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TOWARDS A MODULAR ONTOLOGY FOR EVENT-BASED DATASHARING IN THE LOGISTICS DOMAIN

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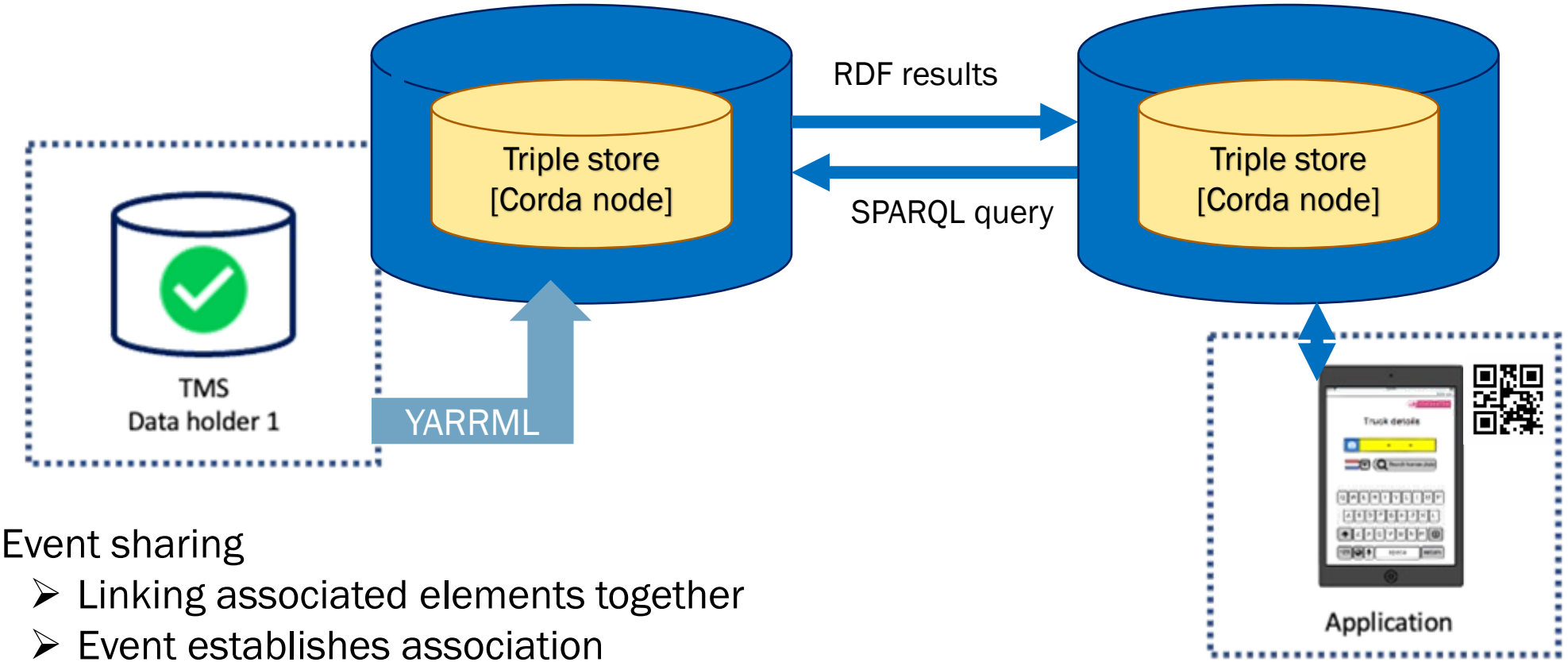
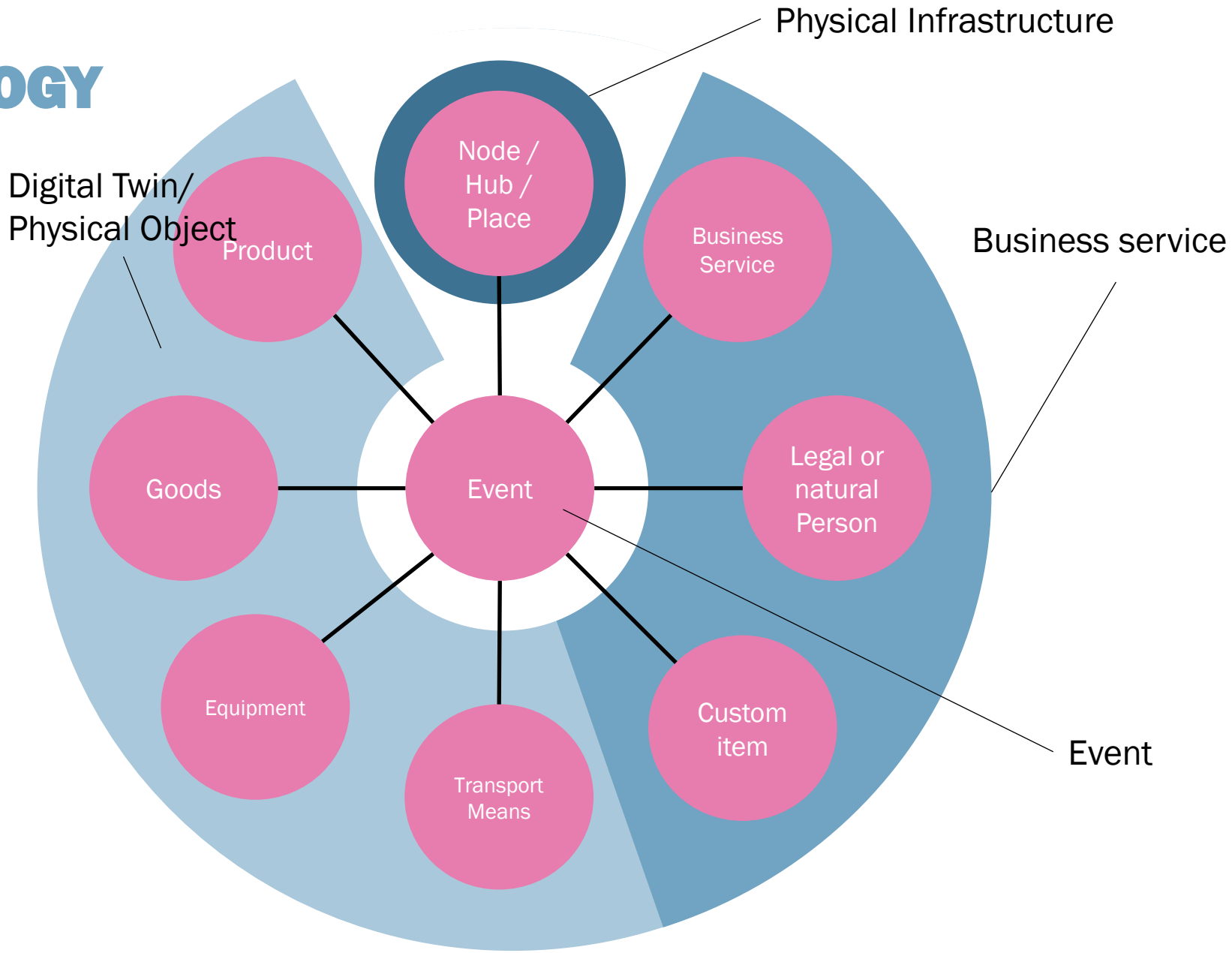
ARCHITECTURE PRINCIPLES



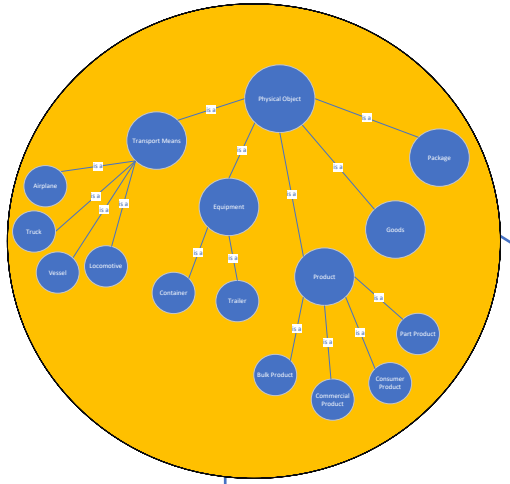
- Event sharing
  - Linking associated elements together
  - Event establishes association
- Decentralisation
- Data at the source
- Data soevereignty

LOGISTICS ONTOLOGY

- Network of 5 ontology modules
  - Event
  - Digital Twin/Physical Objects
  - Physical infrastructure
  - Business service
  - Classification

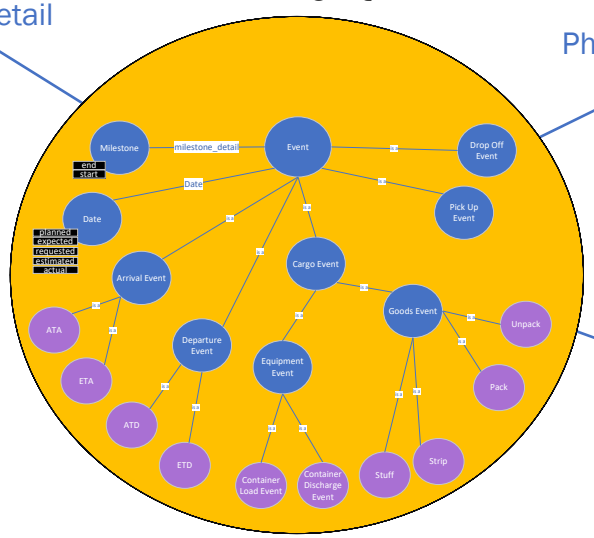


Digital Twin/Object



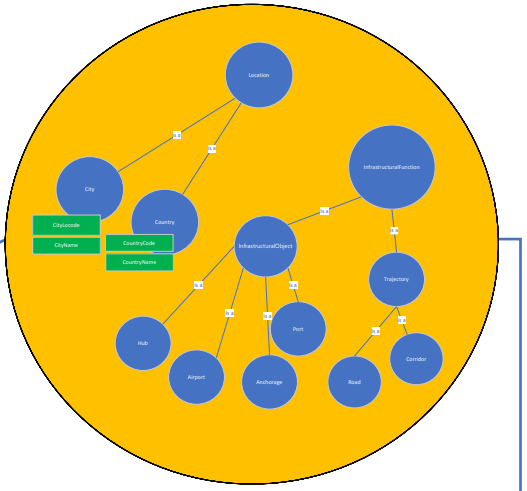
DigitalTwin_detail

Event



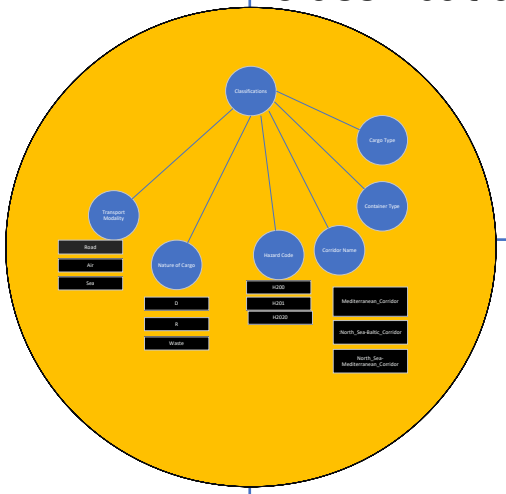
PhysicalInfrastructure_detail

Physical Infrastructure



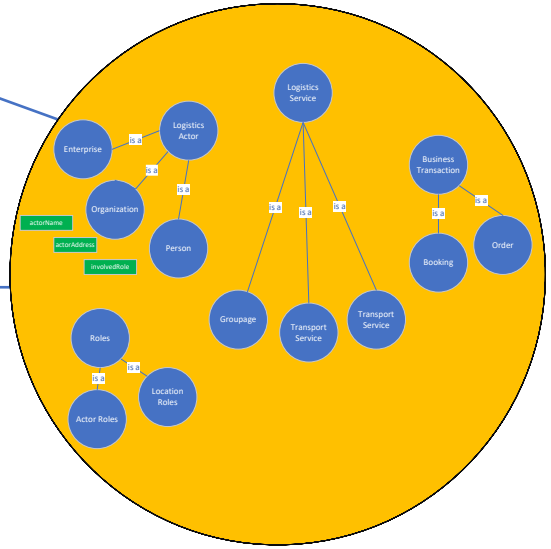
Classification_detail

Classifications



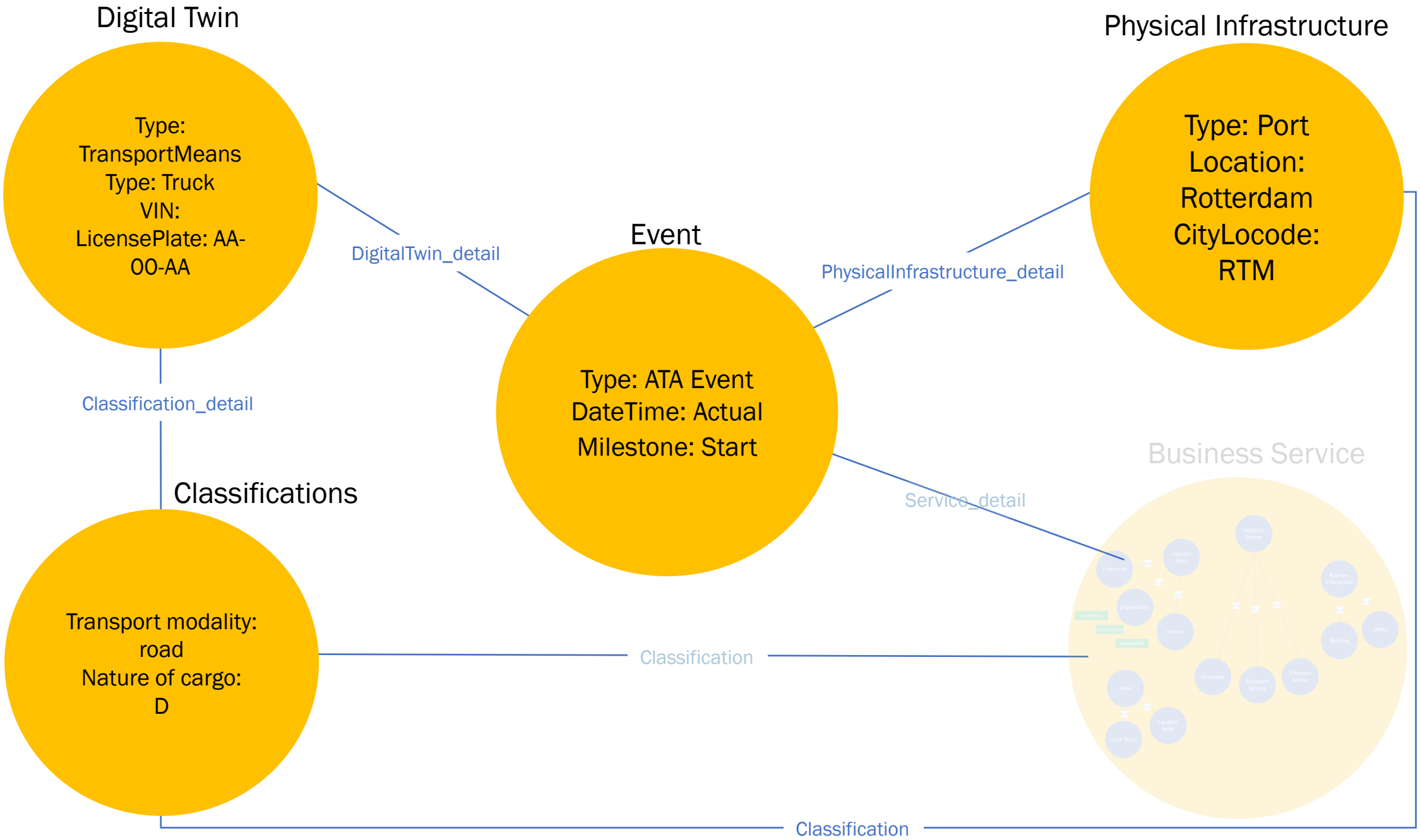
Service_detail

Business Service

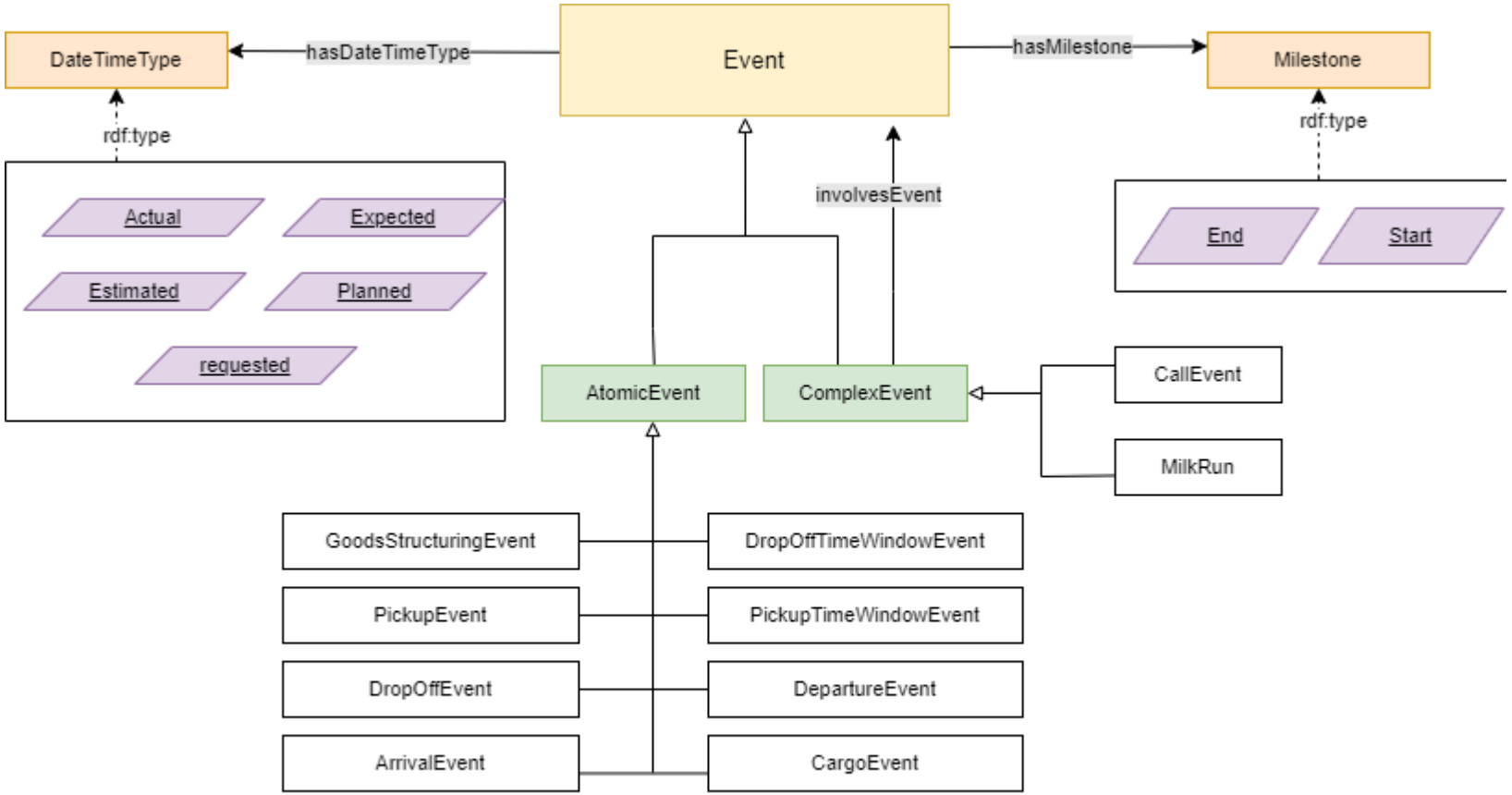


Classification

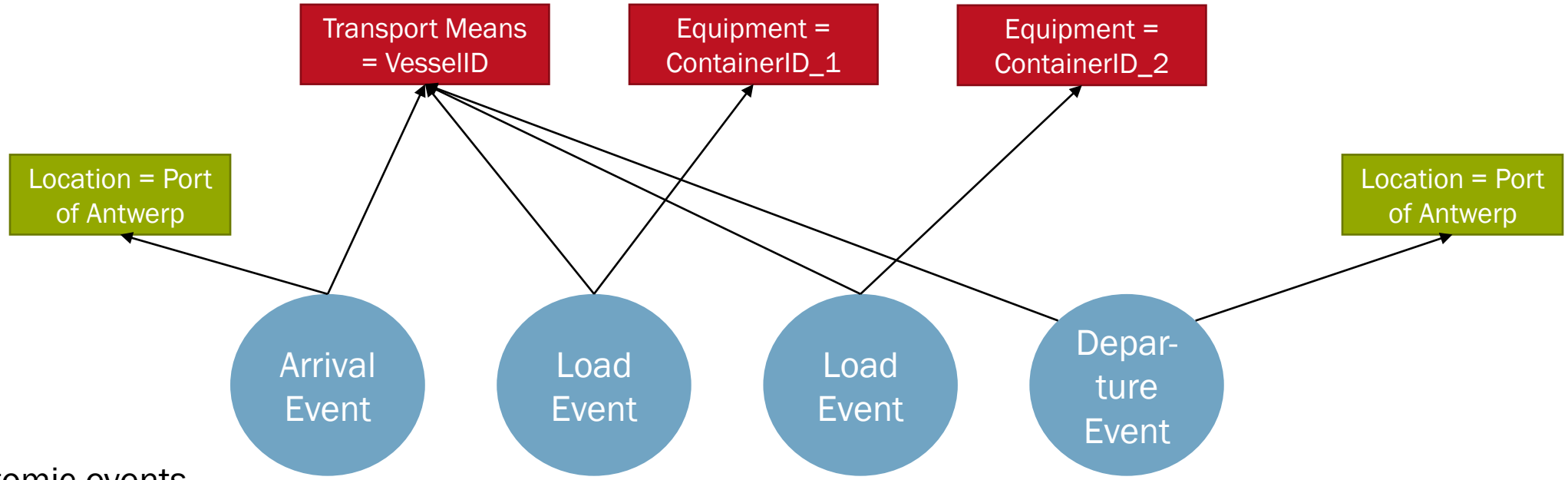
Classification


Digital Twin
Type: TransportMeans
Type: Truck
VIN:
LicensePlate: AA-00-AA
DigitalTwin_detail
Event
Type: ATA Event
DateTime: Actual
Milestone: Start
PhysicalInfrastructure_detail
Physical Infrastructure
Type: Port
Location: Rotterdam
CityLocode: RTM
Classification_detail
Classifications
Transport modality: road
Nature of cargo: D
Classification
Service_detail
Business Service
Classification

EVENT MODULE

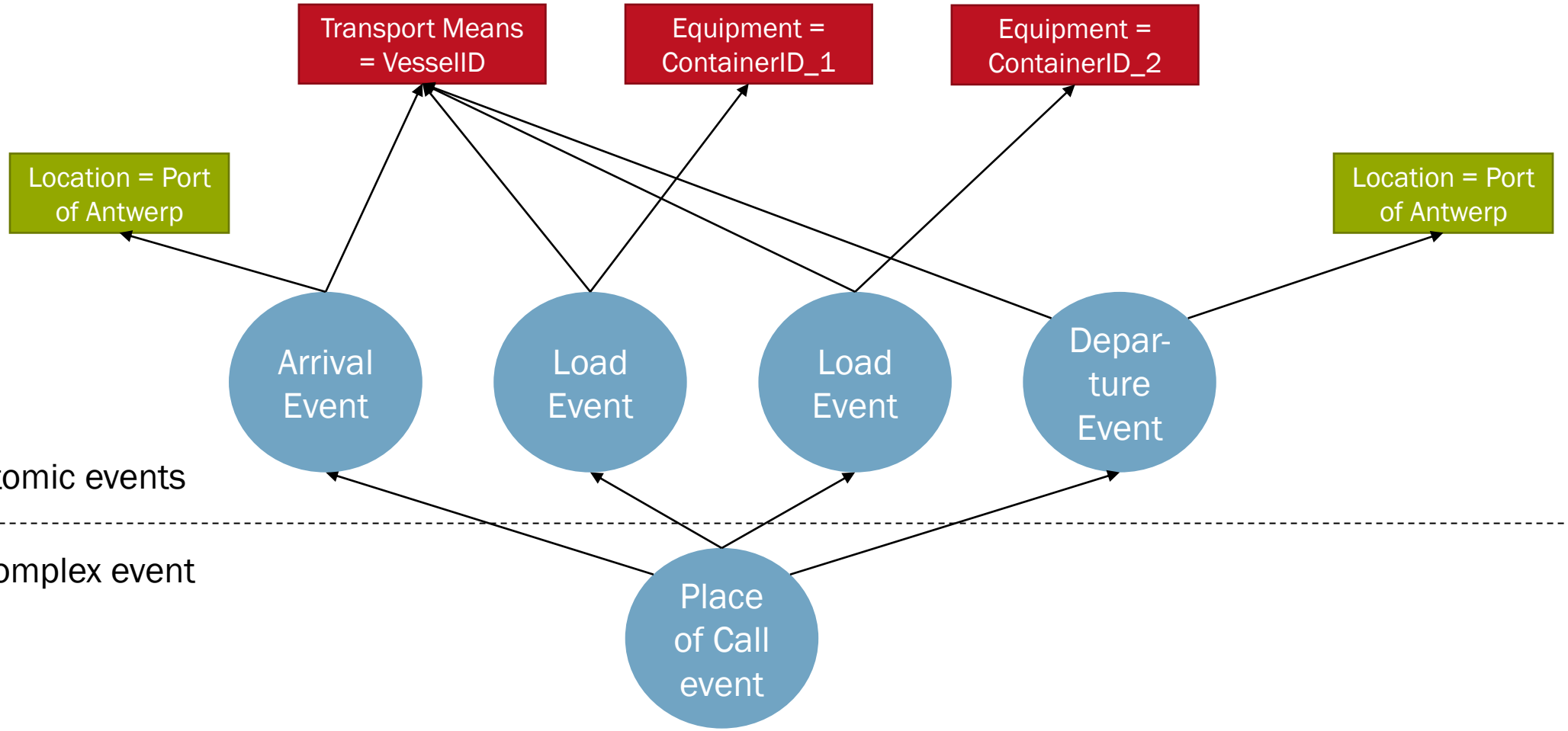


EVENT COMPOSITION
ATOMIC EVENTS

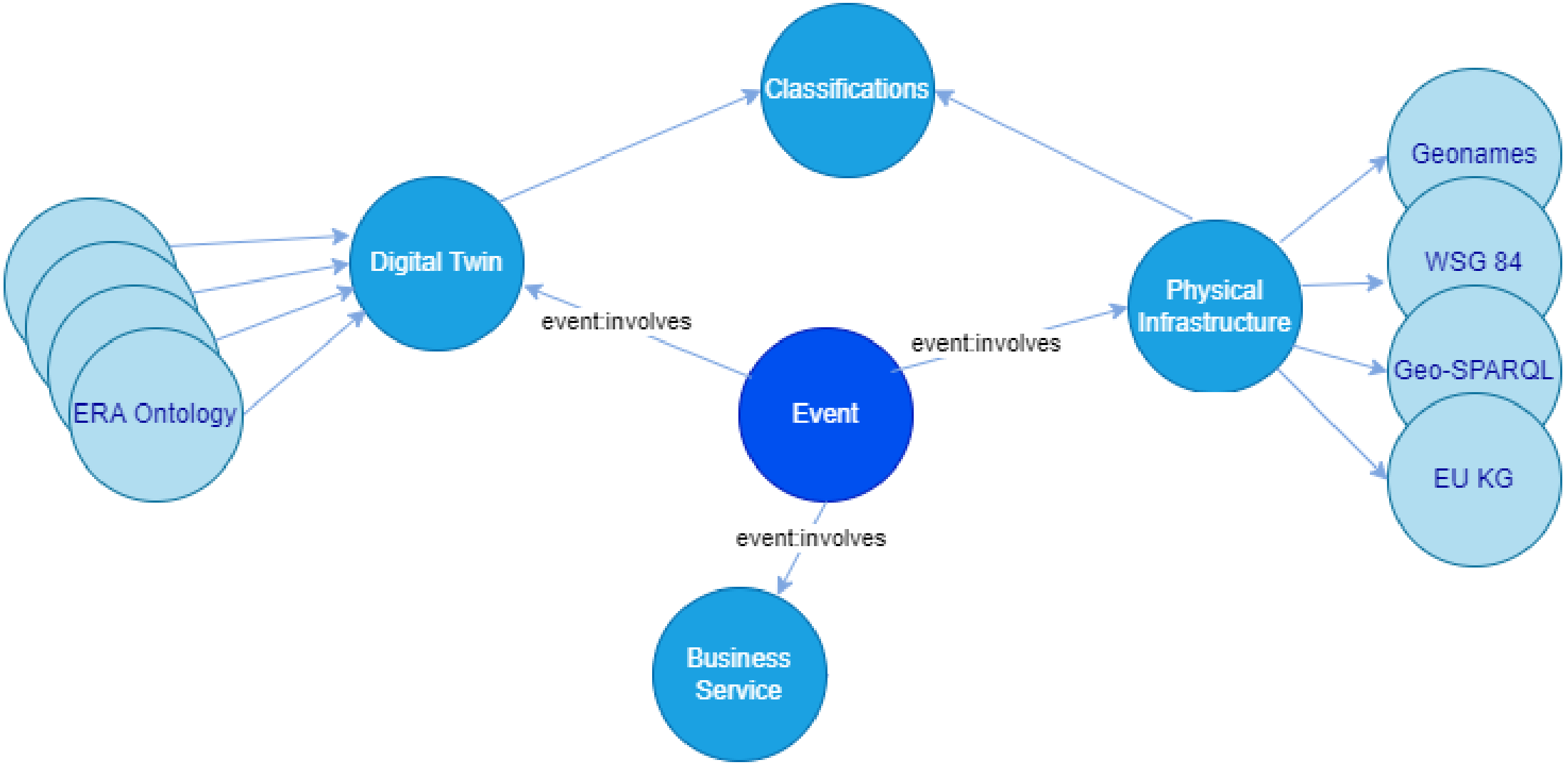


Atomic events

EVENT COMPOSITION
COMPLEX EVENT



MODULARISATION



FUTURE WORK & DISCUSSION

- Event-based architecture for multi-modal data sharing
  - Reuse of existing infrastructure and geography models
  - Reuse of existing logistical models
- Implementation in distributed data sharing environment ongoing in use-cases
- Future work
  - Aligning with additional logistical models
  - Extending materialised triples to virtualised triples

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UW AANDACHT

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