MSDynamicsWorld

# Blockchain Supply Chain and Electronic Signature

Stefano Tempesta

# Stefano Tempesta

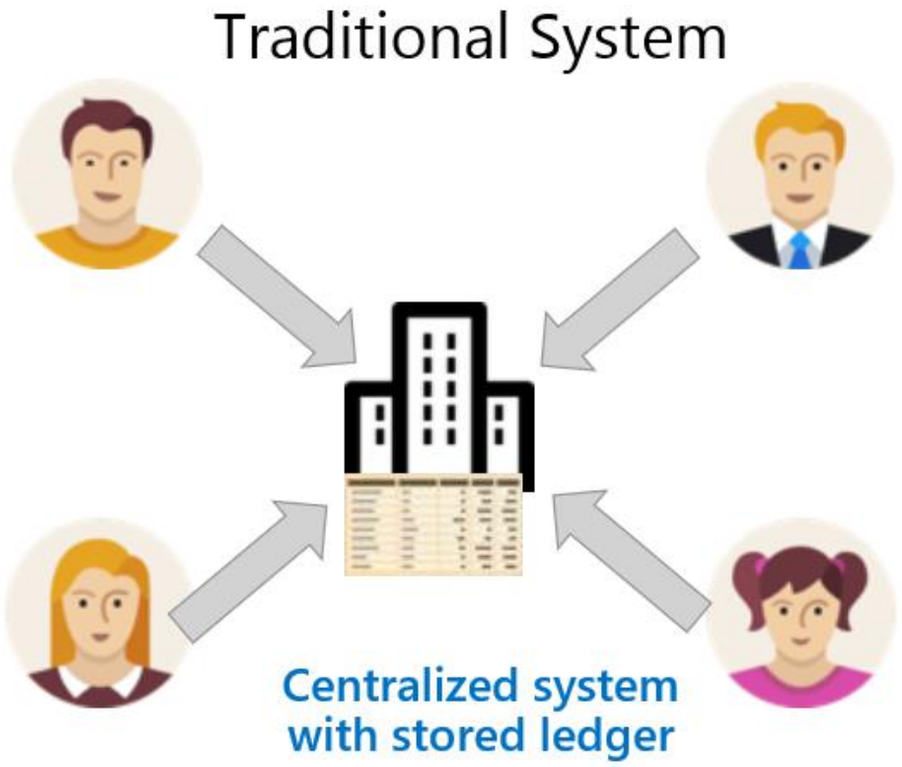
@stefanotempesta

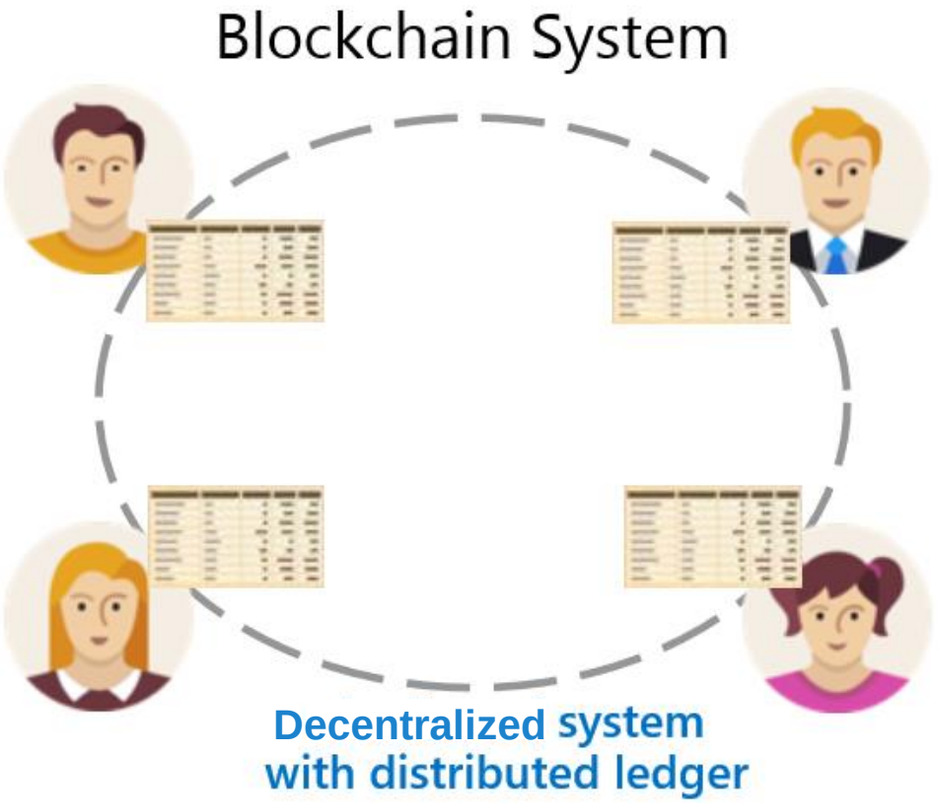
/in/stefanotempesta

Microsoft Regional Director

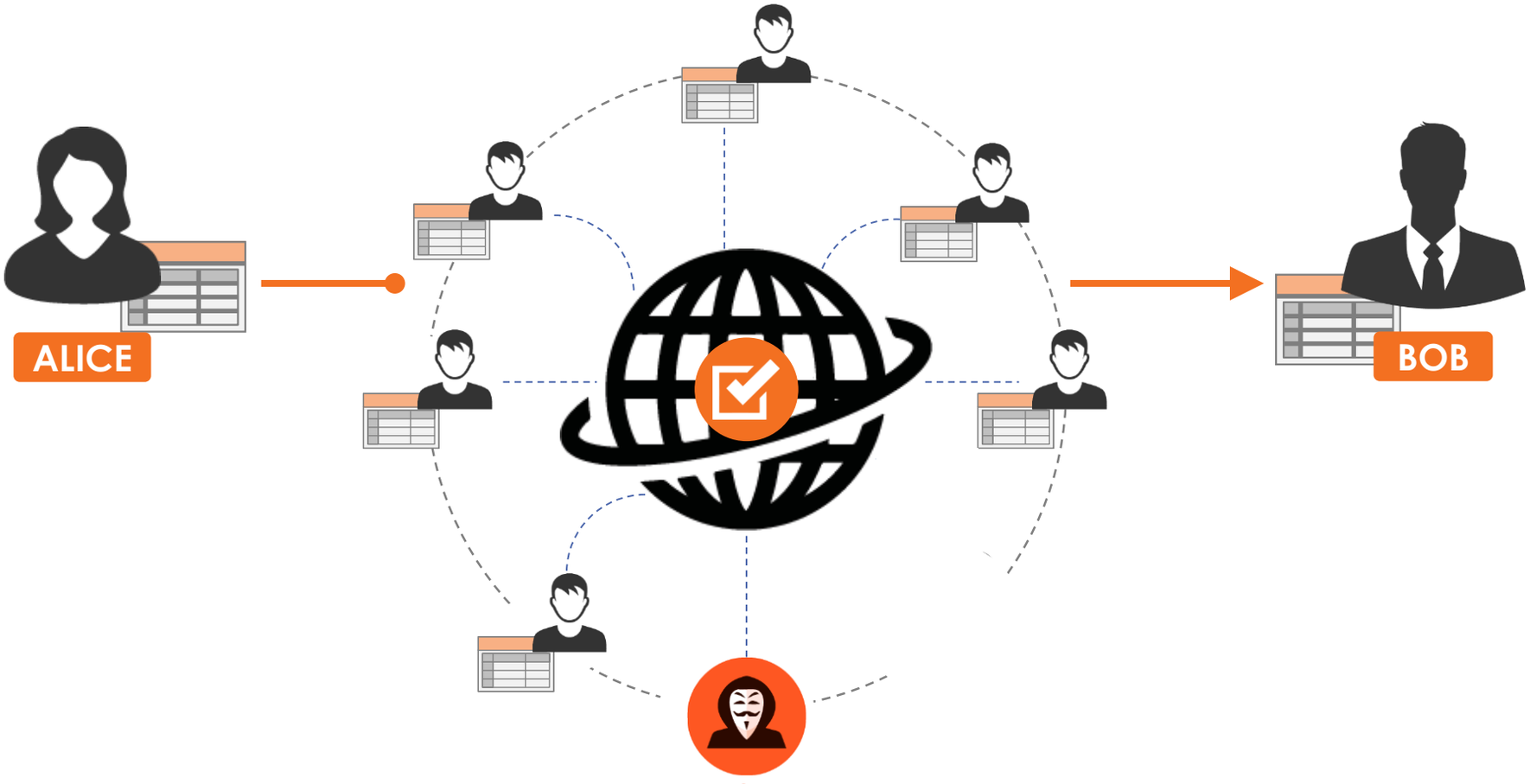
MVP Microsoft® Most Valuable Professional

# Centralized vs. Decentralized

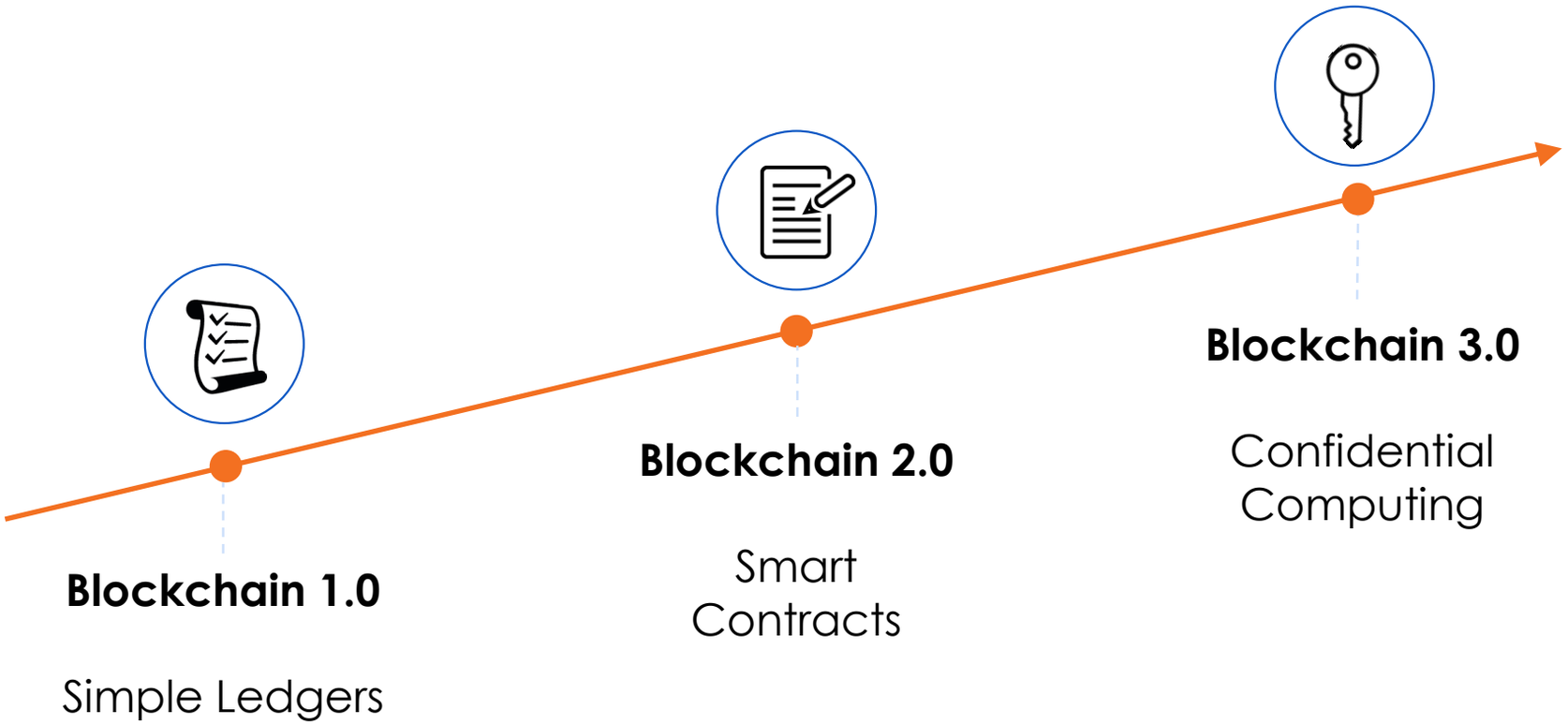


# Decentralized Digital Ledger

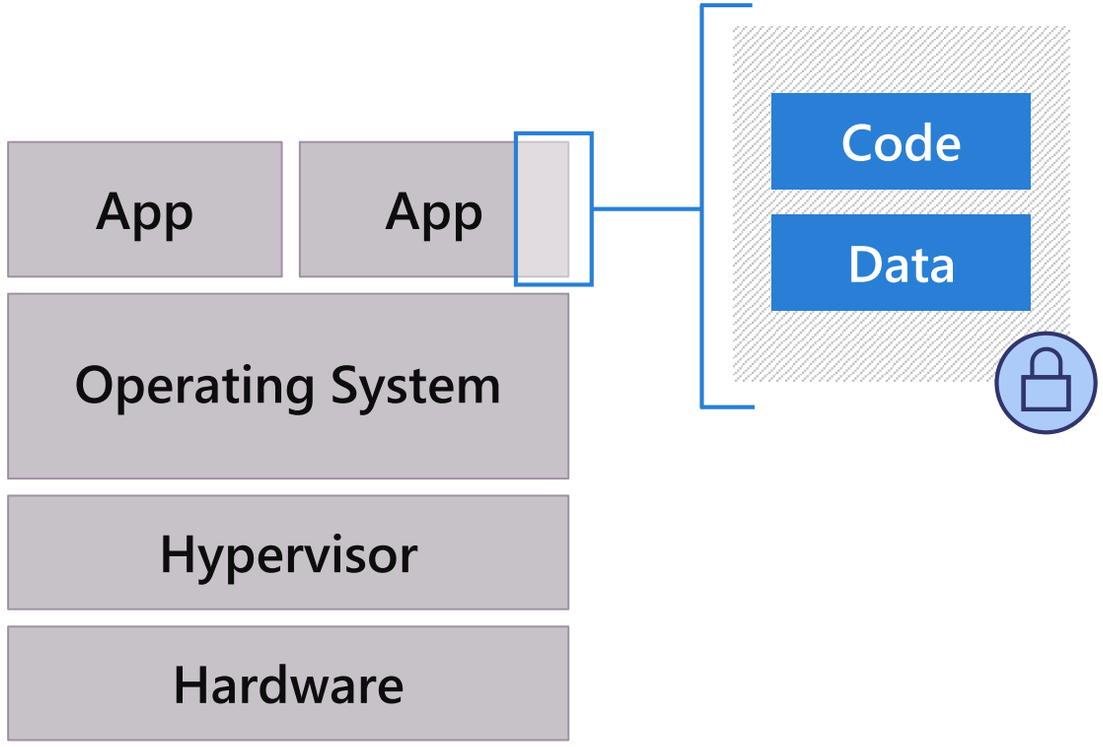


# Blockchain for Enterprise



# Confidential Computing

- Enclave: an isolated region of memory
- Data stored inside the enclave cannot be accessed from outside
- Code running inside enclave must be signed and cannot be modified
- Secure isolation powered by
  - Hardware, e.g. Intel SGX
  - Hypervisor



# Enterprise Requirements for Blockchain

## Connection with communication channels

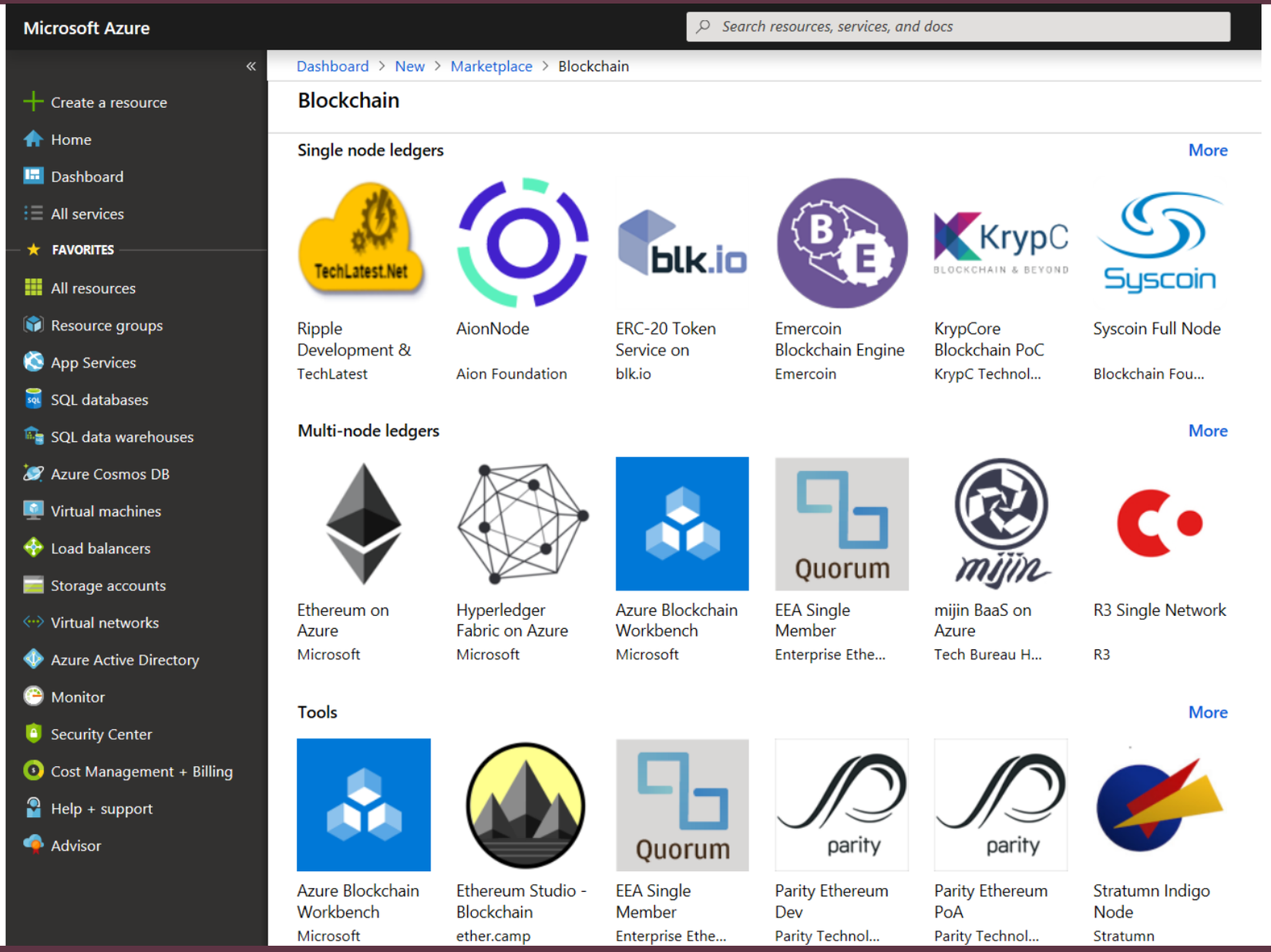
- Mobile apps, web, SMS, voice, bots, IoT devices, …

## Sign and verify digital assets

- Proof of existence and authenticity, audit trail

## Integration with Line of Business applications

- CRM, ERP, Payroll, ... / File, FTP, SQL, API, …


Microsoft Azure
Search resources, services, and docs
Create a resource
Home
Dashboard
All services
FAVORITES
All resources
Resource groups
App Services
SQL databases
SQL data warehouses
Azure Cosmos DB
Virtual machines
Load balancers
Storage accounts
Virtual networks
Azure Active Directory
Monitor
Security Center
Cost Management + Billing
Help + support
Advisor
Dashboard > New > Marketplace > Blockchain
Blockchain
Single node ledgers
More
Ripple Development & TechLatest
AionNode Aion Foundation
ERC-20 Token Service on blk.io
Emercoin Blockchain Engine Emercoin
KrypCore Blockchain PoC KrypC Technol...
Syscoin Full Node Blockchain Fou...
Multi-node ledgers
More
Ethereum on Azure Microsoft
Hyperledger Fabric on Azure Microsoft
Azure Blockchain Workbench Microsoft
EEA Single Member Enterprise Ethe...
mijin BaaS on Azure Tech Bureau H...
R3 Single Network R3
Tools
More
Azure Blockchain Workbench Microsoft
Ethereum Studio - Blockchain ether.camp
EEA Single Member Enterprise Ethe...
Parity Ethereum Dev Parity Technol...
Parity Ethereum PoA Parity Technol...
Stratumn Indigo Node Stratumn

# Supply Chain

# Supply Chain

## *Freight Transportation*



At various points in the journey, the IoT device from the package sends the Temperature & Humidity data which are recorded on the blockchain

The milk product is sealed in an IoT-enabled package for shipping

**Temperature 8° C**
**Humidity 60%**

Food Processor

PRODUCER

Milk producer supplies Milk to Food Processing Company

SMART CONTRACT

The terms of shipping are registered using a **smart contract** on the Blockchain

The package has to be maintained at :
**Temperature < 10° C**
**Humidity < 65%**

CARRIER 1

Warehouse

**Temperature 8° C**
**Humidity 64%**

**Temperature 9° C**
**Humidity 64%**

CARRIER 2

**Temperature 11°C**
**Humidity 64%**

Retail Store

# IoT and Blockchain

## Share IoT data with blockchain networks

Share device data such as temperature, position and shipping status as products move through the distributed system. Real-time information can ensure that parties take appropriate action as required.

## Leverage "Blockchain for Things"

The "Blockchain for Things" links real-world IoT, asset and environment insights for trusted verification and compliance. It increases visibility, control and business process automation.

## Create a secure, trusted network

Benefit from a tamper-resistant record of all transactions. Take advantage of trusted IoT information to help ensure partner cooperation and to meet compliance requirements.

## Track transaction history

Use IoT and blockchain as a shared ledger to maintain an accurate and indelible history of your products and components.

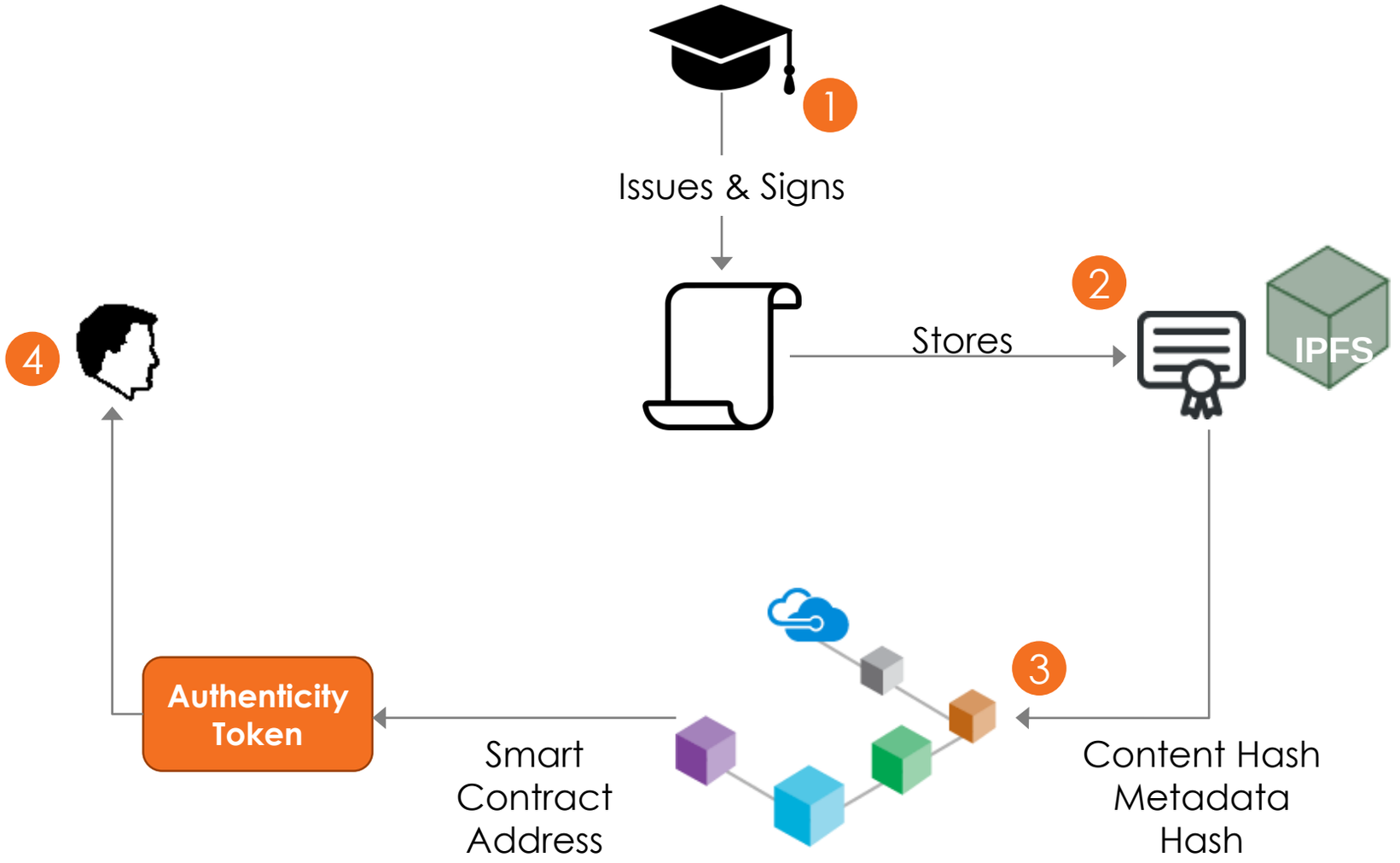
# Electronic Signature

# Digital Asset Signature

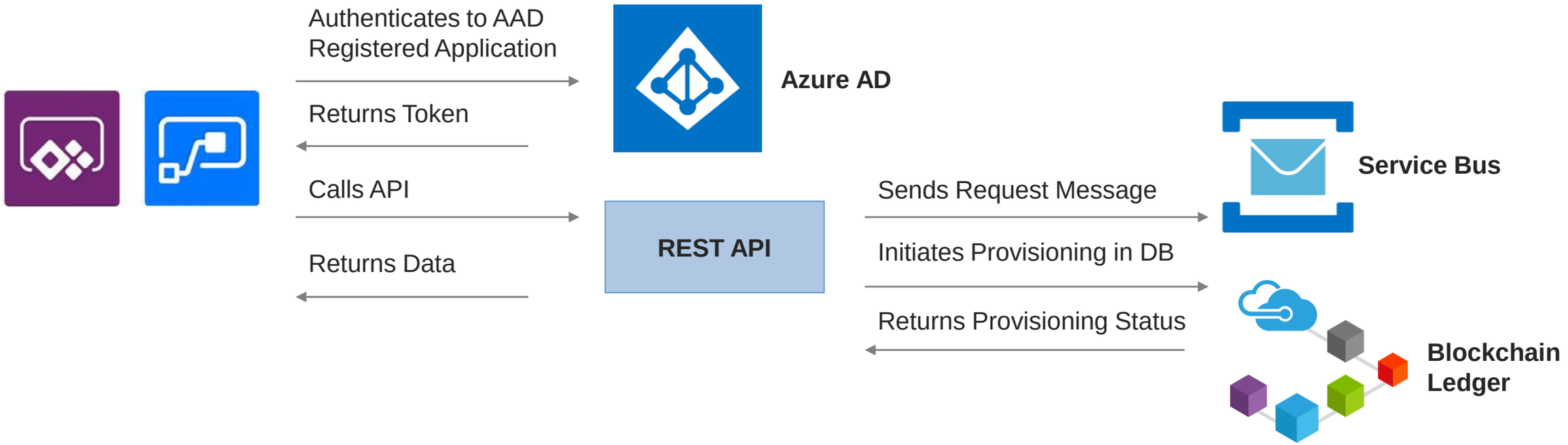
Institutes issue and sign documents.

The asset's content and metadata hashes are stored on a blockchain.

The address of the transaction represent the authenticity token.



# Azure Blockchain Integration



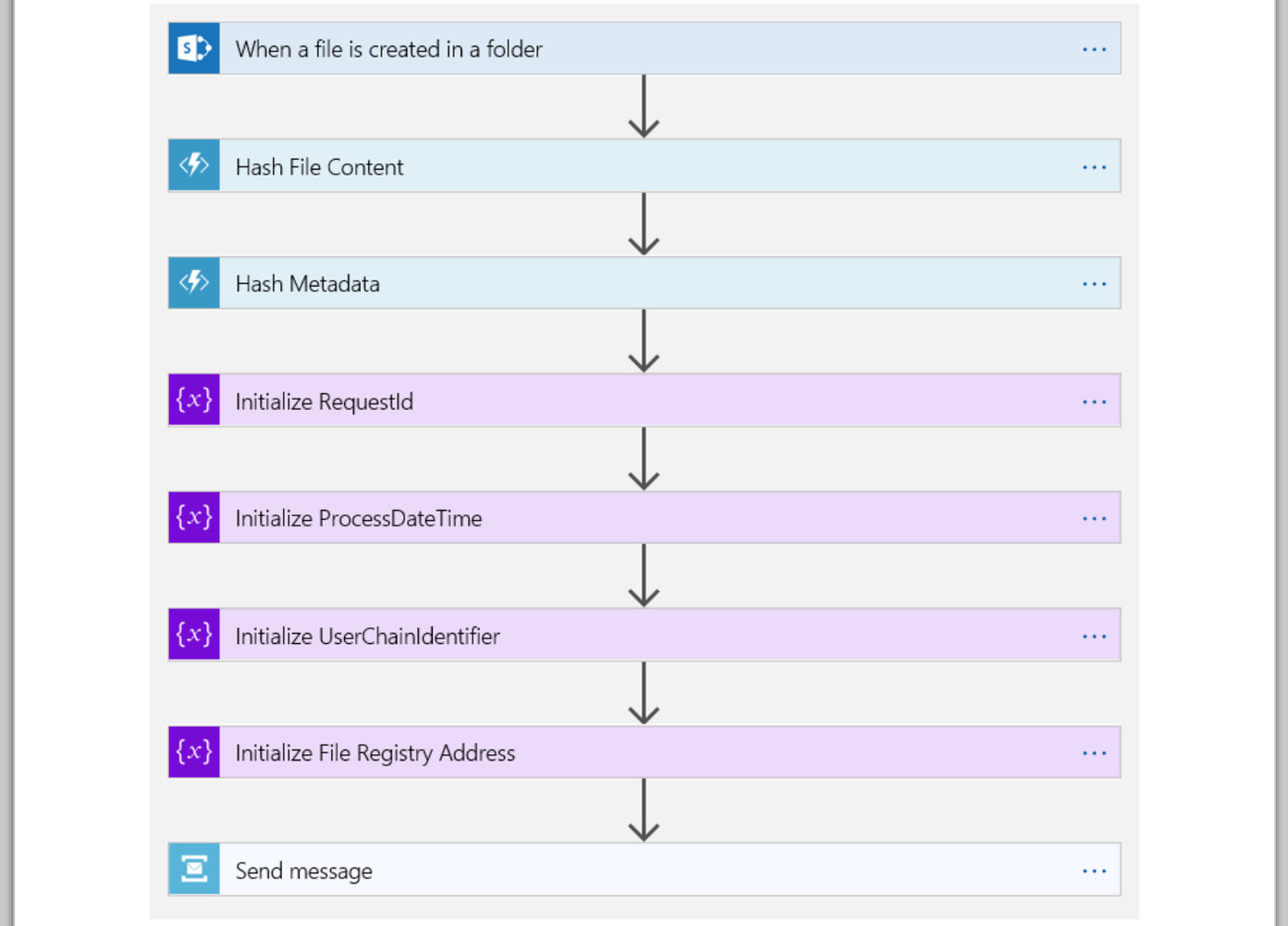
# Blockchain Integration Flow

Hash file content and metadata.

Initialize the request.

Send the message to Service Bus.

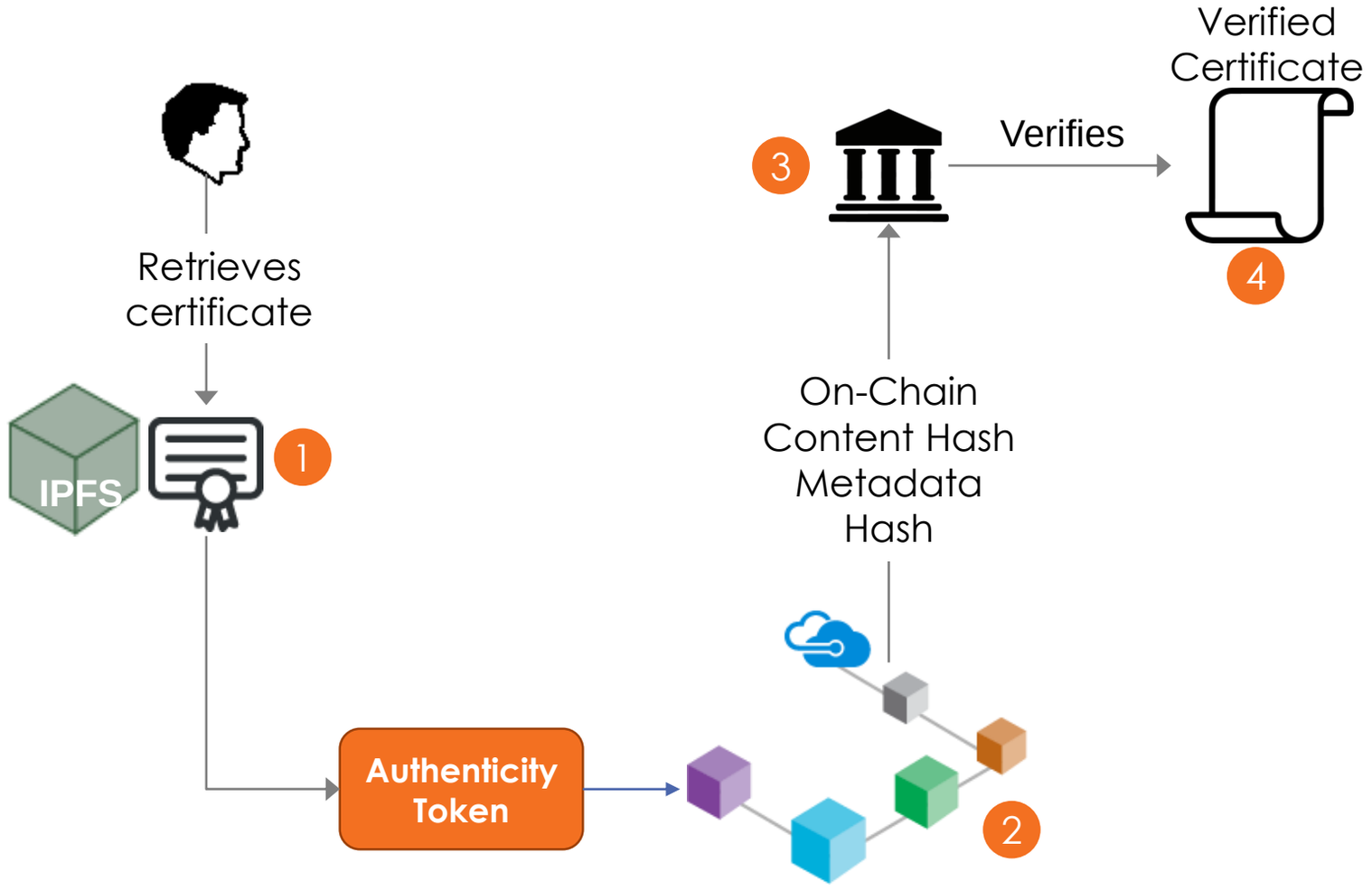
Messages in the bus are retrieved by the blockchain ledger.



# Blockchain Signature Verification

Institutes verify documents by comparing the hash values stored on a blockchain with the newly calculated one.

A change in a single bit of content or metadata generates a completely different hash value.



# In summary…

Azure Blockchain “as a Service”

Azure Blockchain Workbench

Power Platform + Azure IoT & Integration Platform

MSDynamicsWorld.com

# THANK YOU !

@stefanotempesta
/in/stefanotempesta