



InterSystems in the Cloud

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Director Product Management,
Data Platforms, InterSystems



60% of installed cores are in public cloud datacenters

68% of CIOs rate use of public cloud as important to digital business initiatives

76% of enterprises use more than one cloud provider



InterSystems *Cloud Strategy*



Roll out cloud offerings in phases:

1. New ways to try, buy, & run in the cloud
2. Multi-cloud managed services to simplify operations and reduce TCO
3. Targeted PaaS and SaaS offerings

- Support modern devops using containers, Kubernetes, and dynamic configurations
- Leverage new cloud facilities for storage, compute, & intelligence

Cloud Everywhere



IaaS Offerings



HealthShare

Health Connect

InterSystems IRIS for Health

InterSystems IRIS Data Platform

A blue arrow pointing to the right, containing the text 'IaaS (AWS/Azure/GCP)'.

IaaS
(AWS/Azure/GCP)



Google Cloud Platform



Tencent Cloud



Cloud



OPEN CONTAINER INITIATIVE



kubernetes



READY. SET. CODE.

Try InterSystems IRIS Data Platform

Not Ready to Code?

InterSystems IRIS® is the fastest way to build data-intensive and mission-critical applications with resources including:

- ✓ Pre-built samples to get you started quickly
- ✓ Support for multiple languages so you don't have to choose just one
- ✓ Interoperability features to help you share and transform data

[LEARN MORE](#)

Start Coding for Free

Get Started in Less Than a Minute

Try InterSystems IRIS data platform using a web-based IDE. Free for 90 days.

☒ I agree to the [Terms of Service & Privacy Statement](#)

[START CODING](#)

Already have an InterSystems account, please [log in here](#).

Additional Resources

InterSystems IRIS Community Edition

By InterSystems Corporation

Complete, cloud-based data platform for SQL and NoSQL, DBMS, integration, and analytics

Software plans start at Free

[Get it now](#)

InterSystems IRIS Data Platform

By InterSystems Corporation

Complete, cloud-based data platform for SQL and NoSQL, DBMS, integration, and analytics

Software plans start at \$0.632/hour

[Get it now](#)

InterSystems IRIS for Health

By InterSystems Corporation

Complete, Cloud-based Data Platform for Healthcare

Software plans start at \$0.632/hour

[Get it now](#)

InterSystems IRIS Data Platform BYOL

By InterSystems Corporation

Complete, cloud-based data platform for SQL and NoSQL, DBMS, integration, and analytics

★★★★★ (1)

Bring your own license

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InterSystems IRIS for Health BYOL

By InterSystems Corporation

Complete, Cloud-based Data Platform for Healthcare

Bring your own license

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InterSystems IRIS for Health Community Edition

By InterSystems Corporation

Complete, Cloud-based Data Platform for Healthcare

Software plans start at Free

[Get it now](#)

InterSystems Kubernetes Operator (IKO) 3.5

What is IKO?

- Easy deployment of IRIS in Kubernetes
- Data Management – Mirroring, Sharding
- Compute Management – ECP Clients
- WebGateways – Nginx or Apache
- Free to IRIS users



IKO 3.5

- Simplified TLS Configuration
 - WebGateway
 - ECP
 - Mirroring
 - SuperServer
- WebGateway Improvements
 - Optional Volumes
 - Merge for CSP.ini
- Restart-free CFP & license key updates
- Support for SAM 2.0

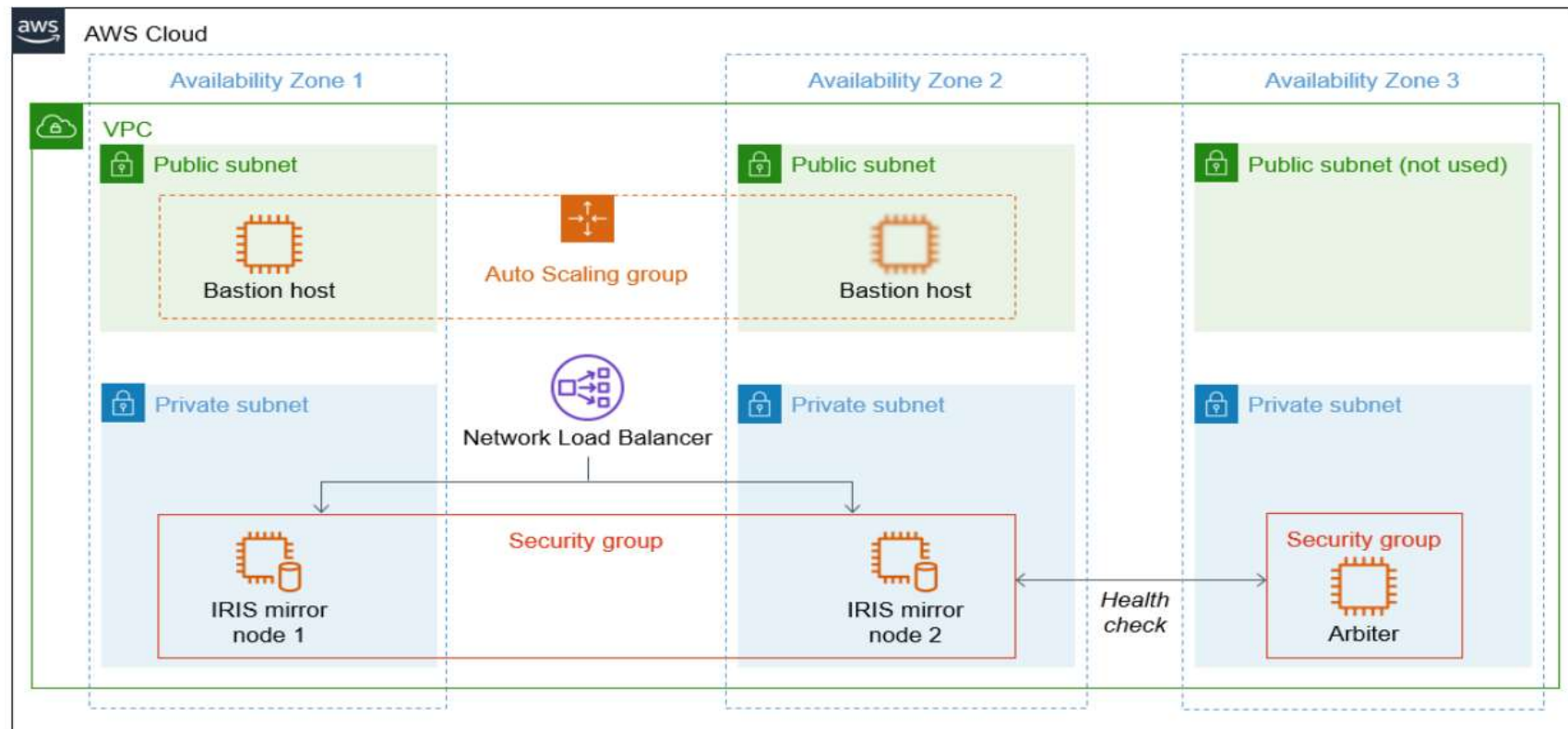


IRIS on the AWS Cloud

Quick Start Deployment Guide



Deploying this Quick Start for a new virtual private cloud (VPC) with default parameters builds the following IRIS environment in the AWS Cloud.





Broadridge®



Global Fintech
Leader with
\$5B in Revenue



Publicly Traded
with a **\$17B**
Valuation



Member
of the
S&P 500

Challenge

Deliver Data in a Clean, Current & Consistent Format



100+ Applications

Different Data in Different Formats & Structures



Internal
Stakeholders



Customers

InterSystems IRIS Impact



Smart Data Fabric
InterSystems
IRIS Data Platform



Data
Integration



Data
Storage



Analytics



Data
Access



Data Governance
and Management

**Delivers Real-
Time Integrated and
Harmonized Data**

**Performs a Wide
Range of Financial
Calculations**

**Runs Completely
on the AWS Cloud**

InterSystems IRIS Impact



Performance

900% increase

Infrastructure

3x less

PaaS Offerings



HealthShare Cloud

Health Connect Cloud

InterSystems IRIS for Health (MS)

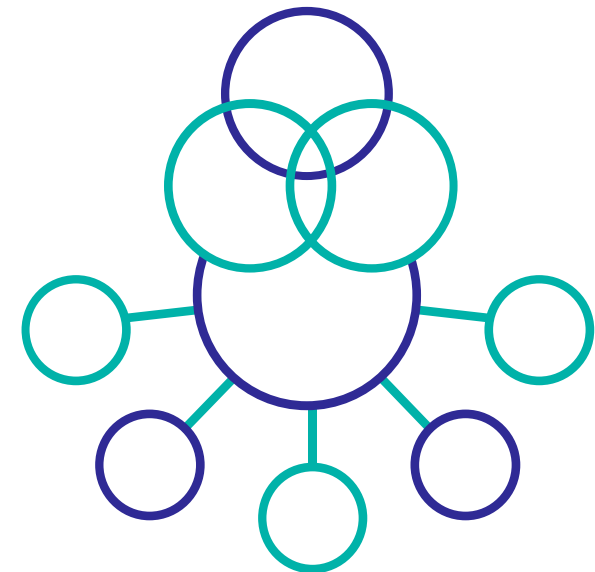
InterSystems IRIS Data Platform (MS)



Health Connect Cloud

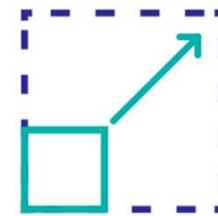
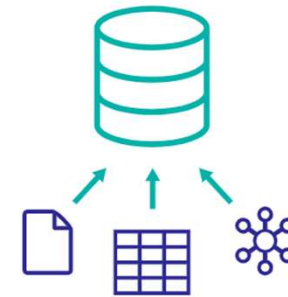


Health Connect Cloud is a Platform-as-a-Service offering providing a managed, healthcare integration engine cloud service that delivers high-volume transaction support, process management, and monitoring to support mission-critical applications



Health Connect Cloud

- At the core of Health Connect Cloud is a high-performance, multi-model data engine that seamlessly handles multiple forms of data at high speed
- Health Connect Cloud easily scales from serving small clinics to handling the transaction volumes of the world's largest and most complex healthcare delivery systems
- Hosted on AWS and available in the US, UK, and Europe regions



Health Connect Cloud Operations



Provisioning

- Cloud Infrastructure Provisioning
- HealthShare Health Connect Deployment

Ongoing Operations

- Scheduled and Monitored Backups
- DB Integrity Checks and Remediation Assistance
- Capacity & Performance Monitoring and Response

Reporting

- Continuous monitoring of customer environment
- Operational and Security Best Practices Insights
- Capacity Planning, Trends and Analysis

High Availability

- High-Availability Mirroring

Data Security

- Database Encryption and SSL/TLS Comms
- Secure Architecture for Access Control
- Vulnerability Scanning

Configuration Management

- Cloud Resource Provisioning and Data Retention
- CI/CD Pipeline and Source Control

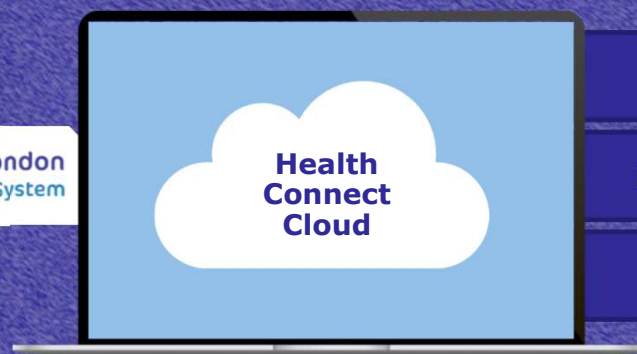
Support

- InterSystems iService 24/7/365
- Incident Management and Reporting
- SLA commitment of 99.9% availability



InterSystems

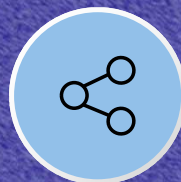
Free Flow of Information is Critical



Remove Divisions

Foster Digital Transformation

Reduce IT Burden



Interoperability

SaaS offerings



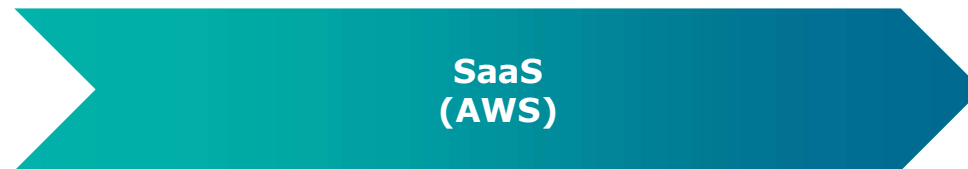
InterSystems IRIS Cloud IntegratedML

InterSystems IRIS Cloud SQL

InterSystems FHIR SQL Builder

InterSystems FHIR Transformation Service

InterSystems FHIR Server



InterSystems IRIS Cloud SQL



- Deploy an IRIS SQL DB endpoint in the cloud in under a minute!
- Fully managed, secure, highly available, cloud-native DBaaS
- On-demand, pay-as-you-go
- T-shirt sizes – Choose instance (compute/vCPU) and storage for your use-case
- Import your DDL/schemas and data
- Create indices, run queries in SQL Editor
- Connect client applications via InterSystems JDBC, DB-API, ADO.NET, or ODBC driver

Deployment Size*

Select deployment size from the table below ⓘ

Size	Cores	Total RAM	Storage
<input type="checkbox"/> Small	2	8Gi	50Gi
<input type="checkbox"/> Medium	4	16Gi	100Gi
<input type="checkbox"/> Large	8	32Gi	500Gi
<input type="checkbox"/> Extra Large	16	64Gi	1Ti

Deployments > demo > SQL Query Tools ⓘ Refresh

Schema Tree ⓘ

- ▼ Data
 - ▼ Diabetes10K
 - A1Cresult
 - acarbose
 - acetoexamide
 - admission_source_id
 - admission_type_id
 - age
 - change
 - chlorpropamide
 - citoglipton
 - diabetesMed
 - diag_1
 - diag_1_desc
 - diag_2
 - diag_2_desc
 - diag_3
 - diag_3_desc

SQL Editor ⓘ

```
SELECT TOP 100 *  
FROM Data.Diabetes10K  
WHERE readmitted = 1
```

Response timeout (ms) ⓘ
25000

Clear < Previous **Execute** Next > ↺ History

Results ⓘ

Search

race ^	gender ^	age ^	weight ^	admission_type_id ^	readmitted ^
Caucasian	Male	[80-90)	?	Not Available	1
Caucasian	Male	[60-70)	?	Elective	1
Hispanic	Male	[60-70)	?	Emergency	1

InterSystems IRIS Cloud SQL



Feature Overview

- Backups
- Data Encryption
- SQL Editor
- External connections
 - xDBC, DB-API, .NET
- Import schemas & data
 - Variety of source systems

Deployments > demo > SQL Query Tools Refresh

Schema Tree

- ▼ Data
 - ▼ Diabetes10K
 - A1Cresult
 - acarbose
 - acetoexamide
 - admission_source_id
 - admission_type_id
 - age
 - change
 - chlorpropamide
 - citoglipton
 - diabetesMed
 - diag_1
 - diag_1_desc
 - diag_2
 - diag_2_desc
 - diag_3
 - diag_3_desc

SQL Editor

```
SELECT TOP 100 *  
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```

Response timeout (ms) i

Clear < Previous **Execute** Next > History

Results

 i

race ^	gender ^	age ^	weight ^	admission_type_id ^	readmitted ^
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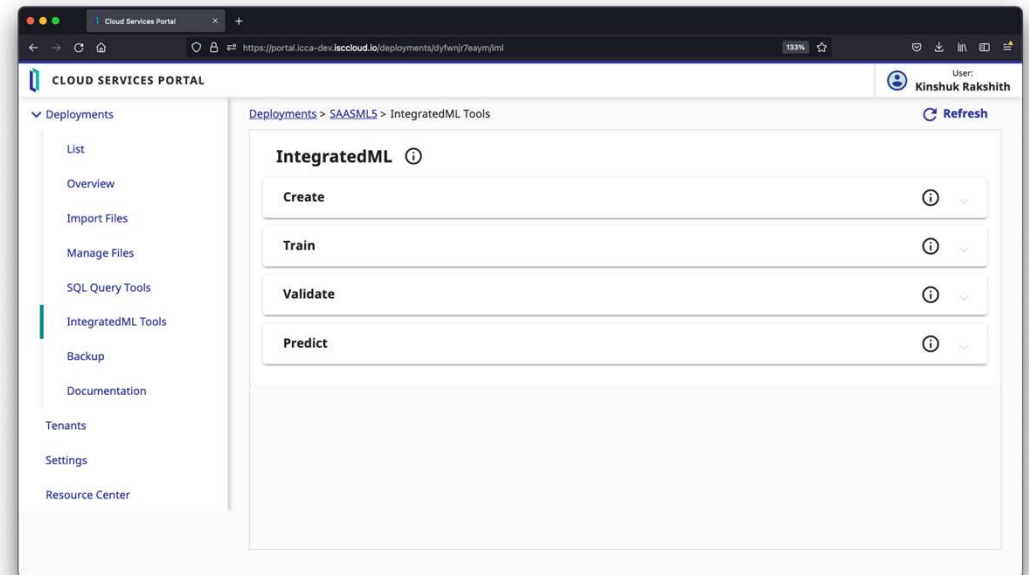
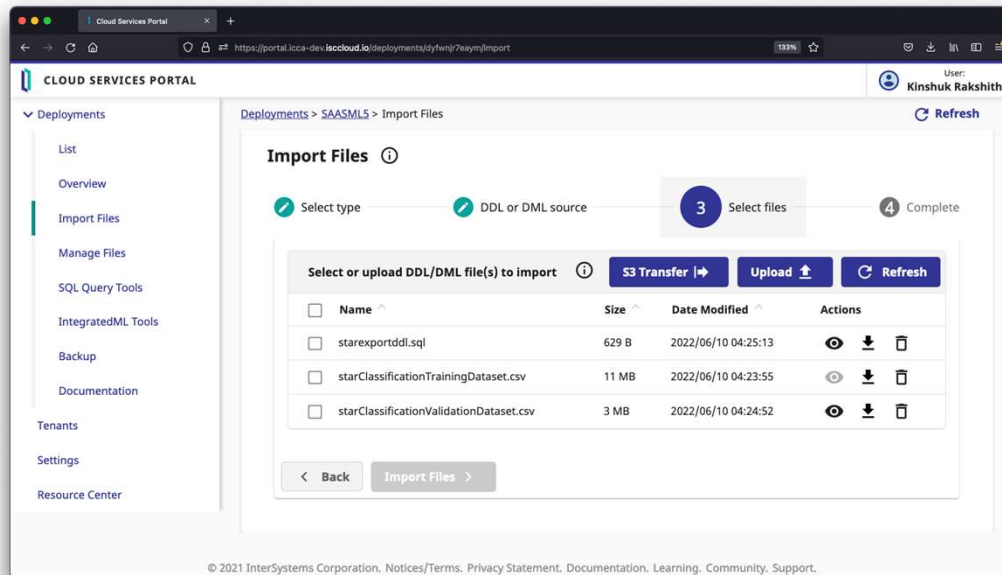
InterSystems IRIS Cloud IntegratedML



Import files



Create Train Validate & Predict



...and that's it.

Jupyter Lab



Connect to InterSystems IRIS Cloud Integrated ML service

```
connection_string = "k8s-7f8ee6cc-ae2161e3-c4df13545b-65f7ab0165e166b4.elb.us-east-1.amazonaws.com:1972/USER"
username = "SQLAdmin"
password = os.environ['MLSAAS_PASSWORD']
context = ssl.SSLContext(ssl.PROTOCOL_TLS)
context.load_verify_locations("/Users/krakshit/ssc/GSDryRun1.pem")
connection = iris.connect(connection_string, username, password, sslcontext=context)
cursor = connection.cursor()

[72]: # To prevent from warnings

import warnings
warnings.filterwarnings('ignore')

[73]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

[74]: # Load Data

[75]: df = pd.read_sql("SELECT * FROM DATA.STARTRAINER", connection)

[76]: df.head()
```

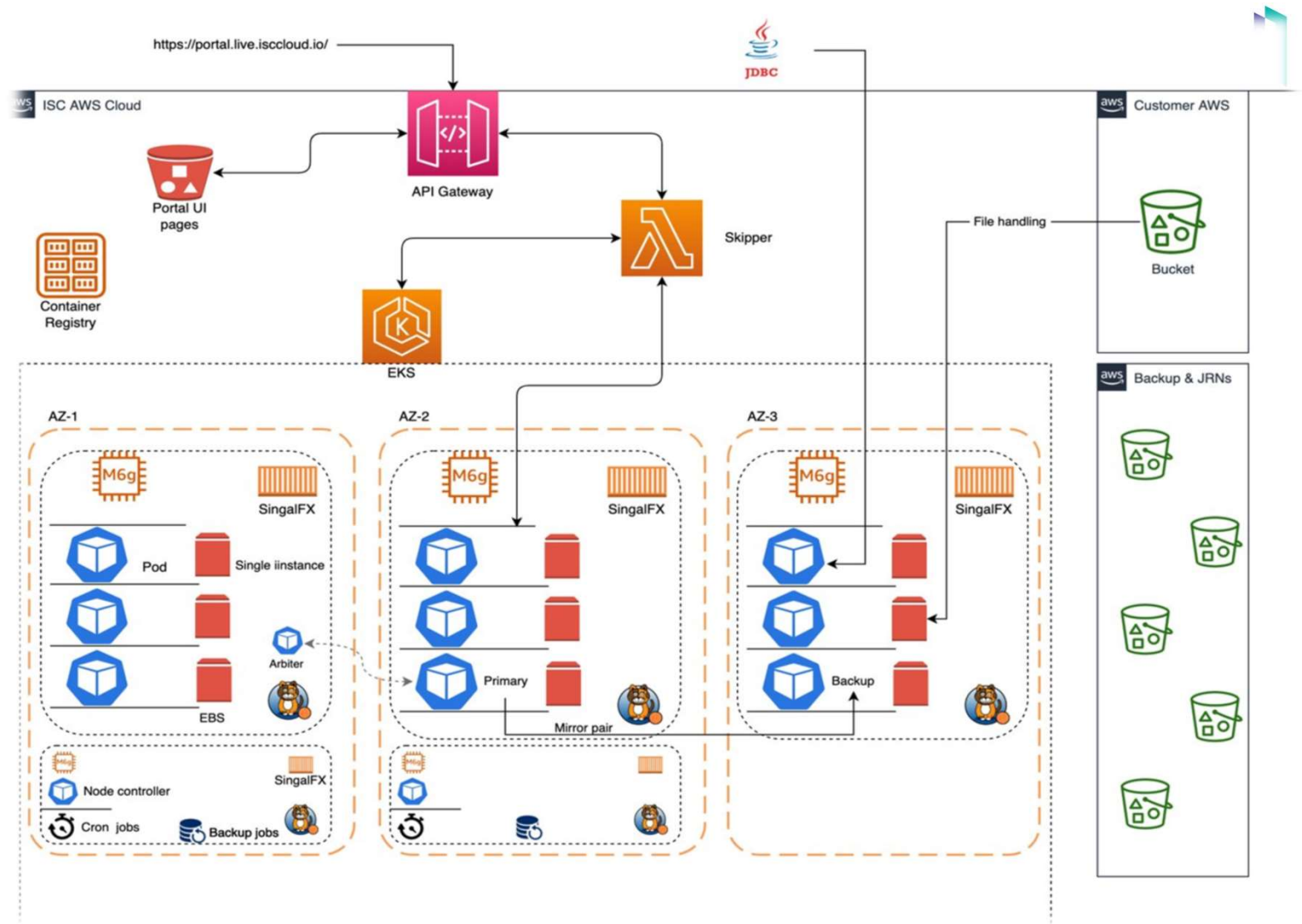
	obj_ID	alpha	delta	u	g	r	i	z	run_ID	rerun_ID	cam_col	field_ID	spec_obj_ID	class	redsl
0	1237660000000000000	135.689107	32.494632	23.87882	22.27530	20.39501	19.16573	18.79371	3606	301	2	79	6.543780e+18	GALAXY	0.634
1	1237660000000000000	144.826101	31.274185	24.77759	22.83188	22.58444	21.16812	21.61427	4518	301	5	119	1.176010e+19	GALAXY	0.779
2	1237660000000000000	142.188790	35.582444	25.26307	22.66389	20.60976	19.34857	18.94827	3606	301	2	120	5.152200e+18	GALAXY	0.644

Simple 0 2 No Kernel | Idle Mode: Command Ln 1, Col 1 StarClassificationFromCloudSQL.ipynb

ICCA

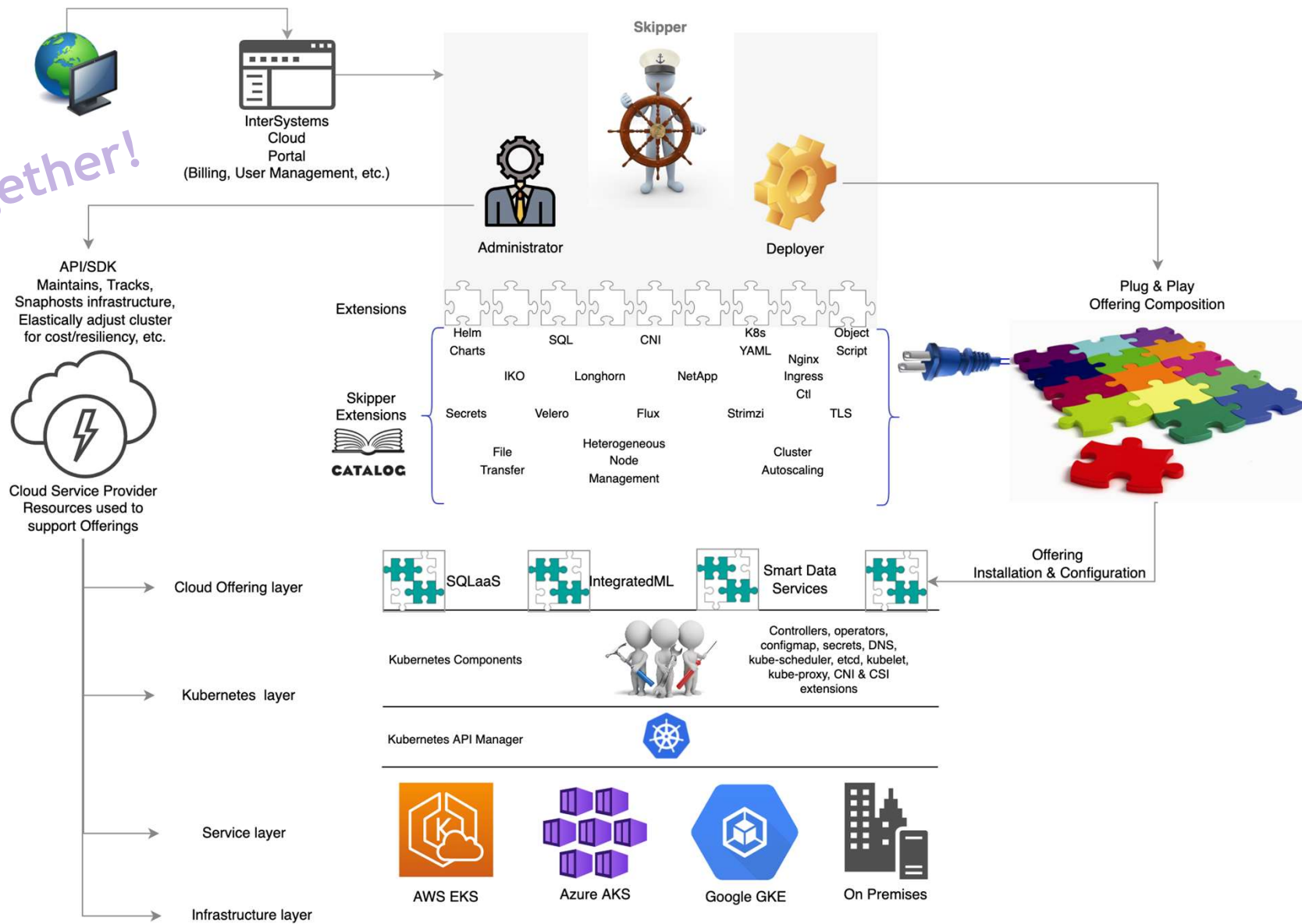
InterSystems Core Cloud Architecture refactored

- Composability
- Scalability
- Portability and
- Capabilities



InterSystems Cloud Core Architecture

All Together!



Our Cloud Offerings



HealthShare	HealthShare Cloud	<i>InterSystems IRIS Cloud IntegratedML</i>
Health Connect	Health Connect Cloud	<i>InterSystems IRIS Cloud SQL</i>
InterSystems IRIS for Health	InterSystems IRIS for Health (MS)	<i>InterSystems FHIR SQL Builder</i>
InterSystems IRIS Data Platform	InterSystems IRIS Data Platform (MS)	InterSystems FHIR Transformation Service
		InterSystems FHIR Server

More Services to Come!

- Provider Directory
- Care Community
- Action Engine
- Healthcare Analytics
- Financial Services (4)
- Supply Chain (2)
- Horizontal (3)

IaaS
(AWS/Azure/GCP)

PaaS
(AWS/Azure)

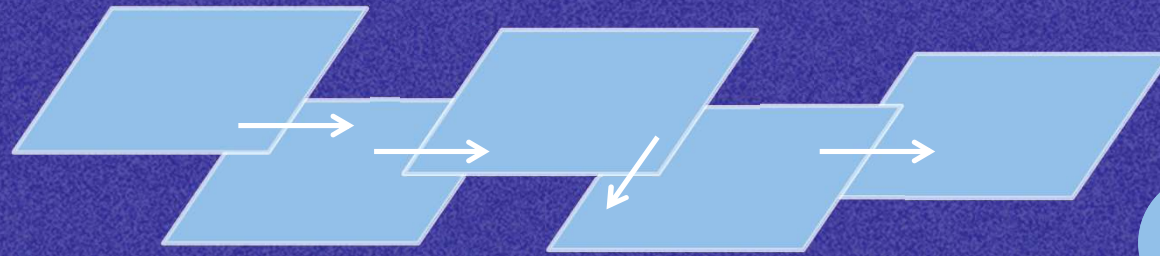
SaaS
(AWS)

Smart Data Fabric & Smart Data Services

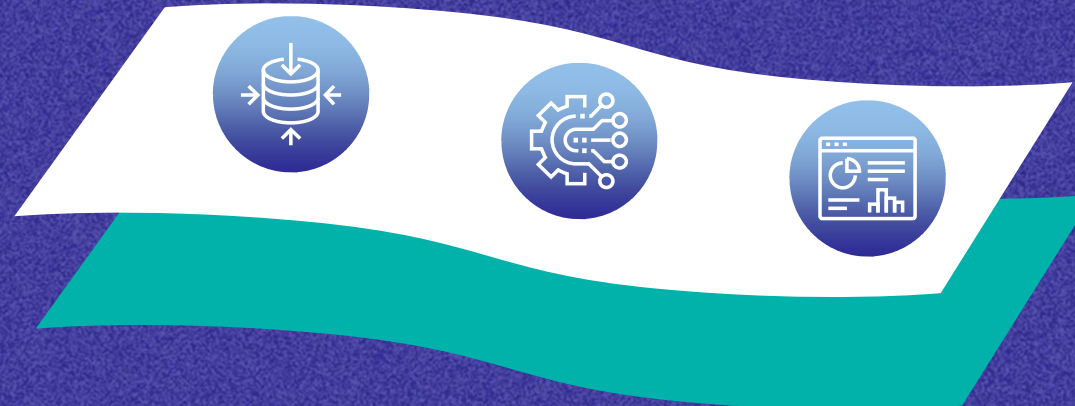


**Smart
Data
Services**

**Smart
Data
Fabric**



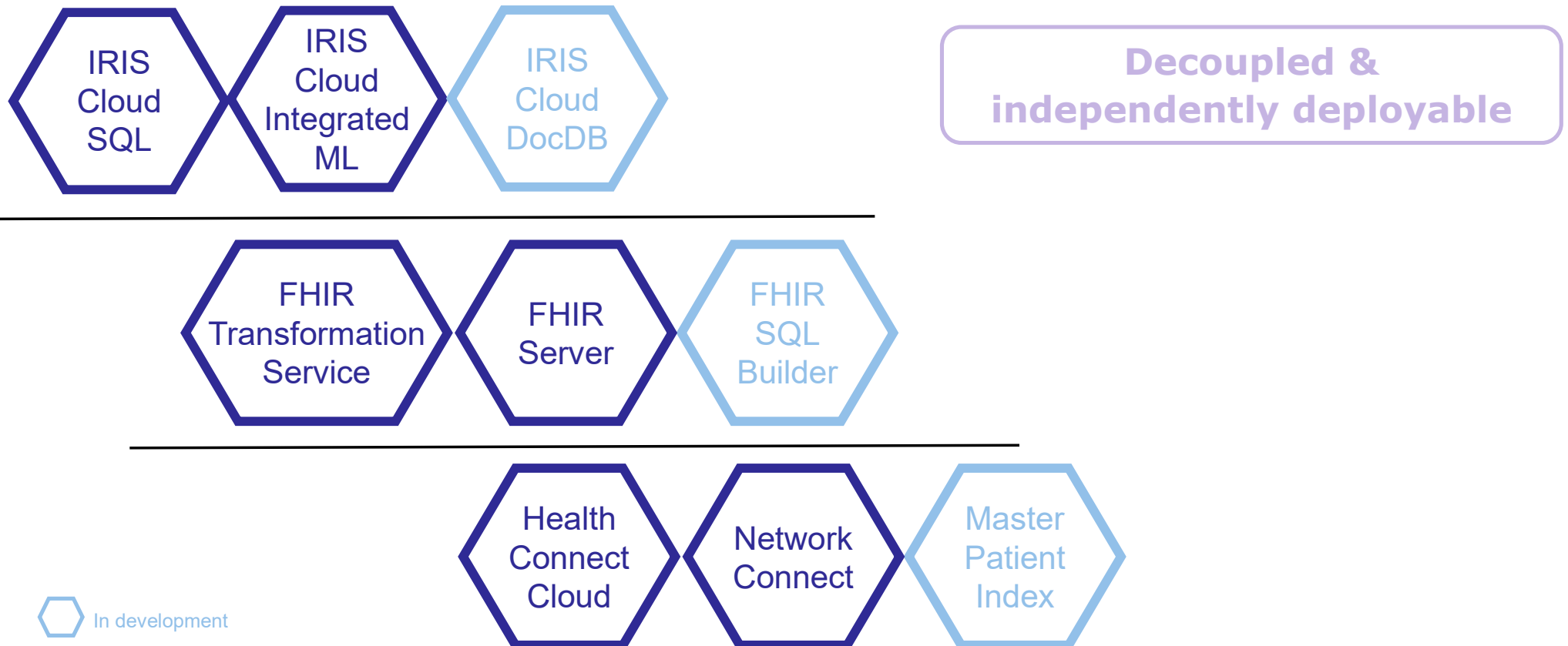
**COMPOSABLE
APPLICATIONS**



DATA PLANE

CONTROL PLANE

Composable IRIS Cloud Services



Selected Cloud Deployments



 athenahealth

 Shift
Tecnología que pulsa



Broadridge®

HARRIS ASSOCIATES



 CVS Health®



C^RETDEV



 In development

 NHS

Central and North West London
NHS Foundation Trust

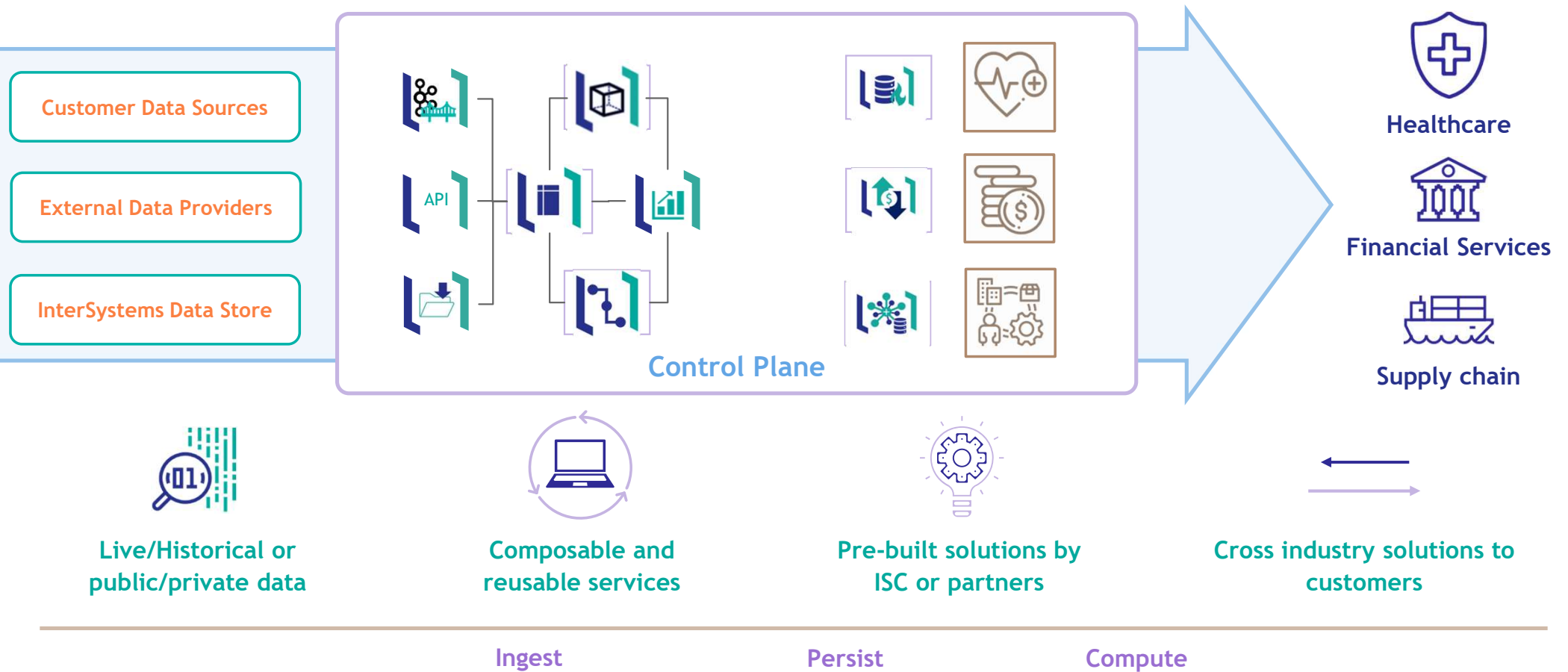
 ALBANY MEDICAL CENTER

 SAINT PETER'S HEALTHCARE SYSTEM
Treating you better...for life.

Smart Data Services



Smart Data Services



Smart Data Services – Catalog



Service Store

Filter

☐ Show Only Favorites

InterSystems FHIR Repository > ☆

Creator	InterSystems Corporation	Use InterSystems FHIR Repository to store your clinical data using the latest HL7 FHIR standard.
Category	supporting	
Version	1.0.0	

HealthShare Unified Care Record > ☆

Creator	InterSystems Corporation	HealthShare Unified Care Record can be used in order to aggregate clinical data from several health information systems in a health care organization. It can be deployed for a single facility, a region or a country wide. Clinical data is stored in one or more installations of HealthShare Edge Gateways. HealthShare Unified Care record will link all the information of a patient, no matter where it is. HealthShare Unified Care record requires at least one HealthShare Edge Gateway and at least one Master Patient Index in order to be deployed.
Category	supporting	
Version	1.0.0	

HealthShare Patient Portal > ☆

Creator	InterSystems Corporation	With HealthShare Patient Portal, a healthcare organization can provide their patients with a unified view to all their clinical data. Patients can see their medical records no matter where in the organization they have been created. Patient can also interact with the healthcare organization in order to update their contact information, request an appointment, a referral, etc. The patient portal requires HealthShare Unified Care Record in order to be deployed.
Category	supporting	
Version	1.0.0	

HealthShare Master Patient Index > ☆

Creator	InterSystems Corporation	HealthShare Master Patient Index can help you to find duplicated patients in one or more health information system, laboratory system, radiology system and in any system in your organization that holds patient information. It will also help you to link the patients that represent the same person under a single Enterprise Master Patient ID (EMPID).
Category	supporting	
Version	1.0.0	

HealthShare Edge Gateway > ☆

Smart Data Services – Composition Canvas



Search Solutions...

Filter

Env

dev

Show Only Favorites

View

Trade Data

Itv

My Data

Busy Box

trade-datasource

jdbc

Persistence Service

☆

×

Description

Manage

Danger

DEVELOPER

Web Terminal

SQL

OPERATIONS

Databases

Processes

Locks

Task Schedule

Messages Log

SECURITY

Users

Roles

Resources

Services

Web Applications

CONNECTIVITY

jdbc:IRIS://iris-svc.iris3:1972/USER

jdbc:IRIS://iris-svc.iris3:1972/USER

+

-

Thank you