

Big Data: real time ICT for logistics

Data Logistics 4 Logistics Data (dl4ld)

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Project Lead:











Scientific Lead:



Partners:

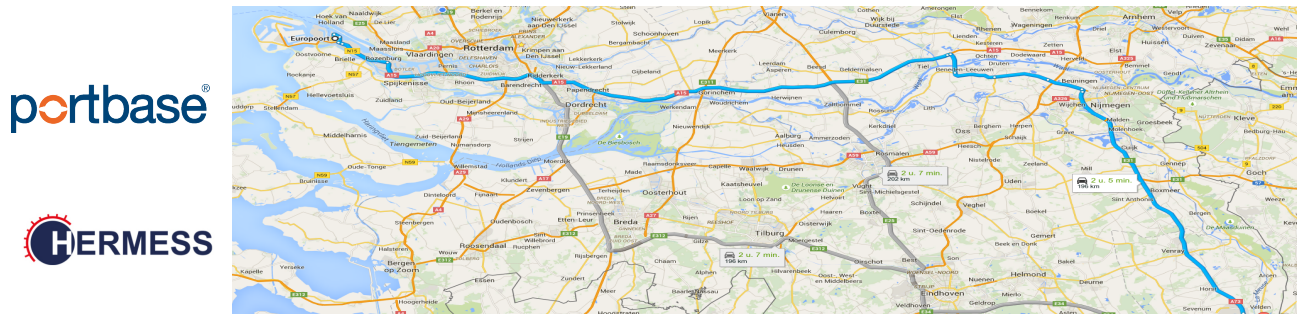
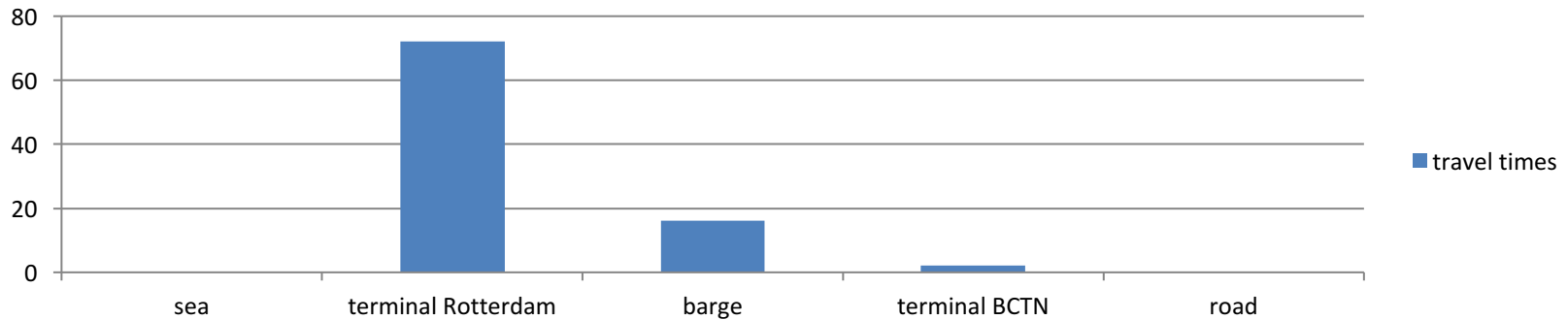
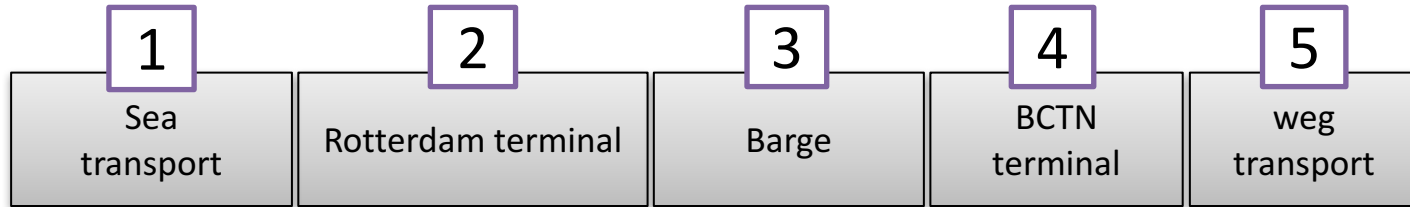








Use case: Transport Proces improvement in synchromodal container transport Singapore - Rotterdam - Limburg



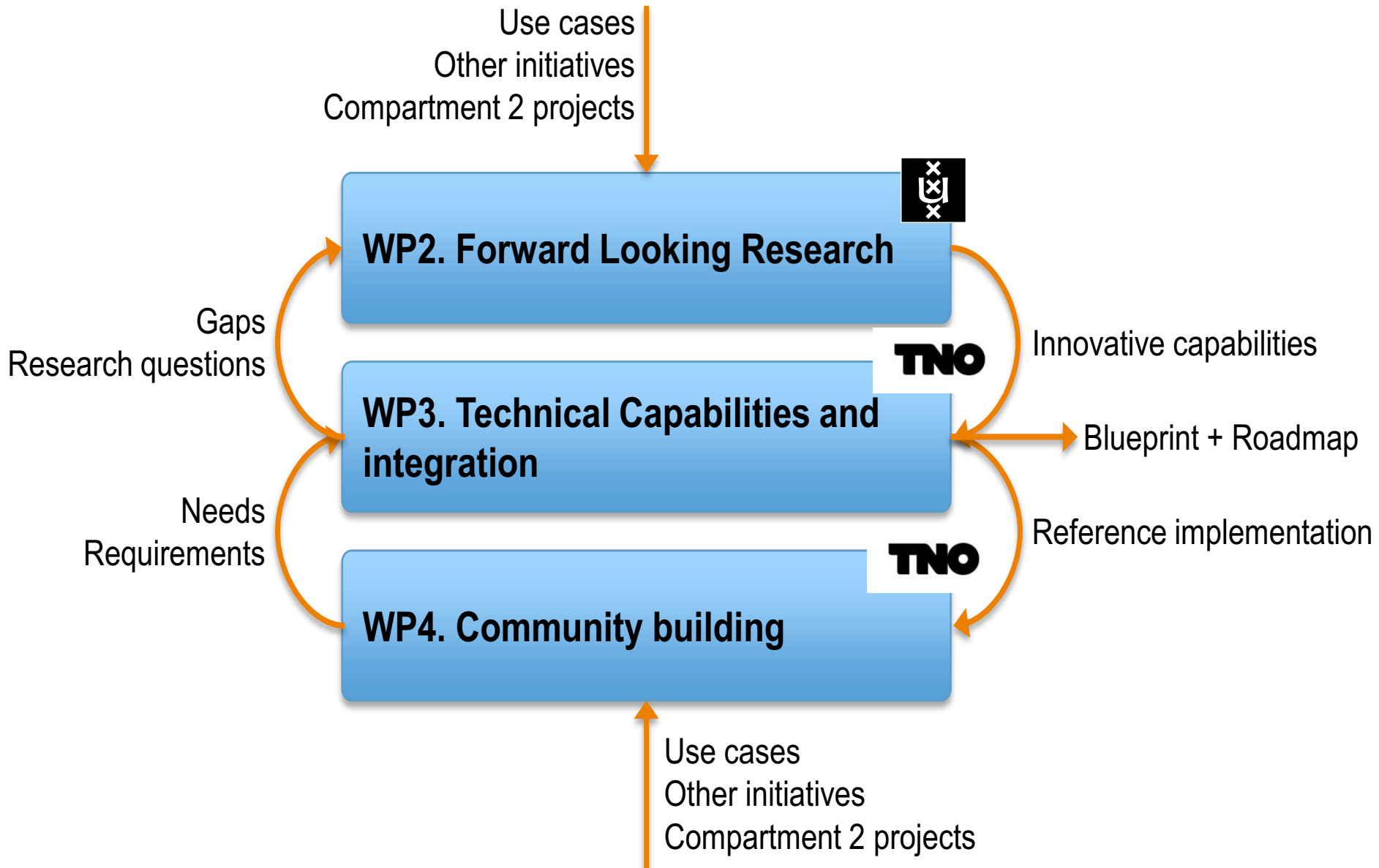
Problem statement

- Logistics users and service providers want to use data for performance improvement, reliable and shorter transport time, less energy and CO₂!
- They are not able to share sensitive data in a secure and efficient way for legal or economic reasons.
- Models and methods for trust and enforcement are missing!

Focus:

- Design and implementation of experimental capabilities required for creating value-rich logistic information services.
- Blueprint & roadmap for stakeholders to agree on how data is stored, shared, transformed in a controllable, enforceable, accountable, auditable and goal oriented way.

Approach



Big Data Sharing use cases placed in airline context

Global Scale



Aircraft Component Health Monitoring (Big) Data
NWO **CIMPLO** project
4.5 FTE

National Scale



Cargo Logistics Data
(C1) DaL4LoD
(C2) **Secure scalable policy-enforced distributed data Processing**
(using blockchain)

City / regional Scale

Campus / Enterprise Scale

NLIP iShare project



Cybersecurity Big Data
NWO COMMIT/
SARNET project
3.5 FTE



iSHARE
powered by NLIP



SAE Use Case envisaged **research** collaboration

Funding Agency



Big Data Hub / Spoke or Industry initiative funding



International Networking



Regional / National Networking



Local University



Aircraft MRO, OEM & Operators

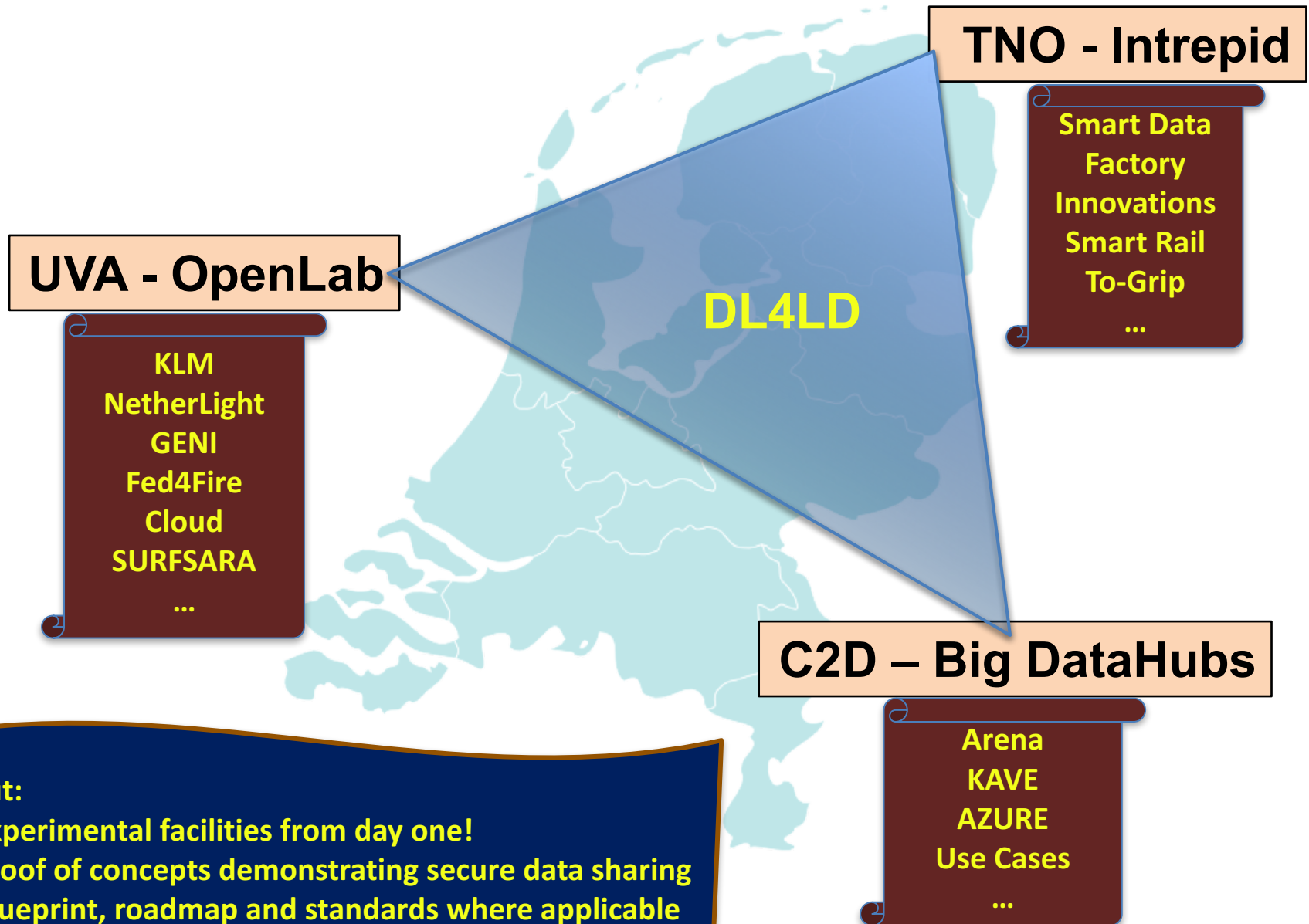


Industry Standards Body

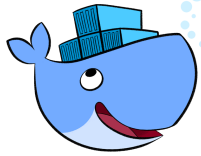


SAE AeroSpace Group
HM-1 working group
Use Case on aircraft sensor Big Data

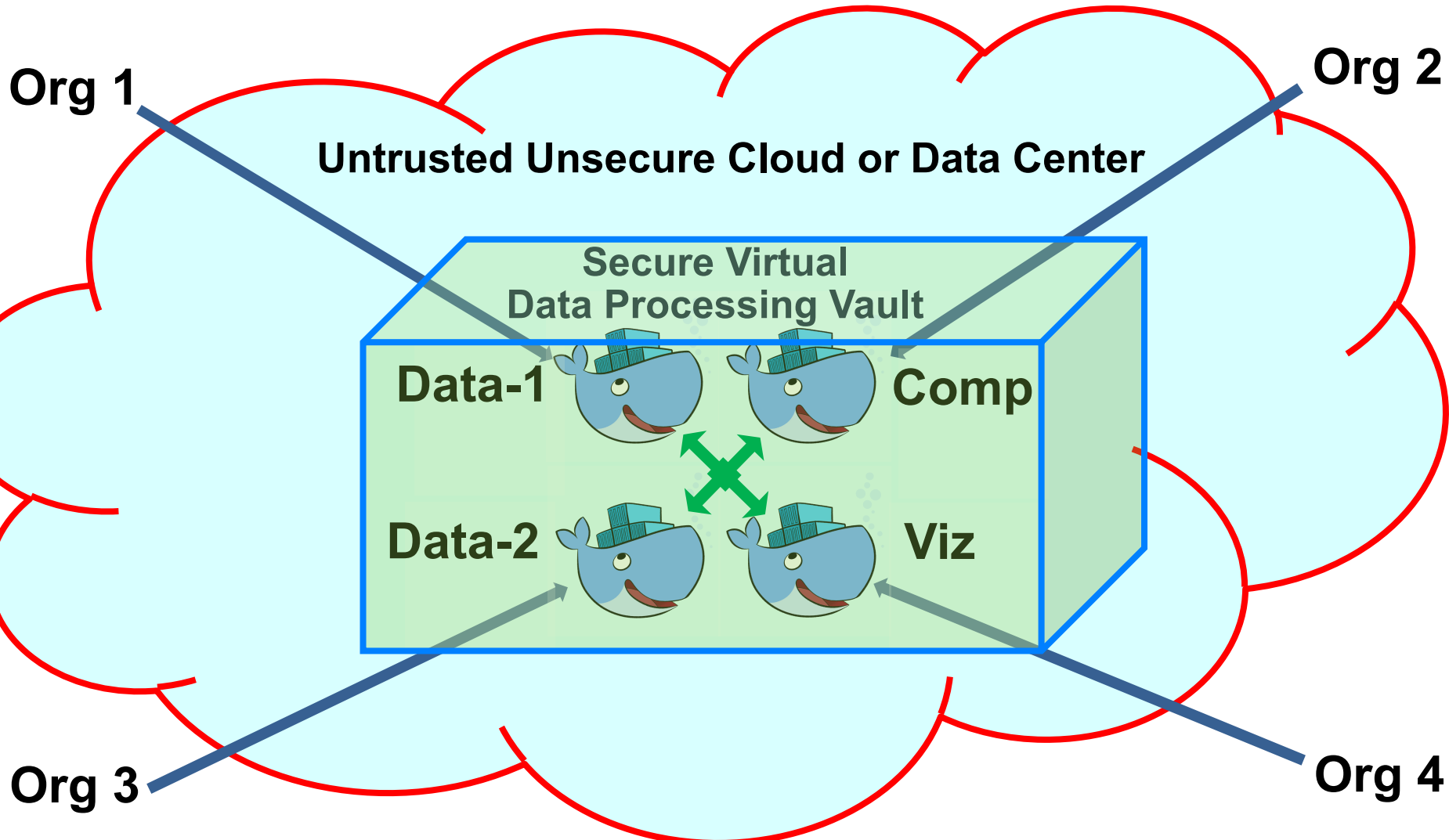
Validation Fieldlab and Dissemination



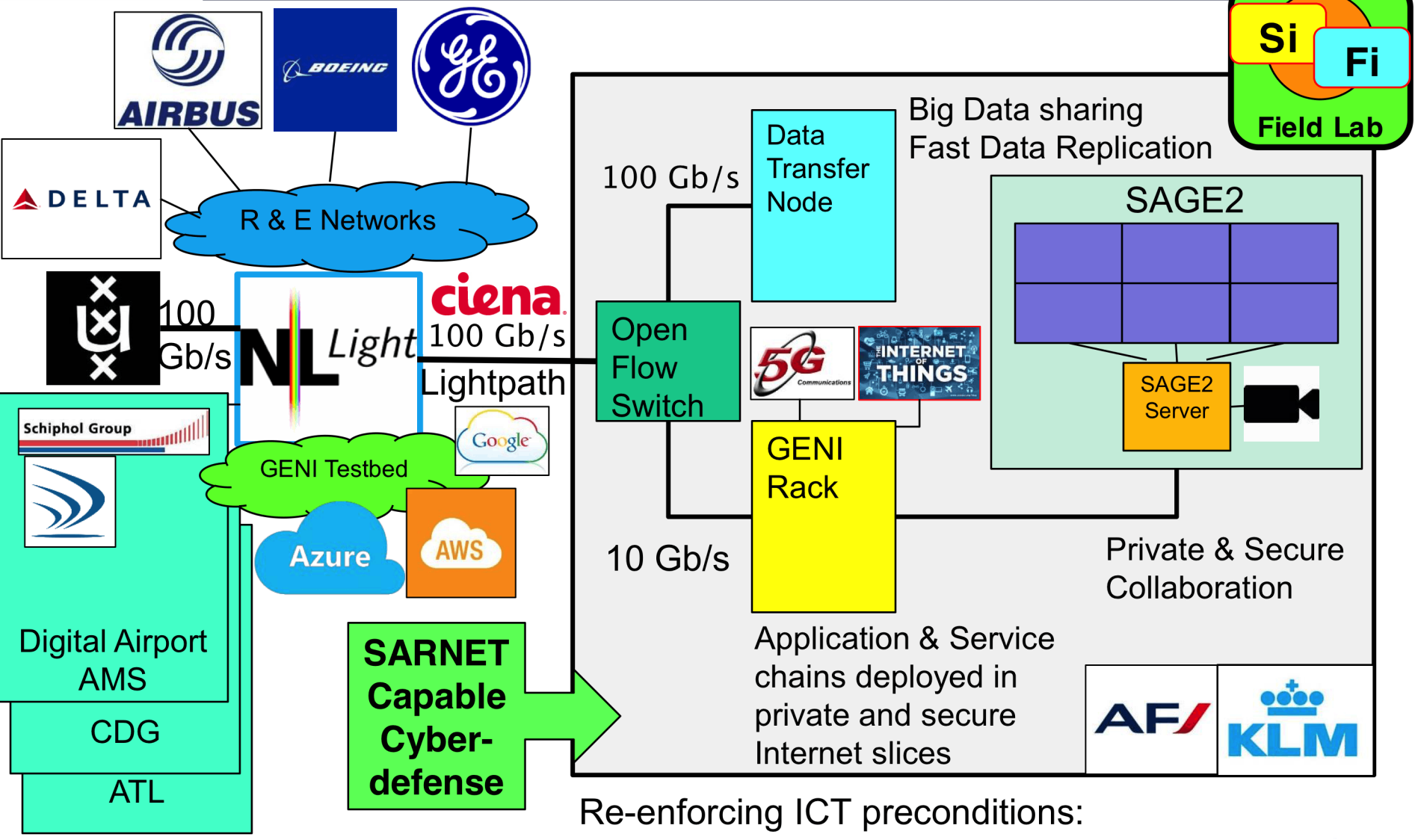
Example model: Policy Enforced Data Processing



- Bringing data and processing software from competing organizations together for common goal
- Docker with encryption, policy engine, certs/keys, blockchain and secure networking
- Data Docker (virtual encrypted hard drive)
- Compute Docker (protected application, signed algorithms)
- Visualization Docker (to visualize output)

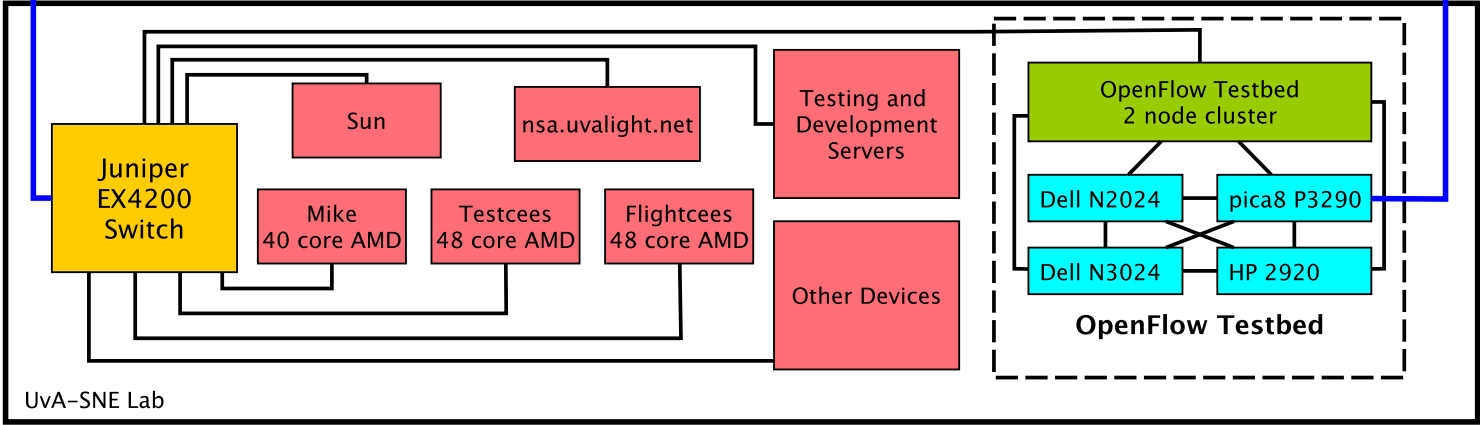
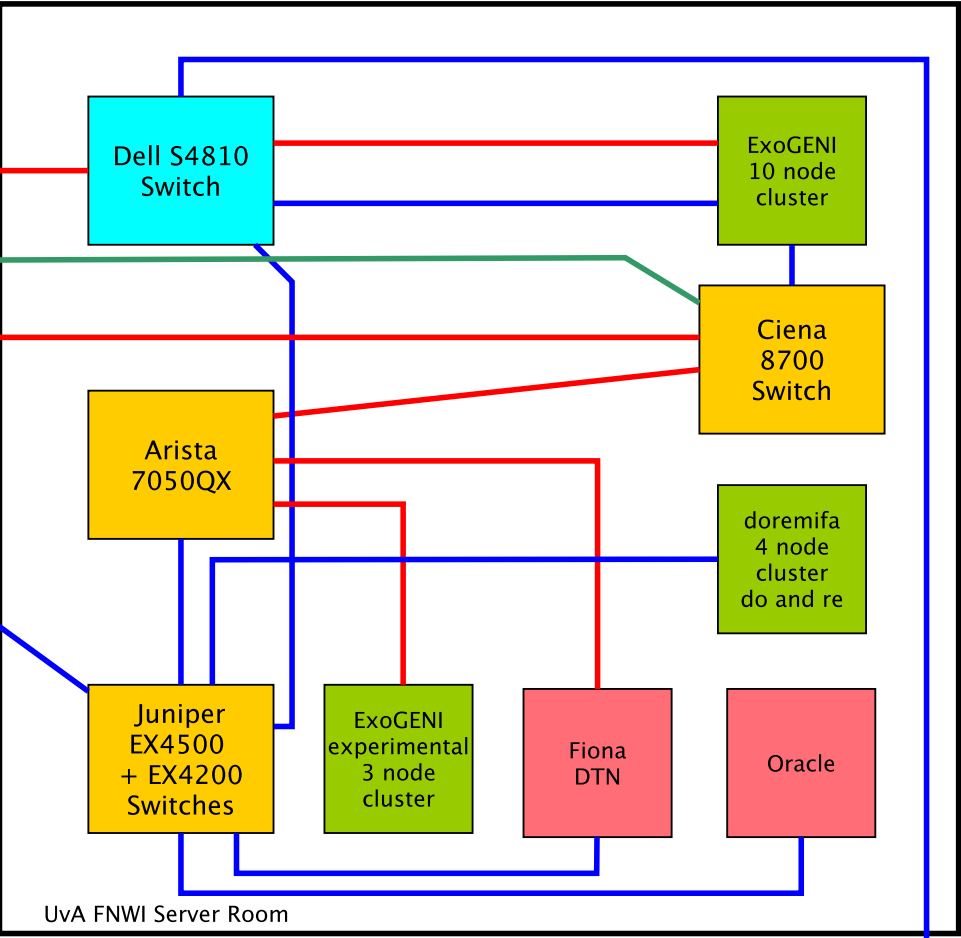
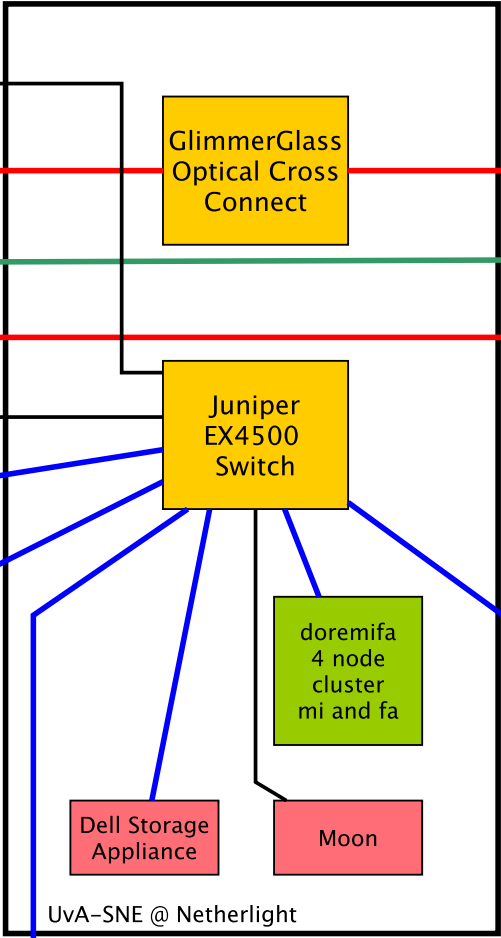
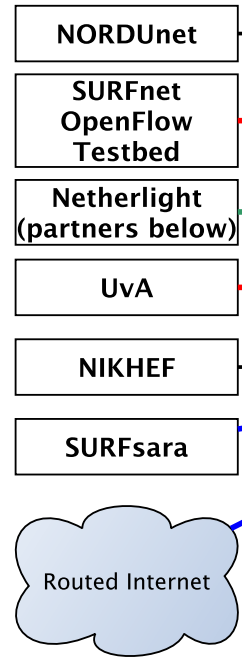


Ambition to put capabilities into fieldlab



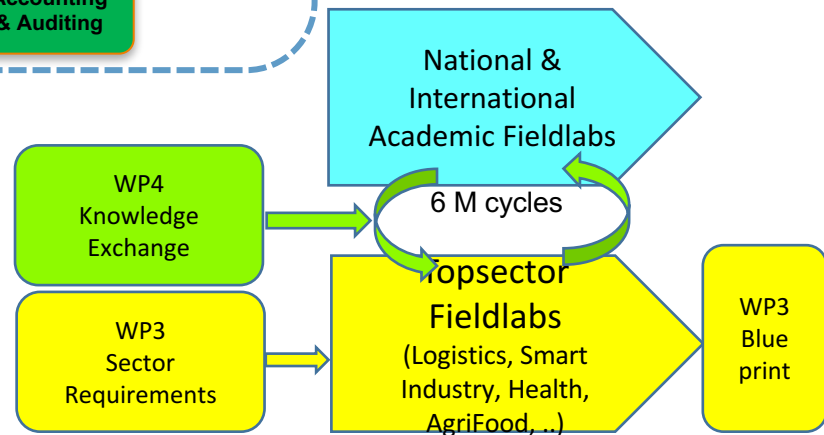
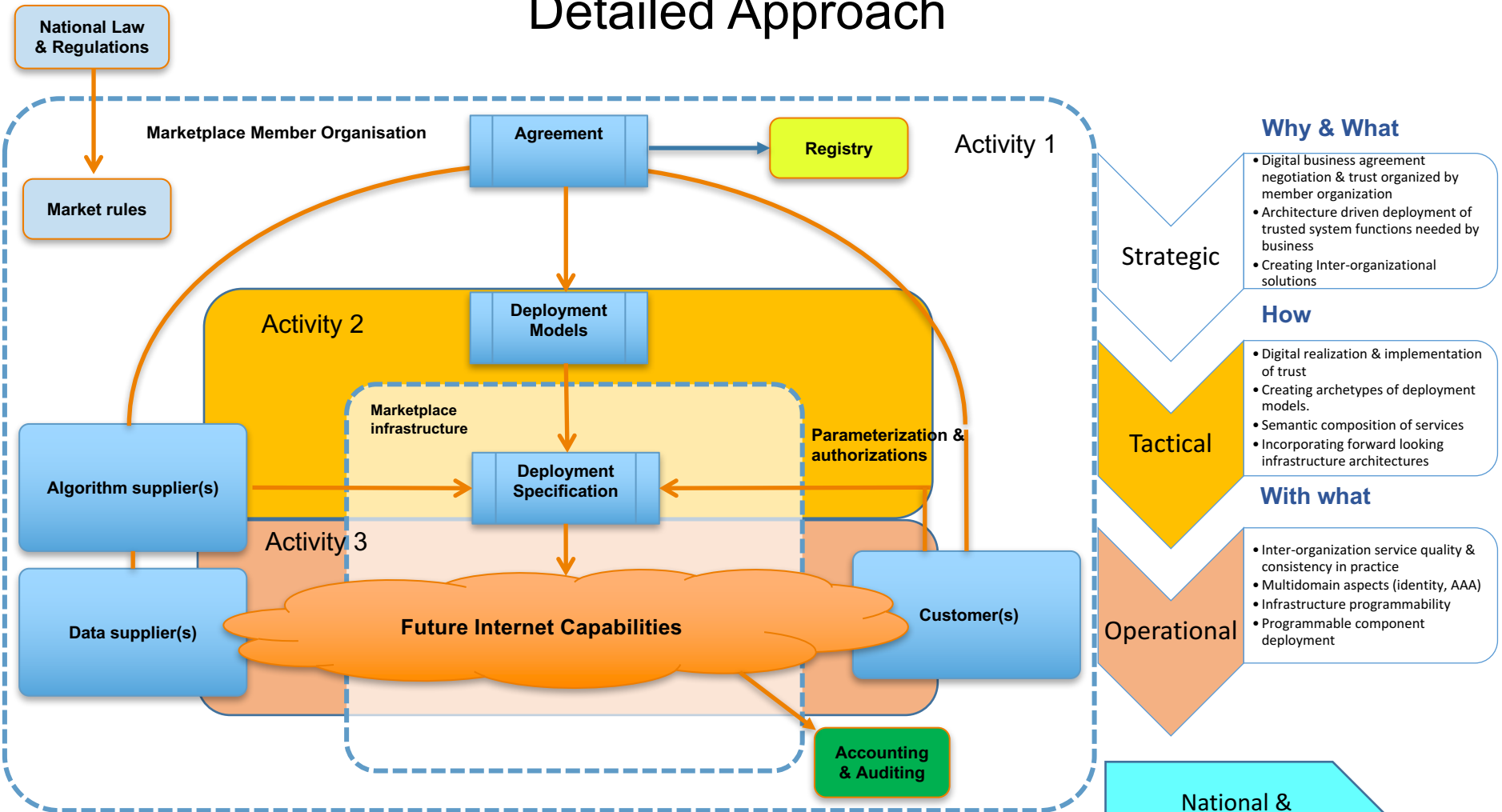
Re-enforcing ICT preconditions:
Each envisaged site has similar elements

UvA OpenLab



- Switches/Routers
- Hosts or other L3 Devices
- Clusters or Cloud Setups
- OpenFlow Devices
- 100G Link
- 40G Link
- 10G Link
- 1G Link

Detailed Approach



Take Aways

- We have a good basis in logistics communities; Airport, Seaport, Greenport, Hinterland
- We have use cases with real-life challenges around big data in logistics.
- We have experimental facilities from day one to try out and experience the aptness and value of capabilities that are developed.
- We have commitment from SURF to federate with SURFLab and the Supercomputer center.
- We have committed (inter)national partners.
- We will cooperate with NLIP, Connekt, Dinalog and the C2D Big Data Hubs for Use Cases and dissemination to logistics and other topsectors!

Q & A

Partners:

Project Lead:

TNO



evofenedex

ORACLE

 **simacan**

Scientific Lead:



ciena

AIR FRANCE KLM

**X Gemeente
X Amsterdam
X**

THALES
TRANSFIDES