

# Hyperledger CICD Proposal



# Current State of CI

















- One way or another, Jenkins is going away at the Linux Foundation
- We currently use a Jenkins Master hosted in LFIT infrastructure, with dynamically allocated workers running on the Vexxhost cloud provider infrastructure
- The Jenkins ecosystem is bloated and community maintained
- Jenkins jobs are updated “manually” in a self-contained repo
- The CI repo is a complex, almost incomprehensible set of scripts/macros we are required to maintain and use in our Jenkins jobs to remain compliant with LFIT
- The current system is highly prone to flakes due to various reasons:
  - Network Bandwidth
  - Disk IO
  - CPU Utilization
- There is no support from LFIT unless we are within 100% compliance with their CI mandates



# Next-Gen CICD Goals

- Fully-managed and affordable solution
- Increased performance
- Reduced overhead in management
- Streamlined Jobs with no “bloat”
- Ability to run jobs on VM’s (not containerized)
- First class support for pipelines (separated from Gerrit)
- Must be maintainable by the community
  - CI jobs should be self-contained in the projects
- Ability for developers to debug without engaging Fabric CI team or LFIT
- Dashboard for developers to understand workflows and status

# Proposed Solutions

	Managed	Budget	Adoption	Gerrit	Goals
Concourse					
Spinnaker and Tekton					
CircleCI					
GitLab		 			
Jenkins					
Travis					

Jobs » hyperledger-cicd

By project My branches All branches

Project	Job Name	Status	Branch	Build Name	Build Steps	Duration	Created	Version
fabric	hyperledger-cicd / fabric / master #153	RUNNING	Update config.yml	build-and-test	build	58 sec ago	00:58	2.0
	hyperledger-cicd / fabric / master #152	SUCCESS	Update config.yml	build-and-test	end-2-end-node	19 min ago	14:50	2.0
	hyperledger-cicd / fabric / master #151	FAILED	Update config.yml	build-and-test	byfn-tests	19 min ago	03:55	2.0
	hyperledger-cicd / fabric / master #150	SUCCESS	Update config.yml	build-and-test	end-2-end-java	19 min ago	10:59	2.0
	hyperledger-cicd / fabric / master #149	SUCCESS	Update config.yml	build-and-test	integration-tests	1 hr ago	59:01	2.0
	hyperledger-cicd / fabric / master #148	SUCCESS	Update config.yml	build-and-test	unit-tests	1 hr ago	11:41	2.0
	hyperledger-cicd / fabric / master #147	SUCCESS	Update config.yml	build-and-test	doc-build	1 hr ago	01:54	2.0
	hyperledger-cicd / fabric / master #146	SUCCESS	Update config.yml	build-and-test	build	1 hr ago	04:55	2.0
	license_update	5 hours ago						
master	59 seconds ago							
release-1.4	12 days ago							

# CircleCI UI

**RUNNING** master / build-and-test

Update config.yml

8 min ago 08:32

689e8fc

Cancel

6 jobs in this workflow

```
graph LR; build[build 04:57] --> doc-build[doc-build 01:56]; build --> unit-tests[unit-tests 03:24]; build --> integration[integration-... 03:24]; doc-build --> end-2-end[end-2-end]; unit-tests --> byfn-tests[byfn-tests]; integration --> byfn-tests;
```

The diagram illustrates a workflow with the following jobs and their dependencies:

- build** (04:57) is the root job, marked as successful (green checkmark).
- doc-build** (01:56) depends on **build** and is also successful (green checkmark).
- unit-tests** (03:24) depends on **build** and is in progress (blue play button).
- integration-...** (03:24) depends on **build** and is in progress (blue play button).
- end-2-end** depends on **doc-build** and is in progress (purple play button).
- byfn-tests** depends on both **unit-tests** and **integration-...** and is in progress (purple play button).

# CircleCI UI

hyperledger-cicd ▼ 🔄 Updates ▼ Support ▼ 👤

📄 JOBS Trial Account Welcome to CircleCI. 0 DAYS LEFT IN TRIAL Contact Sales

🔄 WORKFLOWS Jobs » hyperledger-cicd » fabric » master » 155 (unit-tests) 2.0 🔄 Rerun workflow ▼ ⚙️

📊 INSIGHTS 🟢 SUCCESS Finished: 31 sec ago (11:26) Previous: 154 Parallelism: 1x Queued: 00:00 waiting + 00:02 in queue Workflow: build-and-test Context: N/A Triggered by: Brett Logan (pushed f50c888)

📄 ADD PROJECTS COMMITTS (1)  
Brett Logan GitHub f50c888 Update config.yml

👤 TEAM Test Summary Queue (00:02) Artifacts Configuration Timing Parameters

⚙️ SETTINGS Set Up Test Summary

Show containers: All (1) Successful (1) Failed (0)

0 (11:24) 🟢 +

TEST

- 🔗 Spin up Environment 00:56
- 🔗 Checkout code 00:06
- 🔗 Run Unit Tests 10:21

Jobs » hyperledger-cicd » fabric » master » 106 (unit-test)

Rebuild ⌵ ⚙️

Rerun job with SSH

Triggered by:  
Brett Logan (pushed d244661)

**FAILED** Finished: 1 month ago (52:37) Previous: 105 Parallelism: 1x out of 4x Queued: 00:00 waiting + 00:01 in queue Workflow: fabric Context: N/A

COMMITTS (1)  
Brett Logan [GitHub](#) [d244661](#) Update config.yml

Test Summary (10)	Queue (00:01)	Artifacts	Configuration	Timing	Parameters
-------------------	---------------	-----------	---------------	--------	------------

**UNKNOWN – 10 FAILURES**

Your job ran **6631 tests** with **10 failures**

- TestGetBCCSPFromOpts - factory  
pkcs11\_test.go:80: more
- TestGetBCCSPFromOpts - factory  
pkcs11\_test.go:80: more
- TestGetBCCSPFromOpts - factory  
pkcs11\_test.go:80: more

[More](#) See Most Failed Tests



# CircleCI UI

```
pkcs11_test.go:80:
pkcs11_test.go:81:
pkcs11_test.go:80:
pkcs11_test.go:81:
pkcs11_test.go:80:
pkcs11_test.go:81:
pkcs11_test.go:80:
Error Trace:   pkcs11_test.go:80
Error:        Received unexpected error:
             No PKCS11 library default
             Failed initializing PKCS11 library ForFabric
             github.com/hyperledger/fabric/bccsp/pkcs11.New
               /home/circleci/go/src/github.com/hyperledger/fabric/bccsp/pkcs11/impl.go:52
             github.com/hyperledger/fabric/bccsp/factory.(*PKCS11Factory).Get
               /home/circleci/go/src/github.com/hyperledger/fabric/bccsp/factory/pkcs11factory.go:63
             github.com/hyperledger/fabric/bccsp/factory.GetBCCSPFromOpts
               /home/circleci/go/src/github.com/hyperledger/fabric/bccsp/factory/pkcs11.go:113
             github.com/hyperledger/fabric/bccsp/factory.TestGetBCCSPFromOpts
               /home/circleci/go/src/github.com/hyperledger/fabric/bccsp/factory/pkcs11_test.go:69
             testing.tRunner
               /usr/bin/go/src/testing/testing.go:865
             runtime.goexit
               /usr/bin/go/src/runtime/asm_amd64.s:1337
             Could not initialize BCCSP PKCS11
             github.com/hyperledger/fabric/bccsp/factory.GetBCCSPFromOpts
               /home/circleci/go/src/github.com/hyperledger/fabric/bccsp/factory/pkcs11.go:115
             github.com/hyperledger/fabric/bccsp/factory.TestGetBCCSPFromOpts
               /home/circleci/go/src/github.com/hyperledger/fabric/bccsp/factory/pkcs11_test.go:69
             testing.tRunner
               /usr/bin/go/src/testing/testing.go:865
             runtime.goexit
               /usr/bin/go/src/runtime/asm_amd64.s:1337
Test:         TestGetBCCSPFromOpts
pkcs11_test.go:81:
Error Trace:   pkcs11_test.go:81
Error:        Expected value not to be nil.
Test:         TestGetBCCSPFromOpts
```

[less](#)

# CircleCI UI

The screenshot displays the CircleCI interface for a job named "hyperledger-cicd". The top navigation bar includes the CircleCI logo, the repository name "hyperledger-cicd", and utility links for "Updates" and "Support". A teal banner at the top right indicates a trial account with "0 DAYS LEFT IN TRIAL" and a "Contact Sales" button.

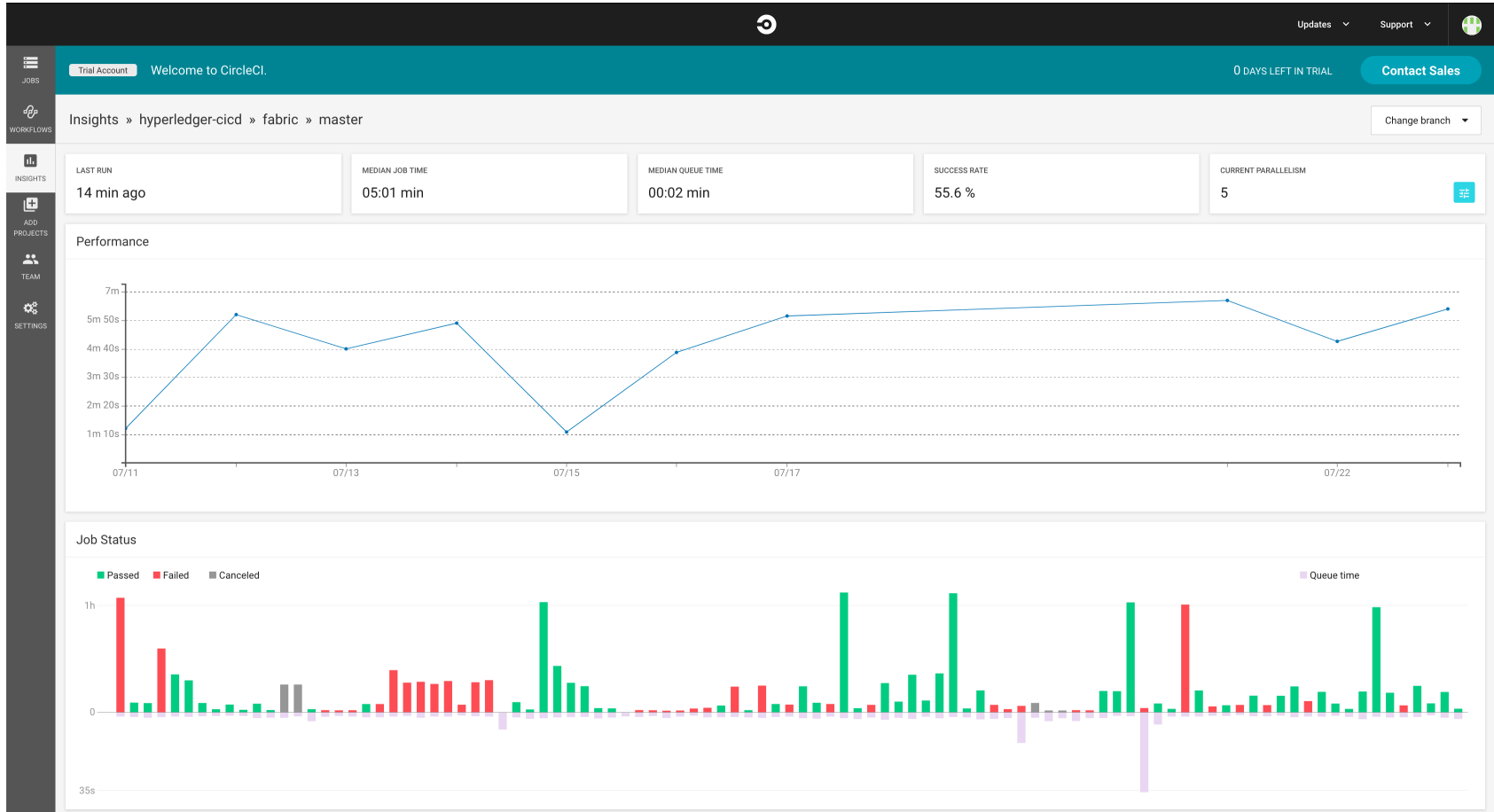
The main content area shows the job path: "Jobs » hyperledger-cicd » fabric » master » 156 (doc-build)". The job status is "SUCCESS", completed "11 min ago (02:01)". Key metrics include "155" previous jobs, "1x" parallelism, and a queue time of "00:00 waiting + 00:02 in queue". The workflow is "build-and-test" and the context is "N/A". The job was triggered by "Brett Logan (pushed f50c888)".

Below the job details, a "COMMITTS (1)" section lists a commit by "Brett Logan" on "GitHub" with hash "f50c888" titled "Update config.yml".

A horizontal navigation bar offers tabs for "Test Summary", "Queue (00:02)", "Artifacts", "Configuration", "Timing", and "Parameters". The "Artifacts" tab is active, displaying a tree view of the job's output:

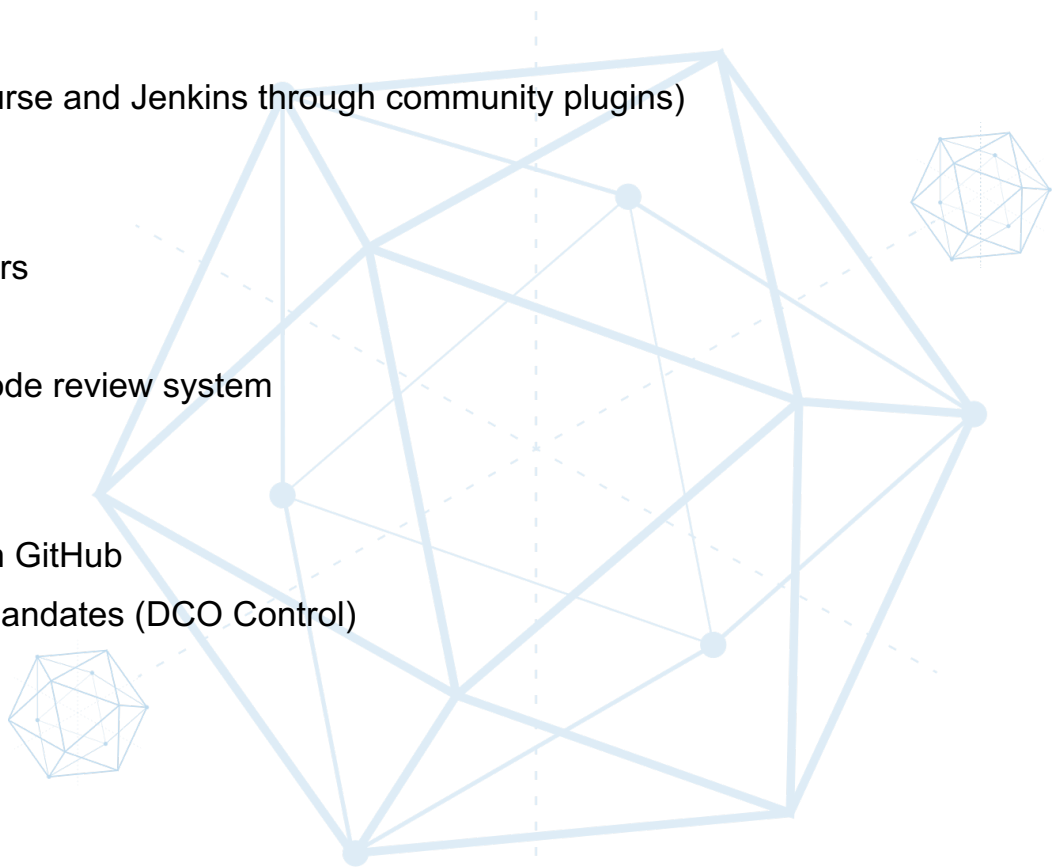
- Container 0
  - docs/
    - .buildinfo
    - CONTRIBUTING.html
    - Fabric-FAQ.html
      - Gerrit/
    - MAINTAINERS.html
    - Style-guides/
    - \_images/
    - \_sources/
    - \_static/
    - access\_control.html
    - arch-deep-dive.html
    - architecture.html
    - blockchain.html
    - build\_network.html
    - capability\_requirements.html
    - chaincode.html
    - chaincode4ade.html
    - chaincode4noah.html
    - channel\_update\_tutorial.html
    - channels.html
      - commands/
    - config\_update.html
    - configtx.html
    - couchdb\_as\_state\_database.html

# CircleCI UI



# Can We Move Away From Gerrit? Yes!

- Most CI systems don't "support" Gerrit (Concourse and Jenkins through community plugins)
- Minimal industry adoption for Gerrit
  - Gerrit is a barrier to entry for new contributors
- GitHub is the most widely adopted SCM and code review system
  - Easy entry for new contributors
- LF already has many projects running solely on GitHub
  - LF has processes to comply with industry mandates (DCO Control)



# Update License #3

[Edit](#)

[Open](#) btl5037 wants to merge 1 commit into `master` from `license_update`

Conversation 2

Commits 1

Checks 0

Files changed 1

+1 -1



btl5037 commented 2 minutes ago

Member + 👤 ...

[FAB-14587] Update License

Provided License update

Change-Id: I0482f644993aa7e8ab924d3dcce12ece6deb3799

Signed-off-by: Brett Logan [brett.t.logan@us.ibm.com](mailto:brett.t.logan@us.ibm.com)

Reviewers ⚙️

No reviews

Assignees ⚙️

No one—assign yourself

Labels ⚙️

None yet

Milestone ⚙️

No milestone

Notifications Customize

Unsubscribe

You're receiving notifications because you authored the thread.

1 participant



Lock conversation



Update License

be7ae1d

btl5037 reviewed now

[View changes](#)

## LICENSE

@@ -2,7 +2,7 @@

```
2 2                                     Version 2.0, January 2004
3 3                                     http://www.apache.org/licenses/
4 4
```

5 - TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

5 + ERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

btl5037 now Author Member + 👤 ...

Not sure what you were trying to achieve, this looks better

Suggested change ⓘ

5 - ERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

5 + TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

Commit suggestion ▼

Add suggestion to batch

Reply...

Resolve conversation

Add more commits by pushing to the **license\_update** branch on **hyperledger-cicd/fabric**.



### Some checks were not successful

[Hide all checks](#)

2 failing and 3 successful checks



**ci/circleci: build** — Your tests failed on CircleCI

[Details](#)



**ci/circleci\_enterprise: integration-tests** — Your tests failed on CircleCI Enter...

[Details](#)



**ci/circleci\_enterprise: build** — Your tests passed on CircleCI Enterprise!

[Details](#)



**ci/circleci\_enterprise: doc-build** — Your tests passed on CircleCI Enterprise!

[Details](#)



**ci/circleci\_enterprise: unit-tests** — Your tests passed on CircleCI Enterprise!

[Details](#)



### This branch has no conflicts with the base branch

Merging can be performed automatically.

Merge pull request



You can also [open this in GitHub Desktop](#) or view [command line instructions](#).



Write

Preview

AA

B

i



Leave a comment

Attach files by dragging & dropping, selecting or pasting them.



Close pull request

Comment

# Update License #3

Edit

Open btl5037 wants to merge 1 commit into master from license\_update

Conversation 2 Commits 1 Checks 0 Files changed 1

+1 -1

Changes from all commits File filter... Jump to... Settings

0 / 1 files viewed Review changes

2 LICENSE  Viewed ...

<pre> @@ -2,7 +2,7 @@ 2      Version 2.0, January 2004 3      http://www.apache.org/licenses/ 4 5 -  TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION </pre>	<pre> 2      Version 2.0, January 2004 3      http://www.apache.org/licenses/ 4 5 +  TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION </pre>
--	--

btl5037 2 minutes ago Author Member ...

What is this

btl5037 2 minutes ago Author Member ...

Not sure what you were trying to achieve, this looks better

Suggested change

```

5 -  TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION
5 +  TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

```

<pre> 6 7  1. Definitions. 8 </pre>	<pre> 6 7  1. Definitions. 8 </pre>
-------------------------------------	-------------------------------------