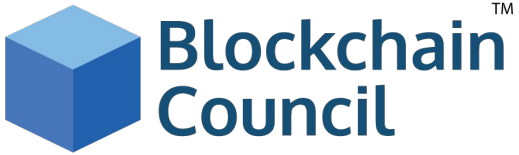


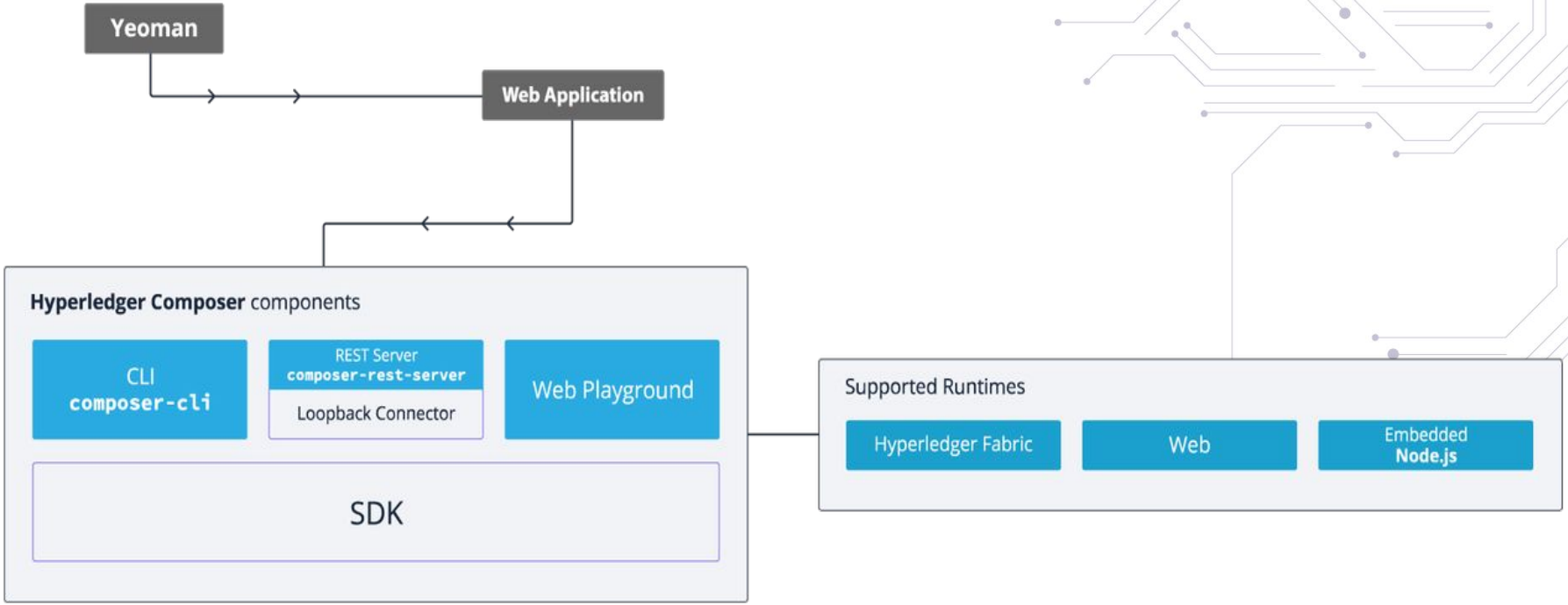
Certified Hyperledger Expert

How Hyperledger Composer works?

Working Model

- Hyperledger Composer enables Blockchain developers or solution architects to quickly create "full-stack" blockchain solutions.
- It helps developers:
  - to write business logic which runs on Blockchain
  - in the integration of the application
  - develop REST APIs to create endpoints so that applications can interact with the Blockchain

Working Model



Components of Composer

- **Execution Runtimes:** Hyperledger Composer has been designed to support different pluggable runtimes, and currently has three runtime implementations:
  - Hyperledger Fabric v1.1.
  - Web, which executes within a web page, and is used by Playground.
  - Embedded, which executes within a Node.js process, and is used primarily for unit testing of business logic.

- **Connection Profiles:** There are used to specify how to connect to an execution runtime. They are part of Business Network cards. There are different configuration options for each type of execution runtime.

  - For example, the connection profile for a Hyperledger Fabric v1.1 runtime will contain the TCP/IP addresses and ports for the Fabric peers, as well as cryptographic certificates etc.

Components of Composer

- **VSCode and Atom Editor Extensions:** Hyperledger Composer has editor extensions for VSCode and Atom.
  - The VSCode extension is very powerful and validates Composer model and ACL files, providing syntax highlighting, error detection and snippets support.
  - The Atom plugin is much more rudimentary and only has basic syntax highlighting.

- **JavaScript SDK:** The Hyperledger Composer JavaScript SDK consists of Node.js APIs that enables developers to create applications that helps in managing and interacting with deployed business networks. The APIs are split between two npm modules:
  - **composer-client** used to submit transactions to a business network or to perform Create, Read, Update, Delete operations on assets and participants
  - **composer-admin** used to manage business networks (install, start, upgrade)

Components of Composer

- **REST Server:** Composer's REST Server automatically generates a Open API REST API for a business network. The REST Server which is based on LoopBack technology, converts the Composer model for a business network into an Open API definition. It implements Create, Read, Update and Delete API support for assets and participants and also allows transactions to be submitted for processing or retrieved.

- **LoopBack Connector:** It is basically used by the Composer REST Server, however it can be used standalone by integration tools that support LoopBack natively. Alternatively it may be used with the LoopBack tools to create more sophisticated customizations of the REST APIs.

Components of Composer

- **Command Line Interface:** The CLI tools enables developers and administrators to deploy and manage business network definitions.

- **Playground Web User Interface:** Playground is a web UI to define and test business networks. It allows quick importing of samples and prototyping of business logic that executes on the Web or Hyperledger Fabric runtime.

- **Yeoman Code Generators:** Hyperledger Composer uses the Open Source Yeoman code generator framework to create skeleton projects:
  - Angular web application
  - Node.js application
  - Skeleton business network

THANK YOU!

Any questions?

You can mail us at

hello@blockchain-council.org