



# Office of Information Technology Services

## ITS Technical Services and Standards Overview

Exhibit 1 – Technology Services Overview

**May 12, 2016**

# 1. Table of Contents

2.	Document Version History .....	4
3.	Introduction.....	4
4.	Development Roles and Responsibilities .....	4
5.	ITS Managed Services – Infrastructure.....	5
5.1.	Supported Servers and Database .....	5
5.1.1.	Servers.....	5
5.1.2.	Relational Database Management System .....	5
5.2.	Application Hosting Stacks.....	6
5.2.1.	Java J2EE Stack .....	6
5.2.2.	.NET Stack .....	6
5.3.	Managed IBM z-series Mainframe Services .....	6
5.4.	Storage Services.....	6
5.4.1.	Block Storage .....	6
5.4.2.	File Storage .....	7
5.4.3.	File and Object Storage .....	7
6.	ITS Managed Services – Enterprise Software .....	8
6.1.	Identity Management.....	8
6.1.1.	User Authentication .....	8
6.1.2.	Data Integration Security .....	9
6.2.	User Interface and Customer Experience.....	9
6.3.	Data Integration.....	9
6.3.1.	SOA Backplane .....	9
6.3.2.	Managed File Transfers.....	9
6.4.	CRM and BPM .....	10
6.4.1.	Customer Relationship Management (CRM) .....	10
6.4.2.	Business Process Management (BPM) .....	10

6.5.	Document Management .....	11
6.5.1.	Capture .....	11
6.5.2.	Store and Retrieve.....	11
6.6.	Master Data Management and .....	12
6.7.	Business Intelligence and Analytics.....	12
6.8.	Customer Correspondence .....	12
6.9.	Geographic Information Systems (GIS).....	13
6.10.	Other ITS Standard Capabilities.....	13
7.	Project and Application Lifecycle Standards .....	14
7.1.	Project Management .....	14
7.2.	Application Lifecycle Management .....	14
7.3.	Documentation.....	14

## 2. Document Version History

Version	Date	Author(s)	Change Summary
V0.00	4/27/2016	Richard Green / G. Zink / J. Jacob / A. Ahmed	NYSTEC DRAFT Continued
V0.01	5/3/2016	Azim Ahmed	DRAFT – Content update, removed duplicates, reorganized and reformatted to standard template
V0.02	5/12/2016	Rob Roddy	Style review and updates. Distributed for internal ITS SME review.
V1.00	5/13/2016	Azim Ahmed	Version 1.00 Final

## 3. Introduction

The Office of Information Technology Services (ITS) provides architectural frameworks and platform components used to build, configure, and customize proposed solutions. A proposed solution must use the supported enterprise shared service platforms and components whenever practical. ITS enterprise technologies are available for the successful bidder to build and configure a solution that meets business requirements defined by the New York State customer agency. All builds and configurations must comply with NYS Information Technology Policies, Standards, and Best Practice Guidelines. These guidelines can be found on the ITS website at <https://www.its.ny.gov/tables/technologypolicyindex>.

Using NYS ITS enterprise shared services and components for on-premise solutions is the preferred architecture, however, other products may be proposed based on potential integration advantages and/or alignment with the ITS enterprise strategic direction and with approval by the New York State Chief Technology Officer.

## 4. Development Roles and Responsibilities

The State anticipates agency and Information Technology Services (ITS) resources to augment the System Integrator (SI) with business and technical Subject Matter Experts (SME), as well as project managers, business analysts, developers, and technical/infrastructure support. Within the established program, the SI is expected to lead the business requirements analysis and requirements specification for the

engagement under the direction of the NYS program management based upon the program organization model. The SI jointly works with ITS on system design specifications. The SI plays a lead role in the release/configuration management of the business solutions in the development environment; ITS assumes primary responsibility for support in non-development environments.

## 5. ITS Managed Services – Infrastructure

### 5.1. Supported Servers and Database

#### 5.1.1. Servers

Virtual servers to support multiple sized workloads running current supported operating systems. Service features include configuration of memory and CPU based on tiers (small, medium, large), managed network, system monitoring, security, and capacity planning

Operating Systems: IBM AIX, Microsoft Windows, or Red Hat Linux (RHEL)

Web Servers: Apache, Microsoft IIS, IBM HTTP, RedHat HTTP

Application Servers: IBM Websphere Application Server (WAS), RedHat JBoss, Oracle WebLogic, Microsoft IIS

#### 5.1.2. Relational Database Management System

Managed relational database services are delivered on supported versions of Oracle Database and Microsoft SQL Server technologies to establish a highly scalable, simplified delivery and consumption model intended to reduce costs, improve service levels, and enhance information access, security and rationalization. This service includes database support and physical database design in addition to infrastructure support. The service targets OLTP structured data workloads.

\*Data management, conceptual, and logical database design are outside the scope of this service.

## 5.2. Application Hosting Stacks

### 5.2.1. Java J2EE Stack

<b>Web Server</b>	<b>Application Server</b>	<b>Database</b>	<b>Software Workloads</b>
IBM HTTP	WebSphere on AIX	Oracle DB	IBM Software Specific Workloads
RedHat HTTP (Apache)	RedHat JBoss	Oracle DB / MS SQL	All other workloads
Oracle HTTP (Apache)	Oracle WebLogic	Oracle DB / MS SQL	Oracle Software Specific Workloads

### 5.2.2..NET Stack

<b>Web Server</b>	<b>Application Server</b>	<b>Database</b>	<b>Software Workloads</b>
Microsoft IIS on native Windows	Microsoft .NET Framework on native Windows	MS SQL Server	Legacy application and product dependent workloads
Microsoft IIS on Apprenda PaaS	Microsoft .NET on Apprenda PaaS	MS SQL on Apprenda PaaS	Modern application workloads that fit the Apprenda Service patterns

## 5.3. Managed IBM z-series Mainframe Services

Service Features: Review, configure, generate, install, and maintain the mainframe operating system software including libraries, components, patches, and upgrades.

Service Options: Disaster Recovery

## 5.4. Storage Services

### 5.4.1. Block Storage

ITS Block Storage is a managed service that provides persistent block-level storage for supported virtual and physical servers within the CNSE and Utica Data Centers.

**Service Features:**

- Redundant Infrastructure: Provides a highly available and resilient service
- High Performance: Provides low-latency performance for the most demanding agency workloads
- Provides local and offsite data backup
- Optional snapshot capabilities and data replication

#### 5.4.2.File Storage

File Storage Services include local and remote data protection (CIFS / NFS) and are primarily used for user file shares and collaboration.

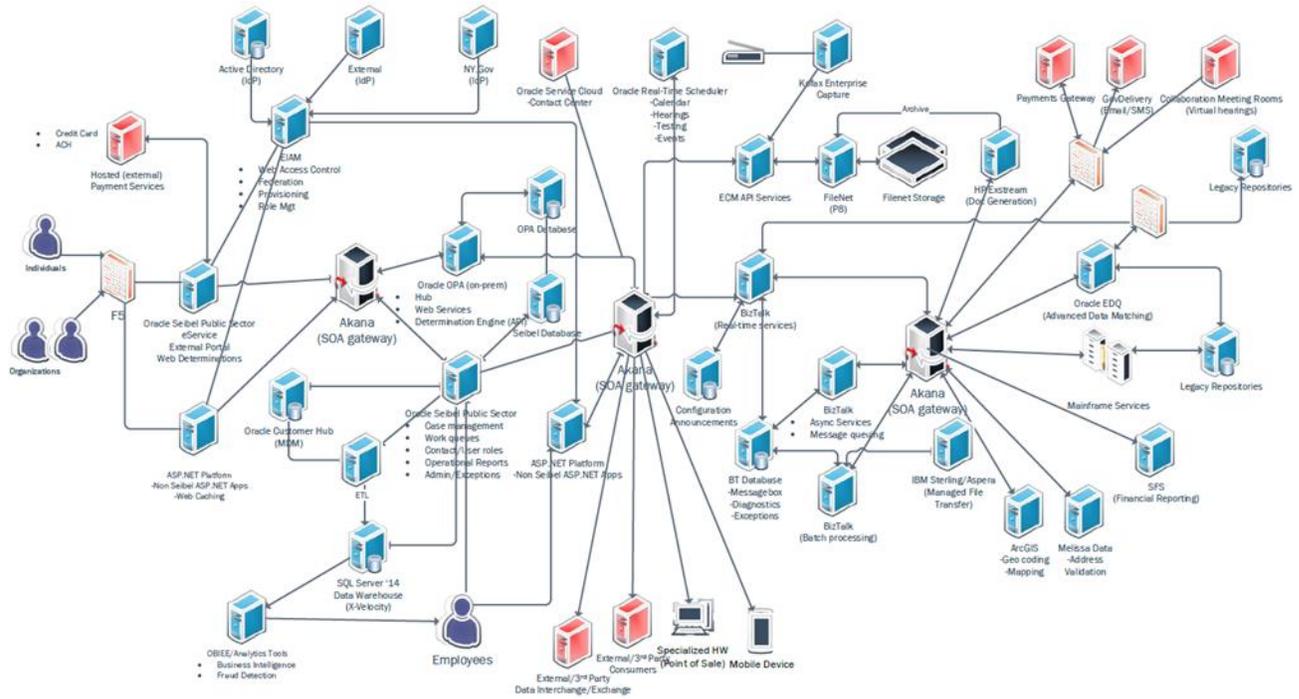
#### 5.4.3.File and Object Storage

File Storage Services include local and remote data protection (GPFS) and are primarily used for application and server file shares that support RedHat and AIX hosts.

Object Storage Services supports fixed content and archiving workloads and supports Amazon S3 compatible protocol access.

## 6. ITS Managed Services – Enterprise Software

Equation 1



Example Product Landscape

### 6.1. Identity Management

#### 6.1.1. User Authentication

User authentication is available using ny.gov and active directory. Agency user authentication must leverage ADFS. External users and citizens that are not integrated through ADFS will be supported using ny.gov accounts. Both methods pass credentials using Oracle Identity Manager to the CRM/OLTP solution where role based security is defined. Role based security at the application level will be designed and developed by the SI.

### 6.1.2.Data Integration Security

Data Integration security is managed by the ITS SOA backplane. Security access controls and logging requirements for integration and data access is to be established by ITS in alignment with NYS security policy.

### 6.2. User Interface and Customer Experience

The preferred UI for external users is OPA web determination and Siebel UI for internal users. .Net is an option for rich/custom interfaces that do not fit in the OPA/Siebel model. NYS branding and styling of the UI is a joint responsibility of the SI and ITS.

### 6.3. Data Integration

#### 6.3.1.SOA Backplane

Development of services for integration with legacy systems is the responsibility of ITS based on design specifications developed jointly by ITS and the SI. Data migration and data synchronization for legacy data stores is jointly supported by the SI and ITS. The ITS SOA backplane is used to connect customer portals to CRM/OLTP system of record, agency internal systems, and databases. The ability to integrate with existing .Net applications that support ORA is engineered through integration services established using the ITS SOA Backplane. The ability to share/integrate data with organizations both internal and external to the **proposed solution** is engineered through web services that are established using ITS SOA Backplane. Possible integrations may include but are not limited to development of legacy system interfaces, back office applications, peripheral technology services, and other inter-application SOA/API services developed by ITS based on the project system design specifications.

- SOA Akana

#### 6.3.2.Managed File Transfers

Batch managed file transfer (MFT) imports and exports may also be required when web services are not a viable option. ITS MFT services will be available for this requirement.

- IBM Sterling/Aspera

## 6.4. CRM and BPM

### 6.4.1. Customer Relationship Management (CRM)

Core CRM system, UI, data design, workflow design and development are the responsibility of the SI. ITS supported technology sets are based on Oracle Siebel products. These include:

- Oracle Service Cloud
- Siebel CRM Innovation Pack
- Siebel Public Sector on premise configuration built for NYS ITS internal state cloud
- Siebel Public Sector E-Service
- Siebel eMail Response
- Siebel Mobile
- Siebel CTI
- Siebel Partner Portal
- Siebel Partner Manager
- Siebel Tools
- Oracle UPK

### 6.4.2. Business Process Management (BPM)

Business Rules Engine Authoring is primarily the responsibility of the SI in alignment with ITS standards. Scheduling function is supported through Oracle Real Time Scheduling and preferred over custom scheduling solutions. Design and development is the responsibility of the SI.

- Siebel Application Management Pack
- Oracle Policy Automation
- Oracle Real-Time Scheduler (ORS)
- Siebel Data Quality
- Oracle Enterprise Data Quality

## 6.5. Document Management

The Enterprise Content repository is managed by ITS. New York State's ECM APIs provide SOAP-based web services that support integration using the following base capabilities for use by client applications that have to store and manage content in a NYS Transactional Enterprise Content Repository:

1. Single and Multiple Document Ingestion
2. Document Query and Retrieval based on metadata
3. Update Document Metadata
4. Delete document

The Siebel integration requires the use of Siebel EAI to call this repository services which are transport agnostic. NYS ITS is responsible for creating the transactional content repository and its associated administration tasks.

### 6.5.1.Capture

Document ingestion for new cases use Kofax Capture software to image paper documents, Siebel File upload integration capabilities with IBM FileNet, as well as automated e-scan capabilities to capture email messages and attachments.

### 6.5.2.Store and Retrieve

FileNet is the preferred platform, however Documentum and the CMIS standards are currently supported if there is a strong justification. With CMIS any object store that supports the CMIS standard is accessible using the CMIS standard APIs even if the Object Stores implementation of CMIS is varies. If a new object store is required, a new protocol can be quickly added by modifying one functional component.

*Message and Transport Protocols Supported include:* SOAP over HTTP or JMS, REST, JSON, FTP, and more are supported. If an additional protocol is required, a new protocol can be added by modifying one functional component.

## 6.6. Master Data Management and

The Oracle Customer Hub is an available technology for master data that extends beyond the Siebel operational systems of record. Use of Oracle EDQ to manage data quality is the responsibility of the SI.

- Oracle MDM
- Enterprise Oracle Data Quality

Integration support for existing verification services such as address validation and identity verification is supported by ITS.

## 6.7. Business Intelligence and Analytics

Operational data stores and data warehouse support is a joint responsibility with ITS and SI supporting ETL, design, and implementation.

Data warehouse for custom reporting and analytics is:

- MSSQL (SQL Server 2014 w/X-Velocity)

Reporting, Business Intelligence and Data Analytics capabilities is provided through:

- Case Management Analytics Fusion Edition
- Oracle Business Intelligence Suite Enterprise Edition Plus
- Business Intelligence Management Pack
- BI Publisher for Siebel Reports
- Oracle Data Integrator for ETL

## 6.8. Customer Correspondence

Document generation and correspondence with delivery of the documents to a designated output channel is supported by ITS through services based on the project system design specifications provided by the SI.

- HP Exstream
- GovDelivery (email/SMS gateways)

## 6.9. Geographic Information Systems (GIS)

The statewide GIS platform provides capability to share and discover geographic information, create and manage state geographic assets, visualize and analyze geospatial information, and collaborate geographic data in real-time. It is used to find, create, and share maps to meet analytical requirements. All maps and APIs should go through the standard NYS offering rather than Google, Bing, or other industry sources. GIS services such as map and feature services is exposed to service consumers as a RESTful end-point.

- ESRI ArcGIS 10.3.x

## 6.10. Other ITS Standard Capabilities

**Payment Gateway** - Integration development with payment gateways is supported by the SI using design patterns and merchant provider contracts established by ITS. This includes Wells Fargo, Bank of America, FirstData.

**Collaboration Meeting Rooms** – CMR in alignment with ITS standards is a preferred solution for system extensions for managed videoconference meetings. CMR development is supported.

**Statewide Financial System (SFS)** – Statewide application based on PeopleSoft for Agency accounting and financial management

**Human Capital Management** – Agency employee management and recruitment based on PeopleSoft and Oracle Taleo Cloud

**Web Content Management** – Acquia Cloud provides website authoring, collaboration, and administration tools allows users to create and manage website content. Akamai serves content to end-users via a cloud based media and software delivery network.

**Grants Management** – Agate Software

**E-Licensing** - Accela

**Virtual Desktop** - VMWare's Virtual Desktop Infrastructure (VDI) solution is used to provide desktop applications and network access to the majority of agency users. Through VDI users are provided the Microsoft Office Desktop Suite and Internet access.

**eMail and Collaboration** - eMail and workplace collaboration are provided from a public cloud via Microsoft 0365 Exchange, One Drive and SharePoint.

## 7. Project and Application Lifecycle Standards

### 7.1. Project Management

Project management uses ITS developed standards, processes, repositories, and tools unless an exception is granted. In addition to PM practices, wherever there are base competencies, CoP's for shared capabilities alignment with any established standards and practices are required. Examples include BA/BPM, OPA, Siebel, HP Exstream, and BI/Analytics.

### 7.2. Application Lifecycle Management

The ITS application development standards, processes, and tools used for all phases of the application lifecycle unless permission is granted for alternatives. Standard design and development protocols for documenting the solutions are strictly enforced. Standardized ALM tools such as TFS/GIT and HP Quality Stage is used for all development. Release management and configuration management for non-development environments is the responsibility of ITS.

Governance and oversight of all development follows ITS standards and processes, including architecture reviews, change/release management, and post-implementation support protocols for change request, incident, and problem management.

### 7.3. Documentation

In addition to standards on business requirements and data modeling, at a minimum, all application development requires the following documentation:

1. **Use Cases Diagram** (UML 2.0) or Documentation, whichever is most appropriate – used to identify, clarify, and organize system requirements.
2. **Sequence Diagram** (UML 2.0) – represents object collaboration and is used to define event sequences between objects for a certain outcome. A sequence diagram is an essential component used in processes related to analysis, design and documentation.
3. **Conceptual Diagram** – a high level graphical representation (white board architecture) showing relationships among resources and devices to develop a system.
4. **System Context Diagram** – graphical representation that shows the system and its relationship it has with other entities.

5. **Activity Diagram** (UML 2.0) – graphical representation of workflows of stepwise activities and actions.
6. **Request/Response Document** – document that describes the input and output for each service.
7. **Field Mappings Document** – document that describes the fields that are passed into the service, and what end point fields they map to.