Hyperledger Cacti Home

<table>
<thead>
<tr>
<th>Project</th>
<th>Hyperledger Cacti</th>
<th>GRADUATED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td></td>
<td>blocked URL</td>
</tr>
<tr>
<td>CII Badge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Hyperledger Cacti is a plugin-based framework which aims to provide developers with an abstraction over protocol specific implementations and enabling interoperability. This enables solutions to adapt to new protocols and make transactions involving multiple public and/or permissioned ledgers more easily.</td>
<td></td>
</tr>
</tbody>
</table>

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 aims 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 re-inventing 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. IE: 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 Fabinfork)
- **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**

Documentation

- Cacti documentation

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.
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.

70 Open
0 Closed
Query: state=open&labels=good-first-issue

- test(weaver/sdk/node): fix flake - InteroperableHelper cryptographic fn|good-first-issue-Hacktoberfest
  good-first-issue-300-advanced|Flaky-Test-Automation|Weaver
  #3336 opened Jun 19, 2024 by petermetz
  2
- test(weaver/interoperation-node-sdk): fix broken nyc test|good-first-issueDeveloper_Experience
  Hacktoberfest|good-first-issue-300-advanced|Flaky-Test-Automation|Tests|P3|Weaver
  #3305 opened Jun 11, 2024 by petermetz
  5
- feat(connector-daml): aio image|good-first-issueDAML|good-first-issue-200-intermediate
  #3284 opened May 28, 2024 by jagpreetsinghsasan
  1
  - build: upgrade all test infrastructure container images to ubuntu-dind@v24.0.7|good-first-issue
    good-first-issue-400-expert|P3
    #2853 opened Oct 30, 2023 by petermetz
    21
  - fix(weaver): resource incorrect permission assignment|good-first-issueSecurity
    Hacktoberfest|good-first-issue-200-intermediate|P4|Weaver
    #2769 opened Oct 11, 2023 by jagpreetsinghsasan
    4
  - fix(weaver): improper resource access authorization|good-first-issueSecurity
    Hacktoberfest|good-first-issue-300-advanced|P4|Weaver
    #2768 opened Oct 11, 2023 by jagpreetsinghsasan
    0
  - fix(test-tooling): use of hardcoded password|good-first-issueSecurity
    Hacktoberfest|Security
    #2766 opened Oct 11, 2023 by jagpreetsinghsasan
    4
  - fix(connector-quorum/weaver): remove/encrypt sensitive data|good-first-issueSecurity
    Hacktoberfest|P3|Weaver
    #2762 opened Oct 11, 2023 by jagpreetsinghsasan
    0
  - perf(github): add knob/flag to manually override CI skip|good-first-issueDeveloper_Experience
    Triage|Needed|Performance|Hacktoberfest|good-first-issue-300-advanced|Tests|P3|Weaver
    #2679 opened Sep 10, 2023 by petermetz
    7
  - style(cmd-api-server): fix Unexpected any linter W in getOrCreateWebServices()|good-first-issue
    API|Server|Hacktoberfest
    #2676 opened Sep 10, 2023 by petermetz
    3
  - docs(devcontainer): add trivy and its VSCode Extension|documentation|good-first-issueSecurity
    |P3|Weaver
    #2650 opened Aug 31, 2023 by petermetz
    1
  - ci: break up ci.yaml into smaller workflow files - use workflow calls|good-first-issueDeveloper_Experience
    Hacktoberfest|good-first-issue-400-expert|P3|Weaver
    #2639 opened Aug 24, 2023 by petermetz
    7
  - build(weaver): eliminate need for package-local.json manifests|good-first-issueDependencies
    Developer_Experience|good-first-issue-400-expert|P3|Weaver
    #2601 opened Aug 20, 2023 by petermetz
ci(weaver): ensure yarn cache is populated by build-dev
good-first-issuePerformance
good-first-issue-400-expert
Tests
#2600 opened Aug 10, 2023 by petermetz

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

#2545 opened by Jul 08, 2023

test(cmd-api-server): fix install-basic-plugin-ledger-connector-quorum-0-7-0
PI_Server
Hacktoberfest
good-first-issue-400-expert
#2545 opened Jul 08, 2023 by petermetz

refactor(plugin-htlc-eth-besu): stop using the deprecated api.encodePacked
Security
Hacktoberfest
good-first-issue-300-advanced
#2531 opened Jul 02, 2023 by petermetz

build(api-client): fix tsc errors of @types/jsonwebtoken verify call
dependencies
#2523 opened Jun 28, 2023 by petermetz

buid(tsc): re-enable useUnknownInCatchVariables typescript compiler
enhancements
Security
Developer_Experience
#2493 opened Jun 16, 2023 by petermetz

#2385 opened Apr 11, 2023 by petermetz

ci(all-nodejs-packages-publish): restrict job trigger pattern to semver
dependencies
#2361 opened Apr 03, 2023 by petermetz

#2308 opened Feb 27, 2023 by petermetz

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

#2182 opened Nov 01, 2022 by petermetz

build(plugin-keychain-memory-wasm): upgrade OpenAPI generator to 5.2.1
Keychain
good-first-issue-400-expert
#2181 opened Oct 31, 2022 by petermetz

fix(test-tooling): rustc container memory is not defined
Test-Automation
#2104 opened Jun 30, 2022 by petermetz

#2065 opened Jun 01, 2022 by zondervancalvez

fix(security): vulnerabilities found in besu-all-in-one
Security
#2063 opened Jun 01, 2022 by zondervancalvez

fix(security): vulnerabilities found in corda-4-7-all-in-one
Security
#2065 opened Jun 01, 2022 by zondervancalvez

fix(security): vulnerabilities found in corda-4-6-all-in-one
Security
#2063 opened Jun 01, 2022 by zondervancalvez

fix(security): vulnerabilities found in besu-all-in-one
documentation
#2065 opened Jun 01, 2022 by zondervancalvez

#2065 opened Jun 01, 2022 by zondervancalvez
test(connector-besu): fix missing multi-party all-in-one ledger image caching

fix(plugin-htlc-eth-besu): error handling get-status-endpoint

fix(plugin-htlc-eth-besu): error handling get-single-status-endpoint

fix(plugin-htlc-eth-besu-erc20): error handling in get-status-endpoint

fix(plugin-htlc-eth-besu-erc20): error handling in get-single-status-endpoint

[EPIC] fix: error handling in REST API endpoints

fix(iroha-connector): make compareAndSetAccountDetail accept correct parameters

feat(iroha-connector): make Iroha AIO a single node setup with an in-memory database

feat(iroha-connector): replace iroha docker AIO healthcheck with curling the iroha metric page

fix(iroha-connector): fix and test Iroha command Call Engine

fix(iroha-connector): implement gRPC TLS communication for Iroha connector

docs(ci): debugging on CI server through ssh with VScode debugger

refactor(containers): migrate all images to ubuntu-22.04

refactor(cmd-api-server): migrate from convict to yargs

test(test-tooling): fix flaky corda-test-ledger boot hangs
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.

History

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

Recent space activity

Peter Somogyvari
2024-07-18 Cacti Maintainers Agenda created Jul 12, 2024
2024-07-11 Cacti Maintainers Agenda created Jul 11, 2024

Jennifer Bell
Hyperledger Cacti Home updated Jun 26, 2024
Exposing Weaver Modules as Cacti Packages updated Jun 21, 2024

Peter Somogyvari
2024-06-27 Meeting Agenda created Jun 20, 2024

Space contributors

- Peter Somogyvari (5 days ago)
- Jennifer Bell (22 days ago)
- Sean W. Bohan (63 days ago)
- Ramakrishna V (77 days ago)
- Ry Jones (85 days ago)
- ...