UNECE

Web APIs for the International Supply Chain

A primer for non-technical people

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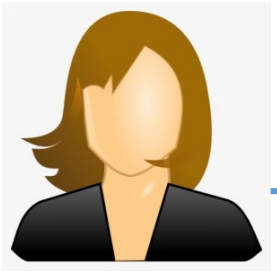
UN / CEFACT

Here's a pretty website

- Types www.xe.com
- Enters amount
- Chooses From/to currency
- Hits go

Pretty familiar experience. It's obvious what it does.

Here's a similar thing with just the data




```
{
    success: true,
    timestamp: 1572056346,
    base: "EUR",
    date: "2019-10-26",
  - rates: {
        JPY: 120.406304,
        AUD: 1.624184
    }
}
```


Types:

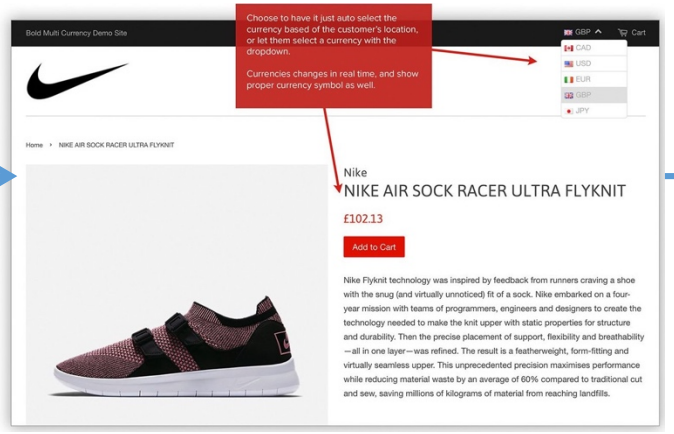
http://data.fixer.io/api/latest?access_key=89aae4bb97079f6e159730ad3f000538&base=EUR&symbols=JPY,AUD

It's doing the same job. It's not as pretty for humans but it's **excellent for machines**.

This is a web API. API means "Application Programming Interface". Web means the protocol is "just use the web". More on that later.

That's really cool because you can do this

Types
www.shoes.com

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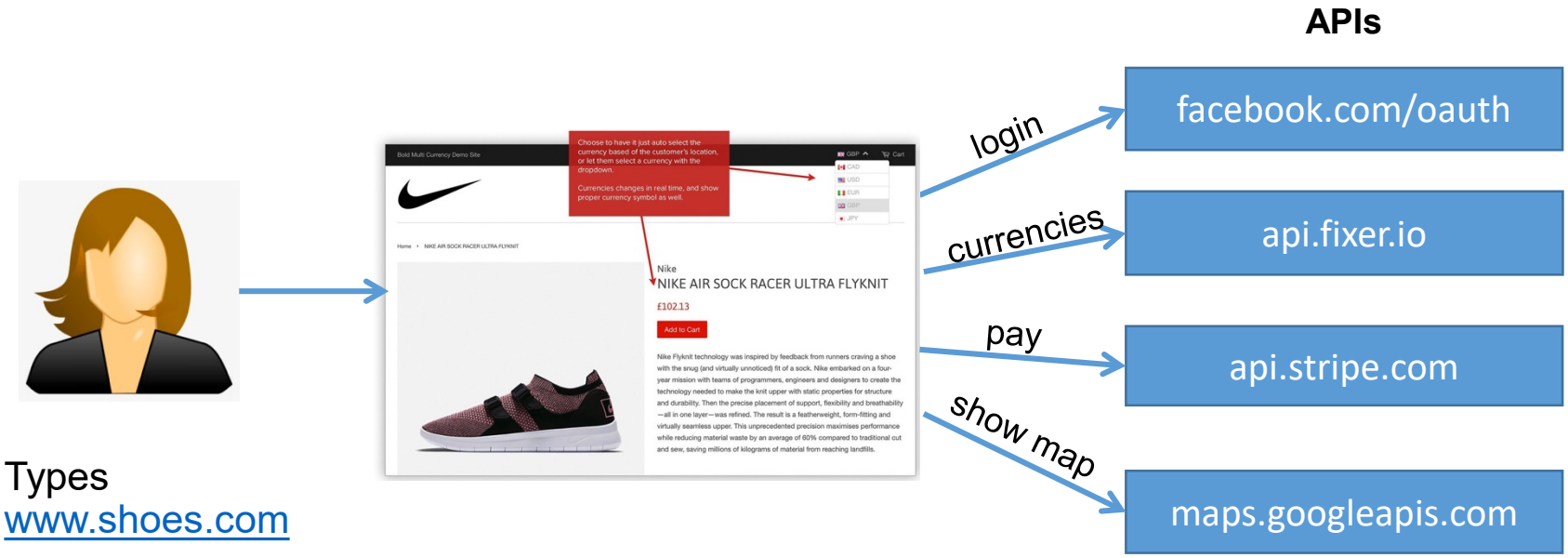
The online shop application doesn't have to maintain a database of exchange rates and update them daily. It just calls a web API to do that.

In fact, most websites do this



APIs are the building blocks of every modern website.

And there's thousands of cool APIs

Search ProgrammableWeb

shipping

SEARCH

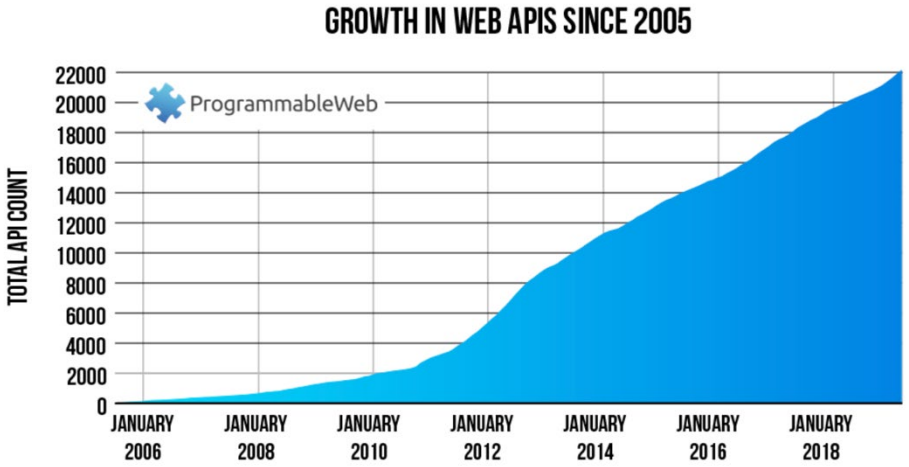
One exact Category match : Shipping

APIs (393)	SDKs (226)	Articles (557)	Libraries (19)	Sample Source Code (113)	Frameworks (2)	Mashups (54)

APIS (393)

		Mashups	Followers
Shipping Gear	**Shipping** Gear is an API that aims to help users with eCommerce **shipping...**	1	6
ParcelBright **Shipping**	The ParcelBright **Shipping** API allows you to integrate **shipping**...	0	6
eCoComa **Shipping**	The eCoComa **Shipping** API allows users to retrieve real-time **shipping...**	0	6
UPS **Shipping**	The UPS **Shipping** API provides UPS **shipping** functionalities to be...	13	314
AuctionInc **Shipping**	... e-commerce and auction tools, including a full-featured **shipping** rate...	0	11

VIEW ALL 393 APIS



And many many more that aren't listed here.

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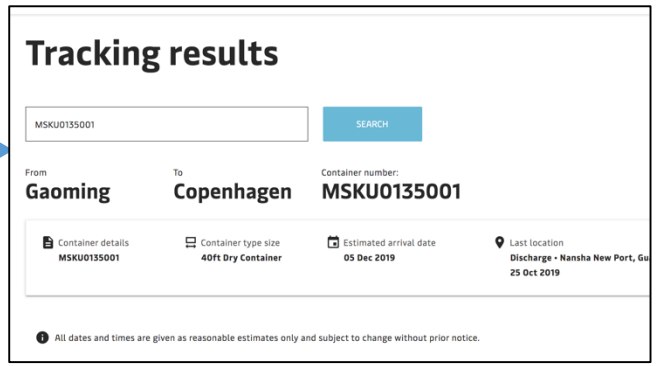
And here's a nice API from closer to home

Tracker site

Types
www.tracker.com



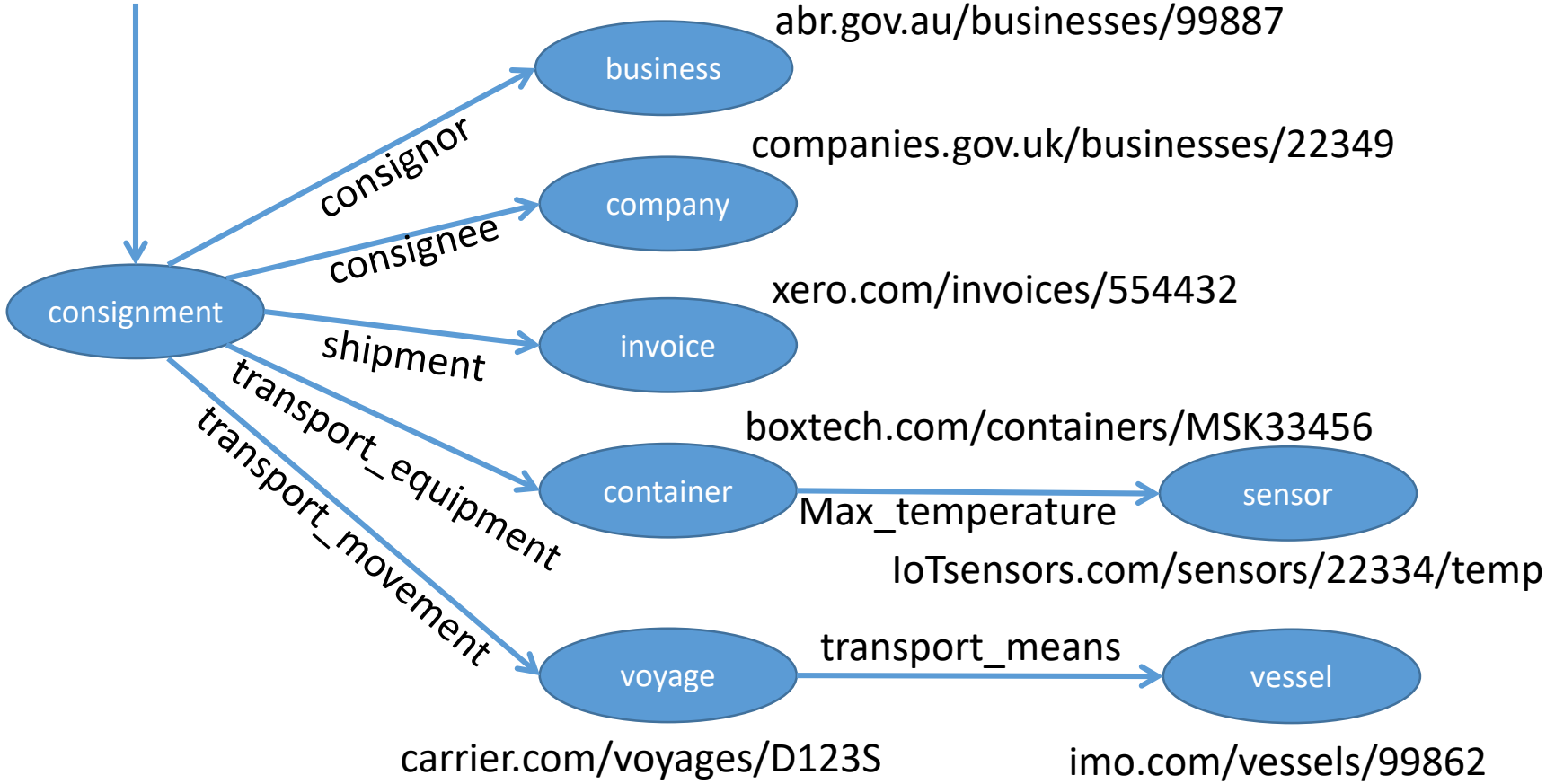
Global Container Database


```
[
    {
        "uploaderaccountname": "TOUAX",
        "bic_code": "GLDU",
        "prefix": "GLD",
        "equipment_identifier": "U",
        "serial_number": "533426",
        "check_digit": "0",
        "group_st": "20DC",
        "detail_st": null,
        "tare_kg": 2230,
        "tare_lbs": 4920,
        "max_payload_kg": 30480,
        "max_payload_lbs": 67200,
        "max_gross_mass_kg": 28250,
        "max_gross_mass_lbs": 62280,
        "cubic_capacity_cbm": 33,
        "cubic_capacity_cuft": 1170,
        "stacking_kg": 216000,
        "stacking_lbs": 476190,
```


As a carrier, or a port authority, or a regulator – just tell me the container number and I'll go to the source of truth to get details.

Lets do some “Imagineering”

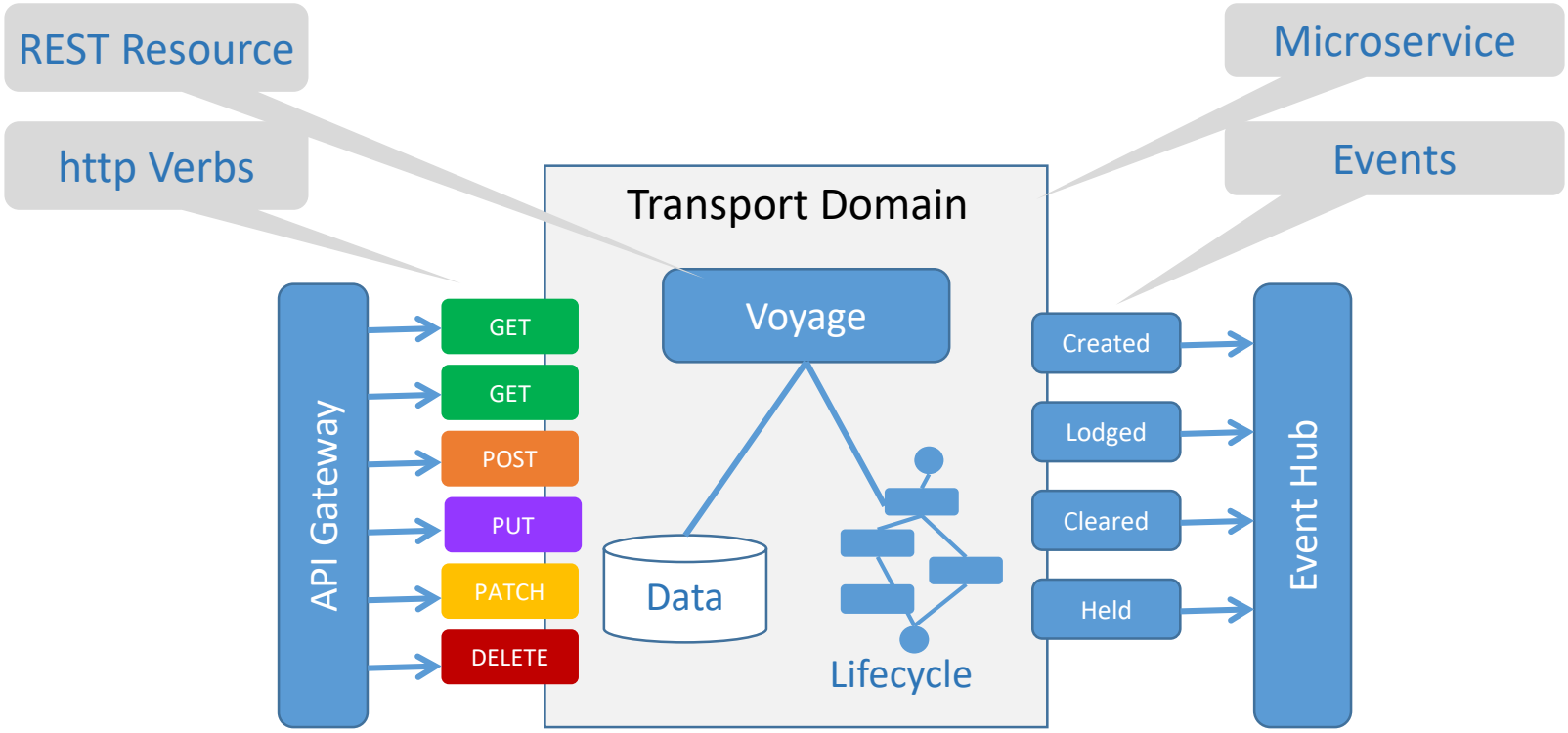
Here’s a consignment resource
https://api.3plcompany.com/consignments/12345



Its really a set of links to sources of truth. A paradigm shift from document exchange to linked data discovery. This is a different business model, not just a different technology

And lets clear up some terminology

REST = “Representational State Transfer”. A mouthful – but it just means a best-practice style for building high quality web APIs



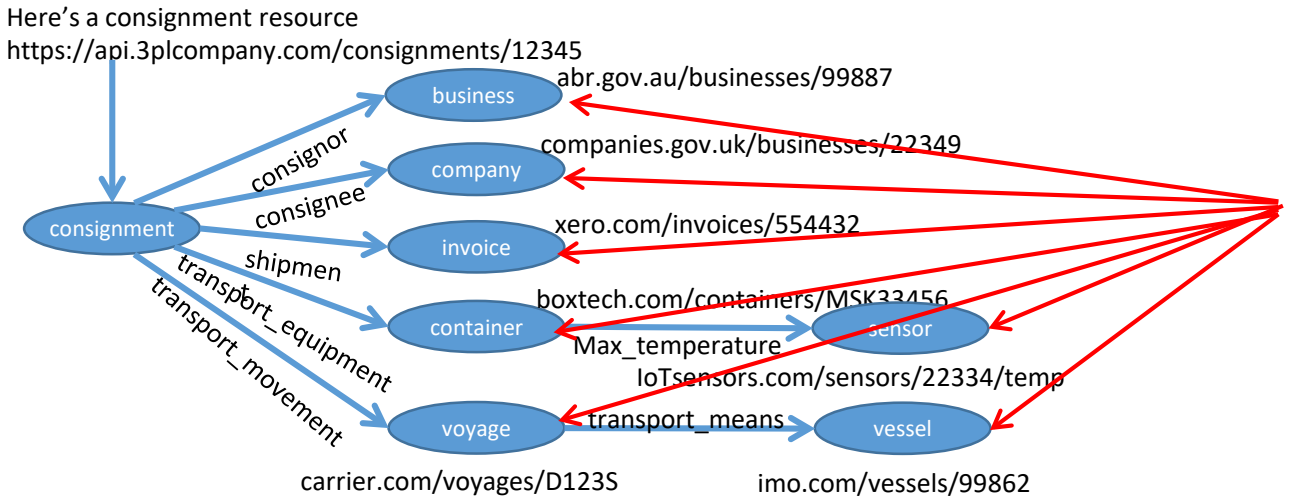
POST https://api.transport.border.gov.au/v1/voyages/{new voyage_data}

PATCH https://api.transport.border.gov.au/v1/voyages/V1234S/{updated voyage_data}

GET https://api.transport.border.gov.au/v1/voyages?Port=AUBNE

But what about security?

As an API consumer that is following links to a distributed web of resources, how do I identify myself to each one and how does the API provider decide whether to grant access?

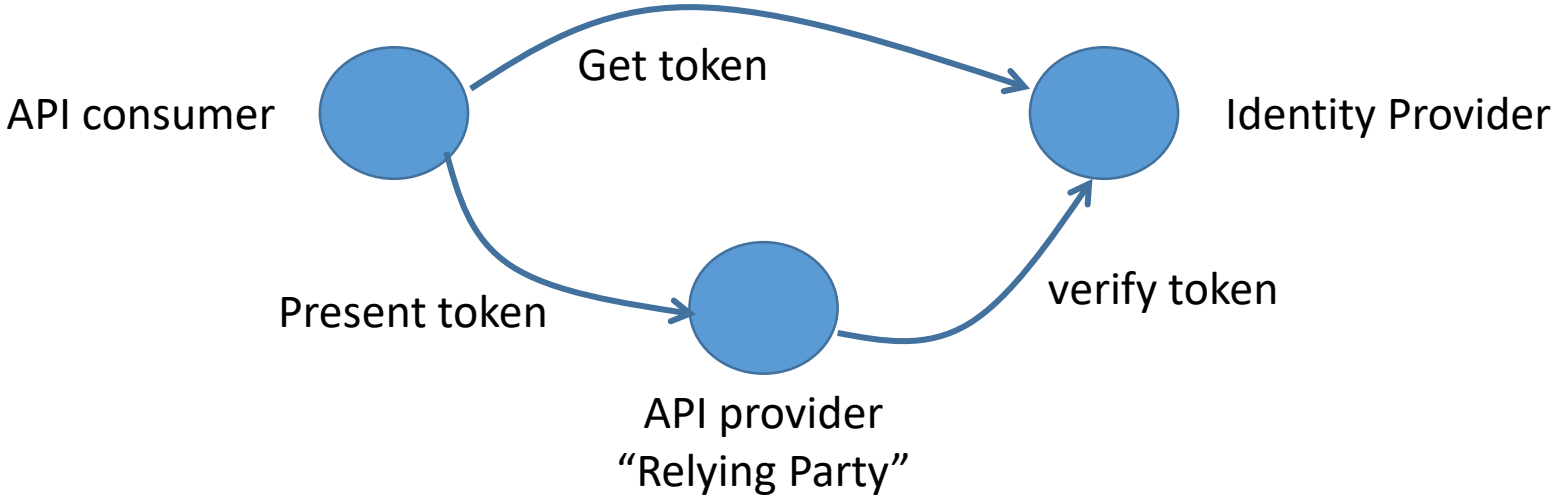


These are all different web resources

It wont scale well if every provider needs to register, verify identity, and issue tokens to every consumer.

Federated Identity using OIDC

Fortunately the web has already solved this problem by separating the job of verifying identity from the job of providing a service. The standard protocol is called "Open ID Connect" (OIDC) but you all probably know it as "sign-in with FaceBook / Google / etc". It works just as well for web APIs that return data as for websites that return pages.

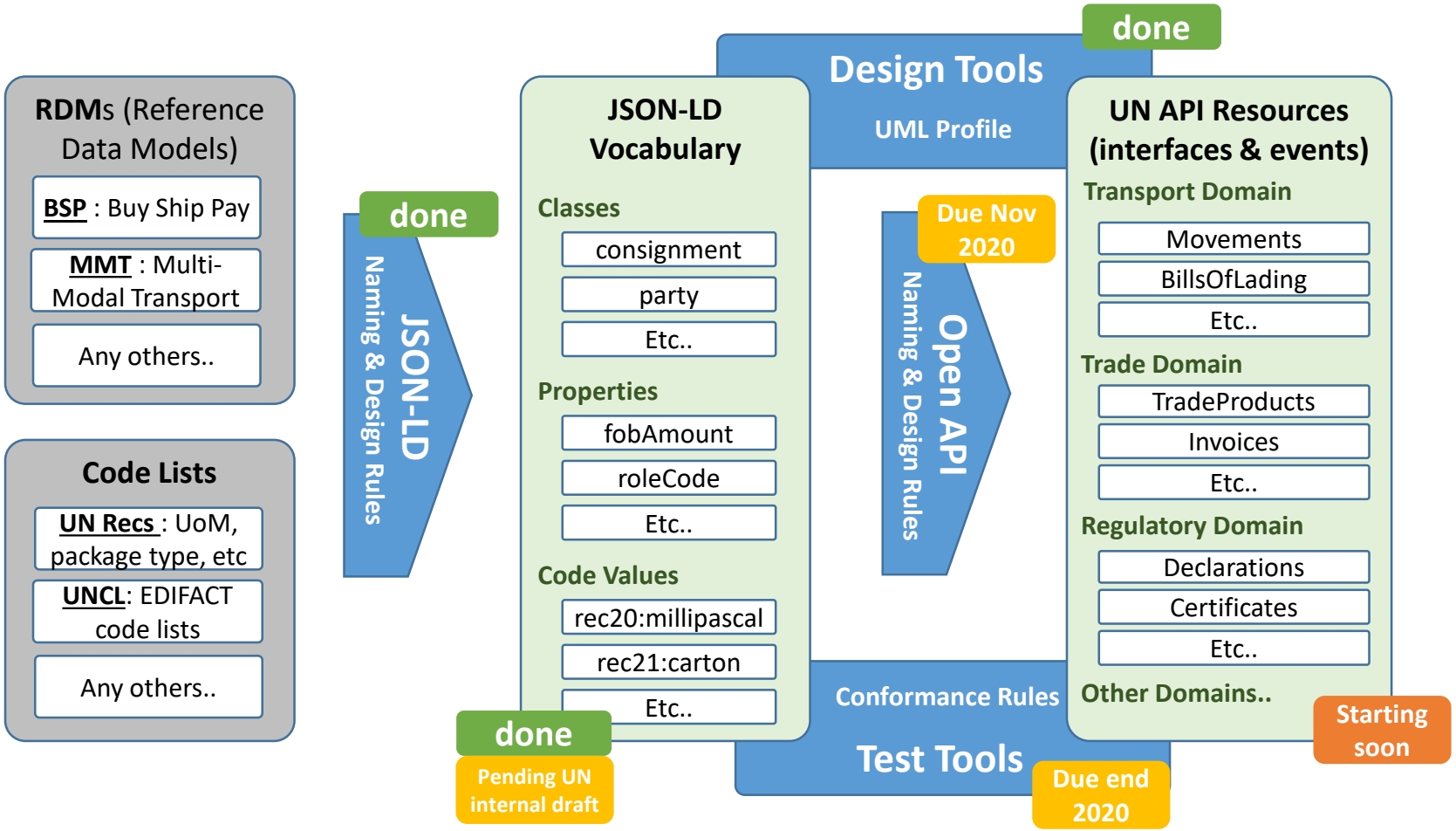


Tokens carry "claims"

Google knows this user as steve.capell@gmail.com	ATO knows this party as ABN 123456
Some with weak integrity	Some with strong integrity

But what about semantics?

- how to make consistent sense of the data in all these APIs?
- That's why UN/CEFACT is running the RDM2API project!



Thanks for listening

Feel free to contact me

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- edi3.org