Demystifying Blockchain

PJ Johnson, Architect
Microsoft Corporation

Blockchain is not just about money

"...a sweeping vista of opportunity to reimagine how the financial system can and should work in the Internet era, and a catalyst to reshape that system in ways that are more powerful for individuals and businesses alike"

- Marc Andreessen, A16z

COMPUTERWORLD

Blockchain will be the killer app for supply chain management in 2018

FORTUNE

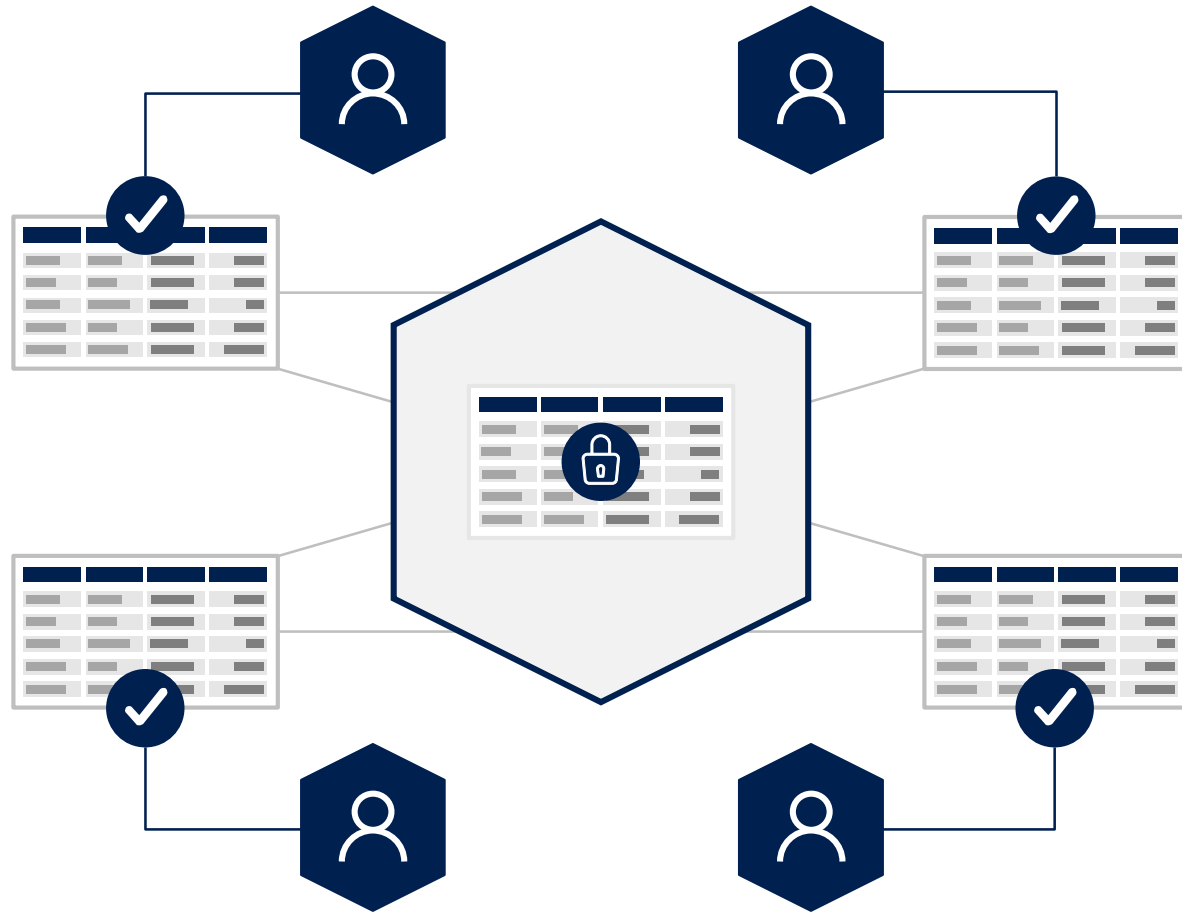Are You Eating Sustainable Fish? Blockchain May Provide the Answer

Forbes

How Blockchain Can Create Owned And Trusted Health Care Records

T TechBullion

How Blockchain Technology Could Work in the Insurance Industry

Demonstration

Blockchain establishes a secure, shared source of truth

Data is stored in a ledger—a record of every transaction

Everyone in the network has an individual, identical copy

The ledger can only be updated by network consensus, and information can't be altered or deleted without the knowledge of the whole network

Is blockchain relevant?

Business is built on trust

There is massive opportunity to improve shared business processes:

$280B in banking industry fines
since 2009

$21B cost of tax return fraud in the U.S.

48M illnesses from contaminated food

in the U.S. each year

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Let's imagine a food contamination scenario

The types of assets vary across industries

3M

- Ensuring supply chain integrity e.g. sensitive pharmaceuticals
- Managing movement across a complex supply chain
- Preventing tampering and counterfeit

bank hapoalim

- Improving the process for issuing bank guarantees
- Creating ease of access for guarantee beneficiaries and applicants
- Ensuring security of sensitive documents

webjet.com.au

- Facilitating thousands of hotel bookings on a daily basis
- Coordinating between many different booking systems
- Mitigating discrepancies that lead to booking errors

SINGAPORE AIRLINES

- Creating a system to track reward points
- Enabling system to span multiple partner organizations
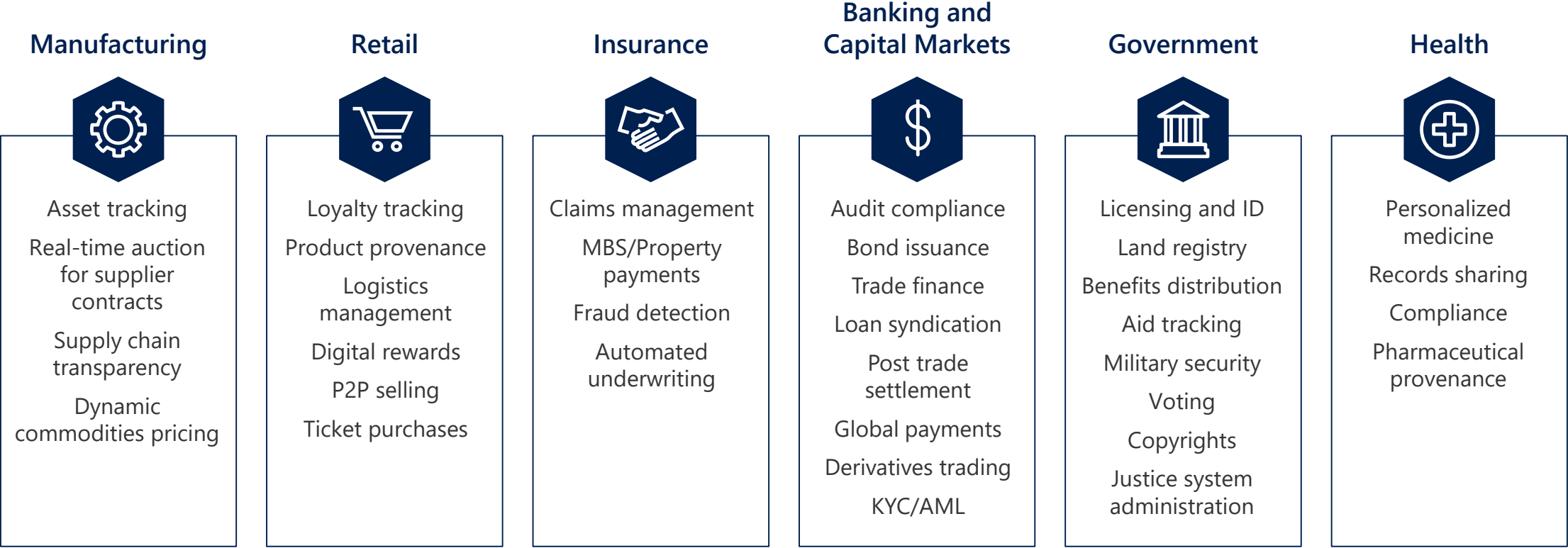- Reducing the risk of discrepancy

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Asset transfer and provenance

Cross-organizational workflow

Multiparty auditing

We've seen this pattern in scenarios across industries

Manufacturing

Asset tracking

Real-time auction for supplier contracts

Supply chain transparency

Dynamic commodities pricing

Retail

Loyalty tracking

Product provenance

Logistics management

Digital rewards

P2P selling

Ticket purchases

Insurance

Claims management

MBS/Property payments

Fraud detection

Automated underwriting

Banking and Capital Markets

Audit compliance

Bond issuance

Trade finance

Loan syndication

Post trade settlement

Global payments

Derivatives trading

KYC/AML

Government

Licensing and ID

Land registry

Benefits distribution

Aid tracking

Military security

Voting

Copyrights

Justice system administration

Health

Personalized medicine

Records sharing

Compliance

Pharmaceutical provenance

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What is Microsoft building?

Blockchain wasn't built for enterprise

Ledgers designed for public networks

Lack the performance, confidentiality, and governance capabilities needed for commercial use

Smart contracts demand bespoke development and new skills

Not designed to leverage existing enterprise tools and skill sets

Integration is difficult and costly

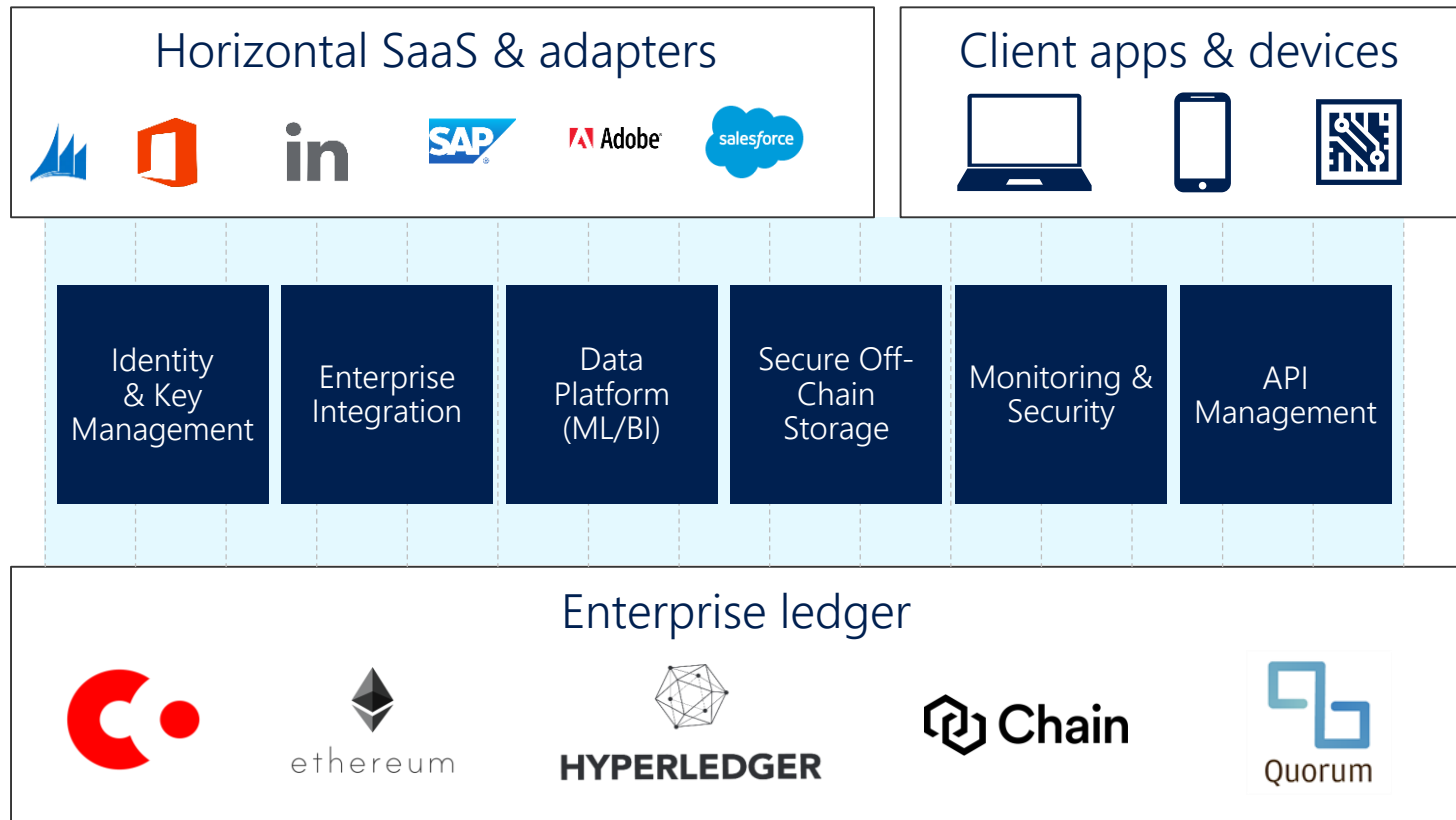Connecting to existing IT architecture requires significant investment

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Building an end-to-end blockchain app is difficult

Link identities to federated systems

Integrate with existing business apps

Configure consortium network

Ingest messages and events

Manually deploy ledger

Write business logic

Synchronize data with off-chain DB

Extend capabilities

API management

Orchestrate signing, hashing and routing

Customize integrations

Manage keys

Build web client

Store smart contract reference data

So we've taken steps to create a platform that would tackle those challenges

1 — Populated preconfigured networks

2 — Integrated relevant cloud services

3 — Built a simple interface

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Next, we enabled prebuilt connections to Azure and the tools you're already familiar with

Horizontal SaaS & adapters

Client apps & devices

Identity & Key Management	Enterprise Integration	Data Platform (ML/BI)	Secure Off-Chain Storage	Monitoring & Security	API Management

Enterprise ledger

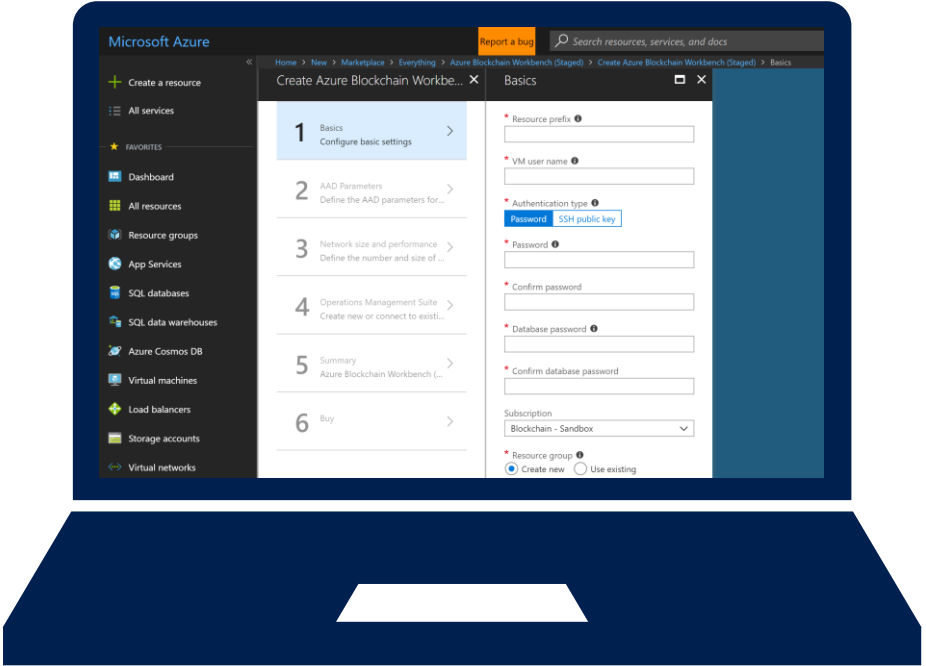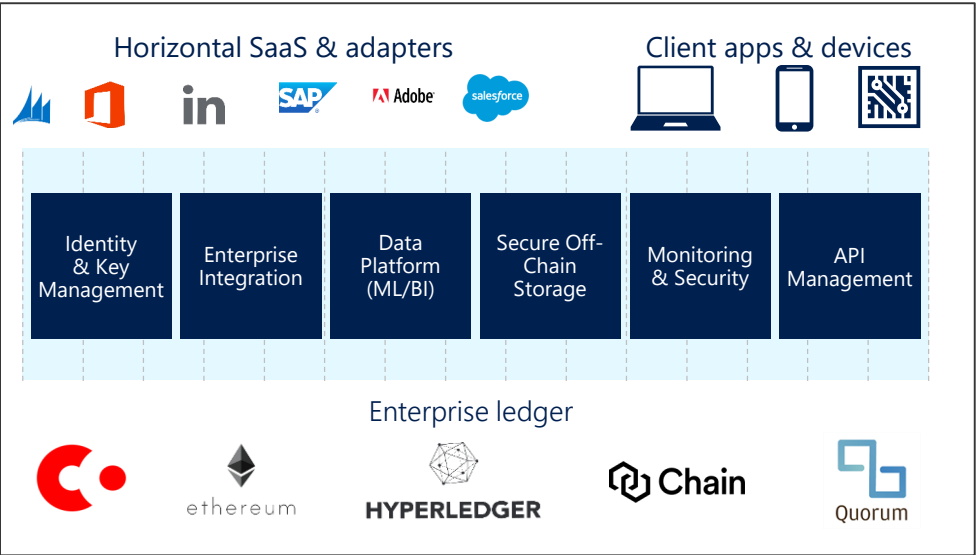ethereum

HYPERLEDGER

Chain

Quorum

Quickly integrate with business apps

Connect to the cloud without the heavy lifting

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Now, we've built a simple interface for deploying these services and authoring smart contracts

Azure Blockchain Workbench

So you can focus your time on adding value for your business

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Next steps

See how it works at aka.ms/workbenchdemo

Get Azure Blockchain Workbench on the Marketplace today

Get your hands dirty with documentation and sample smart contracts at aka.ms/workbenchdocs

Join the conversation on the aka.ms/workbenchforum

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Thank you