

Oklahoma's Unity Onboarding Story



Presenters



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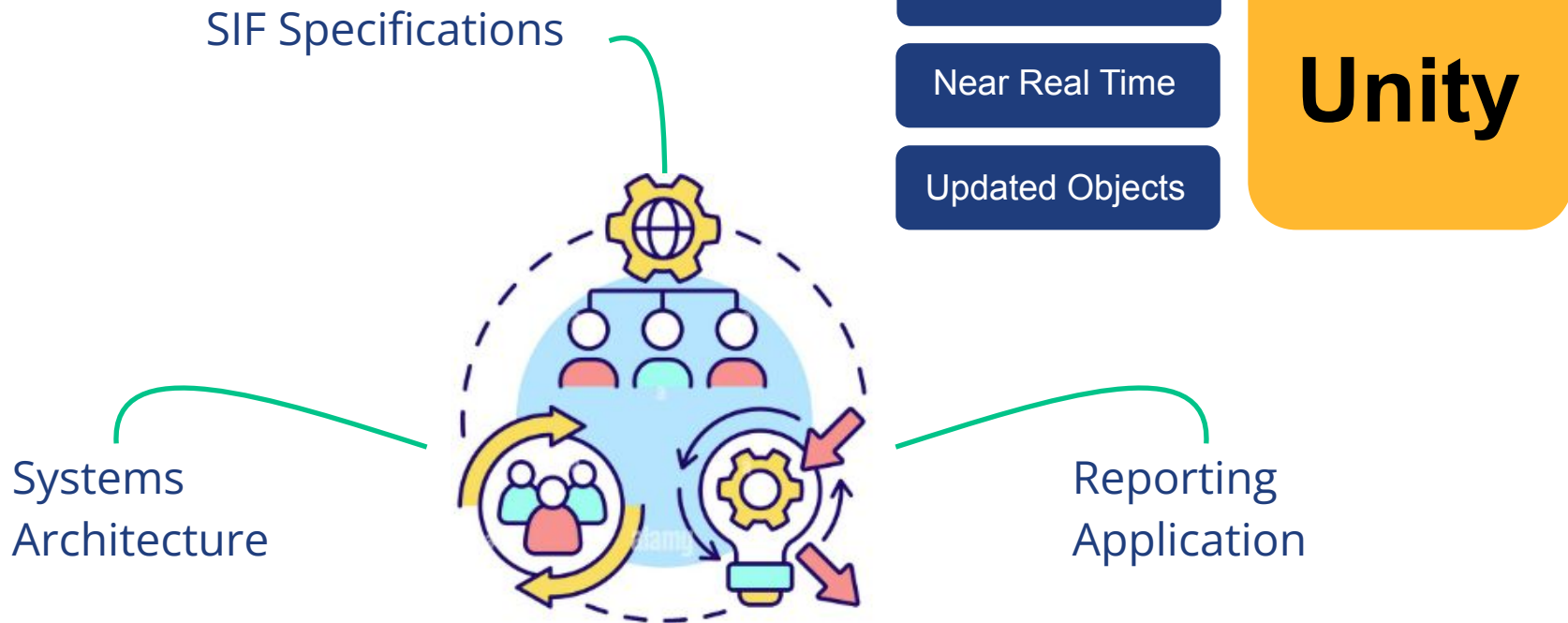
Aziz Elia

Chief Software Architect,
CPSI

Statewide Deployment

A Statewide Blueprint for API-Driven Data Modernizaion

Modernization



It's All Mixed Up

It's difficult to separate the pieces of modernization after implementation.

The integration of all components become one.



- **User - friendly data:** Due to Standardized structures and code sets the district's data is easier to understand and use for the Vendors as well as OSDE for reporting purposes. Also, easy to identify irregularities in data being sent to the state.
- **Transparency:** Due to more transparency, we observed districts reaching out more often to get their data corrected before reporting periods like OCT 1 and FQSR.

- **Quick & Secure data transfer:** After transferring to API based data transfer the data is more dynamic in nature and securely transferred which helps in identifying if there are any gaps in the data which the district sent and the state received.
- **Sandbox testing:** Before implementation of UNITY the sandbox testing phase helped a lot in pre-identifying the data irregularities and inconsistencies which could be identified and rectified before moving to the new system and made the process smooth and efficient.

Data
Coordinator

- As a new employee, UNITY is the only system I've worked with here so far, and I've found it relatively easy to learn. Because the system is structured in a consistent and centralized way, it's easier to understand how the data connects and where information is coming from. That consistency has made the onboarding process much smoother.

Project
Manager

- One benefit of Unity I see is the response time for most situations is immediate vs a two- to three-day turnaround.

- It's way more efficient. Being able to diagnose the problem, inform the user, and see the change come through in 5 minutes vs 24 hours is a game-changer. Especially when you are dealing with 15-20 of those instances per day. I don't have to keep notes on who I need to reach out to the following day.

- One benefit I see is enhanced troubleshooting on our side. The standardized code sets helps to identify the issues and any inconsistencies better and once identified, updating the data is quicker due to the API based system which in turn, significantly reduces the tracking time.

- SIF Unity replaces legacy SIF agents with REST API-based data exchange thus improve asynchronous data transmission.
- Moved away from heavy load Nightly Full Request Data Synchronization to light weight Real-time incremental synch. This greatly reduces the connection bandwidth use, processing time, vendor load, and timeouts.
- Instead of waiting 24 hours data snapshot cycle to reflect data changes, SIF Unity's API-based incremental model improves reconciliation synchronization of deletions and updates to almost real-time, reducing the lag between Operation Data Store and Reportig Data Set.

- The fast response time has made troubleshooting so much easier and far less stressful. Districts can make a change in their SIS and we can see the update in our database almost immediately. This makes it simple to meet with districts, test fixes in real time, and quickly confirm that an issue has been resolved.

Unity – Testing

Sandbox testing

Every code set tested

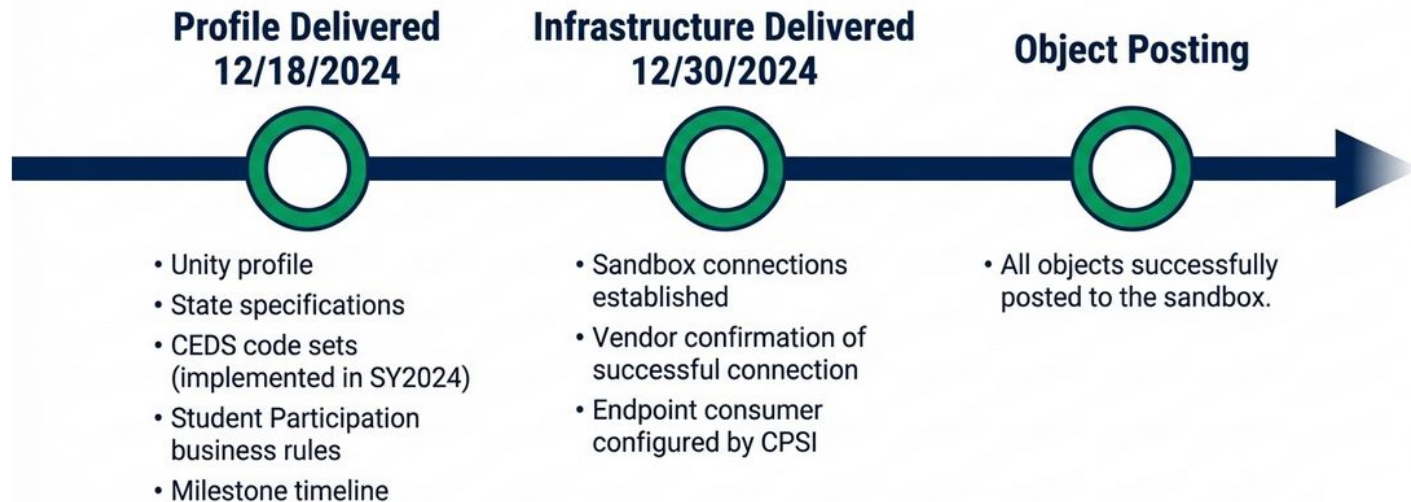
XML – JSON structure

Weekly meetings

Unity Implementation Sandbox Completion by 3/14/2025				
Milestone Expectations	Vendor 1	Vendor 2	Vendor 3	Vendor 4
Documentation delivered 12/18/24	✓	✓	✓	✓
Sandbox connection & infrastructure delivered 12/30/24	✓	✓	✓	✓
Vendor confirmed sandbox connection	✓	✓	✓	✓
Endpoint consumer configured by CPSI	✓	✓	✓	✓
All objects posted in the sandbox	✓	21/24	✓	✓
Message structure	✓	✓	✓	✓
Code set validations	✓	✓	✓	✓
Vendor testing complete	✓		✓	✓

Testing Milestones

Progression of Technical Deliverables



Operational Environment



Dedicated analyst
assigned to support
each vendor

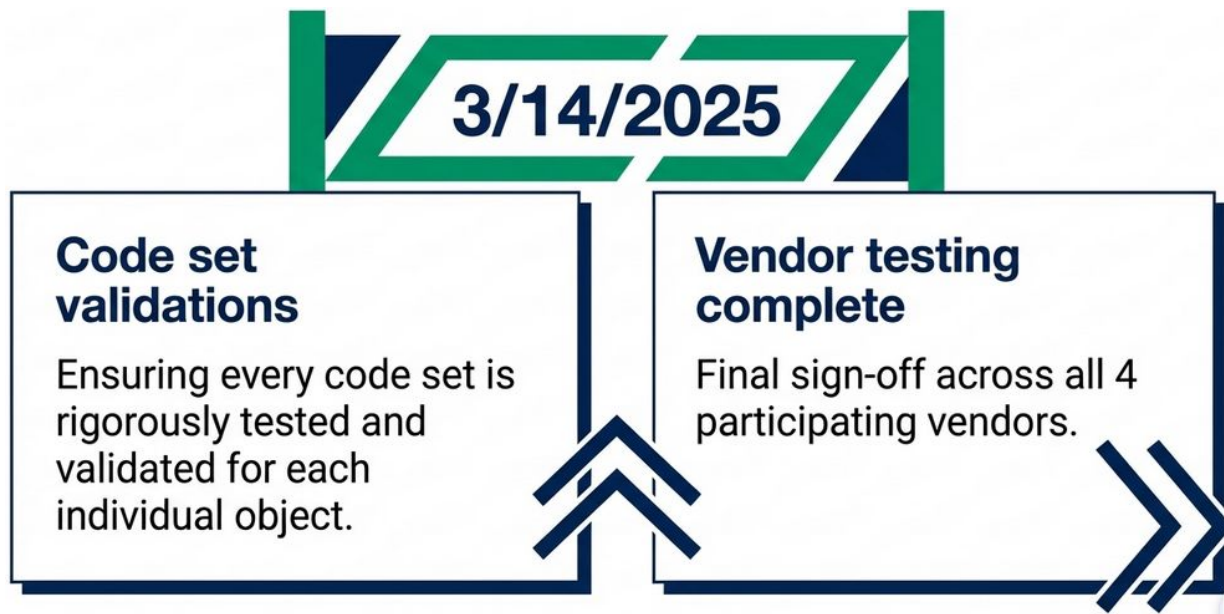


Weekly operational
meetings conducted
until all testing is
complete



Ultimate completion
target set for
3/14/2025

Testing Milestones



Unity – Production

Production environment
Publish Pilot district
Production approval
541 districts for vendors to connect

Unity Implementation Production Completion by 8/22/2025				
Milestone Expectations	Vendor 1	Vendor 2	Vendor 3	Vendor 4
Vendor provided consumer and password for 1 st district by CPSI Vendor	7/25	7/25	7/25	7/25
Vendor publishes 1 st district successfully	☒	☒	☒	☒
CPSI validate configuration	☒	☒	☒	☒
Approved for production	☒	☒	☒	☒
Percent of districts sending data to OSDE 1 st week of August	40%	10%	90%	60%
Percent of districts sending data to OSDE 2 nd week of August	85%	38%	100%	80%
Percent of districts sending data to OSDE 3 rd week of August	100%	70%	100%	100%
All districts moved to Unity	☒	☒	☒	☒

Connecting to Production



Approaching Total Saturation

Percent of districts sending data to OSDE 3rd week of August



Three out of four vendors fully integrated, with the final vendor closing the gap rapidly.

Successfully Moved to Unity

Vendor 1



Vendor 2



Vendor 3



Vendor 4



**Target completion date achieved: 8/22/2025.
100% integration across all vendor platforms.**

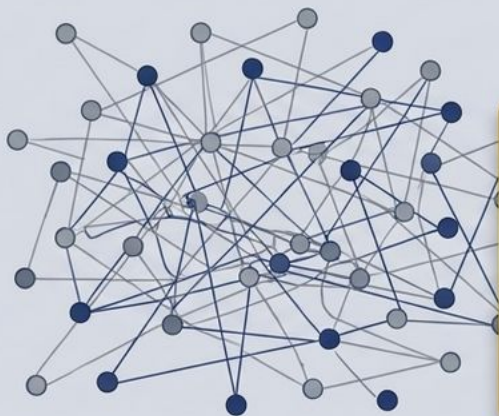
Positive Outcomes

Necessity is the mother of invention

- Vendor tools for SIS
- CPSI Tracking tables
- Student Attendance Summary events
- Improved data transmission times
- Pass back data from PCG

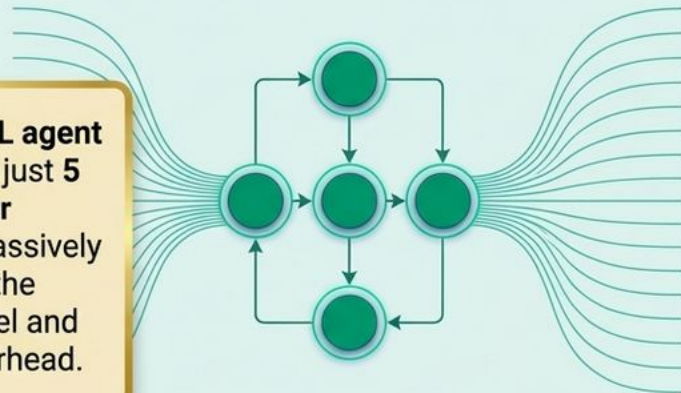
Architecture Shift

Legacy ODS



- Nightly batch processes
- 24-hour turnaround times
- Frequent batch failures
- 541 URL agent connections

Modernized Unity Architecture



Reduced 541 URL agent connections to just 5 URL broker connections—massively simplifying the collection model and reducing IT overhead.

- Near Real-Time API (event-driven)
- 5-minute update resolutions
- Standardized SIF Specifications
- Reduced to 5 secure URL broker connections

Vendor Spotlight

Vendor 1



Vendor 2



Vendor 3



Vendor 4



What creations came out of necessity
in your student information system?

If We Had Only Known...

Implementation Awareness

- Data prior to Unity connection
- Initial Sync
- No Shows and hard deletes
- Missing records
- Vendor queues
- Continual sync request

Monitor and Adjust

The Partial Post Problem

Initial POST of data at the time of connection sent only adds, changes, and deletes.

Result:

The SEA was forced to apply massive, unexpected sync requests as each district connected.

Queue Management Failures

Responses to sync requests were not cleared from queue.

Result:

Unmanaged queues crashed the SEA servers. Records remained missing even after sync requests were sent. Initial lack of a method to push all data for a single object/district compounded the strain.

Structural Solutions



Deletion Tools via RefId

Built specific vendor tools allowing districts to **identify and manually send deletes** for orphaned records using tracked RefIds.



CPSI Tracking Tables

Developed tracking tables to confirm exactly what data was received and consumed, giving districts self-service control over data POSTs and hierarchy dependencies.

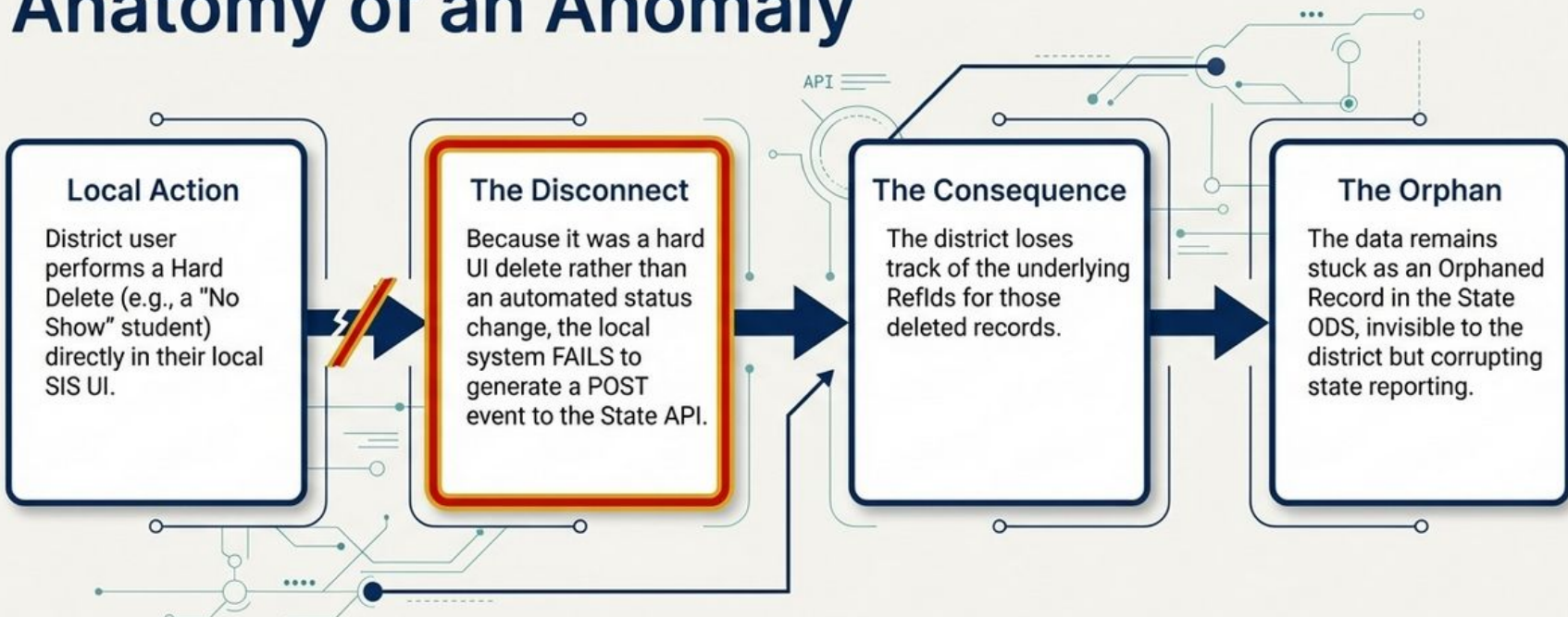


Student Attendance Summary Events

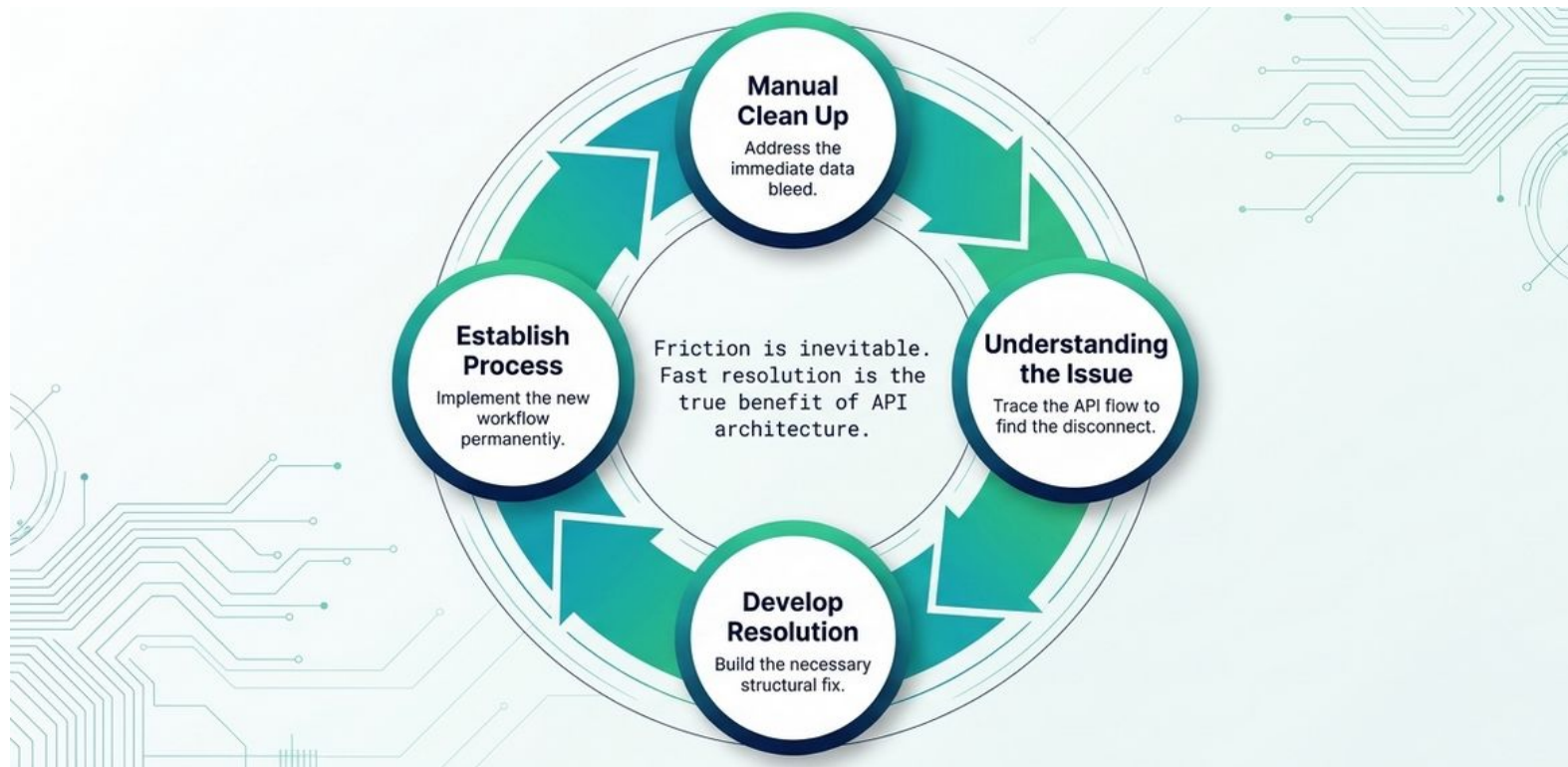
Restructured attendance summaries to behave as triggering events, reducing the reliance on massive, continual sync requests.

Orphaned Records

Anatomy of an Anomaly



Continuous Reconciliation



Continuous Reconciliation

Reflds in SIS Missing from the ODS

000009DC-60BD-0AAB-8E48-877500019CBD
000009DC-60BD-0AAB-8E48-87750001A17B
000009DC-60BD-0AAB-8E48-877500027E02

Reflds in ODS Missing from the SIS

00009DC-60BD-0AAB-8E48-87750003327E
000009DC-60BD-0AAB-8E48-877500033236
000009DC-60BD-0AAB-8E48-877500032B93
000009DC-60BD-0AAB-8E48-877500032CB3
000009DC-60BD-0AAB-8E48-87750002929F
000009DC-60BD-0AAB-8E48-87750001821B

Reaping the Rewards



Lead Data Coordinator

5 Mins vs. 24 Hours

It's a game-changer. Being able to diagnose a problem, inform the user, and see the change come through in 5 minutes vs 24 hour. With 15-20 instances per day, I no longer have to keep notes to follow up the next day. The consistency makes onboarding smooth.



Data Analyst

Zero Batch Failures

The event-driven design eliminates the dependency on nightly batch processes and their frequent failures. Standardized code sets make troubleshooting significantly faster, and SQL-based reporting now reflects the most current operational data.



Project Manager

Live Troubleshooting

Districts can make a change in their SIS and we see the update almost immediately. This makes it simple to meet with districts, test fixes in real time, and quickly confirm an issues is resolved.