

**MASTER SERVICES AGREEMENT**

between

**TEXAS EDUCATION AGENCY**

and

**SKYWARD, INC.**

**JUNE 1, 2011**

**EXHIBIT A-4**

**ENTERPRISE APPLICATION HOSTING SERVICES**

**STATEMENT OF WORK**

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# 1 The Vendor Enterprise Application Hosting Overview

This Statement of Work (SOW) documents the Services to be provided to TEA by the Vendor and sets forth the mutual understanding of the Parties regarding the roles, deliverables, and responsibilities of TEA and the Vendor, under the Master Services Agreement (the Agreement) entered into by the Parties as of the Effective Date.

The Vendor will meet agreed-on responsibilities as outlined in this Exhibit A-4 – Enterprise Application Hosting Services SOW to provide timely production of deliverables defined in this document as well as agreed Service Levels defined in Exhibit A-6. TEA will meet agreed-on responsibilities so that the Vendor can produce the identified deliverables and Service Levels. The responsibilities set forth in Exhibit A-2 Cross Functional SOW apply to Enterprise Application Hosting Services. Each of the Parties shall be responsible and obligated to perform only those responsibilities stated in this document.

The Vendor will provide data center services for hosting TEA's SSIS applications as detailed in this SOW. The Vendor will provide the following Services:

- Managed Server Services
- Backup Services
- Basis Services

Unless otherwise specifically and mutually agreed by both Parties, all services required to achieve the stated Service Levels in Exhibit A-6 for the hosting of the SSIS Environment are the responsibility of the Vendor. The Vendor will measure, report, and deliver the Vendor Service levels for the services defined in this SOW.

The SSIS application Environment consists of a development, test, and production Infrastructure. The production Environment is used for supporting live production data. The development and test Environments are used for developing and testing new applications, programs, upgrades, fixes, interfaces, and training and contain test data rather than live production data.

## 1.1 Glossary – General Terms

A glossary of definitions and explanations that apply to this Exhibit A-4 are provided in a separate document titled Exhibit A-1 – Definitions.

## 1.2 Statement of Work Change Control

Any change or modification to the Vendor Services will be performed through the Change Control Procedures in Section 1.9 of the Agreement. If new or additional the Vendor services are required, such services may be provided pursuant to Section 1.3 of the Agreement and will be provided pursuant to the Terms and Conditions set forth herein and will then become part of the Vendor Services. Any other changes or modifications to the Vendor Services may be performed pursuant to the Change Control Procedures in Section 1.9 of the Agreement and would be provided pursuant to mutually agreed on Terms and Conditions. To the extent any such changes or modifications have not been agreed through the Change Control Procedures, the Vendor shall have no obligation to perform such modified services

# 2 Managed Server Services

Managed Server Services provide the deployment and daily delivery of a computing platform Environment that consists of monitoring, maintaining, and managing hardware and system software configurations.

In this overview section and other description sections of this Exhibit A-4, a high-level overview of Enterprise Application Hosting Services is provided for illustrative purposes only. However, the Vendor shall be responsible and obligated to perform only those activities or tasks listed in the "Vendor Responsibilities" for the functions listed below that are defined as the "The Vendor Services" for the purposes of this Exhibit A-4. The scope of the Enterprise Application Hosting Services is provided in the following list:

- Server Deployment including Operating System (OS) Management
- Client Support
- Server Fault Management
- Server Fault Monitoring
- Server Performance Management
- Infrastructure Capacity Planning

## **2.1 General Responsibilities**

### **2.1.1 Vendor Responsibilities**

- Monitor and manage operational functions to meet Service Levels

### **2.1.2 LEA Responsibilities**

- Perform SSIS application User security administration

## **2.2 Server Deployment**

Server Deployment Services consist of the start-up activities necessary to support new server environments or the complete replacement of an existing server environment in preparation for the establishment of ongoing development, test, and production server support services. The Vendor will provide Server Deployment Services during the hours defined in Section 6 of this SOW.

### **2.2.1 Vendor Responsibilities**

#### **2.2.1.1 Service Management Process**

- Provide operational functions of OS software on the Vendor-managed servers

#### **2.2.1.2 Solution Support**

- Perform server installation, consisting of assembling, deploying, installing, configuring, and tuning hardware products in preparation for server test and acceptance services

- Perform Base OS build and test services to initially prepare and configure the OS and related software to make the environment operational and ready to accept the SSIS
- Perform server integration and acceptance testing of the OS, related server infrastructure, and operational setup in preparation for ongoing support of each Environment
- Support OS and related software products on the Vendor-supported hardware
- Provide OS monitoring and configuration support after the implementation of each development, test, and production Environment during the hours defined in Section 6 of Exhibit A-4.
- Perform OS hardening to evaluate servers and validate that the server meets the following criteria:
  - Runs the appropriate OS
  - Required OS patches and security patches applicable to its OS
  - Contains no extraneous or inactive ports
  - Has turned off nonessential applications or services that are not actively being used

#### 2.2.1.3 Compliance

- Deploy and manage OS patches as required by the Vendor security standards to manage TEA's OS environment.

## 2.3 Client Support

Client Support is responsible for the technical implementation of TEA's Infrastructure, developing test plans, and coordinating the various technical groups associated with the implementation.

### 2.3.1 Vendor Responsibilities

- Provide account support to TEA to enable regular communication
- Collaborate with TEA Single Point of Contact (SPOC) for review and approval of the SSIS Environment prior to Implementation
- Perform required escalation between the Vendor and TEA's organization

## 2.4 Server Fault Management

Server Fault Management Services categorize alerts from fault monitoring, respond to alerts or Problem management notification(s), and restore image(s). The Vendor will maintain operational production images during the hours defined in Section 6 of this SOW.

### 2.4.1 Vendor Responsibilities

- Prioritize faults based on the categorization of Problems identified and the Severity Level assigned

- Provide Incident Management to correct the fault condition and restore the image according to the Recovery Time Objective (RTO)
- Perform Root Cause Analysis to identify the source of any problem with an image and determine if a permanent Resolution will require changes to the system
- Follow the Vendor Change Management process to put into effect any changes to the system required to correct server faults
- Isolate configuration and environmental image faults
- Monitor production images during the hours defined in Section 6. After-hours support is for short-term Resolution of image availability problems only. The Vendor will maintain operational test or development images during the hours defined in Section 6.

## 2.5 Server Fault Monitoring

Server Fault Monitoring Services detect and respond to faults generated by the Vendor-monitored servers. The Vendor will provide for the isolation of configuration and environmental server faults. The Vendor monitors production servers 24 hours a day, seven days a week (excluding scheduled Maintenance Windows).

The Vendor Server Fault Monitoring Services consists of the following:

- **Heartbeat** – Involves the activities associated with monitoring a server; for example, monitoring server status and sending alerts deemed a failure to appropriate persons for escalation.
- **Mechanical Monitoring** – Focuses on the well-being of the physical hardware components within the server, such as fan, central processing unit (CPU), card, cables, and disk drives. The Vendor monitors server hardware and peripherals for malfunction and escalates hardware-related malfunctions to the third-party vendor for Resolution as defined in current vendor maintenance contracts.

### 2.5.1 Vendor Responsibilities

- Detect faults generated by the Vendor monitored images and notify Fault Management Services team.

## 2.6 Server Performance Management

Server Performance Management Services provide statistical analysis, recommendations, and reporting during the hours defined in Section 6. This service will be applied for production servers.

### 2.6.1 Vendor Responsibilities

- Implement necessary changes to meet performance requirements of the SSIS

## 2.7 Infrastructure Capacity Planning

Infrastructure Capacity Planning Services monitor system usage and capacity by analyzing historical resource usage trends for a maximum of 12 prior months. This information is then used to forecast infrastructure resource usage and capacity, both short-term and long-term, for Infrastructure located within the Vendor facilities.

### **2.7.1 Vendor Responsibilities**

- Analyze historical resource usage (maximum 12 months), by CPU, memory, I/O, and storage
- Forecast short-term and long-term Infrastructure resource usage and performance requirements based on historical data analysis as well as business input from TEA.

### **2.7.2 TEA Responsibilities**

- Provide in a timely manner, data, user, and volume growth forecasts that will affect the performance of the Infrastructure resources

## **3 Backup Services**

The Vendor Backup Services are implemented for TEA to copy LEA data and incremental changes of the data for the purpose of retaining a record that may be used to restore lost or corrupted files from a non-corrupted or clean location.

### **3.1 Vendor Responsibilities**

- Perform one weekly full backup
- Perform daily incremental backups
- Secure and transfer data off-site daily to a secure location to be used for recovery purposes, if needed.
- Retain data for 45 days

## **4 SSIS Services**

### **4.1 Enterprise Application Administration Services**

The Vendor SSIS Enterprise Application Administration Services provides support for the installation, administration, technical configuration, testing, and ongoing support for TEA's hosted SSIS enterprise application. Services start with the deployment of the first development Environment through the term of the Agreement.

#### **4.1.1 Vendor Responsibilities**

The Vendor will provide SSIS Enterprise Application Administration Services during the hours defined in [Section 6](#).

The SSIS Enterprise Application Administration Services consist of the following services:

- Installation and Administration



- System Monitoring
- File System Management
- Application Maintenance Planning
- System Documentation
- Technical Troubleshooting EDI
- Application Hosting Consultant
- EDI technical troubleshooting
- Application Backup
- Support Packs and Supporting Software Upgrades
- Supporting Software Patch Sets
- Enterprise Application Database Support
- Database Security and User Management

#### 4.1.1.1 Database Security Vendor Responsibilities

- Use the Vendor-supplied tools and processes to provide SSIS Enterprise Application Administration Services and reporting to TEA
- Analyze and resolve incidents reported to the Vendor Service Desk for SSIS components for which the Vendor is responsible
- Work with SSIS Support (if required) for Problem Resolution and escalation of Problems
- Provide SSIS Administration personnel to support TEA from the Vendor locations
- Provide TEA appropriate advanced notification when subject-matter experts are needed to provide required knowledge transfer on TEA-specific processes and systems

#### 4.1.1.2 TEA Responsibilities

- Respond to the Vendor information requests in a timely manner

## 4.2 SSIS Installation and Administration

The Vendor will install the application components required to host the SSIS development, test, and production Environments. Installation consists of configuring the hardware, network, and setup of the OS and utility software and the installation and creation of the SSIS system. The configuration of the SSIS application systems will be performed by TEA or TEA's implementer upon Transition of each LEA into the Environment. The Vendor will subsequently

provide support for post-Transition configurations of the SSIS application systems. SSIS Enterprise Application Administration activities are the basic technical services for the operation of the SSIS application.

#### **4.2.1 Vendor Responsibilities**

##### **4.2.1.1 Account Management**

- Provide LEA and third-party implementation partners access to the SSIS Administration Team during the hours defined in Section 6.

##### **4.2.1.2 Service Management Process**

- Implement and execute the Vendor's standard application administration processes and tools required for the support of TEA's SSIS Environment

##### **4.2.1.3 Solution Support – Functional**

- Design and plan for the build of each required application Environment
- Complete activities in support of data load as per the agreed-on project plan

##### **4.2.1.4 Solution Support– Technical**

- Install the SSIS software and technical configuration
- Install the SSIS database management system (DBMS) software and create the databases
- Install the identified in-scope software and interfaces as per the agreed-on project plan developed during the hosting installation phase

##### **4.2.1.5 Compliance**

- Coordinate SSIS installation acceptance testing and procedures for documenting and resolving acceptance testing issues

#### **4.3 SSIS Application System Monitoring**

This component consists of system monitoring of the SSIS applications system for errors.

##### **4.3.1 Vendor Responsibilities**

- Proactively monitor the SSIS and its database.
  - Monitoring will be performed by automated alerts appearing on the operator consoles
  - Forward alerts to the appropriate the Vendor support team(s)
  - SSIS application monitoring will be performed by sending alerts

- Collect statistics needed to measure the SSIS application availability and performance Service Levels that are documented in [Exhibit A-6](#)

## **4.4 File System Management**

File System Management Services for the hosted environment consist of the ongoing management of TEA's storage allocation and current space usage and the implementation of storage allocation changes according to the predefined storage growth and capacity plan.

### **4.4.1 Vendor Responsibilities**

- Monitor and manage application file space usage
- Implement changes in application file storage allocation according to pre-defined storage growth and capacity plan to be developed during initial implementation
- Purge technical log files following the Vendor-standard retention schedule

## **4.5 SSIS Application Maintenance Planning**

SSIS Application Maintenance Planning Services develop Maintenance Windows and provide coordination and maintenance support of SSIS-supported software. This maintenance support will be coordinated with other non-SSIS maintenance activities required for the hosted environment (for example, hardware, backup process, and file system purging). During the Implementation phase for each application Environment, the Vendor and TEA will mutually agree on scheduled Maintenance Windows. Any request to change a scheduled Maintenance Window will be addressed through the Change Control Procedure.

### **4.5.1 Vendor Responsibilities**

- Plan, coordinate, and execute maintenance activities for SSIS software, database software, and the Vendor tool software to support the delivery of the Service Level objective under [Exhibit A-6](#)
- Create maintenance schedules and gain approval from LEAs
- Maintain regular Maintenance Windows and provide LEA with 3-business-day advance notice for upcoming Maintenance Windows when possible
- Gain approval from LEA on any unscheduled Maintenance Windows when possible
- Conduct maintenance according to the Vendor standard system maintenance procedures

### **4.5.2 LEA Responsibilities**

- Create maintenance schedules in coordination with the Vendor project manager and LEA representative and coordinate LEA approval of the schedule
- Adhere to the maintenance schedules, approved changes, and system Downtime

- Provide appropriate system Downtime windows to allow for proper Maintenance Windows
- Provide application-testing resource, as required, to test maintenance changes

## **4.6 System Documentation**

The Vendor will update system documentation as changes that could impact the Vendor's service to TEA are made by the Vendor to the SSIS Environment. Changes made to TEA's SSIS Environment will follow the agreed Change Management process and, where possible, the Vendor will use automated tools to document changes.

### **4.6.1 Vendor Responsibilities**

- Maintain system documentation per the Change Management process

## **4.7 Technical Troubleshooting EDI**

Electronic Data Interchange (EDI) Technical Troubleshooting assists in defining connections, Linux file security issues, and other technical issues not requiring EDI functional knowledge.

### **4.7.1 Vendor Responsibilities**

- Assist in technical troubleshooting of EDI-issues-related connections, network issues, or file security
- Issues related to customer data, external systems, or issues requiring EDI functional knowledge are not included

## **4.8 Application Backup**

Application Backup provides coordinated backup of the SSIS application source, configuration files, and database, thereby enabling TEA's application to be recovered to agreed recovery points. Application backups are tailored to the specific type of Application Hosting Service being provided.

### **4.8.1 Vendor Responsibilities**

- Develop a backup and recovery plan for the Environment
- Configure the Vendor's Managed Storage backups to deliver the agreed backup and recovery plan
- Test the backup and recovery process as defined in the backup and recovery plan (this test may also be included within the disaster recovery testing) per [Exhibit A-2](#)
- Complete backups as defined within the Backup and Recovery Plan

## **4.9 Support Packs and Supporting Software Upgrades**

Support Packs and Supporting Software Upgrades Services apply support packs in coordination with the LEAs, and will be applied only upon approval from LEAs. The Vendor will work with LEA to schedule support packs for upgrading the SSIS Environments and databases.

#### **4.9.1 Vendor Responsibilities**

- Confirm that the LEA is at supported versions of a SSIS-essential third-party software. The Vendor will work with the LEA so that LEA's version of any third-party software required by the SSIS is at a level supported by the third-party vendors. SSIS version upgrades are a separate project and subject to the Vendor Change Management process.
- Review third-party software support packs and recommend an upgrade strategy to LEA
- Plan for installation of support packs and then confirm that the LEA Environments are upgraded.
- Maintain log of system changes
- Address the application of critical, non-standard third-party software patches, as required through the Change Management process

#### **4.9.2 LEA Responsibilities**

- Provide the appropriate Downtime window to keep support packs updated (if support packs fall too far behind, time to apply large batches will be extended)

### **4.10 Supporting Software Patch Sets**

Supporting Software Patch Sets are applied to the OS, database, or administrative tools supporting the SSIS software. If LEA requests the Vendor not to upgrade with the latest SSIS patch sets so that TEA is more than one year out of date, the Vendor reserves the right to charge LEA for any additional cost incurred by the Vendor in supporting out-of-date SSIS applications and database Environment.

#### **4.10.1 Vendor Responsibilities**

- Determine required changes and recommendations and notify LEA of pending upgrade activity using the Change Control Procedure
- Plan for software patch installation and then confirm that LEA Environments are upgraded
- Maintain log of system changes
- Coordinate and execute testing of software patches

#### **4.10.2 LEA Responsibilities**

- Participate in functional testing after implementation of the software patch
- Schedule necessary Downtime to allow patch applications
- Review case for upgrade as part of the Change Control Procedure

### **4.11 Enterprise Application Database Support**

Enterprise Application Database Support Services provide support for the standard SSIS database software-operating Environment (development, test, and production). These Services consist of the activities performed by a SSIS Administrator to maintain the system-level components of the SSIS database.

Reorganizations of the database performed only to reclaim disk space are excluded from the Vendor database support services. This practice is not recommended and is out-of-scope to the Services defined in this document. Database management tasks are performed using the Vendor, SSIS, and DBMS standard processes and procedures.

#### **4.11.1 Vendor Responsibilities**

- Perform SSIS database administration tasks needed to meet agreed-on Service Levels
- Perform database growth and capacity analysis and tuning to facilitate meeting the applicable Service Levels
- Provide the following daily proactive database management support for the DBMS-certified by SSIS to work with the installed version of the SSIS application:
  - Perform database growth and capacity analysis to monitor space usage
  - Manage space for database and related file systems
  - Monitor and tune for performance at the system database level
  - Create and manage required database links
  - Proactively monitor potential Problem thresholds to meet applicable Service Levels
  - Provide Problem Resolution consisting of working with, and escalating, support requests with the DBMS vendor

#### **4.11.2 LEA Responsibilities**

- Supply the Vendor with reasonable advance notice (three to five days) in writing of any significant changes in database usage (for example, additional data to be loaded through the data load process and additional users accessing the system)

### **4.12 Database Security and User Management**

The Vendor will maintain the DBMS database security and create the standard support accounts for the installation and support of DBMS database software.

#### **4.12.1 Vendor Responsibilities**

- Install and maintain standard DBMS accounts
- Maintain the database to the Vendor and DBMS security standards for the SSIS application

- Inform the LEA of any security or potential security events reported in the database or OS alert logs

## 5 Hosting Transition services for LEA

On completion of the initial LEA Transition, additional LEAs will be deployed on the SSIS Environment. The methodology used for the subsequent LEA Transitions will be a subset of the full Transition methodology and involve the following tasks for the SSIS.

### 5.1.1 Vendor Responsibilities

- Track, update, and review the overall the Vendor Implementation plan for each application Environment
- Coordinate with the LEA and the Vendor network to test network connectivity from LEA locations to the Vendor-hosted SSIS systems

## 6 Hours of Operation

The following table provides the hours of operations for certain defined the Vendor Application Hosting Services.

The Vendor Services	Hours of Operation
<b>Application Monitoring</b>	24x7x365
<b>Capacity Planning</b>	Monday through Friday, 8 a.m. to 5 p.m. CT, excluding Vendor observed holidays
<b>SSIS Application Administration</b>  Production Applications and Database  Provide Application Administration Team assistance as defined in this SOW during regular hours of operation  Provide after-hours emergency access to the SSIS Application Administration Team for Severity 1 and Severity 2 application events.  Development/Test Version and Database	Monday through Friday, 7 a.m. to 6 p.m. CT, excluding the Vendor holidays  After Hours, Weekends and the Vendor Holidays Monday through Friday, 6 p.m. to 7 a.m. CT All day Saturday, Sunday, and the Vendor observed holidays  Monday through Friday, 8 a.m. to 5 p.m. CT, excluding Vendor observed holidays
<b>Server Fault Management</b>  Production Servers	24x7x365

The Vendor Services	Hours of Operation
Development/Test	Monday through Friday, 8 a.m. to 5 p.m. CT, excluding Vendor observed holidays
<b>Server Fault Monitoring</b>	
Production Servers	24x7x365
Development/Test	Monday through Friday, 8 a.m. to 5 p.m. CT, excluding Vendor observed holidays

## Appendix A – High-Level Implementation Activities

The Vendor will create a detailed implementation plan. Some significant milestones that will occur during this period are:

- Due Diligence of Implementation activities and requirements.
- Finalization and sign-off of hardware environment.
- Procurement of the Vendor hardware and software
- Server deployment.
- Installation of the SSIS software and technical configuration
- Installation the SSIS Database Management System (DBMS) software and create the databases
- Implementation of the Vendor's standard application administration processes and tools required for the support of the SSIS Environment
- Completion of activities in support of data load as per the agreed-on project plan
- Technical testing of installed SSIS enterprise application