

20<sup>TH</sup> ANNIVERSARY EDITION

**WSO2CONASIA**

PLATFORMLESS MODERNIZATION

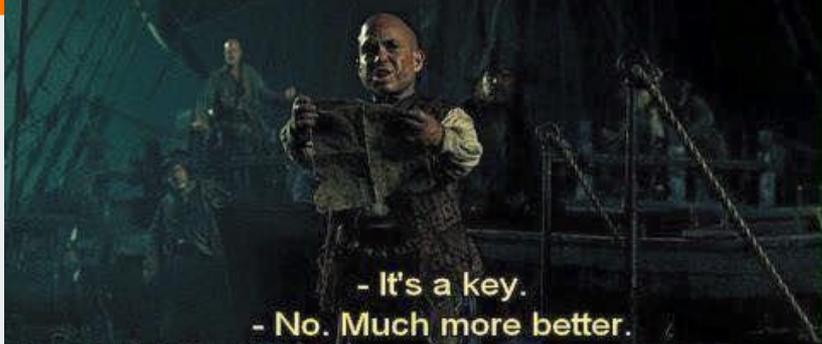
# Vertical thinking in a Horizontal World

Vertical Solutions Update and the Road Ahead



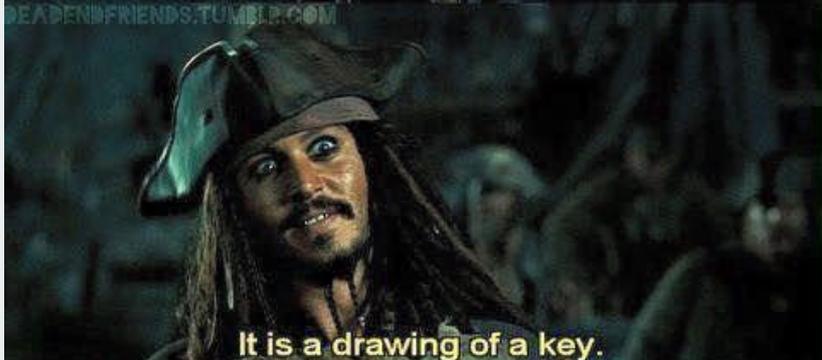
**Mifan Careem**  
Chief Solutions Officer  
WSO2





- It's a key.  
- No. Much more better.

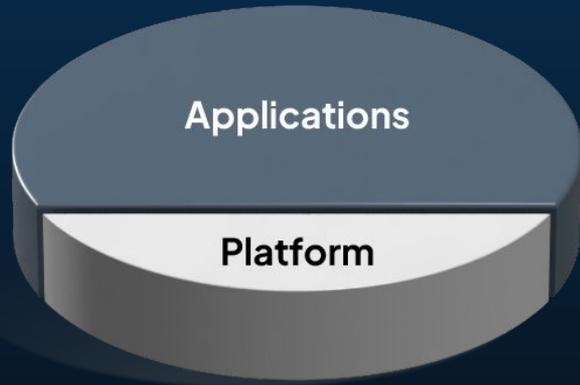
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It is a drawing of a key.

Good software  
engineering is about  
using the right  
**abstractions**

# Becoming platformless is freedom to create



Your customers

Business Abstractions

Platform

Technology Abstractions



**700+**  
DIRECT  
CUSTOMERS

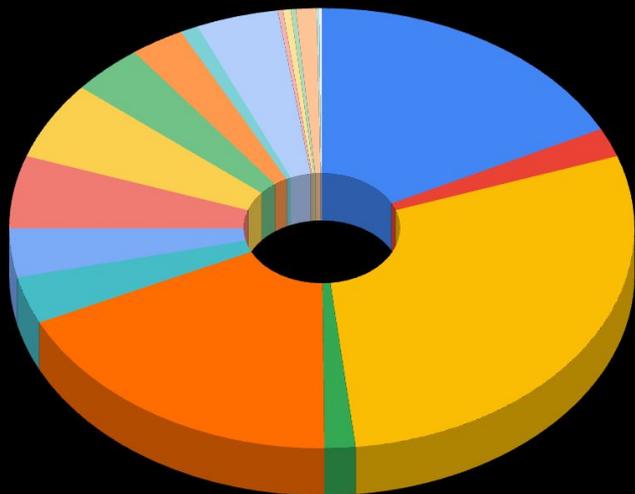
**5000+**  
OEM  
CUSTOMERS

**25K+**  
OPEN SOURCE  
CUSTOMERS

Over  
**90**  
Countries

Over  
**60 trillion**  
Transactions

Over  
**1 billion**  
Identities



- Public Administration
- Other Services (except Public Administr...
- Finance and Insurance
- Arts, Entertainment, and Recreation
- Information
- Utilities
- Retail Trade
- Transportation and Warehousing
- Health Care and Social Assistance
- Manufacturing
- Professional, Scientific, and Technical...
- Mining, Quarrying, and Oil and Gas Ext...
- Educational Services
- Real Estate and Rental and Leasing
- Administrative and Support and Waste...
- Management of Companies and Enter...
- Accommodation and Food Services

## Powering **Systems of Record** market leaders in

- Electronic Health Records Systems
- Medtech Systems
- Healthcare Claims Mgt. Systems
- Core Banking Systems
- Payment Services Platforms
- Education Administration Solutions
- Telco BSS

# Towards the **verticalization of platformless**

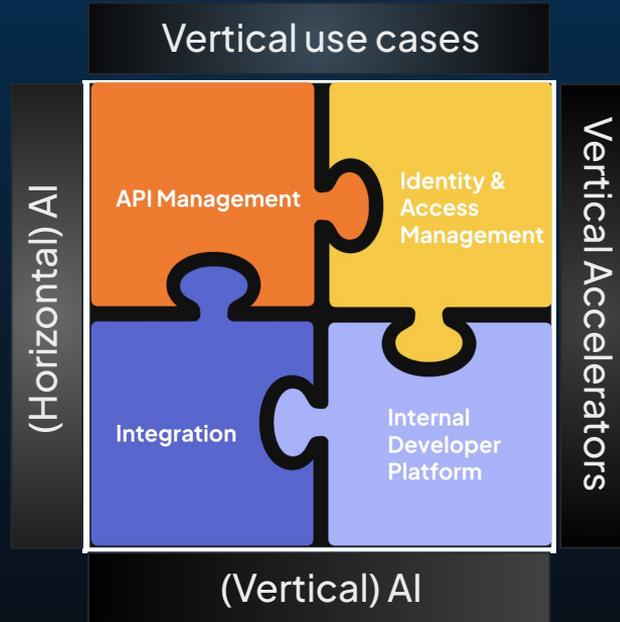
## Horizontal view of technology

- API Gateways
- Full Life Cycle API Mgt.
- Integration
- CIAM
- Workforce IAM
- Platform Engineering
- Internal Developer Platform
- AI for Code
- Code for AI

## Vertical view of technology

- Systems of record connectors (Temenos, Guidewire, Epic,..)
- Interoperability standards (FHIR, ISO20022,..)
- Regulations and compliance (PSD2, CMS,..)
- Customer 360
- Open Data, Consumer Data Rights

- Industry use cases
- Reference architectures



- Integrator co-pilot
- API chat
- AI powered adaptive auth
- Choreo co-pilot

- **BFSI, Healthcare, Govt,...**
- Reference implementations (Open Banking Berlin spec, U.S. CMS regulations)
- Connectors (Cerner, FIS, ..)
- API Specs (Patient access)
- Translators (SWIFT->ISO 20022,..)
- Protocols (HLV2,..)
- Architecture templates (Digital Govt, Healthcare SME)

- Domain specific AI (healthcare co-pilot)

# A Bank's Technology Landscape

## Experience Channels



## Core Banking System



## Integrations



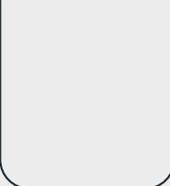
## Risk Management



## Reporting

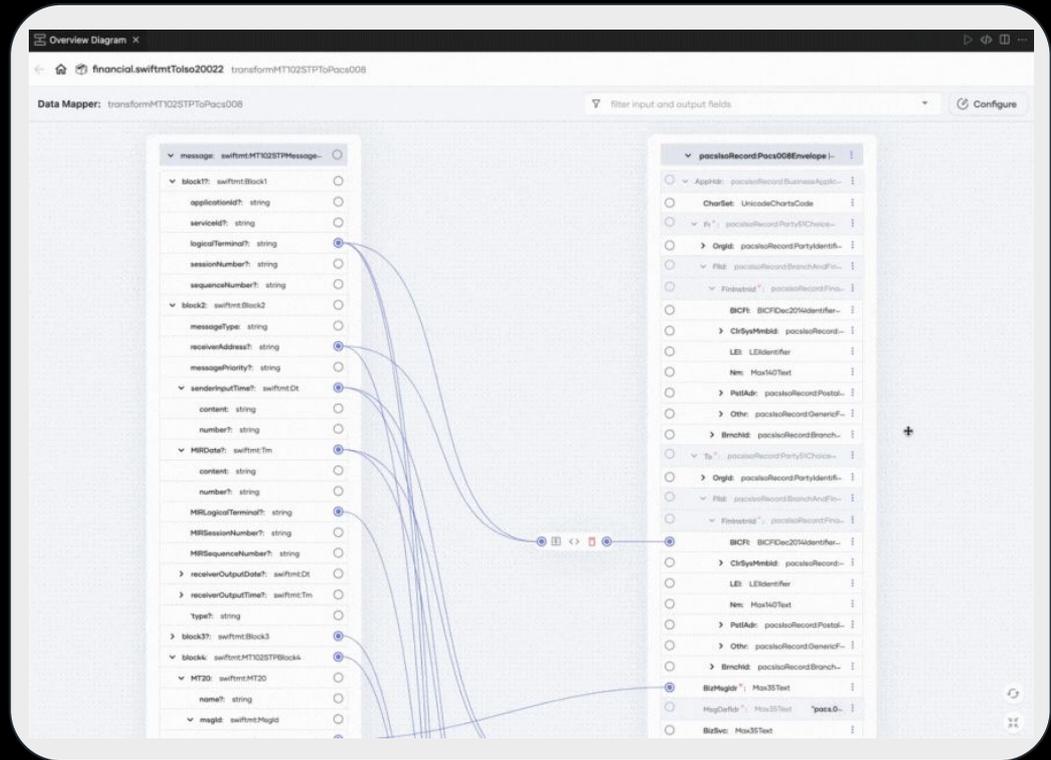


## Misc

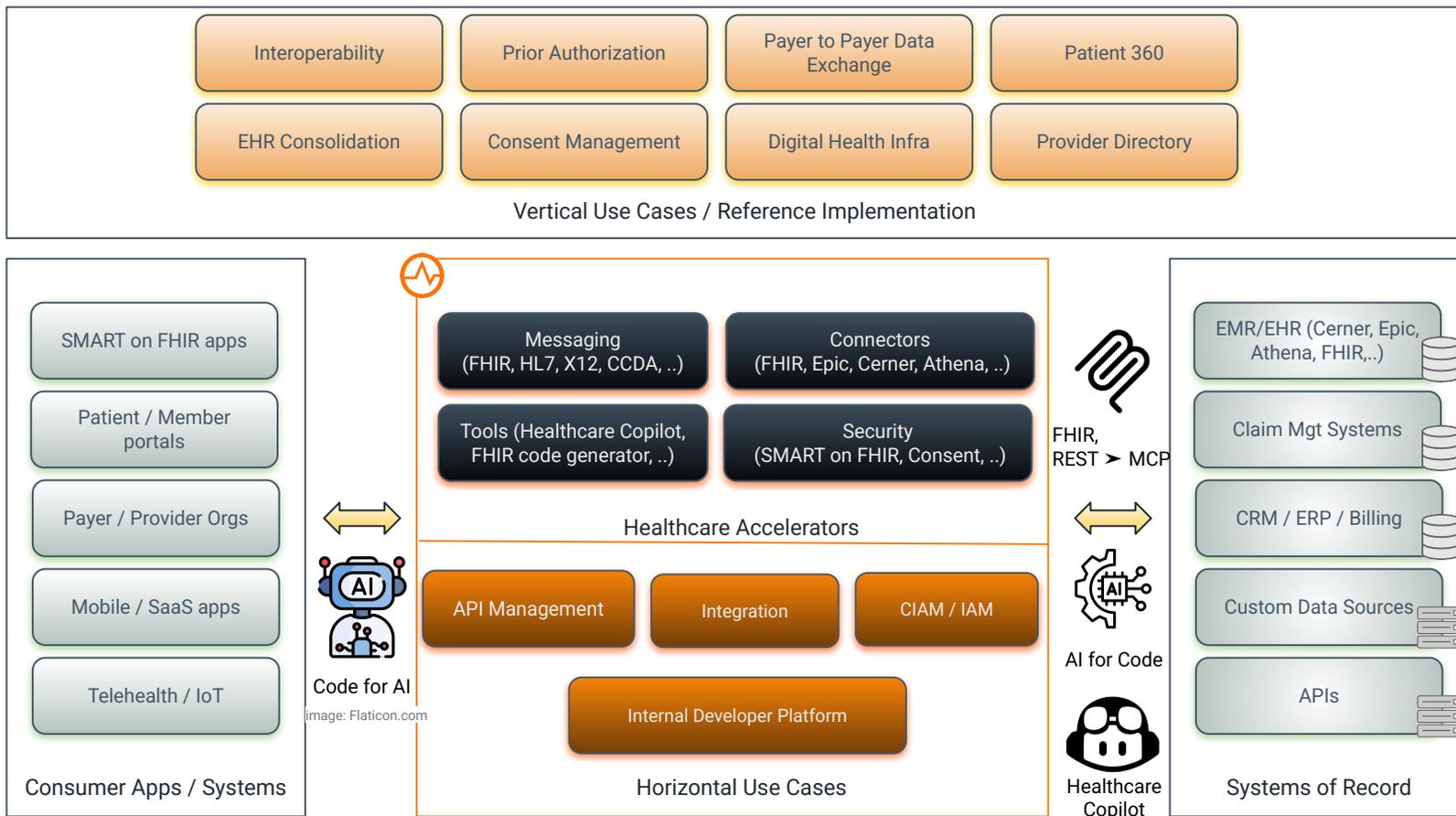


# Accelerating vertical data manipulation

- Mapping data from source to destination and vice versa takes upto ~50% of development effort
- Where vertical interop standards apply, either the source or destination format is known (e.g FHIR, ISO 20022, HL7, X12, ...)



# Healthcare Interop and AppDev for Healthcare Organizations



# Ballerina - the cloud native technology for writing healthcare apps.

- Ballerina natively knows FHIR, HL7, X12 and the likes
- Health tooling to autogen any implementation guide
- Prebuilt connectors to known EMRs (EPIC, Cerner, Athena Health,..)
- 50-70% accelerated development of healthcare native use cases
- 70%+ accelerated development of healthcare data mapping use cases

The image displays a multi-pane interface for developing a Ballerina application. The top-left pane shows a code editor with the following Ballerina code:

```
1 import ballerina/io;
2 import ballerina/health.fhir.r4 as fhir;
3 import ballerina/health.fhir.r4.international401;
4 import ballerina/health.fhir.r4.parser as fhirParser;
5
6 public function main() returns error? {
7     // The following example is a simple serialized Patient resource to parse
8     json input = {
9         "resourceType": "Patient",
10        "name": [
11            {
12                "family": "Simpson"
13            }
14        ];
15    };
16
17    // Parse it - you can pass the input (as a string or a json) and the
18    // type of the resource you want to parse.
19    international401:Patient patient = check fhirParser:parse(input,ensureType());
20
21    // Access the parsed data
22    fhir:HumanName[]? names = patient.name;
23    if names is () || names.length() == 0 {
24        return error("Failed to parse the names");
25    }
26    io:println("Family Name: ", names[0]);
27 }
28
```

The top-right pane shows a flow diagram for the function `main`. It starts with a `START` node, followed by an `input` node, then a `check fhirParser.parse` node, then a `patient.name` node. A decision diamond checks `names is () || n...`. If `then`, it proceeds to a `return` node. If `else`, it proceeds to an `error("Failed to parse the names")` node.

The bottom-left pane shows a code editor with the following Ballerina code:

```
34 function adactToPatient(hl7v21:ADT_A01 adtA01) returns Patient {
35     fhir:HumanName[]? names = adtA01.names;
36     fhir:Address[]? addresses = adtA01.addresses;
37     fhir:PhoneNumber[]? phoneNumbers = adtA01.phoneNumbers;
38     fhir:Patient patient = fhir:Patient {
39         name: names,
40         address: addresses,
41         phoneNumbers: phoneNumbers
42     };
43 }
44
```

The bottom-right pane shows a data mapper for `adactToPatient`. It displays a list of fields from the input `ADT_A01` and maps them to the corresponding fields in the `Patient` resource. The mapping is as follows:

Input Field	Output Field
adactToPatient.names	patient.name
adactToPatient.addresses	patient.address
adactToPatient.phoneNumbers	patient.phoneNumbers

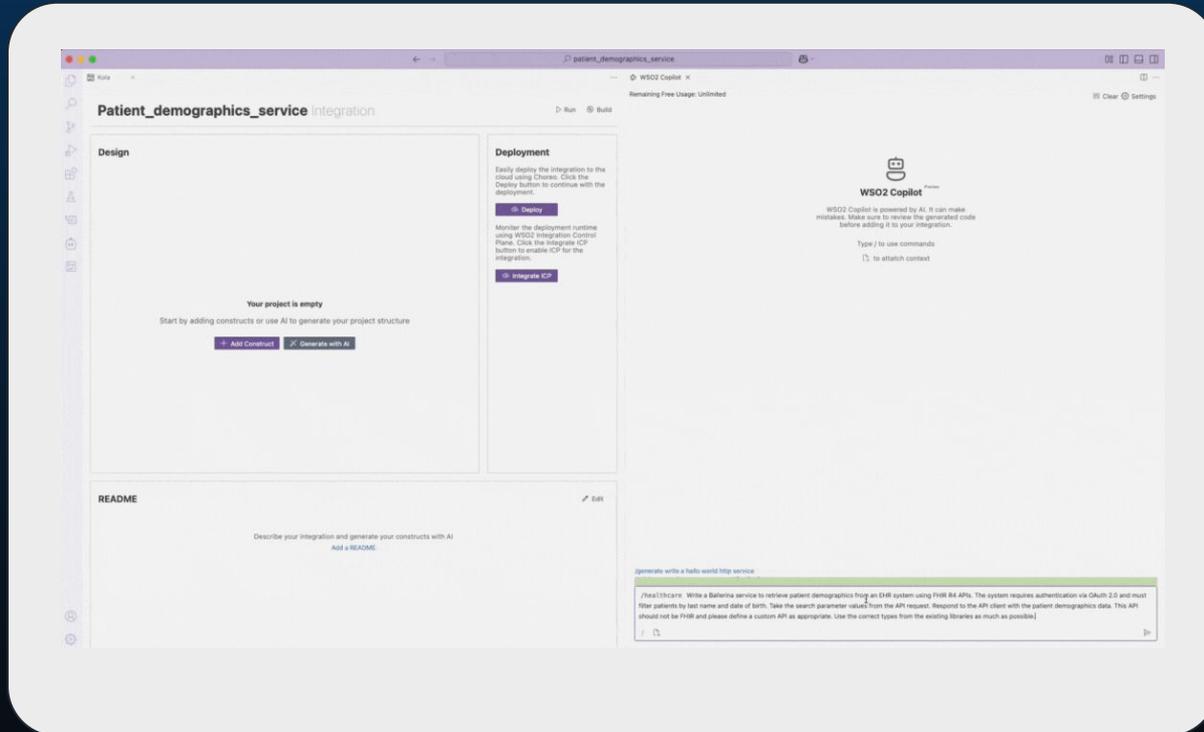


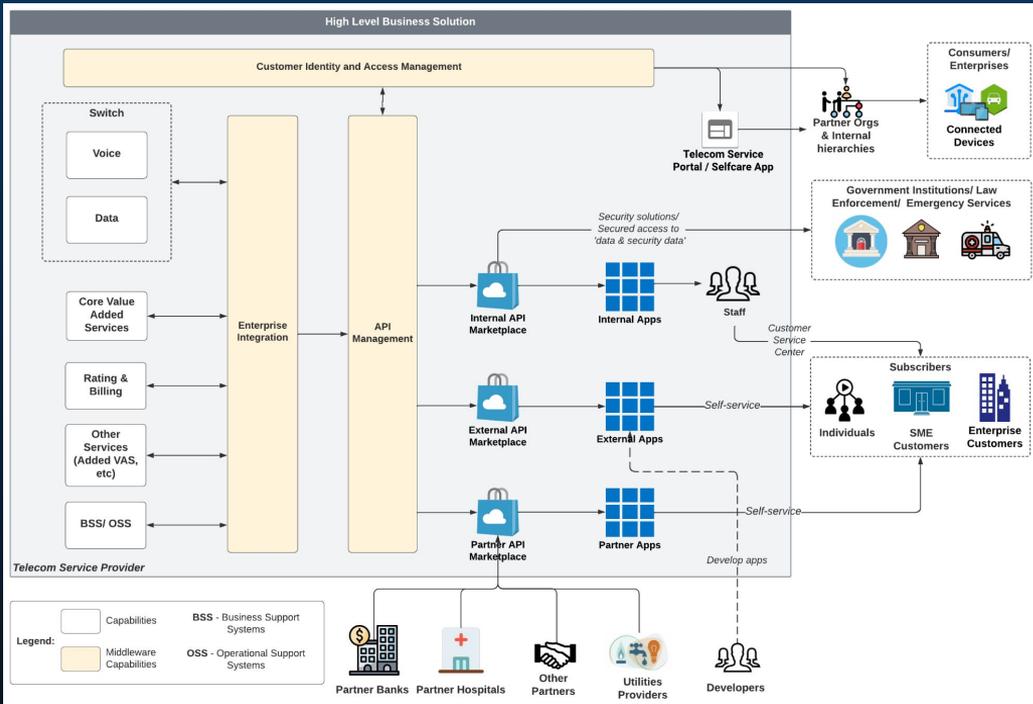
**The agents are coming!**  
The vertical AI story

# AI powered, healthcare native code generation

Sample Prompt:

Write a service to retrieve patient demographics from an EHR system using FHIR R4 APIs. The system requires authentication via OAuth 2.0 and must filter patients by last name and date of birth. Take the search parameter values from the API request. Respond to the API client with the patient demographics data. This API should not be FHIR and please define a custom API as appropriate





Telco reference architecture

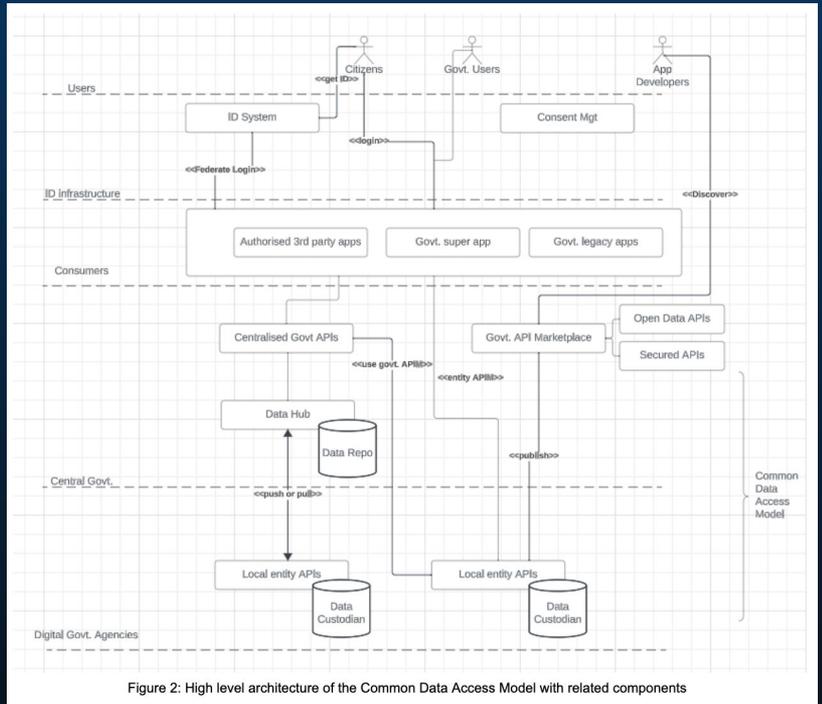
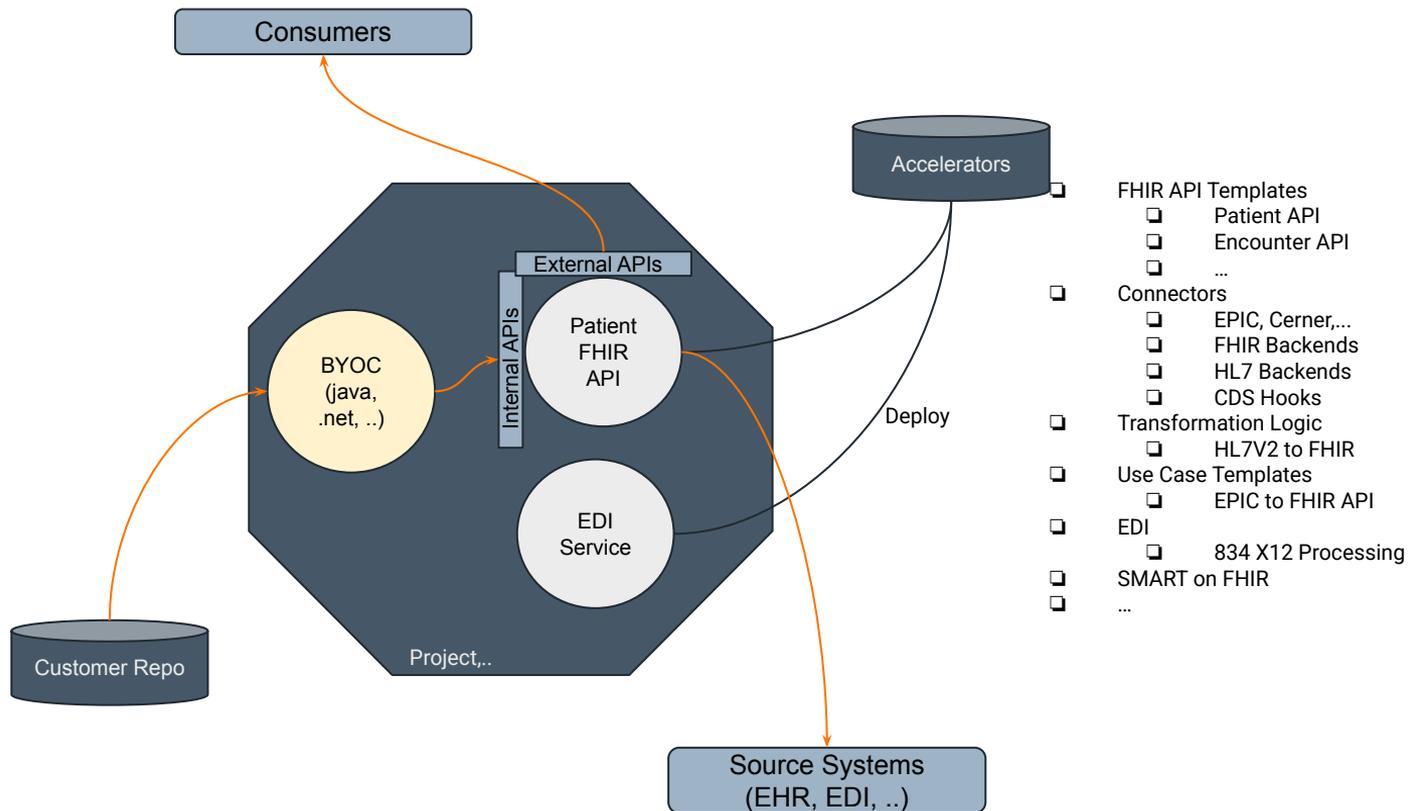


Figure 2: High level architecture of the Common Data Access Model with related components

Govt. reference architecture

# Deploy out of the box accelerators as APIs





**Vertical Abstractions - Pre fabricated,  
Reusable, Vertical Architectures**

# What's next today

## Coming up

02:00 p.m.  
(30 mins)

**Towards a Digital Government  
Blueprint →**

Dev Wijewardane  
Senior Director / Field CTO, WSO2

02:30 p.m.  
(30 mins)

**Accelerating Digital Health  
Innovation with WSO2 →**

Nirmal Fernando  
Director & Head of Engineering,  
Solutions BU, WSO2

## After the break

03:30 p.m.  
(30 mins)

**The Bank You Deserve:  
Engineering the Future of  
Finance →**

Seshika Fernando  
Vice President & Field CTO, WSO2

04:00 p.m.  
(30 mins)

**Vertical AI – Industry Innovation  
in an AI Age →**

Amjadh Ifthikar  
Technical Lead, WSO2

04:30 p.m.  
(30 mins)

**Customer Panel:  
The Modernization Playbook:  
Lessons from the Front Lines,  
Across Industries and  
Regions →**

Abdullah Alanazi  
Head of IT Integration, Saudi  
Commission for Health Specialties  
(SCFHS)

Vinod Sharma  
CTO, M-Pesa Africa

Kinley Dema  
ICT Officer, Government Technology  
Agency Bhutan

(Moderator: Seshika Fernando, Vice  
President & Field CTO, WSO2)

**I choose a lazy person to do a hard job.  
Because a lazy person will find an easy  
way to do it.**

- Bill Gates -

