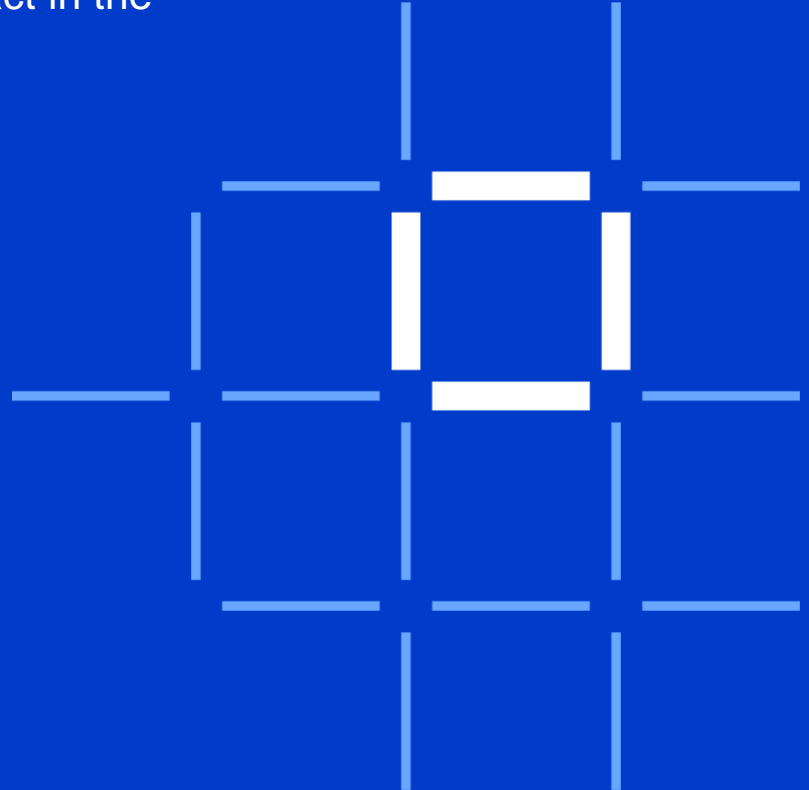


# IBM Blockchain Platform Demo

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*



# IBM Blockchain Platform (IBP)

**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

**Visual  
Studio  
Code**

**Build**

**IBM  
Blockchain  
Platform  
console**

**Operate &  
Govern**



**Grow**



**HYPERLEDGER  
FABRIC**



Kubernetes

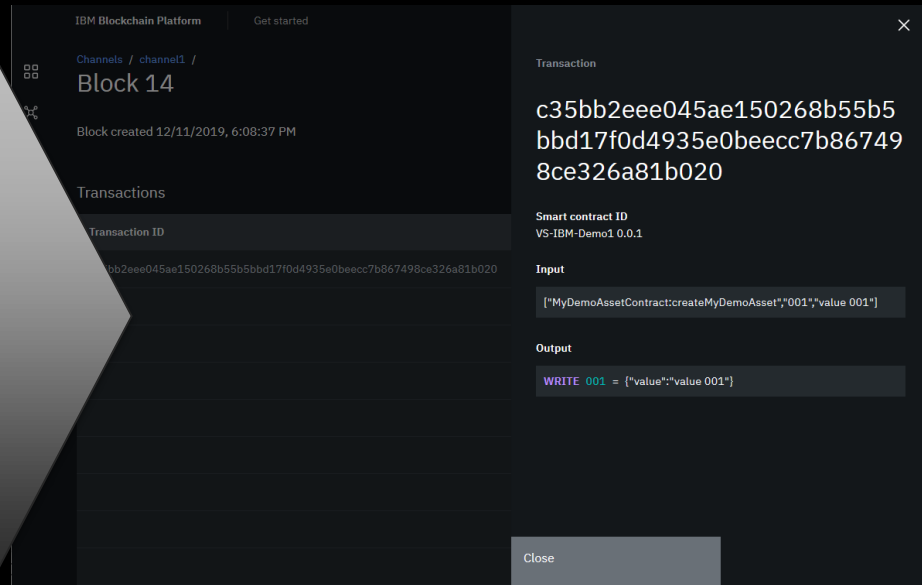
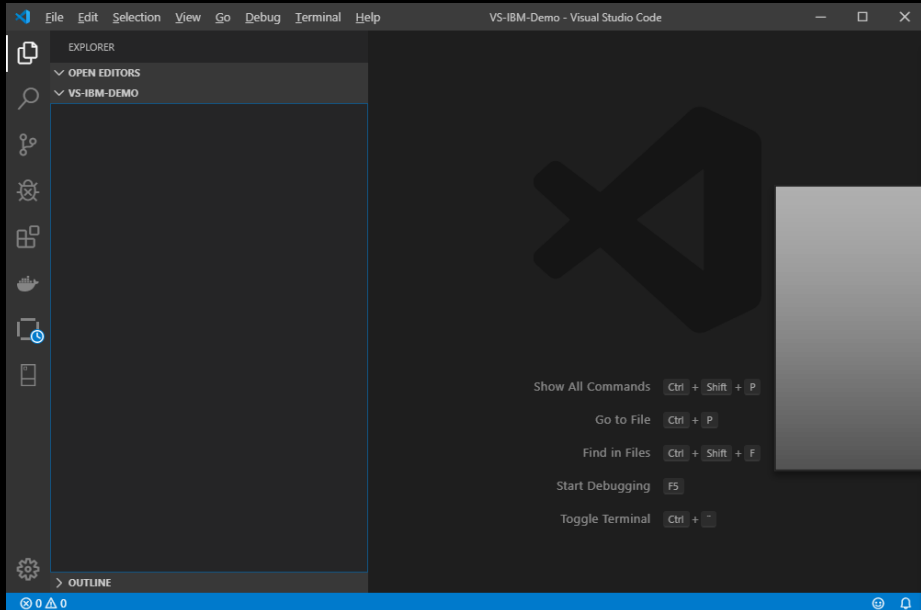
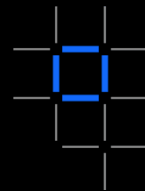
IBM Cloud

SaaS

On-Premises Other clouds

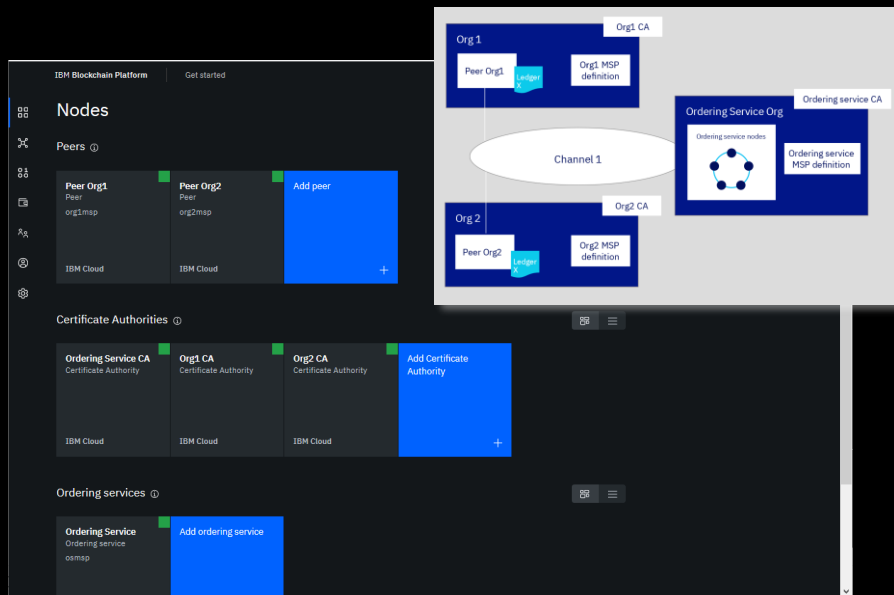
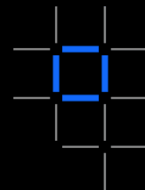
Software

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

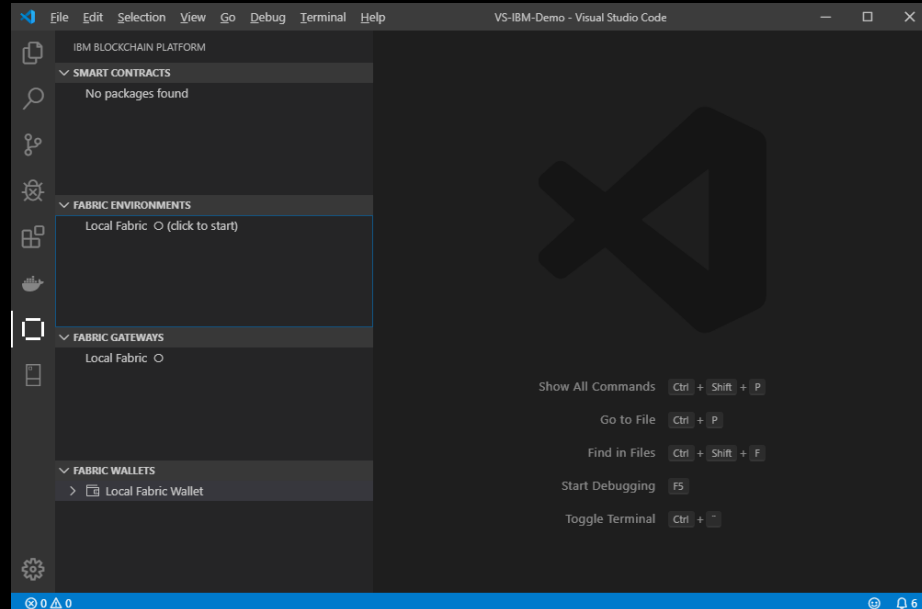


## Starting Point:

- 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>



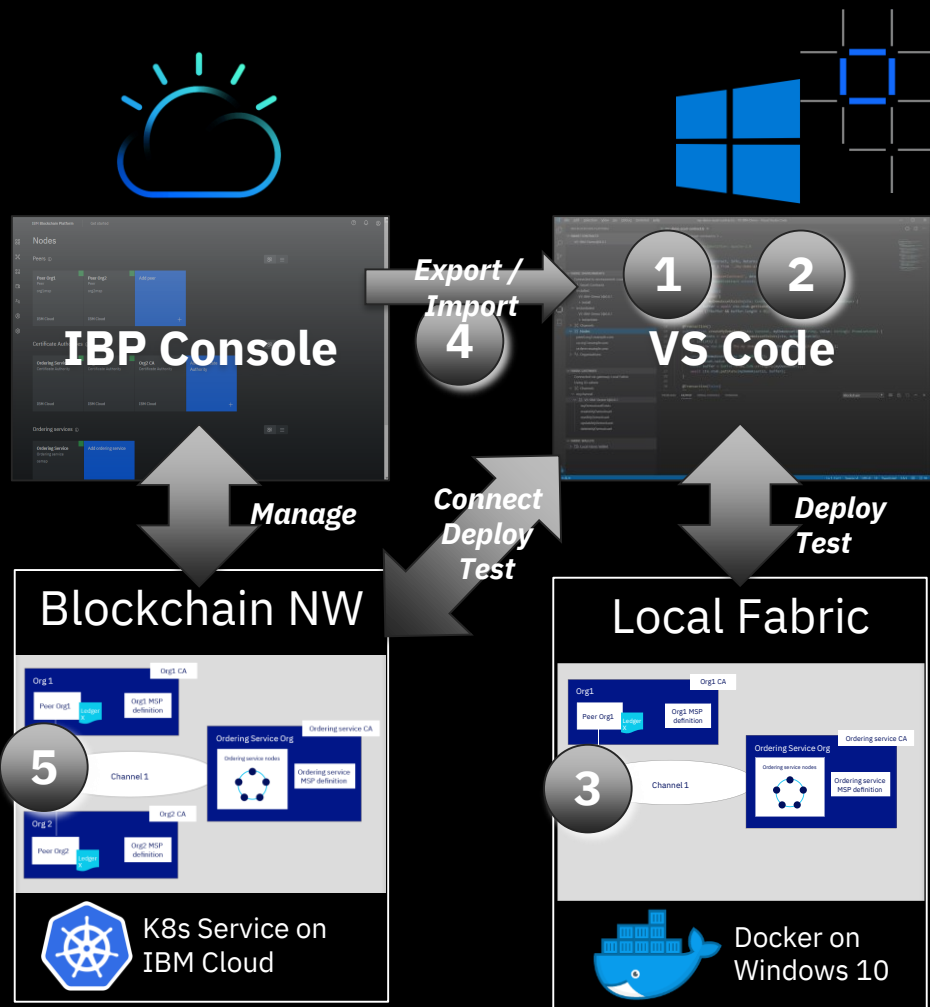
See <https://marketplace.visualstudio.com/items?itemName=IBMBlockchain.ibm-blockchain-platform>

# Overview of steps

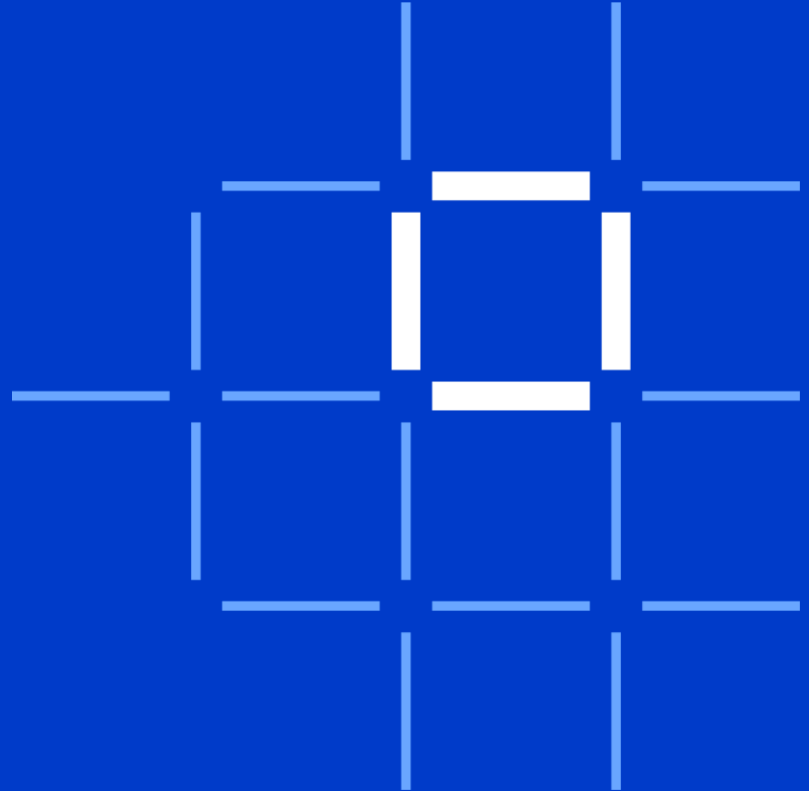
The following steps are shown in detail, mostly running from VS Code with the IBP Extension:

- 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

IBM Blockchain

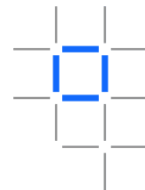


Let's start the demo...

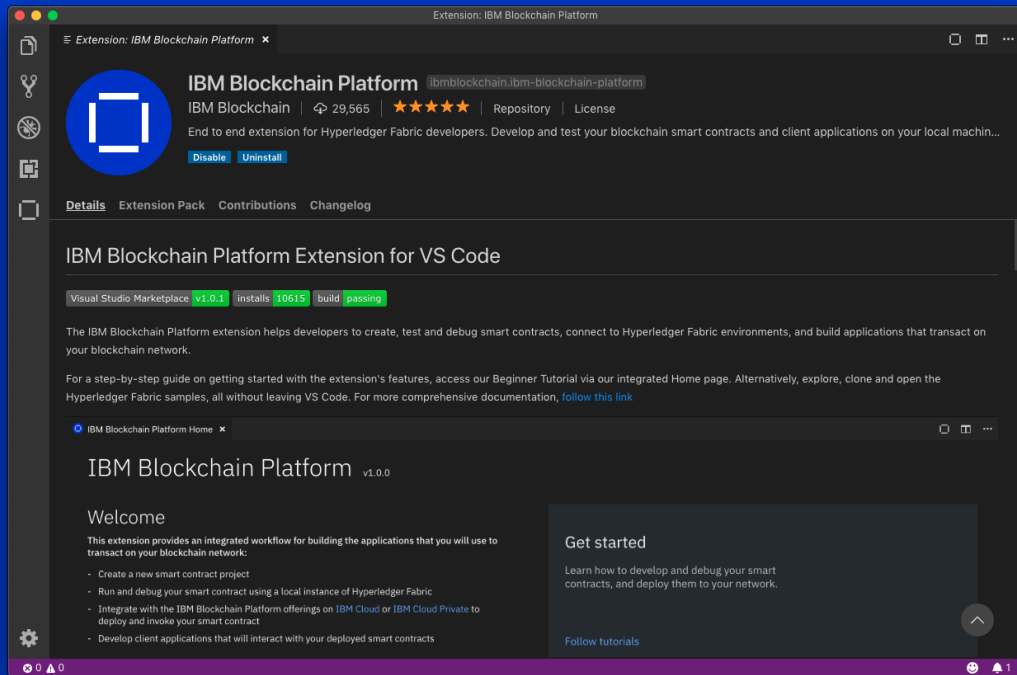


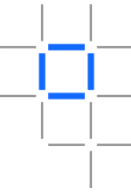


# IBM Blockchain Platform's advanced tooling: **Build**



- 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





- 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

Euro Credentials

Get started

admin

Enroll id for Root CA

→

admin

Enroll id for TLS CA

→

Euro Credentials

Certificate Authority (CA)

Node location

IBM Cloud

Fabric version

1.4.0-1.1b55197

Root Certificate Authority

TLS Certificate Authority

Usage and info

Patch available

The root CA provides keys to your nodes and applications. Normally this is the CA you will use to create the identities that are required to deploy, operate, and interact with your network.

Registered users

Enroll ID

Type

Affiliation

admin

client

tester2@test.com

client

org1

tester3@test.com

client

org1

tester@test.com

client

org1

user2

client

org1

Register user

+

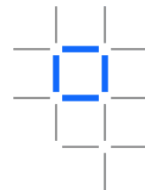
Cookie Preference



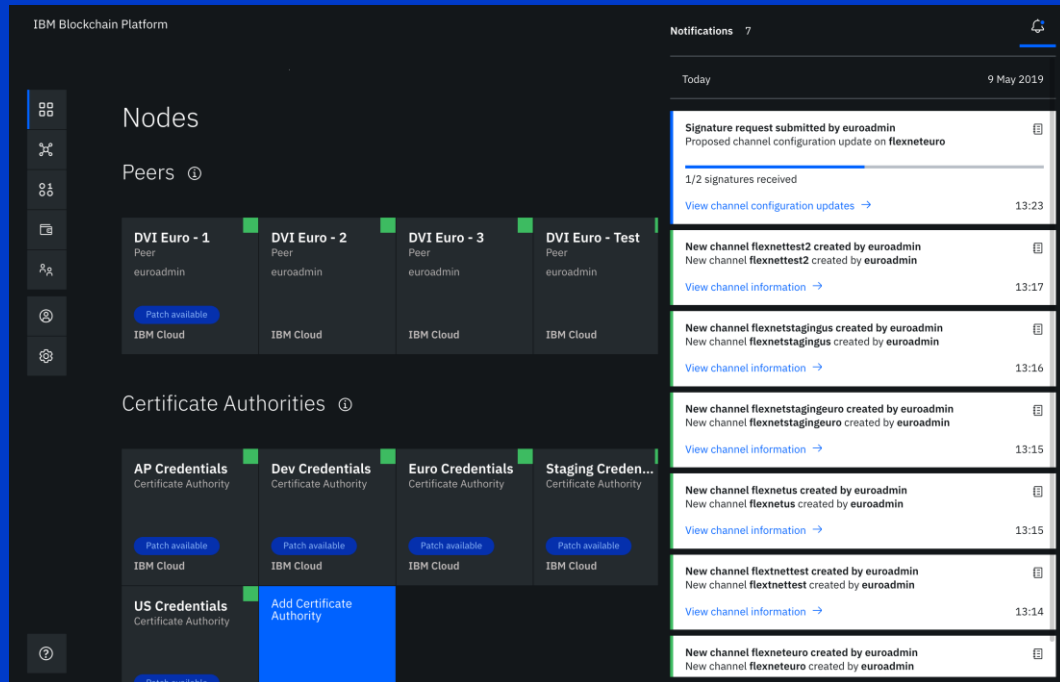


# IBM Blockchain Platform's advanced tooling:

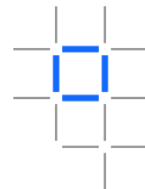
## Grow



- 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)

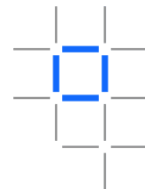


# Resources



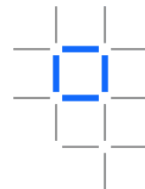
What	Link	Comment
Build network tutorial	<a href="https://cloud.ibm.com/docs/services/blockchain?topic=blockchain-ibp-console-build-network">https://cloud.ibm.com/docs/services/blockchain?topic=blockchain-ibp-console-build-network</a>	Step-by-step instructions on how to build a basic Blockchain network on IBM Cloud using the IBM Console; follow only until “ <a href="#">Next steps</a> ”.
Add another peer node tutorial	<a href="https://cloud.ibm.com/docs/services/blockchain?topic=blockchain-ibp-console-join-network">https://cloud.ibm.com/docs/services/blockchain?topic=blockchain-ibp-console-join-network</a>	Optional extension of your network using the IBP Console
IBP Extensions for VS Code; VS Marketplace	<a href="https://marketplace.visualstudio.com/items?itemName=IBMBlockchain.ibm-blockchain-platform">https://marketplace.visualstudio.com/items?itemName=IBMBlockchain.ibm-blockchain-platform</a>	Source of the VS Code Extension
Developing smart contracts with Visual Studio Code extension	<a href="https://cloud.ibm.com/docs/services/blockchain/howto?topic=blockchain-develop-vscode">https://cloud.ibm.com/docs/services/blockchain/howto?topic=blockchain-develop-vscode</a>	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](https://cloud.ibm.com/docs/blockchain?topic=blockchain-ibp-console-app#ibp-console-app-commercial-paper), to your IBM network: <https://cloud.ibm.com/docs/blockchain?topic=blockchain-ibp-console-app#ibp-console-app-commercial-paper>


# Thank you

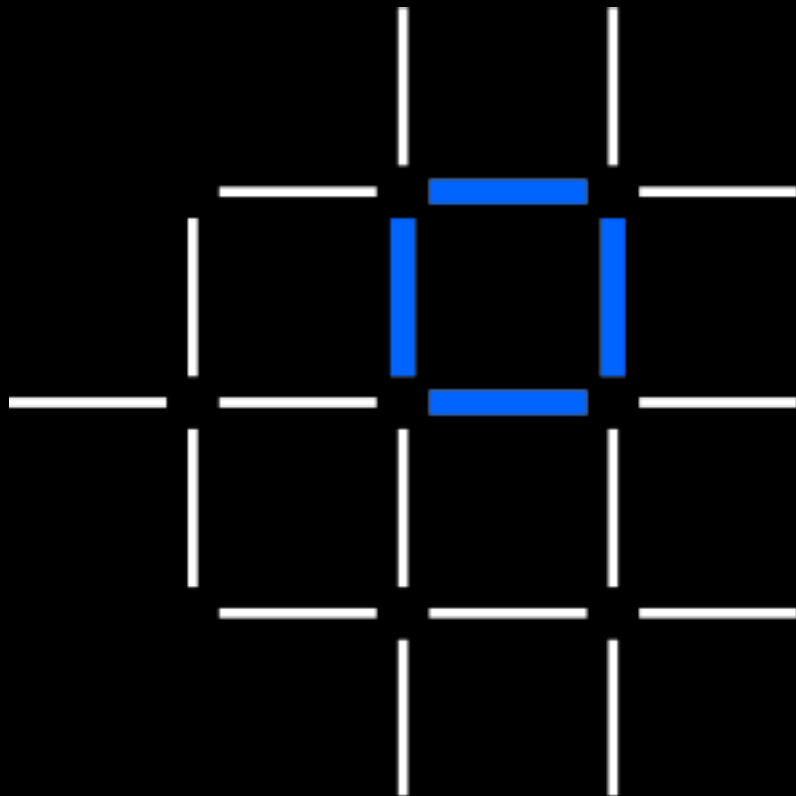
*Stefan Vogel, Industry Solution  
Architect*

*Questions? Tweet us or go  
to [ibm.com/blockchain](https://ibm.com/blockchain)*

 @IBMBlockchain

 IBM Blockchain

 IBM Blockchain



**IBM Blockchain**

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