

Scaling Optical Testbed Data Space for Data Sharing Across Vendor and Organizational Boundaries

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Background

- **ML/AI-based solutions** are essential for the realization of future intelligent, autonomous optical network infrastructure.
- Isolated lab setups often fail to represent real network behavior due to **limitations in scale, topology diversity, and equipment heterogeneity**.
- There is a **growing community interest in open datasets and collaborative frameworks** that allow testbed owners and users to share data in a structured manner, enabling the creation of more representative datasets for AI/ML development.
- Proposed Solution: **Optical Testbed Data Space (OTDS)**, a framework for secure and governed data sharing across testbeds and stakeholders.

OTDS: Optical Testbed Dataspace

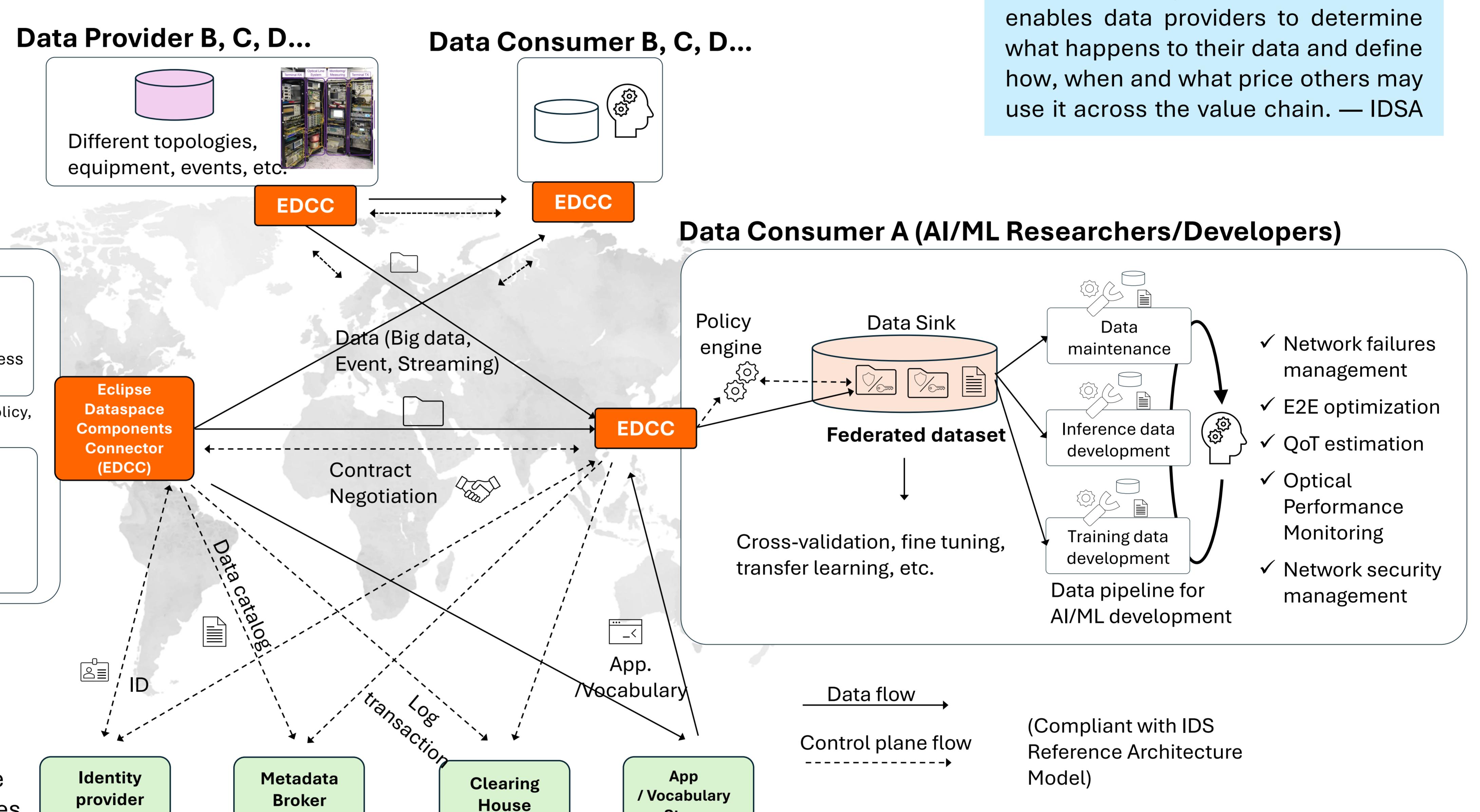


Fig. 1. Proposed sovereign testbed data sharing framework for network AI/ML empowerment.

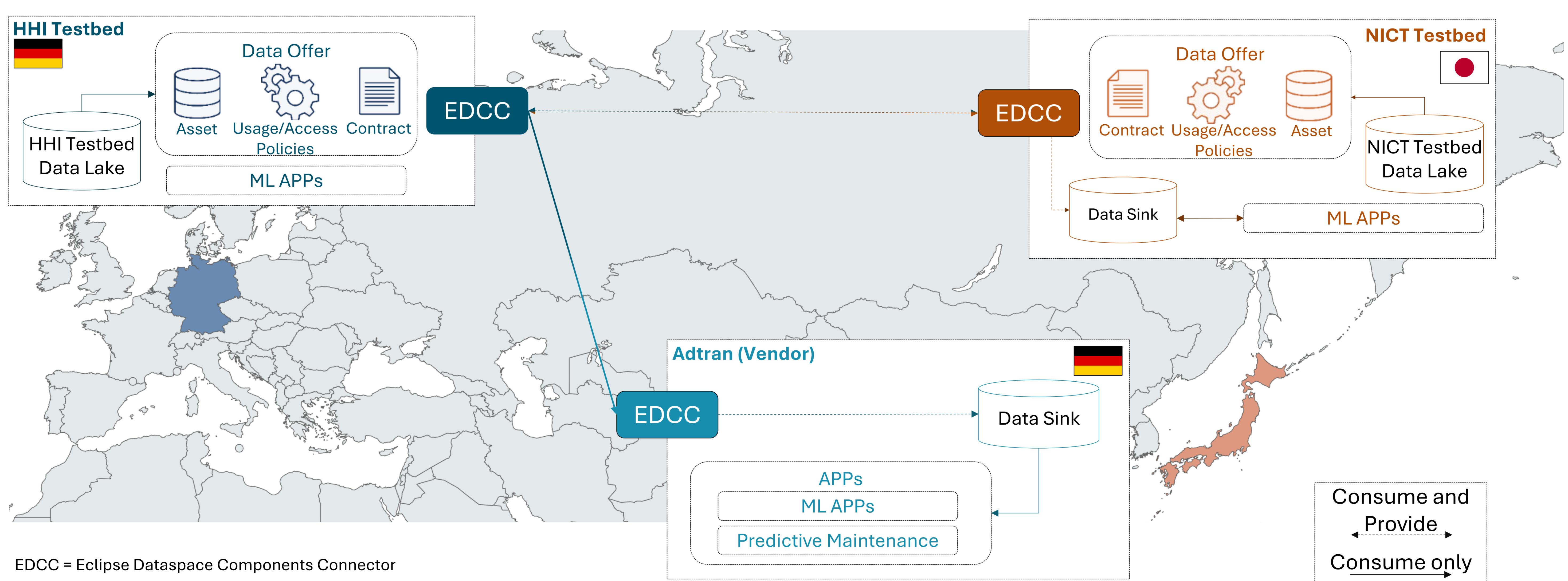


Fig. 2. Setup of the demo, showing OTDS between two testbed owners (HHI and NICT) and one vendor (Adtran) located on different continents.