Key Characteristics

What is Hyperledger Cacti?

Cacti is a pluggable enterprise-grade framework to transact on multiple distributed ledgers without introducing yet another competing blockchain. An SDK of SDKs

Cacti aims to provide Decentralized, Adaptable and Secure Integration to and between Blockchain Networks. It's aim is to cover as many protocols as possible through an extensible plugin architecture where new protocols or functionality can be added by creating new plugins.

Why should I use Cacti?

- To address blockchain fragmentation; Allow developers to connect and perform transactions across different blockchain networks.
- Save (distributed) app developers from reinventing the wheel; Simplify secure interactions with blockchain nodes using a standardized interface across protocols.
- Lower risk of adopting blockchain by businesses; Abstract your app layer from the blockchain protocol, allowing developers to easily change the blockchain protocol being used and reducing risks of your app being obsolete.

What are Cacti Design principles?

- **Key principles:**
  - Plugin architecture: Maximize flexibility and future-proofing through plug-in architecture
  - Secure by Default: Avoid needing explicit action from users to have a secure Cacti deployment.
  - Toll Free: Users should not be required to use tokens for transactions & Operators should not be required to take a cut of individual transactions
  - Low Impact Deployment: Do not interfere with or impede existing network requirements
- **Additional principles:**
  - Wide Support: Support as many blockchain protocols as possible, and constantly support new ones.
  - Prevent Double Spending: Whenever two networks are interacting with each other ensure that there is no double spend whenever possible.
  - Preserving Ledger Features: Using Cacti should allow you to use all the features which the protocol enables.
  - Horizontal Scalability: Cacti should never be the bottleneck of all the networks involved. I.E: If 2 networks can do 100tps, Cacti should be able to handle 200

What are Cacti current features?

- **Connectors** for different blockchain protocols
  - Hyperledger Besu, Hyperledger Fabric, (WIP for Corda, Geth, and Quorum)
- **Atomic transfers** across ledgers
  - HTLCs for Ether, ERC20 (WIP Fabtoken)
- **Decoupled identity**
  - JWT, (WIP OpenAPI)
- **Metrics**
  - Prometheus and Grafana based monitoring of the individual plugins

Getting Involved

You are invited to get involved with the Cacti project. Here are some ways you can get started.

1. Join one of our pair programming calls
   a. North America Morning/Europe Evening
   b. Asia-Pacific Morning/Europe Morning
2. Instructions on building Cacti (the framework itself)
3. Join communication channels and introduce yourself and ask questions (details below)
4. Grab a good first issue based on your level of experience/technical area(s) of expertise or interests:
   a. All Good First Issues
   b. Climate Action SIG Specific Good First Issues
   c. Level 100 - Introductory Good First Issues
   d. Level 200 - Intermediate Good First Issues
   e. Level 300 - Advanced Good First Issues
   f. Level 400 - Expert Good First Issues

Communication

**Mailing List**
- cactus@lists.hyperledger.org
  - subscribe
  - messages

**Chat (for questions and ephemeral discussions)**

Questions are welcome and best asked in Hyperledger Discord. Learn more about Hyperledger Discord here, get the invite and check out one of the many Cacti project channels.

**Meetings**

https://lists.hyperledger.org/g/cactus/calendar
How can I collaborate?

To see a guide on how to use Hyperledger Cacti, take a look at the links below in the Documentation section. Keep in mind that this is currently being updated so please write us through the different means listed in the Communication section.

If you want to collaborate in Cacti' development, you can pick an issue directly from Github – we've linked to some good first issues below that are good places to start for new contributors. If you need extra guidance, contact us through the chat or join one of our meetings and we can help you.

85 Open

0 Closed

Query: state=open&labels=good-first-issue

- feat(openapi): java clients for packages affected by openapi bug
  good-first-issue-100-introductory
  #2970 opened Jan 05, 2024 by jagpreetsinghsasan

- build(frontend): fix broken build:dev script
  good-first-issue-400-expert
  #2890 opened Nov 16, 2023 by petermetz

- build: upgrade all test infrastructure container images to ubuntu-dind@v24.0.7
  good-first-issue-400-expert
  #2853 opened Oct 30, 2023 by petermetz

- fix(weaver): resource incorrect permission assignment
  good-first-issue-200-intermediate
  #2769 opened Oct 11, 2023 by jagpreetsinghsasan

- fix(weaver): improper resource access authorization
  good-first-issue-300-advanced
  #2768 opened Oct 11, 2023 by jagpreetsinghsasan

- fix(weaver): improper exception handling
  good-first-issue-200-intermediate
  #2767 opened Oct 11, 2023 by jagpreetsinghsasan

- fix(test-tooling): use of hardcoded password
  good-first-issue-100-introductory
  #2766 opened Oct 11, 2023 by jagpreetsinghsasan

- fix(plugin-htlc-coordinator-besu): missing HSTS Header
  good-first-issue-400-expert
  #2763 opened Oct 11, 2023 by jagpreetsinghsasan

- fix(connector-quorum/weaver): remove/encrypt sensitive data
  good-first-issue-300-advanced
  #2762 opened Oct 11, 2023 by jagpreetsinghsasan

- fix(connector-quorum/ethereum): strengthen contract parameter validation
  good-first-issue-400-expert
  #2760 opened Oct 10, 2023 by petermetz

  good-first-issue-400-expert
  #2745 opened Oct 05, 2023 by zondervancaalvez

- perf(github): add knob/flag to manually override CI skip
  good-first-issue-300-advanced
  #2679 opened Sep 10, 2023 by petermetz
style(cmd-api-server): fix Unexpected any lint W in getOrCreateWebServices()
good-first-issue
#2676 opened Sep 10, 2023 by petermetz
3

> ci(actionlint): fix the errors produced by the ActionLint tool
bug
good-first-issue
#2651 opened Aug 31, 2023 by petermetz
0

> docs(devcontainer): add trivy and its VSCode Extension documentation
good-first-issue
#2650 opened Aug 31, 2023 by petermetz
0

> ci: break up ci.yaml into smaller workflow files - use workflow calls
good-first-issue
#2639 opened Aug 24, 2023 by petermetz
7

> fix(security): address CVE-2017-16137 - RegEx DoS in debug
security
good-first-issue
#2626 opened Aug 18, 2023 by petermetz
1

> build(deps): persistently bump word-wrap from 1.2.3 to >=1.2.5
dependencies
good-first-issue
#2601 opened Aug 10, 2023 by petermetz
0

> ci(weaver): ensure yarn cache is populated by build-dev
good-first-issue
#2600 opened Aug 10, 2023 by petermetz
0

> build(deps): persistently bump word-wrap from 1.2.3 to >=1.2.5
dependencies
good-first-issue
#2569 opened Jul 24, 2023 by petermetz
0

> ci(security): leverage soos.io's free offerings
security
good-first-issue
#2561 opened Jul 20, 2023 by petermetz
0

> build(all-nodejs-packages-publish): restrict job trigger pattern to semver
dependencies
good-first-issue
#2463 opened Jun 16, 2023 by petermetz
0

> build(api-client): fix tsc errors of @types/jsonwebtoken verify call
dependencies
security
good-first-issue
#2390 opened Apr 12, 2023 by petermetz
5

> build(deps): ensure persistent bump of openssl from 0.10.32 to 0.10.48
dependencies
security
#2365 opened Apr 04, 2023 by petermetz
3
ci(github): address Warning: The `save-state` command is deprecated
good-first-issue
Triage_NeedsHacking
#2361 opened Apr 03, 2023 by petermetz

perf(ci): only publish artifacts on git version tags of main
good-first-issue
SPIKE
dependencies
Triage_Needed
#2360 opened Mar 31, 2023 by petermetz

> test(connector-iroha): fix flaky http 400 run-transaction-endpoint-v1.test.ts
bug
good-first-issue
Hackerfest
good-first-issue-400-expert
#2343 opened Mar 24, 2023 by petermetz

> chore(lint): enable ESLint for ./weaver/
good-first-issue
Developer_Experience
Triage_Needed
Hacktoberfest
good-first-issue-300-advanced
#2308 opened Feb 27, 2023 by petermetz

> build(dev-container): add gpg signing key support
enhancement
good-first-issue
Developer_Experience
#2209 opened Nov 21, 2022 by petermetz

> tools(besu-all-in-one): fix CVE-2022-37734
documentation
#2182 opened Jun 14, 2022 by RafaelAPB

> fix(security): vulnerabilities found in example-carbon-accounting
documentation
good-first-issue
Documentation
#2063 opened Jun 01, 2022 by zondervancalvez

> fix(security): vulnerabilities found in besu-all-in-one
documentation
good-first-issue
Besu
#2055 opened Jun 01, 2022 by zondervancalvez

> developer experience: test ledgers
documentation
good-first-issue
Developer_Experience
#1924 opened Mar 14, 2022 by RafaelAPB

> docs: add org.opencontainers.image.description label to all images
documentation
good-first-issue
Documentation
#1657 opened Dec 14, 2021 by petermetz

> refactor: use new node protocol imports
documentation
good-first-issue
Developer_Experience
#1654 opened Dec 14, 2021 by petermetz
fix(docs/examples): cockpitEnabled default value confusion
documentation
good-first-issue
help wanted
developer_experience
hacktoberfest
#1653 opened Dec 13, 2021 by petermetz

test(jest): fix jest-haste-map: Haste module naming collisions
documentation
good-first-issue
help wanted
developer_experience
hacktoberfest
#1645 opened Dec 08, 2021 by petermetz

ci: custom check for package module,main,types,etc
documentation
good-first-issue
developer_experience
hacktoberfest
#1644 opened Dec 08, 2021 by petermetz

ci: enable caching of container image builds
documentation
good-first-issue
help wanted
developer_experience
hacktoberfest
#1587 opened Nov 23, 2021 by petermetz

test: stabilize cactus-plugin-htlc-eth-besu openapi validation - refundV1
documentation
good-first-issue
hacktoberfest
#1528 opened Nov 10, 2021 by petermetz

test: fix flake in install-basic-plugin-ledger-connector-fabric-0-7-0.test.ts
documentation
good-first-issue
hacktoberfest
#1495 opened Nov 02, 2021 by petermetz

test(connector-corda): fix flaky deploy-cordapp-jars-to-nodes test
documentation
good-first-issue
hacktoberfest
#1485 opened Oct 27, 2021 by petermetz

test(connector-corda): fix flaky v4.7 test
documentation
good-first-issue
hacktoberfest
#1473 opened Oct 22, 2021 by petermetz

test(connector-corda): fix flaky v4.8 test
documentation
good-first-issue
hacktoberfest
#1469 opened Oct 21, 2021 by petermetz

docs(examples): supply-chain-app to copy env into child containers
documentation
good-first-issue
hacktoberfest
#1468 opened Oct 21, 2021 by petermetz

fix(key-converter): Files needs to migrated from Tape to Jest
documentation
good-first-issue
hacktoberfest
#1461 opened Oct 18, 2021 by awadhana

feat: support for M1 macs (arm64)
documentation
enhancement
good-first-issue
spi
hacktoberfest
#1438 opened Oct 05, 2021 by jsladerman

docs: add cross-references to BUILD.md and CONTRIBUTING.md
documentation
enhancement
good-first-issue
ghc-osd
#1394 opened Oct 01, 2021 by Nancy8

test(connector-besu): fix missing multi-party all-in-one ledger image caching
documentation
good-first-issue
hacktoberfest
#1386 opened Sep 28, 2021 by petermetz

fix(plugin-htlc-eth-besu): error handling get-status-endpoint
documentation
good-first-issue
hacktoberfest
#1386 opened Sep 28, 2021 by petermetz

#1383 opened Sep 24, 2021 by petermetz
> fix(plugin-htlc-eth-besu): error handling get-single-status-endpoint
> [bug] good-first-issue
> Besu
> Devel
> oper_Experience
> Hacktoberfest
good-first-issue-300-advanced

#1382 opened Sep 24, 2021 by petermetz
> fix(plugin-htlc-eth-besu-erc20): error handling in get-single-status-endpoint
> [bug] good-first-issue
> AP
> I_Server
> Besu
> Developer_Experience
good-first-issue-300-advanced

#1380 opened Sep 24, 2021 by petermetz
> fix(plugin-htlc-eth-besu-erc20): error handling in get-status-endpoint
> [bug] good-first-issue
> API_Serv
> Besu
> Developer_Experience
good-first-issue-300-advanced

#1379 opened Sep 24, 2021 by petermetz
> [EPIC] fix: error handling in REST API endpoints
> [bug] documentation
> good-first-issue
> API_Server
> Driver_Experience
> Hacktoberfest
> Core_API
> Epic
good-first-issue-400-expert

#1378 opened Sep 24, 2021 by petermetz
> fix(iroha-connector): make compareAndSetAccountDetail accept correct parameters
> [bug] good-first-issue
> Developer_Experience
> Significant_Change
> Hacktoberfest
dependent

good-first-issue-400-expert
Iroha

#1265 opened Aug 21, 2021 by hanxu12
> feat(iroha-connector): make Iroha AIO a single node setup with an in-memory database
> [good-first-issue]
> Nice-to-Have
> Performance
> Hacktoberfest
good-first-issue-400-expert
Iroha

#1264 opened Aug 21, 2021 by hanxu12
> feat(iroha-connector): replace iroha docker AIO healthcheck with curling the iroha metric page
> [enhancement]
> good-first-issue
> nice-to-have
> Hacktoberfest

good-first-issue-300-advanced
Iroha

#1263 opened Aug 21, 2021 by hanxu12
> fix(iroha-connector): fix and test Iroha command Call Engine
> [enhancement]
> good-first-issue
> significant
> change
> Hacktoberfest
dependent

good-first-issue-400-expert
Iroha

#1256 opened Aug 20, 2021 by hanxu12
> feat(connector-iroha): implement gRPC TLS communication for Iroha connector
> [bug]
> good-first-issue
> dependencies
> Security
> Developer_Experience
> Hacktoberfest

good-first-issue-300-advanced
Iroha

#1251 opened Aug 20, 2021 by hanxu12
> feat(keychain-google-sm): bootstrap README.md
> [documentation]
> good-first-issue
> Keychain
> good-first-issue-400-expert

#1245 opened Aug 19, 2021 by Leeyoungone
> refactor(containers): migrate all images to ubuntu-22.04
> [enhancement]
> good-first-issue
> dependencies
> Security
> Developer_Experience
> Hacktoberfest

good-first-issue-400-expert

#1211 opened Aug 12, 2021 by petermetz
> refactor(cmd-api-server): migrate from convict to yargs
> [documentation]
> good-first-issue
> API_Server
> dependencies
> Security
> Developer_Experience
> Hacktoberfest

good-first-issue-300-advanced

#1200 opened Aug 10, 2021 by petermetz
> test(test-tooling): fix flaky corda-test-ledger boot hang
> [bug]
> good-first-issue
> Corda
> dependencies
> Hacktoberfest

good-first-issue-400-expert
Flaky-Test-Automation
Tests
P5
backlog

#1159 opened Jul 22, 2021 by petermetz
> feat(keychain-google-sm): bootstrap README.md
> [documentation]
> good-first-issue
> Keychain
> good-first-issue-400-expert

#1096 opened Jun 28, 2021 by jagpreetsinghsasan
> feat(test-tooling): flag to omit contract deployment in Fabric AIO container
> [documentation]
> Fabric
> dependencies
> Hacktoberfest

good-first-issue-300-advanced
Tests
P9

#887 opened Apr 29, 2021 by petermetz
Hyperledger Cacti is currently undergoing a major refactoring effort to enable the desired-to-be architecture which will enable plug-in based collaborative development to increase the breadth of use cases & Ledgers supported.

For a better understanding of where Hyperledger Cacti is heading please see the Whitepaper and Design Principles below!

Documentation

- Whitepaper
- Original Design Principles Google Doc

Project Management

Hyperledger Cacti uses GitHub Issues to track work items.

Repositories
Hyperledger Cacti uses GitHub for source code control.

- Main repo

**History**

- Approved by the TSC on 30 APR 2020
- Proposal the TSC voted on

**Recent space activity**

**Space contributors**

- Peter Somogyvari (4 days ago)
- David Boswell (121 days ago)
- Sean W. Bohan (169 days ago)
- Ry Jones (185 days ago)
- Izuru Sato (282 days ago)
- ...

Peter Somogyvari  
2024-01-17 Cacti Maintainers Agenda created Jan 17, 2024  
2024 Agendas created Jan 17, 2024  
2023-12-20 Cacti Maintainers Agenda created Dec 20, 2023  
2023-12-06 Cacti Maintainers Agenda updated Dec 06, 2023 view change  
2023-11-01 Cacti Maintainers Agenda updated Nov 01, 2023 view change