TO IMPLEMENT AND SUPPORT
AN ED-FI UNIFIED DATA
SYSTEM INFRASTRUCTURE IN
AMAZON WEB SERVICES

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Date Submitted: May 21, 2018

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1 Project may extend to December 31, 2020 based on continued efforts of and budget for the three-year roadmap.
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Introduction

Double Line has been around for nine years. In that time, we have proven ourselves to be the industry leader in implementation of the Ed-Fi technology stack, which includes the Operational Data Store (ODS), Application Programming Interface (API), Dashboards, and plugins. Since day one, we have worked with the Michael & Susan Dell Foundation and other thought leaders to transform the nature of data use and integration for school districts and state education agencies. We have an extensive successful track record, with implementations in many districts and states, including Minneapolis Public Schools (MN), Metropolitan School District of Wayne Township (IN), Lubbock Independent School District (TX), Texas Education Agency, Michigan DOE, many Michigan school districts, all Nebraska school districts, Arkansas DOE, Little Rock School District, Minnesota DOE, Indiana DOE, Pennsylvania DOE, Northeast Florida Education Consortium, the INSITE consortium of Indiana school districts, and others.

Double Line works with school districts and states education agencies to:

- Establish a vision for data use
- Leverage open data standards to increase integration and reduce vendor lock-in
- Design and architect comprehensive technical solutions that get systems talking to each other
- Identify and implement data quality strategies
- Unify person identities and other common data
- Eliminate manual data loads and duplicate data entry
- Avoid reinventing the wheel by leveraging assets share by other users of same data standards

Additional information on Double Line can be found in Appendix A.

Scope of Work

Double Line will work with San Francisco Public Schools on this fundamental step in their Vision 2025 strategic plan and “Transform Learning. Transform Lives.” initiative. We propose to implement and support an Ed-Fi Unified Data System infrastructure in Amazon Web Services (AWS) as part of the three-year roadmap designed to bring SFUSD to an optimized data maturity. This will allow for cross-department cooperation, targeted training and support, department and school level tracked KPIs, integration of applications and data sources, and consolidation of tools and dashboard analytics.

Our technical solution will include four key elements:

1. The Ed-Fi on AWS CloudFormation Template (automates the deployment and management of the Ed-Fi technology stack)
2. A new open source alternative for Data Vault on the Ed-Fi data model, provided to SFUSD at no cost and contributed to the Ed-Fi community
3. An existing open source data quality rules engine, already in use in the Michigan Data Hub and in Minnesota
4. Support, management, and updates

Objectives

Below we have restated the goals of the original RFP. The goals listed below, provided by SFUSD as part of the RFP, have been read and are understood by the Double Line team. The information to follow is included to communicate how we intend to meet these goals.

- Transforming data use to improve student learning – enabling the development of dashboards for teachers, school leaders, and principal that provides data in real-time to initiate more immediate action and interventions.
- Creating a robust infrastructure on which we can build sustainable systems – leveraging the Ed-Fi data standard and technologies to provide a high-quality source of truth to power SFUSD data use initiatives.
- Migrating to the cloud and a longitudinal data warehouse – improving scalability and sustainability while lowering the total cost of ownership.
- Improving system integration by using the Ed-Fi API – eliminating duplicate data entry and point-to-point batch integrations to improve the effectiveness of SFUSD tools.
- Increase student equity via available information, data tracking which will lead to effective student engagement strategies.

Three Year Road Map

The below diagram for the three-year roadmap outlines the stage-by-stage milestones for SFUSD and their associated systems. This proposal addresses the “Year 1 – 2018” column, except for budgetary guidance on the following years, as requested in the RFP. Double Line understands work in 2019 and 2020 is dependent on available funds.
### Three Year Road Map

<table>
<thead>
<tr>
<th>Use Cases</th>
<th>Year 1 – 2018</th>
<th>Year 2 – 2019</th>
<th>Year 3 – 2020</th>
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<td>Schools</td>
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<td>Top-to-Bottom KPIs</td>
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<td></td>
<td>Student Performance (Part 1)</td>
<td>- ELL</td>
<td></td>
</tr>
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### Application Integrations

- Synergy
- Select Assessments
- DES
- SAS, CAPMAN
- CATS (Early Ed)
- Transport
- Nutrition
- BASIS
- Peoplesoft
- Synergy
- Illuminate
- Additional Assessments
- SEIS (Special Ed)
- Horizon (Nutrition)
- ELL Data
- Surveys
- Wellness Log
- SAP
- SAP
- Peoplesoft
- External Systems
- Peoplesoft
- External Systems

### Data Mart Integrations

- RPA Tables
- RPA Tables
- RPA Tables
- CALPADS Data Mart

### Key Consolidations and Transitions

- DES into Synergy (enrollment requests)
- BASIS into Synergy (behavior)
- Migrate HR from Peoplesoft to SAP
- Migrate HR from Peoplesoft to SAP

### Infrastructure

- Ed-Fi API/ODS
- Ed-Fi Data Vault
- Data Quality Rules Engine
- AWS Optimizations
- Version upgrades, extensions
- AWS Optimizations
- Version upgrades, extensions

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**Ed-Fi Unified Data System**

As depicted in the RFP, the Ed-Fi Unified Data System Infrastructure diagram highlights the desired components and necessary elements to see the project to completion.
Technical Approach

Summary

The fundamental goals of implementing the Ed-Fi data standard are to support bi-directional, transactional interoperability between the SFUSD hosted applications and to unify data from multiple sources and enforcing referential integrity to reflect a near real-time data capability. Our approach will meet the requirements set forth by SFUSD to maintain the latest versions of the Ed-Fi data model with the associated API/ODS code base recommendation within six months of official release by the Ed-Fi Alliance. Our team will implement a new open-source Data Vault solution to house historical, longitudinal data for extraction, transformation, and loading (ETL) to the specified Data Marts. We are extremely excited about the opportunity to implement an Ed-Fi based Data Vault solution for SFUSD and contribute it to the Ed-Fi community. We have waived all development costs for the Data Vault solution. Since it is intended to be an open source solution, there is no ongoing license cost.

An open source rules engine, already in use by the Michigan Data Hub and Minnesota, will be paired with the Ed-Fi on AWS CloudFormation template to support SFUSD’s desire to maintain high quality data inside the SFUSD environment.

Approach

Foundational Data Acquisition and Loading

Double Line will coordinate with SFUSD on the initial data load into the Ed-Fi ODS for each application integration based on associated use cases, using the Ed-Fi API, Ed-Fi Bulk API, Double Line Intelligent Bulk Loader, or direct-database loading strategies. The initial load will be focused on extracting and loading the necessary data, data elements, and data structure to facilitate a successful project and implementation.

Ed-Fi Application Program Interface (API) and Ed-Fi Operational Data Store (ODS)

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2 At SFUSD’s discretion, upgrades may be delayed allowing Ed-Fi compliant vendors to support the newer version of the Ed-Fi API, or for any other reason SFUSD determines.
Double Line will deploy the Ed-Fi Application Programming Interface along with the Ed-Fi Operational Data Store to a SFUSD-hosted Amazon Web Services account. We will use the Ed-Fi on AWS CloudFormation Template developed by Double Line under contract from Amazon Web Services and released by the Ed-Fi Alliance on the Ed-Fi Exchange. The Ed-Fi on AWS CloudFormation Template dramatically simplifies deployment, management, and upgrades, reducing cost and vendor lock-in. Working closely with Amazon Web Services cloud architects, Double Line designed the CloudFormation Template to utilize fully the platform features available on AWS to ease management, enhance monitoring, and reduce cost. The AWS platform features leveraged by the CloudFormation Template include auto scaling, high availability, certificate manager, configuration manager, monitoring, logging, interoperability, security, disaster recovery, and others.

All data exchanges are encrypted in transit through Secure Sockets Layer (SSL). The virtual private network is organized to shield all servers from public access.

In the event an Ed-Fi technical asset is not possible with the SFUSD AWS environment, the appropriate contact for SFUSD will be made aware in a timely manner.

Ed-Fi Data Vault (DV)

While Double Line does not have a Data Vault solution, we have been highly interested in applying the Data Vault methodology to the Ed-Fi data model. SFUSD’s deep understanding of the Data Vault methodology and its vision for how it can be used in the district provides us a rare opportunity to address this need in an open, non-proprietary way by building a Data Vault solution and making it available to SFUSD and the Ed-Fi community.

Because the Data Vault methodology is highly prescriptive, the proposed Data Vault solution will be fully automated based on the Ed-Fi data model as defined in MetaEd. As future versions of the Ed-Fi data standard are released, or as SFUSD defines extensions in MetaEd, the Data Vault ETL processes and data model itself will be automatically generated from the updated MetaEd definitions.

Through this initiative, SFUSD will help define requirements for the Data Vault solution, which we will make available as an open source solution to all Ed-Fi licensees. Not only is this approach positive for the broader Ed-Fi community, but SFUSD will benefit as other districts and states leverage the solution and contribute improvements. SFUSD will avoid vendor lock-in associated with a vendor-owned Data Vault solution, which is critically important for a core component representing SFUSD’s single source of truth for all current and historical student data. If interested, SFUSD could be a great help to the broader Ed-Fi community by facilitating this step forward and encouraging an open alternative for an Ed-Fi based Data Vault solution.

3 One server, named the “jump server”, is accessible from the public Internet and allows for access to the virtual private network by SFUSD and Double Line.
SFUSD could benefit the community further by demonstrating the benefits of Data Vault in conference presentations, panel discussions, and webinars, in partnership with Double Line.

We are extremely excited about the opportunity to implement this solution for SFUSD and contribute it to the Ed-Fi community. In this proposal, we have waived all development costs for the Data Vault solution. Since it is intended to be an open source solution, there is no ongoing license cost.

Data Quality Rules Engine

Double Line will install a data quality rules engine to run against the Ed-Fi ODS for appropriate data analysis and extraction. The rules engine uses natural language rule definitions to enable SFUSD to review, define, and establish its own rules. Double Line will provide the start set of data quality rules and will work with SFUSD to customize additional rules.

```
ruleset AdultEducation
    /* General AdultEducation rules*/

    rule 229.1
        when {AdultEducation} exists then
            require {SchoolDemographics}.[GradeOrSetting] = 20
        else 'Participants in an adult education program must be reported with Grade or Setting "20".'
```

**Natural Language Rule Format**

Double Line has created a common language rules engine platform that allows users to define data checks using a set of preconfigured values. The language is fast, easy to learn and does not require a background in Structured Query Language (SQL) – technical users with a background in SQL will, however, find this even easier to learn. The language uses keywords, identifiers, aggregates, dates, text strings, and functions to bridge the rules interface with your system’s data. The basis for this platform is as follows:
### Data Quality Rules Creation Steps

<table>
<thead>
<tr>
<th>Step</th>
<th>Name</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rule Identification</td>
<td>Each rule will utilize its own unique identifier for lookup and classification</td>
</tr>
<tr>
<td>2</td>
<td>Filter Condition</td>
<td>Double Line utilizes three primary filters that can be applied at different levels of the rules engine – collection, component, and characteristic</td>
</tr>
<tr>
<td>3</td>
<td>Requirement/Expectation Condition</td>
<td>Determine if a violation of established conditions will cause an error or warning for the input entry</td>
</tr>
<tr>
<td>4</td>
<td>Error Message</td>
<td>Set the text value presented upon failure of the condition</td>
</tr>
</tbody>
</table>

The generated output will inform users of failed entries – detailing their location and cause for failure. Report availability notifications can be sent directly to email inboxes to inform users of when data issues have occurred. Output reports can be configured to fit your business needs, but our team typically builds two reports for review. A Collection Error Summary Report and Error Detail Report. The summary report is designed to provide high level information regarding the number or errors and warnings for each collection of rules. The detail report displays the shows the number of student records with errors and warnings, along with the error message of the rule and an identification of the severity of the rule violation. Together these reports allow users to review data deviations, prioritize data clean up, and recognize potential future issues.

### Data Mart ETL

Double Line will develop data extractions using SQL Server Integration Services ETL packages and/or stored procedures from the Data Vault to the intended data marts. The nature of the ETL will depend on the data mart requirements. For the purpose of this proposal, we assume there are four-star schemas, consisting of four (4) fact tables and ten (10) dimension tables. We assume fact tables are one to three measures and the remainder of columns are foreign keys to dimension tables. We assume dimension tables contain ten to fifteen columns. If database dimensions are based on a snowflake scheme, they can be considered to be included for the purposes of this proposal. If aggregation fact tables exist, using simple aggregations (i.e., no new computations other than summing a granular metric), they can be considered as included for the purposes of this proposal.

For those data marts that already exist, our testing strategy will include powering a copy of the data mart from the new Ed-Fi based infrastructure and comparing the results to the equivalent data mart powered by the existing infrastructure. Differences will be analyzed and categorized into four categories:

1. Intended Difference
2. Explainable Difference
3. Defect
4. Unknown
Categorized differences will be reviewed with SFUSD and addressed appropriately. SFUSD may elect to perform its own testing for deliverable acceptance purposes.

Infrastructure

The Amazon Web Services infrastructure will be designed to connect to both hosted and on-premise applications. The networking diagram below lays out the connections that will be the basis for implementing the Ed-Fi tools.

1) Users will access either the AWS hosted or on-premise/non-AWS applications. Hosted applications will be accessed using the designated security protocol for each user. Based on the current load, the AWS cloud will spin up and appropriate number of EC2 instances automatically. Auto-balancing and scaling will be established to account for access in volume. On-premise and non-AWS hosted applications will utilize a VPN tunnel to the AWS host. The tunnel will be a secure communication link to the network, so applications can access the Ed-Fi platform, ultimately, syncing with the Ed-Fi ODS and Data Vault.
2) SFUSD administrators will have direct access to the AWS management console to control a continuous delivery model. This access will be used by Double Line, throughout the project duration and to manage the solution thereafter. Deployments into the environment will be automated using Octopus Deploy and/or AWS platform tools. SFUSD administrators will also be able to track, monitor, and log the operations of the environment.

3) System diagnostics or appropriate monitoring/logging will be made through Amazon CloudWatch.

4) Amazon Relational Database Service (RDS\(^4\)) allows for an easy, configurable solution for data backup and recovery. Backups of both the Ed-Fi ODS and Ed-Fi Data Vault will be made on a daily schedule. Snapshots of the database, user-initiated backups, can also be taken on an as-needed basis. Backup also allows for point-in-time recovery. Retention periods are configured for the environment: recovery is based on these periods and allows for a retention window of up to thirty-five days.

In addition to backup and recovery, Amazon RDS handles other database tasks for you including provisioning, patching, failure detection and repair.

5) A security protocol mechanism will be established from SFUSD to ensure the appropriate privacy of sensitive information, including student and district data. The protocol will include access and information transfer measures associated with the applications and users within the SFUSD network. This protocol will be maintained by SFUSD.

Amazon RDS will handle security within the network including data encryption at rest and in transit, network isolation, and resource/user-level permissions.

At the network level, Double Line will utilize the current SFUSD VPN and firewall settings to define user access. At the transport level, Double Line will setup SSL and TLS for end-to-end data path encryption for ETL and API data transfers.

\(^4\) Amazon Web Services is presently experiencing a temporary limitation in its ability to offer users of RDS for Microsoft SQL Server the ability to bring their own license (BYOL). This requires users of RDS for Microsoft SQL Server to use the license-included option, which is based on retail license pricing. Because educational entities often receive significant discounts from Microsoft on licenses, this limitation has a cost implication relative to educational entities buying their own license and using the BYOL option. If this temporary limitation remains at the time of implementation, we may elect to provision two additional EC2 instances, in two separate availability zones, and install SQL Server onto the VMs in a high availability configuration.
6) Double Line will configure Amazon Route 53 for fail-over and fail-soft utilization mechanisms. Amazon CloudWatch will also be utilized to track the AWS environment and applications it hosts. CloudWatch will also be leveraged to monitor EC2 instances and RDS DB instances.

7) Process flow
   a) User logs into an integrated application.
      i) Recognition of the system either AWS hosted or on-premise
   b) Hosted applications will then be fed to the AWS Elastic Load Balancing.
   c) Determination will be made on an EC2 instance to utilize.
   d) Amazon Route 53 will validate against fail-over.
   e) Information will flow from the application(s) to the ODS (via API) and sync with the Data Vault.
   f) Per Ed-Fi Unified Data Model, data is then available for reporting and analytics.

On-Going Support

Vendor Integration Support

Double Line will leverage the Staging-Test-Production infrastructure to implement and deliver vendor integrations with the Ed-Fi API and ODS. Our goal will be to work with SFUSD for vendor assistance in setting up their connection to the Ed-Fi Unified Data Standard. Our support will be facilitated through the project to utilize appropriate district foundational data for development of the appropriate connections as mentioned by SFUSD in the RFP.

Scheme Management Services

Double Line will coordinate the technical services for upgrading the Ed-Fi infrastructure to the latest available version (Ed-Fi v3.0) as part of the on-going project in 2019. Double Line understands that this effort will include the necessary model extensions and database schema upgrades based on SFUSD vendors. As the vendor responsible for managing the codebase for Ed-Fi v3.0, under contract from the Ed-Fi Alliance, and the only vendor to have performed a major version upgrade of an Ed-Fi implementation in production, we are uniquely positioned.

Maintenance and Support Services

Our team will provide appropriate contact information and availability for implementation assistance, questions/answers, and support, in accordance with the RFP, throughout the project’s duration.

Optional Services

5 To the best of our knowledge, no vendor besides Double Line has performed a major version upgrade of an Ed-Fi implementation in production.
The optional services listed below are included in the Total Budget section on a time-and-materials, hourly rate.

- Services to Map, Design, and Validate Additional Vendor Integrations
- Additional Data Mart Integration Services
- Data Model Extension Analysis, Mapping, and Modeling
- Business Rule Authoring and Collaboration with SFUSD Governance
- Data Steward Monitoring

Assumptions

The technical approach and associated milestone dates are contingent on the following assumptions. In the event an assumption needs to be adjusted, Double Line will assess impact and propose modifications to the project at that time.

1. Access to Data
   a. Double Line will be given timely and appropriate data access to all information systems necessary for the Ed-Fi implementation. This will require admin level access to most Ed-Fi related databases and administrator rights to the AWS account during the project and management period.

2. Application Integrations
   a. Ed-Fi API integrations for vendors beyond those listed in the roadmap are not included in this proposal.

3. Resources
   a. Double Line assumes that SFUSD resources will be readily available and responsive to questions regarding elements of the project. Our assumption is that project questions, including data and information requests, will be addressed in a reasonable timeframe.

Project Methodology

The Double Line project management approach is focused on delivering quality software and consulting services that meet the business needs and goals of our clients. Following a traditional, yet flexible and adaptable project management methodology we will work together with SFUSD to ensure we deliver on time, and within budget.

The Double Line Project Management Process has evolved out of several core best practices adopted from the Project Management Institute’s Project Management Body of Knowledge (PMBOK) combined with Adaptive practices such as Scrum and Agile, which allow for prototyping, iterative development, and actionable client feedback cycles. The core phases of our methodology include:

- Project Initiation
- Planning
- Project Execution (Build, Monitor and Control)
- Close-out

None of the proposed solution is proprietary. All components developed under the proposed effort will be owned by San Francisco Public Schools or other entity designated by the client.

During development, every code push will contain release notes documenting the changes included. All work will be tested in our local development environment, then promoted to SFUSD environments with a formal client acceptance step in the Quality Assurance environment prior to a push to production.

We will document all features, including those that may require periodic changes. With a goal of end-user self-service. A bucket of hours dedicated to knowledge transfer, training, and support is designed to train SFUSD support staff on the new system. A warranty period of 90 days follows the date of client acceptance of all deliverables under this proposal.

Assuming a July 1, 2018 start date, we anticipate the work to be complete in December, with beta versions available earlier (October) per the requested timeline.

Project Work Plan

Double Line wraps an agile system development approach within a conventional project management process, as shown below. At the project level, a master schedule, feature roadmap, and budget are maintained and tracked. As features/capabilities in the roadmap become actionable (i.e., requirements and design complete), they are added to the release backlog.

Double Line practices a “flavor” of agile known as “Kanban.” Kanban (カンバン), literally meaning “signboard” or “billboard”, is a concept related to manufacturing concepts of lean and just-in-time (JIT) production. The need to maintain a high rate of improvement led Toyota to

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6 The Data Vault is an exception to this statement, as it is being developed at no cost to SFUSD. To contribute the Data Vault to the Ed-Fi Alliance community, ownership will remain with Double Line.
We devise the Kanban system. Kanban became an effective tool to support the running production system.

Double Line has adapted Kanban for software development because of its ability to track process steps, effectively utilize specialized skills, expedite stories to handle bugs in conjunction with product enhancements; all while supporting a continuous, self-optimizing development process. With Kanban, limits are put on work-in-process with the goal of minimizing the time to bring a story to completion. Below is a screenshot of a sample Kanban board in action, which the team uses to discuss daily progress at the morning Scrum.

The process is highly iterative, following the steps below:

1. Add story to backlog. Ensure completeness and understandability of the specification to be actionable. Add story acceptance criteria. Breakdown larger stories (epics) into smaller ones, as appropriate. Prioritize the store and provide an estimate. This puts the story “on deck”, meaning it is ready for a member of the developer team to execute on the story.
2. Execute the development of the story, developing unit test cases, coding and testing.
3. Release to QA/Testing, making sure that unit tests and development testing have been successfully executed.

Throughout the process, Double Line practices Test-Driven-Development (TDD), creating test data and unit test programs prior to coding a module. These tests are added to a test bank that runs as part of a continuous integration process. This ensures that recently introduced changes do not break other parts of the application.

Quality Assurance

Central to Double Line’s quality assurance approach is a commitment to Test-Driven Development. TDD an agile development approach which combines test-first development where you write a test before you write just enough production code to fulfill that test and refactoring. TDD provides a way to think through your requirements or design before your write your functional code. TDD has proven to avoid defects because of the critical thinking about the test data prior to coding.
Double Line successfully practices TDD with the following:

- Organizational and personal commitments to the approach
- Designs must consist of highly-cohesive, loosely-coupled components to make testing easier
- Developers must write their own tests and test data
- The environment must support continuous integration
- The environment must include an infrastructure to quickly retest all the test cases during a build
- The environment must be highly responsive, supporting rapid compile, integrate and test cycles.

Once a release has been internally tested and promoted the following levels of testing occur:

- **System Integration Testing** (SIT) verifies the integration points, the security, and the behavior in the hosted environment. This is typically accomplished using a staging/testing set of virtual machines using test data.
- **Alpha Testing** is accomplished by a limited number of highly knowledgeable users and data stewards using live data in the production environment, or equivalent. The focus here is identifying data anomalies.
- **User Acceptance Testing** (UAT) validates the solution meets all customer requirements according to a set of acceptance criteria. This is typically accomplished with a mixture of test and live data in the test/staging configuration.
- **Beta or Pilot Testing** expands the users to focus on scalability, usability, and data anomalies.

**Change Management**

The Double Line approach to Change/Scope Management involves working with our clients at project initiation to establish scope definition and clarification. The project plan includes a statement of scope explicitly identifying “in scope” and “out of scope” work items, and deliverables. Scope is defined at a more granular level in the work breakdown structure (‘wbs’). The ‘wbs’ is typically represented by a project backlog and a collection of prioritized user stories. The iterative project methodology followed by Double Line Partners allows for incremental and elaborative scope alignment through frequent communication points with stakeholders and frequent feedback loop cycles.

Inevitably, scope on most integration projects will change at some level due to several factors including new requirements or changing priorities. To address this, Double Line recommends that the project management organization implement and follow a predetermined change control process to review, evaluate and approve scope changes that will have an impact to the project schedule, cost, or quality.
Issue Management

Double Line addresses technical issues that are detected internally by the project team as well as those reported by users. A ticketing system (i.e., JIRA) will be the primary tool where issues will be logged and detailed. Once received, the ticket will be reviewed by the technical team and triaged to identify severity. Issue fixes will be prioritized into releases determined by urgency. Intended resolution targets will be communicated to the issue reporter and announced to the community when the release has been delivered.

Training and Knowledge Transfer

The methods for knowledge transfer that we will employ include monthly workshops throughout the development phase, training on ongoing platform management tools, and detailed documentation and usage guides.

- **During Development: Monthly workshops**
  - Demonstrate latest functionality
    - Demonstrate usage
    - Gather feedback
    - Discuss administrative/maintenance aspects
  - Provide summaries from monthly workshops and summary reports of product demos

- **Post Development: Training on platform management tools**
  - Documentation
    - Provide How-To Guide for administrative functionality/interface
  - Training sessions
    - Double Line will provide webinar sessions to train resources for how to update metadata, interface with system, etc.
    - Record sessions and make recordings available

- **Post Development: Site user documentation**
  - Provide How-To guide for administrative usage. This will include help for all aspects of interface with the environment, including:
    - System configuration and diagnostics
    - System architecture
    - How to manage future changes

- **Training Courses**
  - Presented in a workshop format
  - Includes content and material using SFUSD environments
  - Logistics will be finalized as part of the Project Plan
  - Topics
    - System Administration and DevOps
    - Rule Authoring and Data Stewardship
    - Other topics, as identified and mutually agreed to by SFUSD and Double Line

Training Staffing Plan

Training sessions will be led by project personnel who have been involved in the development of the SFUSD solution and other subject matter experts. This will include project managers,
business analysts, and technical developers, utilizing the most appropriate resources to lead individual training topics.

Our project personnel have collectively led hundreds of training webinars. They are well versed in developing training agendas, defining and following effective curricula, encouraging feedback and questions, and addressing participants in-session.

**Project Schedule**

**Key Project Activities**

<table>
<thead>
<tr>
<th>Proposed Project Calendar</th>
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</thead>
<tbody>
<tr>
<td><strong>Expected Date</strong></td>
</tr>
<tr>
<td>July 2</td>
</tr>
<tr>
<td>July 6</td>
</tr>
<tr>
<td>July 9</td>
</tr>
<tr>
<td>July 16</td>
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<tr>
<td>August 1</td>
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<tr>
<td>August 15</td>
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<td>September 4</td>
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<tr>
<td>October 1</td>
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<tr>
<td>November 5</td>
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<tr>
<td>November 16</td>
</tr>
<tr>
<td>November 21</td>
</tr>
<tr>
<td>December 1</td>
</tr>
<tr>
<td>December 14</td>
</tr>
</tbody>
</table>

**Notes:** System workshops will be scheduled for the last week of each month.

<table>
<thead>
<tr>
<th>Holiday Calendar(^7)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date(s)</strong></td>
</tr>
<tr>
<td>July 4</td>
</tr>
<tr>
<td>September 3</td>
</tr>
<tr>
<td>November 22-23</td>
</tr>
<tr>
<td>December 24-25</td>
</tr>
</tbody>
</table>

Personal days, vacations, or leaves of absence will be made aware, when applicable, to SFUSD in a timeline manner. Double Line ensures the absence of a team member will not detract from scheduled deliverables.

\(^7\) Please note that responses and communication may be delayed or unavailable during the listed dates.
Visual Timeline

Project Team

Please see Appendix B for complete Project Team Resumes. Resumes include detailed experience and credentials that are applicable for the San Francisco Public Schools implementation.

<table>
<thead>
<tr>
<th>Project Manager</th>
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<tbody>
<tr>
<td>Project Manager</td>
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<tr>
<td></td>
</tr>
<tr>
<td>Data Integration Team</td>
</tr>
<tr>
<td>Data Engineer #1</td>
</tr>
<tr>
<td>Data Engineer #2</td>
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<tr>
<td></td>
</tr>
<tr>
<td>Software Development Team</td>
</tr>
<tr>
<td>Software Engineer #1</td>
</tr>
<tr>
<td>Software Engineer #2</td>
</tr>
</tbody>
</table>
## Total Project Budget

<table>
<thead>
<tr>
<th>Total Project Budget</th>
<th>2018 Cost Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ed-Fi API and ODS Implementation</td>
<td>$20,000</td>
</tr>
<tr>
<td>Ed-Fi Data Vault development</td>
<td>WAIVED</td>
</tr>
<tr>
<td>Data Integration for Application Integrations</td>
<td>$180,000</td>
</tr>
<tr>
<td>Data Mart ETL processes</td>
<td>$100,000</td>
</tr>
<tr>
<td>Data Quality Rules Engine</td>
<td>$25,000</td>
</tr>
<tr>
<td>Project Management</td>
<td>$20,000</td>
</tr>
<tr>
<td>Support, Maintenance, and Management of Solution</td>
<td>$80,000</td>
</tr>
<tr>
<td>Travel (incl. onsite kickoff, one interim trip, and closeout meeting)</td>
<td>WAIVED</td>
</tr>
<tr>
<td><strong>2018 Subtotal</strong></td>
<td><strong>$425,000</strong></td>
</tr>
</tbody>
</table>

| Services to map and develop additional vendor integrations | $160/hr |
| Additional Data Mart integration services | $160/hr |
| Data model extension analysis, mapping and modeling | $160/hr |
| Business rule authoring and collaboration with SFUSD governance | $160/hr |
| Data steward monitoring | $160/hr |

<table>
<thead>
<tr>
<th>2019 Budget Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ed-Fi API, ODS, and Data Vault management and support</td>
</tr>
<tr>
<td>Data Integration for additional Application Integrations</td>
</tr>
<tr>
<td>Application upgrades and updates, including upgrade to Ed-Fi v3.0</td>
</tr>
<tr>
<td><strong>2019 Subtotal</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2020 Budget Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ed-Fi API, ODS, and Data Vault management and support</td>
</tr>
<tr>
<td>Data Integration for additional Application Integrations</td>
</tr>
<tr>
<td>Application upgrades and updates</td>
</tr>
<tr>
<td><strong>2020 Subtotal</strong></td>
</tr>
</tbody>
</table>
Security and Confidentiality of Data

Since Double Line only services education clients, all staff are experienced with proper protections of student data to comply with The Family Educational Rights and Privacy Act (FERPA) and other federal and state laws. We go well beyond what is required for compliance. We define a set of best practices, including not housing any non-anonymized client data on our servers or workstations for testing or other purposes. Staff are trained to flag any protected information inadvertently sent to them from the client, and procedures are in place to quarantine and remove the protected data from our systems. As a further layer of protection, all workstations and servers use drive encryption and endpoint protection software. Staff attend refresher sessions on security and privacy procedures on regular intervals.

While accessing client systems, both on-premise and through AWS, staff follow protocols defined by the client at the beginning of the project. We realize that elevated access to SFUSD’s Ed-Fi infrastructure is necessary to provide management services and following proper protocols during that management is critical. Double Line can recommend procedures based on protocols with other clients; ultimately, SFUSD is the owner of the solution and sets the protocols we will follow.

Project References

Amazon Web Services

Contact and Project Summary

Amazon Web Services has identified data interoperability as a critical need in the K-12 education space. As part of a larger initiative around data interoperability, Amazon Web Services contracted with Double Line to build a repeatable, automated deployment of the Ed-Fi technology stack into the AWS platform. AWS open sourced the CloudFormation template we built, allowing districts and states to deploy an infinitely scalable, highly available, monitored, partially managed (using AWS platform-as-a-service offerings), redundant, and prewired Ed-Fi technology stack following best practices for security, configuration, privacy, and operations. The CloudFormation template requires 3 minutes to configure and 40 minutes to run, completely changing the nature of Ed-Fi implementations, regardless of in-house technical capability.

Connection to SFUSD

Double Line was selected by Amazon Web Services to build the Ed-Fi on AWS CloudFormation Template. We are experts with the AWS platform, both using it with client implementations and for our internal company infrastructure.

Contact Information

Mastin Jones

WeAreDoubleLine.com | 6801 N Capital of TX Hwy, Bldg. II Ste. #225, Austin, TX 78731 | (512) 646-4929
Enterprise Account Manager, Enterprise Ed Tech Team
Mastinjo@amazon.com
(617) 460-5778

Michigan District Consortium (Michigan Data Hub)

Contact and Project Summary

Don Daily leads a district consortium representing 96% of the school districts in Michigan, aggressively working toward improving data use for educators, administrators, parents, and students. Double Line worked with Don and his committees to evolve a concept represented by four bullet points into a comprehensive vision and strategy for what has become the Michigan Data Hub. We conducted a return on investment study and authored a legislative report to help Don secure ongoing funding from the State of Michigan. Don can speak to Double Line’s deep knowledge with CEDS/Ed-Fi, our ability to develop comprehensive technical and solution architecture designs, and our role as an implementation partner. Don can also speak to Double Line’s value as management consultants, including connecting him with other states with aligned efforts for collaboration and estimating development efforts in which his committees are interested.

Connection to SFUSD

We see a strong connection from this project to the Vision 2025 goal of transforming data use to improve student learning. The goals of this project align with those set out for the school districts in Michigan -- to increase the efficiency and effectiveness of data for internal district staff, the students within the district, and the families of those students. A number of districts in the consortium match SFUSD in size, student makeup, urban setting, funding levels, and technical capability. This project drove the initial development of the data quality rules engine proposed herein for SFUSD.

Contact Information

Don Dailey
Michigan Data Hub Director
Kalamazoo RESA
don.dailey@kresa.org
(269) 250-9264

Michigan Department of Education

Contact and Project Summary

John Price leads the Michigan Linked Educational Assessment Reporting Network (MiLEARN) project, an innovative portal solution delivering state assessment results to educators, students,
and parents in near real time; previously, results took the entire school year (or more) to deliver, dramatically reducing their usefulness in supporting instruction and intervention. Double Line guided John’s team in evolving their concept into a workable vision, leveraging the Ed-Fi technology stack, assessing the strengths and weaknesses of a number of solution architectures and authentication models. Double Line advised on strategy to engage the SIS vendors in the state to request necessary changes to support MiLEARN, including developing a “SIS kit” to anticipate and avoid potential objections from the vendors. Double Line continues in both a strategy and implementation role. John can speak to Double Line’s deep knowledge with CEDS/Ed-Fi, our ability to develop comprehensive technical and solution architecture designs, and our role as an implementation partner. John can also speak to Double Line’s value as management consultants, including advising on project strategy and estimating development efforts.

Connection to SFUSD

Double Line’s experience with the Michigan Department of Education (DoE) and John Price specifically highlights our team’s strength in working with multiple vendors and aligning a set vision and outcome. The work we completed with the Michigan DoE helped the state utilize the Ed-Fi technology stack and the MiLEARN platform to transform their data and optimize their efforts in communicating student assessment results in the digital age. Ultimately, allowing for educators and staff to make informed decisions, as well as, target interventions and instruction to address student development.

Contact Information

John Price  
Senior Project Manager  
Division of Accountability Services  
Michigan Department of Education  
PriceJ2@michigan.gov  
(517) 775-1275

Proposer Financial Statement

The latest Double Line information for public review is for the 2014 and 2015 fiscal years. This information has been provided in Appendix C.

Release and Waiver of Liability Form

A completed Release and Waiver of Liability Form (Exhibit B) has been provided in Appendix D.
Appendix A: Company Overview

Mission
Double Line is a leader of innovation in the education technology arena focused on delivering high quality solutions. Its mission is to empower educators with the data and tools needed to aggressively improve student outcomes. Double Line strives to reach beyond the fiscal bottom line to measure its performance by way of positive social impact.

Proven Track Record
Double Line is the developer of the Ed-Fi data standard, Ed-Fi solution data components and the Ed-Fi Dashboards, as well as the Ed-Fi Data Warehouse. Double Line continues to enhance the standard to make it easier to integrate, share and work with different types of education data – with strong privacy and security controls. The solution data components include XML batch ingestion interface, REST transactional interface and Operational Data Store, and Data Warehouse, representing over 10 person-years of engineering. The Ed-Fi Dashboards represent over 20 person-years of engineering and involved over 4,000 educators in the design of its user interface.

Double Line has extensive experience in the design and development of performance management systems – dashboards, scorecards and portals – that help educators improve their students’ educational achievements. Through this work, Double Line has established itself as a leading expert in data visualization, data definition and change management strategies supporting performance-driven decision-making by educators.

Double Line has a proven track record of successful projects with a broad range of clients, including state and local education agencies, foundations, and nonprofit organizations. Double Line has worked in Texas, Delaware, Arkansas, Tennessee, Pennsylvania, Nebraska, Michigan and Florida on statewide data solutions.

Organization History
Double Line was founded in 2009 and has been exclusively focused on offering data integration and dashboard functionality in the PK-12 education space for the full nine years of its existence.

In 2011, the company was acquired by the Michael & Susan Dell Foundation to complement its strategy to accelerate the education sector’s ability to bring innovative student-centered tools to every classroom across the nation. An important part of this strategy is Ed-Fi technology, designed to bring disparate data and IT systems together in a meaningful way, freeing educators and administrators to choose the best vendor tools while maintaining local stewardship of data. For the following four years, Double Line played an important role in helping states, districts and schools leverage these tools for the benefit of teachers and students. After great success and growth, Double Line was divested in 2015 to continue its mission to develop and enable the adoption of Ed-Fi technologies to transform data initiatives in public education, both as an important vendor and collaborator of the Dell family foundation, and overall in its work within the education sector.
Appendix B: Project Team

Project Manager

<table>
<thead>
<tr>
<th>Kyung Huh, Senior Project Manager</th>
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<tbody>
<tr>
<td><strong>Project Role</strong></td>
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<tr>
<td><strong>Double Line Experience</strong></td>
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<tr>
<td>October 2013 – Present</td>
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<tr>
<td></td>
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<tr>
<td><strong>Skills</strong></td>
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<tr>
<td><strong>Presentations &amp; Publications</strong></td>
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<tr>
<td><strong>Relevant Experience</strong></td>
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<td><strong>Education</strong></td>
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Data Engineers

<table>
<thead>
<tr>
<th>Lillie Anderson, Developer</th>
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<tbody>
<tr>
<td>Project Role</td>
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<tr>
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</tr>
<tr>
<td>Double Line Experience</td>
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</tbody>
</table>
| August 2012-Present | - Design and develop relational Databases, Data Warehouses and Multidimensional Databases along with supporting architectural documentation.  
- Provide technical oversight of extract, transform, and load (ETL) processes.  
- Develop strategies for data acquisitions, archive recovery, and implementation of a database.  
- Support the implementation of business solutions through the creation of administration scripts and automated processes.  
- Provide infrastructure support including installation, customization, troubleshooting, and performance analysis.  
- Participate in quality assurance activities, creating scripts and test data use cases which validate data integrity. |

| Skills | Python, Natural, MS DOS Scripting, Curl, WebAgent, HTML, JavaScript, jQuery, Django, AJAX, JSON, myBalsamiq, Eclipse, Natclipse, jEdit, VIM, Tortoise, Git Hub, SQL Developer, Oracle 11g Express, FileMakerPro, Cognos 8 Report Developer, Information Quest Cubes |

<table>
<thead>
<tr>
<th>Relevant Experience</th>
<th><strong>Lead Software Engineer - Financial Information Systems, The University of Texas at Austin</strong></th>
</tr>
</thead>
</table>
|                      | - FRMS ERP Core team member  
- Enhanced and maintained ERP infrastructure  
- Developed programming specifications and best practices for customized software solutions  
- Analyzed virtual machines to determine efficiency in development environment requirements for both initial setup and long-term maintenance  
- Analyzed technical requirements of Kuali systems as potential third-party solution for targeted business areas  
- FRMS Awards Special projects technical lead with primary responsibilities to design, develop UI and enhance FIS infrastructure as needed  
- Restructured system to comply with revised data definitions and Tax ID and PIF business rules  
- Developed and managed testing plans for multiple testing stages  
- FRMS Accounts Receivables support  
- Implemented efficient reporting solutions for Centralized Receivables data  
- served as cross-functional resource for Student Accounts Receivables processes and UI |

| Education | **The University of Texas at Austin**  
Bachelor of Arts in Computer Sciences |

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**Morinsola Akinduro, Senior BI Developer**
<table>
<thead>
<tr>
<th>Project Role</th>
<th>Senior BI Developer</th>
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<tbody>
<tr>
<td><strong>Double Line</strong></td>
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<tr>
<td><strong>Experience</strong></td>
<td></td>
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<tr>
<td><strong>October 2012 –</strong></td>
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<tr>
<td><strong>Present</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Technical Lead/Senior BI Developer</strong> – October 2012-Present</td>
<td></td>
</tr>
<tr>
<td>- Create and maintain scalable ETL solutions using SSIS packages to extract data from OLTP having sources like MS SQL Server 2008, Oracle Database, Text Files, Excel and XML files to other OLTP systems (SQL 2008/2012).</td>
<td></td>
</tr>
<tr>
<td>- Apply various data transformations such as Aggregate, Merge-Join, Multicasting, Conditional Split, Derived column and error handling techniques to prepare data for district/ state-wide real-time education dashboard tools.</td>
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</tr>
<tr>
<td>- Design, review, and create primary objects like Views, Indexes, Stored procedure, Functions, Triggers based on logical design models, user requirements and physical constraints.</td>
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<tr>
<td>- Write complex T-SQL queries, stored procedures to be used in developing scalable ETL solutions.</td>
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<tr>
<td>- Responsible for query and package optimization to improve scalability of legacy ETL solutions.</td>
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<tr>
<td>- Create and validate XML files from flat files and DB sources using Mapforce and XMLSpy.</td>
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<tr>
<td>- Create maintenance plans to schedule backup of databases for disaster recovery.</td>
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<tr>
<td>- Manage the deployment between environments – development, staging and production.</td>
<td></td>
</tr>
<tr>
<td>- Implement Ed-Fi ODS, dashboards and data standards (all versions)</td>
<td></td>
</tr>
<tr>
<td>- Upgrade Ed-Fi licensees to latest version of Ed-Fi ODS and dashboards</td>
<td></td>
</tr>
<tr>
<td>- Lead and prioritize tickets for dashboard implementation support for the Pennsylvania Department of Education Educator Early Warning System Dashboard amongst other implementation projects.</td>
<td></td>
</tr>
<tr>
<td>- Develop technical training materials and end-user documentation</td>
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<tr>
<td>- Mentor Junior ETL developers</td>
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</tbody>
</table>
### Relevant Experience

**BI Developer/SQL Server DBA, Bartronics Inc. – 2009-2012**
- Designed and implemented scalable ETL and Reporting solutions using SSIS and SSRS.
- Developed and distributed reports such as sub-reports, drill-through, parameterized and Adhoc reports in different formats using SQL Server Reporting Services (SSRS).
- Worked on activities related to the development, implementation, administration and support of ETL processes for Data Warehouses using Bulk Copy Process (BCP), Data Transformation Services (DTS) and SSIS with MS SQL 2005/2008.
- Successfully migrated content from SQL server 2000 to SQL server 2005 and upgrade clustered environments from 2005 to 2008.
- Performed database maintenance tasks such as backup and restore and extensively used tools like SQL Server Profiler, Database Engine tuning Advisor, and Windows Performance Monitor for monitoring and tuning MS SQL Server performance.
- Worked on several BI projects including staff augmentation projects for Mattress Firm and Deloitte & Touche.

### Education

**Temple University**  
Bachelor of Business Administration in Economics

### Certification

**Microsoft Certified Professional**

### Skillset

- MS SQL Server 2005/2008/2012, SSIS, SSRS, OLAP, OLTP, ODBC, Microsoft Office, T-SQL, PL/SQL, ERStudio, Agile, Git, XMLSpy, Mapforce

## Software Engineers

### Dennis Piatt, Infrastructure Manager

**Work Experience**

Mr. Piatt is responsible for all systems/architecture configuration, development operations, and production operations for DLP’s clients. He is the Lead Developer of DLP’s work on the Michigan Data Hub, including reports against its data. He is an expert in Microsoft System Center (including Orchestrator), PowerShell, Windows administration, Active Directory / ADFS, and more. Prior to joining DLP, Mr. Piatt was the Manager of Operations Support for ten years at a large manufacturing company, overseeing 70+ remote locations and 300+ Windows servers.

**DLP Activities**

- Technical Lead for Michigan TRIG Data Hub
- Lead Developer for Michigan Dept of Education MiLEARN
- Identify technical direction for infrastructure architecture and lead development operations team
- Contribute to design details delegated by Solution Architect
| Education | Pennsylvania State University, State College, Pennsylvania  
|           | Bachelor of Science in Industrial Engineering |

<table>
<thead>
<tr>
<th>Ben Meyers</th>
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</thead>
<tbody>
<tr>
<td>Project Role</td>
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</table>

<table>
<thead>
<tr>
<th>Double Line Experience</th>
<th>Senior Software Engineer</th>
</tr>
</thead>
</table>
| August 2015 - Present  | - Provided code base management, including design review and code review for most contributions to a C# .Net Web Api (the Ed-Fi API) against a Microsoft SQL Server database (the Ed-Fi ODS) implementation through Git source control. Ensured proper design patterns and object-oriented principles were followed in contributed code pull requests.  
- Implemented scalable streaming solution using C# .Net and the Dataflow portion of the Microsoft Task Parallel Library, to bulk load and process very large xml files through a set of api endpoints with minimal memory usage, including full unit tests.  
- Managed and executed scaled load testing using a custom C# .Net load client across multiple Amazon Web Service instances to provide performance numbers.  
- Shaped design direction for multiple implementation customers as needed with regards to extension points and customer requirements. Set technical direction and provided justification of design based on known design patterns and past experience with large applications.  
- Designed and worked to implement automated build process for domain specific language implementation using Git, Team City, and Octopus. Implemented flow from parsing the input files to merging generated artifacts with an existing code base and deploying a final compiled product to a testing environment.  
- Created plugin for Atom IDE to support additional integration with domain specific language parsing and validations, including full unit tests written in ES6 and Jasmine.  
- Supported downstream implementations of C# .Net Web Api implementation through ticket management and bug fixes, as well as direct support through customer communication.  
- Improved future implementation experience through additional documentation and demo setups based on experience with implementation projects. |

| Relevant Experience | Lead Application Developer  
<table>
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<tr>
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<tbody>
<tr>
<td></td>
<td>Ecolab (October 2011 – April 2015)</td>
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</tbody>
</table>
• Implemented Web Api solution to provide integration services for other internal applications.
• Designed and executed full local client synchronization replacement for Sync Framework, increasing speed, reliability, and providing additional filtering and resume features.
• Mentored and provided technical education for other developers, including demonstrations and learning sessions on newer technologies such as Linq, Web API, and WPF.
• Designed and implemented robust solution for managing ActiveReports generation of reports fully customized by individual accounts. Reduced implementation time for new reports by providing a means of reusing small components to build up larger reports on a case by case basis.
• Integrated fully automated build and deployment system using TFS and Release Management. Facilitated full automatic deployments including database backup restores and script execution.
• Managed and executed multilingual implementation of both web and WPF client to support 30+ cultures, including custom fallbacks and culture specific formatting.

Advisory IT Specialist
IBM (June 2007 – June 2010)
Worked in a consulting role within IBM’s Global Business Services, traveling as needed to meet client demands. Interacted in both a customer facing role as well as lead developer. Consistently received client praise and recognition for exceptional work targeted towards their business goals, and an ability to innovate to provide new and more efficient solutions. Received internal recognition through the top possible employee rating for work done on client projects. Used C#, Windows Communication Foundation, XML, Visual SourceSafe, Team Foundation Server, ASP .Net, SQL Server 2005/2008, Oracle, DB2, Visual Studio 2005/2008, HTML, and AJAX.

Technical Lead and Developer
Allstate Insurance Company (July 2007 – June 2010)
Served as a primary developer and technical lead on web-based insurance quoting application. Helped drive value for the customer through development process optimizations with custom written tools. Helped train and manage team members on site as well as off shore. Began the project as a new developer and transitioned into more advanced positions as the project continued.
• Led design for conversion of the existing application on to the client’s internal software framework.
• Designed and implemented several tools to support the application development process on the new framework, with many still in use for current development.
- Database content comparison utility, for managing database changes across a variety of development streams. This tool helped drastically reduce developer time spent on merging database changes across branches.
- Utility for managing generation of enumerations and constants for existing database information. Provided compile time checks against bugs between the software and database getting out of sync, as well as reducing coding time and bugs caused by typing mistakes.

<table>
<thead>
<tr>
<th>Education</th>
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<tbody>
<tr>
<td><strong>Masters - Business Information Technology</strong></td>
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<tr>
<td>INTI International University</td>
</tr>
<tr>
<td>Nilai, Malaysia, June 2011</td>
</tr>
<tr>
<td>Academic scholarship – 4.0 GPA</td>
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<table>
<thead>
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<th>Education</th>
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</thead>
<tbody>
<tr>
<td><strong>Bachelor of Science in Computer Science</strong></td>
</tr>
<tr>
<td>Neumont University</td>
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<tr>
<td>South Jordan, Utah, March 2007</td>
</tr>
<tr>
<td>Academic scholarship – 3.99 GPA</td>
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</table>

<table>
<thead>
<tr>
<th>Certification</th>
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</thead>
<tbody>
<tr>
<td>IBM Certified SOA Associate</td>
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<th>Skillset</th>
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Appendix C: Double Line Financials

Please refer to the packet that begins on the next page.
Appendix D: Release and Waiver of Liability Form

Please refer to the completed Exhibit B form on the next page.
RELEASE AND WAIVER OF LIABILITY FORM

Implement and Support an Ed-Fi Unified Data System Infrastructure in Amazon Web Services (AWS) (the “Project”) RFP #ED-FI 2018 (the “RFP”)

This Release and Waiver of Liability Form (hereinafter the “Release”) is executed by and on behalf of Double Line, Inc. [insert the full legal name of the proposing firm], a Proposer under the RFP (hereinafter the “Proposer”), located at 6801 N Capital of TX Hwy, Austin, TX 78731 [insert the full business address of the Proposer].

RECITALS

1. The San Francisco Unified School District through its Purchasing department has issued a Request for Proposals for the Project, with a requirement that Proposers submit certain information to demonstrate their experience and qualifications to perform the Project.
2. The Proposer has submitted information pertaining to its experience and qualifications, including a list of example projects and project representatives as references for its experience and qualifications.
3. The San Francisco Unified School District seeks candid comments on the Proposer’s performance on the listed example projects from the project representatives.

RELEASE AND WAIVER OF LIABILITY

The Proposer hereby fully and forever releases, exonerates, discharges, and covenants not to sue, the San Francisco Unified School District, its Boards of Education, officers and employees, and all individuals and entities furnishing comments on Proposer’s performance, from and for, and does hereby waive, any and all claims, causes of action, demands, damages and any and all other liabilities of any kind or description, in law, equity, or otherwise, arising out of information furnished about Proposer’s performance on the projects that Proposer has identified pursuant to Recital number 2, above.

INTENDED BENEFICIARIES

The San Francisco Unified School District, its Boards of Education, officers and employees, and all individuals and entities furnishing comments on Proposer’s experience and qualifications are intended beneficiaries of this Release and are entitled to enforce its terms.

PROPOSER SIGNATURE

With my signature below, on behalf of the Proposer identified above, I represent and warrant that I am an authorized representative of the Proposer with the authority to sign this Release on Proposer’s behalf, and, on behalf of Proposer, I agree to all of the provisions of this Release.

Signature of Proposer’s Authorized Representative

Matthew R. Warden, COO

Name of Proposer’s Authorized Representative

Date 5/9/18
Appendix E: Minimum Requirements Reference

The below outline checklist is provided for the convenience of SFUSD and the reviewers of this proposal. In this document you will be able to align the provided minimum requirements and content provided in this proposal.

Written Proposal

1. Proposer’s strategy to structure each element of the work
   a. Section: Approach

2. Project management approach and Solution implementation methodology
   a. Section: Project Methodology

3. Project workplan and Project schedule
   a. Section: Project Work Plan

4. Total Project Budget
   a. Section: Total Project Budget

5. Security and Confidentiality of Data
   a. Section: Security and Confidentiality of Data

6. Documentation of Proposer Qualifications Experience and Capabilities
   a. Section: Introduction, Appendix A

7. Reference Projects
   a. Section: Project References

8. Resumes and descriptions of project team
   a. Section: Project Team, Appendix B