	have y	ou wor	ked?			
Marque Mo We Sci Bus Me Ind Big	todas of bile ap of bile ap of bile ap of bile al dical dica	que se a plication lopment developr developr evices and prod d system ystems	plicam. ment ment cess co	ntrol				ou wor	ked?			
Marque Mo We Sci Bus Me Ind Big	todas of bile ap of bile ap of bile ap of bile al dical dica	que se a plication lopment developr developr evices and prod d system ystems	plicam. ment ment cess co					ou wor	ked?			
Marque Mo We Sci Bus Ind Em Big Outro:	bile ap bile ap entific siness o dical de ustrial bedded Data fense s	que se a plication lopment developr evices and prod d system ystems	plicam. ment ment cess co	ntrol				ou wor	ked?			
Marque Mo We Sci Bus Ind Em Big Outro:	bile ap bile ap entific siness o dical de ustrial bedded Data fense s	que se a plication lopment developr developr evices and prod d system ystems	plicam. ment ment cess co	ntrol				ou wor	ked?			
Marque Mo We Sci Bus Ind Ind Big Def	bile apoble developments about the developments are developments about the developments about the developments are developments about the developments about the developments are developments about the developments about the developments about the developments about the developments are developments and developments are developments about the developments are developments and developments are developments are developments and developments are developments and developments are developments and developments are developments are developments and developments are developments are developments and developments are developments and developments are developments and developments are developments and developments are developments are developments and developments are developments are developments are developments and developments are developments are developments and developments are developments are developments are developments are developments are developments are development	que se a plication lopment developr evices and prod d system ystems	plicam. ment ment cess cons	ntrol me of p	oull-red	quests				ved and	d that	
Marque Mo We Sci Bus Ind Ind Big Def Outro:	bile ap bile ap bile ap bile ap chile a	que se a plication lopment developr evices and prod d system ystems	plicam. ment ment cess col ns very til	ntrol me of p	oull-reduest th	quests at you	submi	tted or	· reviev			ial

that eventually	ou tell us about a pull request that got merged), which was quickly reasons for such a quick shipme	hipped in an official release?	
Integration (CI	your experience, do you think the may have some influence on the end users? If so, how does CI in	required time to deliver merged	
	ent do you agree with the following gration shortens the time to del	·	
Continuous Int	egration shortens the time to del	·	
Continuous Int users?	egration shortens the time to del	·	
Continuous Int users? Marcar apenas	egration shortens the time to del	·	
Continuous Intusers? Marcar apenas Strongly a	egration shortens the time to del	·	
Continuous Intusers? Marcar apenas Strongly a Agree	egration shortens the time to del	·	

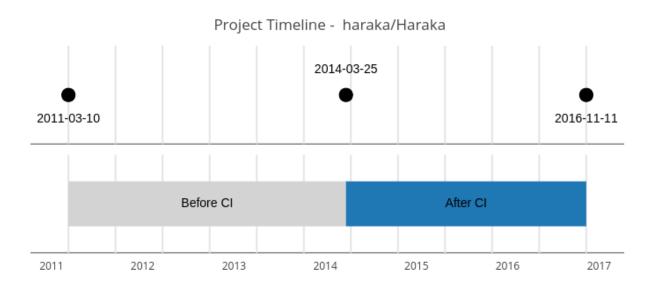
13. To what extent do you agree that the factors listed in the table below influence the time necessary to release a merged pull request that is waiting to be delivered?

Marcar apenas uma oval por linha.

	Makes delivery a lot faster	Makes delivery a little bit faster	Does not influence delivery time	Makes delivery a little bit slower	Makes delivery a lot slower
The contributor experience					
The time that previously submitted PRs of a contributor were delivered					
A PR has a stacktrace attached					
The description size of a PR					
The time at which a pull request is merged during a release cycle					
The number of PRs waiting to be delivered at the moment that a new PR was merged					
The number of comments recorded on a PR					
The time interval between the PR comments					
The number of files attached to a PR					
Number of lines					

Number of commits in a PR			
The time that a pull request waited to be merged			

Specific questions for the project haraka/Haraka In the next questions of this survey we will show specific data of the project haraka/Haraka that you contribute to. We group such data into two buckets: before and after the adoption of CI. We considered that the project started using CI on the date of its first build on Travis-CI (2014-03-25). Also, we used the GitHub API to collect data of the haraka/Haraka project from its creation on GitHub on March, 10th, 2011 to November 11th, 2016.

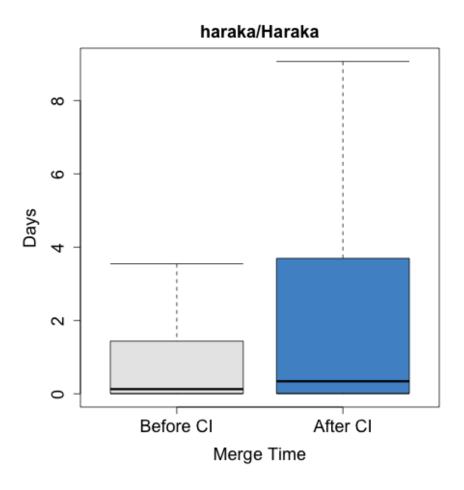


14. Does the way we divided the project timeline into "Before CI" and "After CI" make sense to you?

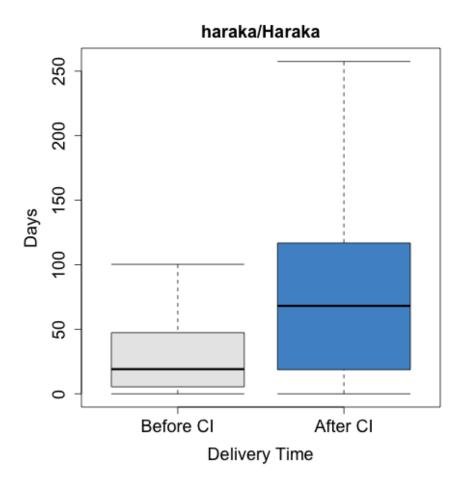
0	1	2	3	4	5	6	7	8	9	10	
											or more
you pa	articipa	ate in th	ne ado	ption o	of CI in	haraka	/Harak	a?			
apena	is uma	oval.									
0											
		•			•		? For e	xample	e, how o	do you	
							•		•	nfluence	e
tende	ed to sh	nip 18 re	elease	s per y	ear be	fore CI					
ter ad	opting	continu	uous ir	ntegra	tion, th	ese pro	ojects (deliver	ed 3 tin	nes as	
	t is the when an anatender CI.	apenas uma es t is the relea when to ship our opinion, of requency of tended to she er CI. How ver	apenas uma oval. es t is the releasing prowhen to ship a release our opinion, did the frequency of release en analyzing the data tended to ship 18 recent tended tend	apenas uma oval. es t is the releasing process, when to ship a release of our opinion, did the adopt frequency of releases? Common analyzing the data of the tended to ship 18 release for CI. How would you expend quantitatively studied 87 ter adopting continuous in	apenas uma oval. es t is the releasing process/policy when to ship a release of your pour opinion, did the adoption of frequency of releases? Could you tended to ship 18 releases per year CI. How would you explain the duantitatively studied 87 populater adopting continuous integrates	apenas uma oval. es t is the releasing process/policy of your when to ship a release of your project? our opinion, did the adoption of continue frequency of releases? Could you descent analyzing the data of the project hard tended to ship 18 releases per year before CI. How would you explain this chan equantitatively studied 87 popular projecter adopting continuous integration, the	apenas uma oval. es t is the releasing process/policy of your teams when to ship a release of your project? our opinion, did the adoption of continuous interequency of releases? Could you describe the tended to ship 18 releases per year before Clarer Cl. How would you explain this change? quantitatively studied 87 popular projects on ter adopting continuous integration, these products of the projects on the tendent of the tendent of the tendent of the tendent of the project of the tendent o	apenas uma oval. es t is the releasing process/policy of your team? For es when to ship a release of your project? our opinion, did the adoption of continuous integration frequency of releases? Could you describe this influence en analyzing the data of the project haraka/Haraka, we tended to ship 18 releases per year before CI, while ener CI. How would you explain this change? quantitatively studied 87 popular projects on GitHuk ter adopting continuous integration, these projects of	t is the releasing process/policy of your team? For example when to ship a release of your project? our opinion, did the adoption of continuous integration have requency of releases? Could you describe this influence to tended to ship 18 releases per year before CI, while it decrease CI. How would you explain this change? quantitatively studied 87 popular projects on GitHub and water adopting continuous integration, these projects delivered.	apenas uma oval. es t is the releasing process/policy of your team? For example, how owner to ship a release of your project? our opinion, did the adoption of continuous integration have any infrequency of releases? Could you describe this influence to us? en analyzing the data of the project haraka/Haraka, we observed the tended to ship 18 releases per year before CI, while it decreased the CI. How would you explain this change? quantitatively studied 87 popular projects on GitHub and we obseter adopting continuous integration, these projects delivered 3 tin	apenas uma oval. es t is the releasing process/policy of your team? For example, how do you when to ship a release of your project? our opinion, did the adoption of continuous integration have any influence frequency of releases? Could you describe this influence to us? en analyzing the data of the project haraka/Haraka, we observed that this tended to ship 18 releases per year before CI, while it decreased to 6 per

15. For how long have you worked in the haraka/Haraka project?

25. When analyzing the data of the project you contributed to (haraka/Haraka), we observed that before the adoption of travis-CI the submitted pull requests take a median of 3 hours to be merged while this time increased to 8 hours after CI. Do you think the adoption of this CI service had any influence on the time to review and merge a pull request? If so, how?



26. According to the data we collected for the project haraka/Haraka, once a pull request is reviewed and merged, this pull request still waited a median of 19 days to be shipped to end users before CI, while after CI this number increases to 68 days. Do these numbers make sense to you? Why?



Ending our questionnaire

27. Would you like to be informed about our findings?

Marcar apenas uma oval.

Yes

O No

	28. Would you be willing a time convenient for y	ng to be contacted for a quick online follow-up interview (at you)?
	Marcar apenas uma ova	al.
	Yes No	
	29. If you checked yes your e-mail, please lea	on one of the two questions above and have not yet left we it below.
	30. Do you have furthe	er comments for us?
on o	ry, we are working our questionnaire oondents selection orithim	As we are seeking to understand the impact of adopting continuous integration on the delivery time of pull-requests, we are looking for respondents that have used CI in some part of their career. We are trying to improve our questionnaire respondents selection algorithm. You do not have to answer the rest of the questions. Thank you.
	3. If you'd like to be inf please leave it below.	formed about our findings and have not yet left your e-mail,