

EtnaLedger: HyperLedger Fabric for Public Administration and Enterprises

Promoter: University of Catania, Department of Mathematics and Computer Science

Objectives

Hyperledger Fabric is a free and open-source distributed ledger developed by the Linux Foundation to deliver a *permissioned* blockchain that supports widespread programming languages such as *Java*, *Go* and *Node.js* for developing *smart contracts*. In a permissioned blockchain, only invited nodes are allowed to join the network, publish smart contracts, validate transactions, and add nodes, as established by the network policies. This implies that the Hyperledger Fabric network does not require a native cryptocurrency, hence there is neither any cost to pay for validating transactions, nor any fuel to execute smart contracts. *But this comes at a cost:* Hyperledger Fabric requires an affordable and scalable hierarchy of nodes responsible for maintaining the entire infrastructure in order to guarantee the sustainability of the blockchain. For this reason the University of Catania and its partners intend to combine their efforts, experience and skills to run a Hyperledger Fabric instance suitable for any type of enquire and subject, from small and large enterprises to public administrations. Our instance, called **Etnaledger**, is organized in three main levels. The first level is managed by the University of Catania, which is responsible for adding the principal authorities, constituted by the partner organizations. The second level is made up by the principal authorities that are allowed to enroll any participants in the network. The last level is formed by the contributors enrolled by the Etnaledger partners. Contributors can publish their own smart-contracts, use the blockchain or even run validators nodes, depending on their means.

Etnaledger is now looking for partners.

Partners

Partners are organizations running second level nodes. They are directly enrolled by the University of Catania and authorized to enroll contributors. Partners are asked to run a Hyperledge Fabric node according to the Etnaledger configuration policies that satisfy the following hardware features:

- 4 Core CPU, 12 GB of RAM, 1 TB of Hard Disk.

Partners can freely enroll contributors and negotiate with them economic agreements for software developing or consulting without involving the University of Catania.

Contributors

Contributors are freely enrolled by partners, can publish smart contracts or use Etnaledger for any economic purpose. Contributors are asked to run a node depending on their means as follows:

- Micro-enterprises (fewer than 10 employees) must run a node with the hardware described above only if they use the network to publish smart contracts.
- Small enterprises (between 11 and 50 employees) must run two nodes with the hardware described above.
- Medium sized enterprises (between 51 and 250 employees) must ran four nodes with the hardware described above.

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