

SYSTEMS ARCHITECTURE TECHNICAL WORKGROUP REPORT

Analysis of Architectural Standards and Pilot Options

Public-private approaches for enhanced
collection and use of standards-based
jobs and employment data

CONTENTS

EXECUTIVE SUMMARY	6	JEDx SYSTEM ARCHITECTURE	26
JEDx ARCHITECTURAL OPTIONS REPORT	6	MODULARIZED JEDx ARCHITECTURE	28
BACKGROUND AND METHODOLOGY	8	COLLECTION ARCHITECTURE	30
JEDx ARCHITECTURAL VISION	10	DATA USE ARCHITECTURES	31
STATE SYSTEM ANALYSIS	12	DATA POLICY APPROACHES	33
KEY DESIGN PRINCIPLES	14	PRIVACY	33
DATA STANDARDS STACK	15	GOVERNANCE APPROACHES	34
COMMON API	16		
COMMON PROTOCOLS	17	JEDX PILOT ROADMAP	36
COMMON DATA “PACKAGING”	18	PROPOSED PILOT ROADMAP	38
		LOCALIZED PROJECTS	40
JEDx STANDARDS	20	PRIVACY OBLIGATION PILOT	41
STANDARDS FOR JEDx ARCHITECTURES	22		
STANDARDS WORKING TOGETHER	23	ACKNOWLEDGEMENTS	42
ARCHITECTURAL USE CASES	24	TECHNICAL WORKGROUP	42



This public-private approach has the potential to substantially reduce the reporting costs for employers and government while improving data quality and timeliness and protecting privacy.

—JASON A. TYSZKO



EXECUTIVE SUMMARY

JEDx Architectural Options Report

The U.S. Chamber of Commerce Foundation (Chamber Foundation) and the T3 Innovation Network (T3 Network) established the Jobs and Employment Data Exchange (JEDx) initiative to develop a public-private approach for collecting and using standards-based jobs and employment data. JEDx builds on the Chamber Foundation's Job Data Exchange (JDX) initiative, to promote public-private standards for job descriptions and postings, and the T3 Network's Employment and Earnings Records Standards Project, to develop and use public-private standards for comprehensive employment and earnings records.

This report is the result of the Design Phase of Project 1. This Design Phase engaged seven founding state coalitions (Arkansas, Colorado, Kentucky, Texas, California, Florida, New Jersey) with stakeholders representing employers, vendors, and policymakers through two technical workgroups to explore a public-private, standards-based approach for collecting and using data on jobs and employment.

Primary Objectives

- Reduce federal and state reporting costs for employers and government agencies
- Improve data quality and timeliness in federal and state government reporting
- Provide better data for improved public and private workforce analytics and program administration applications

Secondary Objectives (Connections to Future Projects)

- Ensure that employers and human resources (HR) technology service providers consistently approach
- sharing and using job description data in career pathways (Project 2);
- improving job posting data for search (Project 3); and
- providing workers and learners with their own learning and employment records (LERs) for job applications and government programs and benefits (Project 4).

This report by the System Architecture Technical Workgroup was informed by the work of the Data and Applications Technical Workgroup, which established initial priorities for employment and earnings data collection based on stakeholder needs;

- identified necessary refinements to the data model and dictionary based on those priorities;
- explored consolidated data reporting options in addition to Unemployment Insurance (UI) reporting; and
- recommended potential, high-priority applications.

This report also is informed by baseline analysis with and for each participating state coalition to determine the current infrastructure and processes for UI reporting (and, in some cases, other reporting).

The report explores the following opportunities:

- Increased public/private collaboration
- Increased consistency in data collection systems
 - What data are collected (for example, data model, data elements and definitions)
 - How data are collected (for example, application programming interface (API) standards)
 - When data are collected (for example, monthly, quarterly)
- Reduced number of required federal and state reports by collecting more comprehensive administrative records
- Improved access and use

Key Findings

- States and stakeholders have different priorities and needs. They are in different stages approaching the JEDx vision, so the architecture must be flexible to accommodate different next steps and different pathways toward realizing the value of JEDx.
- Existing data standards present a great opportunity to reduce burden on employers and collectors of UI data while providing richer datasets for UI and other use cases.
- Public and private stakeholders have shared interests and can mutually benefit from modernized infrastructures for data collection and use.
- The path to modernization must recognize that this is more than a technology problem. Achieving the JEDx vision also involves complex systems of organizational processes, legislative and governance considerations, and articulation of value propositions that incentivize change.



BACKGROUND AND METHODOLOGY

Background

Jobs and Employment Data Exchange (JEDx) is an initiative led by the U.S. Chamber of Commerce Foundation (Chamber Foundation) and the T3 Innovation Network (T3 Network).

The JEDx project builds on prior efforts by the Chamber Foundation starting with a Clearer Signals: Building an Employer-Led Job Registry for Talent Pipeline Management report released in 2017. The Clearer Signals report explored how employers could close the gap between open positions and availability of skilled workforce by improving how employers communicate or “signal” their hiring requirements.

In 2018–2019, the Chamber Foundation launched a Job Data Exchange (JDX) pilot with the aim of modernizing labor market data. The JDX initiative promoted public-private standards for job descriptions and postings and explored applications for improved jobs data and skills-based hiring. JDX was developed as a set of open data tools and resources to improve the speed and clarity with which employers can communicate in-demand jobs and in-demand skills to education and workforce providers.

Also in 2018, the Chamber Foundation and Lumina Foundation launched the T3 Network to bring businesses, postsecondary institutions, technical standards organizations, and human resource (HR) professionals and their technology vendors together to explore emerging Web 3.0 technologies in an open and decentralized public-private data ecosystem. The T3 Network project further contributed to the development of JDX. The final JDX data dictionary was delivered in 2021 and published by the HR Open Standards Consortium (HR Open).

JDX is now part of the HR Open Standards, which include a standard data dictionary for job and employment data.

The current JEDx project started in 2021 with the formation of a public-private advisory committee and the publication of the JEDx Implementation Report. The report summarized the results of the two-month planning process conducted by the Chamber Foundation and the T3 Network with input from the advisory committee. The report proposed modernizing workforce data through a public-private approach and outlined several upcoming projects aimed to improve America’s workforce data.

The first project focuses on jobs and employment data that employers and their human resources technology service providers currently report to federal and state governments. The main goals of this project include reducing federal and state reporting costs for employers and government agencies and improving the quality and the timeliness of data. The project aims to improve federal and state reporting, starting with unemployment insurance (UI) reporting, including enhanced UI wage records.

The larger JEDx vision includes other projects in the near term. Several more projects are planned over the next few years. One project will focus on job data-sharing for use in managing career pathways.

Another project will focus on improving job-posting data for search and discovery. Yet another project will examine how employment records can empower learners to more easily apply for benefits and find jobs.

Methodology

In 2022, the JEDx initiative moved into development phase. Two technical workgroups are collaborating on the first JEDx project. Both workgroups focus on the UI and new hire data. The first workgroup is looking at data and application priorities, seeking out the opportunities for collaboration and consolidation of data reports to reduce the burden on the employers submitting the data and on data collectors. The second workgroup is focused on standardizing system architecture and optimizing the way in which the data move from the source to collection to storage to data users. The main challenge of the system design task is accommodating for the complex relationships among multiple data collectors, employers, and data users.

The Chamber Foundation expects that the first JEDx project can succeed through public and private collaboration and that a successful outcome will result in better workforce analytics. The success of the initial project will help lay the foundation for the remaining JEDx projects.



JEDX ARCHITECTURAL VISION

JEDx will leverage shared data and technology standards and public-private use architectures as part of a vision for

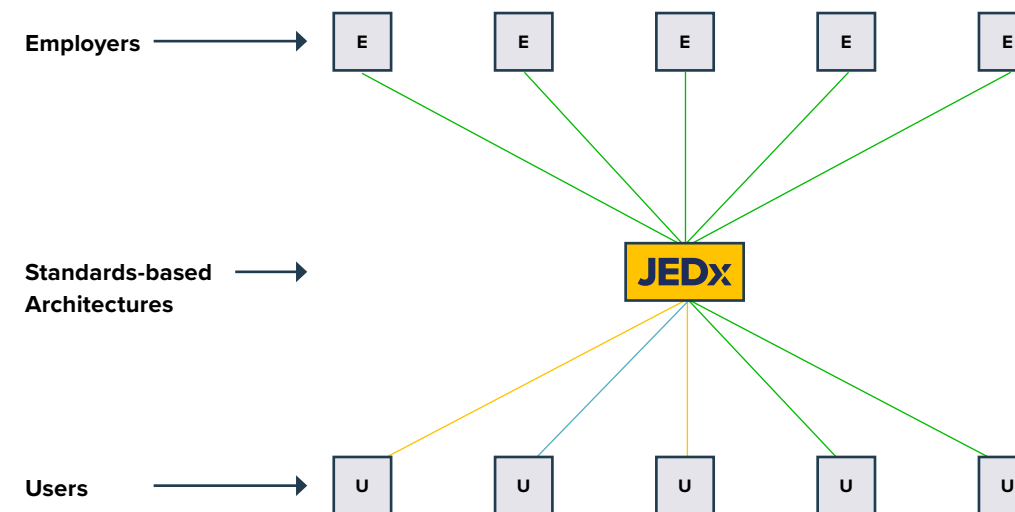
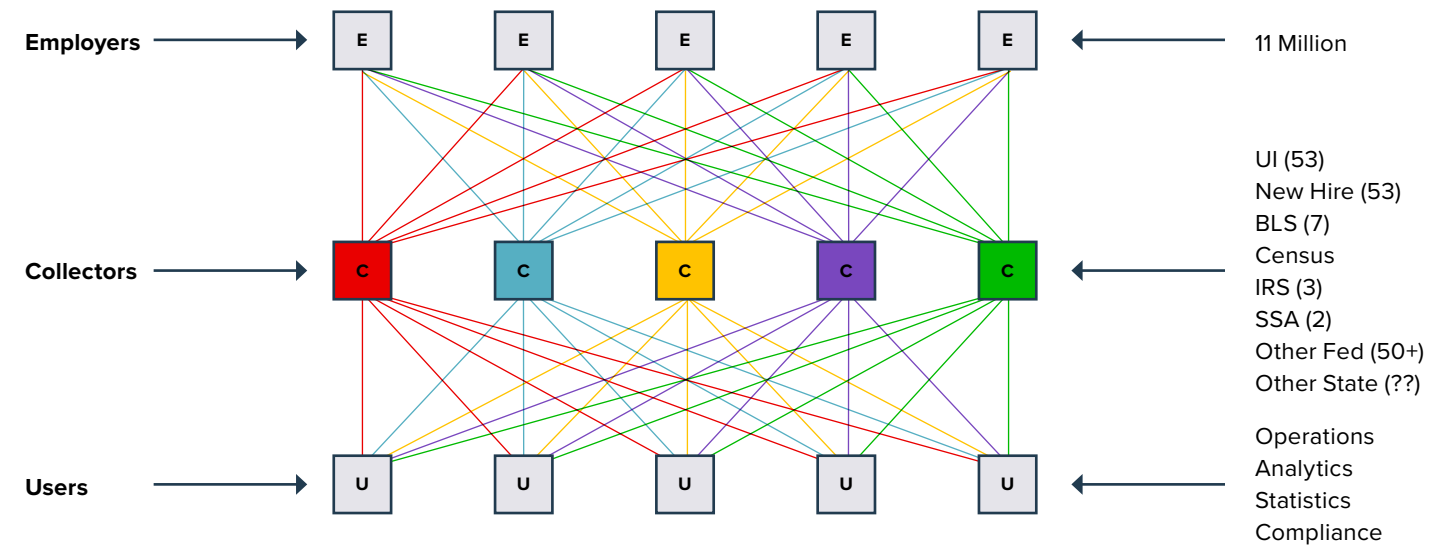
- increased public-private collaboration;
- increased consistency in data collection systems, including
 - what data are collected (for example, data model, data elements and definitions),
 - how data are collected (for example, API standards), and
 - when data are collected (for example, monthly, quarterly);
- reduced number of required federal and state reports by collecting more comprehensive administrative records; and
- improved access and use.

HIGH-COST, LOW-VALUE DATA

Individual-entity design	Multi-entity collaborative design
Single purpose	Multiple purpose
Sample data	Population data
Unique collection systems	Common collection system
Dispersed collection	Centralized collection
Program-specific reporting format	Uniform reporting format
Few items per report	All items in a single report
Inconsistent data definitions	Uniform data definitions
Program-specific reporting guidance	Uniform reporting guidance
Infrequent collection	Frequent collection
Inconsistent reporting period	Consistent reporting period
Siloed data management	Cooperative data management

LOW-COST, HIGH-VALUE DATA

The resulting architecture moves from a highly complex collection and exchange system that creates redundant costs for employers, and other stakeholders to a distributed and secure architecture that serves the needs of the multiple stakeholders in the ecosystem.



STATE SYSTEM ANALYSIS



Overview

The JEDx team conducted baseline research on the current state of unemployment insurance (UI) and/or new hire (NH) data collection systems in several states with participants in the JEDx initiative. The research consisted of two steps. Step 1 involved collecting preliminary information publicly available online. In step 2, states were invited to give feedback on the baseline analysis and/or engage in deep-dive interviews with state representatives who oversee relevant collection and reporting systems.

The initial research phase focused on gathering the following information: name and description of the data collection program, collection method(s) and periodicity, reporting options and formats, data access controls, data sharing agreements, and any announced system changes. Resources consisted of state agencies' websites, states' requests for proposals, and vendor websites.

After gathering publicly available information, the JEDx team conducted a number of in-depth interviews with interested states. During the interviews, state teams were asked to verify information obtained through preliminary online research and share any additional insights about their UI and/or NH collection systems' functionality, current needs, modernization efforts, and highest data and application priorities where JEDx can provide value.

The JEDx team interviewed stakeholders from several states including Texas, Kentucky, Florida, and New Jersey. Interviews varied in length and in depth. For Texas and Kentucky, interviews consisted of meetings with just the state team lead(s). Florida and New Jersey engaged in deep dive meetings involving larger groups of state representatives.

Deep dives with these states covered a variety of technical subjects, including the overall data flow, data transmission, reporting periodicity, format of the submitted data, data storage, access controls, user authentication, data-sharing agreements, administrative and research data uses, compliance with privacy laws, and similar topics. Typical questions covered during deep dive meetings were as follows:

General Questions

- What state agency manages the reporting system, and how does the agency help employers and their third-party administrators report data?
- What are the options given to employers or third-party administrators for reporting their data to these systems?
- How is change managed either to systems and/or data?

System Scope (for UI, New Hire and Employment data)

- What collections do you consider a UI/New Hire/Employment Data collection?
- Who are the sources and targets of those?
- How are data shared and accessed (data and technical governance)?

For Each System

- What technology do you use to store the data (repeat per data store if there are multiples)?
- What format do you use to check your reports or validate the data?

For Data Movement

- What technology do you use to move individual records (APIs, Services, Secure File Transfer Protocol)?
- What technology do you use for batch reporting?

What have we not covered?

- Are you moving to any new technologies or structures?
- What expected improvements or changes are already on your roadmap (for example, UI modernization)?

In addition to state deep dives, the JEDx team met with representatives from payroll processing companies associated with the National Personnel Records Center (NPRC), the non-profit trade association of organizations that provide payroll processing and employment tax services directly to employers, and with representative from payroll processors working directly in a state content. The Systems Architecture Technical Workgroup also includes representation from payroll processors. The team also met with experts from key stakeholder organizations such as the National Association of State Workforce Agencies (NASWA).



KEY DESIGN PRINCIPLES

The JEDx System Architecture Workgroup began with the following theories of action that led into the following sets of design principles:

- Automating and modernizing the data collection process of jobs and employment data between entities and collectors will create increased value, timeliness;
- Using a modern, standardized technology whenever possible but allowing for support of the current data collection infrastructure will meet all stakeholders needs, and move the ecosystem in a direction toward the JEDx vision;
- Pilot initiatives must offer immediate value and make it easier for future modernization; and
- The architecture design and approaches must leverage technology standards in flexible ways, allow varying pathways toward modernization.

Data Collection Design Concepts

- Automating how states and other aggregators collect these data “internally” will make the data more usable, accurate, complete, and timely.
- Unifying processes in each state will make federal and state collection of **these** data easier, and the data will be far more accurate, complete, and timely.
- Using standards will make data collection more thorough and more frequent without placing undue or additional burden on the collectors.
- Using standards and a standardized ecosystem and the automation that they allow will enable employers and providing agents to both generate the data and manage year-to-year changes with less expense and with more utility for themselves.

Data Movement Design Concepts

- All data will be handled with privacy and security as a paramount consideration. If possible, we will use standard approaches to ensure that this is enacted.
- Using standard APIs will be more sustainable and future-proof.
- Allowing for binary data or non-standardized documents to be uploaded and delivered using a file-storage and upload solution will ease the transition pains and support entities not ready to immediately commit to a fully modern system.

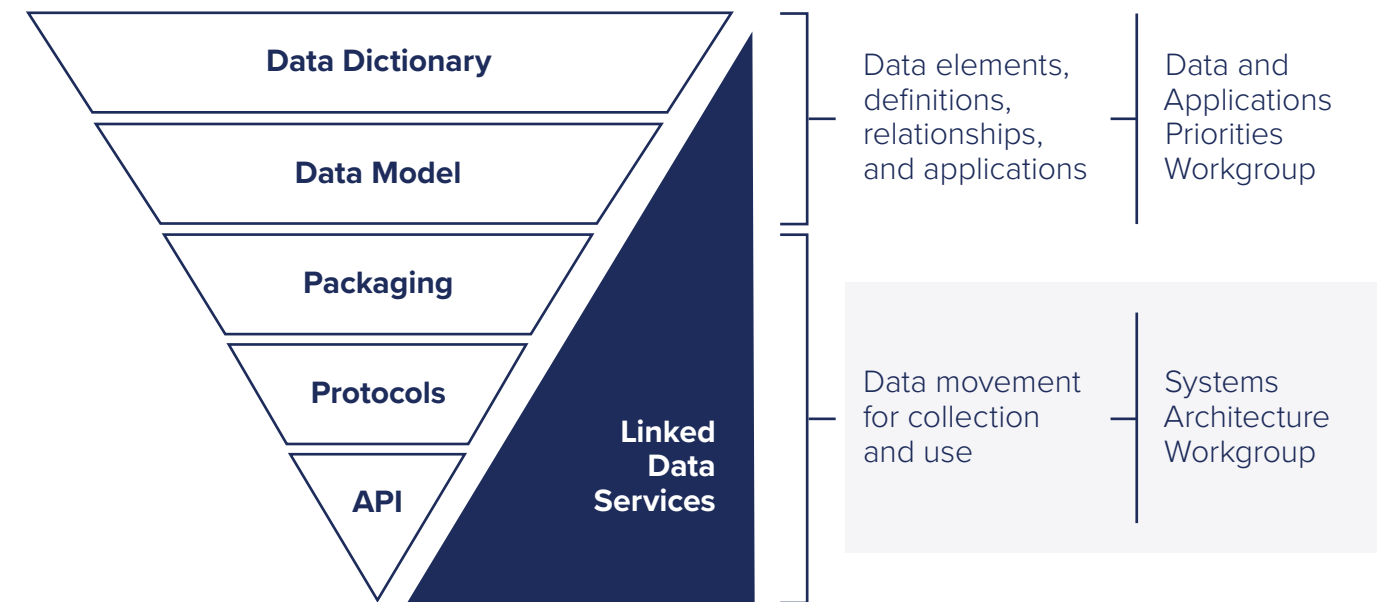
Application Programming Interface Design Concepts

- Standard-based serialization: using a common format like JSON, or JSON-LD, or XML
- Handling large volumes of data quickly and at scale
- Guaranteed delivery
- End-point creation and maintenance
- Being able to easily and natively connect to each stakeholder’s data source
- Clean and clear error management
- Works in both peer-to-peer models and hub-and-spoke models
- Privacy of individual worker and employer data
- Security of the connection
- Verifiability of the source and target

DATA STANDARDS STACK

Data standards are key to the JEDx strategy. Standards form the fundamental building blocks for modern systems for compatibility, consistency, and interoperability across data systems and data exchanged between systems.

The two JEDx technical workgroups addressed different parts of the data standards stack. The focus of the Data and Applications Priorities Technical Workgroup was on the standard data dictionary and data model. The workgroup built from the existing JDX+ model maintained by the HR Open Standards Consortium. This Systems Architecture Technical Workgroup focused on layers of the standards stack supporting data movement and use.

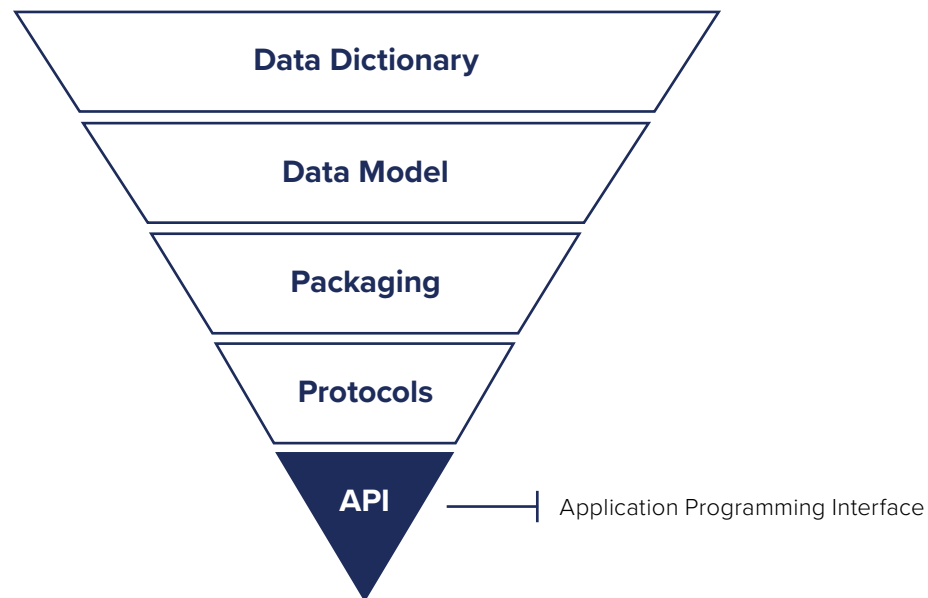


COMMON API

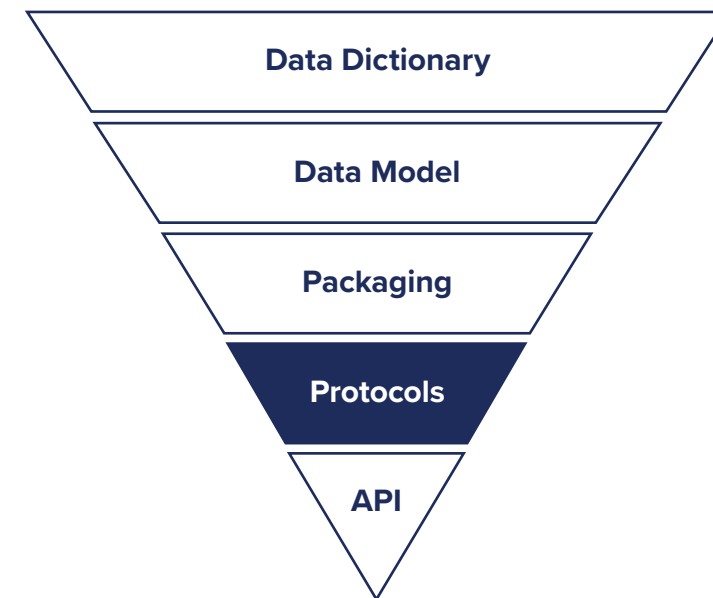
COMMON PROTOCOLS

A tip of the iceberg for an interoperable and scalable data collection is the Application Programming Interface (API). APIs specify how modern data systems and software communicate with one another. A standard API (as opposed to a custom API) allows for any system that has adopted the standard to send or receive the data in predictable ways.

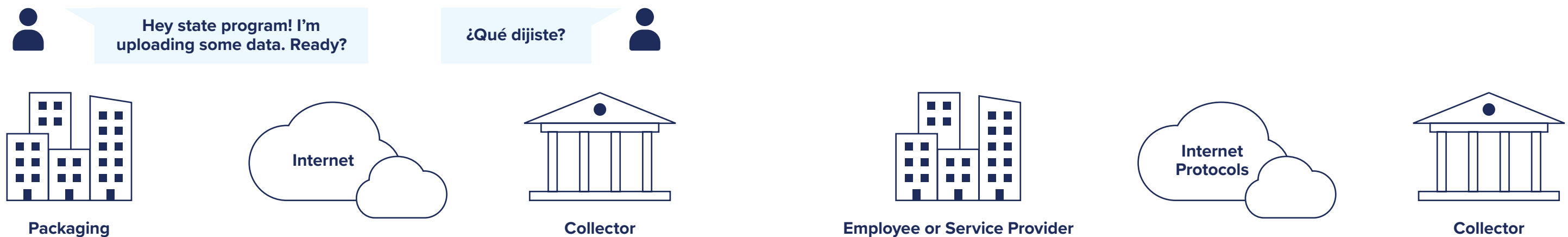
Data Dictionary Data Model Packaging Protocols



Standard protocols provide an infrastructure for the secure transport of data. Think of it like the pipe through which the data move. Protocols include things like Secure Socket Layer (SSL) to ensure that data are encrypted when sent over the Internet and Representative State Transfer (or REST), which defines a set of constraints for the architecture of Internet-scale systems. Other protocols, such as secure file transfer protocol (SFTP), support secure transport of files. These generally defined standard protocols can be combined with the next layer in the standards stack, the “packaging” that applies the protocols to the specific data to be exchanged.

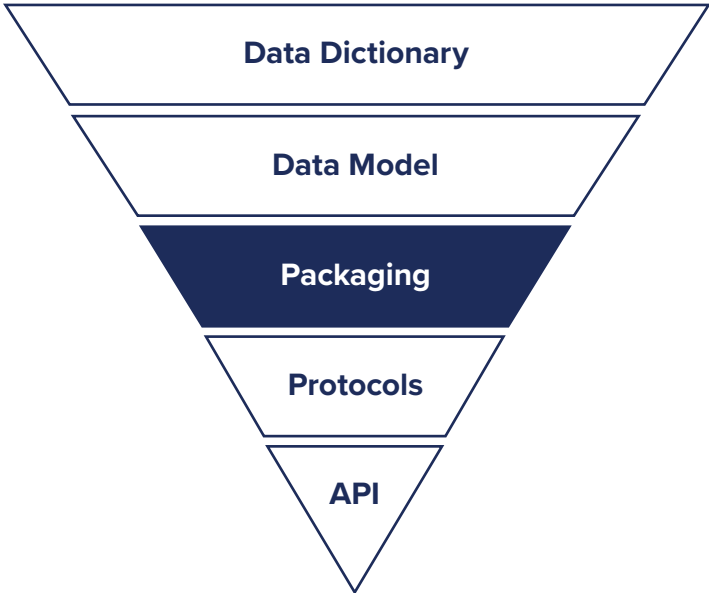


As a companion to this report, the Systems Architecture Workgroup is developing a Proposed JEDx API Standard that will be offered to HR Open to be the application interface part of the JDX+ package of standards.



COMMON DATA “PACKAGING”

Standard “packaging” is the way that data are bundled together to be sent from system to system. The sending and receiving systems need to understand how to pack and unpack the data payload.



For example, modern applications apply the JSON (JavaScript Object Notation) protocol to package or format the data and use JSON-LD (LD = linked data) context specifications to define meaning of the elements. These lightweight data structures help data interoperate at Web-scale.





**JEDx
STANDARDS**

STANDARDS FOR JEDx ARCHITECTURES

STANDARDS WORKING TOGETHER

The JEDx Architecture is based on the collection and data use cases identified by the JEDx technical workgroups. The modular JEDx reference architecture will include the following standard components:

- JDX/JEDx Data Dictionary and Data Model
- JEDx API
- JEDx Packaging (JSON Serialization)
- JEDx Privacy Protocol (JPP)
- JEDx Reference Data Storage and Access Control

The reference architecture leverages other existing standards, including the following:

- REST—A set of architectural constraints for implementing an API
- HTTP—Application-layer protocol for transmitting data
- JSON—JavaScript Object Notation is a lightweight data-interchange format
- JSON-LD—Linked Open Data serialization format for JSON data
- SSL—Secure Socket Layer
- TLS—Transport Layer Security
- JDX—Jobs Data Exchange Format
- NIST—Framework that integrates industry standards and best practices to help manage cybersecurity risks
- FIPS—Federal standards and guidelines that describe document processing, encryption algorithms and other standards to protect data
- PII Compliance—Rules and policies for protecting personally identifiable information
- SAML—Open standard for authentication
- OAuth 2.0—Industry-standard protocol for authorization
- OpenID Connect (OIDC)—An Authentication protocol that profiles and extends OAuth 2.0 to add an identity layer
- OpenAPI—Standard for documentation and discovery of APIs



API

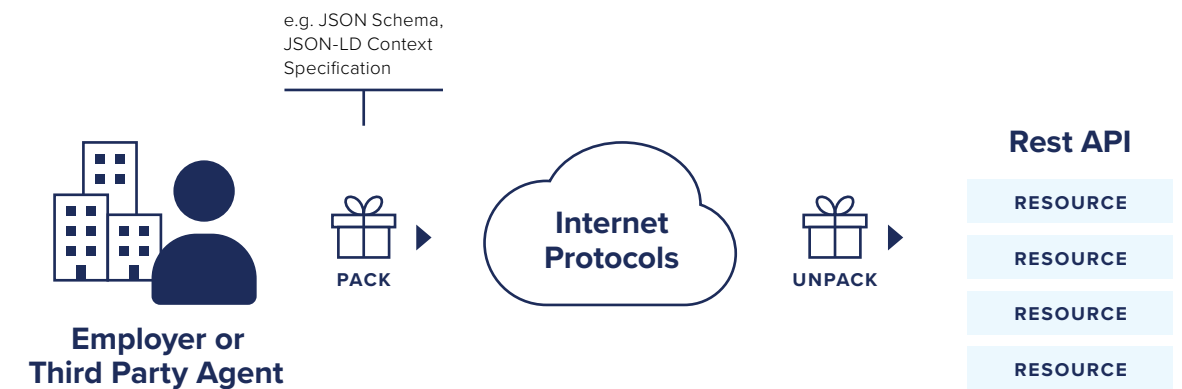
The Proposed JEDx API Standard includes packaging specifications and examples for the initial set of JEDx data objects and elements defined by the JEDx Data and Application Priorities Technical Workgroup.

Protocol

The API and packaging are designed to be flexible and future-proof in two ways:

1. The packaging supports a comprehensive collection of JEDx data types but allows for uses that transport only some of the data elements; and
2. the API's data transport is agnostic of the payload, it will work with enhanced packages of data that add objects or elements in the future.

Packaging

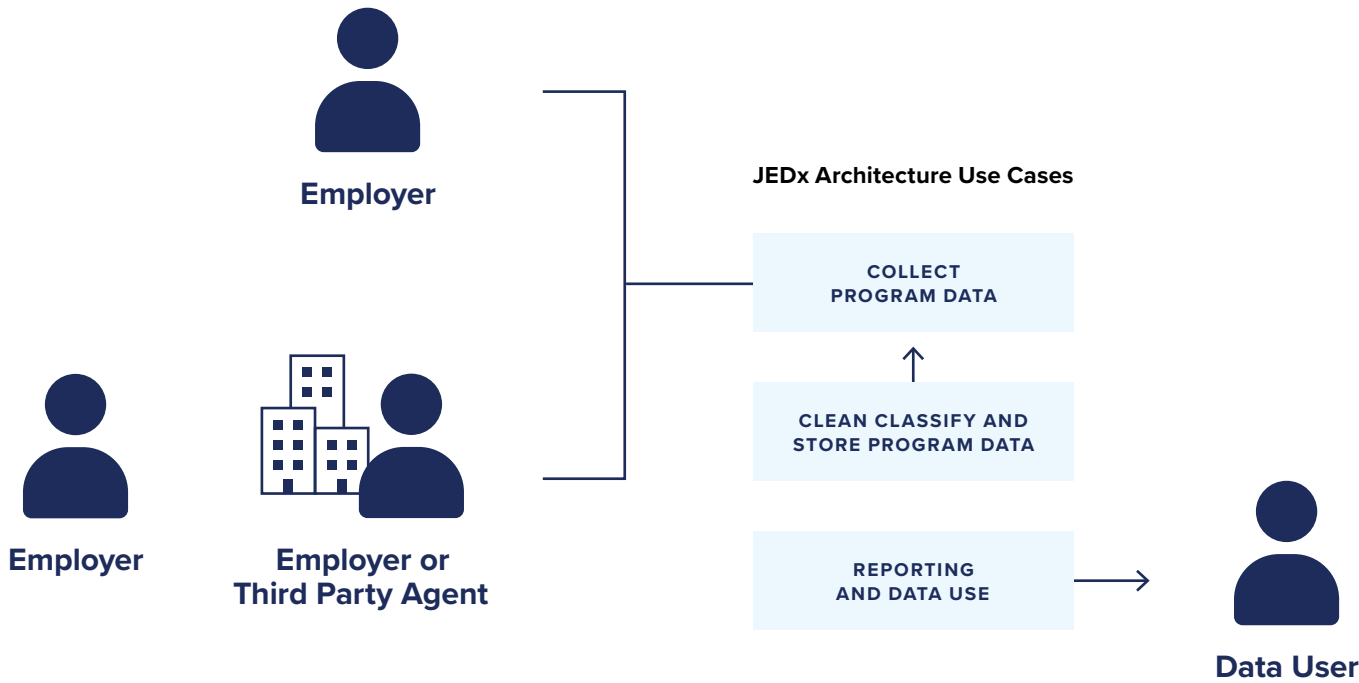


ARCHITECTURAL USE CASES

The following high level generalized JEDx use case was identified after the current state collection analysis. This generalized use case support multiple scenarios.

- Single-State Single-Program
- Single-State Multiple-Program
- Multiple-State Multiple Program

It also supports variations in data requirements and applications.





**JEDx
SYSTEM
ARCHITECTURE**

MODULARIZED JEDx ARCHITECTURE

The JEDx architecture is modular to support different implementation needs across states and stakeholders, while standardized to support reuse and efficiency in collection and use. Standard components will provide great efficiencies for employers and third-party agents, especially those that operate in more than one state. The proposed architecture is designed to support the reporting enhancements sought by the participating state coalitions, improving the timeliness and quality of data collected with the potential to drastically reduce the cost, such as by reducing erroneous and fraudulent benefit claims.

Collection Architecture: Collection API

A key component of the proposed architecture is a standard Application Programming Interface (API). The specification addresses data transport, security, and access management for the transport and exchange of data.

This transport layer of the architecture is separated from the data layer so that the data packages carried by the API are flexible to accommodate current and future needs.

The data package(s) exchanged via the API initially will be defined based on guidance of stakeholders and the JEDx Data and Applications Workgroup and state pilots. Later, the API will be able to support other collection and exchange use cases.

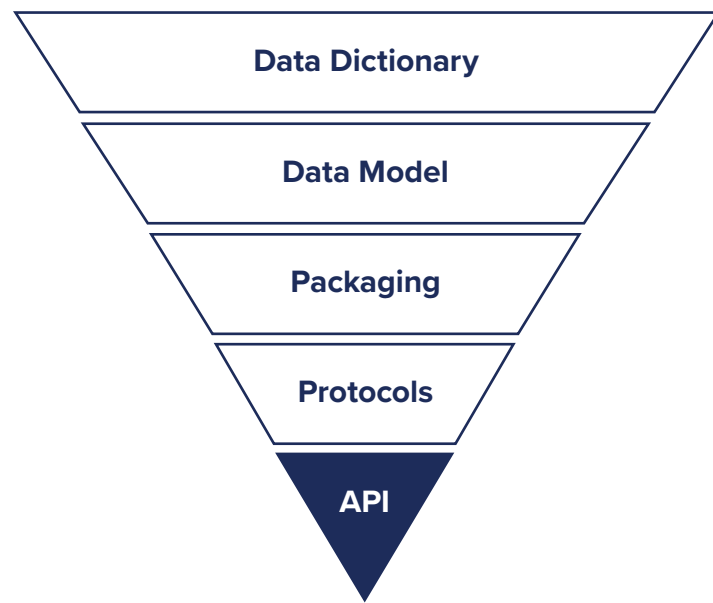
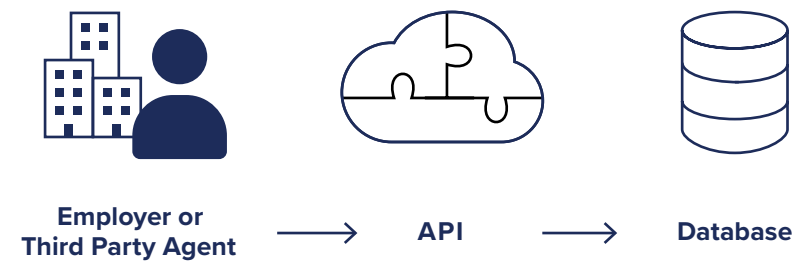


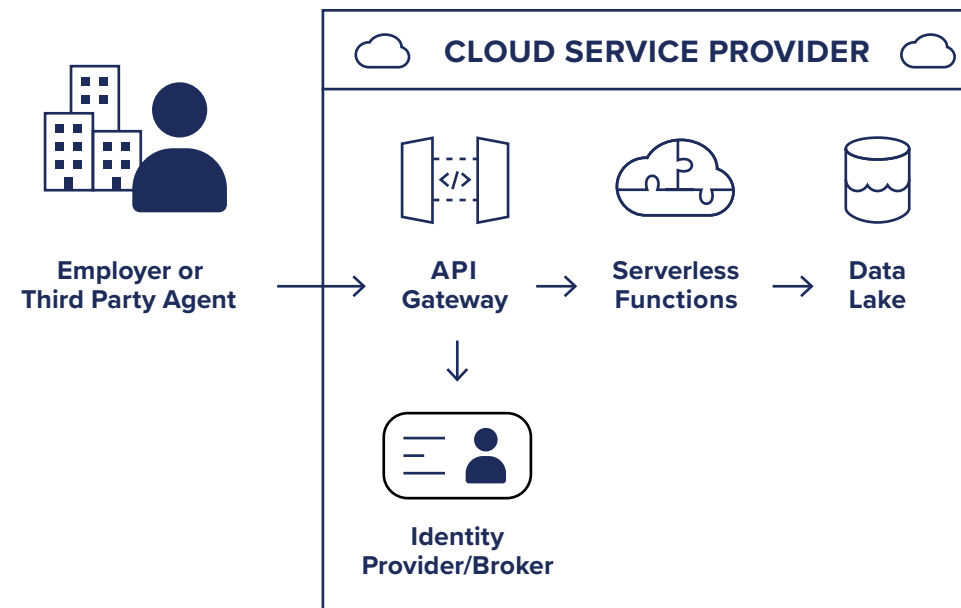
Figure 1. A simplified view of an API Implementation for data collection.



Architectural Elements

- API**—The code to execute the API logic.
- Database**—Structured data repository to store data collected by the API.

Figure 2. View of a modern cloud-based architecture that includes the API Gateway, API Implementation, Identity Provider/Broker, and Data Lake (or part of a data mesh) for storage of both structured and unstructured data.

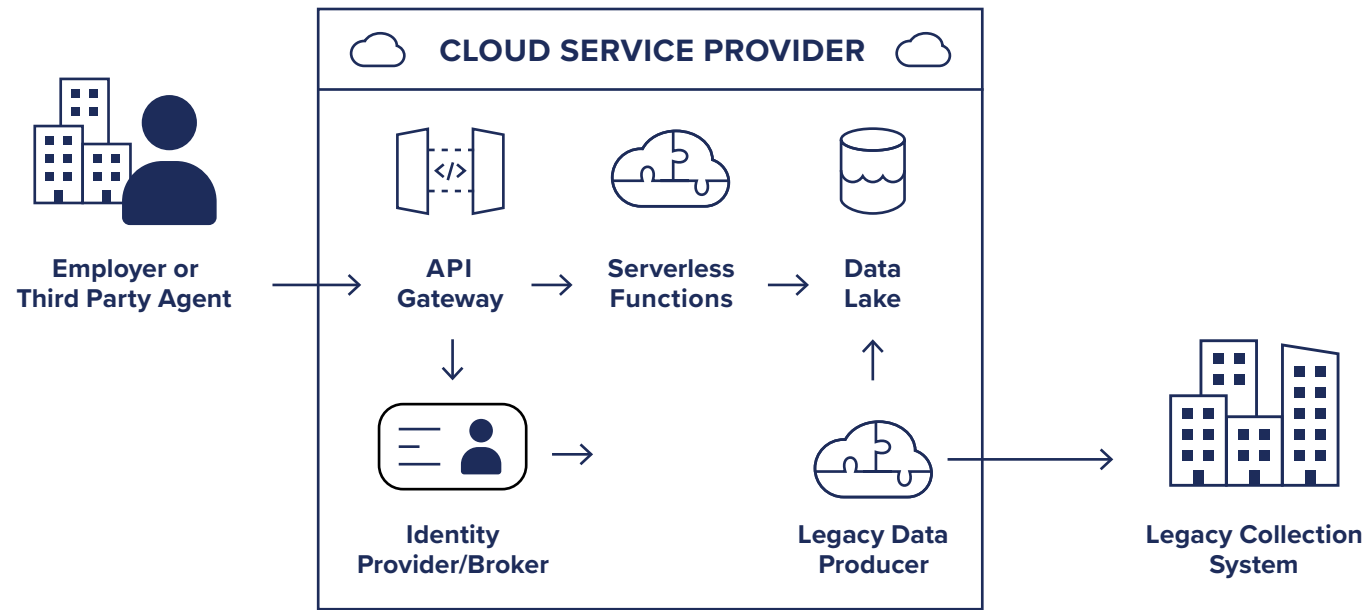


Architectural Elements

- API Gateway**—Endpoint for API. Provides Security and Access Management to the API.
- Serverless Functions**—The code to implement the API logic. Microservices based on cloud serverless frameworks.
- Data Lake**—A repository of structured and unstructured data sources that can easily be found, accessed, managed, and protected.

MODULARIZED JEDx ARCHITECTURE (CONTINUED)

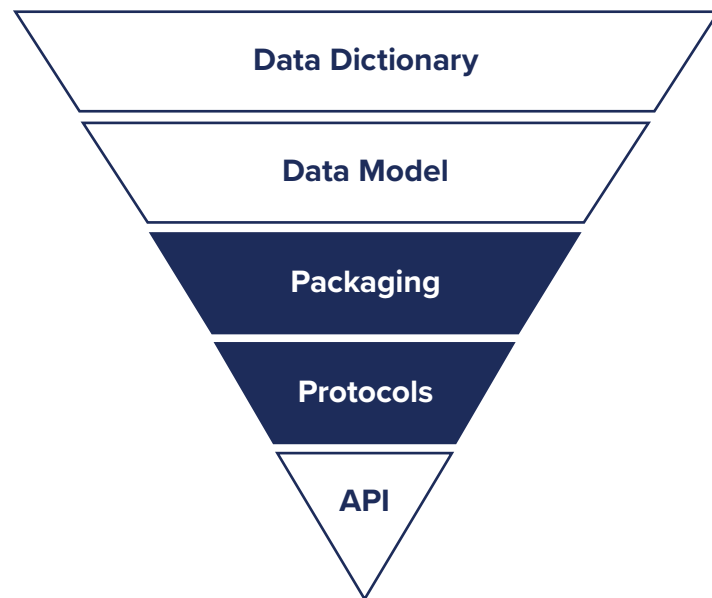
Collection of data via a standard API can initially be done without directly impacting existing state agency collection processes. That is, it need not disrupt current infrastructure. That is, it could be piloted as a parallel, alternative method of collection that feeds into existing collection mechanisms while stakeholders assess the value derived from enhanced data collection.



Collection Data Package

The data collection package is designed using the standard protocol for Javascript Object Notation (JSON). The data packages are encrypted for transport. Specifications and examples will be provided in the JEDx API Specification. These specifications and examples include the data package to support collection and JEDx pilots and more robust representations of the JDX data elements.

The data elements are defined in the JDX data dictionary. Data objects and their relationships to each other (data model) are defined based on JDX and guidance of JEDx stakeholder via the JEDx Data and Applications Workgroup.



Using standard APIs, standard protocols for data interchange, standard data schemas, and standard data definitions will support both narrow and broad implementations including

- one collection program within one state;
- consolidation of programs within a state; and
- multi-state collaboration.

The submission and collection of data may be done in ways that reduce ongoing costs and risks (such as costs due to missing, inaccurate, or stale data) for employers and third party agents while allowing states to reduce costs while collecting richer data to inform their policy objectives. The burden on submitters is reduced by making data collection easier, such as by removing the need to resubmit the data that have not changed since the previous submission.

Data Use Architectures

Different end uses of public-private data may necessitate different data architectures and local governance models. These data use architectures may vary as states and other stakeholders progress from siloed collection and use systems using legacy technology to modern infrastructures that may support public-private collaboration.



Program Reporting	Pooled Analytics for Policy	Third-party Reuse (Analytics & Apps)
One-to-many data flows and microservices architecture	Modern cloud data warehouse architecture	Robust anonymization routines and privacy guarantees
Data harmonization capabilities and robust metadata management	Robust governance processes for prioritizing analytics needs	Research data lake architecture and secure analytics environment for outside parties to access
		External publishing APIs

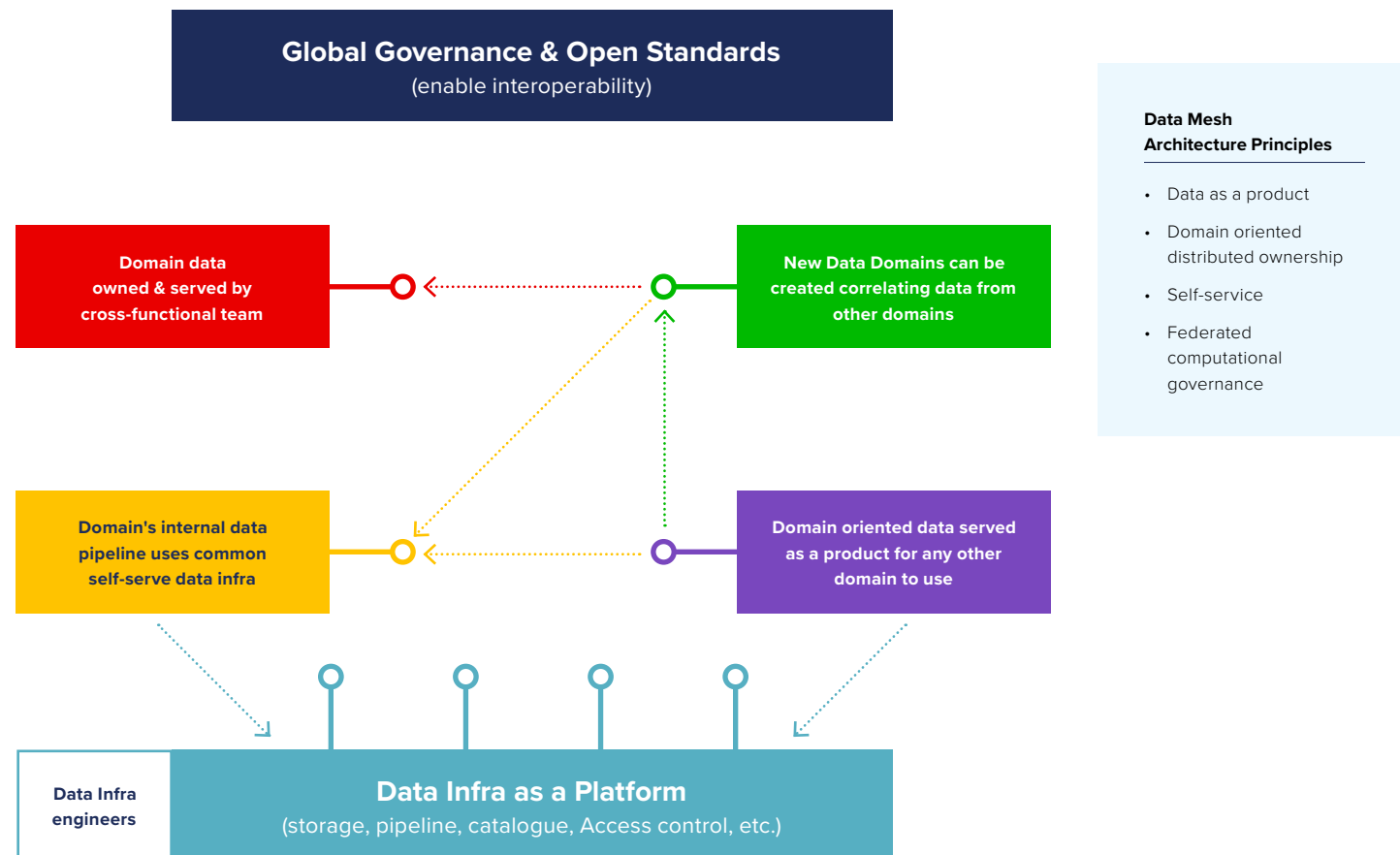
MODULARIZED JEDx ARCHITECTURE (CONTINUED)

Possible JEDx Architectures Using Data Mesh

As JEDx participants progress toward the vision for enhanced data collection and use, optimizing public-private collaboration might increasingly leverage architectures such as a “data mesh.” These architectures support federated computational governance and data as a service to control appropriate uses of the data and reduce risks associated with centralized data stores.

Data Mesh Architecture for States Implementing JEDx

Data mesh principles and architecture were [first developed](#) by Zhamak Dehghani at Thoughtworks and have gained rapid adoption in the enterprise data community for balancing the benefits of data standardization and global governance with decentralized control over data by distinct parties. This balance is best expressed in the four core principles below. Data mesh offers a reasonable architectural paradigm for JEDx implementations because of its alignment with JEDx’s goals of efficiency through standardization, privacy and compliance through clear governance and distributed ownership, and flexibility through self-service data provision and access.



Data Policy Approaches: Data Policies for Trust, Security, & Compliance

JEDx deals with some of the most sensitive data about individuals. In addition to ensuring compliance with federal and state data privacy-laws, JEDx’s multiple stakeholders have surfaced industry storing data, and downstream uses of the data and stakeholder-specific requirements around the data, the systems transacting and storing it, and its downstream uses. The rules and requirements will need to be expressed and enforced as data policies.

JEDx data policies fall into 6 general buckets:

- Privacy
- Security
- Quality
- Transparency
- Access
- Use

Privacy policies are focused on **what needs to happen to the data** before sharing, access, and use, (personally identifiable information (PII) masking, consent, right to be forgotten, and disclosure review, for example). *Security policies* are about **what must be true about the systems** of storage, provisioning, and access. *Quality policies* specify **what data quality checks** must be passed before allowing access.

Transparency policies specify **what must be made public** (policies, transformations, use logs, public dataset requirements). *Access policies* state **who can access** the data under what conditions. Lastly, *usage policies* specify **how the data may be used**, and for what purposes.

For this initial report, we will limit our data policy deep-dive to one of these areas: Privacy.

Privacy: Privacy Controls & Metadata Infrastructure

The JEDx vision is to leverage data for the benefit of employees, employers, and public sector stakeholders while preserving privacy and security of those data. Jobs and employment data contain sensitive personally identifiable information that bad actors would want to exploit. Therefore, the JEDx system architectures must include features of privacy and security by design.

The design principles for JEDx privacy and security build on best practices for any system with sensitive data, including the following:

- Encryption in Transit (SSL/TLS)
- Encryption at Rest
- NIST Cybersecurity Standards
- FIPS
- PII Compliance

In addition, the JEDx System Architecture Workgroup is exploring newer technologies that would embed a governance metadata framework into the fabric of the data structures to inform access control. With this framework, privacy objects are attached to data objects early in the collection pipeline and travel with the data from collection systems to use systems. These attached privacy objects contain both provenance information (where the data came from) and links to the sets of rules and regulations for restricting or granting access including links to data-sharing agreements and encoded logic for the conditions by which the data may be used. Lastly, the governance group will explore newer [cloud-based architectures](#) that allow for analyzing data without copying, moving, or [providing unencrypted access](#) to third parties.

MODULARIZED JEDx ARCHITECTURE (CONTINUED)

Governance Approaches: Collaborative Governance Models for JEDx

Data governance will play a critical role in enabling the responsible sharing required to support JEDx use cases. Data Governance is ultimately about who has the power to make decisions over data and how those decisions are made. This will include decisions about the rules and process for how JEDx data are collected, shared, accessed, controlled, and used.

Because JEDx relies on a unique public-private partnership, it will rely on governance models that are multi-stakeholder, collaborative, and legally compliant and that protect stakeholders against risks and liabilities.

Several governance models for public-private data sharing have been tested in recent years that could support JEDx stakeholder requirements:

- Multi-party (memoranda of understanding) MOUs and contractual data-sharing arrangements (currently most common, see Longitudinal Employer-Household Demographics (LEHD) as an example)
- Data collaboratives
- Data trusts
- Data cooperatives
- Data marketplaces

Detailed definitions and examples of each of these can be found in recent publications by the [Mozilla Data Futures Lab](#) and the [Ada Lovelace Institute](#). The JEDx architecture workgroup at this point is not recommending a particular governance model from the list above for JEDx, but plans to continue requirements gathering among stakeholder and pilot participants in order to make a final recommendation.





**JEDx
PILOT
ROADMAP**

PROPOSED PILOT ROADMAP



0

Bridging from Design Phase to Pilot Phase



1

JEDx Sandbox Team—Develops and tests JEDx sandbox environment with privacy obligation metadata and state deployment provisioning capabilities

Push simulated data to a JEDx “Sandbox” via JDX Standard API, manual web form, or upload

Collectors & Submitters—Define plan for agencies to receive enhanced collection



2

Collection Partners—Deploy an instance of the JEDx “Sandbox”

Push simulated data to state JEDx instance.

Collection Partners - Plan, recruit employer partners and test process to incorporate JEDx collection alongside existing systems, processes, and uses



3

Submitters—Pilot pushing real data with default privacy obligation metadata using the JEDx API into a JEDx environment and sharing data to support existing collection processes

Develop and test the use of JEDx enhanced data to support existing and novel use cases



4

Stakeholders integrate richer data sets from JEDx pilot into processes, such as UI fraud and error detection, implementing JEDx value to collectors and submitters

JEDx Stakeholders—Decide on data governance for public-private partnership

Stage 1 MILESTONES

- JEDx sandbox environment, privacy obligation components, and security infrastructure developed, deployed in a cloud environment, and tested with submitters, including third-party agents.
- Collectors and submitters plan and prepare for JEDx pilot deployment provisioning.

Stage 2 MILESTONES

- Collection partner deployed JEDx sandboxes tested with simulated data pushed via API from pilot submitters.
- Web form submission added to select state pilots based on scope.
- Collectors ready to pilot a defined scale of submissions of JEDx enhanced records alongside existing processes and infrastructure.
- Partners explore multiple options for enhancing their data collection, use, and sharing opportunities, with collaborative agreements on privacy, data management, and security.
- Partners explore data governance and data privacy structures to support chosen data use cases.

Stage 3 MILESTONES

- Submitters, including third-party agents on behalf of opt-in employers, have successfully pushed real data to the JEDx collection deployment.
- Agencies begin to integrate JEDx data subsets into existing processes.
- Select partners pilot collaborative use options.
- Partners pilot data governance and data privacy structures to support chosen data use cases.

Stage 4 MILESTONES

- States have begun to pilot the use of richer data sets made possible by the JEDx architecture.
- High-priority use cases (see High-Priority Use Cases and Preliminary Data Requirements from the JEDx Data and Application Priorities Workgroup) take advantage of the richer data sets to enhance a variety of programs. Examples include
 - improved UI administration (for example, through enhanced fraud and error detection);
 - improved HR analytics and management;
 - better job search services and compensation benchmarking;
 - improved analysis of employment outcomes to design more efficient training programs;
 - better analysis of the supply-demand data to enable more accurate alignment of the workforce investment with employer needs; and
 - reduced reporting burden for employers and their third-party agents.
- Plan for scale.

The proposed pilots are divided into four stages as shown in the grid above. Milestones at the end of each stage will inform future stages (next page).

Throughout the pilot, stakeholders will continue developing and implementing a public-private data governance model.



LOCALIZED PROJECTS

Parallel to this roadmap, each state and key stakeholder will require their own projects to address existing systems integrations, process improvement planning, and stakeholder engagement to address local variations.



PRIVACY OBLIGATION PILOT

Recommendation: Privacy Policy Embedded Data Fabric

The JEDx System Architecture Workgroup recommends development of a **JEDx Privacy Protocol (JPP)** that could be based on Global Education Privacy Standard (GEPS), a standard developed initially to address privacy for P-20 education data. This global set of data privacy obligations (obligations) data structures can be aligned to contractual clauses as well as technical control benchmarks. JPP would include the tagging of data objects with privacy obligation metadata at-rest and in transport. Using this model, JPP allows for organizations to choose the JPP standard suggestions or use other existing standards for privacy obligations (for example, IEEE, NIST, or ISO) to set expectations among stakeholders for appropriate uses of data. Although the GEPS standard was developed initially for student data, it is designed to be extensible to workforce and employer data.

Privacy Obligation Document (POD) Components

POD Privacy Obligation Document

An artifact derived from a paper contract which contains details of the parties involved, the data which can be transferred from one party to another, details of the technical benchmarks which must be adhered to (e.g., encryption levels) and details of any additional parties which may handle the data.

POD Lookup Service

Provides a means by which external applications request and obtain the current POD that applies to them.

POD Enforcer

Officially known as the “Data Protection Enforcer Service,” this service:

- Checks that any incoming requests from external applications are referencing their correct POD
- Uses the rules from the applicable POD to clean the raw data being returned in a request, ensuring that a ‘cleansed’ data set is returned to the requesting external application.
- Is placed and configured to honor all payload encryption requirements.



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