20TH ANNIVERSARY EDITION

WSO2CON ASIA

PLATFORMLESS MODERNIZATION

Accelerating Digital Health Innovation with WSO2

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If Hospitals Already Get Patients, Why Bother Innovating?

Why hospitals need to innovate?

Rising Patient Expectations

Operational Costs are Soaring

Shortage of Medical Staff

Compliance and Data

Emergencies Expose Gaps

Competition and Reputation

How hospitals can innovate?

Digitize Patient Journeys

Modernize Internal Workflows

Leverage Data & AI

Enable Interoperability

Invest in Cybersecurity & Privacy

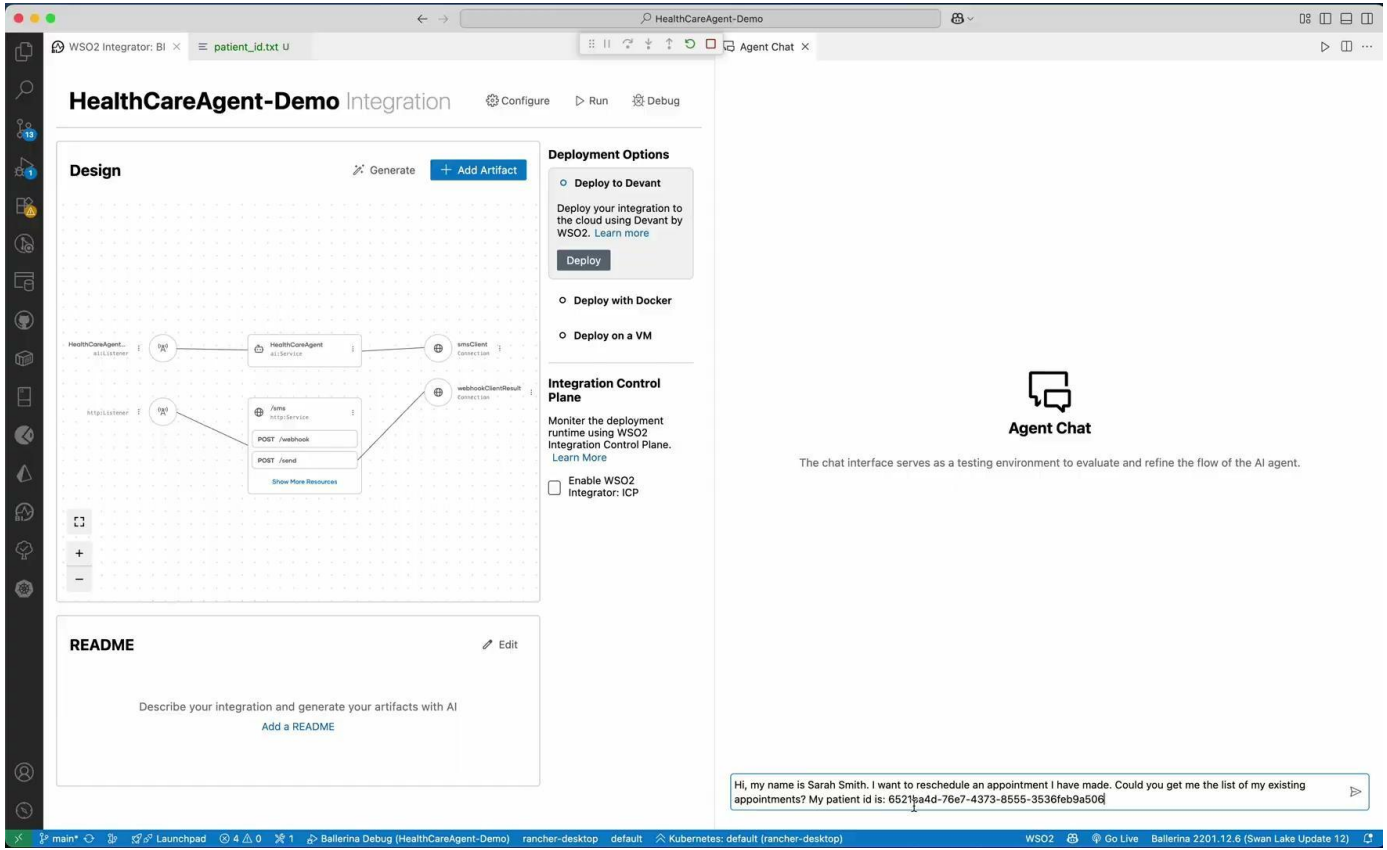
Embrace Personalized and Preventive Care

Stop accepting what’s broken and start building what works.

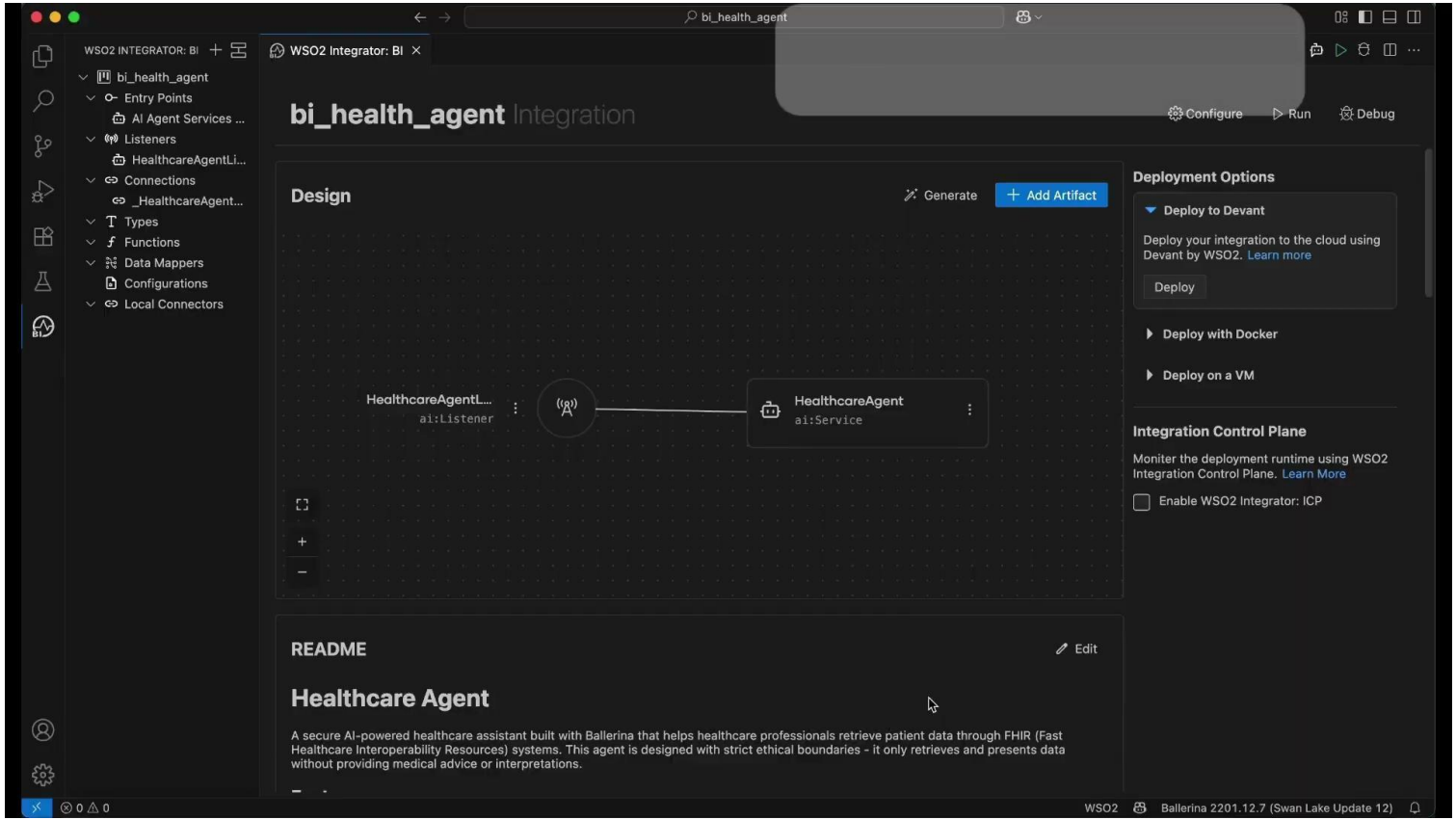
- Seth Godin -

Use cases in action

Online Appointment Booking



Patient Support



International Patient Summary

Reference architectures

Reference Architecture for Hospitals – Digitalization

Accelerators
Custom

Patients

Online Appointment Booking
Patient Support
Digital Check-ins
Patient Portals

Consumer Apps

APIs

FHIR APIs
- Resources
- Audit
- Terminology

REST APIs

OpenID Connect / OAuth 2.0 based security and consent management

Custom

Custom connectors (Any REST API or FHIR API)

Custom message structures (json, xml, csv, text)

Custom data mappings (using visual tools, AI auto-map)

Healthcare Accelerators

Connectors (FHIR, Epic, Cerner, Athena, ..)

Messaging (FHIR, HL7, X12, CCDA, ..)

Security (OAuth 2.0, Basic Auth, MTLS)

Transformers (HL7v2 to FHIR, CCDA to FHIR, X12 to FHIR, ...)

EMR/EHR (Cerner, Epic, Athena, FHIR,..)

CRM / ERP / Billing

Custom Data Sources

APIs

Systems of Record

FHIR Package Gen Tool

FHIR API Template Gen

CDS Template Gen

Healthcare Copilot

Development Tools

Reference Architecture for Hospitals – Digitalization + AI

Accelerators
Custom

Patients

Consumer Apps
- Online Appointment Booking
- Patient Support
- Digital Check-ins
- Patient Portals

Agents	MCPs	APIs	Custom	Healthcare Accelerators
Appointment Scheduling	FHIR MCP - Any FHIR API over MCP	FHIR APIs - Resources - Audit - Terminology	Custom connectors (Any REST API or FHIR API)	Connectors (FHIR, Epic, Cerner, Athena, ..)
		REST APIs		Messaging (R, HL7, X12, CCDA, ..)
Population Health	REST API MCP - Any Open API based API over MCP	OpenID Connect / OAuth 2.0 based security and consent management	Custom data mappings (using visual tools, AI auto-map)	Security (OAuth 2.0, Basic Auth, MTLS)
Custom Agents				Transformers (HL7v2 to FHIR, CCDA to FHIR, X12 to FHIR, ...)

AI

Digitalization

Systems of Record
- EMR/EHR (Cerner, Epic, Athena, FHIR,..)
- CRM / ERP / Billing
- Custom Data Sources
- APIs

Development Tools
- FHIR Package Gen Tool
- FHIR API Template Gen
- CDS Template Gen
- Healthcare Copilot

Healthcare accelerators

Open source FHIR MCP server

Make your health data accessible to LLMs

- **MCP-compatible server**: Serves any FHIR API via stdio, SSE, or streamable HTTP transports.
- **SMART-on-FHIR based authentication support**: Securely authenticate with FHIR servers and clients
- **Tool integration**: Integrates with any MCP client such as VS Code, Claude Desktop, and MCP Inspector

Star it, if you like it!
https://github.com/wso2/fhir-mcp-server

Future of healthcare messaging --> FHIR

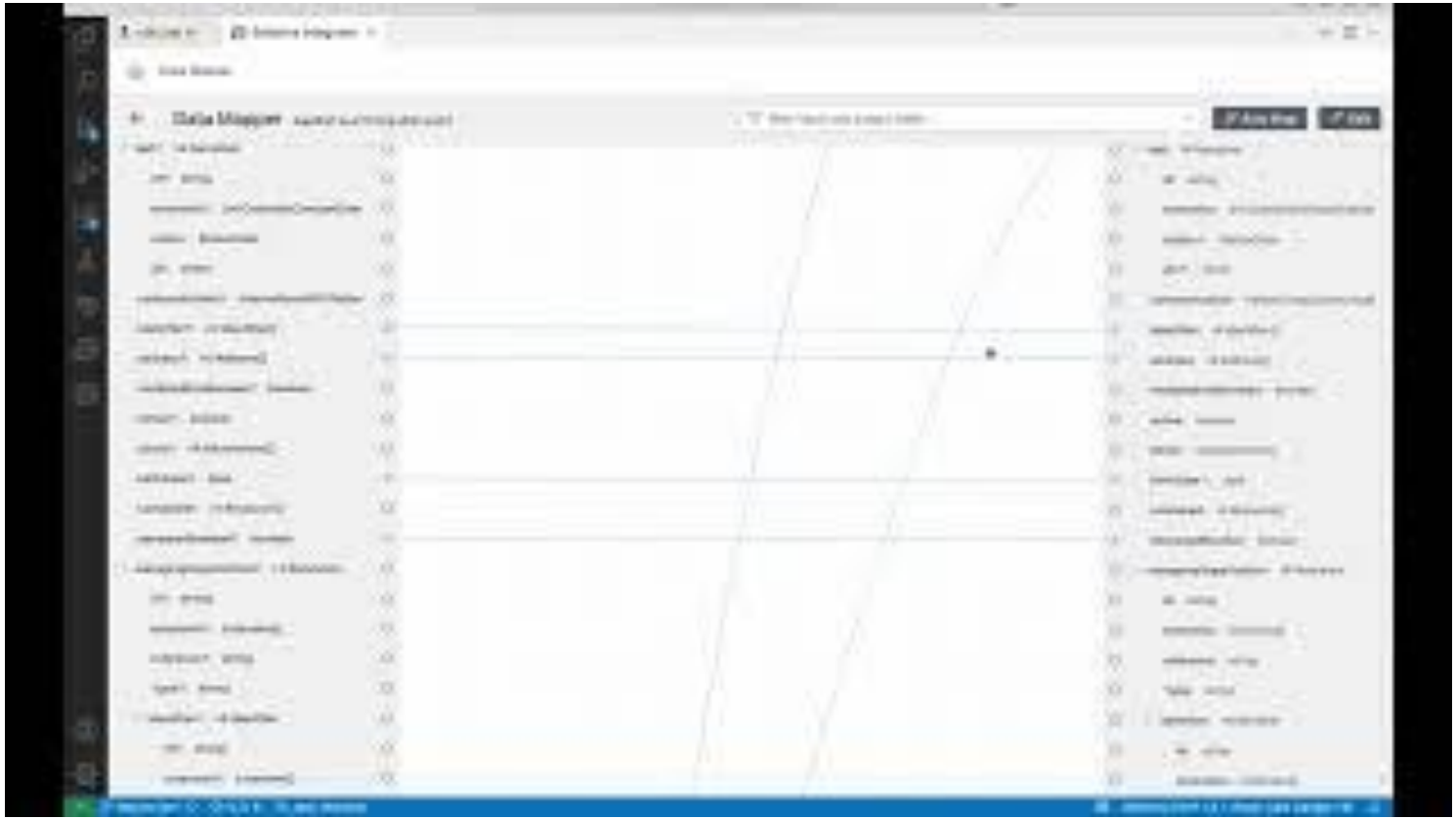
- Fast Healthcare Interoperability Resources are key standard for interoperability.
- WSO2 Integrator provides first-class support for FHIR.
- Standard FHIR implementation guides are preloaded to WSO2 Integrator.
- Custom FHIR implementation guides can be converted to code in minutes.
- SMART-on-FHIR capabilities.
- ....

```
public type Patient record {|
    *r4:DomainResource;

    RESOURCE_NAME_PATIENT resourceType = RESOURCE_NAME_PATIENT;

    r4:Extension[] extension?;
    PatientGender gender?;
    r4:Extension[] modifierExtension?;
    PatientLink[] link?;
    r4:code language?;
    PatientContact[] contact?;
    r4:dateTime deceasedDateTime?;
    r4:Reference[] generalPractitioner?;
    r4:ContactPoint[] telecom?;
    string id?;
    r4:Narrative text?;
    PatientCommunication[] communication?;
    r4:Identifier[] identifier?;
    r4:Address[] address?;
    boolean multipleBirthBoolean?;
    boolean active?;
    r4:Attachment[] photo?;
    r4:date birthDate?;
    r4:Resource[] contained?;
    boolean deceasedBoolean?;
    r4:Reference managingOrganization?;
    r4:Meta meta?;
    r4:integer multipleBirthInteger?;
    r4:HumanName[] name?;
    r4:uri implicitRules?;
    r4:CodeableConcept maritalStatus?;
    r4:Element ...;
|};
```

Speed-up healthcare interoperability – it up!

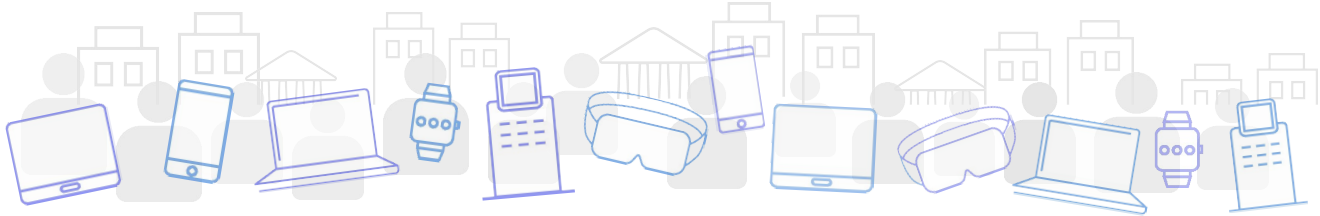
health.ccda.r3 0.9.0	health.clients.fhir 3.0.0	health.clients.hl7 2.0.0	health.fhir.cds 2.0.0
health.fhir.r4 6.1.0	health.fhir.r4.aubase410 2.0.0	health.fhir.r4.aubase421 2.0.0	health.fhir.r4.aucore040 2.0.0
health.fhir.r4.carinbb200 2.0.0	health.fhir.r4.davincicrd210 1.0.0	health.fhir.r4.davincidrugformulary210 2.0.0	health.fhir.r4.davincidtr210 1.0.0
health.fhir.r4.davincihrex100 2.0.0	health.fhir.r4.davincipas 2.0.0	health.fhir.r4.davinciplannet120 2.0.0	health.fhir.r4.international401 3.0.1
health.fhir.r4.ips 3.0.0	health.fhir.r4.lkcore010 1.3.0	health.fhir.r4.medcom240 1.0.1	health.fhir.r4.parser 6.1.0
health.fhir.r4.terminology 6.0.0	health.fhir.r4.uscore311 2.0.0	health.fhir.r4.uscore400 2.0.0	health.fhir.r4.uscore501 2.0.0
health.fhir.r4.uscore610 2.0.0	health.fhir.r4.uscore700 2.0.0	health.fhir.r4.validator 5.1.0	health.fhir.r4utils 1.0.2
health.fhir.r4utils.ccdatofhir 3.0.2	health.fhir.r4utils.fhirpath 1.2.0	health.fhir.r5 1.0.0	health.fhir.r5.international500 1.0.0
health.fhirr4 2.2.0	health.fhirr5 1.0.0	health.hl7v2 3.0.5	health.hl7v2.utils.v2tofhirr4 4.0.3
health.hl7v23 4.0.1	health.hl7v231 4.0.1	health.hl7v24 4.0.1	health.hl7v25 4.0.1
health.hl7v251 4.0.1	health.hl7v26 4.0.1	health.hl7v27 4.0.1	health.hl7v271 4.0.1

Visual data mapping – powered up with AI



And many more healthcare accelerators ..

Let’s put it all together...



Innovative Digital Health Experiences

Healthcare Accelerators

API Management

Integration

Identity & Access Management

Run it yourself, private cloud, or SaaS

Right data at the right time can mean the difference between loss and hope.

- Unknown -

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Thank you!

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