Caregiver Application Tracker (CAT) “Rescue”

Enhancements and Support

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# Introduction

The mission of the Department of Veterans Affairs (VA), Office of Information & Technology (OI&T), Product Development (PD) is to provide benefits and services to Veterans of the United States through the development of information technology solutions. In meeting these goals, OI&T strives to provide high quality, effective, and efficient Information Technology (IT) services to those responsible for providing care to the Veterans at the point-of-care as well as throughout all the points of the Veterans’ health care in an effective, timely and compassionate manner. VA depends on Information Management/IT systems to meet mission goals.

The Program of Comprehensive Assistance for Family Caregivers and the Program of General Caregiver Support Services are collectively referred to as the Caregiver Support Program (CSP). These programs provide a menu of services and support to Caregivers associated with all enrolled eligible Veterans. The CSP offers enhanced services and support to Caregivers of post 9/11 Veterans who incurred or aggravated a serious injury in the line of duty on or after September 11, 2001, and meet other program criteria. Once approved, the enhanced services and support provides primary family Caregivers with a monthly financial stipend, training and education, access to health care through Civilian Health and Medical Program of VA (CHAMPVA), mental health care, respite care and travel and lodging to attend Veteran medical appointments and required Caregiver training. Additionally, CSP provides limited support and services to secondary Caregivers who serve as a back-up to the appointed primary Caregiver.

The Program of Comprehensive Assistance for Family Caregivers, while originally planned to support 4,200 Veterans receiving Caregiver benefits in 2015, currently supports nearly 20,000 approved Caregivers as of March 2015 and has processed more than 40K applications. The Program’s demand for services and support has significantly outpaced the VA initial projections of eligible post 9/11 Veterans.

As a result, the program did not have sufficient support for the increased application workload which impeded the timeliness of key functions and negatively impacted the VA’s ability to provide services to Caregivers. As the Program has grown and flexed, the Program’s business needs and associated data requirements have increased and evolved in complexity. For example, the Caregiver Application Tracker (CAT) was not initially conceived to support the business needs of the Caregiver Support Line.

## Scope

The System Design Document (SDD) specifies the design of the current CAT system and translates the VA requirement specifications that describe how the proposed system will be constructed. It identifies top-level system architecture and typical hardware, software, communication, and interface components. The scope of this SDD is to document the enhancements to the current CAT application.

Note: Multiple figures were too large to appear on a single page, so those figures are embedded in Appendix B and noted within the document text. Also, the hyperlinks provided in the text link to the diagram’s location on the VA site.

## User Profiles

The user base for the CAT Rescue application is members of the Caregiver Support Program (CSP).

# Background

Title I of Public Law 111-163, the Caregivers and Veterans Omnibus Health Services Act of 2010, was implemented by the VA in May of 2011. A significant part of Title I, the VA’s Program of Comprehensive Assistance for Family Caregivers (PCAFC), began accepting applications only a few days after an Interim Final Rule (IFR) was published. The Program of Comprehensive Assistance for Family Caregivers and the Program of General Caregiver Support Services are collectively referred to as the Caregiver Support Program (CSP). These programs provide a menu of services and support to Caregivers associated with all enrolled eligible Veterans. The CSP offers enhanced services and support to Caregivers of post 9/11 Veterans who incurred or aggravated a serious injury in the line of duty on or after September 11, 2001, and meet other program criteria. Once approved, the enhanced services and support provides primary family Caregivers with a monthly financial stipend, training and education, access to health care through Civilian Health and Medical Program of VA (CHAMPVA), mental health care, respite care and travel and lodging to attend Veteran medical appointments and required Caregiver training. Additionally, CSP provides limited support and services to secondary Caregivers who serve as a back-up to the appointed primary Caregiver.

## Overview of the System

The Program of Comprehensive Assistance for Family Caregivers, while originally planned to support 4,200 Veterans receiving Caregiver benefits in 2015, currently supports nearly 20,000 approved Caregivers as of March 2015 and has processed more than 40K applications. The Program’s demand for services and support has significantly outpaced the Department of Veteran Affair’s initial projections of eligible post 9/11 Veterans.

As a result, the program did not have sufficient support for the increased application workload which impeded the timeliness of key functions and negatively impacted VA’s ability to provide services to Caregivers. As the program has grown, the program’s business needs and associated data requirements have increased and evolved in complexity. For example, the Caregiver Application Tracker (CAT) was not initially conceived to support the business needs of the Caregiver Support Line.

## Overview of the Business Process

The VA’s Caregiver Program is currently utilized by Veteran’s who have served since September 11, 2001, and have been seriously injured (physically or mentally) in the line of duty, and need help because they can’t perform one or more activities of daily living on their own or they need supervision or protection because of their injuries. The CAT is used to process and keep track of the Veteran’s/Caregiver Application for home healthcare services. This system processes the application, ensures a health assessment of the Veteran is performed, makes sure that the Caregiver receives proper training and support, and will ensure a home visit is completed for final assessment. Once the caregiver receives final approval, the information is forwarded to the Stipend System to establish the recurring Caregiver Monthly Payment (Stipend). All changes for a Veteran’s Address, Caregiver’s Tier Level, Caregiver’s Revocation, and Caregiver’s Reinstatement are tracked by the CAT System and processed for payment by the Stipend System.

The Business Rules Specifications are captured within the Requirements Traceability Matrix (RTM) and the specifications for the CAT and Stipend systems that will be integrated into the enhanced CAT application are detailed in the Requirements Specification Document (RSD).

The CAT “Rescue” Enhancements and Support Contract was created as an interim solution to address issues with the CAT application while the larger CARET project is completed to further integrate the Caregiver Program and replace CAT. During this interim step, CAT Rescue aims to address errors, improve logging and tracking and stabilize the CAT application and database to improve usability for the business stakeholders. Following the stabilization of the CAT application and database, the business users have identified several reporting enhancements and additional reports to assist them with their work. Lastly, the CAT Rescue project will integrate the Stipend System used to track and calculate Stipend payments for Caregivers with the CAT Application. The Stipend System is currently in MS Access and uses a table exported from CAT to transfer Caregiver information needed for Stipend calculations. The CAT Rescue team will be converting the Stipend system to SQL and integrating the database with the CAT database and developing a new user entry system for the Stipend System functionality. Additionally, the updated CAT will further automate the Stipend rate calculations. The CAT stabilization will address several errors, improve data input validation to reduce common errors identified by the business stakeholders, improve reporting and integrate the Stipend System in SQL eliminating manual processes to transfer Caregiver information and improving scalability of the combined application.

The CAT system was developed quickly due to legislative time constraints and was designed to manage a relatively low volume of applicant data. The CSP does not have ready access to the type of data and associated reports that would allow CAT users across the system to monitor their program’s application workload or reliably track participant status changes over time due to the limited capabilities of its data system, which was conceived and designed to manage a much smaller program with less complex data needs. This system redesign will help stabilize, and enhance existing functionality, and reporting capabilities.

## Overview of the Significant Requirements

All CAT Rescue requirements are detailed in the Requirements Traceability Matrix (RTM) and outlined in the Requirements Specification Document (RSD). Please use this link to access the current RSD.

Table 2.1 describes the requirement classification.

Table 2.1: Requirement Classification

| REQ ID Label | Requirement Classification |
| --- | --- |
| STBL | Database Stabilization Requirements |
| ENHC | CAT Reporting Enhancements Requirements |
| RPRT | Additional CAT Reports Requirements |
| STPD | Stipend System Enhancements and Integration Requirements |
| SYSS | System Specifications Requirements |

# Conceptual Design

The key aspects of the CAT Rescue conceptual design include:

* Stabilize and improve the current CAT SQL database.
* Merge the Stipend data from Access to the CAT SQL database.
* Develop, test, and deploy a revised Stipend UI that interfaces to the combined SQL database.

## Conceptual Application Design

The following subsections provide information regarding the CAT Resucue conceptual application design.

### Application Context

The CAT and Stipend Systems individually access the Identity and Access Management System (IAM). The CAT application sends caregiver data transactions to the SQL database. The Stipend application sends caregiver stipend information to the SQL database. Both systems query information from the SQL database.

Figure 3.1: CAT/Stipend Context Diagram

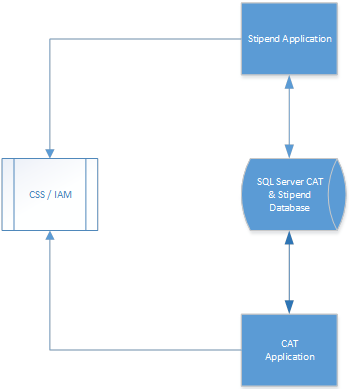


Table 3.1: CAT/Stipend Context Description Object

| ID | Name | Description | Interface Name | Interface System |
| --- | --- | --- | --- | --- |
| 1 | CAT | CAT sends caregiver data transactions to the SQL database, and queries the database for caregiver information. | Business Transaction; direct reads to tables | CAT UI |
| 2 | Stipend | Stipend sends caregiver claim information to the SQL database, and queries the database for caregiver and stipend related information. | Business Transaction; direct reads to tables | Stipend UI |
| 3 | CAT | When entering a SSN on the initial application, an interface to the Enrollment and Eligibility System and requests verification of address. | Enrollment and Eligibility System Interface | Enrollment and Eligibility System |
| 4 | CAT | Admin Tool to correct information in the CAT database and perform administrative functions. | Admin Tool | Admin Tool |

### High-Level Application Design

Figure 3.2: High-Level Application Design



### Application Locations

Table 3.2: Application Locations

| Application Component | Description | Location | Type |
| --- | --- | --- | --- |
| CAT | CAT is a web-based application that allows CSC staff to maintain caregiver data. | The server hosting the CAT web application is located at the VA Atlanta Technology Center (ATC) in Atlanta, Georgia. | Web-based application accessed via browser. |
| Stipend | Stipend is a web-based application that allows entry of reimbursement requests. | The server hosting the CAT web application is located at the VA Atlanta Technology Center (ATC) in Atlanta, Georgia. | Web-based application accessed via browser. |

Table 3.3: CAT Rescue User Groups and Access Levels

| Description | Role and Level of Access |
| --- | --- |
| CSC Staff | Role: Connects caregivers and Veterans with VA and community resources that offer supportive programs and services. A CSC is responsible for the Caregiver Support Program applications at his/her VA site and is the facility expert on caregiving.  CAT level of access and privileges:   * CSC editor and super user group: View/add/edit/save CAT data only specific to their associated VAMC. Responsible for managing their facility’s user group and can add/delete users. These are users in the Editor Group. Will include VISN CSC Lead to ensure continuity of program support. * CSC general user group: Read only access to CAT data only specific to their associated VAMC * CSC staff has also read-only access to a specific set of CAT reports |
| CSL Staff | Role: Responds to phone inquiries regarding VA Caregiver Support, facilitate referrals and offers support and resources as appropriate.  CAT level of access and privileges:   * CSL user group: * View/add/edit/save any data specific to CAT CSL data sections * Read only access to all other CAT data * The CSL staff has also read-only access to a specific set of CAT reports |
| VAMC Admin Staff | Role: Provides admin support to the local VAMC Caregiver Support Program, including uploading relevant documents.  CAT level of access and privileges:   * The VAMC admin group have the same privileges as CSCs except they cannot approve records, revoked, change the CG last name or Veteran’s zip code. |
| HRC Staff | Role: Makes referrals to CSCs when a potential Veteran and/or Caregiver contacts them.  CAT level of access and privileges:   * HRC user group: * Create contacts using appropriate templates and upload/attach documents (e.g. 1010CGs) in CAT * Read-only access to all CAT data, can edit/update specific CAT data fields and attach documents (for contacts/records based on their current process status) * Note: they don’t attach 10-10CGs even though they have the ability. * HRC super user group: responsible for managing HRC user group and can add/delete HRC users |
| HEC Staff | Role: Makes referrals to CSCs when a potential Veteran and/or Caregiver contacts them.  CAT level of access and privileges:   * HEC user group: * Create contacts using appropriate templates and upload/attach documents (e.g. 1010CGs) in CAT * Read-only access to all CAT data, can edit/update specific CAT data fields and attach documents (for contacts/records based on their current process status) * HEC super user group: responsible for managing HEC user group and can add/delete HEC users |
| CBOPC Staff | Role: Responsible for the administration of stipend benefits for the Program of Comprehensive Assistance for Family Caregivers. Also, responsible for enrolling eligible Primary Family Caregivers into the CHAMPVA program when there is no other health care coverage.  CAT level of access and privileges:   * CBOPC general user only: Read only access to all CBOPC specific data * CBOPC Triage (edit) user group: Review /edit and reject stipend/tier/payment related information (check box) * CBOPC Leads (edit) user group: * Review and reject stipend/tier/payment related information * Edit/update only specific data fields (TBD) of CBOPC information * View/edit/save all CAT information reports (access functionally) * Add/attach CBOPC documents * View/request CAT reports * CBOPC super user group: * Access and privileges to all CBOPC actions * Edit/update CAT data fields (TBD) * Responsible for managing CBOPC user group and can add/delete CBOPC users * CHAMPVA user group: Review/Edit specific OHI fields and check appropriate CHAMPVA boxes in CAT |
| CAT Admin Staff (Tech Support) | Role: Assists with record updates and data accuracy issues, makes any CAT record and application “content” adjustments as necessary.  CAT level of access and privileges:   * CAT Admin user group: * View/add/edit/save all CAT data except for CBOPC/stipend/tier/payment information (We can and should be able to add/edit/change the benefit stop date as we need to do this to repair records. * Access to the “CAT admin tool” to validate fixes |
| CAT Helpdesk Staff | Role: Assists with CAT technical bug fixes, updates code, tests and validates fixes. Also, ensures the system operates smoothly.  CAT level of access and privileges:   * CAT Helpdesk user group: * Super user access in CAT to fix issues (content/code) and view tickets logged through the helpdesk * Access to the “CAT admin tool” to validate fixes * Updates made by CAT Helpdesk users should notify the appropriate POCs |
| VISN CSC Leads | Role: Accesses specific CAT reports or records to review the overall program status and performance and monitor facilities work within the VISN.  CAT level of access and privileges:   * VISN CSC Leads user group: * View/edit CAT records for all VAMCs specific to their associated VISN (Can’t access any CAT data outside their associated VISN) * View and access specific CAT reports * Member of facility-specific CSC super user group (collateral duty) |
| CSP VACO Staff /Approved partners | Role: Supports the Caregiver Support Program for various purposes (project management, status reporting, analysis etc.).  CAT level of access and privileges:   * VACO user group: * Read-only access for all CAT data * View and access CAT reports   Note: In the current CAT System this group of stakeholders has super user privileges as well and this should be removed in the CAT Rescue enhancements (user group should only have read-only CAT privileges) |
| Adjudication Waiver Staff | Role: Ability to adjudicate exception and waiver requests.  CAT level of access and privileges:   * Adjudication waiver user group * Approve/adjudicate submitted waivers * Read-only access to all CAT data |

## Conceptual Data Design

The Data Architecture model describes the data structures, including data in storage and data in motion, data stores, data groups, data items, and mappings of the data artifacts to data qualities, applications, and locations. The CAT Rescue architecture will reuse existing client structures for sharing data with the enterprise.

The following data integrity and data quality issues and concerns will be addressed:

* Need to prevent potential loss of data – will be implemented through effective database design changes combined with a data backup and data archival strategy.
* Need to effectively retain and maintain historical data – will be implemented through effective database design changes – archival method to be determined.
* Need for each application record to be associated with a social security number – all non-compliant records will be identified via data profiling technologies.
* Need to prohibit the ability to enter “bad data” – through the implementation of data constraints and date validation at the user interface level as well as the database level. This will help ensure report accuracy.
* Need for effective audit tracking – auditing method to be determined.
* Need for BLS Update Process Automation and Verification.

Table 3.4: Current Data Disposition Categories for CAT Rescue

| Data Disposition | Description | Concept Exists Today? | Proposed Location |
| --- | --- | --- | --- |
| CAT Database | Contains Care Giver and Veteran Data; Tier Data; Payment Rate Data | Exists on Current CDB | Existing CAT Database |
| Stipend Database | Contains Data Originating from the CAT Database; Used to Calculate and Store Stipend Payment Data; Used to Generate Correspondence | Exists in the client Access DB (.accdb) | Integrated into CAT Database |
| BLS – Bureau of Labor Statistics | Data Source Used to Update the Stipend Rate Amounts Once Per Year | External Data Source | Data Imported Directly into CAT Database |

### Project Conceptual Development Roadmap

The CAT and Stipend Conceptual Development Roadmap is too large to display on a single page so it is embedded in Appendix B.

### Database Information and Current Data Model

Table 3.5: Current Database Inventory

| Database Name | Description | Type | Steward |
| --- | --- | --- | --- |
| CAT | Application Primary Database | Interface/Modify | Located at client’s datacenter in Austin, TX |
| Stipend | Application Primary Database | Will be Merged with CAT DB | Client Access DB (.accdb)  At CBOPC |

The combined CAT and Stipend System Data Model is too large to display on a single page so they are embedded in Appendix B.

### User Interface Data Mapping

#### Application Screen Interface

The CAT Rescue Project will utilize the existing web interface for the CAT Application. No major re-design of these screens are planned. Modification to the interface’s back-end will be provided to help ensure data integrity, data quality, error checking, support new database design and constraints, and/or provide an enhanced user experience.

The Stipend application currently uses Microsoft Access Forms for its report interface. A new web interface for the Stipend Application Processing utilizing ASP.NET MVC technologies will be created. This will help ensure data integrity, data quality, error checking, data constraints, and support new SQL Server Stipend related database tables.

The new interface will include screens that will:

* Provide the ability to query all Address Changes, Applications, Revocations, Tier Changes, and other Caregiver Stipend related data based on a user chosen and/or system chosen date.
* Provide the ability to manually update Address, Revocation, and Tier Changes. These permissions will be provided to a select group of users defined by a database User Role.
* Provide the ability to print Address Change, New Application, Revocation, and Tier Change Letters based on a user chosen and/or system chosen date.
* Provide the ability to perform Administrative tasks to a select group of users defined by a database User Role. Such tasks will include Modify and Write permissions. Will also include Delete permissions if so defined by the process business rules.
* Provide the ability to generate Reports for all aspects of the Stipend Processing System.

##### Existing CAT Workflows

The existing CAT System Workflow (refer to Appendix B) depicts the existing CAT System Workflows and is not planned to be modified. The Stipend workflows detail the tasks performed when a Veteran wants to request benefits and become part of the Caregiver System.

##### Current User Interface Data Flow

The current Stipend Process User Interface Data Flow (refer to Appendix B) shows the flow of the user interface menu screens and the underlying calls to forms, queries, reports, and/or tasks.

##### Current Address Change Process

The Stipend System’s Current Address Change Process (refer to Appendix B) shows the task flow and calculation logic performed on a Care Givers Stipend payment and/or recoupment amount when a Veteran’s moves and submits an address change.

##### Current Initial CBOPC Application Process

The Stipend System’s Current Initial Application Process (refer to Appendix B) shows the tasks flow and calculation logic performed to arrive at a Care Givers Initial Stipend payment.

##### Current CBOPC Tier Change Process

The Stipend System’s Current Tier Change Process (refer to Appendix B) shows the tasks flow and calculation logic performed to arrive at a Care Givers Stipend payment and/or recoupment amount.

##### Current Reinstatement Process

Figure 3.8 depicts the Stipend system’s Current Care Giver Reinstatement Process. It shows the tasks flow and calculation logic performed to arrive at a Care Givers Initial Stipend payment.

##### Current Revocation Process

Figure 3.9 depicts the Stipend system’s Current Care Giver Revocation Process. It shows the tasks flow and calculation logic performed to arrive at a Care Givers Final Stipend payment or recoupment amount.

#### Application Report Interface

The CAT Application Report Interface will leverage the existing report framework to institute improvements to existing reports, and add additional reports. It will utilize Ad Hoc Reporting capabilities to allow the End User the ability to construct a report on the fly. The End User will be able to choose and manipulate data and easily arrange a report layout to suit their desired needs.

The Stipend Application Report Interface will be created utilizing ASP .NET MVC to access newly created reports via SQL Server Reporting Services (SSRS).

Both report interfaces will provide the End User the ability to easily export reports to other standardized formats. A select group of authorized people will be given the capability to setup email subscriptions for reporting.

##### High Priority CAT Reports

The following list indicates the high priority CAT Reports to be analyzed and cleaned-up first during the CAT Reporting enhancement development sprints:

* Approved Family Caregiver Records
* CBOPC Address Report Change
* CBOPC Applications Report
* CBOPC Revocation Report Based on Primary Caregiver
* CBOPC Tier Changed Report
* Contact Status = Currently Open
* CSL Executive Summary Report
* CSL Repeat Callers
* Executive Summary Report – Family Caregiver
* Revised Executive Summary
* Executive Summary Report General Caregiver (REVISED)
* Monitoring Assessment Report
* Partnership Approval Report
* Partnership Approved General Caregiver Report
* Partnership Denial Report
* Records which have a Second Secondary Caregiver
* Records Which Have a Secondary Caregiver
* Revocation Report – All Caregivers
* Top 10 Facilities with the highest final eligible population
* VACO Special Reports
  + VACO Disposition Summary
  + VACO Disposition Timeline Detail
  + VACO In Process Summary
  + VACO\_Caregiver\_Invalid\_SSN
  + VACO\_Executive\_Family\_Caregiver\_Report
  + VACO\_Form\_1010CG\_Received\_Date\_Is\_Future\_Date
  + VACO\_Number\_of\_Views\_Per\_Report
  + VACO\_Vet\_Disapproved\_Then\_Reapproved\_In\_Master\_Rpt
  + VACO\_Veteran\_Invalid\_SSN\_From\_Master\_Denied\_Rpt
  + VSSC Master Denied Report
  + VSSC Master Disapproved Report
  + VSSC Master In-Process Records Report
  + VSSC Master Report
  + VSSC Master Report – Caregiver Info
  + VSSC Master Report – Caregiver Info – Exceptions
  + VSSC Master Report – Caregiver Info – New Entries
  + VSSC Master Report – Exceptions
  + VSSC Master Report – New Entries
  + VSSC Master Report – Veterans Info
  + VSSC Master Report – Veterans Info – Exceptions
  + VSSC Master Report – Veterans Info – New Entries
  + VSSC\_Number\_Approved\_Caregiver\_Per\_Month
  + VSSC\_Number\_Approved\_Caregiver\_Per\_Year
* VISN Report
* VSSC Master Disapproved Report
* VSSC Master Report

##### Lower Priority CAT Reports

The following list indicates the lower priority CAT Reports to be analyzed and cleaned-up after the priority reports are completed during the CAT Reporting enhancement development effort.

* Application Summary
* Approved Family Caregiver Ratio of Applied to Approved
* Approved Family Caregiver Records Which Have Quarterly Visit Completed
* Approved Family Caregiver Who have Annual Re-Assessment Done Report
* Approved General Caregiver Records
* Average Days to Approve Records
* Caregiver Appeals
* Caregiver Demographics for Approved
* Caregiver Ineligible
* Caregiver Relationship to Applicant
* CBOPC Rejected / Immediate Attention Required Records
* CBOPC Reported Errors Report
* CBOPC Up-To-Date Processed Applications Report
* CESP
* Contacts - Total Created Per Month
* CSL Admin Notes
* CSL Calls
* CSL Daily Report
* CSL Rural Health Executive Summary Report
* CSL Satisfaction Executive Summary
* CSL Satisfaction Outgoing Calls (SOC) Report
* Disposition Report
* In-Home Annual Re-Assessment Report
* Initial In-Home Visit Completed Within 10 days
* Monitoring Assessment - Type of Assessment
* Overdue Contacts: Contacts That Have Not Been Addressed Within 5 Days
* Overdue Records: Initial In-Home Assessment is greater than 10 Days
* Overdue Records: Record Is not Approved or Disapproved within 30 days
* Overdue Records: Record is not approved or disapproved within 45 days
* Overdue Records: Record is not approved or disapproved within 90 days
* Primary / Secondary Caregiver Report
* Quarterly Monitoring Assessment Due within 30 Days Report
* Records Which Have Form 1010CG Attached
* Records Which have Former/ Replaced Caregiver
* Services / Interventions Used
* State Data
* Transferred Contact Report
* Urban / Rural Report by State / Zip Code
* Veteran Deceased
* Veteran Ineligible

#### Unmapped Data Element

Information will be provided in a later release.

## Conceptual Infrastructure Design

The following subsections provide the information regarding the CAT Rescue conceptual infrastructure design.

### System Criticality and High Availability

The CAT and Stipend systems will be hosted by Enterprise Operations at the AITC. They will be responsible for availability and disaster recovery. Listed below are the current and proposed CAT backup, availability and disaster recovery information. There is a Service Level Agreement (SLA) for hosting support with Enterprise Operation (EO) for hosting and availability support.

* Nightly backups are currently being performed for the CAT database. There is a tape backup system for the Stipend system but no infrastructure to restore it.
* The CAT backups are periodically verified for correctness and completeness.
* System operators monitor the application and database server performance and tune system parameters as needed to maintain optimal performance.
* A concern is the CAT and Stipend application servers depend on the SQL Server database and will be non-functional if the database or the database server is offline.

Failover servers and databases with high availability are recommended as part of a disaster recovery plan.

#### Database Backup Recommendations for CAT Rescue:

* Database Backups should be configured for FULL Recovery Model – backup type should be set for FULL and scheduled to run nightly during the available backup window (10pm – 4am)
* Database Transaction Log Backups should be configured to run every 30 to 60 minutes depending on the agreed amount of acceptable data loss should an outage occur
* Backup System databases: master, model and msdb databases at least once a week using the FULL Recovery Mode
* Scheduled jobs should be created to automate the backup processes
* Use all available verification options provided by the backup software solution being utilized. Use advanced features like BACKUP CHECKSUM to detect problems with the backup media
* Backup the Server Host Operating System DAILY
* Backup files should not be stored on the same physical storage device as your database files
* Backup to a file share (on a different SAN if possible), then backup the share up to tape
* A copy of all server & database files should be kept offsite for Disaster Recovery Purposes
* Backup Restore process should be tested periodically on a test server to ensure you can completely and successfully restore should a disaster occur

#### Recommended System (Database & Server) Failover Options

Windows Server Failover Clustering (WSFC) – If one or more of the active nodes in a cluster fails, the other nodes in the cluster begin to provide service. The nodes come to know each other’s active status by using a heartbeat – a periodic signal between two directly connected machines.

Table 3.6: Recommended System Failover Options

|  | SQL Server AlwaysOn Failover Cluster Instances (FCI) | SQL Server AlwaysOn Availability Groups |
| --- | --- | --- |
| Uses Windows Server Failover Clustering (WSFC) Cluster | Yes | Yes |
| Protection Level | Instance Level – The Complete SQL Server | Database Level |
| Data Loss | None – with Synchronous Commit Mode | None |
| Recovery Time Objective (RTO) | ~3 seconds | ~30 seconds |
| Storage Type | Shared | Non-Shared |
| Storage Solutions | Direct attached, SAN, mount points, SMB | Depends on node type |
| Readable Replicas | \*\*No | Yes |
| Applicable Failover Policy Settings | WSFC Quorum, FCI-specific  \*\*\*Availability Group settings | WSFC Quorum, Availability group settings |
| Failed-over Resources | Server, instance, and database | Database Only |

|  |
| --- |
| \*\* Whereas synchronous secondary replicas in an availability group are always running on their respective SQL Server instances, secondary nodes in an FCI actually have not started their respective SQL Server instances and are therefore not readable. In an FCI, a secondary node starts its SQL Server instance only when the resource group ownership is transferred to it during an FCI failover. However, on the active FCI node, when an FCI-hosted database belongs to an availability group, if the local availability replica is running as a readable secondary replica, the database is readable. |
| \*\*\* Failover policy settings for the availability group apply to all replicas, whether it is hosted in a standalone instance or an FCI instance. |

### Special Technology

There is no special technology used in the CAT, Stipend, or SQL server applications.

### Technology Locations

Table 3.7: Technology Location Details

| Technology Component Production | Location | Usage |
| --- | --- | --- |
| Web Clients | VBA Regional Offices or external access via VA VPN | Access CAT and Stipend web servers through a compatible browser program. |
| CAT & Stipend SQL Database Server | VA Atlanta Technology Center (ATC) in Atlanta, Georgia. | Central data repository to support the CAT and Stipend application servers. |
| CAT Application Server | VA Atlanta Technology Center (ATC) in Atlanta, Georgia. | Windows server hosting modified Classic ASP & new ASP.NET UI to interface CSC CAT users to database. |
| Stipend Application Server | VA Atlanta Technology Center (ATC) in Atlanta, Georgia. | Windows server hosting ASP.NET UI to interface Stipend users to database. |
| CAT & Stipend SQL Reporting Server | VA Atlanta Technology Center (ATC) in Atlanta, Georgia. | SQL SSRS Reporting Server that will serve new CAT & Stipend Reports |

### Conceptual Infrastructure Design

Comprised of Virtual Machines:

* (2VM) CAT Application Servers – Windows Server 2012 Standard Edition (auto failover)
* (2 VM) Stipend Application Servers – Windows Server 2012 Standard Edition (auto failover)
* (2 VM) SSRS Reporting Servers – Windows Server 2012 Standard Edition / SQL Server 2012 Enterprise Edition (auto failover)
* (2 VM) SQL Database Servers – Windows Server 2012 Standard Edition / SQL Server 2012 Enterprise Edition (auto failover)

Disaster Recovery on different subnet:

* (1 VM)Additional CAT Application Server - Windows Server 2012 Standard Edition (standby-manual failover)
* (1 VM)Additional Stipend Application Server – Windows Server 2012 Standard Edition (standby-manual failover)
* (1 VM) SSRS Reporting Server – Windows Server 2012 Standard Edition / SQL Server 2012 Enterprise Edition (active Asynchronous – manual failover)
* (1) SQL Database Server – Windows Server 2012 Standard Edition / SQL Server 2012 Enterprise Edition (active Asynchronous – manual failover)

#### Location of Environments and External Interfaces

Figure 3.3: Conceptual Networks and Environments



#### Conceptual Production String Diagram

Figure 3.4: Conceptual Production String Diagram



# System Architecture

The CAT System consists of two individual servers. The first server houses the CAT Web Application and User Interface. The second server is a Microsoft SQL Server that contains the CAT Application’s Database.

The Stipend Processing system consists of an Access database with an Access Forms user front-end.

The CAT Rescue Project will utilize existing server hardware and software. It will remove the MS Access database system and will include the addition of two Windows Server VMs (Virtual machines). The first additional server will house the SSRS Reporting Server; the second additional server will house the new Stipend Processing Web Application and user interface. The addition of these two servers will provide for better performance and solution scalability.

## Hardware Architecture

Table 4.1: Hardware Components

| Technology | Release/Version | Notes |
| --- | --- | --- |
| CAT Web Server – DNS web06 | Hardware platform type VM | Existing System  8GB RAM  C:\Drive – contains operating system & web files  E: Drive – contains the CAT2.0 Web User Interface file (classic ASP);  Caregiver Documents (about 70GB);  Caregiver Document Log Files (about 25GB) |
| CAT Database Server – DNS sql001 | Hardware platform type VM | Existing System  32GB RAM  C:\Drive – contains operating system  D:\Drive – contains CAT Database |
| Stipend Processing System | Hardware platform type VM | Existing System using MS Access will be deprecated as part of this project. Data will be migrated and merged into existing CAT Database server.  Database is about 200mb compressed  There are more than 30 but less than 50 current users. Most users are Read Only and consist of End Users, Managers & Administrators.  More users to come - solution will provide for scalability |
| CAT & Stipend SSRS Reporting Server | Hardware platform type VM | Proposed New System |
| Stipend Processing Web Application Server | Hardware platform type VM | Proposed New System |

## Software Architecture

Table 4.2: Software Components

| Technology | Release/Version | Notes |
| --- | --- | --- |
| CAT Web Server – Windows | Windows 2012 | Standard Edition |
| CAT & Stipend Database Server;  SQL Server R2 2012 (64 bit) Enterprise Edition | Windows 2012 | Default Instance Name  Standard Edition |
| CAT & Stipend SSRS (SQL Server Reporting Services) Reporting Server  SQL Server 2012 (64 bit) Enterprise Edition | Windows 2012 | Standard Edition |
| Stipend Processing Application Web Server | Windows 2012 | Standard Edition |
| Data Migration Tool: SSIS (SQL Server Integration Services)  SQL Server 2012 (64 bit) Enterprise Edition | Windows 2012 | Standard Edition |
| Additional Developer Tools | | |
| SQL Server Data Tools | Version 0.3.20116.0 | Standard Edition |
| SQL Server Data Tools 2015 | Version 14.0.60203.0 | Standard Edition |
| Visual Studio 2010 Shell | Version 10.0.40219 | Standard Edition |
| Visual Studio Professional 2015 version 14.0.23107.156 | Version 14.0.23107.156 | Standard Edition |
| Notepad ++ version 6.8.8 | Version 6.8.8 | Standard Edition |
| Active Directory Authentication Library for SQL Server version 13.0.10000.281 | Version 13.0.10000.281 | Standard Edition |
| IBM Rational team Concert Client for Microsoft Visual Studio IDE | Plug in | Standard Edition |

## Network Architecture

CAT Rescue Project will utilize client’s existing Network Infrastructure to facilitate the hardware/software platforms for the CAT & Stipend Applications and databases. Two options are under consideration for the new Network Architecture. The New Integrated System Architecture as described in 4.3.1 and depicted in Figure 4.1 and option 2, a High Availability New Integrated System Architecture as described in figure 4.3.2 and depicted in Figure 4.2.

### New Integrated System Architecture

The New Integrated System Architecture includes an additional server for the CAT Application, an additional SQL Server for both the CAT & Stipend Applications, two new servers for the Stipend system, and two new servers for reporting. This design will provide scalability, improve performance, and reduce risk to both the CAT & Stipend Application Systems.

Figure 4.1: New Integrated System Architecture



### High Availability with Scalable Performance

In the high availability option, as depicted in Figure 4.2, users will access CAT system and be routed by a load balancer to the appropriate Application Instance server. If one of the application instances needs maintenance, the full load will be handled by the other instance until maintenance is complete. Each application instance will connect to the database through the SQL Server Availability Group Listener or, in the case of running a report, the application instance will submit a request to the Reporting Services cluster which in turn will access the SQL Server Availability Group Listener.

Using SQL Server 2012 AlwaysOn technology, the SQL Server listener will assess the request and route the request to the available node. If the secondary server is down, all traffic is routed to primary. If primary server is down, SQL Server will quickly change the state of the secondary server to primary and route all traffic accordingly.

In summary, this solution achieves high availability with the added benefit of increased performance and an architecture that easily scales with future needs. Each of the Application, Reporting, and SQL Server clusters could be independently scaled up by adding additional servers as the need arises.

#### Disaster Recovery

Also depicted in Figure 4.2 and available for consideration would be a separate stack of servers for a disaster recovery scenario. Being stateless, both the application server and the SSRS server would be idle. The SQL Server DR server, however, would need to be updated asynchronously on an appropriate interval. During a disaster, the DNS router would only need to be modified to access the disaster recovery stack until the high availability and performance stack can be recovered. The system would be operational, but may suffer from slow response times.

Figure 4.2: High Availability Integrated System Architecture



## Service Oriented Architecture / ESS

The CAT Rescue Project will merge the Stipend Database and Application capabilities into the CAT Database system.

## Enterprise Architecture

The system will adhere to the VA Technical Reference Model (TRM)/Standards Profile (SP). System development and solution selection(s) will adhere to approved standards and rules, unless it proves to be more cost-effective over the life of the application to deviate from the standards. The standards, strategies, and guidelines establish the fundamental technologies enabling the VA to meet many of its business and information system goals. By using these standards, the VA can promote interoperability, portability and adaptability within systems, promote quality assurance, place the VA in a position to utilize current technology, and provide a framework for IT application and infrastructure development. The current TRM/SP is located on the VA Site under VA Enterprise Architecture (EA) V2.1.

# Data Design

The team will conduct a complete analysis of the CAT & Stipend database design, and the data store therein. Will design and execute the migration of the Stipend Processing database using standard data integration tooling in compliance with the VA Technical Reference Model (TRM), which facilitates enterprise application and data integration, data profiling, data quality and validation, and metadata management in order to generate repeatable data migration capabilities. Additionally, it will generate focused requirements for application changes needed to maintain system and data integrity.

See the following diagrams distributed with the SDD and located in the CAT Rescue SharePoint site (note the diagrams were too large to include within this document):

* CAT System – Current Data Model.vsd
* Stipend System – Current Data Model.vsd

## DBMS Files

The CAT database contains many data anomalies that cause reporting problems and errors. The data currently residing in the CAT database will be analyzed, profiled for NULL values, incorrect values, incorrect date and social security number formatting, and general “bad data”. The data will be reconstructed using defined business rules and ETL (Extract Transform & Load) / SSIS Package technology.

A report of any remaining data anomalies that cannot be resolved based on transformation rules will be provided once identified. These unresolved anomalies might need to be manually updated by the CAT Database Administrator. To prevent data loss, we might not be able to modify the database to enforce data constraints until 100% transformation and data compliance has been achieved.

Approximately 75% of the data that currently resides in the Stipend Access Database is imported from the CAT Application database. Once the Stipend Processing database is merged with the CAT database, the data will no longer need to be duplicated for the Stipend Processing System. The required data will be available directly to Stipend Processing via SQL Database access.

All required Stipend Processing tables currently in the Access Database will be redesigned and created on the CAT database utilizing Best Practices and Normalization Methodology.

All data currently in the Stipend Processing Access Database will be imported into the newly created tables located on CAT database via ETL (Extract Transform & Load) / SSIS Package technology.

Data stored in the CAT database will be subject to audit, backup, and Disaster Recovery (DR) governance already practiced by VBMS. Consideration should be given to include a SQL Server DBA review and recommendations.

## Non-DBMS Files

All Stipend Process related correspondence will be saved and stored in digital format. Pointers to all related documentation for a particular application record will be stored in the application record on the database. This will allow the ability to query and view all past and current documents related to the record via the user interface. Current technology and best practices will be evaluated to meet the business needs and requirements for being able to access electronic documents online.

Depending on the method chosen for Binary Images (PDF/letters/scans) processing and storage, new table(s) might need to be created and/or databases features installed and configured for the CAT Database.

## Data View

Table 5.1: Existing CAT Database Table and Column Information

| \_\_RefactorLog | OperationKey |
| --- | --- |
| Branch | **Branch** |
| Call | **Id**, Responder, CallStart, CallEnd, ContactID, Contact\_Last\_Name, Contact\_First\_Name, Contact\_Middle\_Name, CallerPhone, contact\_secondary\_phone, **CallTypeId**, BestTimeToCall, RelationshipToVet, Vet\_Last\_Name, Vet\_First\_Name, Vet\_Middle\_Name, VeteranAge, VeteranDOB, VeteranSSN, Vet\_gender, **VeteranEraServed**, Branch, VetPrimaryDiagnosis, VeteranState, VeteranCity, VeteranZipCode, CurrentlyReceivingVACare, VeteranCareFacility, FacilityReferredTo, WarmTransferProgram, WarmTransferPerson, **HowHeardAboutUs**, HowHeardAboutUsTxt, AddToListServe, EmailAddress, ServiceConnectedLevel, ServiceConnectedReason, AdditionalInformation, AgreeToCSCReferral, SummaryOfCall, AdditionalConcerns, Recommendations, Call\_Closed, Call\_Closed\_Date, Call\_Closed\_By, Send\_Call\_Date, Readonly, Status, Call\_Deleted, Call\_Delete |
| CallerErasServed | EraServedId, CallId |
| CallOutCome\_Comments | **ID**, **LogID**, LogLevel, Commented\_By, Comments, Outcome\_Status, Last\_Updated\_By, Last\_Updated\_date |
| CallOutcomeLog | **ID**, **CallID**, **ContactID**, Level, Date\_Due, Date\_Follow\_Up, Name, Facility, Date\_Contacted\_Caller1, Date\_Contacted\_Caller2, Date\_Contacted\_Caller3, Date\_Contacted\_Caller4, Date\_Contacted\_Caller5, Interventions, Date\_Send\_For\_CSL\_Review, Outcome\_Status, Outcome\_Accepted\_date, CSC\_Comments, CSL\_Comments, Last\_Action\_by, Last\_Updated\_Date, Last\_Updated\_by, Referral\_Closed, CSL\_Closed\_Reason, CSL\_Closed\_Remarks, additional\_follow\_up |
| CallReason | **ReasonID**, CallID, ContactID, ReasonForCallID, Comments, createdby, active, activedate, inactivedate, CESPID |
| CallType | **Id**, CallTypeName |
| CallWarmTransfer | **ID**, Name |
| Latest\_Call\_Log | CallStart, CallID, Caller\_Name, CallerPhone, Call\_Closed\_Date, Call\_Type\_Name, Relationship, Vet\_Name |
| ReasonForCall | **Id**, Reason, **TypeId**, description |
| ReasonType | **Id**, TypeName |
| ServiceEra | **Id**, EraName |
| tbl\_1010CG\_Attached | **contactID** |
| tbl\_Adjudication\_Decision | **ID**, Description |
| tbl\_Adjudication\_Extension | ID, Record\_Number, Request, Requested\_By, Request\_date, Adjudication, Adjudication\_By, Adjudication\_Date |
| tbl\_Admin\_Notes | Id, CallID, ContactID, Record\_Number, Notes, Username, Note\_time |
| tbl\_Appeal | **ID**, Record\_Number, **ContactID**, Reason\_ID, Date\_Appeal\_Filed, POC, POC\_Telephone, POC\_Email, Appeal\_Details, Adjudication\_Date, Adjudication\_Decision, Adjudication\_Details, Last\_Updated\_Date, Last\_Updated\_By |
| tbl\_Appeal\_Reason | **ID**, Name, record\_type, sortby |
| tbl\_Area\_Codes | **area\_code**, state\_abbr, state, timezone, CSL\_Call\_Time\_Frame |
| tbl\_Assessment | **ID**, **record\_number**, description, due\_date, scheduled\_date, completed\_date, remarks, care\_id, lastupdate, assessment\_method |
| tbl\_Call\_Event | **event\_ID**, **CallID**, event\_type, event\_actor, event\_time, event\_description, event\_comments, session\_ID |
| tbl\_Call\_Satisfaction | SID, CallID, Responder, Created\_Date, Time\_Of\_Call, Satisfaction\_Call\_Status, Willing\_To\_Answer, Requested\_Call\_Back\_Time, Requested\_Call\_Back\_Number, Threshold\_Met, Caller\_Request\_FU, Social\_Worker\_Call\_Back, Satisfaction\_Outcome, Q1, Q2, Q3, Q4, Q5, Q5A, Q6, Q7, Q8, Q9, Q10, Q11, Q12, CSL\_Comments, Last\_updated\_by, Last\_Updated\_Date, FU\_CallID |
| tbl\_Care\_History | History\_ID, Record\_Number, Care\_ID, Start\_date, End\_Date, Primary\_Care, Last\_Update\_Date |
| tbl\_CareGiver | **care\_id**, care\_SSN, care\_first\_name, care\_middle\_name, care\_last\_name, care\_sir\_name, care\_suffix, care\_gender, care\_dob, care\_name, care\_primary, care\_primary\_address1, care\_primary\_address2, care\_primary\_city, care\_primary\_state, care\_primary\_zip\_code, care\_secondary, care\_secondary\_address1, care\_secondary\_address2, care\_secondary\_city, care\_secondary\_state, care\_secondary\_zip\_code, care\_ph\_day, care\_home\_phone, care\_ph\_evening, care\_work\_phone, care\_cell, care\_cell\_phone, care\_email\_address, Medicare, Medicaid, Health\_Insurance\_Name, care\_last\_updated\_by, care\_last\_updated\_date, care\_apt, care\_race, care\_ethnicity, care\_preferred\_communication\_method, care\_refused\_providing\_ssn |
| tbl\_CESP | CESPID, date\_received, person\_Taking\_Contact, vet\_last\_name, vet\_first\_name, vet\_middle\_name, vet\_ssn, vet\_dob, vet\_gender, vet\_currently\_enrolled, preferred\_site\_number, contact\_same\_as\_veteran, contact\_last\_name, contact\_first\_name, contact\_middle\_name, relationship, contact\_is\_caregiver, contact\_primary\_phone, contact\_secondary\_phone, best\_time\_to\_call, contact\_eligible\_CAFCP, form\_1010CG\_attached, remarks, CESP\_status\_id, CESP\_closed\_bit, CESP\_closed\_date, CESP\_closed\_by, CESP\_last\_updated\_date, CESP\_updated\_by, CESP\_disposition, form\_1010CG\_received\_date, support\_line\_referral, person\_taking\_CESP\_group, Contact\_email, date\_transferred, facility\_transferred\_from, createdby, Contact\_outreach, Contact\_deleted, Contact\_deleted\_by, Contact\_deleted\_date, CESP\_Closed\_Reason, CESP\_Closed\_Reas |
| tbl\_CESP\_Appointment | AppointmentID, CESPID, scheduled\_date, scheduled\_time, completed\_date, last\_updated\_date, last\_updated\_by |
| tbl\_CESP\_Event | event\_id, CESPID, event\_type, event\_actor, event\_time, event\_description, session\_id |
| tbl\_CESP\_OutcomeDetail | CESPoID, CESPID, parent\_Selection, child\_Selection, child\_Comments, dateModified |
| tbl\_CG\_Events | **EventID**, record\_number, **care\_id**, Event\_Type, Event\_Name, Date\_Offered, Program\_Offered, Caregiver\_Participated, Comments, LastUpdate |
| tbl\_CG\_Participation | **ID**, **Care\_ID**, Record\_Number, ContactID, Peer\_Support, Powerful\_Tools, ReachVA, CSL\_Referrals, Better\_Caregiver, CSL\_Group\_Name, Caregiver\_Participated, List\_Serv, LastUpdate |
| tbl\_Contact | **ContactID**, date\_received, person\_Taking\_Contact, vet\_last\_name, vet\_first\_name, vet\_middle\_name, vet\_ssn, vet\_dob, vet\_gender, vet\_currently\_enrolled, **preferred\_site\_number**, contact\_same\_as\_veteran, contact\_last\_name, contact\_first\_name, contact\_middle\_name, relationship, contact\_is\_caregiver, contact\_primary\_phone, contact\_secondary\_phone, best\_time\_to\_call, contact\_eligible\_CAFCP, form\_1010CG\_attached, remarks, **contact\_status\_id**, contact\_closed\_bit, contact\_closed\_date, contact\_closed\_by, contact\_last\_updated\_date, contact\_updated\_by, contact\_disposition, form\_1010CG\_received\_date, support\_line\_referral, person\_taking\_contact\_group, vet\_SC\_Condition, recent\_discharge, sc\_rate, referer, branch, military\_status, general\_cg\_program, contact\_email, date\_transferred, facility\_transferred\_from |
| tbl\_Contact\_Event | **event\_id**, **ContactID**, event\_type, event\_actor, event\_time, event\_description, session\_id |
| tbl\_contact\_relationship | **rel\_type**, sortorder |
| tbl\_Contact\_Status | **contact\_status\_id**, name, sortorder, active |
| tbl\_ContactUs\_Issue | **ID**, Issue, Description, FAQ\_Bit, LastUpdate |
| tbl\_ContactUs\_Log | **LogID**, User\_ID, To\_Email, Issue, VAMC, ContactID, Subject, Details, Message, Sent\_time, IP\_Address, unread |
| tbl\_ContactUs\_Read | **ReadID**, LogID, ReplyID, User\_ID, Date\_Read |
| tbl\_ContactUs\_Reply | **ReplyID**, **LogID**, User\_ID, Message, Sent\_Time, IP\_Address |
| tbl\_CSC\_List | **ID**, VISN, Station Name, Statn #, POC Name, Position Title, Phone Number, Secured fax #, E-mail Address, Alternate(s), Tertiary back-up, PKI , CAT Group Email (@domain), Full Time CSC, If not, then Posted, Date When Full Time , Who will conduct home visits, Caution Warning |
| tbl\_CSL\_Close\_Reasons | **ID**, Name |
| tbl\_CSL\_Interventions | **ID**, name |
| tbl\_Diagnosis\_Answer | **ID**, CallID, ContactID, DiagID, comments, createdby, active, activedate, inactivedate, CESPID |
| tbl\_CSL\_Master\_List | ID, Date of Call (x/x/xx), Time of Call, Type of Call, Caller Telephone, Responder Last Name , Name of Caller, Relationship to Veteran , Age of Veteran , Name of Veteran, Veterans Last 4, Veteran DOB, if known, Era Served, Primary diagnosis of veteran being cared for, if known#, What is Veteran's Service Connection? (i#e# NSC, 20% SC, 100% S, What is Veteran Service Connected for?, State, City, Zip Code, Is Veteran currently receiving care at a VA facility? , Name of VA, if known, Reason for Call, Advanced Directives, Abuse/\_Neglect EYploitation, General Caregiver Support/ Education, Emotional Distress, Financial Issues, Functional Limitations, Family Relationships, Housing, In-home Support Services, Legal Issues, LTC/\_Nursing Home, Respite, Transportation, Benefits, VA Services In Genera |
| tbl\_CSL\_Master\_List\_copy | ID, Date of Call (x/x/xx), Time of Call, Type of Call, Caller Telephone, Responder Last Name , Name of Caller, Relationship to Veteran , Age of Veteran , Name of Veteran, Veterans Last 4, Veteran DOB, if known, Era Served, Primary diagnosis of veteran being cared for, if known#, What is Veteran's Service Connection? (i#e# NSC, 20% SC, 100% S, What is Veteran Service Connected for?, State, City, Zip Code, Is Veteran currently receiving care at a VA facility? , Name of VA, if known, Reason for Call, Advanced Directives, Abuse/\_Neglect EYploitation, General Caregiver Support/ Education, Emotional Distress, Financial Issues, Functional Limitations, Family Relationships, Housing, In-home Support Services, Legal Issues, LTC/\_Nursing Home, Respite, Transportation, Benefits, VA Services In Genera |
| tbl\_CSL\_Master\_List2 | ID, Date of Call (x/x/xx), Time of Call, Type of Call, Caller Telephone, Responder Last Name , Name of Caller, Relationship to Veteran , Age of Veteran , Name of Veteran, Veterans Last 4, Veteran DOB, if known, Era Served, Primary diagnosis of veteran being cared for, if known#, What is Veteran's Service Connection? (i#e# NSC, 20% SC, 100% S, What is Veteran Service Connected for?, State, City, Zip Code, Is Veteran currently receiving care at a VA facility? , Name of VA, if known, Reason for Call, Advanced Directives, Abuse/\_Neglect EYploitation, General Caregiver Support/ Education, Emotional Distress, Financial Issues, Functional Limitations, Family Relationships, Housing, In-home Support Services, Legal Issues, LTC/\_Nursing Home, Respite, Transportation, Benefits, VA Services In Genera |
| tbl\_CSL\_Master\_List2\_Copy | Date of Call (x/x/xx), Time of Call, Type of Call, Caller Telephone, Responder Last Name , Name of Caller, Relationship to Veteran , Age of Veteran , Name of Veteran, Veterans Last 4, Veteran DOB, if known, Era Served, Primary diagnosis of veteran being cared for, if known#, What is Veteran's Service Connection? (i#e# NSC, 20% SC, 100% S, What is Veteran Service Connected for?, State, City, Zip Code, Is Veteran currently receiving care at a VA facility? , Name of VA, if known, Reason for call, Advanced Directives, Abuse/\_Neglect EYploitation, General Caregiver Support/ Education, Emotional Distress, Financial Issues, Functional Limitations, Family Relationships, Housing, In-home Support Services, Legal Issues, LTC/\_Nursing Home, Respite, Transportation, Benefits, VA Services In General, N |
| tbl\_Demographics | **DemographicID**, record\_number, ContactID, CallID, VetID, vet\_age, vet\_gender, VeteranEraServed, CurrentlyReceivingVACare, vet\_currently\_enrolled, SC\_Rate, vet\_SC\_Condition, recent\_discharge, referer, branch, military\_status, former\_military\_status, general\_cg\_program, AA\_Recipient, ListServ, vamc\_state, vet\_state, vet\_city, vet\_zipcode, support\_line\_referral, CG\_eligible\_family\_caregiver\_benefits, want\_to\_apply, CSC\_Reviewed\_1010CG, CSC\_Confirmed\_administratively\_eligible, CG\_eligible\_general\_caregiver\_benefits, CG\_not\_meet\_criteria\_for\_Family\_Caregiver, Veteran\_is\_enrolled, Unable\_to\_perform\_an\_activity\_of\_daily\_living, need\_supervision, OtherInformation, createdby, Polytrauma\_care, contact\_eligible\_CAFCP, form\_1010CG\_attached, form\_1010CG\_received\_date, same\_as\_vet, contact\_same\_as\_caregi |
| tbl\_Diagnosis\_Questions | **DiagID**, description |
| tbl\_Dispositions | **d\_id**, disposition\_id, description, category, remarks\_required, tooltips, active |
| tbl\_Email\_Log | **LogID**, User\_ID, To\_Email, Subject, Message, Sent\_time, IP\_Address, unread |
| tbl\_Ethnicity | **Ethnicity\_ID**, Description |
| tbl\_Exception | **Exception\_ID**, **record\_number**, **reason\_id**, **waiver\_reason\_id**, exception\_date, exception\_description, adjudication\_date, adjudication, adjudication\_description, lastupdate, Requested\_by, Adjudicated\_by, Last\_Updated\_by, care\_id |
| tbl\_Exception\_Read | **ReadID**, ExceptionID, ReplyID, User\_ID, Date\_Read |
| tbl\_Exception\_Reason | **Exception\_Reason\_ID**, description, Active, Active\_date, Inactive\_date |
| tbl\_Exception\_Waiver\_Reasons | **WaiverID**, Description, LastUpdate |
| tbl\_ExtraInfo | **ID**, **ContactID**, **CallID**, Record\_Number, Name, Value |
| tbl\_Frequent\_Text | **ID**, text, type, user\_id |
| tbl\_Group\_Notes | NoteID, UserID, Notes, Reason, Note\_Type, Affected\_Record, LastUpdate, deleted\_flag, deleted\_date, deleted\_by |
| tbl\_HAC\_Status | **HAC\_Status\_ID**, Description, sortby |
| tbl\_holidays | holiday |
| tbl\_Look\_Up\_Caregiver\_Type | primary\_care, description |
| tbl.Notes | **ID**, Record\_Number, ContactID, event\_date, event\_type, event\_description, event\_information, |
| tbl\_Participation | **ID**, record\_number, care\_id, contactID, Participation\_Type\_ID, comments, createdBy, active, activedate, inactivedate |
| tbl\_Participation\_Date | **ID**, **Participation\_ID**, Participation\_Type, Participation\_Date, Participation\_End, LastUpdate |
| tbl\_ParticipationType | **ID**, Name, Date\_required, sortorder, Description |
| tbl\_Payment | Transaction Date, VetSSN, VetFName, VetLName, VetMI, VetSuffix, VetDOB, VetGender, VetAddress, VetCity, VetSt, VetZip, PCGSSN, PCGLName, PCGFName, PCGMI, PCGSuffix, PCGDOB, PCGGender, PCGRelationship, PCGAddress, PCGCity, PCGSt, PCGZip, CAT TRICARE, Medicaid, Ins Name, Disposition, Approved Date, Tier, Eff Date, Term Reason, Term Date, Annual Due Date, VAMC, CSCLName, CSCFName, CSCPhone, HAC Status, Last Updated, PaymentMonth, Hours, TotalHours, LocalHourlyWage, MonthlyAmount, Application Date, EndDate, TotalDays, DailyRate, ProratedAmount, RetroMonthAmount, RetroMonthAmount2, RetroMonthAmount3, RetroMonthAmount4, TotalPayableStipend, BLSArea, County, User, CGCHAMPVA, Tricare, StandardCVA, OtherOHI, OHIName, Notes, Inactive, LetterPrinted, VAMCPhone, ChangeType, ChangeDate |
| tbl\_Phone\_Provided\_For | **ID**, CallID, Name |
| tbl\_Quick\_Notes | **ID**, ContactID, Record\_Number, notes, username, note\_time |
| tbl\_Race | **Race\_ID**, Description |
| tbl\_Record | **record\_number**, vet\_id, record\_date\_received, record\_source, record\_date\_created, record\_date\_assigned, record\_assigned\_by, record\_status, record\_last\_updated\_date, record\_last\_updated\_by, site\_number, record\_remarks, contactID, application\_received\_date, enrollment\_date, vet\_ass\_scheduled\_date, vet\_ass\_completed\_date, care\_ass\_scheduled\_date, care\_ass\_completed\_date, training\_scheduled\_date, training\_completed\_date, competency\_ass\_scheduled\_date, competency\_ass\_completed\_date, disposition, care\_termination\_reason, care\_termination\_date, approved\_date, Tier, Tier\_Eff\_date, CSC\_Last\_Name, CSC\_First\_Name, CSC\_Phone, CSC\_Station, Program\_Status\_Info, relationship, Q1\_Ass\_Scheduled\_Date, Q1\_Ass\_Completed\_Date, Q2\_Ass\_Scheduled\_Date, Q2\_Ass\_Completed\_Date, Q3\_Ass\_Scheduled\_Date, Q3\_Ass\_Completed |
| tbl\_Record\_Disposition | ID, record\_number, disposition, record\_last\_updated\_date, record\_last\_updated\_by, record\_type |
| tbl\_Record\_error | record\_number, vet\_id, record\_date\_received, record\_source, record\_date\_created, record\_date\_assigned, record\_assigned\_by, record\_status, record\_last\_updated\_date, record\_last\_updated\_by, site\_number, record\_remarks, contactID, application\_received\_date, enrollment\_date, vet\_ass\_scheduled\_date, vet\_ass\_completed\_date, care\_ass\_scheduled\_date, care\_ass\_completed\_date, training\_scheduled\_date, training\_completed\_date, competency\_ass\_scheduled\_date, competency\_ass\_completed\_date, disposition, care\_termination\_reason, care\_termination\_date, approved\_date, Tier, Tier\_Eff\_date, CSC\_Last\_Name, CSC\_First\_Name, CSC\_Phone, CSC\_Station, Program\_Status\_Info, relationship, Q1\_Ass\_Scheduled\_Date, Q1\_Ass\_Completed\_Date, Q2\_Ass\_Scheduled\_Date, Q2\_Ass\_Completed\_Date, Q3\_Ass\_Scheduled\_Date, Q3\_Ass\_Completed |
| tbl\_Record\_Event | **event\_ID**, **record\_number**, event\_type, event\_actor, event\_time, event\_description, event\_comments, session\_ID |
| tbl\_Record\_History | HistoryID, Rel\_ID, record\_number, vet\_id, disposition, tier, tier\_eff\_date, care\_id, primary\_care, lastupdate |
| tbl\_Record\_Status | **status\_id**, name, active, sortorder |
| tbl\_Referer | **Referer\_id**, Description |
| tbl\_Relationships | **Rel\_id**, **vet\_id**, **care\_id**, record\_number, relationship, primary\_care, last\_updated\_date, vet\_ass\_scheduled\_date, vet\_ass\_completed\_date, care\_ass\_scheduled\_date, care\_ass\_completed\_date, training\_scheduled\_date, training\_completed\_date, competency\_ass\_scheduled\_date, competency\_ass\_completed\_date, care\_termination\_reason, care\_termination\_date, Termination\_Appealed, Termination\_Appealed\_Date, Other\_Appealed, Other\_Appealed\_Date, Care\_ROI\_Received, care\_ROI\_Received\_date, care\_ROI\_Other, address\_same\_as\_vet, tier, tier\_eff\_date, application\_received\_date, HAC\_Status, HAC\_Comments, app\_approved\_date, app\_disapproved\_Date, app\_disposition, form\_1010CG\_attached, form\_1010CG\_received\_date, care\_deleted\_date, care\_deleted\_by, CSC\_Confirmed\_Correct\_Info, Benefits\_End\_Date, ChampVA, HAC\_Data\_Not\_Mat |
| tbl\_Remarks | RemarkID, ContactID, Record\_Number, UserID, Remarks, Deleted\_flag, Deleted\_By, Deleted\_Date, Deleted\_Reason, Last\_Update, CESPID |
| tbl\_Report | **report\_ID**, report\_name, report\_type, report\_category, report\_file\_path, report\_parameters, report\_description, numViews, admin\_only |
| tbl\_Report\_Options | **ID**, Name, Description, LinkedTableName, LinkedTableAbbr, OptionsTable, OptionsTableColumnName, OptionsTableColumnDesc, GroupID, Active |
| tbl\_Report\_Options\_Group | **GroupID**, Name, Report\_Type, SortOrder |
| tbl\_Report\_Parameters | **ID**, **Report\_Sub\_ID**, Name, Value |
| tbl\_Report\_Subscription | **Report\_Sub\_ID**, UserName, Date\_created, Name, Description, Email, Email\_Frequent, Email\_Frequent\_Date, Email\_Sent\_Date, Last\_updated |
| tbl\_Report\_Viewed | ID, User\_ID, Report\_ID, Report\_Name, Parameters, ViewDate |
| tbl\_ROI | **ID**, vet\_id, care\_id, ROI\_Received, date\_received, date\_expired, other, until\_rescinded, Lastupdate |
| tbl\_Service | **ID**, CallID, ContactID, **ServiceID**, comments, createdBy, active, activedate, inactivedate, CESPID |
| tbl\_Service\_Date | **ID**, **Service\_ID**, Service\_Type, Service\_Date, Service\_End, LastUpdate, createdBy, CG\_Declined |
| tbl\_Service\_Group | **service\_group\_id**, name, sortby, description |
| tbl\_Service\_Other | **ID**, CallID, ContactID, comments, createdBy, active, activedate, inactivedate, CESPID |
| tbl\_ServiceType | **ID**, Name, date\_required, sortby, description, service\_group |
| tbl\_Session | **session\_ID**, user\_ID, session\_start, session\_end, session\_permission\_level, session\_status, session\_remarks |
| tbl\_States | **Name**, Abbreviation |
| tbl\_Suffix | **name** |
| tbl\_Supporting\_Documents | **FileID**, **ContactID**, Record\_Number, **Vet\_ID**, FileName, FilePath, FileExt, FileSize, LastUpdate, CESPID |
| tbl\_Termination\_Reasons | **t\_id**, termination\_id, description, category, remarks\_required, tooltips, num\_dates\_benefits\_extended, benefit\_description |
| tbl\_Tier | **name**, description |
| tbl\_Users | **User\_ID**, User\_first\_name, User\_middle\_name, User\_last\_name, User\_team\_assignment, User\_group\_assignment, User\_password, User\_title, User\_active\_directory\_id, User\_email, user\_phone, site\_number, Last\_updated\_Date, Last\_Access\_date, InactiveDate, default\_site |
| tbl\_users\_old | User\_ID, User\_first\_name, User\_middle\_name, User\_last\_name, User\_team\_assignment, User\_group\_assignment, User\_password, User\_title, User\_active\_directory\_id, User\_email, user\_phone, site\_number, Last\_updated\_Date, Last\_Access\_date, InactiveDate |
| tbl\_VAMC | StationID, Display\_Name, Alias, Email, Access\_For\_Tool, Parent\_Group, **Site\_Number**, States, Location, VAMC, Site\_Name, VISN, POC\_Email, POC\_Name, POC\_Title, POC\_Phone, LastUpdated, Updated\_by |
| tbl\_VAMC2 | StationID, Display\_Name, Alias, Email, Access\_For\_Tool, Parent\_Group, Site\_Number, States, Location, VAMC, Site\_Name, VISN, POC\_Email, POC\_Name, POC\_Title, POC\_Phone, LastUpdated, Updated\_by |
| tbl\_Veteran | **vet\_id**, vet\_SSN, vet\_ssn\_psuedo\_flag, vet\_first\_name, vet\_middle\_name, vet\_last\_name, vet\_sir\_name, vet\_suffix, vet\_gender, vet\_dob, vet\_marital\_status, vet\_name, vet\_primary, vet\_primary\_address1, vet\_primary\_address2, vet\_primary\_city, vet\_primary\_state, vet\_primary\_zip\_code, vet\_secondary, vet\_secondary\_address1, vet\_secondary\_address2, vet\_secondary\_city, vet\_secondary\_state, vet\_secondary\_zip\_code, vet\_ph\_day, vet\_day\_phone, vet\_ph\_evening, vet\_evening\_phone, vet\_cell, vet\_cell\_phone, vet\_email\_address, vet\_last\_updated\_by, vet\_last\_updated\_date, vet\_in\_ESR, vet\_apt, vet\_preferred\_communication\_method |
| tbl\_VISN\_Leader | **User\_ID**, **VISN**, Primary\_Site, Primary\_Lead |
| tbl\_Wage | AREA\_NAME, Total Local Wage, H\_PCT75, CPI 1#3%, PRIM\_STATE, AREA, OCC\_CODE, OCC\_TITLE |
| tbl\_Workload | **ID**, **ContactID**, **Record\_Number**, **CallID**, TimeSpent, Start\_Time, End\_Time, Last\_Updated\_By, CESPID |
| tbl\_Zipcode | **ID**, ZIPcode, State, Area Number, BLS Area, Local\_Wage, Location, County, Designation, LastUpdate, CountyFIPS, StateName, StateFIPS, MSACode, AreaCode, TimeZone, UTC, DST, Latitude, Longitude |
| tbl\_Zipcode\_designation | ZIPcode, Designation |
| tbl\_Zipcode\_Stipend | Zipcode, BLSArea, State, Location, County, H75 |
| tbl\_Zipcode2 | ID, Zipcode, State, Area Number, BLS area, Local\_wage, Location, County, Designation, LastUpdate |
| tempSSN | SSN, filename |

Table 5.2: Existing Stipend Database Object Source and Type

| Name | Type | Source | Notes |
| --- | --- | --- | --- |
| Transaction Date | Date/Time | Access | The last date and time the record was processed for a stipend change or initial payment |
| PaymentMonth | Text | Access | Used mostly in Correspondence and on some forms for process not in calcs |
| PaymentDate | Date/Time | Access | Major date field for calculations a separate table is used so CBOPC can change at leisure |
| Record Number | Double | CAT |  |
| ContactID | Double | CAT |  |
| VetSSN | Double | CAT |  |
| VetFName | Text | CAT |  |
| VetMI | Text | CAT |  |
| VetLName | Text | CAT |  |
| VetSuffix | Text | CAT |  |
| VetAddress | Text | CAT |  |
| VetCity | Text | CAT |  |
| VetSt | Text | CAT |  |
| VetZip | Double | CAT |  |
| VetDOB | Text | CAT |  |
| VetGender | Text | CAT |  |
| BLSArea | Text | Access | From Access tblData based on Veteran's zip code |
| PCGSSN | Double | CAT |  |
| PCGLName | Text | CAT |  |
| PCGFName | Text | CAT |  |
| PCGMI | Text | CAT |  |
| PCGSuffix | Text | CAT |  |
| PCGAddress | Text | CAT |  |
| PCGCity | Text | CAT |  |
| PCGSt | Text | CAT |  |
| PCGZip | Double | CAT |  |
| PCGDOB | Text | CAT |  |
| PCGGender | Text | CAT |  |
| PCGRelationship | Text | CAT |  |
| CAT TRICARE | Text | CAT |  |
| Medicaid | Text | CAT |  |
| Ins Name | Text | CAT |  |
| Name | Type | CAT |  |
| Disposition | Text | CAT |  |
| CGCHAMPVA | Yes/No | CAT |  |
| Tricare | Yes/No | CAT |  |
| StandardCVA | Yes/No | CAT |  |
| OtherOHI | Yes/No | CAT |  |
| OHIName | Text | CAT |  |
| Approved Date | Text | CAT |  |
| Eff Date | Text | CAT | This is actually used for the Tier Effective Date, maybe a name change in CAT? |
| Term Reason | Text | CAT | In Access this may also be referenced as Revocation Reason |
| Term Date | Text | CAT | In Access this may also be referenced as Revocation Date |
| DaysEntitled | Text | Access | All part of the Revocation Process |
| BenefitsEndDate | Text | Access | All part of the Revocation Process |
| DaysDue | Text | Access | All part of the Revocation Process |
| PayDays | Text | Access | All part of the Revocation Process |
| FinalPayment | Text | Access | All part of the Revocation Process |
| NumberOfRecoupmentDays | Text | Access | If it's a decrease in pay, then the prorated days become recoupment days ILO payment |
| RecoupmentAmount | Text | Access | This may be for all processes for a recoupment, not just Revocation. |
| Annual Due Date | Text | CAT |  |
| VAMC | Text | CAT |  |
| VAMCPhone | Text | CAT |  |
| CSCLName | Text | CAT |  |
| CSCFName | Text | CAT |  |
| CSCPhone | Text | CAT |  |
| HAC Status | Text | CAT |  |
| Last Updated | Text | CAT |  |
| Application Date | Text | CAT |  |
| EndDate | Text | Access | The last day of entitlement for Revocation |
| County | Text | Access | tblData based on Veteran's zip code |
| Notes | Text | Access | Memo field for notes on the CG Record on the frmRecords form |
| TierChangeNotes | Text | CAT |  |
| Inactive | Yes/No | Access |  |
| TCVPrinted | Yes/No | Access | Shows Tier Change Letter was Printed |
| LetterPrinted | Yes/No | Access | Shows Initial Stipend Payment Letter was printed |
| PreviousTier | Text | Access | Started this in the summer of 2014 since CAT did not capture |
| Tier | Text | CAT |  |
| Hours | Double | Access | Tier level hours, need to ensure on a tier change the hours change with it for calculations |
| TotalHours | Double | Access | See formula |
| LocalHourlyWage | Currency | Access | From tblData based in Veteran's zip code |
| TotalDays | Double | Access | Total Days for prorating payment |
| DailyRate | Currency | Access | See formula, this field has to be updated during the BLS annual update |
| DiffDailyRate | Currency | Access | Change in stipend where prorated days (no months) are used |
| ProratedAmount | Currency | Access |  |
| NumberMonths | Double | Access | Number of months retro for back pay amount (code formula will show) |
| BackPay | Currency | Access | Total amount owed including months and days prorated |
| EntitlementAmount | Currency | Access | Revocation Process |
| MonthlyAmount | Currency | Access | Recurrent Monthly Stipend Amount |
| MonthlyStipendDiff | Double | Access | Need this for prorating a change in stipend increase or decrease |
| PayChange | Text | Access | Just a statistical field we captured for number of increase or decrease in stipend |
| TotalPayableStipend | Currency | Access | Back Pay plus Monthly Stipend |
| Date Address Changed | Date/Time | CAT |  |
| Date Tier Changed | Date/Time | CAT | This is actually in the Tier Change Report from CAT and it's when the CSC manually made the change in the CAT system. No use for calculations. |
| User | Text | Access | Last person who made the last process change or initial processing, verified by process specific date fields. |

# Detailed Design

The following subsections provide information regarding the CAT Rescue detailed design.

## Hardware Detailed Design

Comprised of Virtual Machines:

* (2VM) CAT Application Servers – Windows Server 2012 Standard Edition (auto failover)
* (2 VM) Stipend Application Servers – Windows Server 2012 Standard Edition (auto failover)
* (2 VM) SSRS Reporting Servers – Windows Server 2012 Standard Edition / SQL Server 2012 Enterprise Edition (auto failover)
* (2 VM) SQL Database Servers – Windows Server 2012 Standard Edition / SQL Server 2012 Enterprise Edition (auto failover)

Disaster Recovery on different subnet:

* (1 VM)Additional CAT Application Server - Windows Server 2012 Standard Edition (standby-manual failover)
* (1 VM)Additional Stipend Application Server – Windows Server 2012 Standard Edition (standby-manual failover)
* (1 VM) SSRS Reporting Server – Windows Server 2012 Standard Edition / SQL Server 2012 Enterprise Edition (active Asynchronous – manual failover)
* (1) SQL Database Server – Windows Server 2012 Standard Edition / SQL Server 2012 Enterprise Edition (active Asynchronous – manual failover)

Figure 6.1: Hardware Detailed Design



## Software Detailed Design

### Conceptual Design

#### ToBe Stipend System – Approved Application Process

The Stipend Approved Applications Process diagram (refer to Appendix B) depicts several aspects of this process. The first section shows the process work flow; the second section shows the current CAT tables and fields that are queried during the process; the third section shows a User Screen Data Flow; the fourth section shows the new Stipend tables and fields that will be used in the process; the last section shows the process worksheet and data mappings

#### ToBe Stipend System – Address Change Process

The Address Change Process diagram (refer to Appendix B) depicts several aspects of this process. The first section shows the process work flow; the second section shows the current CAT tables and fields that are queried during the process; the third section shows a User Screen Data Flow; the fourth section shows the new Stipend tables and fields that will be used in the process; the last section shows the process worksheet and data mappings

#### ToBe Stipend System – Tier Change Process

The Stipend Tier Change Process diagram (refer to Appendix B) depicts several aspects of this process. The first section shows the process work flow; the second section shows the current CAT tables and fields that are queried during the process; the third section shows a User Screen Data Flow; the fourth section shows the new Stipend tables and fields that will be used in the process; the last section shows the process worksheet and data mappings

#### ToBe Stipend System – Revocation Process

The Stipend Revocation Process diagram (refer to Appendix B) depicts several aspects of this process. The first section shows the process work flow; the second section shows the current CAT tables and fields that are queried during the process; the third section shows a User Screen Data Flow; the fourth section shows the new Stipend tables and fields that will be used in the process; the last section shows the process worksheet and data mappings.

#### ToBe Stipend System – Reinstatement Process

The Stipend Revocation Process diagram (refer to Appendix B) depicts several aspects of this process. The first section shows the process work flow; the second section shows the current CAT tables and fields that are queried during the process; the third section shows a User Screen Data Flow; the fourth section shows the new Stipend tables and fields that will be used in the process; the last section shows the process worksheet and data mappings.

#### Product Perspective

Information will be provided in a later release.

##### User Interface

Information will be provided in a later release.

Figure 6.2: Conceptual Production String Diagram

Figure will be provided in a later release.

##### Hardware Interface

Information will be provided in a later release.

Figure 6.3: Hardware Interface

Figure will be provided in a later release.

##### Software Interface

Information will be provided in a later release.

Figure 6.4: Software Interface

Figure will be provided in a later release.

##### Communications Interface

Information will be provided in a later release.

Figure 6.5: Communications Interface

Figure will be provided in a later release.

##### Memory Constraints

Information will be provided in a later release.

##### Special Operations

Information will be provided in a later release.

#### Product Features

Information will be provided in a later release.

#### User Characteristics

Information will be provided in a later release.

#### Dependencies and Constraints

Information will be provided in a later release.

### Specific Requirements

Information will be provided in a later release.

#### Database Repository

Information will be provided in a later release.

#### System Features

Information will be provided in a later release.

#### Design Element Tables

Information will be provided in a later release.

##### Routines (Entry Points)

Information will be provided in a later release.

##### Templates

Information will be provided in a later release.

##### Bulletins

Information will be provided in a later release.

##### Data Entries Affected by the Design

Information will be provided in a later release.

##### Unique Record(s)

Information will be provided in a later release.

##### File or Global Size Changes

Information will be provided in a later release.

##### Mail Groups

Information will be provided in a later release.

##### Security Keys

Information will be provided in a later release.

##### Options

Information will be provided in a later release.

##### Protocols

Information will be provided in a later release.

##### Remote Procedure Call (RPC)

Information will be provided in a later release.

##### Constants Defined in Interface

Information will be provided in a later release.

##### Variables Defined in Interface

Information will be provided in a later release.

##### Types Defined in Interface

Information will be provided in a later release.

##### GUI

Information will be provided in a later release.

##### GUI Classes

Information will be provided in a later release.

##### Current Form

Information will be provided in a later release.

##### Modified Form

Information will be provided in a later release.

##### Components on Form

Information will be provided in a later release.

##### Events

Information will be provided in a later release.

##### Methods

Information will be provided in a later release.

##### Special References

Information will be provided in a later release.

##### Class Events

Information will be provided in a later release.

##### Class Methods

Information will be provided in a later release.

##### Class Properties

Information will be provided in a later release.

##### Uses Clause

Information will be provided in a later release.

##### Forms

Information will be provided in a later release.

##### Functions

Information will be provided in a later release.

##### Dialog

Information will be provided in a later release.

##### Help Frame

Information will be provided in a later release.

##### HL7 Application Parameter

Information will be provided in a later release.

##### HL7 Logical Link

Information will be provided in a later release.

##### COTS Interface

Information will be provided in a later release.

## Network Detailed Design

Information will be provided in a later release.

## Security and Privacy

Information will be provided in a later release.

### Security

Information will be provided in a later release.

### Privacy

Information will be provided in a later release.

## Service Oriented Architecture / ESS Detailed Design

Information will be provided in a later release.

### Service Description for <Consumed Service Name>

Information will be provided in a later release.

### Service Design for <Provided Service Name>

Information will be provided in a later release.

#### Introduction

Information will be provided in a later release.

##### Purpose and Scope of Service

Information will be provided in a later release.

##### Links to Other Documentation

Information will be provided in a later release.

#### Service Details

Information will be provided in a later release.

##### Service Identification

Information will be provided in a later release.

##### Service Versions

Information will be provided in a later release.

##### Summary of Design and Platform Details

Information will be provided in a later release.

**SOA Pattern(s) Implemented**

Information will be provided in a later release.

**COTS Platform Vendor Names and Versions for Hosting Platform**

Information will be provided in a later release.

#### Dependencies

Information will be provided in a later release.

#### Service Design Details

Information will be provided in a later release.

##### Interface Technical Specs

Information will be provided in a later release.

**Service Invocation Type**

Information will be provided in a later release.

**Service Interface Type**

Information will be provided in a later release.

**Service Name**

Information will be provided in a later release.

**Interface**

Information will be provided in a later release.

**End Points**

Information will be provided in a later release.

**Operations or Methods**

Information will be provided in a later release.

**Message Schemas**

Information will be provided in a later release.

##### Information Model

Information will be provided in a later release.

**Class Diagram and Description of Entities Involved**

Information will be provided in a later release.

**Mappings from ELDM to Standards Based Schemas**

Information will be provided in a later release.

##### Behavior Model (AKA Use Case Realization)

Information will be provided in a later release.

**Use Cases (Use Case Model**

Information will be provided in a later release.

**Interaction Diagrams**

Information will be provided in a later release.

#### Gap Analysis

Information will be provided in a later release.

##### Variances from Enterprise Target Architecture

Information will be provided in a later release.

##### Variances from SLDs

Information will be provided in a later release.

##### Variances from Standards and Policies

Information will be provided in a later release.

##### Justification for Exceptions and Migration

Information will be provided in a later release.

# External System Interface Design

No external interfaces are needed because the boundary is within the VA.

## Interface Architecture

No interface architecture is displayed because the boundary is within the VA.

## Interface Detailed Design

There is no interface detailed design because the boundary is within the VA.

# Human-Machine Interface

CAT Rescue existing interface screens will continue to be utilized. No major re-design of these screens are planned, but existing screens may be enhanced to tighten up data input integrity, support a new database design, and/or provide an enhanced user experience. Changes will be documented here as they are determined and prioritized.

The CAT Application has not been tested for 508 compliance. The scope of CAT Rescue is to the stabilize CAT and provide minor enhancements until CAT is replaced in the spring of 2017. There is a current active project to replace CAT that will address 508 compliance for CAT called CARET that is planned to replace CAT in the spring of 2017.

Several new screens will be added as the Stipend system is integrated with the CAT Rescue system. The new user screens will be designed and created to support 508 compliance in the upgraded CAT/Stipend system.

## Interface Design Rules

The newly enhanced Stipend module will utilize the same interface design rules as CAT Rescue. If those design rules have not been established, Stipend development will utilize technology and user best practices and design standards. Established standards will be documented and checked during code and interface design reviews.

## Inputs

For Stipend, Inputs shall come from users and be keyed as needed into the various data entry screens. These will be individually addressed in section 8.4.

## Outputs

For Stipend module, most screens will display information to the user based on the screen’s specific purpose. There are also a number of reports planned from the system. Those outputs will be detailed below in section 8.4.

## Navigation Hierarchy

Figure 8.1 is a potential screen navigation hierarchy list before the full modeling and integration of systems have been developed. Some screens (such as address or tier change) may be redundant to existing CAT input screen and be eliminated or replaced with different functionality specific to the Stipend process.

Figure 8.1: Navigation Hierarchy



### BLS Upload Process

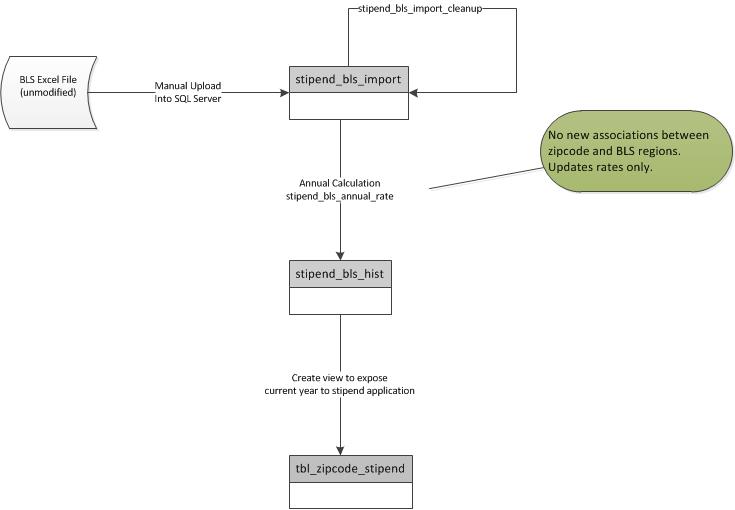
**Overview**

The BLS upload process is an annual process to refresh the rates utilized by the stipend system for computing caregiver compensation. The Bureau of Labor Statistics (BLS) produces rates in BLS pre-defined geographical areas. The process starts with rates provided by the Bureau of Labor Statistics (BLS), transforms them based on requirements, and stores them in the caregiver database. In additional to refreshing the rates annual, the BLS process also allows the technical administrator to map a zipcode to a BLS geographical area or manually adjust a mapped rate.

This process is designed for a technical administrator. A user with knowledge of the stipend system at the database level.

**BLS Upload Raw Data**

Figure shows an overview of the BLS upload process.



As an external entity, the Bureau of Labor Statistics (BLS) spreadsheet file contents may change. As such, the file should be visually inspected before each upload process to guarantee that the minimum required columns are represented and have the correct column title. Note that the system will ignore extra columns.

Table 8.1 shows the minimally required columns need for this process to work.

Table 8.1: Required Columns

| Column Title (in First Row) | Column Description | Data Format (Excludes 1st Row) |
| --- | --- | --- |
| area | Numeric Geographical Area | Integer |
| area\_title | Name of Geographical Area | Text |
| area\_type | Code indicating type of area (state, region, etc) | Integer |
| occ\_code | Code for Occupation | Text |
| occ\_title | Occupation Name | Text |
| h\_pct75 | Rate | Decimal |

The six (6) columns listed above need to be present with the column title (not case sensitive) in the first row of the spreadsheet. This spreadsheet should follow VA security protocol and be placed within the CAT Rescue network boundaries accessible by the Stipend screen.

The excel spreadsheet should then be loaded into a database in a table named “stipend\_bls\_import”. This can be accomplished by using the database import task into an empty table. The import process can also create the table if it does not exist already.

The data contains unnecessary records that should be removed. The stored procedure stipend\_bls\_import\_clearnup will perform the following actions in order:

1. Check to make sure table exists. Report and stop is it does not.
2. Check all required columns exists. Report and stop if it does not.
3. Remove all records where occ\_code is not value “31-1011”. This eliminates all records except for those pertaining to occupation code for “Home Health Aides” (aka Caregiver).
4. Remove all records where area\_type in in set (1, 2, or 3). This removes summary area types for US, Puerto rico, and individual states.
5. Remove all records with a null rate h\_pct75.

**Historical Rate Table**

The final stipend rates will be contained in a table defined as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Datatype** | **Null Status** | **Additional Description** |
| Year | Int | Not Null |  |
| Zipcode | Varchar(05) | Not Null | Zero padded |
| AreaNumber | Varchar(10) | Null | BLS Area Code |
| BLSArea | Varchar(100) | Null | BLS Area Description |
| State | Varchar(02) | Null |  |
| County | Varchar(50) | Null |  |
| H75\_prior | Decimal(8,2) | Null | Prior year final rate |
| H75\_raw | Decimal(8,2) | Null | Current year raw BLS rate |
| CPI | Decimal(8,2) | Null | CPI rate |
| H75\_final | Decimal(8,2) | Null | Final rate effective for mapping |
| Control\_id | Varchar(30) | Null | User that last modified record |
| Control\_date | Datetime | Null | Date record was last modified |

**Annual Rate Computation**

Stored procedure “stipend\_bls\_annual\_rate” will create the new year rates based on prior year mapping, new year BLS upload, and CPI rate as follows:

Parameters:

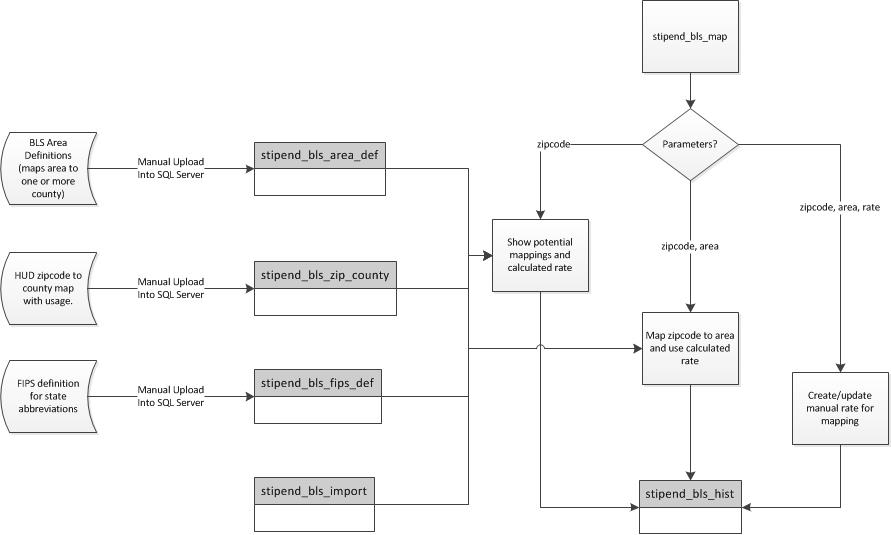
1. Year to compute.
2. CPI rate.

Process:

1. Check if year already exists and stop with message if it does. This is a safety check.
2. Create new year records by selecting previous year mapped rates, loading the final rate from previous year into the current raw rate column. H75 raw, cpi, and H75 final columns should be loaded as null.
3. Update H75 raw for new year from the stipend\_bls\_import table, inner join on area number.
4. Update new year records as follows:
   1. Set CPI rate based on input parameter
   2. Set final rate as greater of prior year rate or H75 raw \* (1+CPI rate).
5. Set new year H75 final rate to H75 prior where H75 raw is null. In other words, if new BLS rate does not exist, carry forward the previously known rate.

**Zipcode to Area Mapping**

**This figure shows the overview of the mapping process.**

****

The mapping procedure will allow a user to perform 3 different actions:

1. Given a zipcode: show existing mapping or receive recommendations if zipcode is not mapped.
2. Given a zipcode and an area: map the zipcode to the area and compute the final rate.
3. Given a zipcode, area, and rate: map (if not already) and update the final rate to the rate provided.

The following crosswalks are needed for the mapping process:

1. Area Definition provided by BLS and loaded into table stipend\_bls\_area\_def.
2. Zipcode to county mapping provided by HUD data set and loaded into stipend\_bls\_zip\_county.
3. FIPS to state code definitions loaded into stipend\_bls\_fips\_def.

Table: stipend\_bls\_area\_def

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Datatype** | **Null Status** | **Additional Description** |
| Fips | Varchar(02) | Not null |  |
| State | Varchar(20) | Not null |  |
| Msa\_code | Varchar(10) | Not null |  |
| Msa\_name | Varchar(50) | Not null |  |
| Agg\_msa\_code | Varchar(10) | null |  |
| Agg\_msa\_name | Varchar(50) | null |  |
| County\_code | Varchar(03) | Not null |  |
| Township\_code | Varchar(03) | Not null |  |
| County\_name | Varchar(20) | Not null |  |
| Township\_name | Varchar(50) | Null |  |
| Date\_loaded | Datetime | Not null | Default getdate() |

Table: stipend\_bls\_zip\_county

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Datatype** | **Null Status** | **Additional Description** |
| Zipcode | Varchar(05) | Not null | Zero padded |
| State\_county\_code | Varchar(05) | Not null | This code represent two character FIPS code concatenated with 3 character county code. |
| Res\_ratio | Float | Not null | Percentage of residence in the zipcode. |
| Date\_loaded | Datetime | Not null | Default getdate() |

Table: stipend\_bls\_fips\_def

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Datatype** | **Null Status** | **Additional Description** |
| State\_name | Varchar(20) | Not null |  |
| Fips | Varchar(02) | Not null |  |
| State\_code | Varchar(02) | Not null |  |

Procedure stipend\_bls\_map:

Required parameters: zipcode

Optional parameters: area and rate

Process:

1. Determine current year as max year from hist table
2. Determine CPI rate as max rate from current year of hist table
3. Determine if zipcode provided is already mapped in current year.
4. If zipcode exists and rate not provided as parameter, display message and the current mapping.
5. If area not provided as parameter:
   1. Determine if zipcode exists from definition table and provide message if it does not. Stop executing.
   2. Determine if area(s) exists for mapping provided. If one does not exist, provide message and stop processing.
   3. Display all potential mappings with computed BLS rate using crosswalk tables.
6. If area is provided as a parameter:
   1. If rate is not provided, determine rate based on area provided.
   2. Create or update mapping based on zipcode, area, and rate provided or computed.

### Stipend Calculator

This screen will allow authorized users to receive an estimate of the monthly stipend amount based on certain parameters to be provided by the user.

In addition, the estimated rate calculation will be a function in the system, allowing other screens or processes to utilize the same base calculation and eliminate both redundancy and potential variations in the calculation. It is also recommended that any screen that starts with the base calculation and the modified it will display both the base calculation and the reason for the adjustment.

Additional information on calculation will be provided at a later time.

### Query Screen

The screen layout will be provided in a later release.

The query screen privileges will be open to all users with system access. However, some features or results might be limited based on the user’s specific access rights. This will be further developed based on business requirements.

The screen will allow the user to query specific fields to locate a veteran and/or the related caregiver. The required and optional fields available will be further developed once the data model has been defined.

One the user has entered the minimal search parameters required, they can execute a search and view results that match the criteria. This will be a two phase approach where the user will search for matching caregiver/veteran matches that will be displayed in a list. The user can then select a specific caregiver/veteran and the screen will pull and display detailed information for the caregiver/veteran selected. Detailed result information might be on a separate screen based on screen space availability.

The detailed result screen should also have the ability to indicate if any scanned correspondence files are available for viewing and allow the user to view the correspondence that is available.

Ideally, the screen will allow the user to jump to other Stipend screens with the caregiver/veteran selected. Allow the user scenario of searching for a caregiver and then using that information to jump directly to a screen to initiate a change (such as the Tier change screen).

### Revocations Screen

The screen layout will be provided in a later release.

The Revocations screen will be limited to administrator or users that need to enter a revocation. The design and functionality will be determined at a later date. The generated correspondence will be editable prior to printing.

### Reinstatement Screen

The screen layout will be provided in a later release.

The reinstatement screen will be limited to users that need to enter a reinstatement. The design and functionality will be determined at a later date. The generated correspondence will be editable prior to printing.

### Tier Change Screen

The screen layout will be provided in a later release.

The Tier Change screen will be limited to users that need to enter a caregiver tier change. This screen was needed as part of Stipend processing to (re) enter the tier change that occurred in the CAT system and may no longer be needed. However, a screen still might be needed to manage the reconciliation of the tier change on the stipend. This decision will be deferred until the data modeling is complete and further analysis has occurred. The generated correspondence will be editable prior to printing.

### Address Change Screen

The screen layout will be provided in a later release.

The Address Change screen will be limited to users that need to enter a caregiver address change. This screen was needed as part of Stipend processing to (re) enter the address change with an effective date that may already exist in the CAT system. As such, this screen may no longer be needed. However, a screen might be needed to manage the reconciliation of the address change on the stipend (due to rate change of the geographic location). This decision will be deferred until the data modeling is complete and further analysis has occurred. The design and functionality will be determined at a later date. The generated correspondence will be editable prior to printing. An address change may occur in CAT, but a Stipend address change will show both the new and old address, so the address change worksheets are still required. This may create an issue having two places to change addresses.

### Reports Summary and Sub-Screen(s)

The screen layout will be provided in a later release.

This report summary screen will list all reports available from the Stipend module. Each report will have specific security profile associated with it and users will only have access to reports that they are authorized to view.

Some reports may be launched directly from the summary screen and results provided to the user. Other reports will require or have optional criteria before executing and will launch a popup or sub-screen to gather the information before executing.

As reports are specified and designed, they will be added to this section.

#### Report Design Template per Report

The screen layout will be provided in a later release.

##### Description

The report description will be provided in a later release.

##### Required Input

The required input criteria will be provided in a later release.

##### Optional Input

Allow the user to enter optional input criteria.

##### Query Description

This description will describe pseudo SQL including any aggregation or views necessary to collect data for the report. This description will depend on the data model and the report writer techniques.

##### Report Layout

The report layout will be provided in a later release.

# Attachment A – Approval Signatures

REVIEW DATE: <date>

SCRIBE: <name>

Signed:

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Business Sponsor, Caregiver Support Program (CSP) Date

Meg Kabat, CSP Director

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Business Sponsor, Chief Business Operations Purchased Care (CBOPC) Date

Joseph Enderle, CBOPC Operations Director

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Integrated Project Team (IPT) Chair and IT Project Manager Date

Mike Dore, Caregivers Product Development (PD) Program Manager

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IT Project Manager Date

Ryan Rebers, Caregivers product Development (PD) Project Manager

###### Additional Information

Information will be provided in a later release.

Identification of Technology and Standards

Information will be provided in a later release.

Constraining Policies, Directives, and Procedures

Information will be provided in a later release.

Requirements Traceability Matrix

A complete Requirements Traceability Matrix (RTM) has been delivered for the CAT Rescue project.

Packaging and Installation

There are no special considerations for software packaging and installation. An installation guide will be provided.

Design Metrics

Information will be provided in a later release.

Data Migration

CAT Rescue has multiple needs within the solution for data migration. There are also multiple times during the software life cycle that the migration, thus the data migration must be a repeatable process that can change the source and target endpoints before executing. This section will discuss these needs and the planned solutions for successfully migrating data.

CAT database migration

The current CAT database is being profiled to discover data anomalies and opportunities for enhancements. The results of this analysis will be an actionable list of data transformation rules. CAT migration will utilize the SQL Server Integration Services (SSIS) tool. This tool facilitates data migration from one database to another while transforming that data between the source and target.

All rules to be applied during the migration will be reflected in the SSIS tool. These data migration mappings will be source code controlled and implemented like any other versioned source code. When it is time to migrate data, a new and empty database will be created and the SSIS will use this target database as the final destination for CAT data migration. The process will first create the empty database tables and then execute the SSIS workflows to migrate and transform data to the new location.

SSIS Packages will be encrypted and password protected for security purposes. The SSIS Packages are capable of containing and executing any Powershell and TSQL scripts needed for managing the database & user objects and permissions.

A backup of the current CAT database should be taken and the file transferred to the new datacenter via a Secure File Transfer Protocol (SFTP) site

Stipend Subsystem Migration

Data migration is needed to convert the existing Stipend subsystem. The Stipend subsystem currently resides in a Microsoft Access database. An analysis of this Microsoft Access database has been completed which revealed that about 75% of the information was needed. The remaining 25% was not needed or duplicate of the primary data source. Valid data elements will be migrated to new objects in the CAT SQL Server database. In addition, data cleanup rules are being identified that need to be applied to the data migration.

Stipend migration will utilize the SQL Server Integration Services (SSIS) tool. This tool allows Microsoft Access as a data source and SQL Server as a data target. In addition, the tool will contain all data mapping and any transformation (i.e. cleanup) rules that are identified during analysis.

Prior to Stipend migration, it is recommended that the current Stipend MS Access database will be placed in the same environment as the target migration database. Note that it is possible to have the SSIS tool source the data from a remote location, but will be both safer and perform better if the recommended approach is followed. In addition, it is recommended that the MS Access Stipend DB be locked with a password before moving and that Secure File Transfer Protocol (SFTP) is used for the transfer. Once the file has been transferred, it will be unlocked at the final destination prior to SSIS migration.

Environment conversion

The migration process described above is a repeatable process. SSIS can be configured to change the source and/or destination endpoints. Thus this process can be development in one environment and then promoted to test, UAT, and production. During the process, it is recommended that all users be locked out of the system to prevent data changes while the conversion is in progress. After migration competes, there would be some standard checks including the review of any error logs as each environment might contain unique data that will affect the migration.

For best performance, it is recommended that SSIS be placed on its own server in close proximity to the source and target environments. If this is not possible, it is recommended that SSIS be placed on the source database server. It is also planned that the test environments be the same or have worse performance metrics then production, allowing the migration team to provide an accurate estimate of the production outage time required for migration.

###### Figures

Appendix B contains the figures from this document that were too large to display properly on a single page.