

Leveraging an API First Strategy to drive eGovernment

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Solution Architect Smals



About Smals – Who we are

- Association of > 300 public institutions in Belgium
- “ICT for society” = Strictly focused on eGovernment
- Shared services & cost sharing (non-profit)
 - Application development
 - Infrastructure & Services
 - Staffing
- Only serving member institutions
- > 2000 employees
- > 400 million EUR annual turnover
- > 50% sourcing from private sector



eGovernment at your service

What citizens & enterprises expect:



Effective integrated services



At minimal cost and administrative formalities



Provided automatically, if possible



Using the media of their choice



Reliable, safe and permanently available



Respecting their privacy



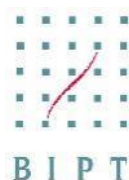
The 'government' is a complex ecosystem

Experience with government services is not always optimal:

- Many institutions – autonomy, no hierarchy
- Operating environments defined by Law
- Complexity of the institutional (ICT-)landscape
- **Opportunity:** Co-ordinate, collaborate, standardize



jongere welzijn



FEDRIS



CREG

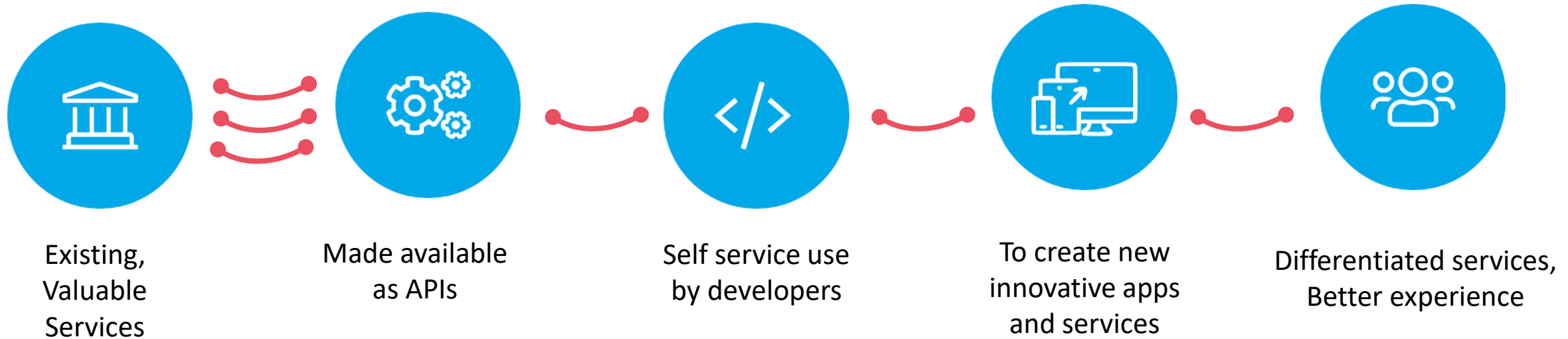


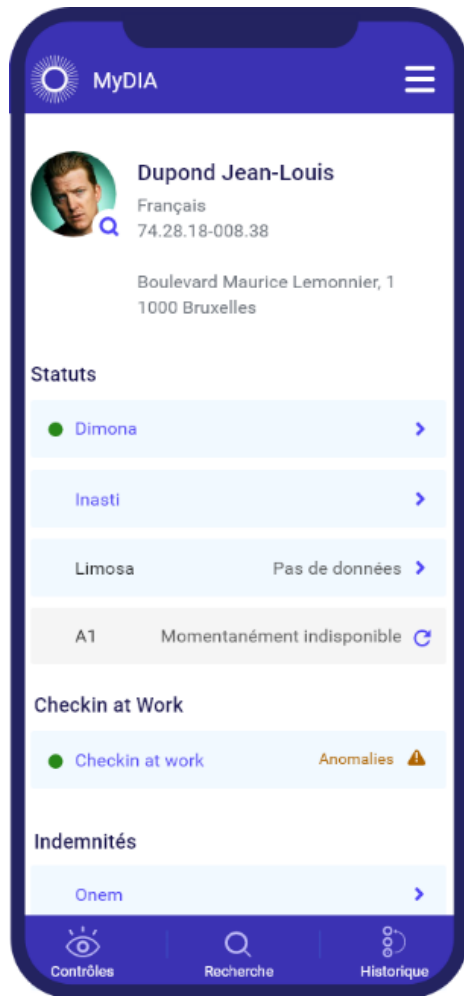
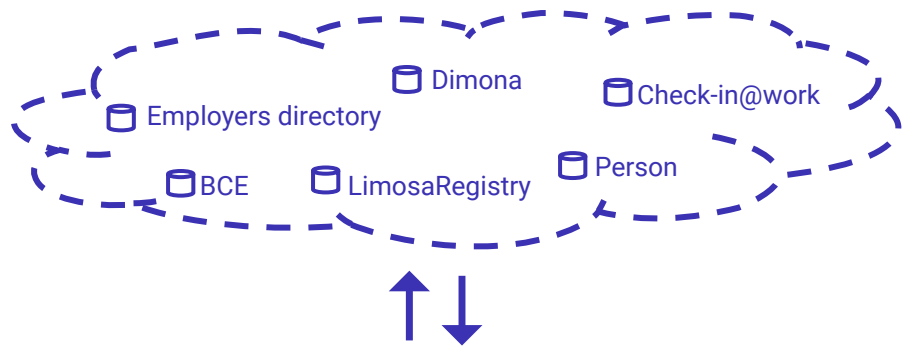
Over 300 Belgian public institutions ... federal – regional – local



Federale Politie

Public & private sector opportunities





Example

My Digital inspection assistant

- My DIA
 - Real-time information for Social Inspection services
 - Rapid identification of a person's identity
 - Sharing information with other inspectors on site
- How? Integrating **11 existing API's**
- Result
 - **Faster** & more reliable inspections
 - Less burden for employers
 - **Strong results** in fighting social fraud & social dumping



Example

Innovative communication channels for citizens & enterprises

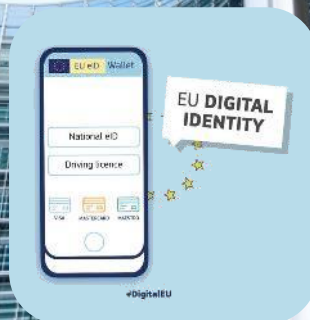
- **my eBox (citizens)**
 - > 500 sender institutions, > 3.000.000 citizens receiving
- **eBox Enterprise**
 - Digital alternative for official government communications
 - Delegation of roles within the company
 - Less paper administration – www.totaaldigitaal.be
- **GovApp**
 - Instant messaging based on citizens' mobile number (Opt-in)
 - Cheaper, longer, rich media alternative for SMS
- **Near future: Digital Identity Wallet**

my **eBox**

 **e-Box**
ENTERPRISE

GovApp 

 **DC4EU**



Example

eHealth-platform – Basic services & API's



Coordination of the electronic processes & API gateway



Portal



Integrated user and access management system (IUAM)



Management of logs



System for end-to-end encryption (ETEE)



eHealthBox



Timestamping



Coding and anonymizing



Consultation of National register and CBSS registers (ConsultRN)



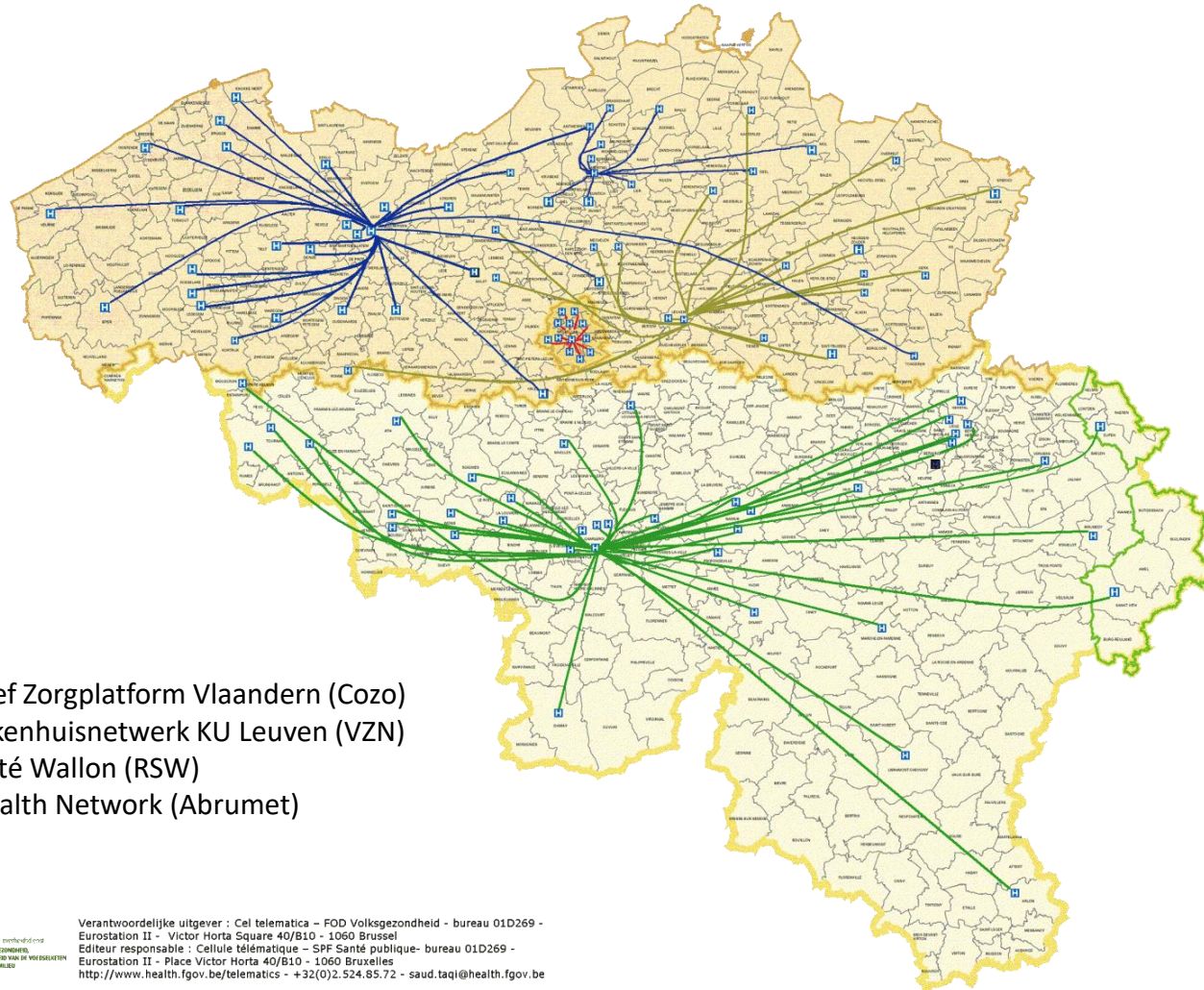
Reference directories (hub-metahub system)



www.ehealth.fgov.be

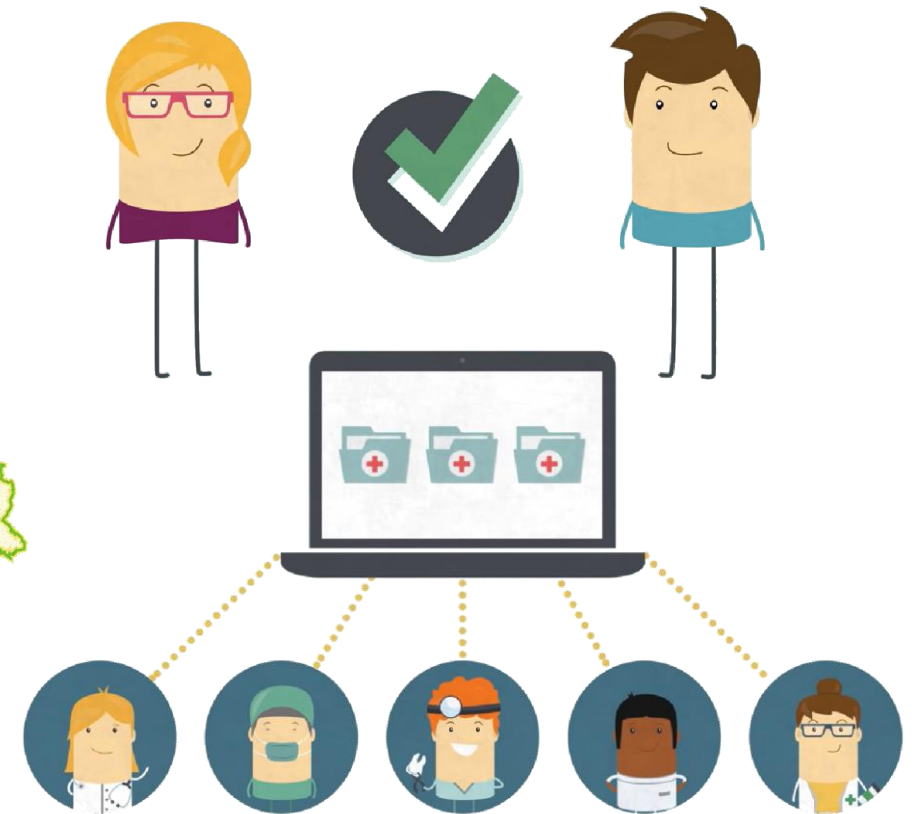
Example

Global Medical File and Patient Consent



4 hubs

- Collaboratief Zorgplatform Vlaanderen (Cozo)
- Vlaams Ziekenhuisnetwerk KU Leuven (VZN)
- Réseau Santé Wallon (RSW)
- Brussels Health Network (Abrumet)





Example eHealth-platform – key figures



> 91,3 %
of Belgian citizens have given
an informed consent for data sharing



20.260.000.000
digital transactions



+97%
of general practitioners use
online health tools

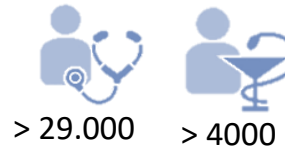


4.835.690
Belgian patients with
an electronic health record
in digital health vault

ELECTRONIC PRESCRIPTIONS



16 million/month



> 29.000 > 4000



149 million
messages/year
via eHealthBox



220 million
electronic documents available at
hospitals and clinical laboratories



www.ehealth.fgov.be



Building eGovernment APIs

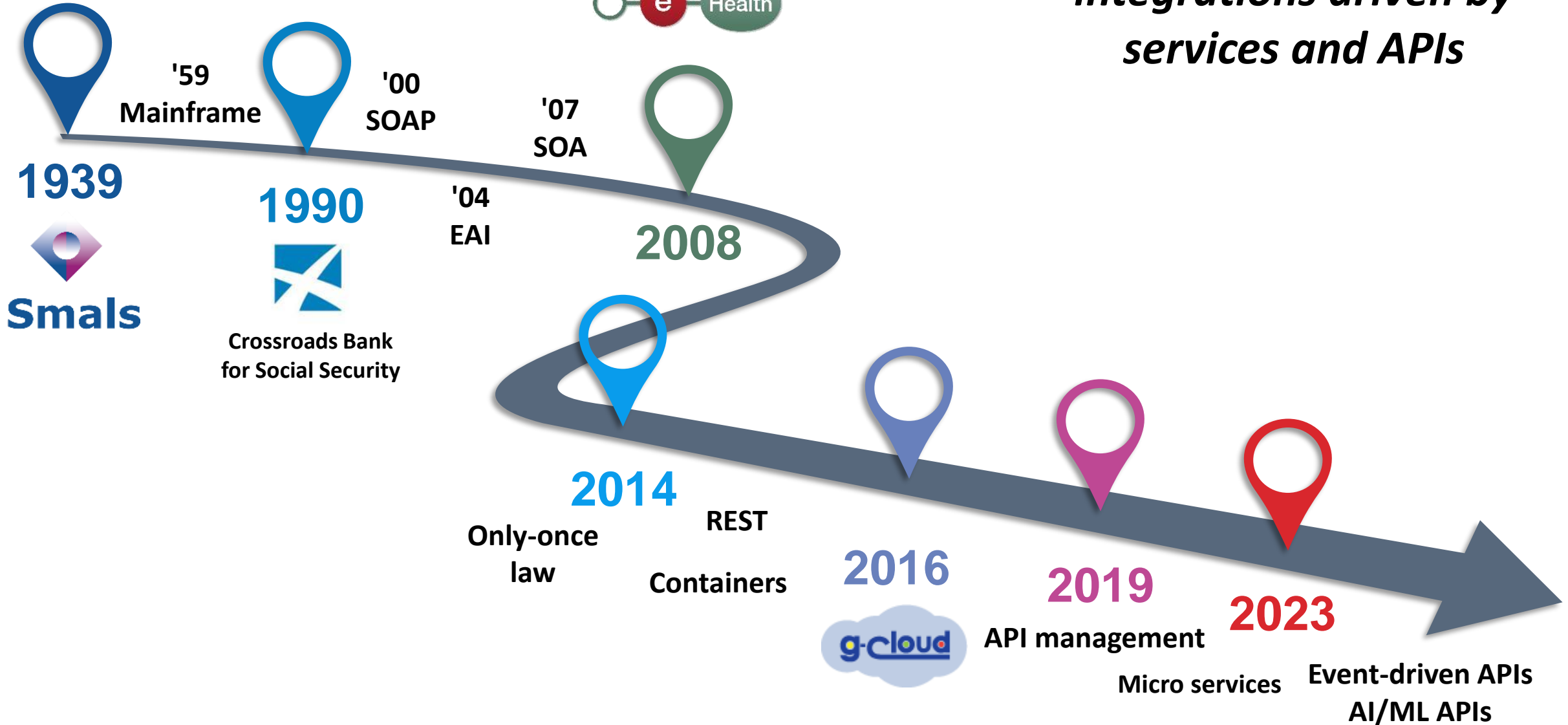


Building eGovernment APIs

- Program of synergy-driven projects
 - Strong participation of multiple public organizations
 - Shared procurement, know-how and expertise
- Standardize the use of APIs
 - Technological standards
 - Functional standards
 - Security standards
 - Business standards
 - Platform standards
- Provide better quality at lower cost

Unit record equipment

integrations driven by services and APIs





Some eGov best practices

- Decentralized information exchange
- Authentic data sources
 - No more data duplication
 - Single source of truth
- EU Once only-principle
 - Already defined by Belgian LAW since May 2014
- Federal & regionalized competences
 - No wrong door
 - Hide complexity from citizens & enterprises

**BUT IT'S NOT
"RESTful" IF YOU ...**



© 1965 DC Comics

ENOUGH!!

Solution

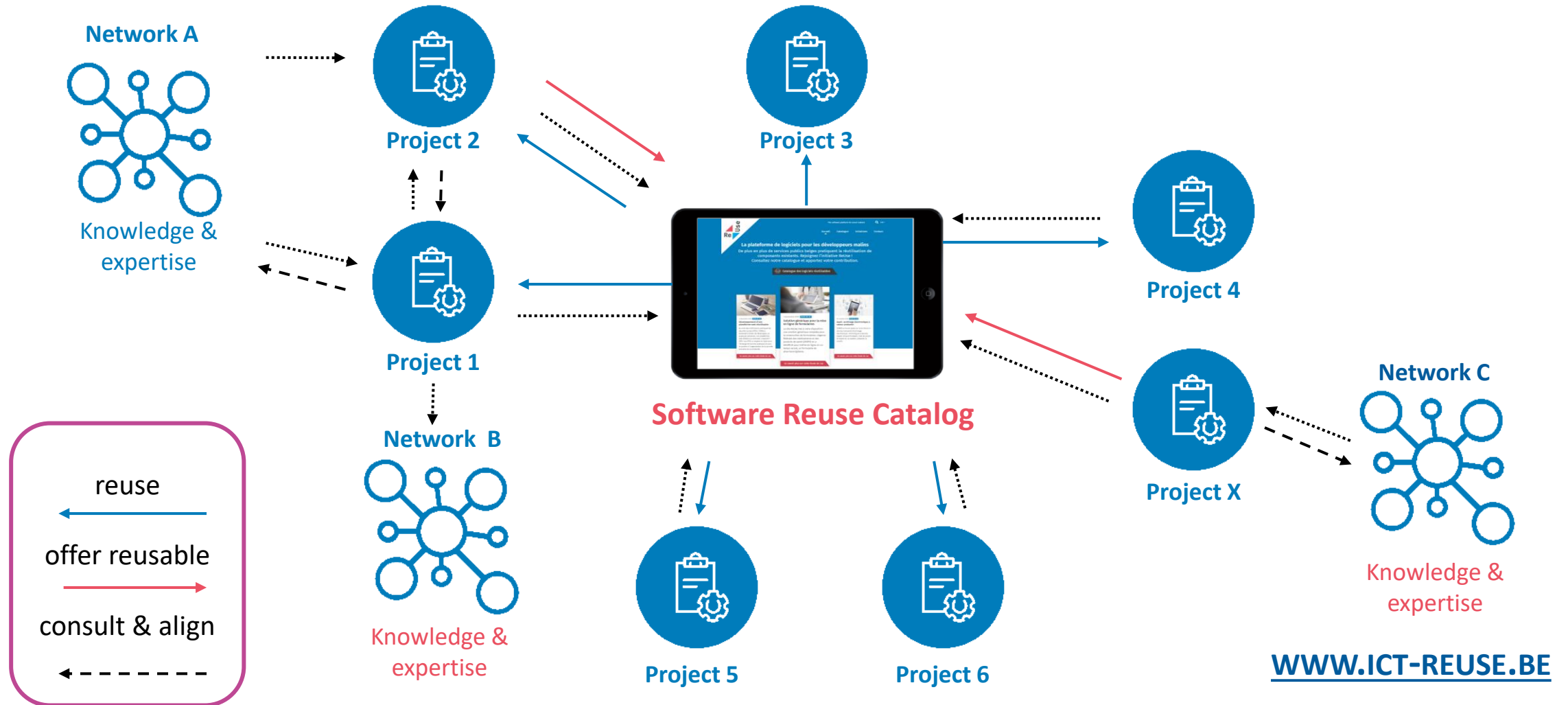
Belgif REST Style Guide

- Based on **open industry standards** and best practices
- A **pragmatic** approach to designing RESTful APIs
 - Contract-first approach
 - Clearness and simplicity above dogmas
 - Compatible and fully supported by the API Management platform
- **Collaborative** effort organized in several workgroups:
 - API design: OpenAPI, uniform interface, status codes, RFC 7807 problems, common recipes (versioning, paging, links, i18n, ...)
 - Security: OAuth2, OpenID
 - Functional: business vocabularies, reusable JSON schemas
- Invite collaborators, welcome any feedback and contributions

<https://www.belgif.be/specification/rest/api-guide>

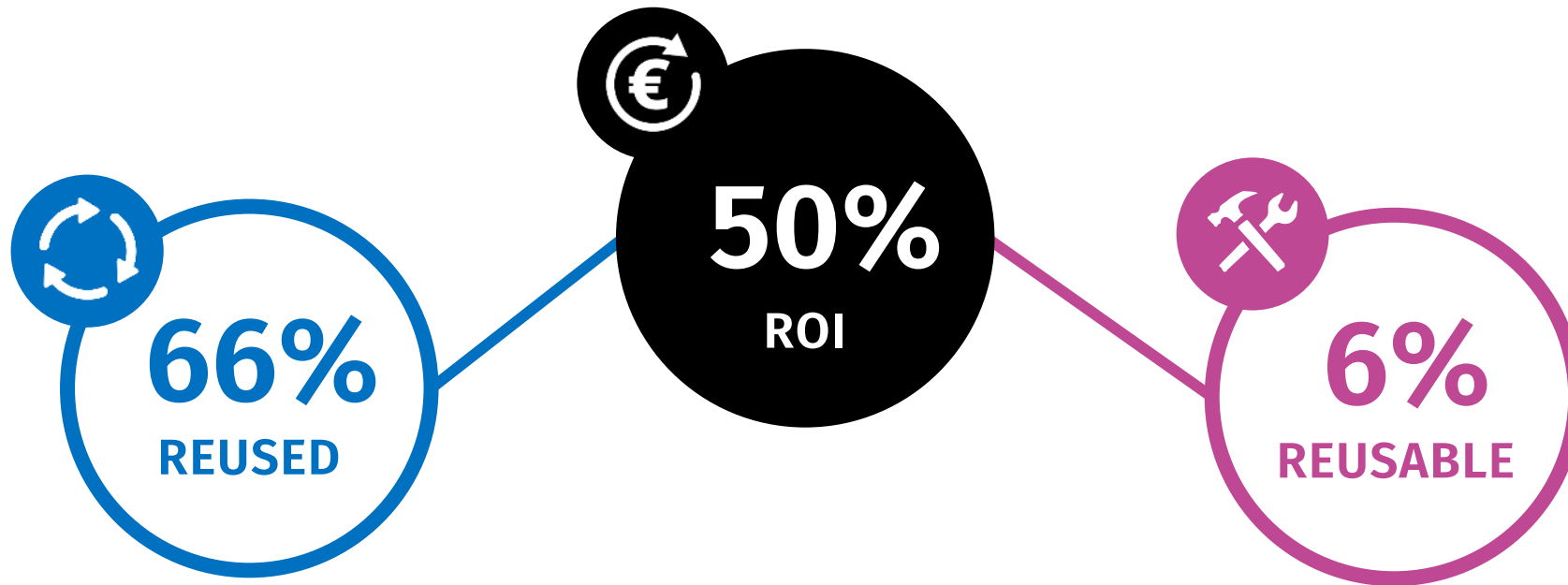
Solution

Software reuse – how does it work?



Result

Software Reuse in digits



Business specific custom code:
28%

Average ROI / ReUsed component (2019) : € 27.000

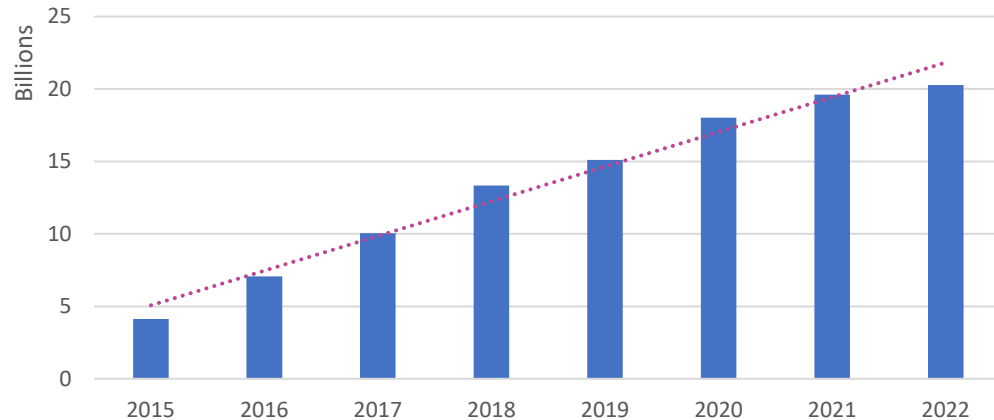
Total ROI 2022 (Projects by Smals, approx.): € 32.000.000

Hosting eGovernment APIs at scale

API statistics and evolution

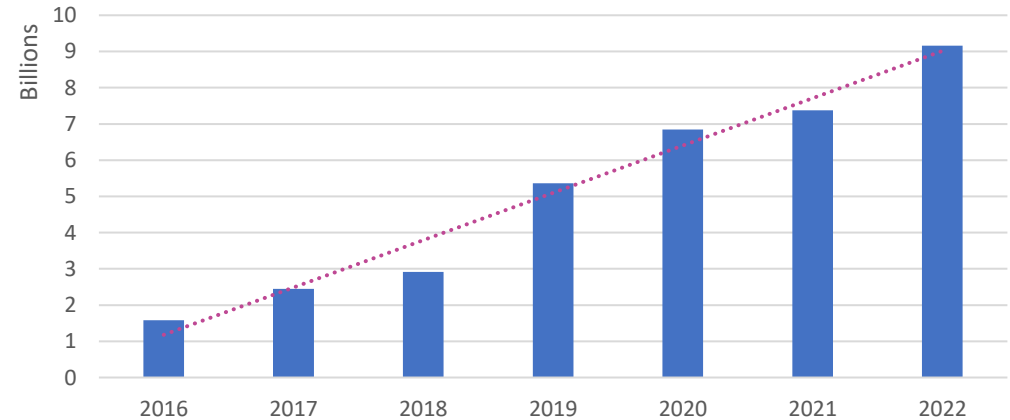


- 150+ APIs
- Most consumers are external (# 30,000-35,000)
- Peak load 2000-3000 req / s
- ~ 2.1B transactions / month (2023)



Social Security

- 300+ APIs
- Consumers mostly B2B (# 500-600)
- Peak load 1500-2500 req / s
- ~ 0,9B transactions / month (2023)



Challenges

eGovernment APIs at scale

- Manage hundreds of business processes and data flows
- 24x7 highly available
- Zero tolerance for digital failure
- Decentralized: stimulating collaboration and innovation
- Always secure and following strict privacy ground rules





I can easily host my brand new API myself

Just admit: your DIY solution isn't always the best!!



WHY should I choose a managed solution...?!



Did you think of ...

A word cloud of various API management concepts. The central text is 'G-Cloud API Management Platform' in a large, bold, pink font. Surrounding it are numerous other terms in a smaller, blue font, arranged in a circular pattern. The terms include: authentication, communication, encryption, load balancing, authorization, error handling, consistency, loosely coupling, throttling, filtering, quota management, resilience, service contract, customer onboarding, logging, transformations, caching, performance, documentation, reporting, validation, lifecycle management, monitoring, security, SLA, standards, dynamic routing, version handling, failover, and authentication.

authentication

communication

encryption

load balancing

authorization

error handling

consistency

loosely coupling

throttling

filtering

quota management

resilience

service contract

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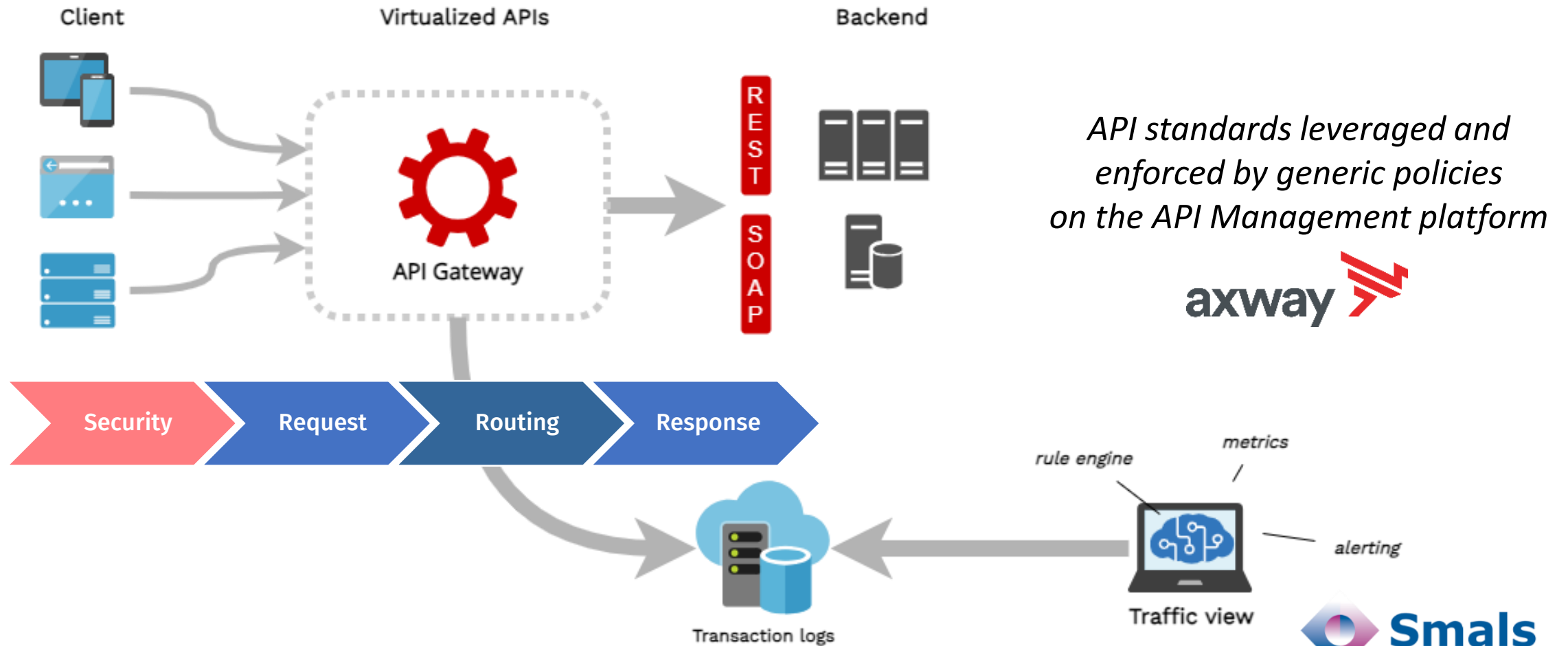
version handling

failover

authentication

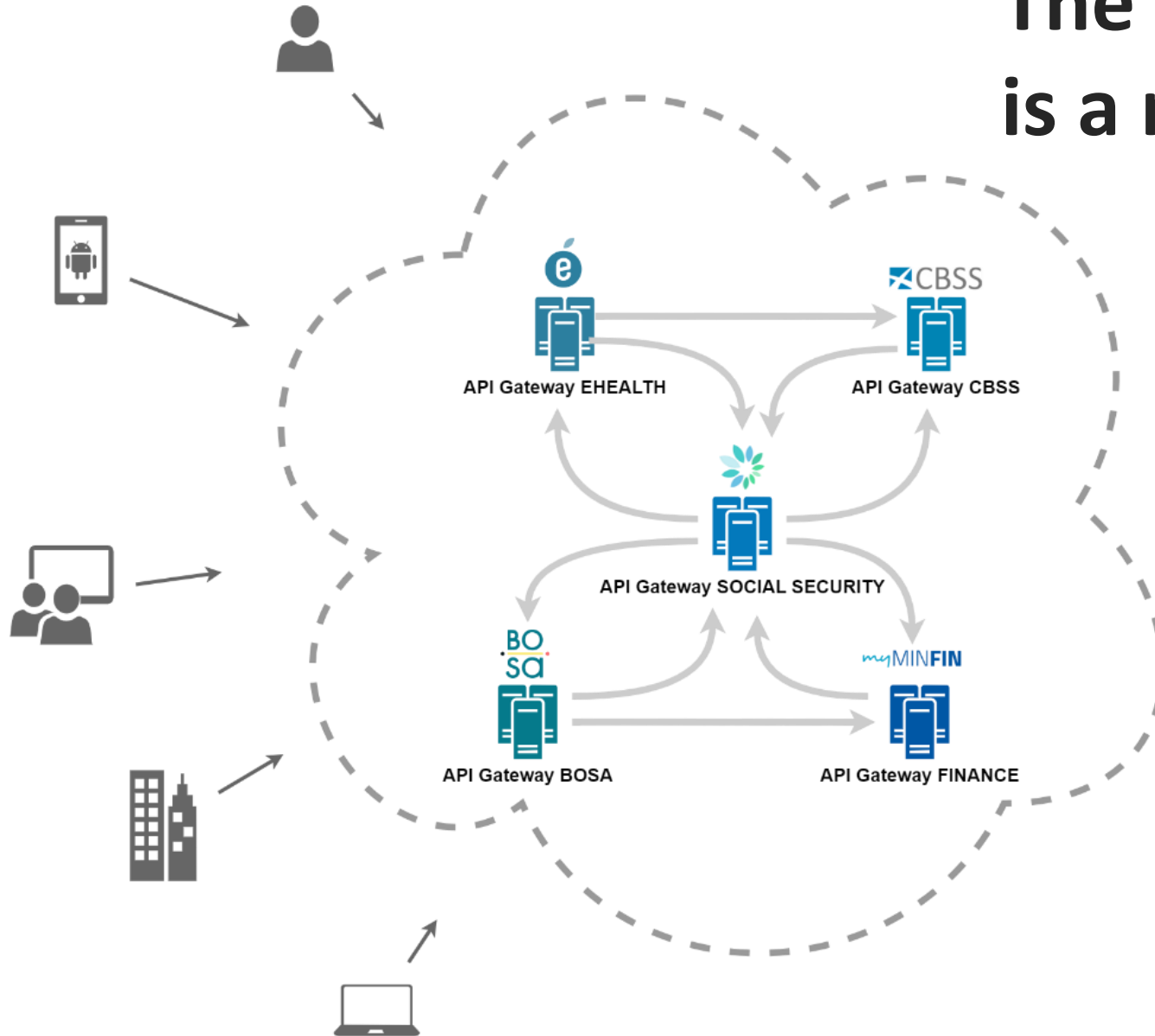
Solution

Standardized transaction processing pipeline



Solution

The broader eGov ecosystem is a network of API gateways



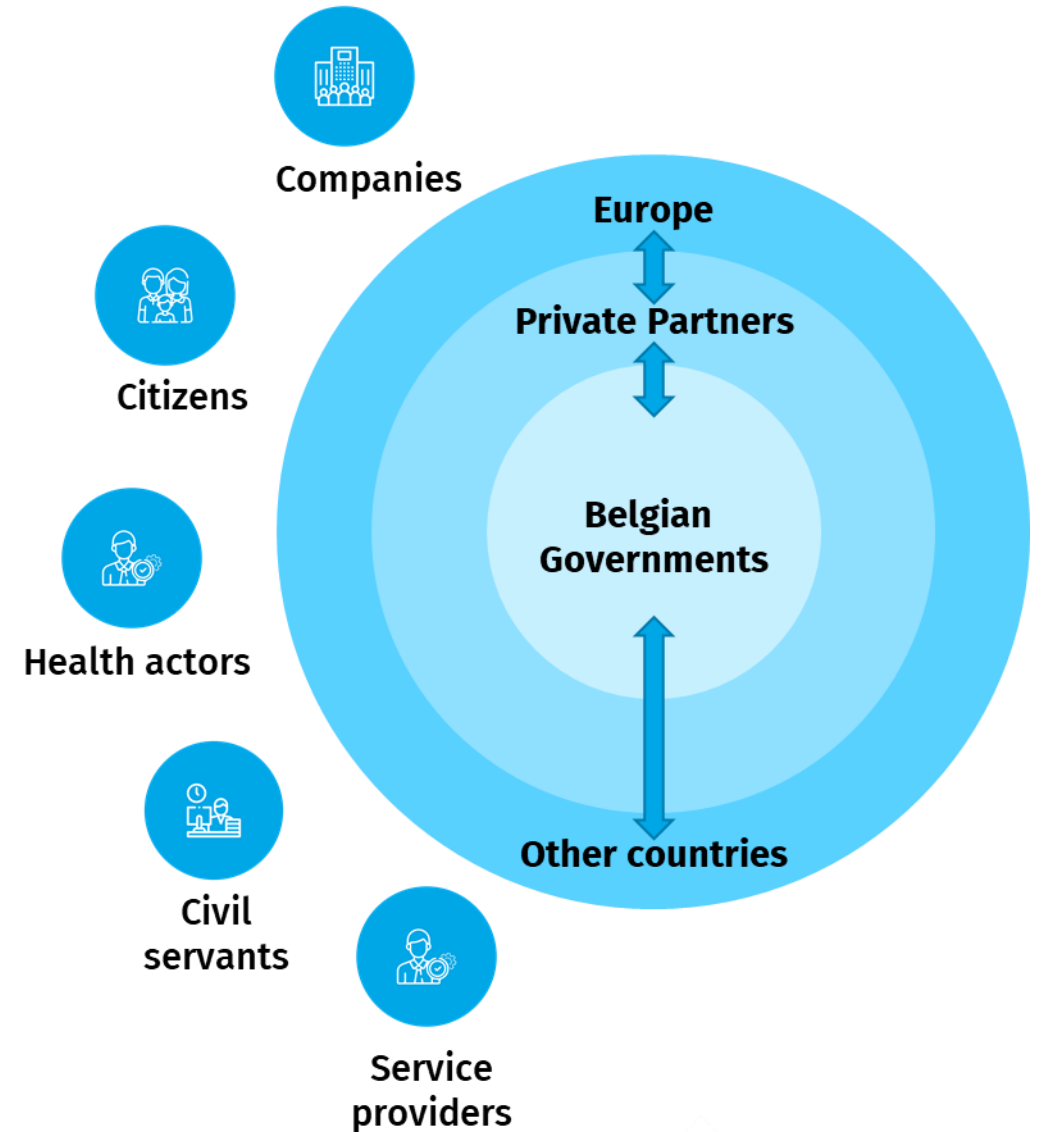
- Decoupled and distributed
 - increases ownership
 - increases isolation
- Multiple business domains speaking common standards / language
- APIs are central in real-time information sharing between public and private partners

Result

Provide better digital services to the public

- by working together
- by sharing and reusing what already has proven to be successful

‘Government as a Platform’



Award

EU Sharing & ReUse Awards – DIGIT



- Awarded by: European Commission – DG Informatics
- Shared IT services (commonly developed or shared) with the **biggest impact on citizens or businesses**
- Winner (2019): **Software reuse in Belgian social security and health care**



Thank you !

If you have any questions, do not hesitate to contact me,
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