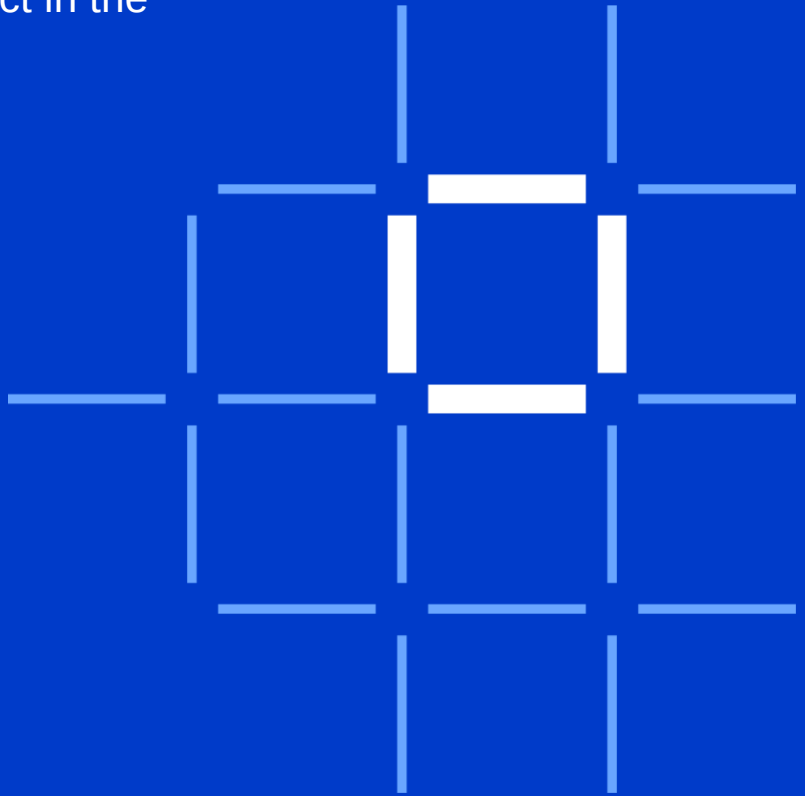
IBM Blockchain Platform Demo

From a clean sheet of paper to a running smart contract in the cloud without writing a single line of code in 20 min.

Stefan Vogel, Industry Solution Architect



V1.0, 16 December 2019

IBM **Blockchain**

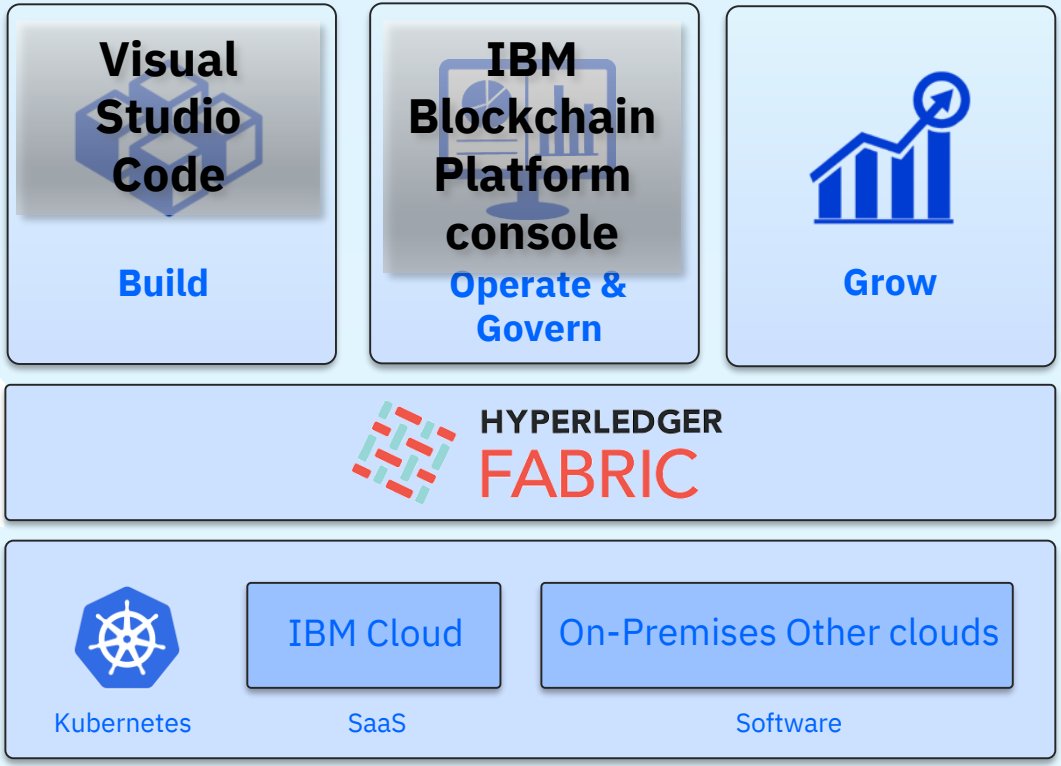
IBM

IBM Blockchain Platform

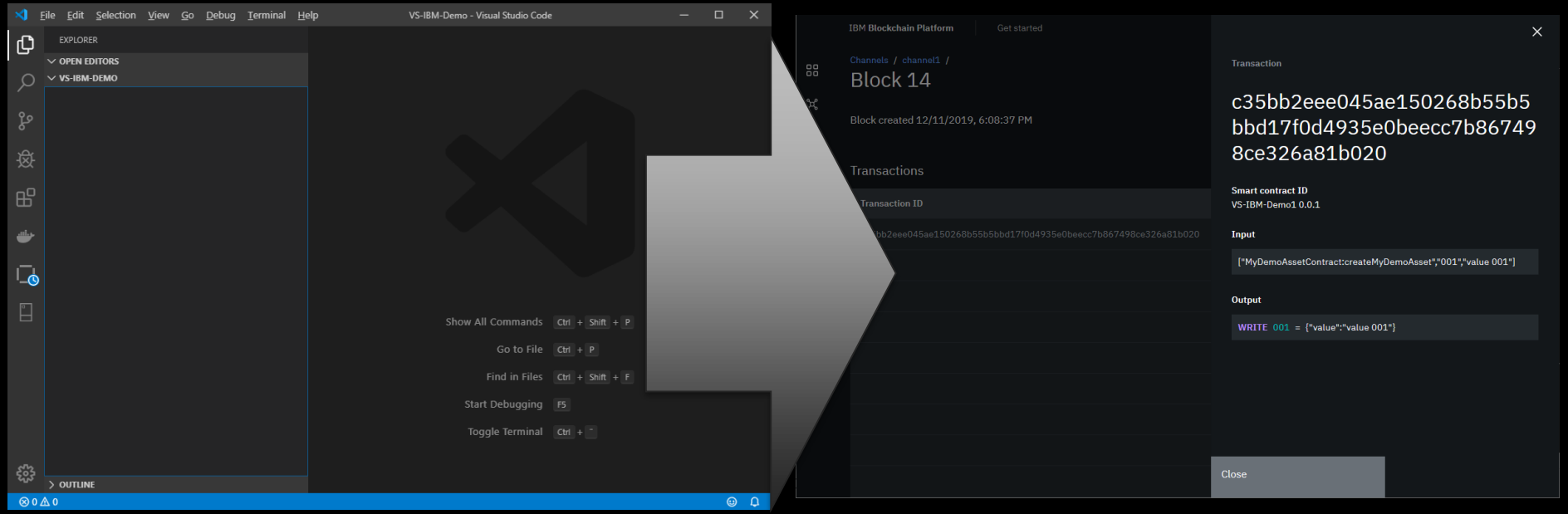
Advanced tooling
allows you to quickly build, operate & govern and grow blockchain networks

Open technology
uses the popular Hyperledger Fabric distributed ledger

Deploy anywhere
fully managed, or flexible deployment on-premises or on other cloud vendors

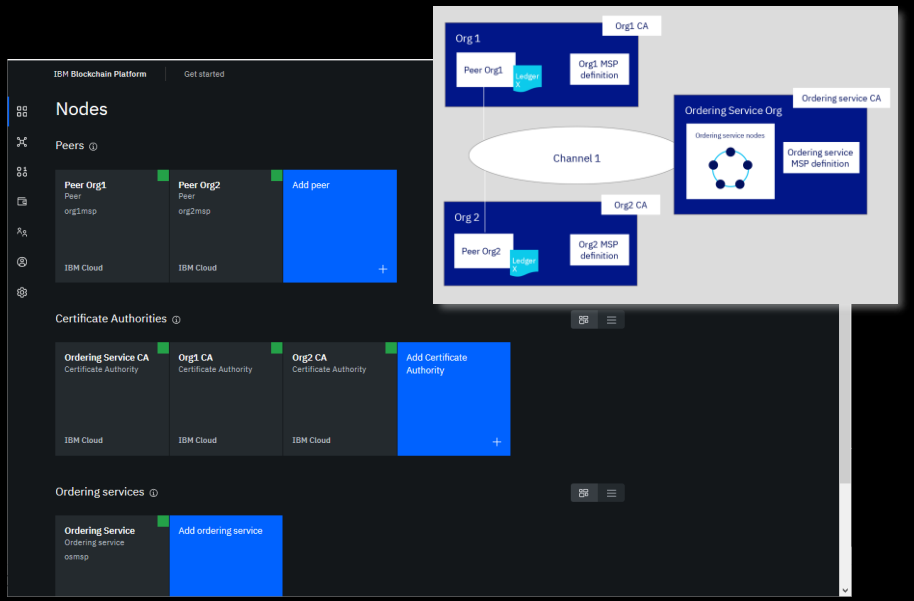


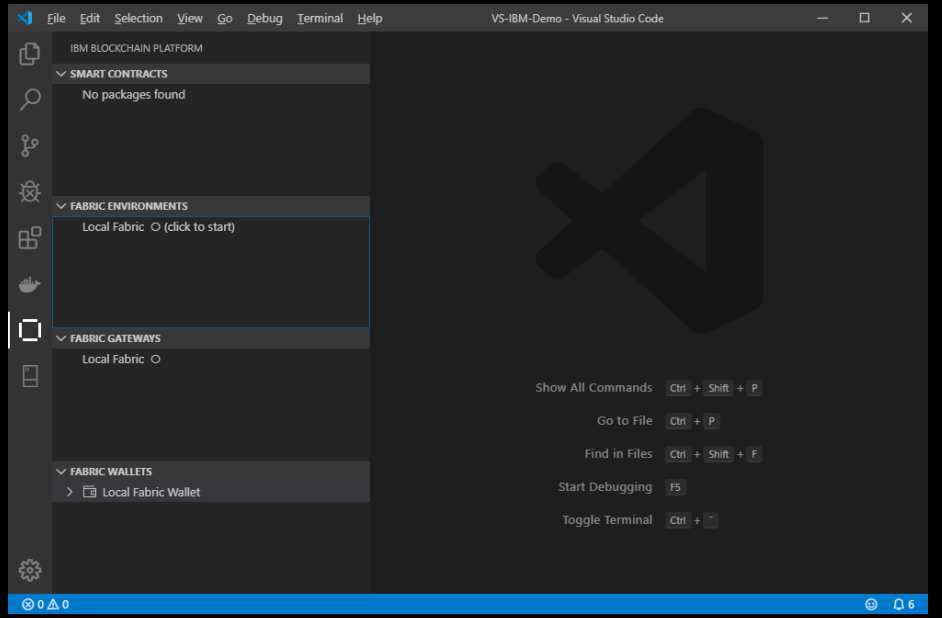
From a Blank Project in VS Code to a Transaction on a Smart Contract in the Cloud



Starting Point:

1) Basic Blockchain Network Running on IBM Blockchain Platform (IBP);
2) IBP Extensions running in VS Code





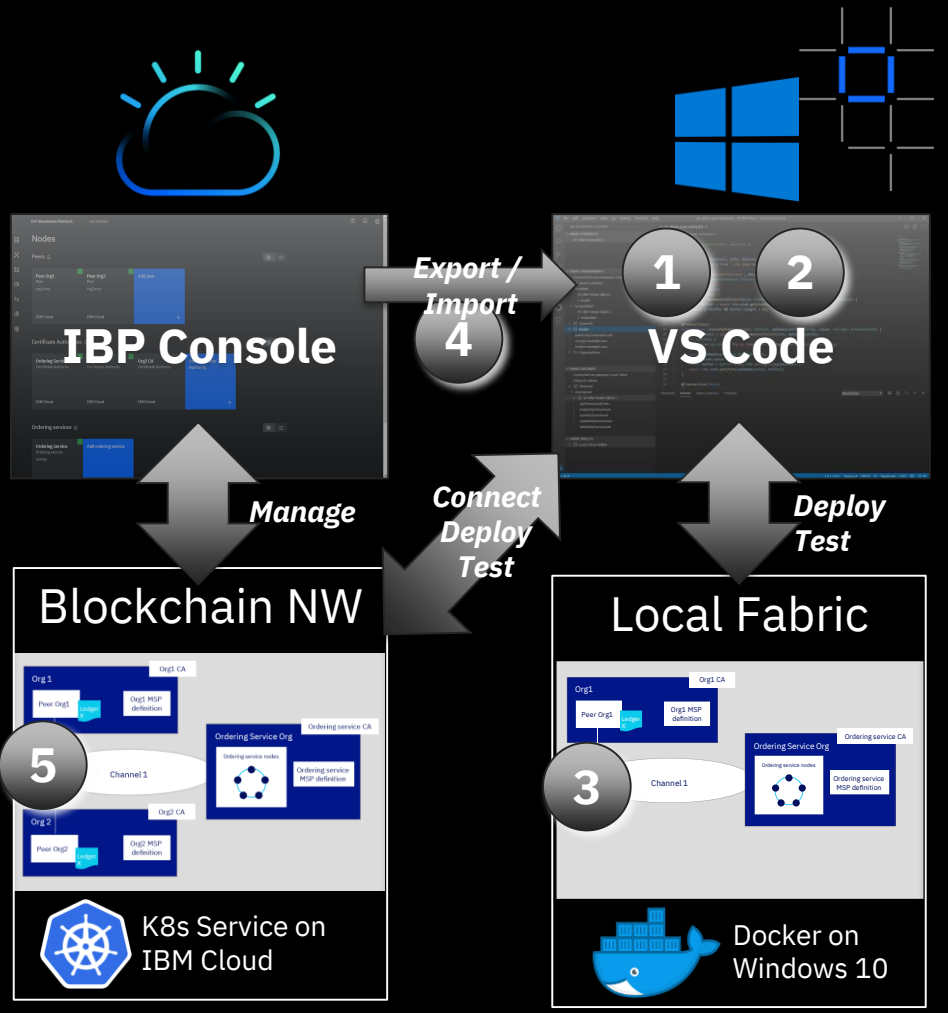
Tutorial to set this up: https://cloud.ibm.com/docs/services/blockchain?topic=blockchain-ibp-console-build-network

See https://marketplace.visualstudio.com/items?itemName=IBMBlockchain.ibm-blockchain-platform

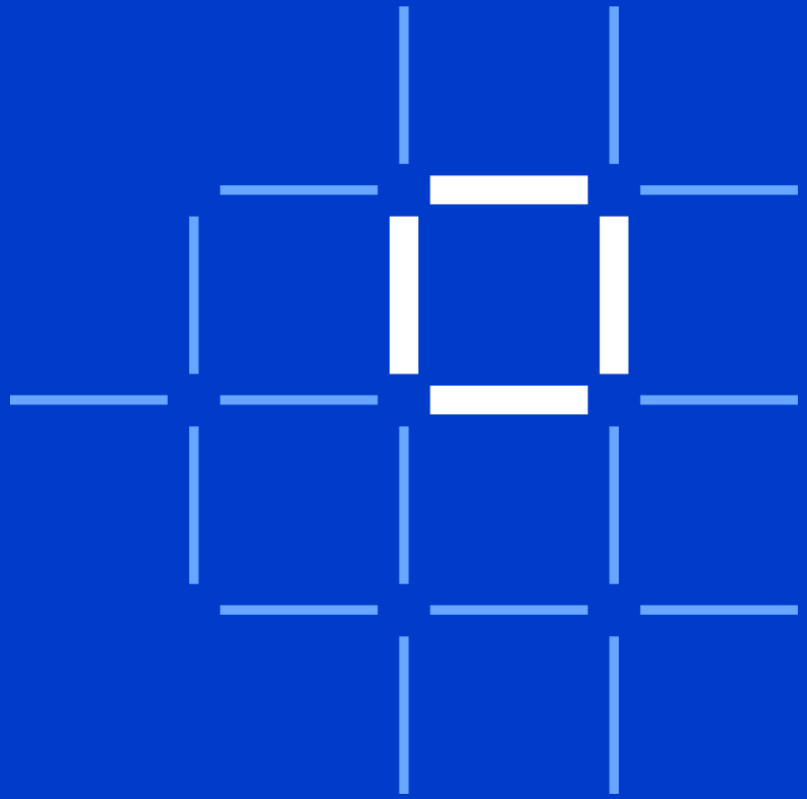
Overview of steps

The following steps are shown in detail, mostly running from VS Code with the IBP Extension:

1. Create a smart contract project
2. Package the smart contract
3. Deploy and test the smart contract locally
4. Connect to IBP in the cloud
5. Deploy and test the smart contract in the cloud

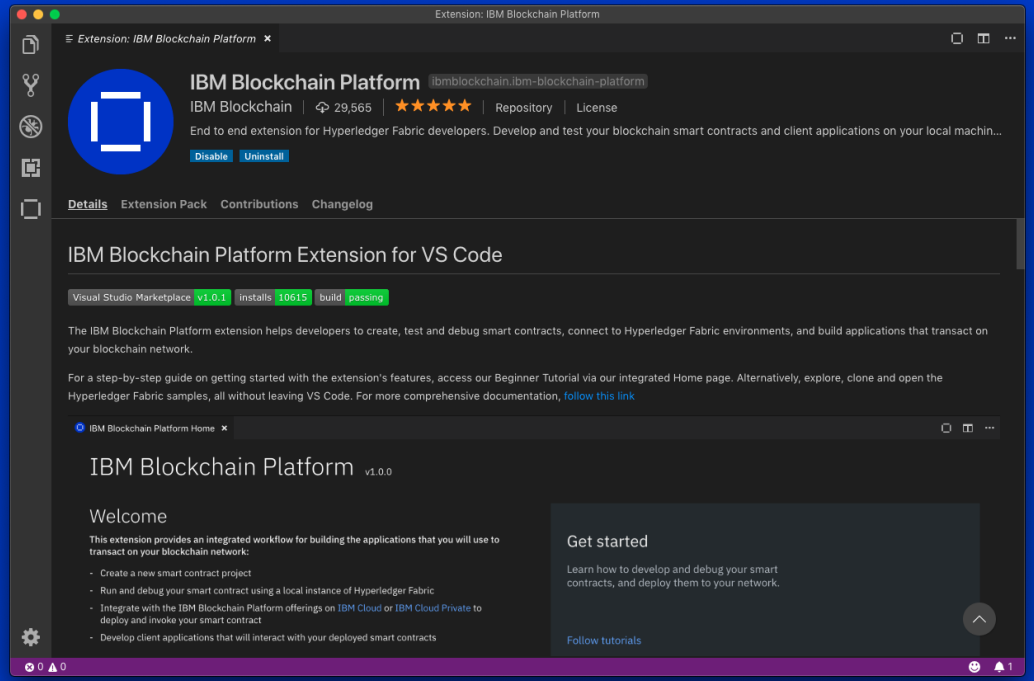


Let’s start the demo...



IBM Blockchain Platform's advanced tooling: **Build**

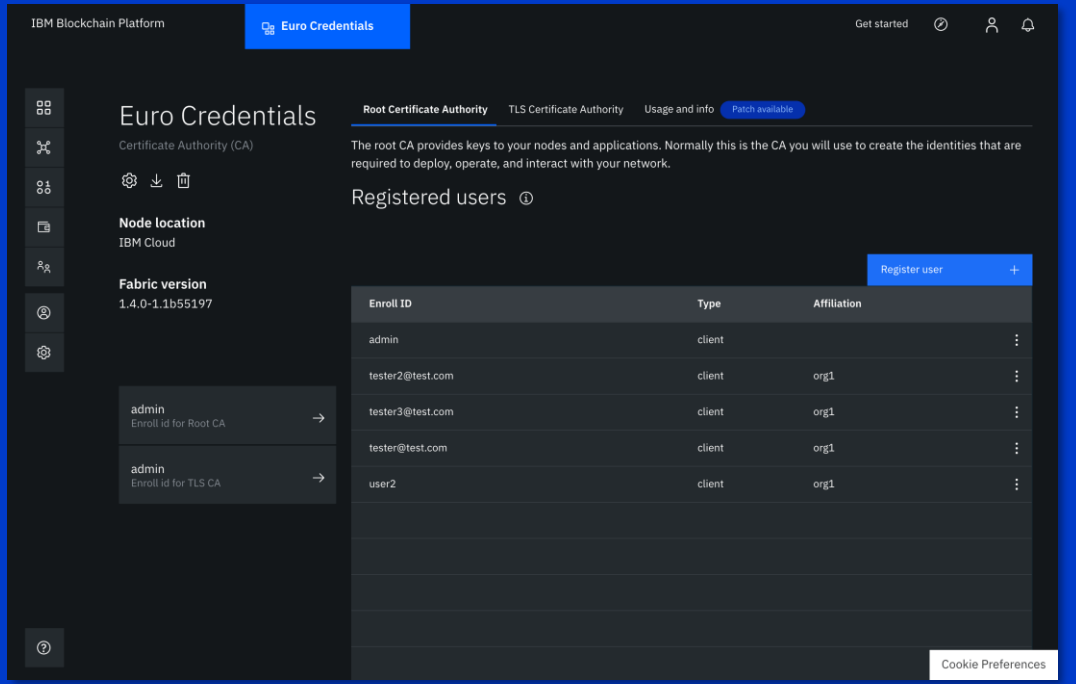
- Comprehensive developer tools for smart contracts and client applications, based on the popular **Visual Studio Code** environment
- Broad range of industry code samples and tutorials; smart contracts in JavaScript, TypeScript, Java and Go
- **Simplified DevOps** allows you easily move from development to test to production from a single console



IBM Blockchain Platform's advanced tooling:

Operate & Govern

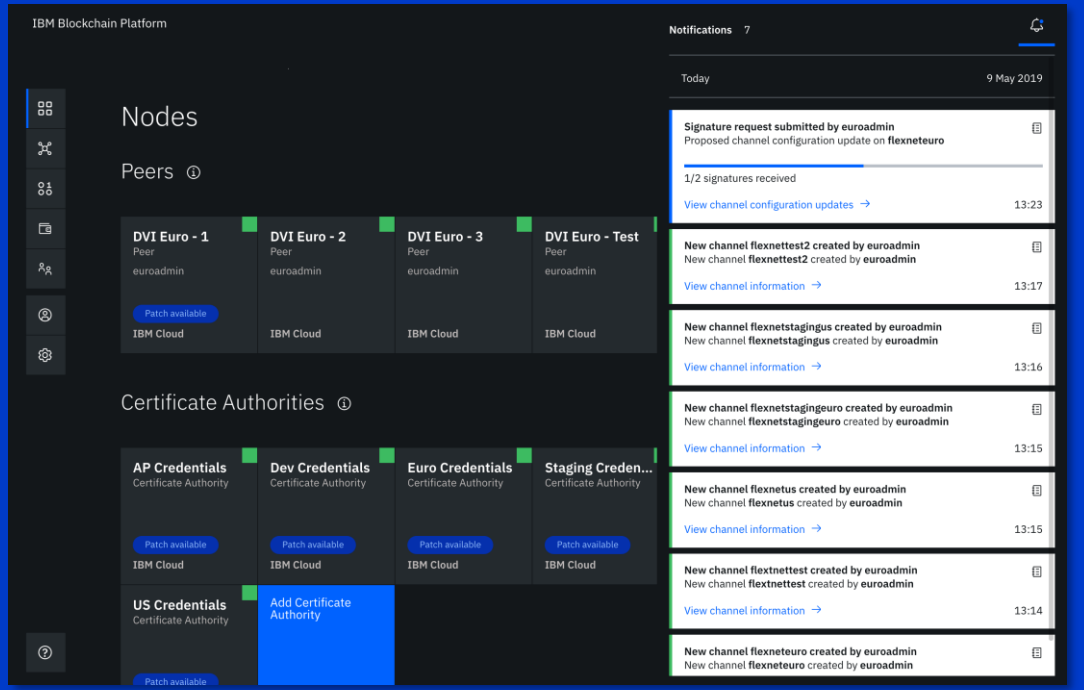
- Maintain **complete control** of your blockchain: govern and operate ledgers, channels, identities and other assets in one intuitive console
- Deploy only the blockchain components you need and manage them - wherever they are hosted
- Support for **highly available** environments and **disaster recovery** scenarios



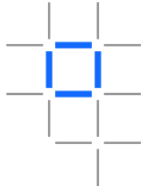
IBM Blockchain Platform's advanced tooling:

Grow

- Start small, pay as you grow for what you use with **no upfront investment** and upgrade easily through Kubernetes
- **Easily connect** a single peer to multiple industry networks
- Connect to nodes running in any environment (on-premises, public, hybrid clouds)

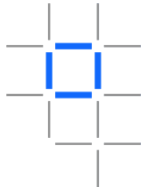


Resources



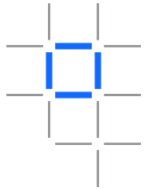
What	Link	Comment
Build network tutorial	https://cloud.ibm.com/docs/services/blockchain?topic=blockchain-ibp-console-build-network	Step-by-step instructions on how to build a basic Blockchain network on IBM Cloud using the IBM Console; follow only until "Next steps".
Add another peer node tutorial	https://cloud.ibm.com/docs/services/blockchain?topic=blockchain-ibp-console-join-network	Optional extension of your network using the IBP Console
IBP Extensions for VS Code; VS Marketplace	https://marketplace.visualstudio.com/items?itemName=IBMBlockchain.ibm-blockchain-platform	Source of the VS Code Extension
Developing smart contracts with Visual Studio Code extension	https://cloud.ibm.com/docs/services/blockchain/howto?topic=blockchain-develop-vscode	Details of what is shown in this demo

Hints for Windows 10 Users



- Installation of **OpenSSL** is a pre-requisite for VS Code Extensions. Follow the instructions here in order to correctly install. Otherwise you might encounter problems when trying to build your smart contract projects: https://tecadmin.net/install-openssl-on-windows/. Make sure you install to **C:\OpenSSL-Win64** and use **version 1.0.2t**, not the latest as the VS Code compiler needs libea32.dll in C:\OpenSSL-Win64\bin that is not included in v1.1.1d.
- In case your local fabric does not start properly, you might try tearing it down completely and re-building it:
    1. In VS Code, run (e.g. from Command Palette) “IBM Blockchain Platform: Teardown Fabric Runtime”
    2. Close VS Code
    3. Delete the folder C:\Users\<user-name>\.fabric-vscode\environments\local_fabric
    4. Restart VS Code, go to the IBP extensions and restart the local fabric

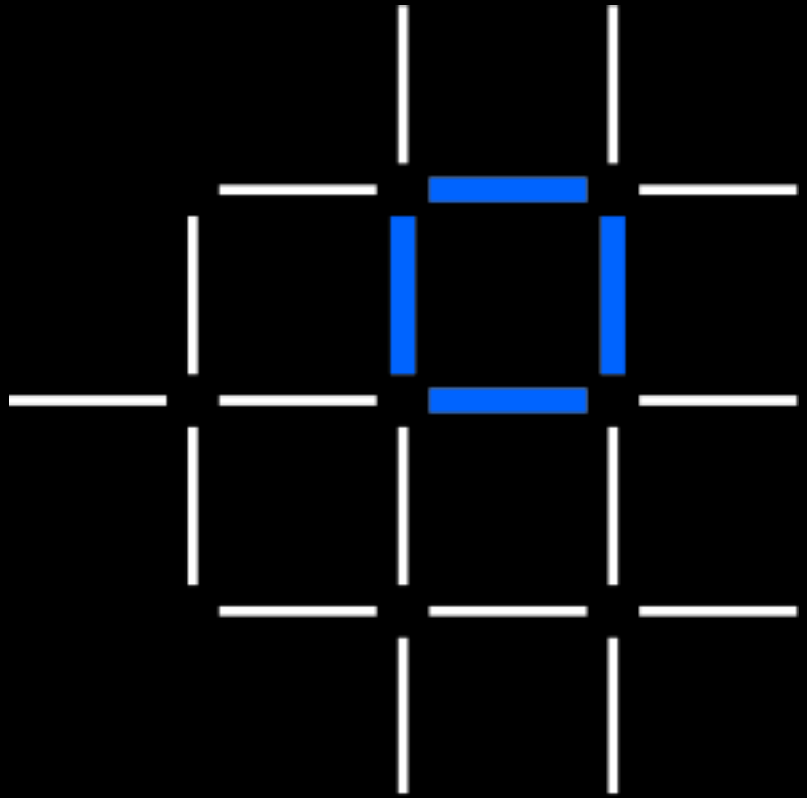
What might be next



- Debugging Smart Contracts
  - You can debug smart contract in VS Code with the Blockchain extensions. See here for details: https://cloud.ibm.com/docs/services/blockchain/howto?topic=blockchain-develop-vscode#develop-vscode-development-mode
- Building an application to transact on your blockchain network
  - Follow these instruction for deploying a sample application from the Hyperledger Fabric documentation, the commercial paper tutorial, to your IBM network: https://cloud.ibm.com/docs/blockchain?topic=blockchain-ibp-console-app#ibp-console-app-commercial-paper

Thank you

Stefan Vogel, Industry Solution Architect



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