

# From Data Elements to APIs

## Example of Smart Containers Project

**UN/CEFACT Advisory Group**  
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# AGENDA



1. Composite Services
2. APIs are the GLUE
3. Semantics and Syntax
4. Data Exchange Standards
5. UN/CEFACT Smart Container Methodology
6. Point of view

# DATA IS THE NEW OIL ...

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## Sensing As A SERVICE.....

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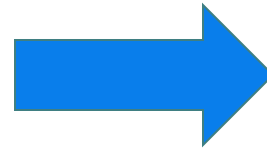
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## COMPOSITE SERVICES.....

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# BUILD YOUR Application...

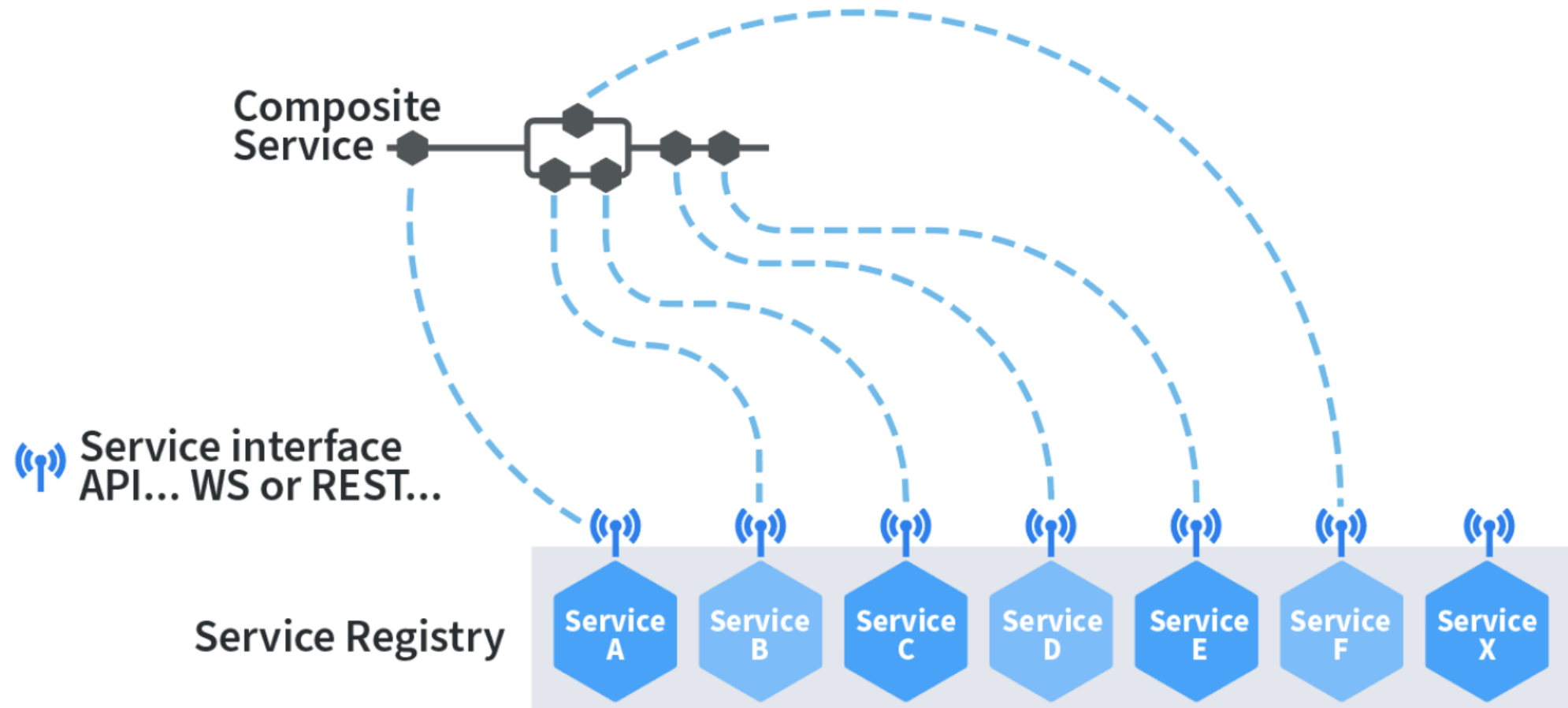
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Agility & Cost-effectiveness

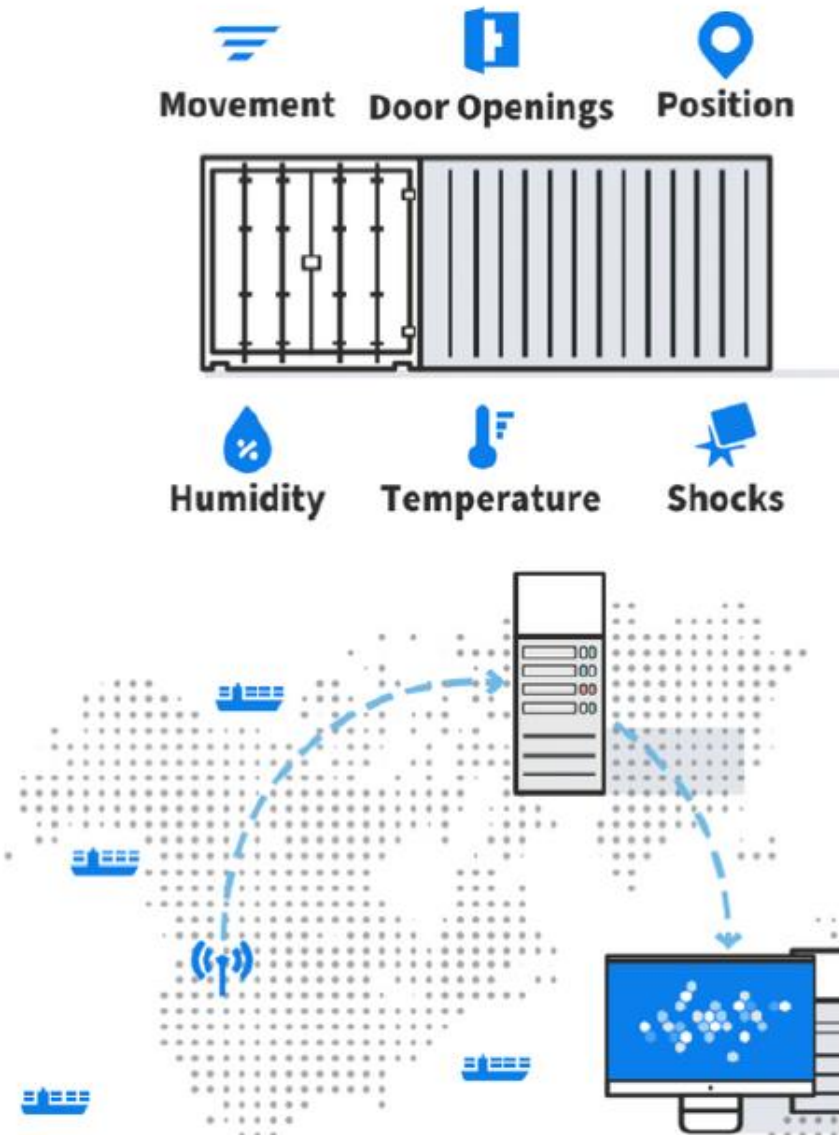
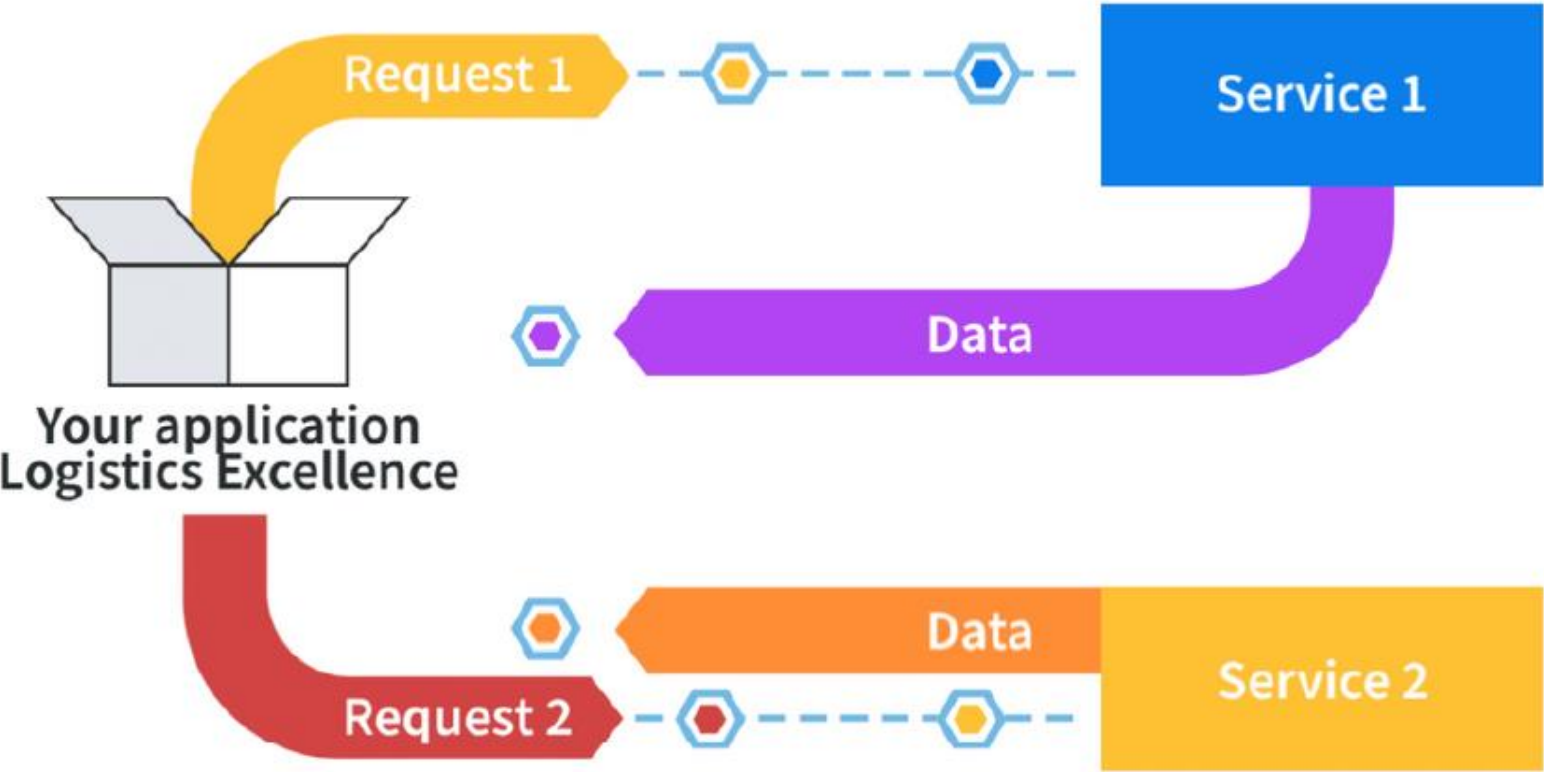
# Composite Service

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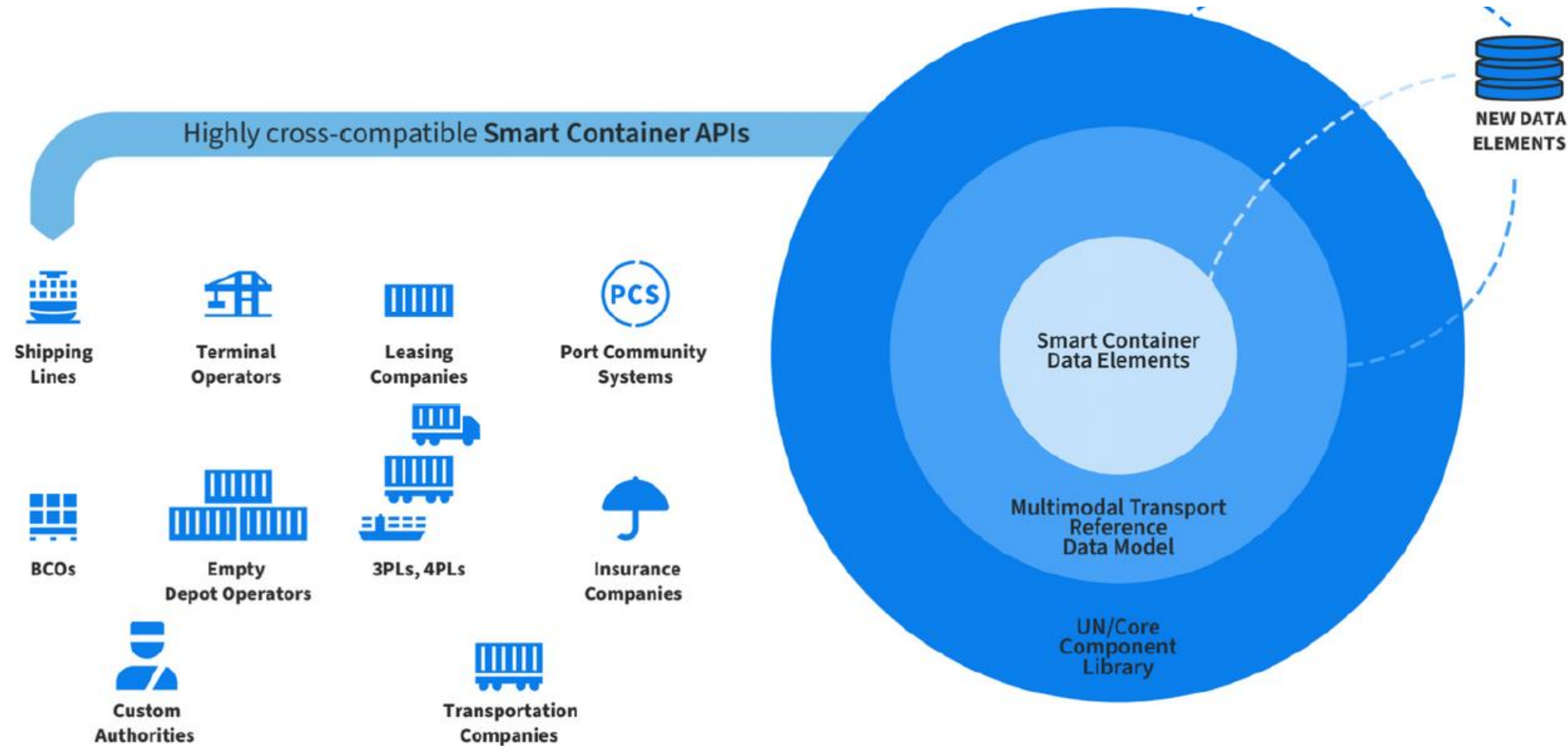


# Example

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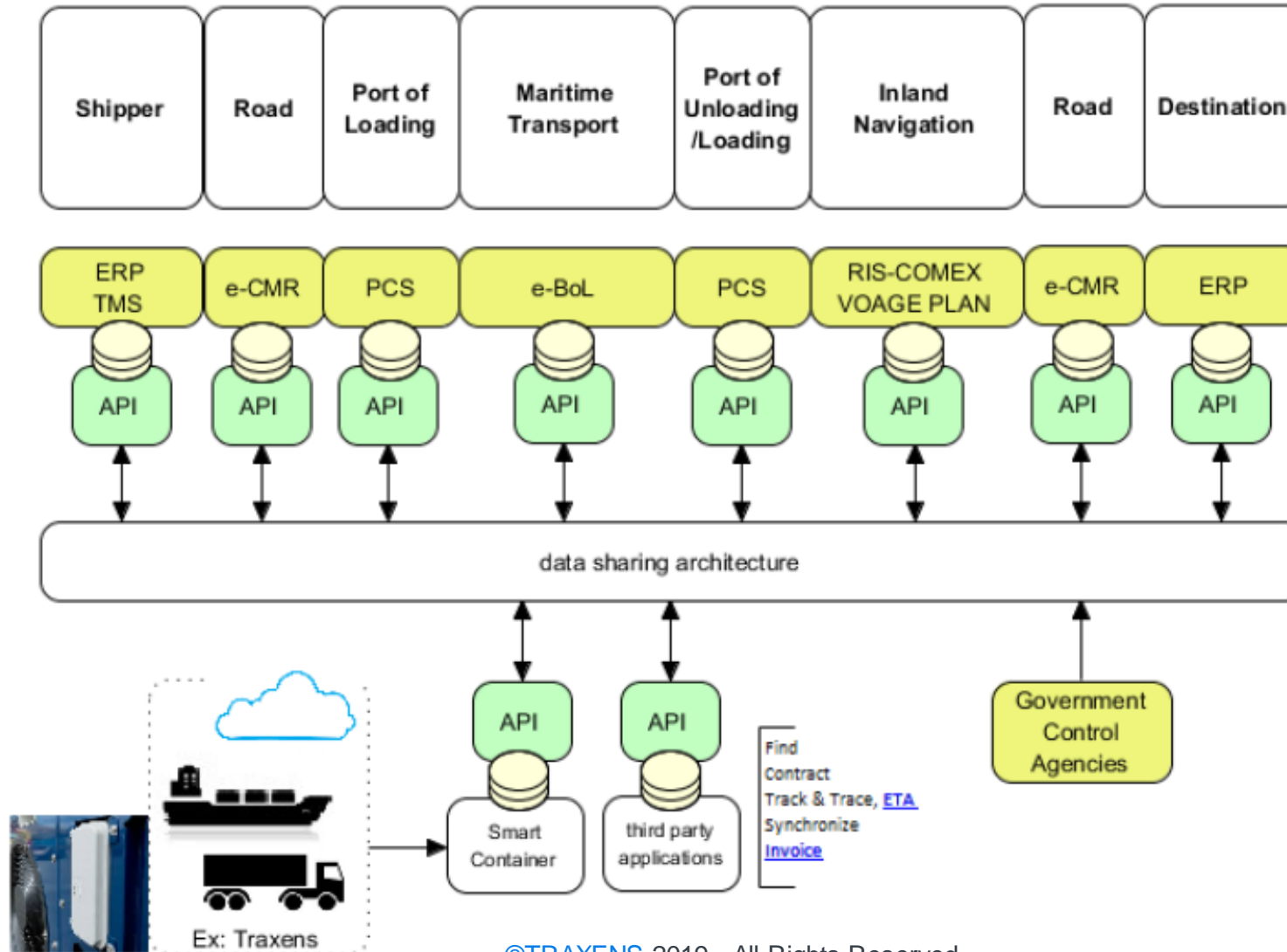


# Serve the whole Ecosystem



# Services Market Place

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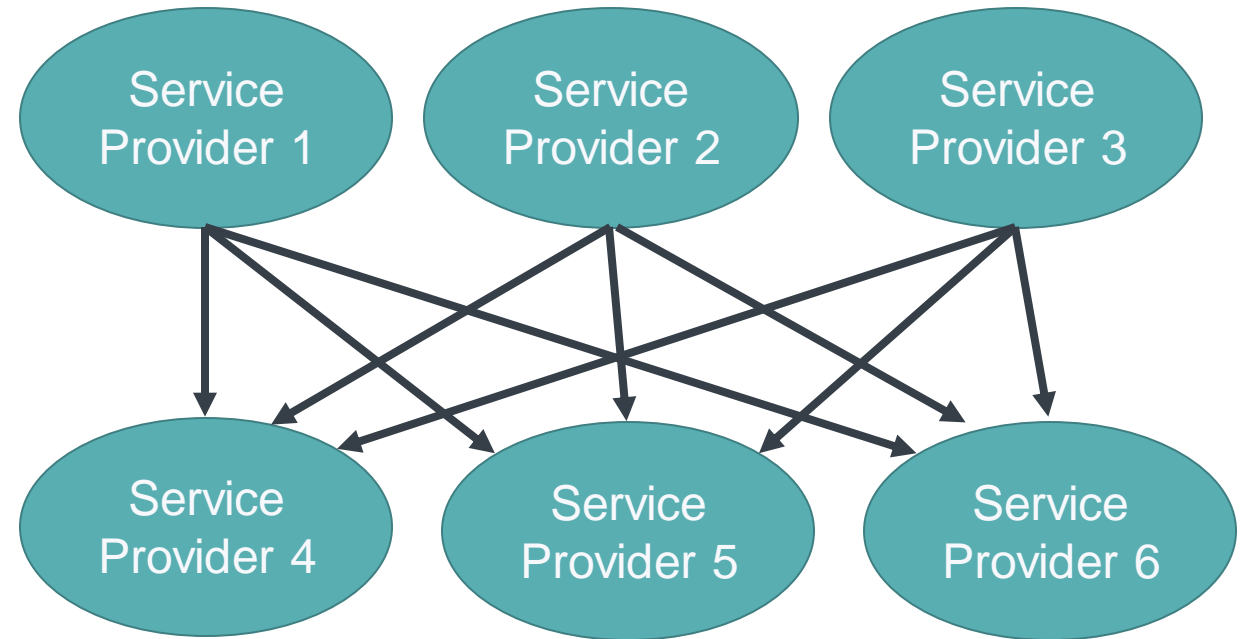






# APIs are the GLUE

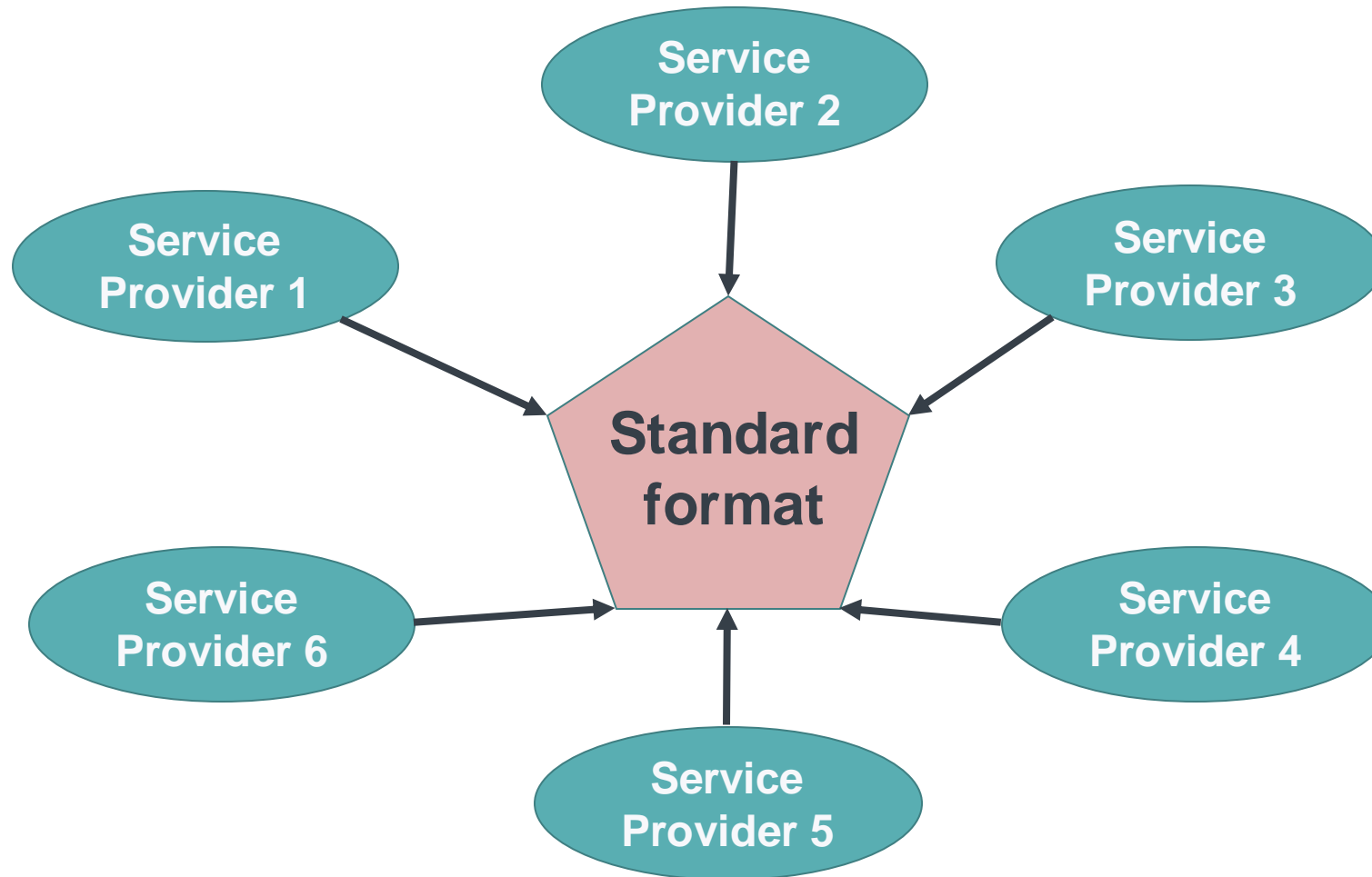
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- Interfaces could be Vendor **lock-in**

# Standards Data Exchange

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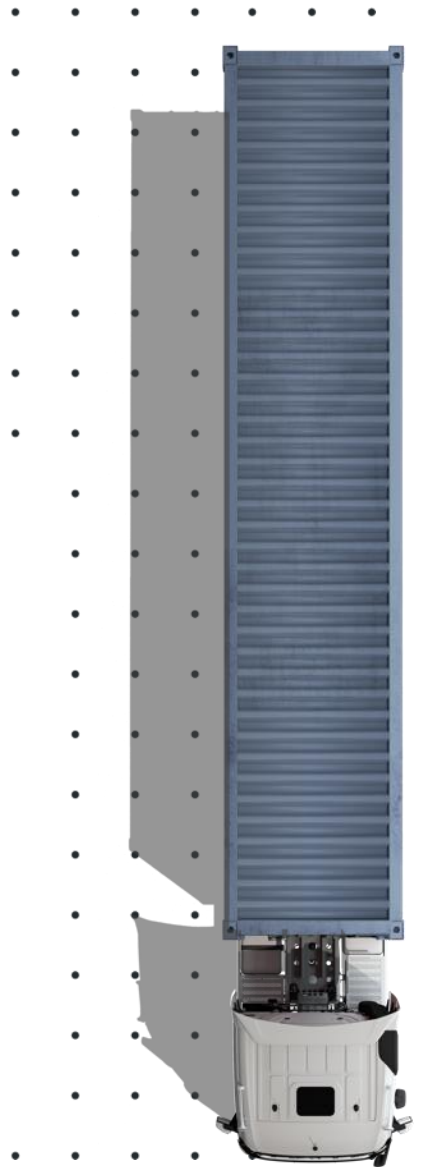
# Architecture and APIs



- ❑ **Orchestration:** Your application becomes a composition of multiple third-party services (service consumer and a service provider)
- ❑ **Black boxes:** third-party Services provide specific functionalities when they are invoked
- ❑ **Explicit Boundaries:** Interfaces are key to exchange data (input/output)
- ❑ **Standards Interfaces** enable services plug and play avoiding vendor lock –in!

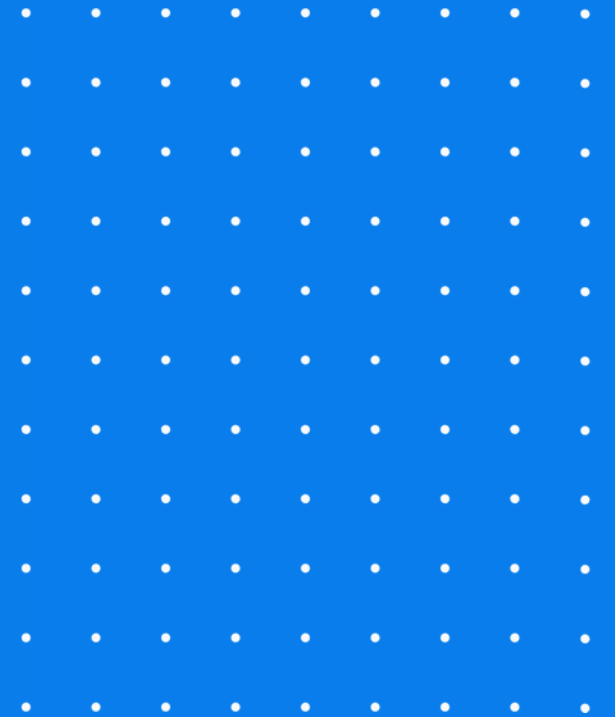
# Data Modeling is KEY for APIs Definition

1. **Value Proposition:** Define the scope of your service
2. Define the **transmitted data elements** (Outputs & inputs)
3. **Semantic:** Define your **catalogue** (definitions & data structures)
4. **Capitalize:** Pick, reuse and enrich existing data catalogue (if any)
5. **Syntax:** Make APIs based on standardized data elements



# UN/CEFACT T&L Domain Smart Container Project

Step by Step:  
**from Data Elements to APIs**



# Steps

# Deliverables

# Resources

1

Share a common understanding of the Smart Container Business use cases & stakeholders: **SCOPE**

Smart Container  
**White Paper**

Project Working Group  
from different backgrounds

2

Define structured data elements generated by smart container and their qualifiers  
**TERMINOLOGY / SEMANTIC**

Business Requirements Specifications (BRS) & **Entities Relationship Diagrams**

UN/CEFACT CODES Lists & Multi Modal Transport Reference Data Model (MMT)

3

Select the data elements for a given use case

**Generic message structure**  
(Technology Neutral!)

Contextualized Notification Messages Structures

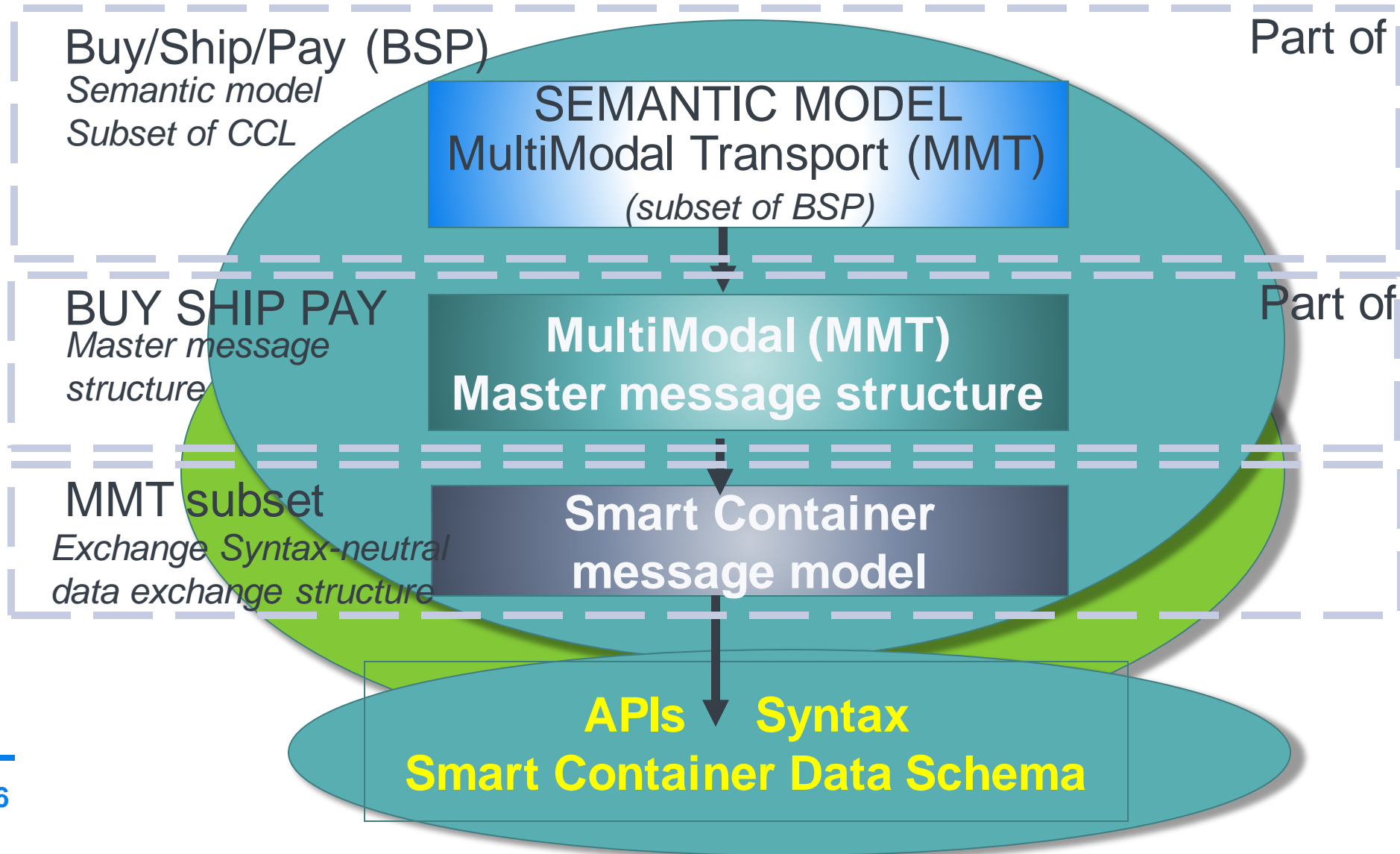
4

Choose the **SYNTAX** (language) to be used to communicate

**APIs**

Multi Syntax World

# UN/CEFACT Smart Container





# My view



1. Deal with data exchange in-depth, complete the process and show how the CCL is essential for data exchange, we need to deliver **APIs description**
2. Being able to share the data in a standard format and expose it as an API will catalyze innovation and enhance collaboration in all terms
  1. Defining new value-added services - Data science, Artificial Intelligence etc.
  2. Using different data sources to create new services and value
  3. Enabling new use cases that requires trust and transparency – blockchain (e.g., Fast lane, Finance and insurance institutions)



# THANK YOU

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