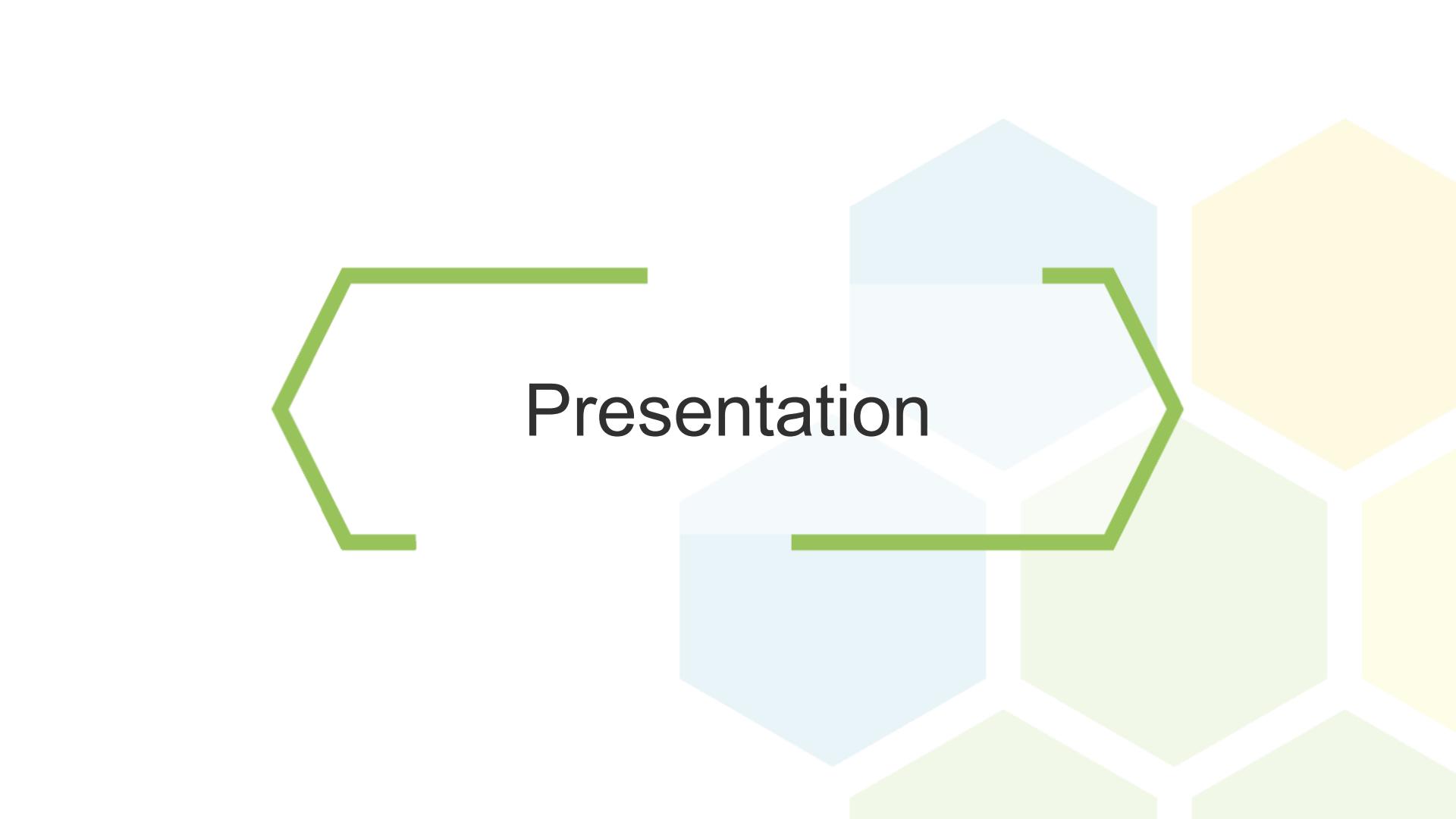


# Assisting doctors to save lives with Alfresco & Xedoc

Victor Fariña  
CEO @QueresTic



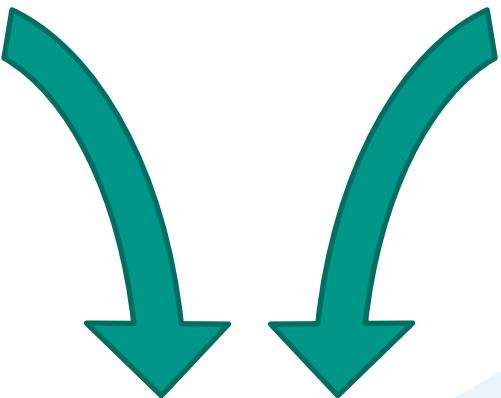
# Presentation



## Team



20 people



# XEDOC



SERVIZO  
GALEGO  
de SAÚDE



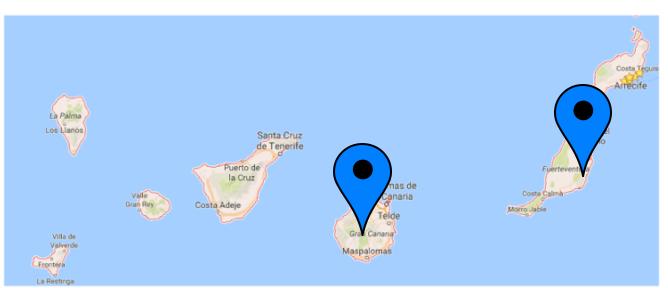
Unión Europea  
Fondo Europeo  
de Desarrollo Regional  
"Una manera de hacer Europa"



> 10 years



> 15 years



# Alfresco Partners since 2006

## Half of the Company are certified



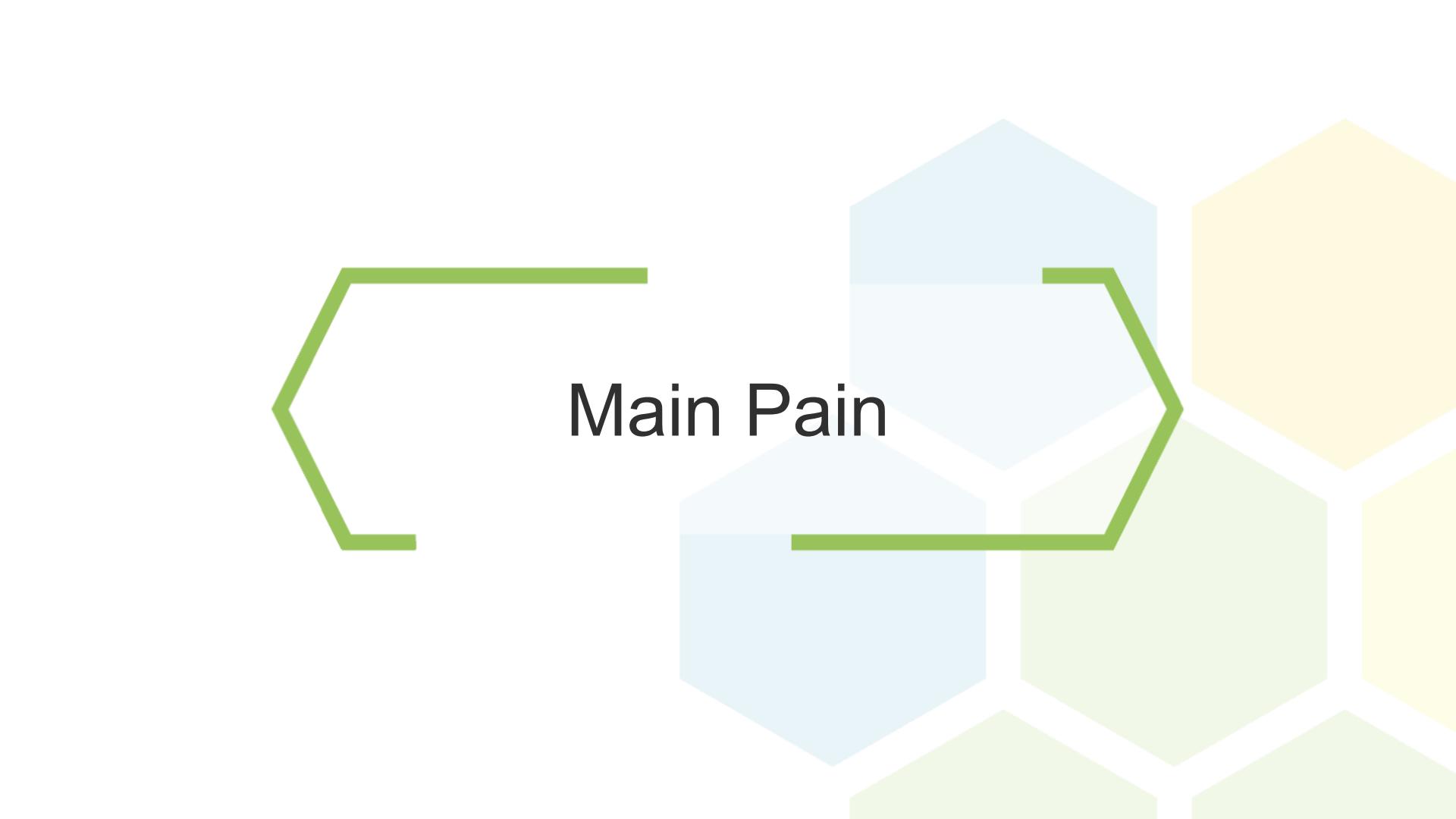
Alfresco®  
Certified 5

Engineer



Alfresco®  
Certified 5

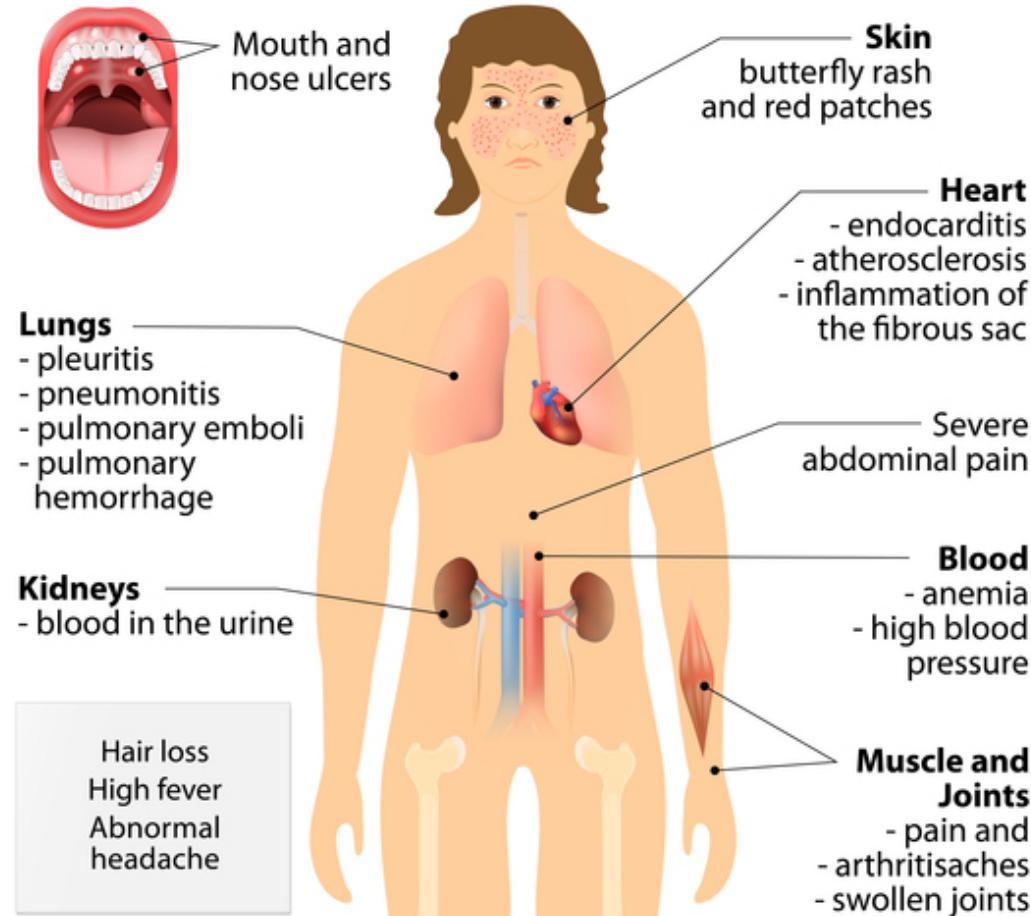
Administrator



Main Pain

# Systemic lupus erythematosus

Peter



# 8 years of tests



# 2004

20k patient documents



Jueves, 20 de Mayo de 2004  
Actualizado a las 20:13 (CET) - Internet time @842 by Swatch

## LOS SINDICATOS RESPONSABILIZAN A LA XUNTA **El fuego destruye 20.000 historias médicas en dos naves de Pontevedra**

AGENCIAS

PONTEVEDRA.- Unos 20.000 historiales médicos del Hospital Montecelo de Pontevedra ardieron a causa de un incendio, que devastó dos naves de la parroquia de Alba. La mayor parte de ellos se había informatizado. Aunque todavía no se han calculado con exactitud, los daños materiales pueden ser "cuantiosísimos". La oposición y los sindicatos imputan la responsabilidad a la Consellería de Sanidade.

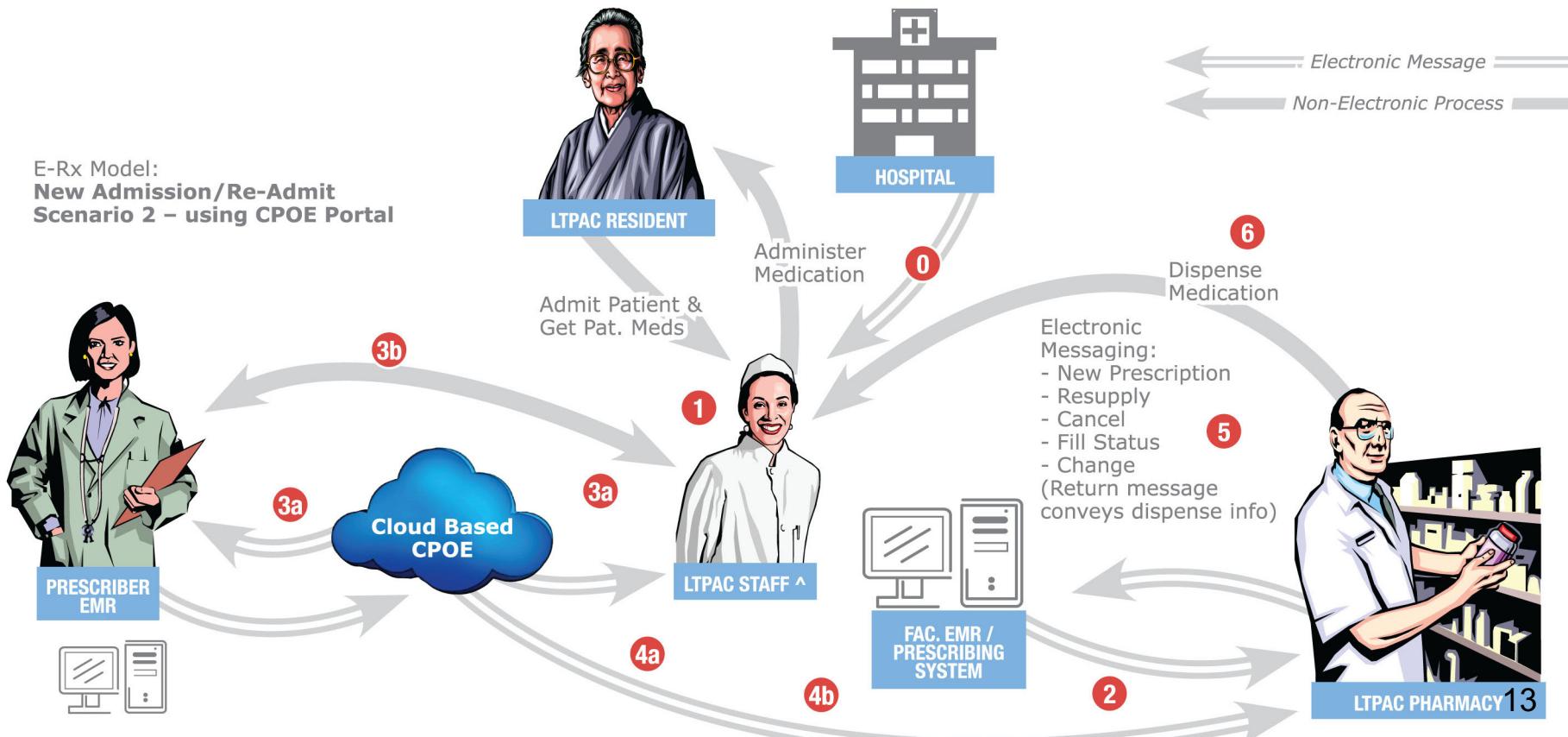
Según el inspector jefe de la Policía Nacional de Pontevedra, José Luis Otero, el incendio se inició ayer, alrededor de las 21.30 horas, en la nave de empresa Alfer Metal, de construcción de pantalanes, y afectó también a la fábrica colindante, del Servicio Galego de Saúde (Sergas), en la que se custodiaba miles de historiales médicos en papel.

Aunque Otero apuntó que las dos naves quedaron "totalmente calcinadas" y que en ellas se perdió "todo el material", fuentes sanitarias aseguraron que la mayor parte de los informes clínicos que se quemaron en el archivo se han podido salvar gracias a que el Complejo Hospitalario los había informatizado.

El fuego fue descubierto por una empleada del archivo que divisó una columna de humo de la nave colindante, correspondiente a la empresa Alfer Metal, donde posteriormente se produjo una explosión, cuando ya no quedaba nadie en su interior. Todos los empleados que quedaban en el archivo también pudieron salir de la nave antes de propagarse las llamas.

Las causas del fuego se desconocen por el momento, indicó que "en criminalidad y que las llamas se pudieron controlar tal o por el"

# Practitioner access



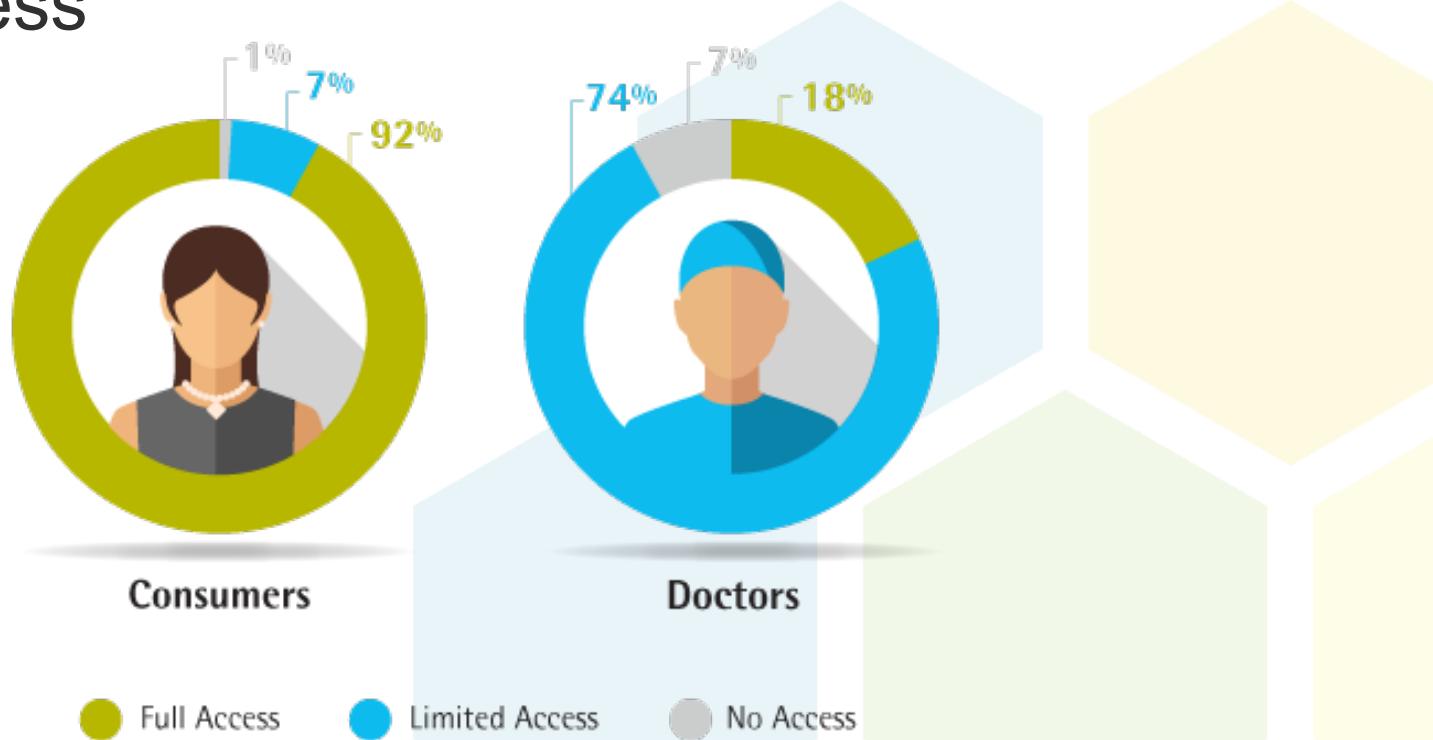
# Doctor Survey: How Much Access Should Patients Have to Their Electronic Health Records?

## Patient access



Level of access a patient  
should have to EHR

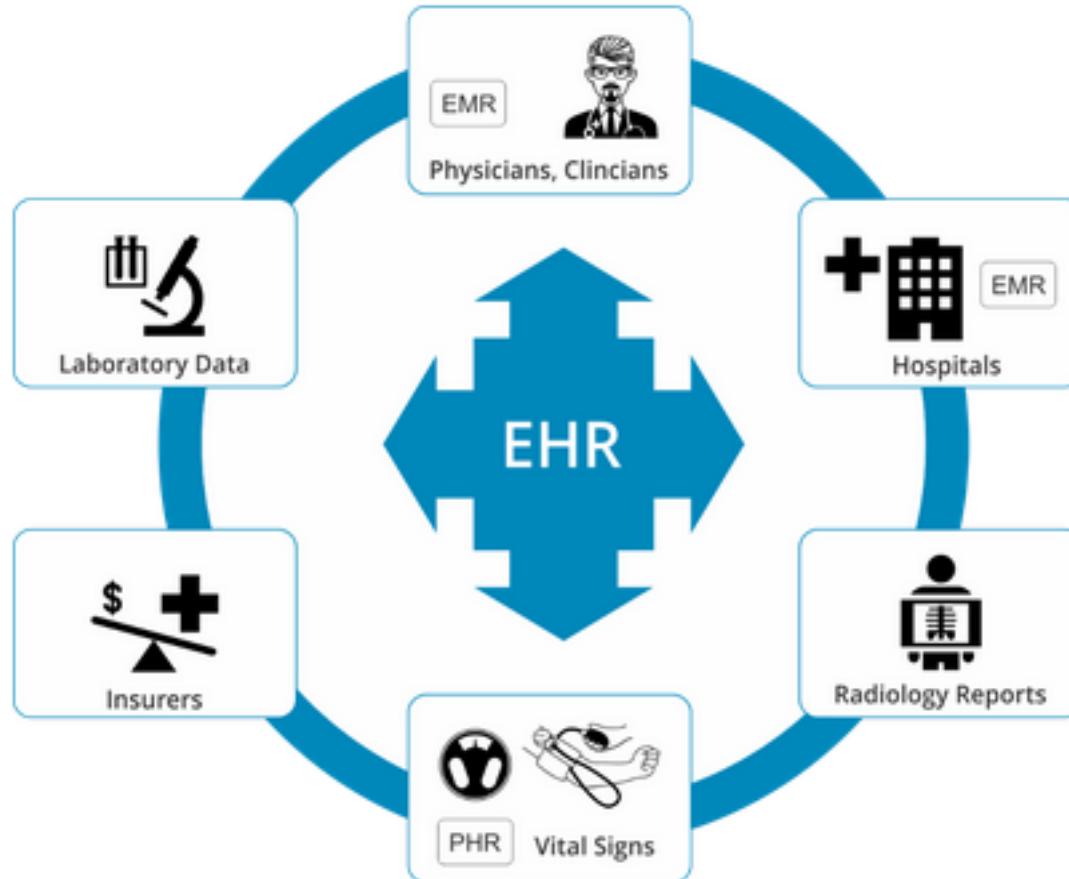
# Patient access



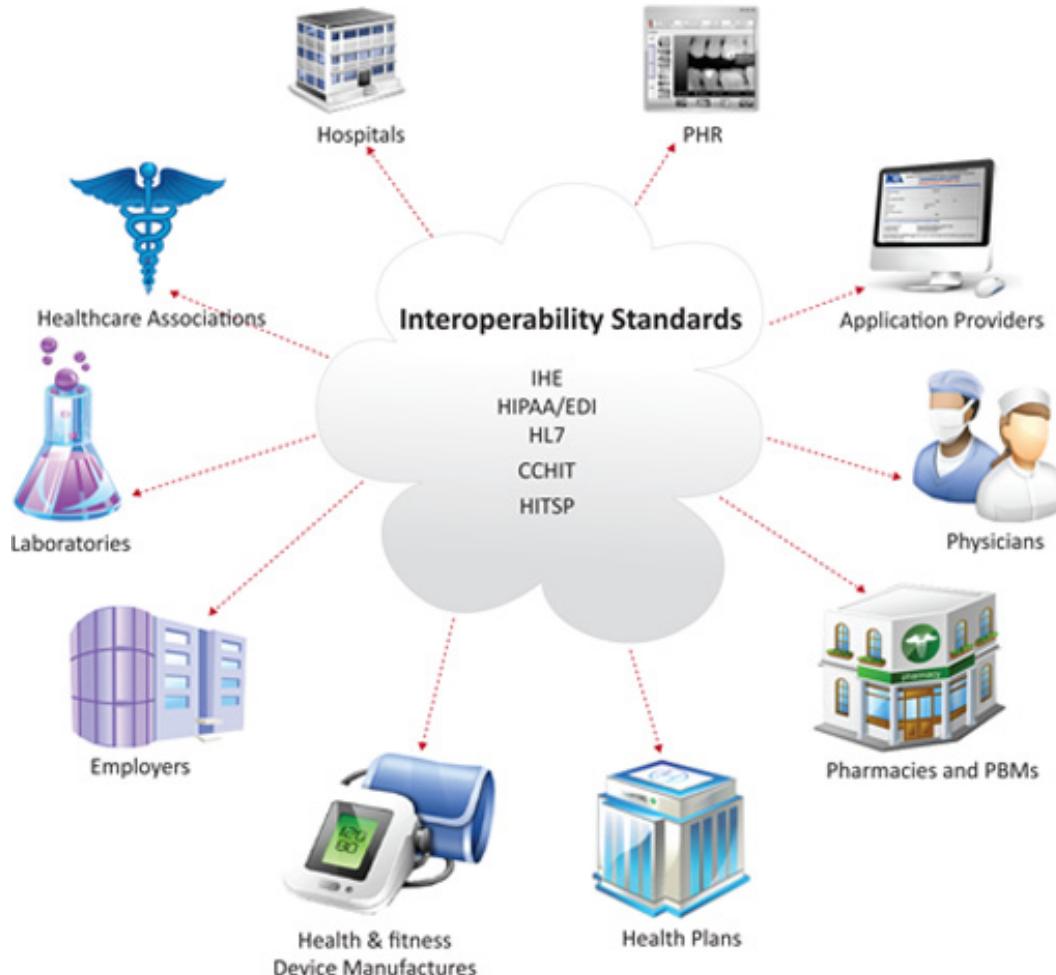
# Remote access to our EHR

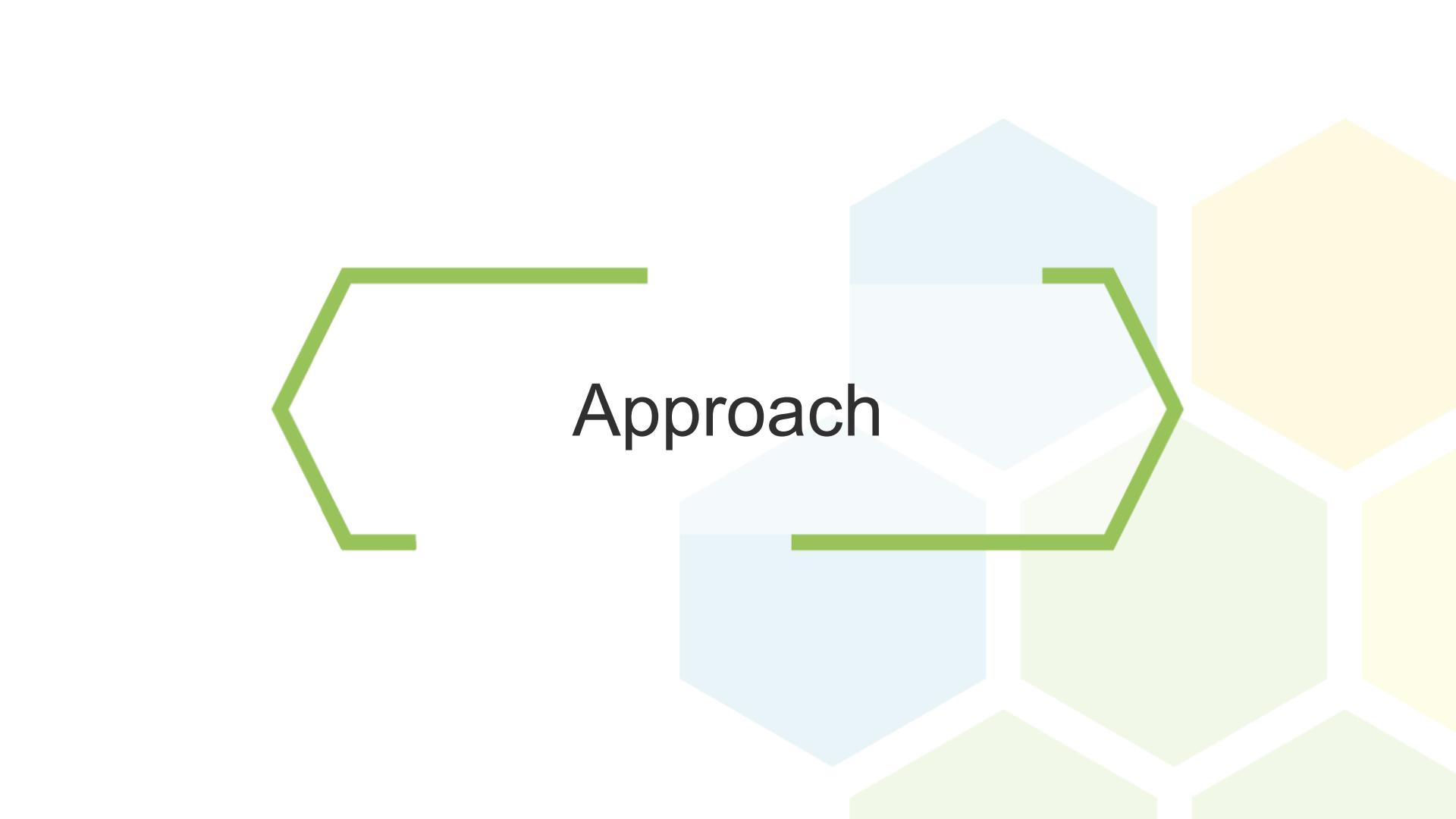


# EHR

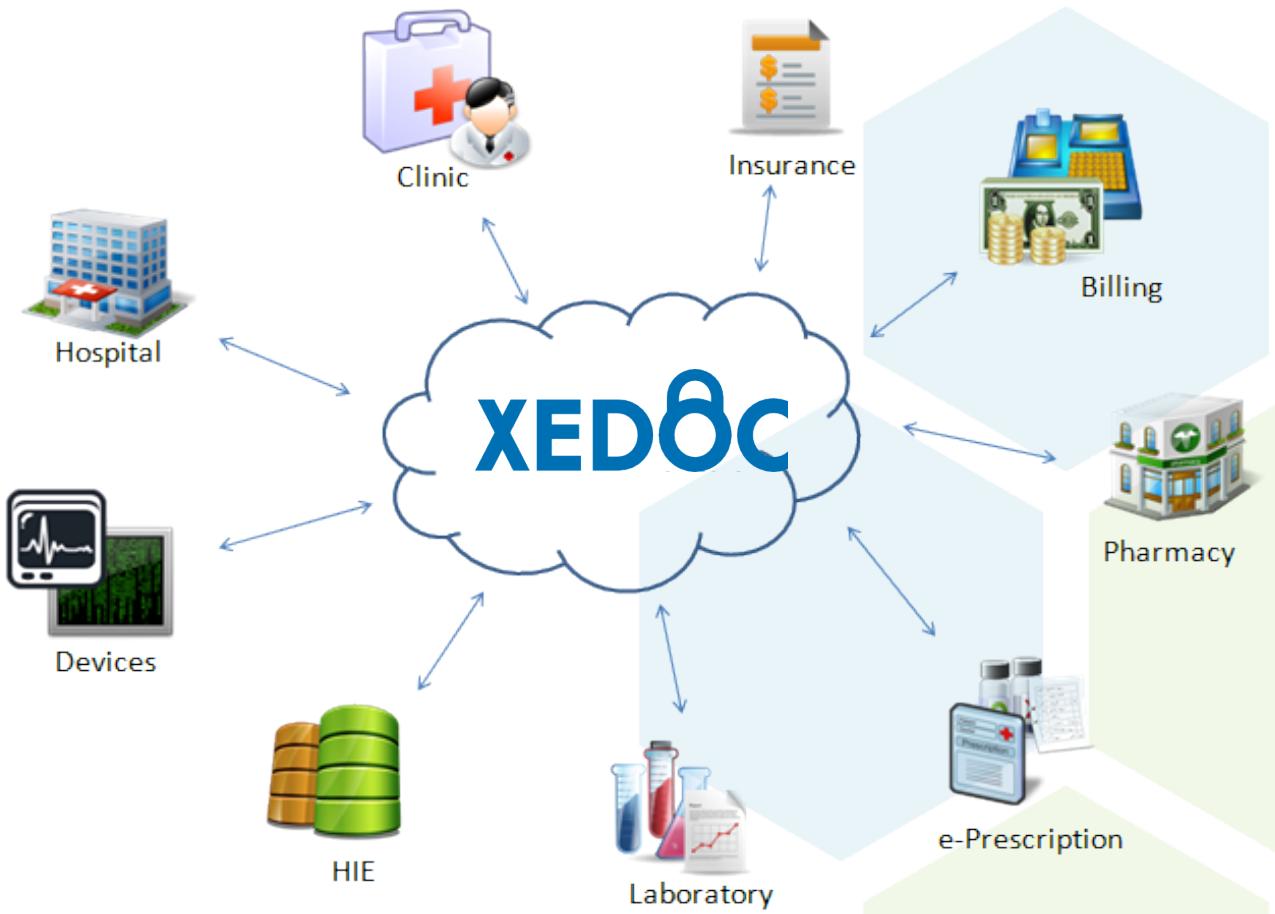


# Architecture

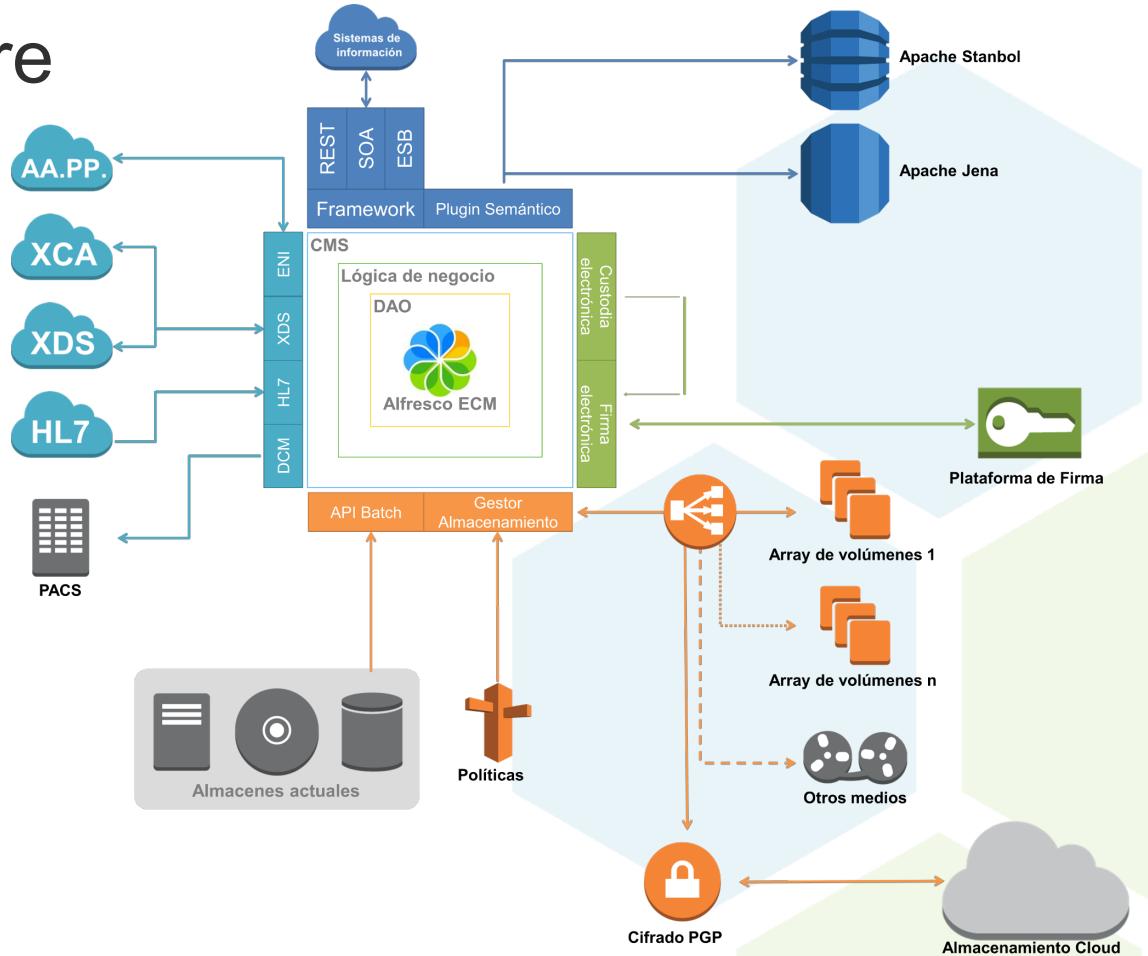




Approach



# Big picture



# Big picture

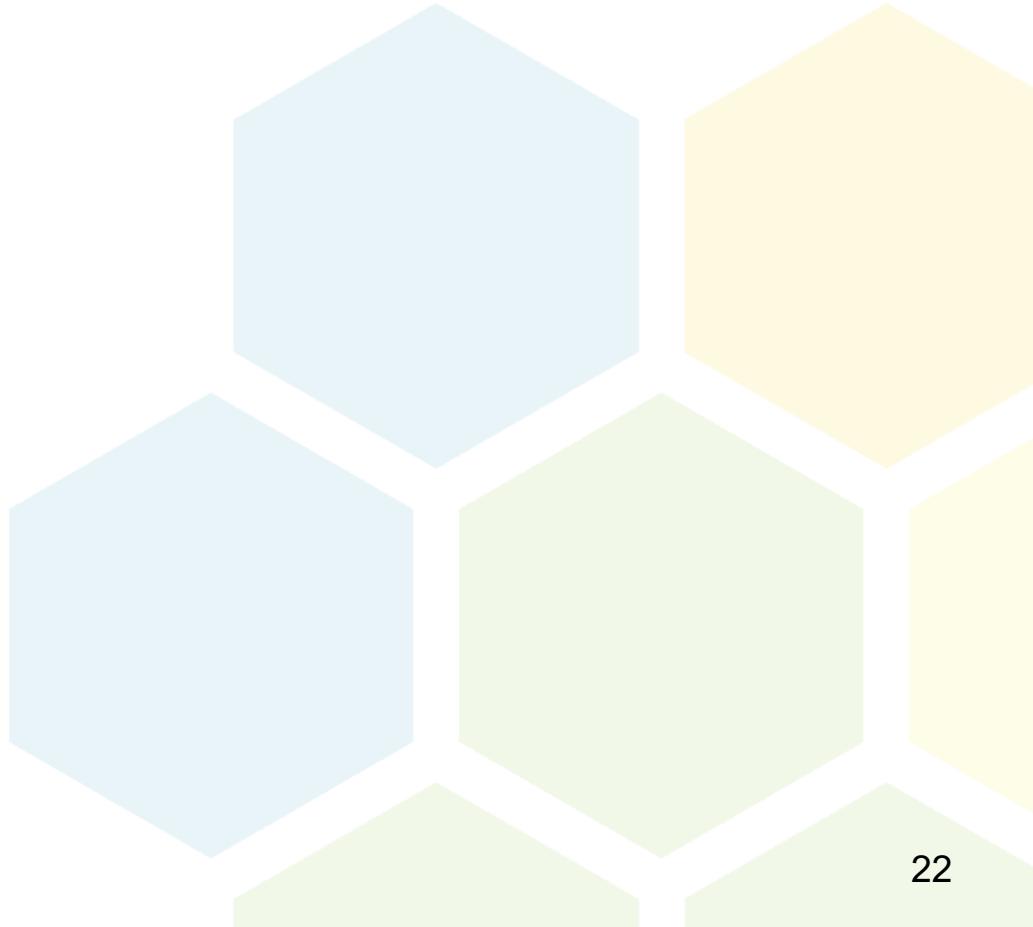
SOA

ILM

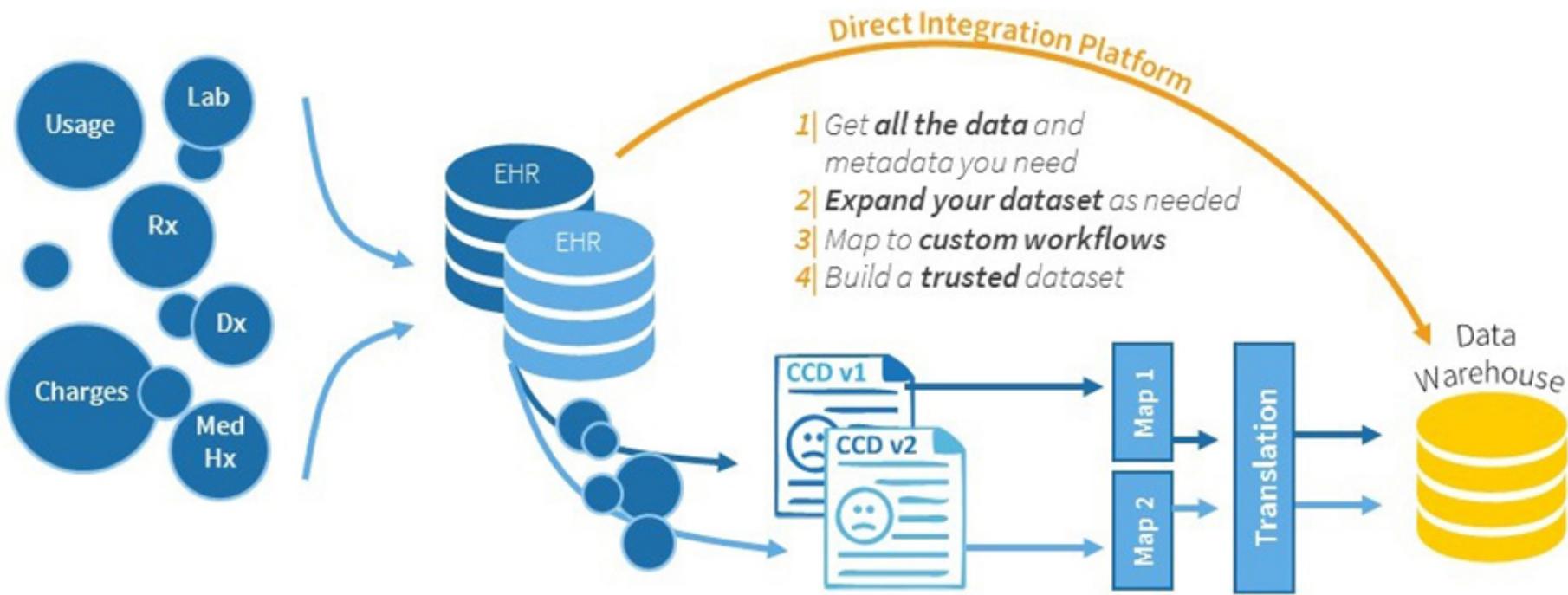
Custody

Semantic

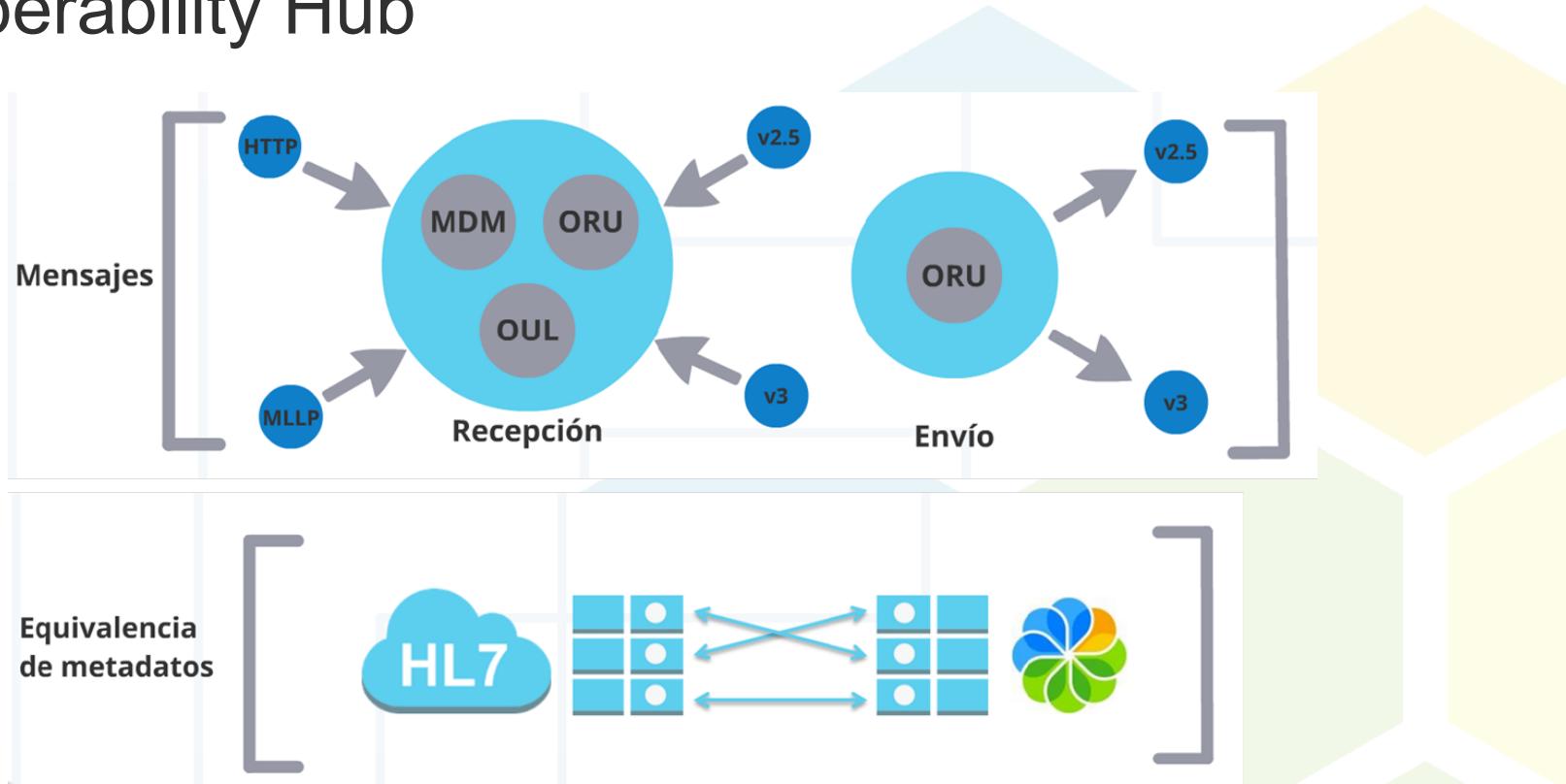
Migration



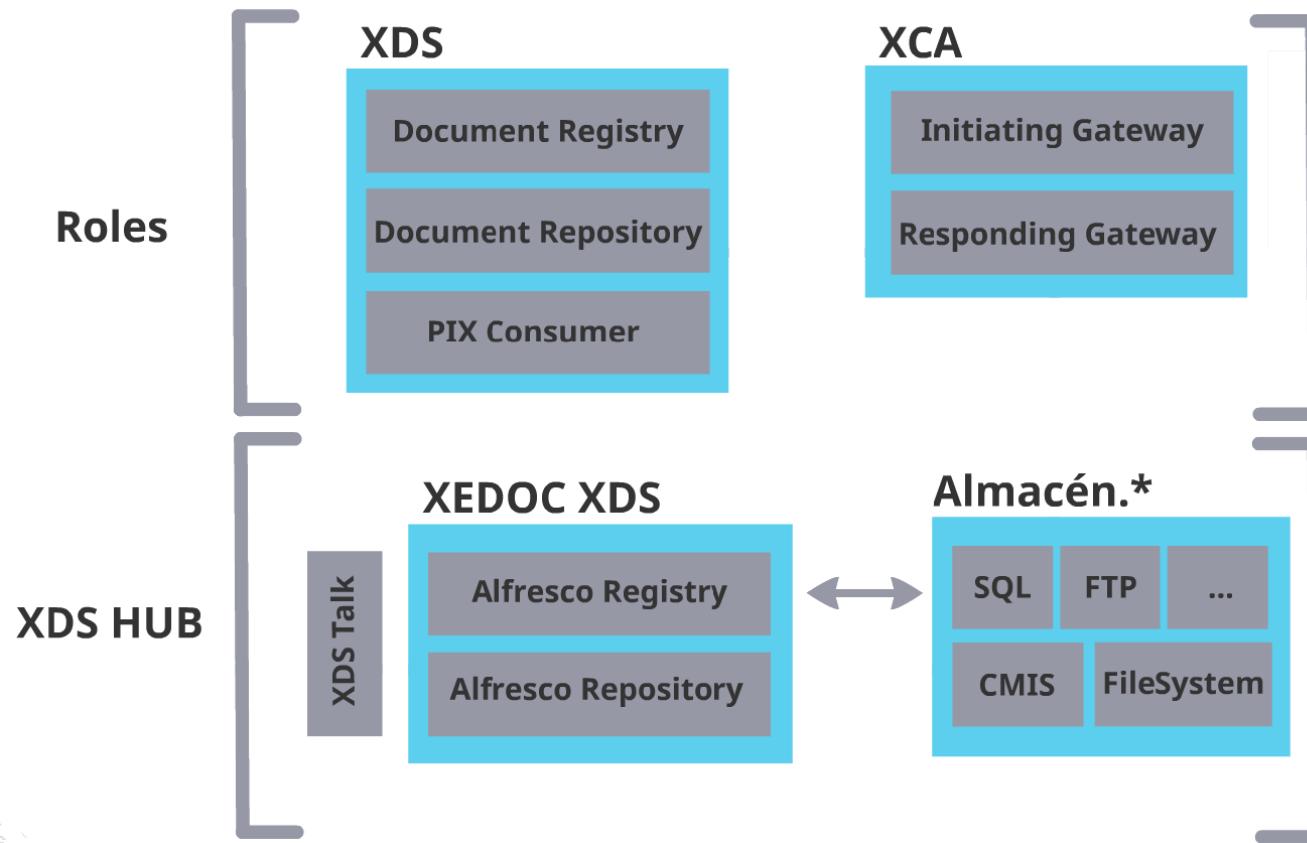
# Interoperability Hub



# Interoperability Hub



# Interoperability Hub



# Interoperability Hub

The screenshot shows the XEDOC console interface running on a local host at port 8080. The main navigation bar includes links to WELLCOME, Last\*, XEDOC, alfrescowiki, Alfresco1-CALC, WebSphere-CA, Xedoc\_ASEM(l), actual, and consoleproject.

**Registros y Repositorios**

repositoryUnique	Nombre	Papel	URL	Usuario	Contraseña	Bean	Activo	Editar	Eliminar
13.6.14.1.21367.2C	Alfresco	Repo/Reg	https://xedoc.serga	xedoc_xds	*****	xedocXDSClient	✓	/	/
13.6.14.1.21367.2C	IANUS	Repo/Reg	https://ianus.xds.se	xedoc_xds	*****	ianusXDSClient	✓	/	/
13.6.14.1.21367.2C	FTP SSCC	Registro	jdbc://ftplib.sergas	xedoc_ftpxds	*****	sqlXDSRegClient	✓	/	/
13.6.14.1.21367.2C	FTP SSCC	Repositorio	ftp://ftpscc.sergas.	xedoc_ftpxds	*****	ftpXEDRepoClient	✓	/	/
13.6.14.1.21367.2C	Ejemplo	Repo/Reg	http://localhost:888	xedoc_pruebas	*****	pruebasClient	/	/	/
13.6.14.1.21367.2C	Ejemplo_2	Repo/Reg	http://localhost:888	xedoc_pruebas	*****	pruebasClient	/	/	/
13.6.14.1.21367.2C	Ejemplo3	Repo/Reg	http://localhost:888	xedoc_pruebas	*****	pruebasClient	✓	/	/

**Añadir**

**Configuración Metadatos**

Registro: 13.6.14.1.21367.2011.2.3.1 - FTP SSCC

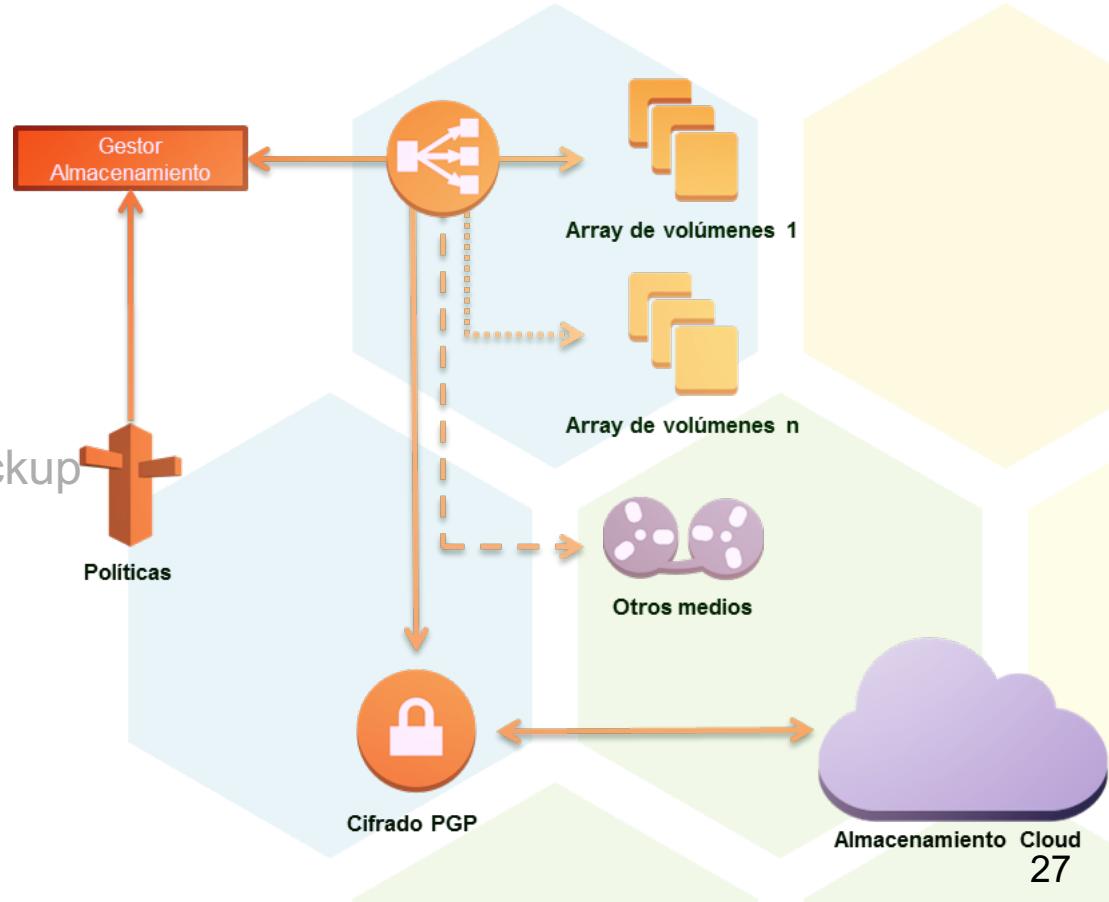
Metadatos XDS	Metadatos Registro	Esquema	Editar	Eliminar
Author*	Responsable	1.2.16.840.1.113883.5.2.5 Viena 2014	/	/
ClassCode*	CodDocEx	1.2.16.840.1.113883.5.2.5 Viena 2014	/	/
Comments*	Comentario	1.2.16.840.1.113883.5.2.5 Viena 2014	/	/
CreationTime*	EventCodeList	1.2.16.840.1.113883.5.2.5 Viena 2014	/	/
EventCodeList*	DataVersion	1.2.16.840.1.113883.5.2.5 Viena 2014	/	/
PatientId*	IdPaciente	1.2.16.840.1.113883.5.2.5 Viena 2014	/	/
PracticeSettingCode*	CodEspecialidad	1.2.16.840.1.113883.5.2.5 Viena 2014	/	/
quarantine*	Enfermedad	1.2.16.840.1.113883.5.2.5 Viena 2014	/	/

# ILM

## Volume Management:

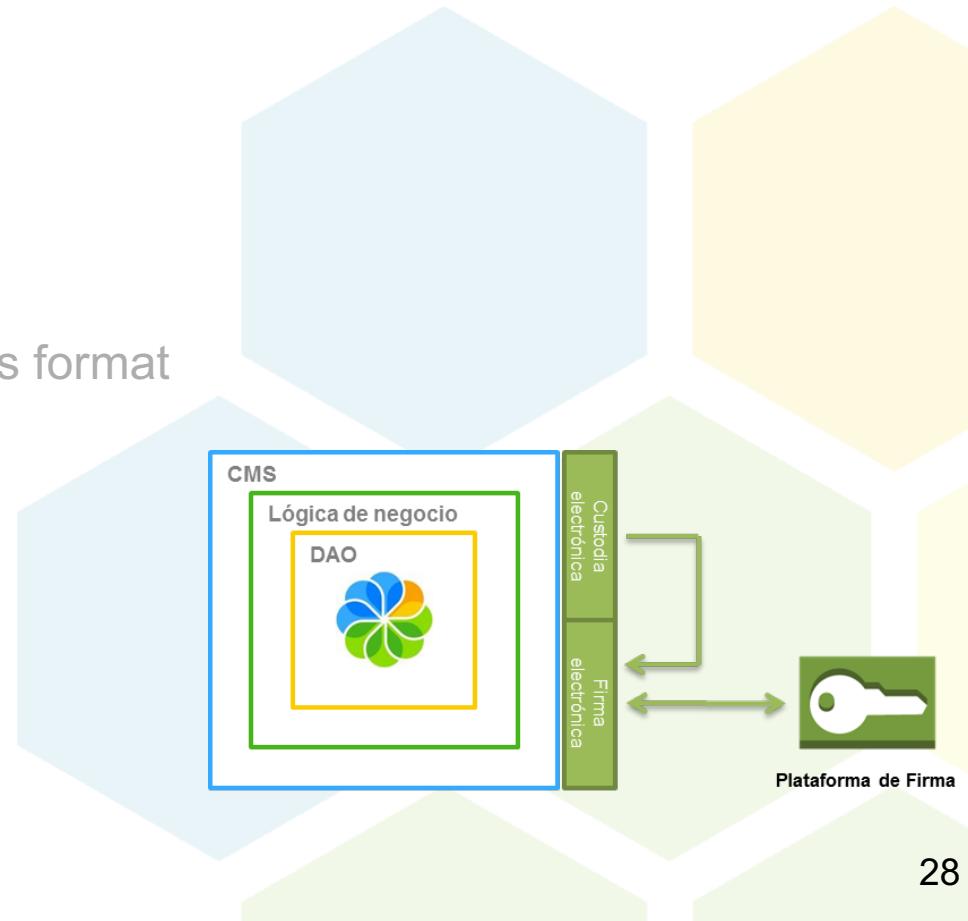
- Based on metadata
- Based on available space

Closing volumes to optimice backup



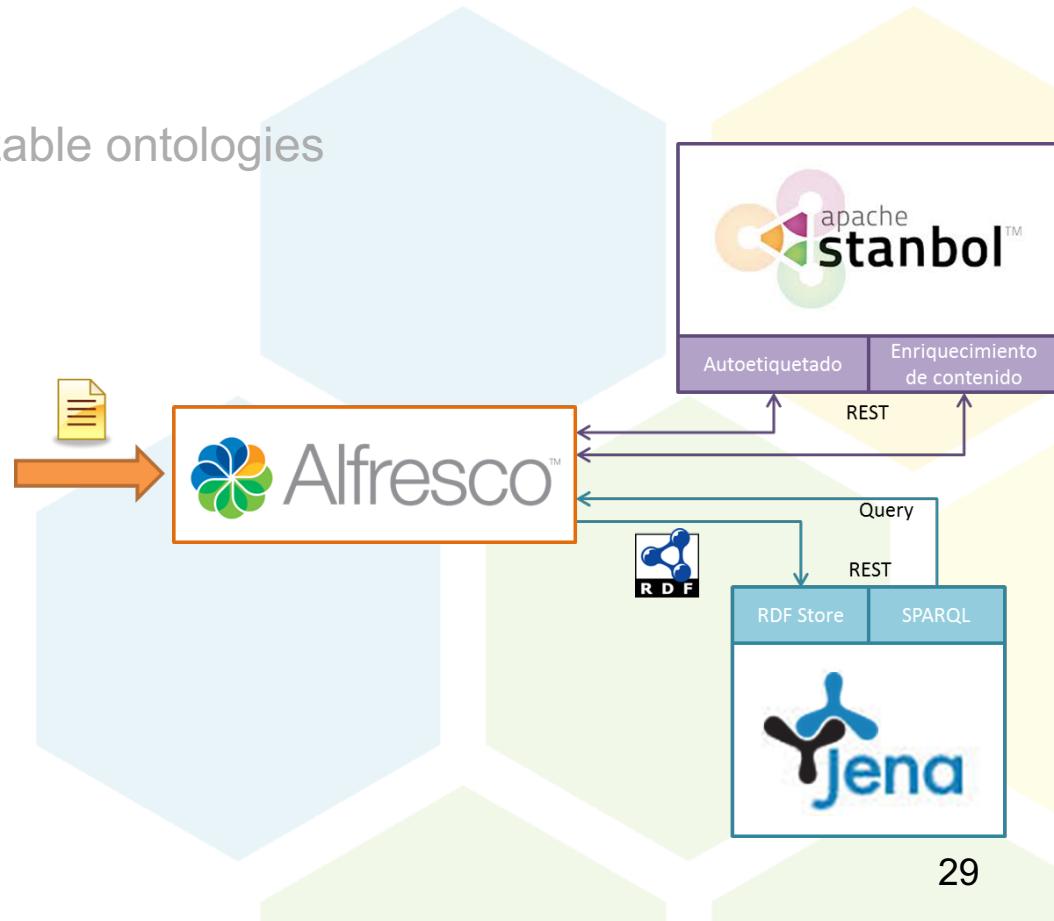
# Custody

- Promoting digital signature
- Re-signing documents
- Transformation to long-term access format
- Signature platform integration



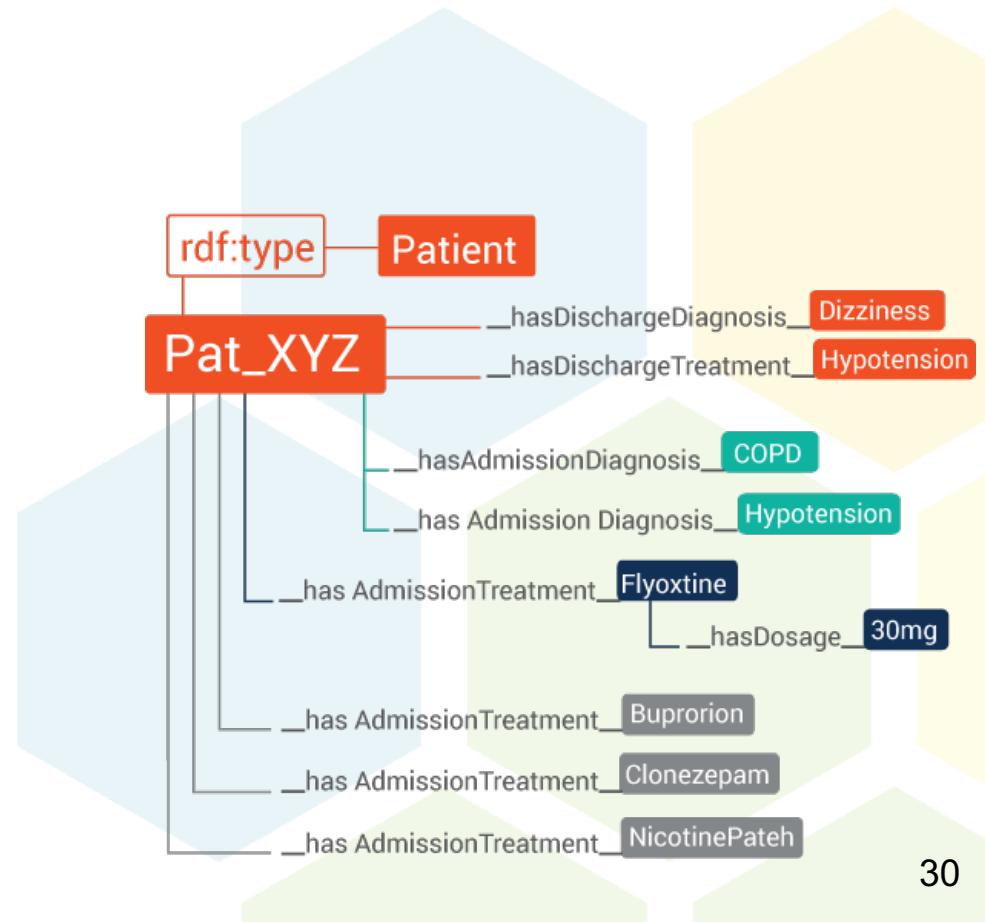
# Semantic analysis

- Semantic analysis using customizable ontologies
- Content Auto-tagging
- Content data enrichment
- Semantic search



# Semantic analysis

- Sample of rich content



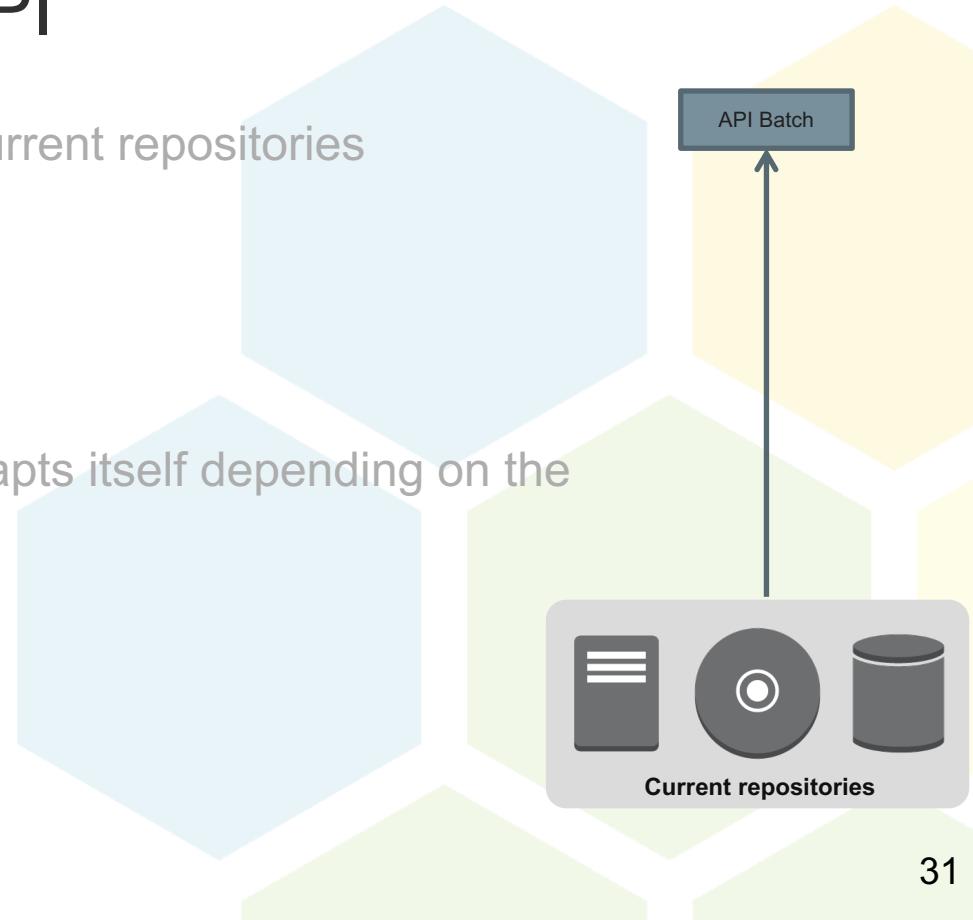
# Migration tool with an API

Tools and services to migrate from current repositories

Multiple sources:

- FTP, Filesystem, Database, etc ...

Intelligent migration systems, that adapts itself depending on the repository load



# Transformation Server



Digital Signature			
When	and	and	Do/execute
{hc}docExt=true	{hc}codCentro=270095	{hc}contentType=application/pdf	setFirma("XAdES")
{hc}docExt=true	{hc}appOrixe="SEGES" "	{hc}contentType=image/jpeg	setFirma("XaDES_Detached")

Long-term			
When	and	and	Do/execute
{hc}docExt=true	mimeType="img/png"	{hc}appOrixe="SEGESDOC"	setTransformacion("PDF/A")
{hc}docExt=true	mimeType="ms/word"	{hc}tipoDoc="TD14"	setTransformacion("PDF/A")



# kibana

# Monitoring Server

Dashboard / 02 - XEDOC - Alfresco 01

Add Save Share Options Reporting Last 30 days >

\*

02 - XEDOC - Alfresco 01 - ARPAD vs CMIS - Tarta número de peticiones



ARPAD  
CMIS

02 - XEDOC - Alfresco 01 - Métricas generales

**4,743,910**

Count

**279.77**

Average responsetime

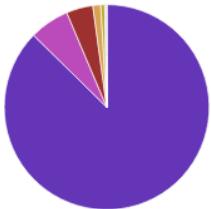
**69.857**

50th percentile of responsetime

**385.945**

90th percentile of responsetime

02 - XEDOC - Alfresco 01 - Respuestas - Tarta



200  
201  
403  
207  
302  
801  
204  
401  
404  
304

02 - XEDOC - Alfresco 01 - Métricas generales 4 últimas semanas

Table Request Response Statistics

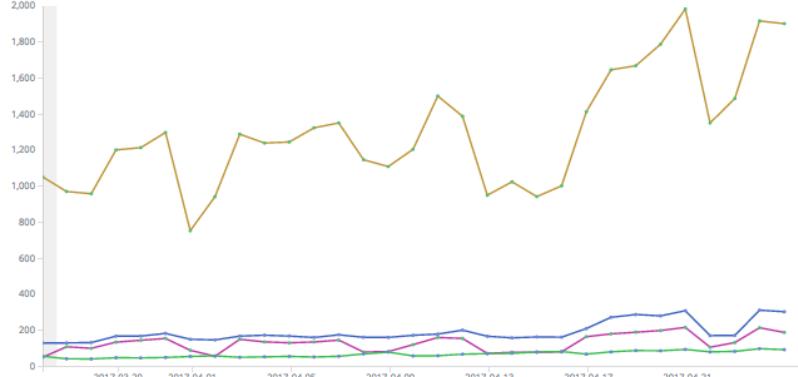
@timestamp date ranges ▾

March 28th 2017, 14:28:05.871 to April 4th 2017, 14:28:05.871  
April 4th 2017, 14:28:05.871 to April 11th 2017, 14:28:05.871  
April 11th 2017, 14:28:05.871 to April 18th 2017, 14:28:05.871  
April 18th 2017, 14:28:05.871 to April 25th 2017, 14:28:05.871

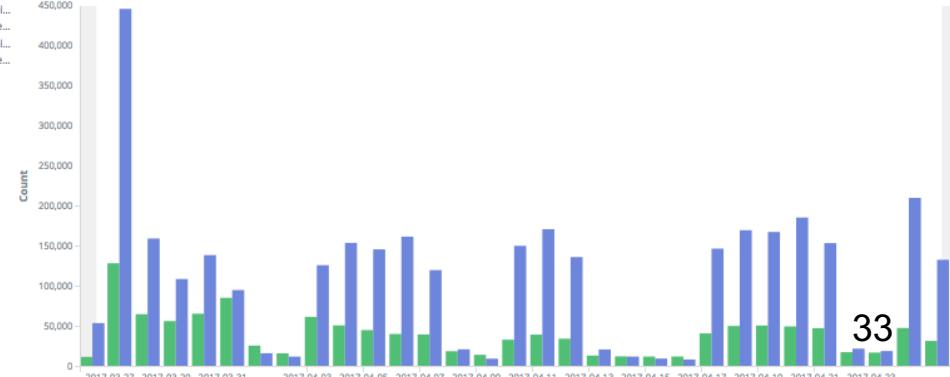
Count ▾

	Count	Average responsetime	50th percentile of responsetime	90th percentile of responsetime
March 28th 2017, 14:28:05.871 to April 4th 2017, 14:28:05.871	994,264	312.714	61.685	450.52
April 4th 2017, 14:28:05.871 to April 11th 2017, 14:28:05.871	1,013,388	250.512	63	325.062
April 11th 2017, 14:28:05.871 to April 18th 2017, 14:28:05.871	685,102	295.893	79.452	435.1
April 18th 2017, 14:28:05.871 to April 25th 2017, 14:28:05.871	1,233,469	338.172	99.265	501.053

02 - XEDOC - Alfresco 01 - ARPAD vs CMIS - Percentil Tiempos de Respuesta



02 - XEDOC - Alfresco 01 - ARPAD vs CMIS - Número de Peticiones



33



# Success Case

# Sucess Case



SERVIZO  
GALEGO  
de SAÚDE

## Clinic History document management

- Document Management system implementation
- Digitization process creation
- Duration of 4 years

### Activities

- Architectural definition
- Modules development
- Installation and configuration
- Process definitions

### Volume

- 20.000 documents/day (10 GB)
- 2.000 request/minute
- 15.000 users

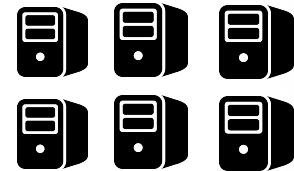
### Team

- 1 Consultant
- 1 Architect
- 2 Developers
- 1 Administrator
- 1 Support



### Architecture

- Four nodes in cluster
- Alfresco 4.1.8



# Success Case

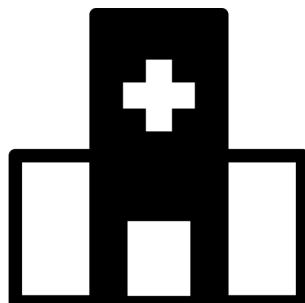
Response times, in high load situation:

- Search: 200 ms
- Download documents: 1 s
- Add documents: 2 s

High availability with 4 nodes x 4 cores (8 Gb)



# Success Case



472



20k



18M



# Victor Fariña

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