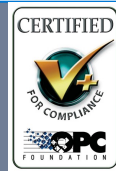# OPC UA®

IEC 62541 - The Industrial Interoperability Standard
Microsoft is a member of the OPC Foundation since 1996, ~900 members
Microsoft supports OPC UA on Azure since 2016

Interoperability

Vendor, Protocol, Platform and OS Independent

Open Source on GitHub (>4.5M source lines contributed by Microsoft)

Scalable from sensor to Cloud, Services Oriented Architecture (SOA)

Owned by a Non-Profit (OPC Foundation)

70M installed base and exponential growth

Data Modelling

Discoverable, supports complex data types

Graph support, preserves source context

Vendor extendable

Domain-specific Companion Specifications:

- Discrete: Robotics, Machine Vision, ...

- Process: FDI, FDT, PA-DIM, MDIS, NOA..

- Energy: IEC61850, ..

Security

Secure Design from group-up

Based on open security standards

Auditing, Authentication & Encryption

Evolves as security technologies evolve

Vendors can choose level of security

Acceptable by IT departments

IEC 63278 – Asset Administration Shell (AAS)

- Vendor-neutral **Asset Data Sharing Service**

- It's a shell (container)
- Cross-Platform
- Covers full lifecycle of the Asset
- Contains OPC UA Info Model
- Microsoft one of the authors
- Open-Source implementation
- HTTP REST interface by SPS2022

- Uses OpenOfficeXml format:
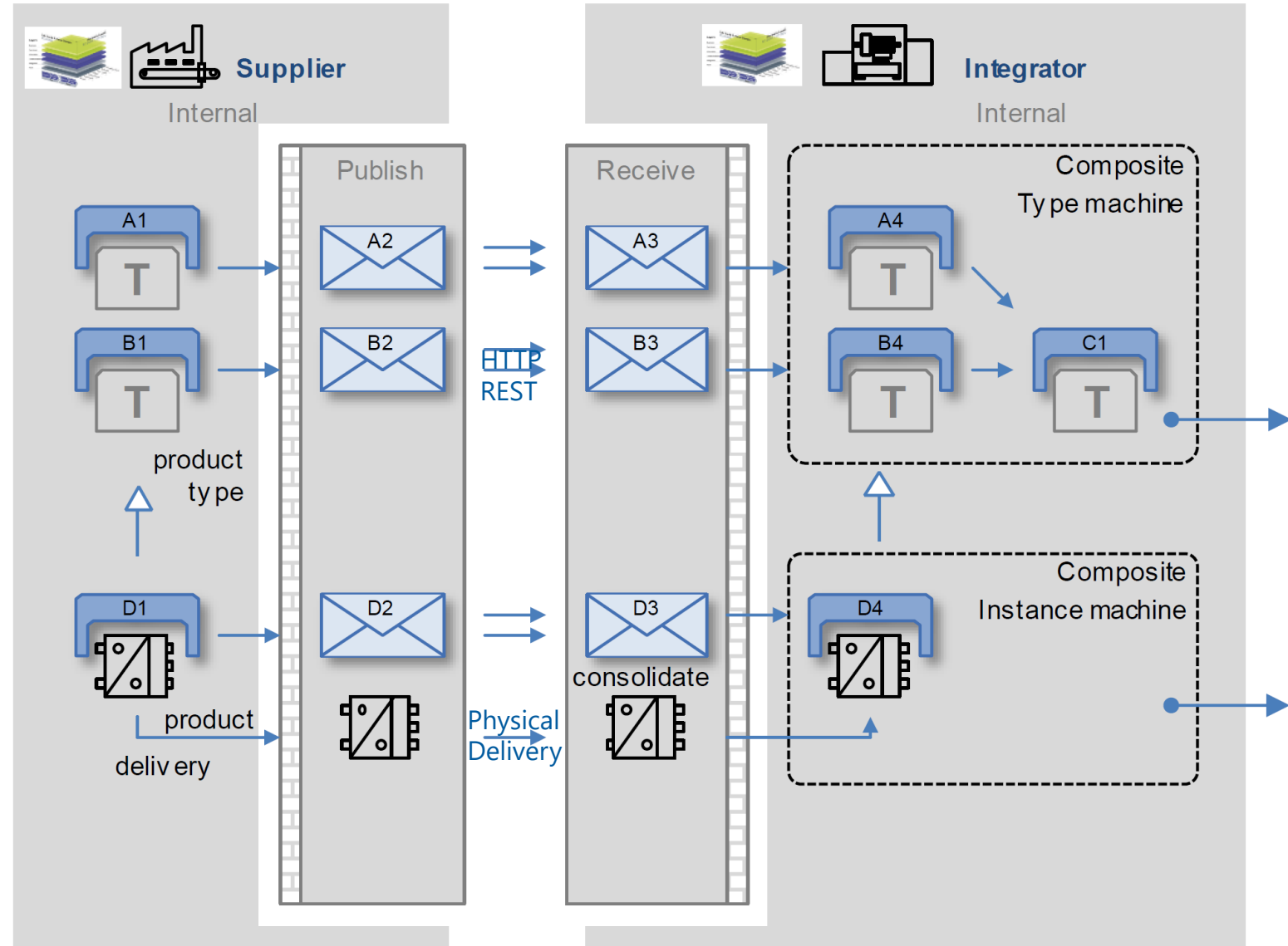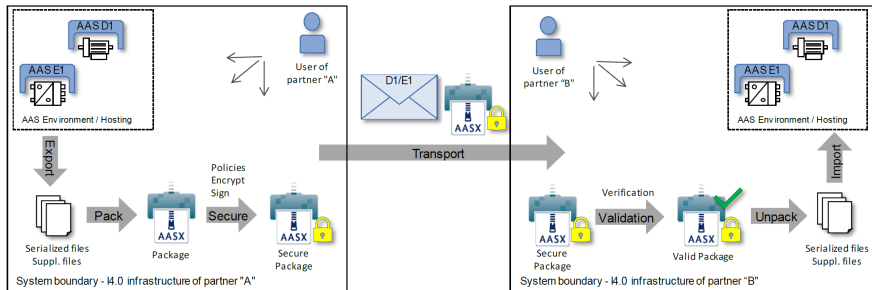
Industrial Metaverse
Creating a Virtual Representation of Your Remote Production Sites

- Offshore Wind
- Oil Rigs
- Carbon Capture Plants
- Solar Parks in the Desert