Blockchain workflow application

INGEST

Sensors and IoT (unstructured)

Azure IoT Hub

Logs (unstructured)

Media (unstructured)

Files (unstructured)

Business / Custom apps (structured)

Service Bus

TRANSFORM

Transaction Builder

ATTEST

Azure Blockchain Service

READ AND ROUTE

Power BI

Off-Chain Database

DLT Watcher

Off-Chain Storage

Power Apps

Event Grid

Flow

Apps

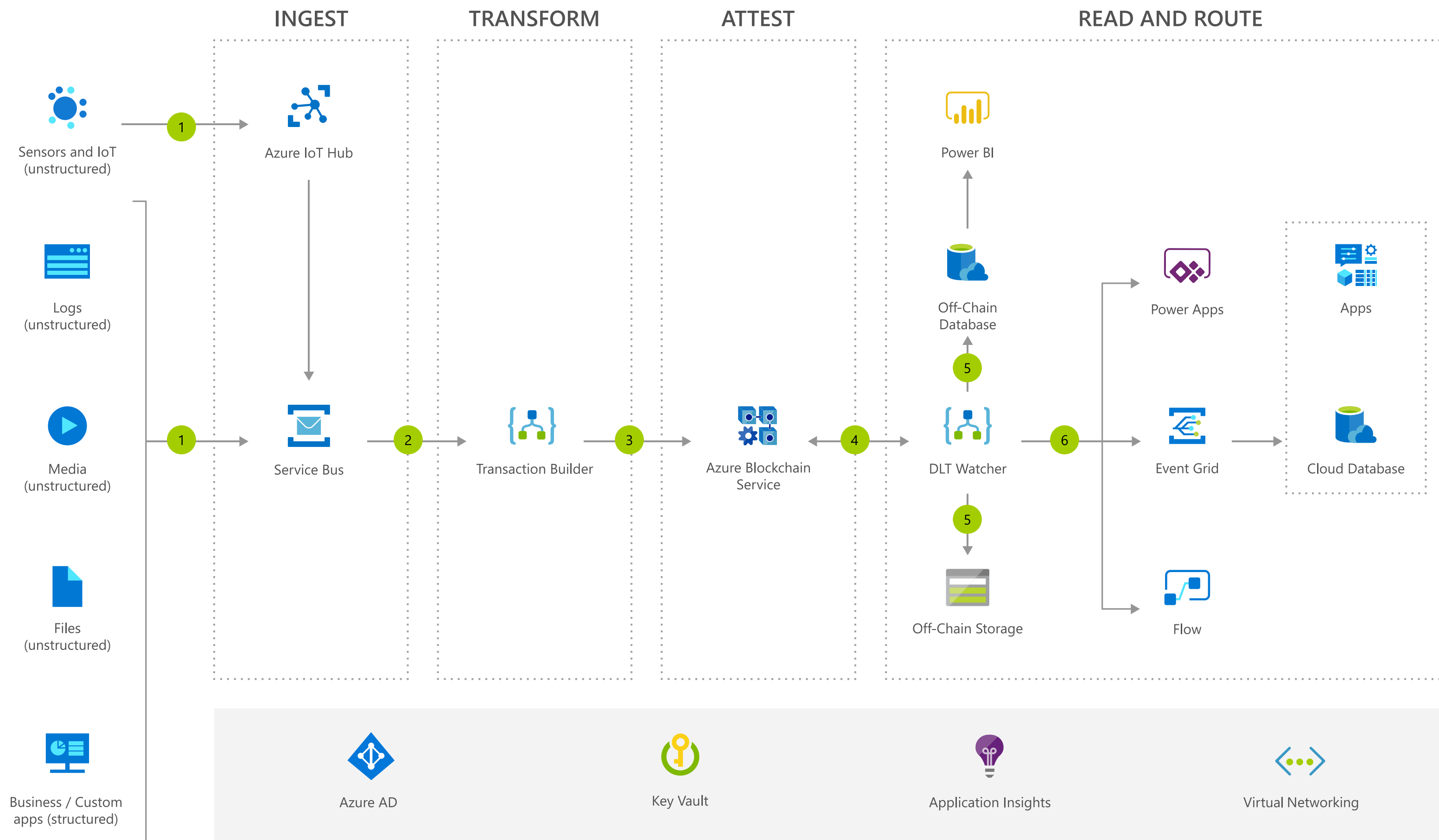**Cloud Database**

Azure AD

Key Vault

Application Insights

Virtual Networking

Architecture overview

Businesses use blockchain to digitize workflows they share with other organizations, such as moving physical assets across supply chains. The anatomy of blockchain apps is similar across use cases. Here, we use Azure Blockchain Service as the foundational managed blockchain network and build a consortium application that can ingest signals from relevant user interfaces and communicate ledger data to consuming apps across the consortium.

1. Relevant apps, devices, and data sources send events or data to a message broker (Azure Service Bus).

2. The distributed ledger technology (DLT) consumer Logic App fetches the data from the Service Bus and sends to transaction builder which builds and signs the transaction.

3. The signed transaction gets routed to Azure Blockchain Service (fully managed Ethereum consortium network) via a ledger-specific Logic App connector.

4. The DLT watcher Logic App gets confirmation of the transaction commitment to the blockchain and sends the confirmed blockchain transactions to off-chain databases and storage.

5. Information is analyzed and visualized using tools such as Power BI by connecting to off-chain database (Azure SQL Database).

6. Message broker sends ledger data to consuming business process applications.

Azure products used in this solution

Azure IoT Hub

Service Bus

Azure Event Hubs

Logic Apps

Azure Blockchain Service

Power BI

Event Grid

SQL Database

Flow

Power Apps

Off-Chain Storage

Virtual Networking

Azure AD

Key Vault

Application Insights