

1) write about different hyperledger frame works?

Hyperledger fabric: hyperledger fabric is a permissioned blockchain infrastructure, originally contributed by IBM. and digital Asset. providing a modular Architecture with a delineation of roles between the nodes in the infrastructure. Execution of Smart Contracts. [called "chaincode" in fabric] and Configurable Consensus and membership services fabric Network comprises "peer nodes", which execute chaincode, access ledger data, endorse transactions and interface with applications "order nodes" which ensure the consistency of the blockchain and delivers the endorsed transactions to the peers of the network and membership service providers. generally implemented as a certificate authority. Managing X-509 certificates. which are used to authenticate member identity and roles. fabric is primarily aimed at integration projects in which distributed ledger technology is required. offering no uses facing services other than an SDK for Node.js, Java and Go.

Hyperledger Iroha: Hyperledger Iroha is a blockchain platform implementation and one of the hyperledger.

Projects hosted by the Linux foundation. Hyperledger ~~200th~~ is written in C++. Incorporating unique chain based consensus fault tolerant algorithm called the ordering service. The manipulation accounts and digital assets is supported with the small of fast commands and queries. The India peers are also validation nodes that can distribute half-signed transactions over the Gossip Protocol as part of the multi-signaturing transactions over the In. conjunction with the powerful role-based permission model that incorporates grant capabilities. the end-user applications are endless the blocks are stored in files while the ledger state is stored in the Post glassox database.

The use of SQL database supports implementation of complex analytics against the ledger and straight forward reporting. to use ~~200th~~ the Client use one of the supported Client libraries to create a Protobufly RPL message that is then processed by the ~~200th~~ Platform. written in C++. Hyperledger ~~200th~~ provides a small set of fast commands and queries that covers most common operations for the digital asset management and digital identity management.

Hyperledger Besu: Hyperledger Besu is an open source Ethereum client developed under the Apache 2.0 license and written in Java It can be run on the

ethereum public network or an private permissioned network as well as test networks such as Rinkeby, ropsten and ^{Ganache} Hyperledger Besu includes several consensus algorithms including PoW, PoA and IBFT and has comprehensive permissioning schemes designed specially for uses in a Consortium environment. Hyperledger Besu implements the enterprise ethereum Alliance specification. The EEA specification was established to create common interfaces amongst the various open and closed source projects within ethereum. To ensure users do not have vendor lock-in and to create standard interfaces amongst for teams building applications Besu implements enterprise features in alignments with the EEA Client specifications.

Hyperledger Avalon - Hyperledger Avalon is an open source project hosted by the Linux Foundation and is a ledger independent implementation of the Trusted Computer Specifications published by the enterprise ethereum Alliance. It enables the secure movement of blockchain processing of the main chain to dedicated computing resources. This enables.

- * Improved block chain throughput and lower latency.
- * Improved transaction privacy.

* Attested oracles, which are trusted reporters of data generated outside of the blockchain.

Avalon is designed to help developers gain the benefits of Computational trust and mitigate its drawbacks. A blockchain is used to enforce execution policies and ensure transaction auditability while associated off-chain trusted compute resources execute transactions.

2) Understand and describe the purpose of the following.

- i) Docker ii) Docker compose iii) NPM iv) NVM v) node.js
vi) Git client.

i) Docker: Docker is an open source software platform to create, deploy and manage virtualized application containers on a common operating system. With ecosystem of allied tools, Docker Inc, the company that originally developed Docker, supports commercial edition and is the principal sponsor of an open source tool. Docker is a tool that packages, provisions and runs containers independent of the OS. Container technology is available through the operating system. A container packages the application service or function with all of the libraries, configuration files dependencies and other necessary parts to operate. Each container shares the

Services of one underlying operating system Docker was created to work on Linux platform but has extended to other greater support for non-Linux operating systems, including Microsoft Windows and Apple OS. X-versions of Docker for Amazon Web Services and Microsoft Azure are available.

ii) Docker Compose: Compose is a tool for defining and running multi-container Docker applications with Compose you use a YAML file to configure your application services. Then, with a single command, you ~~to~~ create and start all the services from your configuration. To learn more about all the features of Compose, see the list of features. Compose works in all environments like production staging, development, testing as well as works flows.

iii) NPM: NPM opens up an entire world of JavaScript talent for your team. It is the world's largest software registry. With approximately 3 billion downloads per week the registry contains over 6,00,000 ages open source developers from every continent use NPM to share and borrow packages and many organizations use NPM to manage private development as well. NPM consists of 3 distinct components.

* website

* Command line interface

* The Registry.

iv) NVM : Node Version manager is a neat little bash script that allows you to manage versions of node.js on the same box. A version manager really helps to test our applications under different versions of the related software to switch through installed versions. NVM provides the NVM & use commands. This works similar to install command. So you need to follow this by a version number or one of the aliases. When switching to a different version, NVM will make the node instance in your terminal system link to proper Node.js instance.

v) Node.js :

Node.js is an open source server environment.

Node.js is free.

Node.js runs on various platforms.

Node.js uses Javascript on the server.

Node.js handles a file request.

1) sends the task to computer's file system.

2) Ready to handle the next request.

v) When the file system has opened and read the file the server returns the content to the client.

vi) Git Client :

A Git Client is some software used to work with git repositories for both remote and local store of code you are working with along with its versions, tags and branches or a remote store of code where a team of developers are pushing and pulling changes from.