State of Nebraska

Child Welfare Information System Strategic Plan

Presented to the Nebraska State Legislature

Addressing the Requirements of LB 1160

On

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By

Nebraska Department of Health and Human Services

Professional Consulting and Advisory Services Provided By

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I. INTRODUCTION

A. PREFACE

The State of Nebraska, Department of Health and Human Services' (DHHS) Division of Children and Family Services is the state agency designated to administer the Nebraska IV- E, IV –B, Child Welfare and Juvenile Services Programs. Nebraska's Child Welfare programs are currently supported by Nebraska Family On-Line Client User System (N-FOCUS).

The Nebraska legislature has found that "Nebraska does not have the capacity to collect and analyze routinely and effectively the data required to inform policy decisions, child welfare service development, and evaluation of its child welfare system" (LB 1160 Sec.2 (1)). Although N-FOCUS satisfactorily met its original objectives, current legislative goals are focused on ease of use and the provision of enhanced and appropriate data collection for meaningful monitoring of the child welfare system for children's safety, permanency, and well-being. The legislature also found that the N-FOCUS system does not easily integrate with other computer systems that have different purposes, capacities, file structures, and operating systems, resulting in silos of operation and information. Efforts to enhance the system and reporting process over the past decade have provided improved functionality for the Child Welfare staff and its contracted vendors; however, it has become apparent that the desire of the legislature is to obtain a Child Welfare system that is flexible, responsive to change and represents the latest state-of-the-art technology (including mobile solutions).

During the 2012 legislative session, the Nebraska State Unicameral passed LB 1160 which, among other things, requires DHHS to develop and implement a web-based, statewide automated child welfare information system which would integrate all child welfare information into one system. As a precursor to this activity, NE-DHHS was requested to report in writing to the Legislature, on or by December 1, 2012, on a plan for the statewide automated child welfare information system.

As a component of this aforementioned plan, an independent system study was commissioned by DHHS and awarded through a competitive state bid to UmmelGroup International, Inc., a state government services consulting firm specializing in Health and Human Services modernization strategies.

This report represents the independent and unbiased assessment and recommendations by UmmelGroup, considering a diverse set of stakeholder viewpoints and the collection of feasible modernization strategies to be evaluated and adopted. Through this report and our recommendations contained herein, UmmelGroup believes a framework and strategy for modernization is at hand.

B. EXECUTIVE SUMMARY

1. Summary of Response to LB 1160

Through this assessment, UmmelGroup generally concurs with the legislative findings expressed in LB 1160, except where noted below. Specifically:

a) LB 1160 finds that: Nebraska does not have the capacity to collect and analyze routinely and effectively the data required to inform policy decisions, child welfare service development, and evaluation of its child welfare system;

<UmmelGroup commentary> Although we find the N-FOCUS system to be an information-rich environment for Child Welfare-related case information, we find the reporting and analysis environment to be cumbersome and out-of-date, which obstructs the timely and accurate reporting of Child Welfare programmatic data. These reporting and analysis barriers hinder management's ability to effectively, and in near-real-time, manage Child Welfare program outcomes and identify strategies which lead to desired program outcomes. Additionally, in the current environment, substantial information is carried in unstructured formats (documents, image, paper-based, and forms), requiring program staff to weave structured and unstructured data together, from disparate sources, in order to get the broadest view of each Child Welfare case. Today, a substantial amount of the unstructured data is not automated, but is in paper and accessed through manual means.

b) LB 1160 finds that: The N-FOCUS system is difficult to use and does not provide the appropriate data for meaningful monitoring of the child welfare system for children's safety, permanency, and wellness;

<UmmelGroup commentary> The current N-FOCUS system and Child Welfare specific components, are developed and maintained in a decade-old technology which is based on a "client-server" application architecture. Although popular in the early/mid 1990's, the client-server architecture is now recognized as archaic and has been replaced with today's modern, Internet/web-based, architectures. Additionally, an overwhelming proportion of the N-FOCUS system processing occurs on the state mainframe, with data structures, batch programs, and business-critical reporting activities tied to less flexible mainframe-based technologies. Overall, due to the aging architecture of the system, we find a) efforts to support and maintain the application to be more difficult and labor-intensive, b) skill-sets of an aging workforce to be harder to hire and retain, and c) usability and the capabilities to access child welfare system functionality anytime, anywhere, anyhow, through web-based facilities, to suffer.

c) LB 1160 finds that: The N-FOCUS system does not easily integrate with other computer systems that have different purposes, capacities, file structures, and operating systems, resulting in silos of operation and information; and

<UmmelGroup commentary> The current N-FOCUS system is a highly integrated system, sharing individual, family, and case-composition data across more than 30 different HHS-related programs, including Child Welfare. Due to the aging architecture of the current system, N-FOCUS data is highly coupled across programs, hindering the ability to incrementally de-couple, and modernize individual system or program components. A system utilizing a more robust services oriented architecture (SOA) is required in concert with any planned modernization allowing program data to be more securely and effectively shared across related state and federal HHS program areas including, but not limited to, TANF, SNAP, Medicaid, Child Support Enforcement, and Child Welfare systems.

d) LB 1160 finds that: The department needs leadership in developing a uniform electronic data collection system to collect and evaluate data regarding children served, the quality of child welfare services provided, and the outcomes produced by such child welfare services.

<UmmelGroup commentary> Careful planning and strong leadership is required in order to fully embrace the opportunities through a multi-year modernization strategy, while, at the same time, NOT impacting today's program capabilities and systems operations in the process. For the required modernization, opportunities for Federal and State funding streams must be carefully orchestrated, as much of the underlying technology architecture "fabric" needed for the modernization can be leveraged across a broad set of State of Nebraska HHS-related programs.

2. Summary of SACWIS Strategic Plan

The recommended solution strategy is to modernize and refresh the current N-FOCUS legacy technical architecture, which will serve the State of Nebraska as a "bridge to the future" in terms of establishing the modern foundational technical architecture necessary to realize additional Child Welfare Information System capabilities in the future.

This solution strategy involves, first and foremost a 1) broad-based technology refresh of the current N-FOCUS operating environment (retiring the legacy CA/Gen and Mainframe-based technologies), followed by, 2) a series of multi-year, incremental and/or opportunistic modernization efforts, on the new web-based, open-systems, technology architecture, as priorities and federal/state funding streams allow.

The complete list of solution strategies which were considered and evaluated are presented in the table below, along with key evaluation criterion and overall ranking.

	Solution Strategies Evaluated	Project Risk Rating	Project Cost Rating	Project Cost Dollars	Child Welfare Program Impact	Overall Solution Strategy Ranking
1.	Do nothing	n/a	n/a	n/a	n/a	n/a
2.	Maintain and extend Current N-FOCUS Legacy Architecture	H	L	$1-10M	L	5
3.	***Modernize and Refresh the Current N-FOCUS Legacy Architecture**	**L**	**M**	$17-40M	**L**	**1**
4.	Build a New Custom System on a Modern Architecture	H	H	$202-255M	H	4
5.	Implement a COTS Framework on a Modern Architecture	M	H	$82-155M	H	2
6.	Implement a State Transfer Solution on a Modern Architecture	M	H	$67-100M	H	3

***Recommended/proposed solution strategy.**

3. Executive/Legislative "Call To Action"

Following the review and acceptance of this SACWIS Strategic Plan by the executive and legislative branch of Nebraska state government, a number of key action items are required in order to aggressively actualize the modernization plan.

"Call To Action" Plan	Responsible Party	Target Date
✓ Accept and formally adopt the recommended N-FOCUS modernization strategy and strategic plan.	Nebraska Legislature	1/1/2013
✓ Conduct needed communications and outreach to gain broad-based state, federal, and community stakeholder concurrence and commitment to participation.	Nebraska Legislature and DHHS Executive Management	2/1/2013
✓ Formally charter and file/adopt a N-FOCUS modernization project plan and schedule.	DHHS Executive Management and State OCIO	3/1/2013
✓ Identify potential sources of state and federal funding participation (FFP) required for the first stages of N-FOCUS modernization.	Nebraska Legislature and DHHS Executive Management	3/1/2013
✓ Develop and file required federal Planning Advance Planning Documents (PAPD) for each participating federal agency.	DHHS Executive Management	7/1/2013
✓ Develop and award state Requests for Proposal (RFP's) for the first stages of modernization and file the required federal Implementation Advance Planning Document (IAPD) for each participating federal agency.	DHHS Executive Management with Division of Administrative Services	9/1/2013
✓ Execute and complete the first stage of N-FOCUS modernization which involves refresh of the underlying technical architecture to a more robust and flexible platform.	DHHS Executive Management	1/1/2015
✓ Provide continual and ongoing legislative review and oversight.	Nebraska Legislature	Ongoing

II. BACKGROUND

N-FOCUS is a comprehensive, integrated computer system developed by the Department of Health and Human Services (DHHS) in the 1990s. The system is architected as a client server application with the primary server functions running on an IBM mainframe computer, with data stored in a DB2 data base on the mainframe. The client portion of the application including the user interface and some of the rules based business logic are executed from local workstations which are supported by distributed servers.

N-FOCUS supports most of the human service programs offered by DHHS, including child welfare intake and assessment, foster care, adoption, economic assistance programs such as TANF and SNAP, Adult Protective Services, and the Low Income Energy Assistance Program. The system also supports Resource Development and provides support functions for the Foster Care Review Office. The two primary programs which are not supported by N-FOCUS are Child Support Enforcement, which is supported by the CHARTS application, and the Medicaid Management Information System (MMIS), which is currently being studied for replacement. The N-FOCUS system supports all program activities from intake and case management to case closure.

N-FOCUS also has interfaces with a wide array of other systems which enhances the quality and productivity of the work performed by DHHS staff. These interfaces include Social Security Administration (both SSN and benefit verification), unemployment insurance, Department of Motor Vehicles, Vital Statistics, Child Support Enforcement, Department of Justice, Medicaid payments, Crime Commission, Veteran Affairs, Sexual Offender Registry, and IVR system.

This comprehensiveness adds a high level of complexity to the N-FOCUS system which is reflected in ongoing maintenance and operating expenditures. The system is well maintained, but its age and architecture creates challenges which are reviewed in more detail in Section III.A of this report.

III. CURRENT SYSTEM CAPABILITIES

A. Current Architecture

This subsection describes the architecture and capabilities of the N-FOCUS system (including but not limited to Child Welfare functionality) as it exists today.

N-FOCUS achieved statewide operational status in 1996. A significant upgrade was then undertaken to add in the Child Welfare system capability. Since then, continuous development activities have occurred in the form of periodic releases. These releases focus on correcting operational defects and addressing new state legislation, federal regulation and agency policy.

The existing system is a multi-tiered client/server application comprised of several components. The three major components are a workstation user interface, application servers, and a mainframe back-end hosting environment which includes the database.

N-FOCUS operates on Windows workstations and utilizes the transaction architecture under the Customer Information Control System (CICS) environment to support business processes. In support of

Crystal Reports and Business Objects reporting architecture, copies of N-FOCUS production data are made weekly to a reporting environment for reporting. The Imaging architecture supporting N-FOCUS is a combination of existing DHHS solutions and an Office of the Chief Information Officer (OCIO) target solution for capturing content on intake as well as via Web self-services. Client side transactions created with CA Gen are processed by the CICS transaction monitor and server side stored procedures are programmed using COBOL. The workstation client interacts with the database running on a mainframe computer located at and operated by the Nebraska Office of the Chief Information Officer.

The application servers provide intermediary functionality between distributed workstations and the mainframe. They provide a staging area for software distribution to reduce bandwidth congestion. The application servers are hosted in distributed server rooms and are designed to perform several functions including file sharing, print services, domain control, and distribution of antivirus updates.

The core of N-FOCUS resides on the mainframe. The primary role of the mainframe is to provide database and transaction services. All N-FOCUS data are stored in a series of database tables and are accessed through CICS transactions generated by the N-FOCUS workstation application.

Figure 1 (below) illustrates the current architecture. Access to the application servers, mainframe, and database are supported only across the Nebraska Government Network.

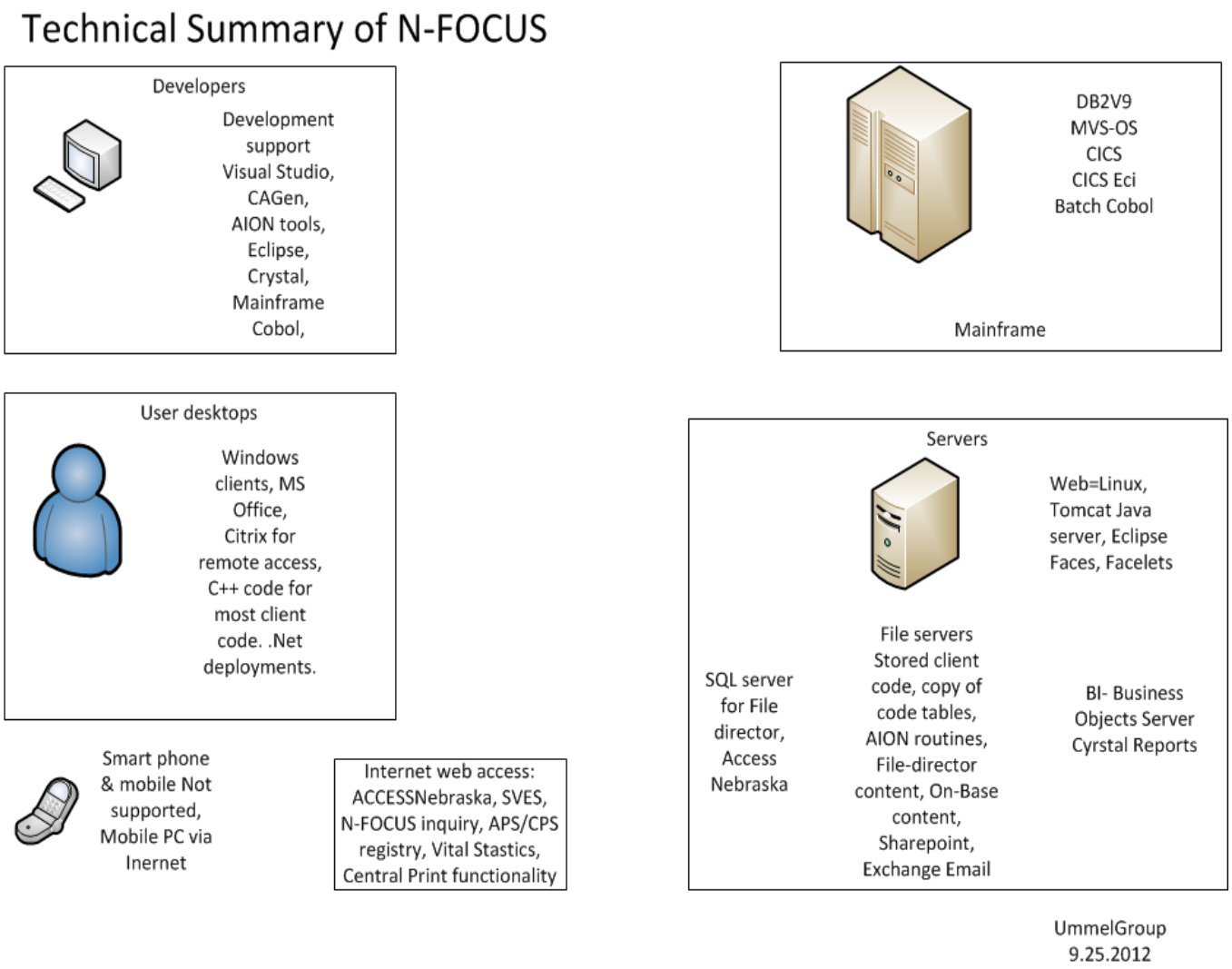


Figure 1 - Technical Summary of N-FOCUS

1. Current Business Architecture

Although the nature of Child Welfare programs and service delivery is quite unique, the general business architecture of Child Welfare is somewhat aligned, enabled by N-FOCUS, with other Health and Human Services program areas. The "value chain" model below shows how general processes related to "intake and eligibility" in Child Welfare may be seen as analogous with "outreach and eligibility" in other human services areas, such as SNAP (Food Stamps), TANF, or Medicaid services. Cross-cutting all DHHS programs, is a need for Case and Caseload Management, Enterprise Program Management, Project and Contract Management, Research, Quality Assurance (QA), Performance Management, as well as general administrative support services. Figure 2 (below) illustrates, at a very high level, the commonalities among Child Welfare and other HHS-related programs from a business value chain perspective.

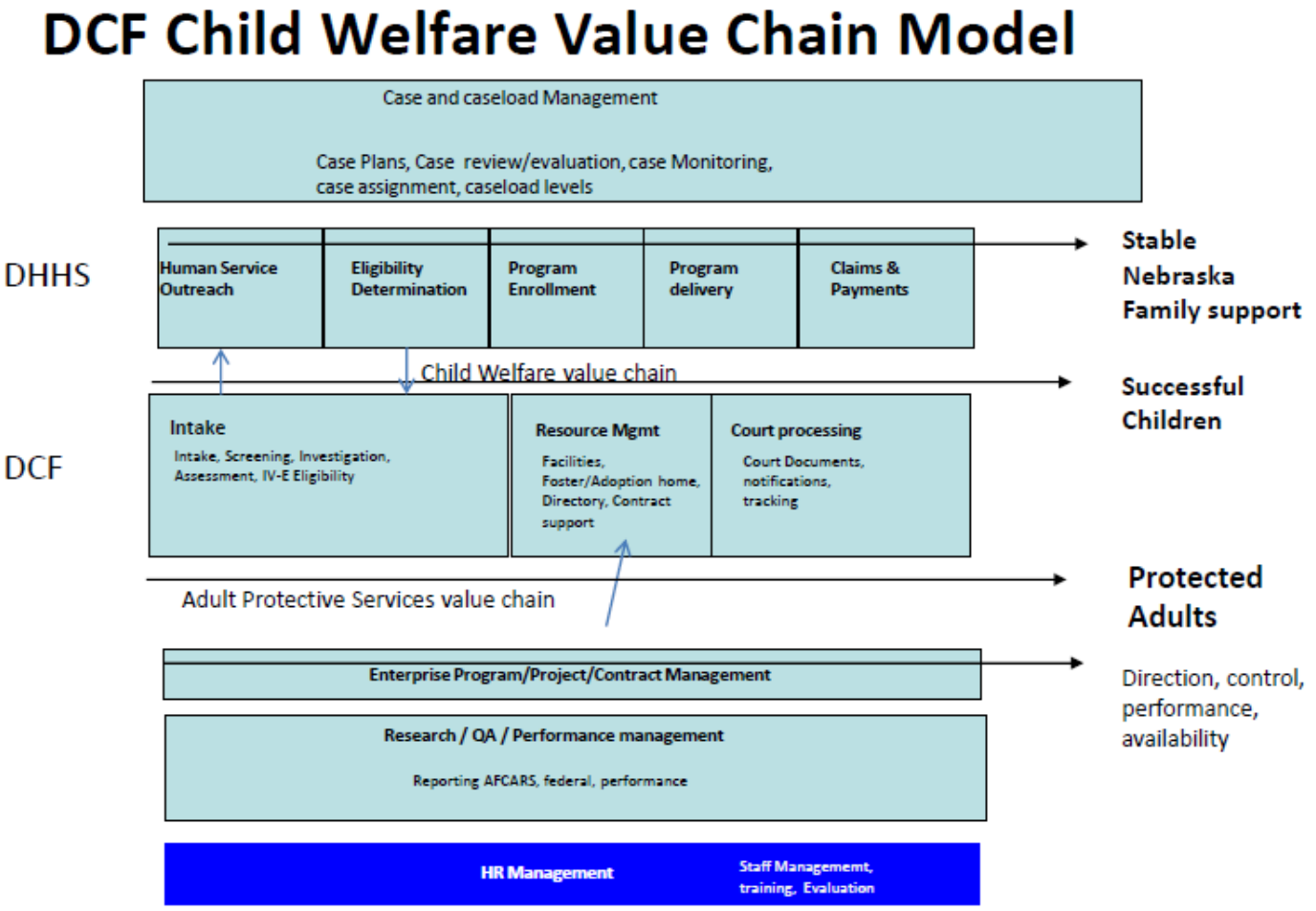


Figure 2 - DCF Child Welfare Value Chain Model

2. Today's N-FOCUS in the Overall Context of Related Interfaced Systems

N-FOCUS is one of the largest integrated systems in the government of the State of Nebraska. Other significant systems within DHHS include Vital Statistics (management of birth, death, marriage, and other vital records for Nebraskans), CHARTS (management of child support enforcement operations), and MMIS (management of Medicaid-related provider/consumer claims and payments). While not an exhaustive list, Figure 3 (below) shows approximately 40 of the most significant interfaces between N-FOCUS and private, state, local, and federal partners. It should be noted that a large proportion of these interfaces are shared among multiple HHS program areas.

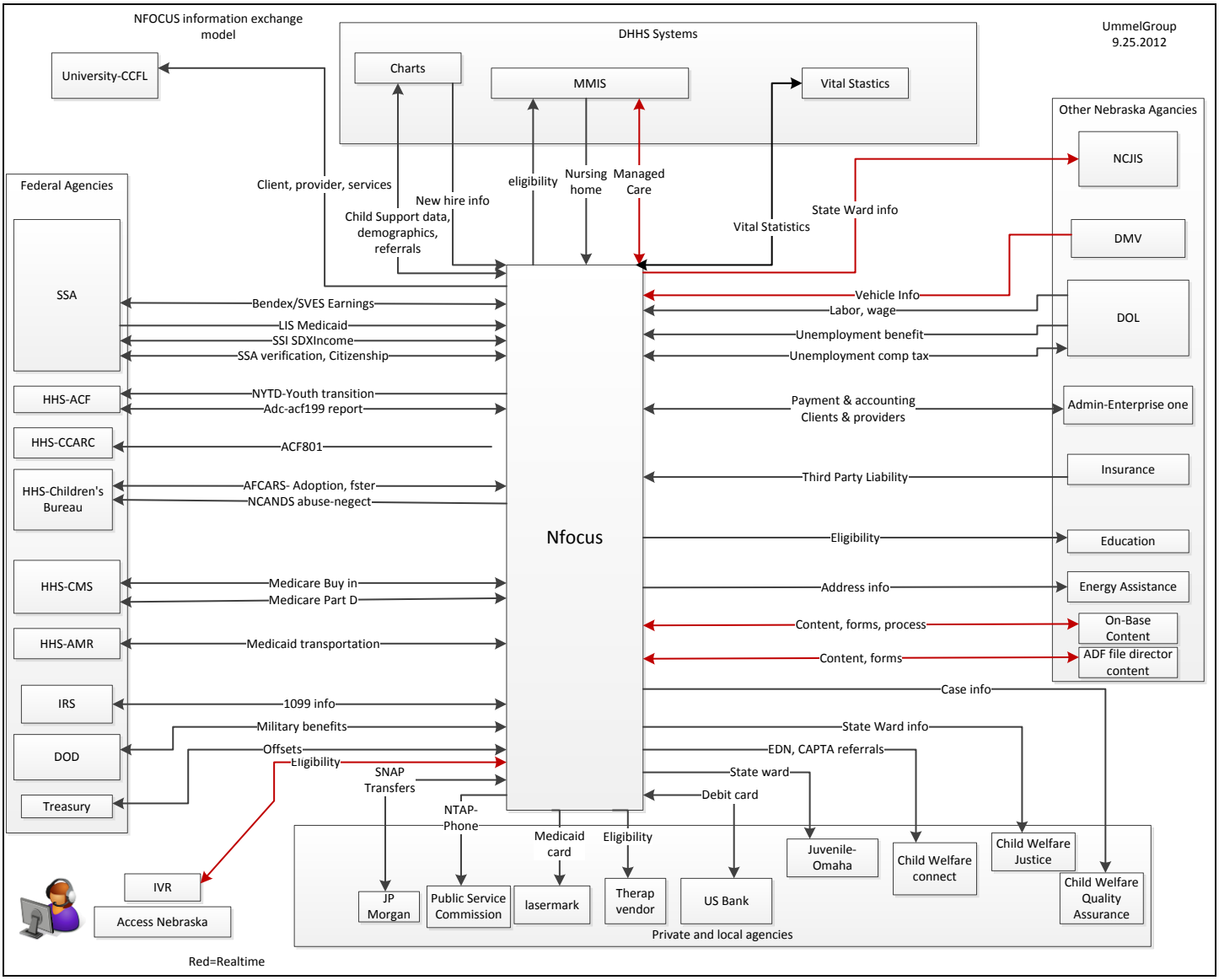


Figure 3 - N-FOCUS Context Model

3. Current Application Architecture

Workstation Overview

The N-FOCUS client currently runs on workstations using the Windows 7 operating systems. N-FOCUS workstation client software architecture consists of several application layers. These layers include:

- **Presentation Services** – The presentation services component is the Graphical User Interface (GUI) provided to the user. The presentation service is provided via a Windows workstation.
- **Business Rule Services** – These services provide the application business logic unique to each functional area. At the workstation, both early verification (using the GUI business rules) and late verification use application rules to provide accurate information.
- **Security Services** – All traffic between N-FOCUS workstations and host applications are encrypted prior to transmission over the network and to the host.
- **Transaction Services** – Data traveling between the workstation and the host is organized into packets or transactions. The transaction services component creates data transactions and transports the information to and from the host. The infrastructure supporting this is based on IBM's n-tier Customer Information Control System architecture. CICS components in the user workstation communicate to the backend CICS component on the mainframe.

Server Overview

- **Local File Servers** - The local file server is used as a staging area for software distribution to reduce bandwidth congestion. Rather than distributing new code releases to all workstations over the Wide Area Network (WAN), software is first distributed to the application servers over the WAN that in turn are responsible for distributing software to local workstations over Local Area Networks (LAN).
- **Web Access Servers** - There is also a server supported infrastructure to support Web access. Various Web access solutions are available including ACCESSNebraska, SVES, N-FOCUS Inquiry, APS/CPS central registry, Vital Statistics, and Central Print Architecture. These Web access environments include a Linux hosted Tomcat web server using Java via the Eclipse environment that gets data from mainframe via stored procedures.
- **Imaging Servers** - There is an imaging environment for capturing images upon receipt from 2 major imaging centers as well as at many user workstation scanners. There is also imaging capture occurring via the ACCESSNebraska site for user provided document upload and storage.
- **Database Servers** - Several server components require working databases, the imaging system, and the ACCESSNebraska environment. These are using Microsoft SQL server.

Backend Host Overview

The core component of N-FOCUS is the IBM mainframe computer or host. The workstation client interacts with the IBM mainframe host at the State data center. The mainframe host is the main repository for data, code tables, created notices and correspondence, and all data related to a case. The primary role of the host is to provide database and transaction services. N-FOCUS is built on an IBM DB2 database. All N-FOCUS data are stored in a series of database tables and accessed through CICS transactions generated from the workstation's N-FOCUS application. The transactions processed by the CICS transaction monitor are programmed using the COBOL

language. There are a large number of batch programs that provide for scheduled updates to interfaces, business process updates, and reports.

Reporting Overview

Reporting requirements within N-FOCUS are satisfied by several methods. Specific user community needs are addressed through different sets of tools, data access paths, and repositories. In addition to Business Objects analytical tools, N-FOCUS also includes a separate environment for reporting. There are three basic categories of reporting in N-FOCUS:

- Standard program management reports
- Quality assurance and regulatory compliance reporting services.
- Ad hoc reporting run against the production data performed by qualified development team members.

Currently all reports are run in a batch environment and are stored on the Business Objects Enterprise server. This allows users to select the format of the report (from HTML, PDF, excel etc.). There are almost no reports that are user selectable on what options to run or that can be run on demand.

Information Security Architecture Overview

N-FOCUS contains information that is highly confidential and sensitive in nature. N-FOCUS security architecture is based on a layered model incorporating security controls in each layer. The security in each layer includes:

- Workstation/LAN Security Components
- Authentication by unique user id and passwords – standard Active Directory logon scripts and network access security
- Physical security of workstations
- Server Security Components
- Application/Host Security Components
    - Application security is based on IBM's Resource Access Control Facility (RACF) security systems. Each user is uniquely identified to the individual applications by dedicated representatives from the State, County, or office security administrator using unique user id and passwords.
    - Access to cases, reports, and data is based on a pre-assigned user authority profile that restricts access to individual programs, reports, and data on the host.
    - Access logic is part of the application program logic.
    - RDBMS Security – Runtime client encryption and user authentication
    - Application Security – Assigned security levels
    - Data Access Security – Assigned by authorization level, views, and profiles
    - Network Security Components/Encryption
    - Remote Access Security – Currently, remote access is supported via dial-up circuits or VPN. Security is enforced through user IDs and passwords. Since access to most of the N-FOCUS environment is made available to remote users via CITRIX, the CITRIX security system is layered on top of other controls for user's access.
- Logging and Tracking
    - Invalid user IDs and passwords, as well as login attempts, are tracked in a security log.

    - All user access to systems, including inquiries.
    - Logs are reviewed periodically by security administrators based on local policies.
    - Automatic revocation of user IDs and passwords after a pre-defined number of failed attempts.
- Data Backup and Recovery
    - Data are backed-up daily on the host and the local application servers (local user files).
    - Tapes at the data center are moved off-site on a daily basis.
- Physical Security
    - Access to the data center is controlled by access badges.
    - Servers are placed in locked rooms (policy).
    - Servers (in dedicated environments) have case key locks.
- Security Management - Each office has a security manager responsible for:
    - Managing user IDs and passwords (add, change, delete, reset, etc.).
    - Managing access control and authority levels.
    - Managing email security.

4. Current Data/Information Architecture

The core data model for N-FOCUS contains the basic structure for human services support capability. Since N-FOCUS supports as many as 30 different programs, the program management part is essentially the view that drives performance and budgetary decisions. The system was established with a household view for case management. This flexible model allows for persons to be involved in multiple households, families, and cases. The core/shared subject areas are used across all programs. In this shared model, (for example) an address change or family addition “known” to one DHHS program can be “known” to the benefit of all DHHS programs, or the birth or death records verified by one program can be pre-validated by other programs. Sharing of income records by person and family eases the discovery process.

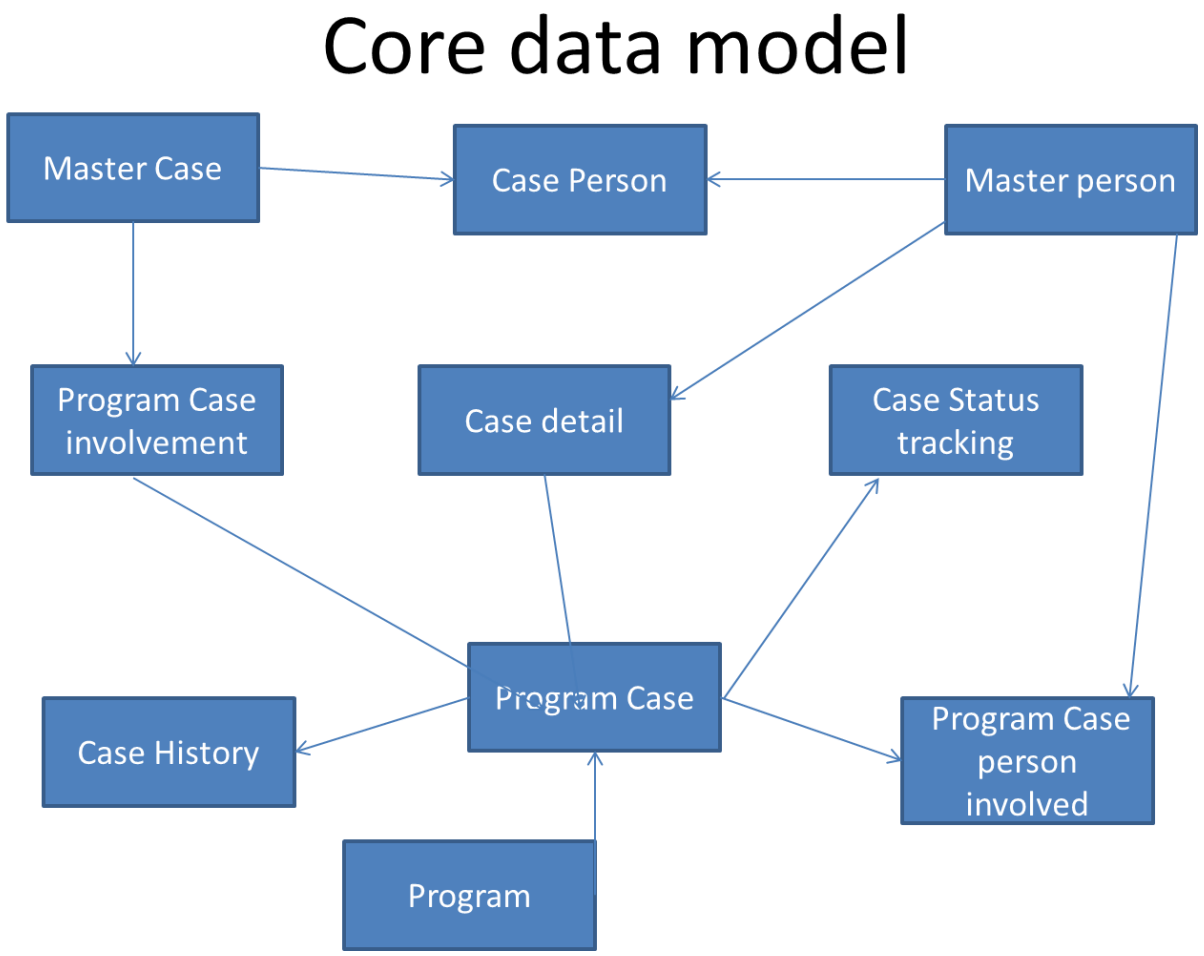


Figure 4 - Core data model

5. Other Related Information About the Current "As Is" Architecture of N-FOCUS

Any large existing system has various architecture patterns that are used to deliver applications and solutions to the user community. N-FOCUS has several different patterns but is not unusual in the patterns deployed. N-FOCUS has been very consistent over its lifecycle staying with a consistent development model. Any upgrade or replacement project will require all of these architectural patterns to be re-visited to determine migration strategies. Architectural Design Patterns (in general):

- Core application - CICS, client access
  - 570 Client Procedures
  - 550 Windows code blocks, 1450 dialog boxes
  - 555 Server procedures, CICS ECI calls
  - Most core Application generated from CA Gen tools.
- Batch COBOL

    - 660 procedures
    - 720 programs
    - 230 stored procedures
    - Custom written batch COBOL programs (does not use CA Gen)
- Code development
    - CA Gen for most code development
    - Visual Studio for compile and test client side
    - Eclipse for Web components.
- Web access
    - Linux
    - Tomcat application server
    - SQL server
    - Eclipse
    - Facelets based
    - Confirmation email to clients from ACCESSNebraska system but not from core N-FOCUS system
- Business Intelligence (BI) reporting, dashboards
    - Crystal Reports and Business Objects Enterprise (this is a good combination).
    - Copy of DB2 data weekly for reporting (this is least desirable for reporting).
    - Business Intelligence/Reporting using a shadow database with minimal de-normalization (updated only on a weekly basis).
        - The effort to move this shadow database to daily has not been pursued.
        - Uses database utilities to maximize efficiency.
        - No attempt to filter for only current or changed records.
        - Most reporting are batch run reports available to users from the Business Object enterprise report server.
    - There is minimal ad hoc reporting available.
    - Some reports pushed to web for general access
        - There is no N-FOCUS data warehouse for trending and forecasting, however N-FOCUS feeds data to the MMIS Data warehouse at Thompson Reuters for trending and forecasting.
- Data
    - DB2 version 9 (this is a good solid database platform).
    - Over 500 tables (300 tables are code tables that are copied to local file servers for screen edit support).
    - Large portions of this data are copied weekly to a shadow database for reporting purposes.
    - CICS Access to DB2 versus direct access is an inefficient data access. Direct access to DB2 is recommended.
    - Some data are kept in SQL server for content indexes and working data on web servers.

    - There is no archive or sunset policy applied to N-FOCUS consistently leading to constant data storage growth. Archive capabilities are available and used on parts of N-FOCUS.
    - 642 relationships 1054 indexes, 7839 attributes(columns).
    - 1.6 Billion rows of data, largest table 206 million rows.
- Business rules engines,
    - AION Rules Engine. Used in limited functionality.
    - This area is at risk due to limited market reach for this tool.
- Content Management
    - Currently, content is stored in 2 places. DHHS has a File Director based environment and OCIO has an OnBase system for statewide use.
    - Currently, most content is incoming documents that are scanned and tagged.
    - Capture of internal documents and outgoing documents are stored in the N-FOCUS Database correspondence system.
    - Child welfare has not yet started capturing documents into the content solutions.
    - SharePoint is also available and is used primarily today for development support and user instructions.
- Access technologies
    - Remote Access by personnel using CITRIX.
    - Access by contractor using CITRIX.
    - Web access limited to small area of functionality.
    - Agency Desktop users access direct via network.
    - Call in clients use IVR which is connected to N-FOCUS for client information popup.
    - Change/Build Frequency and Well Managed Change/Configuration/Build Processes
        - DHHS has some of the best examples of written deployments and user evolution support for change management that we have seen in state agencies.
        - Usually on a 3 cycles per year schedule.
    - Near-real-time nature of all transactions for programs within N-FOCUS (very little batch or overnight processing required for key business functionality).
    - Highly integrated data and functional screen system.
        - Separating out any sub-part of this system will potentially negatively impact workers. For example, splitting out the eligibility determination to support HHS, CWIS, and MMIS systems is conceivable but will remove functionality that is working and effective today.
    - Commonality between N-FOCUS and Child Welfare.

Child Welfare and N-FOCUS

	N-FOCUS	Both	CWIS
Data	Resources 200+ tables	Clients Providers Services Payments Case	Allegation Intake Foster/adoption Juvenile Approx 30 tables
Technology	Web access, Content mgmt	DB2 CAGen CiCS AION	
Business Process	Case /client application eligible, Benefits, payments	Providers Services Payments	Intake Assessment Eligible Judicial, Plan, payments

Figure 5 – Child Welfare and N-FOCUS Intersect

- N-FOCUS good Architectural areas that could be leveraged.
  - Data base/core data model (less than 20% needs revisited and possibly redesigned).
  - Existing interfaces.
  - Reporting solution architecture.
  - Well integrated functionality.
  - Content Management infrastructure.
  - ACCESSNebraska public portal.
- N-FOCUS areas of weakness that should be fixed.
  - Entire CICS/Client server code base CA Gen,
  - Reporting data copy,
  - Business rule platform,
  - Data quality needs defined and fixed (especially contractors handoffs and users expectations).
  - Final SACWIS compliance should be completed.
  - Complete all programs to content capture incoming and outgoing.
- Architectural patterns that of a mature system not in N-FOCUS today.

- Add process capability - form completion to services delivered.
- Data warehouse, dashboards, parameter driven, real-time reporting, ad hoc user generated reporting, performance reporting, forecasting.
- Archival of data.
- Contractor data exchange, real time focus for all data.
- Mobile access for workers or for clients.
- Full functional web access for clients, contractors, workers.

6. Benchmarking of Current N-FOCUS Child Welfare Capabilities

Table below maps today's N-FOCUS Child Welfare capabilities against an extract of LB1160 expectations:

Issue/Expectation from LB1160			
	N-FOCUS Today	**Upgrade Opportunity Assessment**	**Target Outcome Needed to Meet Legislative Expectation**
Sec 2			
A. Nebraska does not have capacity to collect & analyze	Some data currency problems	Yes possible with current data and BI enhancements	Ability to understand current environment and respond with actions
B. N-FOCUS difficult to use	Data entry challenging	Yes	Easy access by workers, contractors, and clients on computer or mobile
C. N-FOCUS does not provide quality timely data	Timeliness problems	Yes, with policy and contract changes, data warehouse and dashboards	Timely and high quality data.
D. N-FOCUS does not integrate easily	No interface with Contractors, each custom built	Yes, with Internet exchanges and Enterprise Service Bus (ESB)	Easier and reduced cost for integration
Sec 3			
A. Improved child welfare outcome measures	Yes		Improved child welfare
B. Increased reporting by contractors	Needs interfaces to compare	Yes with policy & contract changes	Access to real-time understanding of child welfare statewide
System to integrate child welfare information	No, needs real time exchanges with contractors	Yes with policy, contract and interface changes	Effectively manage track and share information.
Sec 4(1)			
A. Web based SACWIS	No, would need entire front end for web	Yes, complete code base migration to web technologies	Move entire presentation layer to Web-based
B. Reduce paperwork and redundant entry	No, review of all process and document capture	Yes, with automated interfaces from contractors, mobile capture and document capture	Real-time view of all Information about a case, from anywhere, not paper based
C. Better tools and information	No, process metrics and flow difficult to capture	Yes, better policy and rules engines, automated processes	Consistent policy and practices
D. Provide alerts and information	Needs summary of prior events, surrounding influence factors, IE job loss	Yes with better interfaces, better presentations of summaries	Timely, quality case management decisions
E. Consistent and accurate data management	No, process data missing, data warehouse missing for trend and forecast data	Yes, with better process data and data warehouse for accountability workload	Improve reporting, caseload balancing accountability
F. Function Activity completion quicker	No, mobile capture, document capture, and process gaps	Yes, with better process data, document capture, self service	Improve case manager time to completion
G. Progress tracking	No, dashboards needed for multiple levels of organization	Yes, with business intelligence, dashboard, and contractor exchanges	Improve ability to identify progress status and target response actions
H. Access to real-time data	Yes, but additional real-time feeds needed	Yes, with additional real-time feeds and better presentations	Immediate corrective and supportive actions
I. Find foster homes and community resources	Yes, provider registry and local demographic matches	Improve web access by mobile worker	Quicker placement, less trauma for children

J. Improve reporting and tracking	No, a lot of reports, no data warehouse and process	Public and executive transparency reports	Accuracy, transparency, oversight
Sec 4(2)			
A. Integration across social services programs	Yes, all programs in N-FOCUS, need better court interfaces	Yes, with new interfaces	Improve capacity
B. Ease implement changes	No, policy and rules engine limited, development environment at risk	Yes, with new rules/policy engine, new development platform	Easier, less costly changes
C. Compatible vendor platforms	No, limited deployment	Yes, with new development platform, web architecture	Portable and reduced cost for operations
D. Flexible architecture	No, limited expansion	Yes, with ESB, Business process,	Manage increased transactions
E. System recoverability	Yes, adequate support	Yes	Protection of system
F. Vendor portal/exchanges	Yes, limited	Yes, with better web access, mobile access, and interfaces	Increased collaboration, reduced cost to contractors
G. Cases not meeting goals	No, process view limited, mobile limited	Yes, with better process oversight, mobile device support, BI for executives	Meet case goals program goals, easier approvals, meet outcome measures at various levels
H. 24/7 real world access, self-service and workers	No, limited days schedules, batch process impact	Yes, with real-time and batch architecture, web architecture	Access by workers and public self-service, partners
I. Understanding and applying policies too complex	No, challenging business rules engine policy changes	Yes, with better policy and rules capability	Easier policy changes, easier understanding, monitor usage
J. Automated alerts, exceptions	Yes, exception based for no touch processing not defined	Yes, easier way to add new alerts and subscriptions	Manage cases more efficiently
K. Compliance with SACWIS	No, but very close and possible	Yes, with changes in contractor exchanges	Meet federal guidelines. Secure funding

Table 1 - Benchmarking of N-FOCUS Child Welfare Capabilities

7. Contributing Foundational Technical Barriers

Barriers inherent within existing architecture of N-FOCUS include, but are not limited to:

- There is no formal “control” layer to act as an intermediary between the graphical user interface (GUI) layer and the data layer to provide notifications about changes to the data/views. Rather, the GUI layer incorporates this logic, which results in a tight coupling between business rules, user interface logic, and data. This tight coupling reduces flexibility and impairs the ability to alter business rules and data structures due to the needs of changing law, regulation and policy.
- Each business process is mapped to a long series of transactions which are executed either in parallel or sequentially as individual transactions. No true system management of business processes is possible in such an environment. In the N-FOCUS architecture, a transaction may also encompass many business processes, which results in application code interdependencies that limit the ability to easily support business and program changes.
- No clear separation exists between business and user-interface logic on the workstation. This constraint limits the ability to customize the software to Partner-specific requirements.

- The existing design accesses all the case data at the workstation and does not make this information accessible outside the workstation (such as via portable or alternative devices). With this design, information cannot be made available anywhere, anytime.
- N-FOCUS uses an approach to business rules that limits support of any strategy involving moving some core business logic to other platforms like web or mobile devices
- N-FOCUS uses a code generation product tool set (CA Gen) that, while capable, has been deployed in such a way that business logic is spread between DB2 stored procedures, CICS access transactions, and client code running on workstations. The distribution of logic makes updates very time consuming and labor intensive to build, verify, test, and deploy.
- Custom building of every interface increases the cost to allow partners or pilot sites to exchange data. This approach has partners entering data directly into N-FOCUS via CITRIX access in addition to entering the data into their own computer system. This limitation causes data entry delays, data quality and data reporting inconsistencies. For each partner, this effort is costly and prone to increase cost for partners to participate.
- The reporting architecture uses a copy of production data copied weekly. Batch reports are generated against that copy. This is a costly approach to providing access to data, has limited the ability to generate ad hoc reports by users, and has impacted the ability to produce real-time statistics for case workers, supervisors or managers. There is no ability to forecast real-time impact of daily changes.

B. Business Capabilities

1. Methodology:

Critical to determining the current capabilities of the N-FOCUS system and exploration of issues raised regarding the system, is an understanding of how the system is currently used and experienced by staff at different levels of the organization. UmmelGroup met with DHHS staff to explore their expectations and experiences with the N-FOCUS system. To capture this information 18 facilitated discovery sessions of 1 to 2 hours each were conducted. Each session involved 3 to 15 participants. During these sessions, staff were asked about the strengths of the system, weaknesses or problems they have encountered with the system, and finally what specific changes or additions would they make to the system to resolve deficiencies or to make it work better for their needs. Sessions were held with Central Office program staff, Information Systems and Technology (IS&T), program staff from Eastern and Western service areas, and staff from Nebraska Family Collaborative and the Foster Care Review Office. The participants ranged from front line workers to Senior Management, staff new to the system, and some whose careers predated N-FOCUS. A summary of the findings from these sessions is provided in Appendix VII.B.1.

2. Strengths:

The N-FOCUS system has many strengths that are clearly recognized by users. First, and most importantly, it does what it was intended to do. The system is well documented and IS&T has established strong change management practices which make the system stable and reliable. Staff appreciated the comprehensiveness and integration of the system. The ability of the system to provide staff access to information across program areas through the system's

integrated design, the many interfaces incorporated with other systems, and the historical information of persons and families simplifies jobs and improves the work product.

The system has many features which were noted in almost every session and appreciated greatly. These include the use of the household structure as the basis for system data capture, sophisticated person search functions, numerous and comprehensive pre-built reports, the alert system established to prompt staff of critical upcoming duties, and the basic ease of use. A particular new feature that is greatly appreciated is the document imaging technology which has recently been adopted for economic assistance programs. The scanning and easy retrieval of documents related to child welfare cases makes tasks much easier for field staff.

When staff accesses the system, they are presented with a main menu screen which provides access to the various programs incorporated as part of this integrated system. This main menu (see Figure 6) is straightforward, uncluttered and organized by work function.

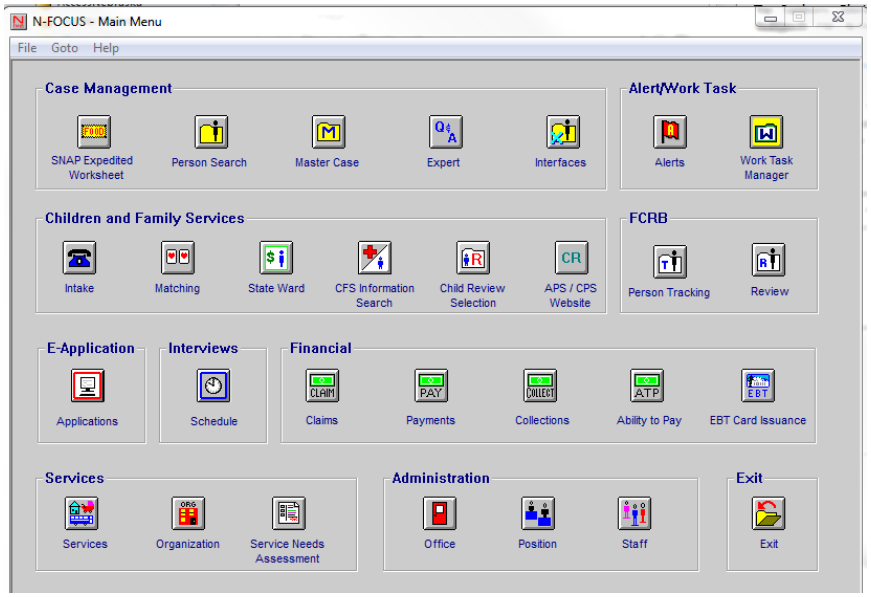


Figure 6 - N-FOCUS Main Menu

The system access is praised by most staff as making system navigation straight-forward and intuitive. Each icon leads to more options, logically designed under the same program areas (economic assistance, child welfare, resource development, etc.).

It is clear that N-FOCUS provides increased productivity and efficiency in the establishment and maintenance of assistance and service cases. However, the system is not without problems and areas where improvements are needed. Specific critical issues are discussed below.

3. Weaknesses:

One significant issue raised by staff regarded navigation through the system. The basic design of navigation through the system is oriented to the logical steps required to create and open a case. This works well when this is the function being performed by staff. However, when needing to look up specific information or when reading through a case to understand a family's or individual's situation, this design structure makes access time consuming and often frustrating to staff. Staff often referred to the system as being "cumbersome". Additionally, when moving to successive layers of detail, the system spawns a new window to display the new information. This technique ultimately ends up with the user having several overlapping windows of information displayed on their computer screens as indicated in Figure 7 below. Having this many windows opened causes confusion for the user as to where they are in a process and requires a multitude of windows be closed to begin a new inquiry. User frustration is exacerbated by a lack of training and understanding of the application structure. An additional inquiry-oriented navigation could be developed to facilitate look up and review tasks and/or functions.

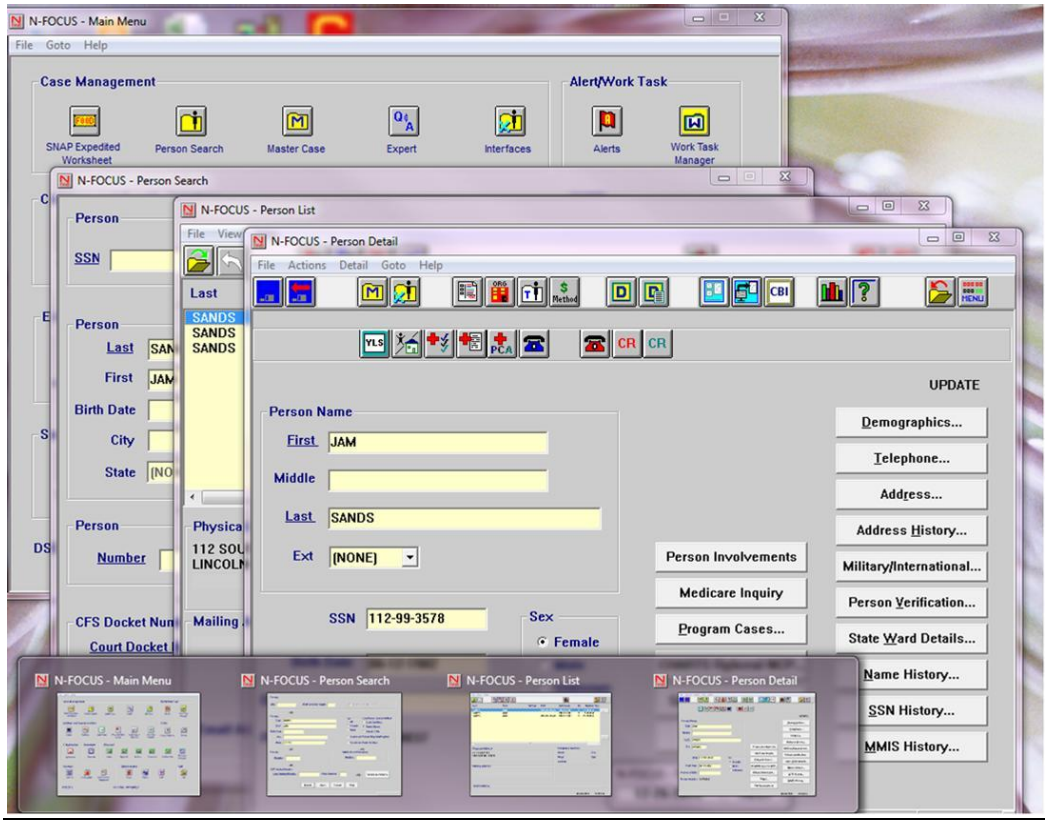


Figure 7 – N-FOCUS Navigation Screen Popup

A second major issue identified is related to the time it takes to make system changes. The current schedule of 3 system releases per year creates a long backlog of pending orders and also creates situations where the system's operation does not meet new practices or policies.

The change management process begins with a review of needed changes which get prioritized by a team of individuals that includes IS&T, Business Analysts (BA), and program workers. A determination is made of how many changes can be included in the change cycle in order to be able to make the programming changes, update documentation, thoroughly test the application to ensure modifications work as defined, and roll out activities in the prescribed timeframe. Since the N-FOCUS system has been built using tools that are now nearly 20 years old on top of a client server platform that employs a mainframe computer as the backend process and data management server, the coding, testing, and deployment process is complicated and time consuming and impact the ability to reduce the change management cycle time.

Particular attention was paid to issues which impact data quality during these sessions to help with addressing concerns noted in LB 1160. The N-FOCUS design and data structure provides a basis for reliable data collection and reporting. However, it appears there are practices which undermine this capability. An issue which became apparent is that different locations have established local practices and/or definitions for use of and/or data entered into certain fields, and the N-FOCUS system does not strictly enforce practices or data definitions related to child welfare cases. While system flexibility can be seen as beneficial to addressing differing requirements for each locality, the lack of statewide uniformity can create problems for data integrity. It was also noted that economic assistance case creation and maintenance is managed online through the use of "expert systems" which guide and manage staff activities. Apparently this functionality has been removed from the child welfare system. The lack of this guided and managed process provides more opportunity for error. A business practice review should be performed to determine where audits and more prescriptive workflows should be incorporated to assure that data is accurate and timely. It would also be helpful to have a data integrity audit included as part of regular quality assurance case reviews.

It was noted that there are serious differences across programs and locations regarding how seriously data quality is viewed. A lack of attention by program or field managers to accuracy can undermine the ability of DHHS to report accurately.

Although N-FOCUS creates numerous reports on a regular basis, it does not have the capacity for users to independently produce custom reports. Due to this lack of an ad hoc reporting function, field workers and supervisors have developed local reports using Excel and Word. These reports track work load, critical deadlines and other custom uses. It also creates a concern about how reliable N-FOCUS data is when it is not being used as the basis for critical tracking and monitoring.

A related issue was that reports created by N-FOCUS are not real-time, rather, the system utilizes a "shadow" database management environment from which reports are run. Most of

the reports created for N-FOCUS are developed using the Crystal Reports reporting tool from SAP. In addition, a Business Objects Enterprise server is used to store the developed Crystal Reports. Enterprise server provides a scheduler for the automatic submission of routine reports. The shadow database is created once a week which causes reports to rely on data that is up to seven days old, so, these reports often do not meet the needs of field managers overseeing the real-time work of their staff. Increasing the frequency of creating the shadow database has been deemed to be too costly in mainframe computing. Delays in receiving reports are also created by the request cycle which requires all requests for a report to be passed to IS&T for fulfillment.

Another issue that is contributing to perceived data quality issues is the timeliness of getting data entered in the system. The following items were noted during the discovery sessions with field staff.

- The system does not adequately support a mobile work-force.
- Use of Citrix creates problems for accessing N-FOCUS from remote locations.
- Intake and initial assessment staff noted that 24/7 access to the system is not available.

A number of other issues were identified which should be at least reviewed and considered during any upgrade process. Some of the most critical are:

- The design, structure and organization of narratives should be reviewed. This was probably the single most common issue addressed by attendees. The issues included difficulty in creating narratives, trouble finding needed information, navigating the numerous windows which had to be used to get information, and how narratives can be viewed on the system.
- The now more common use of multiple or hyphenated last names has made name search less reliable and more problematic.
- Apparently there are several places in N-FOCUS where a document (example: court report) must be printed to review for completeness and final editing. An on-screen review function would be appreciated by many staff.
- A review of policy is needed and system operation needs to be fixed where there are conflicts. An example was that N-FOCUS does not recognize partial month eligibility but it is allowed in policy by some programs.
- A significant number of ease of use additions or changes were identified and should be reviewed for inclusion in a system redesign.
- The Structured Decision Making system was subject of many concerns and issues during the sessions. Most common were those about ease of use and lack of the ability to create a draft document. This appears to be an area where gains in efficiency and productivity are available.

A full listing of identified issues is provided in Appendix VII.B.1.

Adequate training was a common concern, particularly regarding how to navigate around in N-FOCUS and time it takes to learn how to function effectively. There were also issues raised about communication of system changes. Staff expressed concern that they did not understand the change, new expectations, or the new operational attributes.

4. Opportunities:

Although a strong and stable system, N-FOCUS has numerous areas where enhancements and additional functionality can greatly improve ease of use, reliability and increase worker productivity. The redesign process proposed in this report is a time when these issues can and should be addressed. Some of the most commonly expressed ideas are noted below:

- Implement a system architecture that allows more frequent and timely changes and upgrades.
- Provide for name normalization to make name searches more effective.
- Add a "sounds like" function to Organization searches.
- Provide for mobile access to allow more flexible staffing and timely addition of information to the system.
- Create a practice management system for child welfare.
- For narratives, add active spell and grammar checks which operate while information is being created.
- Strengthen alert system to promptly warn supervisors and managers of missed or ignored alerts.
- Provider licensing should be included as a system function.
- Coordinate N-FOCUS and MMIS in regards to managed care enrollment.
- Seek to create interface with Education system.
- Strengthen system and organizational management of data quality, using both system edits and management commitment to assure timely and accurate information.
- Add partial month eligibility to Medicaid and other programs where appropriate.
- Redesign the way the system creates and manages Organizations. In particular, add functionality to avoid multiple entries for the same entity.
- Combine historical child welfare assessments in one location, so users do not have to enter and search multiple systems to find information.
- Provide the capability to add multiple children in one operation and to do changes on multiple persons at the same time.
- Need a history of workers assigned to a case maintained in the system.

DHHS should consider the development and deployment of an ad hoc reporting function which is accessible by the end users. The existing Business Objects Enterprise Server could be configured to allow the end users to log in and submit previously developed reports on an as needed basis. This may require some minor re-architecture of some of the reports to allow the user to enter parameter data to qualify data selection or reporting timeframe.

C. Federal SACWIS Compliance

Statewide Automated Child Welfare Information systems (SACWIS) is the Federal Government's program to encourage states to adopt comprehensive and integrated automated systems to manage the various functions of child welfare service management. These functions include intake and assessment, investigations, family preservation, foster care, adoption and independent living. Federal financial support for SACWIS came from Title XIII, Section 13713., ENHANCED MATCH FOR AUTOMATED DATA SYSTEMS, of the Omnibus Budget Reconciliation Act (OBRA) of 1993 (Public Law 103-66), enacted on August 19, 1993. This bill provides enhanced Title IV-E funding to assist with the development and implementation of a SACWIS compliant system.

The Federal Department of Health and Human Services Administration for Children and Families (ACF) has issued extensive guidance on the requirements for these systems and oversees each system's design, development and implementation. The current requirements have over 100 separate specifications for how systems must operate to achieve the goal of having comprehensive and accurate information regarding children and families. At this time approximately 35 states have implemented SACWIS certified systems.

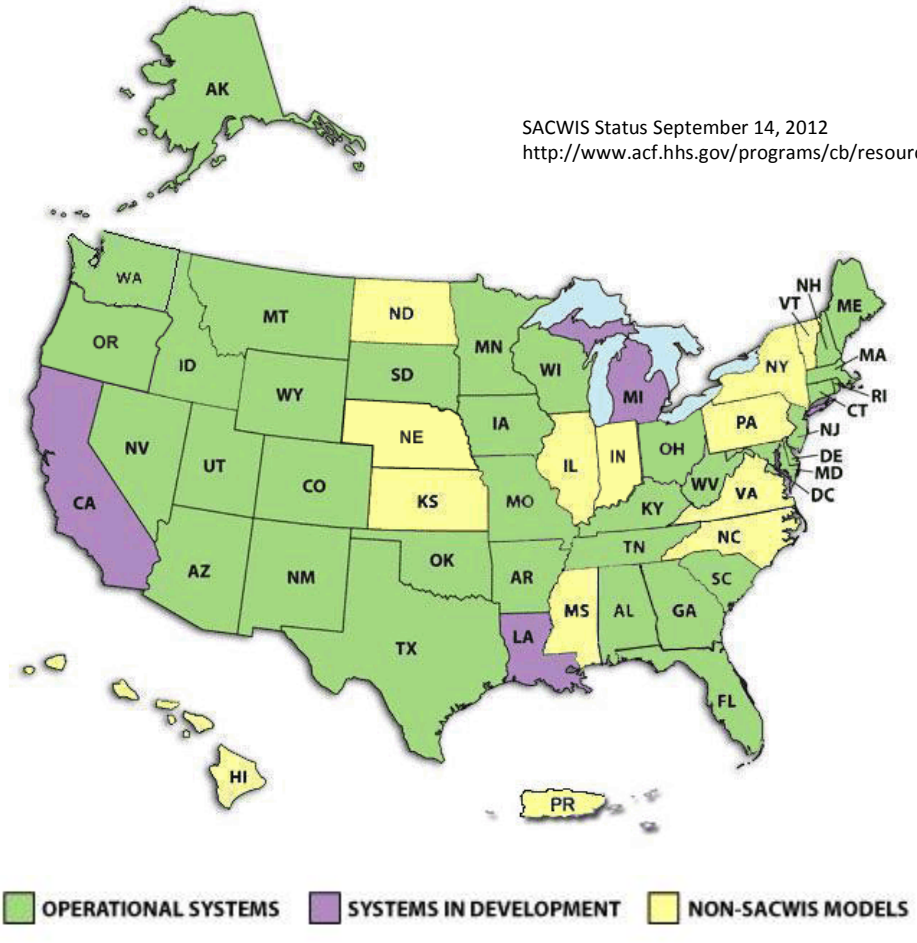


Figure 8 – State SACWIS Compliancy Status

Nebraska DHHS has worked to make the Child Welfare portion of N-FOCUS SACWIS compliant since it was implemented in 1998. Significant progress in achieving compliance was made until 2009 when work towards this goal ceased. At that point DHHS had achieved compliance on all but two of the approximately 90 SACWIS requirements which are part of the previous ACF requirements under which DHHS was operating. The two requirements remaining, outlined in the "Nebraska August 2008 Site Visit Summary" and a subsequent undated letter addressed to Mr. Todd Landry, Director Nebraska Department of Health and Human Services, from Department of Health and Human Services Administration For Children and Families' (ACF) Joseph J. Bock, Acting Associate Commissioner Children's Bureau, are:

- N-FOCUS needs a more robust interface with the Children Have a Right to Support (CHARTS) system for importing information. As Children and Family Services (CFS) now operates, staff has access to Child Support court orders, financial data, and basic health insurance coverage information through their interface with CHARTS. ACF is requiring that the CHARTS interface provide additional location data, investigative information regarding the non-custodial parent's ability to participate in the child's case activities, and more detailed health insurance policy information.
- All provider payments must be made on the N-FOCUS payment system. Currently some payments are made by private contractors on their own systems. Work is currently underway to address this issue.

In September 2012, DHHS made the decision to resume efforts to gain SACWIS compliance and has received a tentative approval to use the rules by which they were being measured in 2009 when efforts stopped. It appears this effort will require approximately 6-9 months to make necessary changes to N-FOCUS and privatization contracts, after which Federal review can be requested. This is an appropriate action which should serve the state well. Gaining certification under the 2009 SACWIS requirements avoids the problem of having to address the current requirements, which includes approximately 12% more compliance measures, plus the effort necessary to readdress previously met requirements to assure N-FOCUS is still compliant.

The new standards will have to be addressed if the child welfare portion of N-FOCUS is replaced but DHHS will be in a stronger position by starting with a certified system in this effort. The timing of these efforts is addressed separately in other sections of this report.

D. Nebraska State Legislative Directives

This review of the N-FOCUS system was undertaken to address the requirements of the Nebraska Legislature as specified in LB 1160. A primary purpose of the bill was stated as "The Department shall develop and implement a web-based, statewide automated child welfare information system to integrate child welfare information into one system. (Sec. 4. (1))." LB 1160 and other legislation passed during the 2012 Session focused on problems experienced by DHHS child welfare services and privatization. LB 1160 laid out a number of directives for DHHS to review and report back to the Legislature. Relevant quotes from LB 1160 are noted below.

1. Objectives

Excerpts from LB 1160 Section 4(1) describe the objectives of this automated system to include:

(a) Improving efficiency and effectiveness by reducing paperwork and redundant data entry, allowing case managers to spend more time working with families and children;
(b) improving access to information and tools that support consistent policy and practice standards across the state;
(c) facilitating timely and quality case management decisions and actions by providing alerts and accurate information, including program information and prior child welfare case histories within the department or a division thereof or from other agencies;
(d) providing consistent and accurate data management to improve reporting capabilities, accountability, workload distribution, and child welfare case review requirements;
(e) establishing integrated payment processes and procedures for tracking services available and provided to children and accurately paying for those services;
(f) improving the capacity for case managers to complete major functional areas of their work, including intake, investigations, placements, foster care eligibility determinations, reunifications, adoptions, financial management, resource management, and reporting;
(g) utilizing business intelligence software to track progress through dashboards;
(h) access to real-time data to identify specific child welfare cases and take immediate corrective and supportive actions;
(i) helping case managers to expediently identify foster homes and community resources available to meet each child's needs; and (j) providing opportunity for greater accuracy, transparency, and oversight of the child welfare system through improved reporting and tracking capabilities.

2. Capabilities

Additional capacity of the web-based, statewide automated child welfare information system was described in LB 1160 Section 4. (2) as:

(a) Integration across related social services programs through automated interfaces, including, but not limited to, the courts, Medicaid eligibility, financial processes, and child support;
(b) ease in implementing future system modifications as user requirements or policies change;
(c) compatibility with multiple vendor platforms;
(d) system architecture that provides multiple options to build additional capacity to manage increased user transactions as system volume requirements increase over time;
(e) protection of the system at every tier in case of hardware, software, power, or other system component failure;
(f) vendor portals to support direct entry of child welfare case information, as appropriate, by private providers' staff serving children, to increase collaboration between private providers and the department;
(g) key automated process analysis to allow supervisors and management to identify child welfare cases not meeting specified goals, identify issues, and report details and outcome measures to cellular telephones or other mobile communication devices used by management and administration;
(h) web-based access and availability twenty-four hours per day, seven days per week;
(i) automated application of policy and procedures, to make application of policy less complex and easier to follow;

(j) automated prompts and alerts when actions are due, to enable case managers and supervisors to manage child welfare cases more efficiently; and
(k) compliance with federal regulations related to statewide automated child welfare information systems at 45 C.F.R. 1355.50 through 1355.57, implementing section 474(a)(3)(C) and (D) of Title IV-E of the federal Social Security Act, 42 U.S.C. 674(a)(3)(C) and (D), as such regulations and section existed on January 1, 2012.

3. Concerns

Specific concerns were described in LB 1160 Sec. 2. as:

(1) Nebraska does not have the capacity to collect and analyze routinely and effectively the data required to inform policy decisions, child welfare service development, and evaluation of its child welfare system;
(2) The N-FOCUS system is difficult to use and does not provide the appropriate data for meaningful monitoring of the child welfare system for children's safety, permanency, and wellness;
3) The N-FOCUS system does not easily integrate with other computer systems that have different purposes, capacities, file structures, and operating systems, resulting in silos of operation and information;

These directives established the framework for this report and guided the recommendations provided.

IV. GAP ANALYSIS: PROBLEMS AND OPPORTUNITIES

There are several facets to the issues regarding Child Welfare in the State of Nebraska and the N-FOCUS system which provides automated support. First and foremost are the issues raised in LB 1160 which addresses the suitability of the N-FOCUS system to meet the data capture and reporting needs for Child Welfare. LB 1160 identifies three primary concerns about the N-FOCUS system. See this excerpts below from LB 1160.

> Sec. 2. The Legislature finds that:
> (1) Nebraska does not have the capacity to collect and analyze routinely and effectively the data required to inform policy decisions, child welfare service development, and evaluation of its child welfare system;
> (2) The N-FOCUS system is difficult to use and does not provide the appropriate data for meaningful monitoring of the child welfare system for children's safety, permanency, and wellness;
> (3) The N-FOCUS system does not easily integrate with other computer systems that have different purposes, capacities, file structures, and operating systems, resulting in silos of operation and information;

The issues raised in Sec.2 (1) and (2) of LB 1160 deal with the effectiveness, accuracy, and ease of use of the N-FOCUS system. The following table contains an analysis of the N-FOCUS system in general and child welfare in specific from a system capability, system usage, and ease of use perspective.

Current	Future	Criticality (Low, Medium, High)
Current processes are full of manual steps, rework, and hand-offs. There is a certain level of rework that is inherent in hand-off of work; the person on the receiving end of the hand-off must review the work previously completed in order to complete his or her task. Hand-offs often leads to bottlenecks in the workflow.	Through the use of automation, an integrated work-flow engine, integrated business rules, content management, reengineered work processes, and the customer providing the majority of data entry, rework and excessive hand-offs will be eliminated or drastically reduced and consistency of data collection within N-FOCUS will be improved.	Medium
Processes are full of workarounds and manual steps. Case workers currently have paper case files for each of their assigned cases located at or around their desk. There are no easy ways to get complete electronic case files currently.	Image content for child welfare should be captured electronically and fully integrated into the CWS portion of the N-FOCUS system. To the staff, the content management system is simply a part of their new benefits administration and eligibility system.	Medium
DHHS child welfare staff with limited knowledge of programs outside of DHHS or those pressed for time can lead to limited referrals for customers to other DHHS and community-based services.	DHHS staff should expand their knowledge of and access to the service locator on the ACCESSNebraska Customer Portal when assisting customers with information about services provided in their geographic area. The customers can also be directed to the portal where they can put in the kind of services they need (such as assistance with food) and the service locator would provide them a list of places that may be able to assist (such as a local food bank or Women Infant and Children food program).	Low
Use of N-FOCUS fields and definitions by field staff vary from one service area to another. Even	Standard processes and roles should be implemented with this project which would allow	

when staff performs the same processes, they may enter information differently from one service area to another to accommodate differences in local business procedures.	management to ensure processes are performed in a standard manner across the state; this includes standardization of roles, data and definitions. Re-instating former rules and requirements for child welfare processes within N-FOCUS would be beneficial in consistency of data captured.	High
DHHS has moved to a call center based approach for economic assistance programs. This effort is challenged by limited automated capability designed for customer interaction with N-FOCUS.	A primary change would be a fully automated service application process should be included with the implementation of the new system which accommodates direct entry of service application data into N-FOCUS. Customer access to the ACCESSNebraska portal should also be provided with more capability to view and update individual demographics, and to view case status information.	High
Field supervisors and managers have learned to rely on personally developed case load and task tracking tools due to perceived limitations in the N-FOCUS reporting facilities.	The wealth of standardized, regularly scheduled reports from N-FOCUS should be made more flexible for use by managers across DHHS to facilitate better and more timely tracking of case activities and workloads. Staff should be provided with work management views or the data and/or the capability to modify report selection criteria and submit reports on demand against up to date data rather than data that can be up to 2 week old. Management and supervisory staff need to be trained to fully use the capabilities of the InfoView report management facility.	High

Child Welfare needs document imaging capability so they can benefit from enhanced productivity currently experienced by eligibility and economic assistance staff.	Complete the implementation of document imaging capability for Child Welfare, ensure staff is fully trained on its usage, and assure that documents can be captured once and shared between programs.	Medium
Information is often being entered multiple times for narratives or changes that impact an entire household or multiple members of a household.	A new system should provide the capability for workers to create narratives and make changes which effect entire households or multiple individuals at one time for services needed and to certain demographic information. Additional staff training may be required to ensure current capabilities are fully understood. (There is currently a team working on this.)	Medium
System navigation works fairly well for the creation of a case or while performing specific case actions. However, navigating the system to look up information on individual persons or gather multiple data on a specific individual can be time consuming and confusing.	Create comprehensive individual program and service history screens to facilitate more efficient gathering of individual data. Also review system navigation for multiple case work functions.	Medium
Narratives are entered into the system at a multitude of locations in the system which makes retrieval of narrative information cumbersome and time consuming.	A new system should provide better navigation within and between narratives. The ability to have a composite view and word/phrase search capability against the narratives will enhance worker productivity and capability.	High

With the exception of the Structured Decision Making (SDM) feature, the Child Welfare system does not prompt user for required entries to assure completeness.	Business rules and process workflow that was initially designed in the Child Welfare system has been systematically removed over time and should be restored to ensure more direct prompting of specific required information.	High

Table 2 – Business Architecture Problems/Opportunities

While a few noted system improvements could help to facilitate the accurate and complete capture of data, the system does not prevent data capture. There is a great need to provide training to field staff so that they understand the implications of failure to record data in a complete and standardized way. Re-establishing enforced business rules and workflows in addition to expanded training of staff will provide the greatest impact to eliminating the perception that the system does not have the capability to "…collect and analyze routinely and effectively the data required to inform policy decisions, child welfare service development, and evaluation of its child welfare system".

The N-FOCUS system and attendant facilities do have a few specific limitations that should be addressed. The following table identifies those identified issues that can be either addressed with the current system or need to be included in any system replacement or modernization initiative.

Current	Future	Criticality (Low, Medium, High)
The system has limited ability to provide management with timely and accurate tracking of the time spent on various tasks and functions by staff which impacts manager's ability to track productivity and efficiency.	New technology capabilities would allow managers to measure efficiency of tasks and functions. This information will also assist management in identifying bottlenecks and allow them to see if staff uses the system as intended.	Medium
Regularly scheduled weekly reports are created from a shadow data base. The ability for staff to create ad hoc reports to receive real-time data is limited or non-existent.	New data management and reporting functions should be implemented which facilitates user access to up to date information via controlled ad hoc reporting processed against a real-time data source.	High
The N-FOCUS system used to support the various service programs has been built as an integrated, monolithic application. This integration and the tightly coupled architecture of this application provides staff with holistic views of the clients but contributes to extended change cycles for responding changes to business policy and procedures.	Future systems should attempt to retain the integration value for staff but be more loosely coupled utilizing service oriented architecture (SOA) compliant interfaces for exchanging data between components. SOA allows common business applications to be broken down into individual business functions, called services.	Medium

Table 3 – N-FOCUS System Limitations

A final issue to be addressed is the status of Statewide Automated Child Welfare Information System (SACWIS) compliancy. In 2009, the ACF found that only two issues stand in the way of SACWIS compliance for Nebraska and the N-FOCUS system.

Current	Future	Criticality (Low, Medium, High)
N-FOCUS has a limited interface with the Children Have A Right To Support (CHARTS) system for importing information. The current interface allows staff to access Child Support court orders,	The interface between N-FOCUS and CHARTS needs to be enhanced to include additional location data, investigative information regarding the non-custodial parent's ability to	High

financial data, and basic health insurance coverage information.	participate in the child's case activities, and more detailed health insurance policy information.	
In the Eastern Service Area, Nebraska Families Collaborative (NFC) contracts with DHHS to deliver services. They make payments directly to clients via their internal automation system.	To achieve SACWIS compliance, DHHS must control and issue all payments related to Child Welfare from a state operated payment system. A new contract with NFC must be negotiated requiring NFC to make payments via the State's payment system.	High

Table 4 – SACWIS Compliance

A. Considerations for Health Insurance Exchange (HIX), Medicaid Eligibility, and MMIS

Two major initiatives are currently approaching or planned which should be included in the planning and decision making regarding the future of N-FOCUS. These are:

1. The requirement under the Federal Affordable Care Act for each state to either implement a HIX or default to a federally managed system results in a state having a fast approaching deadline for making decisions regarding this requirement. Further, the capabilities and functionality of the HIX will also need to be considered in terms of the impact the new system will have on the Medicaid eligibility process. In particular, how will individuals and families navigate between the two systems to determine what is appropriate for them or when financial changes require the movement of eligible individuals or families from one system to the other?

2. DHHS has undertaken planning for the replacement of the aged Medicaid Management Information System (MMIS). It is important that DHHS consider whether the new MMIS will be an integrated part of a modernized or rebuilt N-FOCUS or, if not, to what extent will comparable integration be facilitated by an interface.

Current	Future	Criticality (Low, Medium, High)
The Medicaid Management Information System (MMIS) software is extremely old and is being considered for replacement. MMIS is currently interfaced with N-FOCUS, and Medicaid eligibility determination is managed in N-FOCUS.	The current initiatives for Medicaid include strategies for implementing a new MMIS which requires a rethink of the relationship between MMIS and Medicaid eligibility which is part of N-FOCUS. Medicaid eligibility should also accommodate the requirements and needs of the Health Care Exchange.	High

Table 5 – Medicaid Eligibility

How these are approached will have long term impacts on the future operations of DHHS. Besides the impact on programs there should also be consideration of how the decisions on the structure of these systems will impact Information Systems and Technology's (IS&T) future staffing, maintenance, and operations costs. The process implemented for making these decisions should involve staff from both program and administration within DHHS and other stakeholders as appropriate to make decisions which encompass all the potential ramifications.

B. Impact on non-Child Welfare systems, interfaces, and stakeholders

While LB 1160 focused on the Child Welfare system, N-FOCUS is an integrated system which includes Economic and Medical Assistance programs, Resource Development and Adult Protective Services. This integration is inherent in the system architecture from the data base structure to the user interface which improves staff productivity and facilitates a holistic approach to client management. A major decision will be required in moving forward toward implementing the requirements of LB 1160 regarding how this integration is addressed. As measures are taken to replace or modernize the Child Welfare system, the other program's systems will have to be either brought along with it or will need to continue to operate within N-FOCUS.

This decision has impact, not only on the cost of the project, but also on the costs of ongoing maintenance and operation of the systems by IS&T since splitting into separate systems would increase the scope and complexity of their work. When separating out one part of an integrated system such as N-FOCUS, changes have to be made so that the remaining systems are still able to communicate and share information. The remaining systems would have to develop new interfaces to continue the communication and sharing of information. The costs associated with this have a significant impact on the programs remaining on N-FOCUS. The average cost of developing an interface can range from $100,000 to $500,000 per interface.

Whether integration is maintained will also have a major impact on how DHHS staff access information regarding clients across programs and how they are trained and function. Currently most DHHS staff are trained on and use only N-FOCUS, if the systems are split it would require decisions on what information is provided across platforms as an interface, which would, in turn, require workers to have access to multiple applications.

N-FOCUS currently provides a rich array of interfaces which add to the efficiency and accuracy of case work. These interfaces should not only be retained, but also reviewed to determine if each is as comprehensive as needed and managed effectively. Many of these interfaces are federally required. This report lists other interfaces desired by DHHS, particularly with the Department of Education. This would be an appropriate time to explore the potential for adding these to the system.

C. Impact on ACCESSNebraska DHHS Portal

Currently ACCESSNebraska allows citizens several self service capabilities, including a screening to determine "do I qualify?" for various programs, completing applications online, providing updated information, and the ability to provide documents by uploading on to N-FOCUS. ACCESSNebraska could include many of the following depending on solution and strategy chosen.

- Allow data from online forms to be automatically loaded into N-FOCUS and document and forms to be uploaded and loaded into the content management system. Currently staff must retype data from online application into N-FOCUS.
- Through the use of online rules, automate parts of the eligibility system to increase productivity and efficiency.
- Allow for 24/7 access and updates to the system. Submitted data should only be used when the user completes the application.
- Allow for full functionality for citizens. If a worker can complete the data on citizen's behalf then that capability could be extended to allow the citizen to complete it self-service.
- Allow for full functionality for service providers. Allow for availability of historical data to providers on interactions, financials, status reports, etc. Allow providers access to request or change capabilities.
- Allow for availability of personal assistance for customers with ACCESSNebraska upon request, through addition of an online chat facility where the customer can "talk to a real person" for assistance.

D. Facilitation of mobility solutions

One opportunity to be explored with a new or modernized system is an enhanced ability for DHHS to access and use N-FOCUS from multiple locations. This access can be facilitated through the internet, by smart phone applications, or the use of notepads. While DHHS currently provides field staff with laptop computers and air cards to access N-FOCUS, development of a specific interface to N-FOCUS for mobile workers can allow more timely updates to the system and increase efficiency by not requiring staff to document data multiple times (first on paper then later on N-FOCUS). The existing mobile capability depends on having a persistent connection back to the N-FOCUS located in Lincoln. When that

connection is unavailable, an alternative and circumstantially better solution would provide the mobile worker with the capability to function in a disconnected or offline mode where case information, updates, and notes can be staged on the laptop and then synced with the main system when connectivity is restored. The following are just some of the examples where increased mobile access could benefit staff and citizens.

Mobile benefits for DHHS staff:

- Record notes about children, families, and individuals related to the case and document home visits immediately following the visit, if not during.
- Record dates and times for appointments as these are established.
- Request court records or other documentation for review while working in the field.
- Update case demographics as changes are discovered.
- Record request for documents or dates documents are received.
- Get global positioning system (GPS) of addresses and surrounding demographics.
- Capture images as appropriate.

In addition to the availability of ACCESSNebraska, citizens could also be provided custom smart phone or tablet applications to:

- Make appointments.
- Notify DHHS worker of changes in both financial and non-financial status.
- Check on eligibility and benefits.
- Check on status of a pending application.
- Review personal service history.
- Communicate with DHHS worker by text.
- Provide feedback on caseworker, application or service delivery process.
- Get notices of appointments with case worker, courts.

E. Interaction with ongoing Child Welfare initiatives associated with LB1160

LB 1160 requires extensive annual reporting by DHHS both to the Health and Human Services Committee of the Legislature. These requirements will entail significant and sophisticated data collection and analysis. The most detailed request for data is in Section 6 of the bill which is provided below. Each of the items below should be addressed and incorporated into a new system design in order to ensure that the data collected meets the program needs but also allows for the appropriate data collection so reports can be designed to meet the needs of management and the Legislature.

> Sec. 6. On or before September 15, 2012, and each September 15 thereafter, the department shall report to the Health and Human Services Committee of the Legislature the following information regarding child welfare services, with respect to children served by any lead agency or the pilot project and children served by the department:
> (1) The percentage of children served and the allocation of the child welfare budget, categorized by service area and by lead agency or the pilot project, including:

(a) The percentage of children served, by service area and the corresponding budget allocation; and

(b) The percentage of children served who are wards of the state and the corresponding budget allocation;

(2) The number of siblings in out-of-home care placed with siblings as of the June 30th immediately preceding the date of the report, categorized by service area and by lead agency or the pilot project;

(3) An update of the information in the report of the Children's Behavioral Health Task Force pursuant to sections 43-4001 to 43-4003, including:

(a) The number of children receiving mental health and substance abuse services annually by the Division of Behavioral Health of the department;

(b) The number of children receiving behavioral health services annually at the Hastings Regional Center;

(c) The number of state wards receiving behavioral health services as of September 1 immediately preceding the date of the report;

(d) Funding sources for children's behavioral health services for the fiscal year ending on the immediately preceding June 30;

(e) Expenditures in the immediately preceding fiscal year by the division, categorized by category of behavioral health service and by behavioral health region; and

(f) Expenditures in the immediately preceding fiscal year from the medical assistance program and CHIP as defined in section 68-969 for mental health and substance abuse services, for all children and for wards of the state;

(4) The following information was obtained for each service area and lead agency or the pilot project:

(a) Case manager education, including college degree, major, and level of education beyond a baccalaureate degree;

(b) Average caseload per case manager;

(c) Average number of case managers per child during the preceding twelve months;

(d) Average number of case managers per child for children who have been in the child welfare system for three months, for six months, for twelve months, and for eighteen months and the consecutive yearly average for children until the age of majority or permanency is attained;

(e) Monthly case manager turnover;

(f) Monthly face-to-face contacts between each case manager and the children on his or her caseload;

(g) Monthly face-to-face contacts between each case manager and the parent or parents of the children on his or her caseload;

(h) Case documentation of monthly consecutive team meetings per quarter;

(i) Case documentation of monthly consecutive parent contacts per quarter;

(j) Case documentation of monthly consecutive child contacts with case manager per quarter;

(k) Case documentation of monthly consecutive contacts between child welfare service providers and case managers per quarter;

(l) Timeliness of court reports; and

(m) Non-court-involved children, including the number of children served, the types of services requested, the specific services provided, the cost of the services provided, and the funding source;

(5) All placements in residential treatment settings made or paid for by the child welfare system, the Office of Juvenile Services, the State Department of Education or local education agencies, any lead agency or the pilot project through letters of agreement, and the medical assistance program, including, but not limited to:

(a) Child variables;

(b) Reasons for placement;

(c) The percentage of children denied medicaid-reimbursed services and denied the level of placement requested;

(d) With respect to each child in a residential treatment setting:

(i) If there was a denial of initial placement request, the length and level of each placement subsequent to denial of initial placement request and the status of each child before and immediately after, six months after, and twelve months after placement;

(ii) Funds expended and length of placements;

(iii) Number and level of placements;

(iv) Facility variables; and

(v) Identification of specific child welfare services unavailable in the child's community that, if available, could have prevented the need for residential treatment; and

(e) Identification of child welfare services unavailable in the state that, if available, could prevent out-of-state placements;

(6) From any lead agency or the pilot project, the percentage of its accounts payable to subcontracted child welfare service providers that are thirty days overdue, sixty days overdue, and ninety days overdue; and

(7) For any individual involved in the child welfare system receiving a service or a placement through the department or its agent for which referral is necessary, the date when such referral was made by the department or its agent and the date and the method by which the individual receiving the services was notified of such referral. To the extent the department becomes aware of the date when the individual receiving the referral began receiving such services, the department or its agent shall document such date. September 15 thereafter, the department shall report to the Health and Human Services Committee of the Legislature the following information regarding child welfare services, with respect to children served by any lead agency or the pilot project and children served by the department:

Careful planning will be needed during system design to assure that all required information is collected and retained by the system, the system includes the proper formats to facilitate the level of reporting required and the system meets Federal regulations. This work should also include various subcontractors' providing services to assure that workers have the appropriate access for data entry so all necessary information can be collected.

It should be noted in the previous excerpt from LB 1160 that DHHS is now required to annually file reports to the Health and Human Services Committee of the Legislature on child welfare activity beginning September, 2012. In April of 2012, the DHHS Child Welfare staff requested a download of data from the N-FOCUS system to prepare the first report. Information Systems and Technology (IS&T) has received a system change request (SCR) to prepare a new report that can incorporate the format that was designed for this reporting into a regularly scheduled report. It is recommended that this development effort proceed to establish standardized and repeatable reporting.

V. ALTERNATIVES CONSIDERED

The State of Nebraska has many options available to address the long term demand for a fully functioning automated system to support the Child Welfare program area. Some of these options may be impacted or influenced by other agency system evolution strategies. This section will examine how these dependencies impact the Child Welfare Information System (CWIS) strategies.

Additionally, there are some fundamental tradeoffs in technology support of government business programs that should be considered at this time based on agency strategy for staffing, positioning on internal IT development capacity, funding availability, and vendor capability.

1. If the agency desires to continue in its current role of building computer applications internally it must develop strategies to systematically move those applications forward as new technology evolves. Failure to do so positions the agency in a situation where aging applications become more difficult and expensive to maintain, become less responsive to changing business requirements, and become difficult to retrofit with evolving technological advancements.
2. If the agency desires to move most of the effort to support the computer system away from agency IT staff to contracted support, then an outsourcing strategy might benefit them. A benefit of this strategy is to reduce demand of maintaining existing systems with internal programming staff allowing them to focus attention on changing business demands and new automation requirements. However, this strategy will likely increase software and contracting costs.
3. If the agency desires to move to the purchase of commercial software products verses building with internal programming staff, then staff skills shift from core development to vendor management, system configuration, interface development, and development of add-on functionality not available in the purchased products. Rarely are commercial products available that can just be installed and run without state/agency specific modifications required to support the specific needs of the agency. They all require significant effort for data conversion, state customization, and business process development.
4. Options for purchase of commercial products involve looking at systems installed in other states which are available for transfer, usually obtained through and installed by a system integrator. Note however that with the rapid evolution of technology over the past decade, any installed state transferable system older than 5 years should be considered at risk if it were to be migrated without first re-engineering it to a current technology platform. Once transferred the agency will still need to consider alternatives listed in items 1-3 above for the ongoing support and maintenance of the system.

The following options have been considered to address the long term needs of a Child Welfare Information System in the State of Nebraska.

1. Status Quo

2. Maintain and extend Current N-FOCUS Legacy Architecture
3. Modernize, Refresh, and Extend the Current N-FOCUS Legacy Architecture.
4. Build a New Custom System on a Modern Architecture
5. Implement a COTS Framework on a Modern Architecture
6. Implement a State Transfer Solution on a Modern Architecture

Option 1 is not really viable due to failure to address state legislative and federal requirements and will not be considered further.

Option 2 is similar to Option 1 but addresses state and federal requirements and is described below as Alternative A.

Option 3 involves a modernization effort for N-FOCUS and is described below as Alternative B.

Option 4 addresses a build strategy and is described below as Alternative C.

Option 5 represents a buy and extend strategy resulting in a complete replacement of at least CWIS and potentially N-FOCUS as a whole and is described below as Alternative D.

Options 6 is a variation of the Option 5 buy and extend strategy where the "buy" is a services contract with a systems integrator to implement the transferred system and is described below as Alternative E.

With one exception, all of the alternatives outlined below presume actions that will move DHHS toward a future state for technology investment that more closely aligns with those being pursued by other related projects. In short, that "To Be" technology architecture incorporates implementation of Service Oriented Architecture (SOA) and web services for providing interchange of information and access to computing resources; the use of an Enterprise Service Bus (ESB) for cataloguing resources and brokering their access; and the use of open systems computing platforms in addition to the mainframe platform as appropriate. See Appendix VII.C.

A. Maintain and Extend Current N-FOCUS Legacy Architecture

This alternative is based on the fact that the current N-FOCUS system provides a solid foundation for the management of data which supports the Child Welfare program and, as an integrated system, also provides support for the Economic Assistance programs and more.

1. Technical Description

The existing N-FOCUS system was developed in the State of Nebraska using a client server architectural model. The data and substantial data access processing tasks are hosted on an IBM mainframe computer that is administered by the Office of the State Chief Information Officer (OCIO). The data access processes have been developed using the COBOL programming language and are packaged for consumption as stored procedures to the DB2 database management system. The thick client, developed with the CA Gen development tool from Computer Associates, contains the user interface and a substantial amount of the business processing logic and resides on Windows 7 workstations deployed throughout DHHS.

Distributed Windows based servers are used to host resources for a rule based processing capability and to facilitate distribution of new client releases and other workstation software.

2. Benefits

- Offers minimal impact to end users since user interface and application navigation does not change.
- Retains the integration between applications to which users are accustomed and which support existing business practices.
- Requires no immediate data conversion for the base system.
- Change management cycles of incremental functionality enhancements (based on budget and priorities) continue unchanged.
- Centralized application server(s) continues to be managed by OCIO.
- Training IT staff on new development tools and platforms is avoided.
- Re-training service staff on a new system is avoided.
- Retains the integrated system used by agency staff to fully service clients.

3. Challenges

- Retains the operations and maintenance costs associated with the IBM mainframe and DB2 database.
- Retains dependence on CA Gen as a development platform and associated limited availability of trained and qualified developers in the market place.
- The existing client server architecture utilizing the mainframe as a data and process server presents architectural complexity that may require greater day-to-day administration to ensure satisfactory system performance when compared to more standardized open systems platforms.
- Interfaces to partner systems are currently batch processes, which do not provide real-time information. Each partner interface will require ongoing management to real-time data.
- Development of enhanced interfaces between N-FOCUS, the Child Support Enforcement system (CHARTS), and with the operational system at NFC. These will be required to achieve SACWIS compliance for the current N-FOCUS system.
- Addressing the eligibility requirements for Medicaid and provision of support for the Health Insurance Exchange will either require substantial modification to the current eligibility integration in N-FOCUS or the creation on a new interface between N-FOCUS and a new Medicaid and Health Insurance eligibility system.
- Limits ability to take advantage of modern SOA capabilities.
- Impedes the ability to adopt mobility strategies using new handheld devices.
- Addressing outstanding end user concerns outlined in this report (see Section III.B and Appendix VII.B)
- Augmentation of mainframe processing procedures or the addition of resources to address currency of data used for reporting.

- Continued reliance on existing legacy platform supporting N-FOCUS and its impact on addressing future computing needs.
- Existing application and platform architecture's impact the agility of accommodating changes in time business practices and legislative requirements.

4. Methodology

Since the platform and application architectures do not change, no specific modifications to existing lifecycle development methodologies are absolutely required. Considering the end user concerns for the timely implementation of changes to the system, IS&T should consider what resources and process changes would be needed to increase the frequency of the delivery cycle of its lifecycle methodologies.

5. Business Assessment

This alternative focuses on providing the modifications necessary to achieve SACWIS compliance with N-FOCUS and addressing perceived system deficiencies identified in LB1160 including providing consistent and accurate data management, implementing web based access to child welfare data, and facilitating timely access to real time data for case management. Users can be provided access to N-FOCUS via an enhanced ACCESSNebraska portal, and the perception of poor data quality can be addressed by a combination of tightening the business rules and data entry workflow within the Child Welfare module and the implementation of facility which provides access to greater currency of the N-FOCUS data and end user access to report submissions.

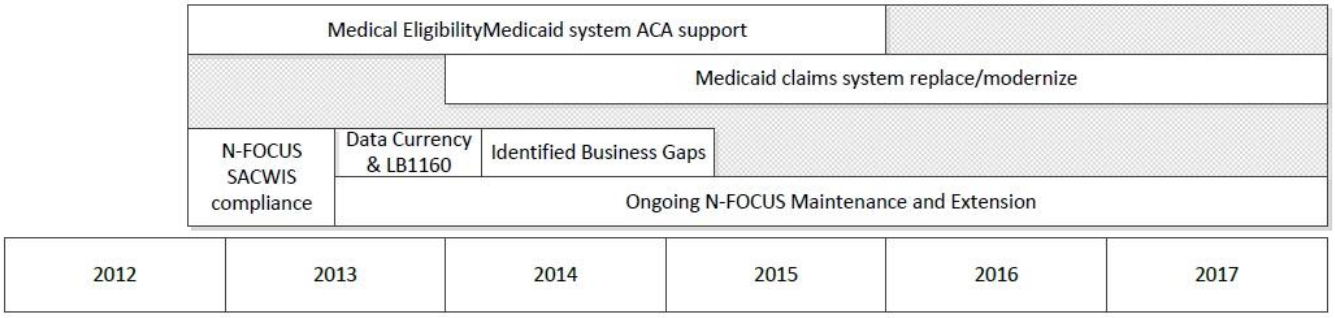
This alternative leverages existing business and technical infrastructure with the least disruption to business operations. As it evolves, managed changes to the user interface and navigation of the application will minimize user impact by allowing focus of end user training on just the enhancements.

6. SACWIS Compliance

This alternative will accommodate the State's commitment to fulfilling SACWIS functional requirements with the following system and business practice modifications.

- The interface between N-FOCUS and CHARTS needs to be enhanced to include additional location data, investigative information regarding the non-custodial parent's ability to participate in the child's case activities, and more detailed health insurance policy information.
- DHHS must control and issue all payments related to Child Welfare from a state operated payments system. A new contract with NFC must be negotiated requiring NFC administered payments to be made via the State's payment system.

7. Timeline



N-FOCUS Extend and Maintain

8. Cost Assumptions

Since this alternative involves the continued use of the current N-FOCUS system to provide ongoing support for Child Welfare and for the other program functions, the impending costs are associated with meeting SACWIS compliance and with addressing requirements outlined in LB 1160.

SACWIS Compliance	$100-500K
Address Data Currency and Gap Functionality	$1-10M
Total	$1.1-10.5M

This alternative provides no opportunities for long term cost savings that could be realized with other alternatives.

9. Risks

- Medical Eligibility can't be completed in N-FOCUS by Oct 1, 2013.
- NFC contract re-negotiation to centralize payments.

B. Modernize, Refresh, and Extend the Current N-FOCUS Legacy Architecture

This study is intended to evaluate the capability of the Child Welfare system and make recommendations of actions to address legislative concerns about the quality of the system and its usability. However, since the Child Welfare system has been integrated into the N-FOCUS system, actions that only address Child Welfare may have detrimental effects on overall workflow for Child Welfare case workers. This alternative is going to address identified concerns with the Child Welfare system while modernizing the entire N-FOCUS system for the future, retaining the values of system integration between Child Welfare and the other economic assistance programs, and address the requirements outlined in LB 1160.

This alternative is focused on re-hosting, upgrading, and modernizing the current N-FOCUS system by migrating N-FOCUS to open systems standards and platforms, incorporating Web-based technologies for

user interaction, and eliminating dependence on CA Gen as a development environment. The existing mainframe centric thick client application architecture will be upgraded to a web oriented browser-based thin client running on n-tiered open systems architecture. As a part of this project, interfaces will be converted to services-oriented Web-services-based interchanges. Some non-critical enhancements and updates will be planned and delivered after the upgrade is completed and stabilized to address gaps identified in the current N-FOCUS system. Distributed application servers will be eliminated in favor of centralizing to Web-based application server(s) co-located with application and database management servers. All functionality, including the unfulfilled SACWIS technical requirements and integration with external systems, will be available to users through a Web browser.

1. Technical Description

- Upgrade N-FOCUS CICS user interface and client code to Web-based technologies.
- Migrate local file and distribution servers to centralized Web-based application server hardware/software environment.
- Replace existing CICS/CA Gen code base to selected object oriented language.
- Convert the existing batch COBOL stored procedure code base to selected open systems language.
- Convert current mainframe DB2 database to a similar open systems relational database such as SQL Server or Oracle. The data must be converted from EBCDIC to ASCII, but database table structure should not require change.
- Keep the Crystal/Business Objects reporting infrastructure but modify existing reports to accommodate relocated database and changes in collating sequence of data now recorded in ASCII.
- Replace the business rules engine and approach to support batch rule applications and web/process enabled solution.
- Replace the DB2 shadow copy used for reporting with new facilities designed to provide data currency for reporting needs.
- Add ability for contractor to exchange data real-time or daily.
- Add ability to archive and sunset data. Stabilize database growth.
- Add process and forms capability for full end to end process enablement.
- Add and enhance critical functionality after the initial upgrade is completed and the application is stabilized.
- Add ability to access from mobile devices.
- Add ability to see documents across content management environments.
- Develop and deliver data exchange interfaces to support inter-agency information sharing.

To re-host, modernize, and upgrade the existing client-based user interface, business logic, and database interface will require extensive requirements specification/validation, analysis, and design prior to initiation of the build phase of the lifecycle. Full process discovery and design for each major program is essential to design end to end process improvements into system.

The modernization and upgrade of N-FOCUS will result in:

- Replacement of the existing thick client with a Web browser based thin client.
- Re-hosting of the mainframe based data access and business logic, and database management system into n-tiered open systems architecture.
- Development and delivery of critical functionality.
- Compliance with SACWIS.
- Compliance with LB 1160.
- Consolidation of the distributed server architecture.
- Secure direct access through state network.
- Secure encrypted access from Internet.
- Direct access to full process functionality by citizens.

Critical functionality that must be available for the initial release can be developed in conjunction with the major re-host and deployed at the same time. Less-critical functionality will be prioritized, sequenced, and scheduled for inclusion in post-deployment enhancement releases.

2. Benefits

- Offers minimal impact to end users by initially retaining current look and feel.
- Re-training service staff on a new system is avoided.
- Retains the integration between service applications to which staff are accustomed and which support existing business practices.
- Requires minimal data conversion to moving the database from the mainframe to an open systems server.
- Replaces the thick client with a Web-browser-based thin client, allowing for access anywhere, anytime.
- Allows the change management procedures to become more agile incorporating incremental functionality enhancements (based on budget and priorities) to be rolled out more frequently.
- Replaces the operational cost of periodic refreshes of the current installed base of distributed file servers with a centralized open systems computing platform.
- Removes the operational cost of the IBM mainframe and special workstation images to run the client software.
- Centralized database, application, and web server(s) can be managed at OCIO or can be managed by DHHS.
- Creates a transitional skills migration path for IT staff moving from traditional procedural coding with COBOL to object oriented development languages and techniques over a period of time rather than a “big bang” conversion.

3. Challenges

- May require greater day-to-day performance management because of increased infrastructure complexity in open systems multi-tiered architecture.
- Project management, vendor and contract management, scope management, and change management.
- Interface to partner systems is currently batch, which does not provide real-time information. Each partner interface will require a redesign and discussions to try to migrate more to accommodate the use of web services for inter-systems interfaces.
- Migration of staff to and training on new object oriented .Net platform architecture and associated languages.

4. Methodology

The N-FOCUS modernization alternative may require multiple phases in the development lifecycles. Because of the complexity (which includes a new architecture) and the number of partner dependencies, the initial phase of modernization of the N-FOCUS would focus on migration of the client to Web technologies. Alternatively, the initial phase of the modernization effort could be focused on migration of the database from the mainframe to an open systems platform and database management system while leaving the thick client architecture intact. By using this phased approach, rather than a "big bang" approach, limits risk and impact to the end user community.

Once the initial modernization of the N-FOCUS system has been completed, a new incremental-development lifecycle would commence to develop the new and enhanced functionality identified in the gap analysis.

5. Business Assessment

This alternative is focused on meeting SACWIS compliance and LB1160 expectations which includes upgrading the existing N-FOCUS to Web-based technologies. Additionally it positions the N-FOCUS as a modern application using current application architectures and development tools and ensures its longer term viability for the State of Nebraska. Users will be provided access to the N-FOCUS via the state intranet. Remote access will be enhanced via access across the internet but will require the use of digitally secured and encrypted log-on facilities. Identified critical functionality and modifications to existing functionality will be prioritized, sequenced, and scheduled for inclusion in this upgrade. Non-critical will be forwarded to future enhancement releases after the upgrade is completed and stabilized.

This alternative leverages existing business infrastructure with the least disruption to business operations. As it involves minimal changes to the appearance and navigation of the application, users will require minimal training regarding changes. New functionality will require user training as it is implemented. The existing training infrastructure will be used for statewide training.

This alternative will also include changes to a number of existing constraints that continue to impede usability and effective case management practice, such as the ease-of-use, problems with navigation, the inefficient reporting solutions, the limited mobile access, and the limited document management. These constraints limit the ability to implement the self-service functionality as envisioned to allow CWS community partners to view and enter data. Although the intent is to implement critical functionality and to modify existing problem functionality, it will be difficult to implement some of the functionality as preferred or optimal to support CWS practices.

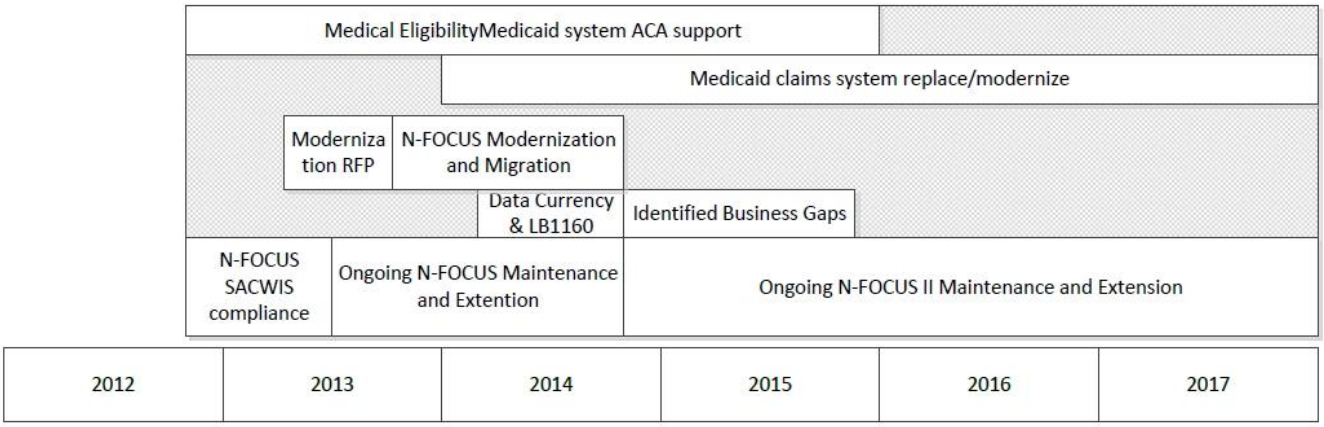
This alternative will provide the capability to support real-time interfaces with other systems. Discovery sessions to prioritize additional or modified interfaces design are essential.

This alternative does support the needs of CWS practices.

6. SACWIS Compliance

This alternative will accommodate the State's commitment to fulfilling SACWIS functional requirements. The delay increases the risk of suspension of SACWIS funding.

7. Timeline



N-FOCUS Modernization and Migration

8. Cost Assumptions

Conversion and Migration of N-FOCUS $10-25M

Open systems Computing Platform Implementation $2-5M

Includes:

- Dual Database Servers with Fail Over

- Dual Application Server
- Dual Web Server Cluster
- Dual Load Balancing Routers
- Storage Area Network
- Dual Fiber Channel Switches
- Backup and Recovery Facility
- Print Management Facility

Address Data Currency and Gap Functionality	$5-10M
Total	$17-40M

Cost ranges have been determined by obtaining "ball park" estimates from previous engagements by vendors that operate in this space. More definitive costing will occur as part of a RFP process.

DHHS' FY 2012-2013 budget for mainframe computing costs for N-FOCUS is $6.84M. Migration of the new N-FOCUS system from the mainframe computing platform to an open systems platform holds the potential to save DHHS up to $3-5M annually in computing platform costs. Operational mainframe costs for N-FOCUS in FY2011-2012 were approximately $6.3 million.

9. Risks

- N-FOCUS core Data model has more inconsistencies than initially discovered.
- Funding needs for system modernization and migration are not available.
- Inability to achieve agreement with selected vendor on terms and conditions during contract negotiations.
- Unanticipated adjustments in project scope require additional funding.

C. Build a New Custom System on a Modern Architecture

This alternative assumes the new construction of a new Child Welfare system that would provide a custom fit to the business practices of the State of Nebraska, and a custom fit to a desired future technical architectural state. Construction would most likely be contracted out in full to a vendor. The current N-FOCUS system would remain in place minus the portion of the system which supports the Child Welfare program as an integrated system providing support for the Economic Assistance programs and others.

1. Technical Description

This alternative results in a completely new system development effort for Child Welfare using none of the existing application elements of the current system. Aside from DHHS's in-depth intellectual knowledge base about Child Welfare, this alternative will not leverage any of the existing Child Welfare application's features and functionality. Web technologies and a multi-tiered architecture will comprise the foundation of the application and will provide separation of the user interface, the application business logic, and the data access and management tiers of the system.

Implementation of a service-oriented architecture will allow the new system to realize the advantages of maintaining SOA-based application interfaces and interactions. The SOA approach used in this alternative promotes reusability and ease of integration with external systems. Common system services are packaged into components which leverage business rules and configuration settings to provide for loosely coupled application services which can be externally exposed as global service components which may be consumed by other applications requiring similar services.

A choice will need to be made regarding whether the new system will be implemented as a "day forward" system which begins data collection anew upon implementation, or whether the existing operational data now resident in N-FOCUS will be extracted, transformed (as needed to address the architecture of the new application), and loaded into a new database.

2. Benefits

- The State has a great deal of knowledge and experience with the existing N-FOCUS which should be useful in translating existing system capabilities into a design for a modern application architecture that eliminates the shortcomings of the existing system.
- Provides the opportunity to implement the desired "To Be" future state for technology platform, application development platform, and application architecture.
- Implementation of modern application based on the use of web services, Service Oriented Architecture (SOA), and Enterprise Service Bus (ESB).
- Complete control over application functionality, look, and feel.
- Eliminate dependence on old technology and business process models for the Child Welfare System.

3. Challenges

- Defining the existing processes and functionality that are working well and have brought great value and benefit to the State of Nebraska and ensuring those are carried forward as requirements in development and implementation of the new system.
- Developing a vendor contract which adequately scopes the project effort and application functionality.
- Project management, vendor and contract management, scope management, and change management.
- Removal of the old vestiges of Child Welfare from the N-FOCUS system.
- Ongoing support for the N-FOCUS system and its technology base required for remaining service programs left in N-FOCUS.
- Transitioning IT staff to new technology and programming paradigm.

4. Methodology

This alternative will require the methodical capture of the requirements of a new Child Welfare system, the packaging of those requirements into a RFP document, and contracting the services of a qualified vendor for the new construction. Contracting with a second vendor for

Independent Verification and Validation (IV&V) services can assist in ensuring timely and complete fulfillment of the construction contract.

5. Business Assessment

This alternative provides the opportunity to re-examine current business practices in light of legislative guidelines by designing the new system to accommodate both. The existing N-FOCUS based Child Welfare system will continue to be used while simultaneously developing the new solution. The system can be designed to resolve all of the identified functionality and business use gaps identified including existing navigational concerns and data currency and consistency issues.

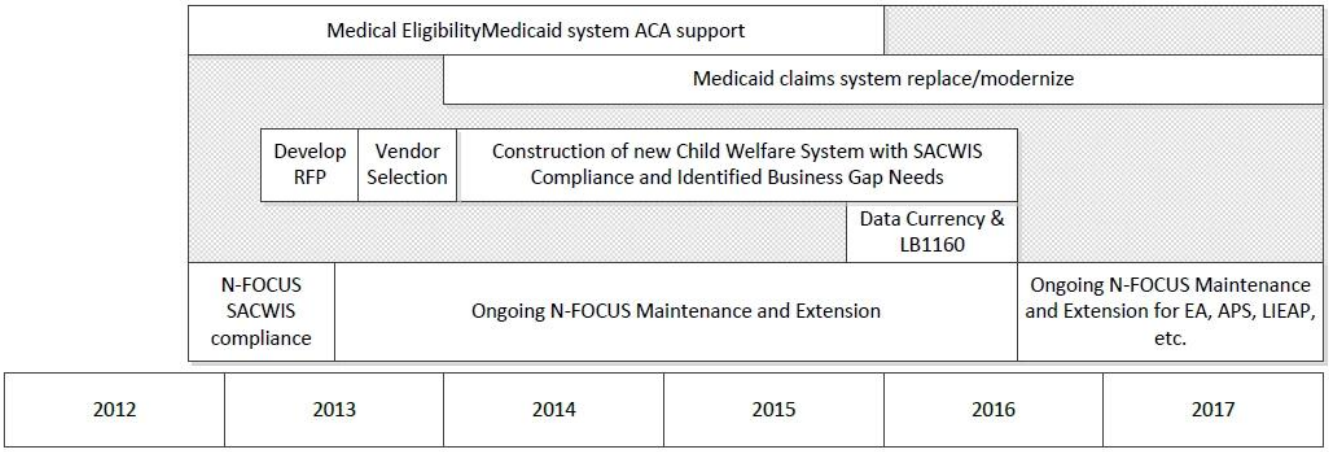
The system should be designed to reduce any duplicate data entry efforts and should improve data quality concerns by ensuring appropriate data is entered where and when it should be while enhancing the ability to meet program management needs with access to real-time dashboards and up to date reports.

The new system should be designed to provide role-based access to the system which will provide the ability to limit and control system access to appropriate staff and community partners. Role based access security can also facilitate citizen/customer access to information in the system through the web portal. Incorporation of a rules and workflow engine will provide functionality which will assist workers in their daily activities automatically guiding workers through their tasks and generating reminders when needed.

6. SACWIS Compliance

This alternative will accommodate the State's commitment to fulfilling SACWIS functional requirements. All of the new SACWIS compliance points must be taken into consideration as a part of the functional requirements of the product construction.

7. Timeline



N-FOCUS Replacement – Custom Build

8. Cost Assumptions

Development of new Child Welfare System	$200-250 M
Open systems Computing Platform	$2-5M

Includes:

- Dual Database Servers with Fail Over
- Dual Application Server
- Dual Web Server Cluster
- Dual Load Balancing Routers
- Storage Area Network
- Dual Fiber Channel Switches
- Backup and Recovery Facility
- Print Management Facility

Total	$202-255M

DHHS' FY 2012-2013 budget for mainframe computing costs for N-FOCUS is $6.84M. Construction of the new Child Welfare system on an Open Systems Platform holds the potential to save DHHS approximately $150,000 annually in mainframe computing platform costs. Anticipate these savings to be offset by the operations and maintenance costs associated with this alternative in the form of additional state staff resources and training or by contracting with a vendor to provide system maintenance services.

9. Risks

- Funding availability for system modernization and migration isn't available.
- Inability to achieve agreement with selected vendor on terms and conditions during contract negotiations.
- Unanticipated adjustments in project scope require additional funding.

D. Implement a COTS Framework on a Modern Architecture

This alternative represents the traditional commercial application purchase approach that states consider when faced with an aging legacy system based on mainframe technologies. The most difficult part about this option is defining the existing processes and functionality that are working well and have brought great value and benefit to the State of Nebraska and ensuring those are carried forward as requirements of an RFP and implemented in the new system.

1. Technical Description

This alternative will deliver a fully-operational Child Welfare Information System purchased from a vendor. Custom-developed services will be built to extend the purchased product to fill gaps required to support business practice, law, and/or policy relevant to the State of Nebraska. This alternative will reuse none of the existing CWS/CMS application elements in N-FOCUS. N-FOCUS would remain in place to service the economic assistance and other service programs currently integrated into the system. Web technologies and layered architecture will separate the user interface, the application logic, and the data. Existing operational business data will be:

- Extracted, transformed (as applicable) and loaded into a new database.
- Hosted in a new database management system (DBMS) i.e.: SQL Server, Oracle, etc.
- Resident on a new database server.

A critical element in the successful implementation of this approach is the establishment of a service-oriented architecture (SOA). This will allow the purchased product to remain unaltered, which is critical for later upgrades and enhancements from the vendor, without being impacted by or causing impact to custom-developed services. Connection to other agency systems (commonly referenced as data-exchange interfaces) will be accomplished using SOA adapters with the business applications.

The steps involved with using SOA and a buy and extend approach includes:

- Evaluate and purchase a product.
- Conduct a gap analysis against the purchased product.
- Identify gaps that are required to fill mandated law/policy.
- Identify gaps that result because the purchased product cannot support the current practice.
- Determine the approach: develop custom-built services, configuration, or execute business process reengineering (BPR) to close the gap.
- Implement the purchased product.
- Test the implemented purchased product.
- Perform organizational change management to maximize user understanding, use and acceptance of the purchased product and the services.
- Deploy the purchased product.

Build services.

- Integrate services.

- Test services.
- Deployment services.
- Move the purchased product and services into operation.

2. Benefits

- This alternative is attractive when a majority of business needs can be delivered with a fully-developed existing product. This alternative has the potential to deliver needed business value relatively quickly when the agency is willing to adapt business practices to leverage the approaches accommodated natively within the purchased product.
- The use of the buy and extend approach provides maximum flexibility.
- Delivery of a service(s) can be prioritized and sequenced to best align with business goals, needs and objectives.
- Because the functionality of the pre-existing product will not contain any customization, vendor-initiated upgrades to provide new functionality and/or address defect correction can be implemented with minimal impact to the system operations.
- Purchase of a commercial product comes with full vendor support for the product, advancement of product functionality, and maintenance of the product.

3. Challenges

- A very large number of requests for development of services can result in excessive delays in delivery of this alternative.
- There is significant challenge in describing a legacy system to the extent you can fully know if the replacement system will take you forward, lose significant functionality, or just break even with new access.
- Project management, vendor and contract management, scope management, and change management.
- Transferring legacy data into a vendor product data model is a significant effort and runs risk of losing data or core functionality. This concern could be addressed by a “day forward” approach that starts the new system fresh without migrating the old data. Would require leaving the child welfare component of N-FOCUS in place for historical data access.
- High potential for loss of integrated automation environment for service staff.
- Ongoing support for the N-FOCUS system and its technology base required for remaining service programs left in N-FOCUS.

4. Methodology

The Buy and Extend development lifecycle has two distinct focuses for delivery of the final solution.

- The first is associated with the implementation of the purchased product (buy).
- The second is the incremental-development (extend) of services that will be associated with the purchased product to extend its functionality.

5. Business Assessment

This alternative starts with the purchase of a product that has been proven to be effective, enabling the State to move to a new solution in a shorter timeframe. This alternative is the fastest to deliver functionality, which is one of the highest priorities of stakeholders. Once the purchased application is installed, additional critical functionality will be met by custom-built services to the system. This approach will allow Nebraska to add functionality and respond quickly to changes in practice, policy, or legislation in the future.

This alternative would contain a "sandbox" environment that can be implemented to allow users an opportunity to participate from the beginning of the implementation/development life cycle. Giving this sandbox environment to users has several immediate benefits. Users can become familiar with the system over a period of time and provide feedback to the development team. Early access supports effective organizational change management by having the users see the system and imagine their future. It also supports user learning processes by allowing users to work in the sandbox before and after any formal training. Delivered product training documentation can be the starting point for the development of formal training materials. As new functionality is added through the use of services, agency users will be able to participate in the development process without having to leave their county office. This may increase the amount of overall participation by removing the barrier of cost and time to travel.

The process for development and implementation differs from a custom-development solution built to prescribed specifications. The purchased product's functionality will be compared to the CWS' identified scope in a gap analysis. During the analysis, gaps and differences will be documented. Once gaps are identified, decisions on appropriate action will be reviewed and either a modification will be made by building a service, by changing how the system or business rules are configured, how the data are entered into the system, or new business practices are developed to adapt to the capability and approach of the product. The latter two actions can be tested in the sandbox environment prior to the more costly step of building a custom-built service.

As with any customization, new services are not one-time cost impacts but will create an increase in the annual maintenance agreement for each new service implemented. The challenge for this solution will be obtaining an existing product that meets the majority of Nebraska's unique business requirements.

The Buy and Extend New Solution has the ability to support the Child Welfare practice and has the shortest time-to-benefits of all the alternatives.

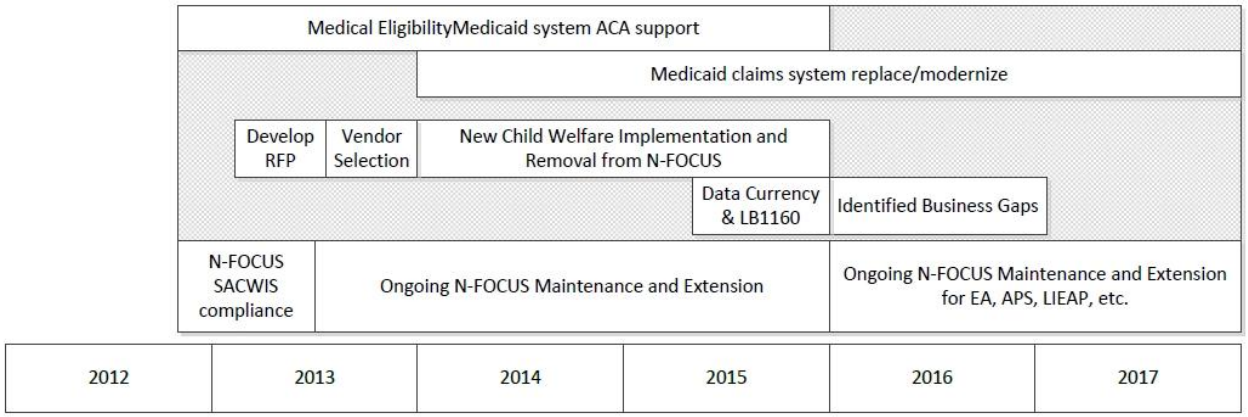
6. SACWIS Compliance

This alternative can achieve SACWIS compliance. This alternative has the shortest completion time as it starts with an existing product that addresses SACWIS compliance. Therefore, it is unlikely ACF will suspend SACWIS level funding with this alternative. If the purchased product is

not consistent with each unique Nebraska requirement, additional services will be designed and implemented to meet them. While this does not guarantee SACWIS compliance it is a good basis to start compliance activities since it was compliant in a previous implementation.

7. Timeline

The timeline to execute the Buy and Extend approach has been provided with a focus on the procurement, development and deployment phases of the alternative.



N-Focus Decommissioning

The existing N-FOCUS based Child Welfare subsystem will be decommissioned after delivery of this initial release.

Deployment – Initial Release

Because this approach utilizes a centralized architecture and the workstation access requires only a Web browser, deployment will be instantaneous to all users the moment that the system comes online. Time should be provided in the timeline to allow for ongoing user support (mainly additional training and question resolution) and decommissioning of previously-distributed architecture components.

Deployment – Future Release

Like the initial release, deployment will be instantaneous to all users the moment that a future release of new business function is deployed. Sufficient time must be allocated in the deployment schedule to ensure all users are fully trained on new features.

8. Cost Assumptions

Implementation of COTS Child Welfare System	$75-100 M
Open systems Computing Platform Includes: • Dual Database Servers with Fail Over • Dual Application Server • Dual Web Server Cluster • Dual Load Balancing Routers • Storage Area Network • Dual Fiber Channel Switches • Backup and Recovery Facility • Print Management Facility	$2-5M
Address data currency and Gap Functionality	$5-10M
Total	$82-115M

DHHS' FY 2012-2013 budget for mainframe computing costs for N-FOCUS is $6.84M. Replacement of the Child Welfare portion of the N-FOCUS system with an open systems application COTS solution can reduce the mainframe operations cost by approximately $150,000. However, added maintenance costs will be incurred for the newly purchased system. Typically maintenance costs are calculated as a percentage of the current retail purchase price of the product. Anticipate a maintenance cost of 15-20% of the product purchase price. Assuming a purchase price for a COTS solution to be between $30 – 50 million of the overall project cost, annual maintenance costs of between $4.5 – 10 million should be anticipated excluding any new services added.

9. Risks

- Funding availability for needed implementation service is not available and agency is left in the middle of transition.
- Inability to achieve agreement with selected vendor on terms and conditions during contract negotiations.
- Unanticipated adjustments in project scope require additional funding.

E. Implement a State Transfer Solution on a Modern Architecture

This is a normal alternative that states consider when faced with an aging legacy system running on mainframe technologies. The hardest part about this option is to define the existing processes and functionality that is working well and has brought great value and benefits to the state of Nebraska.

1. Technical Description

This alternative will result in a fully-operational child welfare product originally acquired from another state. There may or may not be a cost involved in the acquisition. Typically there is at least a reimbursement for the cost of reproduction and transfer. More often states that are

offering transfers of their systems have partnered with a systems integrator who becomes the go between for the transfer transaction. One of the attractions of this alternative is an expectation that a working system is transferable and the code base is free. The normal reality is somewhat less than that. The code base or data model will probably not match current Nebraska capability (reminder you have to have fully defined functionality and process and data models to conduct the comparison). Custom-developed services will be needed to be built to extend or modify the transferred product to fill gaps and address differences in approach to support the receiving state's business practice, laws, and/or policies. These custom services are typically provided by the systems integrator at a price point comparable to typical custom development. Depending on the focus of the source state, the transferred system may be web enabled for public but not for workers, or web enabled for workers but not available for self service by public.

This alternative will reuse none of the existing CWS/CMS application elements. Note that it is difficult to keep preferred or existing state/agency technologies when you transfer another state system. You will almost have to adopt that state's architecture or you lose most of the benefit of a transfer system.

Web technologies and layered architecture is desired to separate the user interface, the application logic, and the data. Existing operational business data will be:

- Extracted, transformed (as applicable) and loaded into a new database.
- Hosted in a new database engine.
- Reside on a new database server.

The steps involved with using service-oriented architecture and a Transfer/Build approach include:

- Evaluate and select a state system to transfer.
- Conduct a gap analysis against the system.
- Identify gaps that are required to fill mandated law/policy.
- Identify gaps that result because the purchased product cannot support the current practice.
- Determine the approach: develop custom-built services, configuration, or execute business process reengineering (BPR) to close the gap.
- Implement the purchased product.
- Test the implemented transferred solution.
- Perform organizational change management to maximize user understanding, use and acceptance of the transferred solution and the services.
- Deploy the solution

Build services.

- Integrate services.
- Test services.
- Deploy services.
- Move the transferred solution and services into operation.

2. Benefits

- This alternative is attractive when a majority of business needs can be delivered with a fully-developed existing state system. This alternative has the potential of greatly shortening delivery of needed business value.
- The use of the transfer/build approach provides maximum flexibility.
- Delivery of a service(s) can be prioritized and sequenced to best align with business goals, needs and objectives.

3. Challenges

- A very large number of requests for the development of services can result in excessive delays in delivery of this alternative.
- There is significant challenge in describing a legacy system to the extent you can fully know if the replacement system will take you forward, lose significant functionality, or just break even with new access.
- Project management, vendor and contract management, scope management, and change management.
- Transferring legacy data into a vendor product data model is a significant effort and runs risk of losing data or core functionality. This concern could be addressed by a "day forward" approach that starts the new system fresh without migrating the old data. This would require leaving the child welfare component of N-FOCUS in place for historical data access.
- A transferred system becomes the property of the receiving agency and ongoing advancement and maintenance of the system become the responsibility of the receiving agency.
- Because the functionality of the pre-existing system will contain customization, system integrators are essential to convert that customization and add new state specific customization.
- System documentation may not be very complete and robust.
- End user training will need to be developed by the receiving agency or included in the contract with the systems integrator.
- High potential for loss of integrated automation environment for service staff.
- Ongoing support for the N-FOCUS system and its technology base required for remaining service programs left in N-FOCUS.

4. Methodology

The Transfer/Build development lifecycle has two distinct focuses for delivery of the final solution.

- The first focus is associated with the implementation of the transferred product.
- The second is the incremental-development (build) of services that will be associated with the solution to extend its functionality.

5. Business Assessment

This alternative starts with the selection of a state system that has been proven to be an effective solution, enabling the receiving State to move to a new solution in a shorter timeframe. This alternative provides the opportunity to deliver functionality quickly which is one of the highest priorities of stakeholders. Once the transferred application is installed, additional critical functionality will be met by custom-built services to the system. This could be accomplished with internal IT staff but more typically is performed by a contracted systems integration firm. This approach would allow Nebraska to add functionality and respond quickly to changes in practice, policy, or legislation in the future.

Implementation considerations of this alternative should also include creation of a "sandbox" environment that allows users an opportunity to participate from the beginning of the development life cycle. Providing this sandbox environment to users has several immediate benefits. Users can become familiar with the system over a period of time and provide feedback to the development team. Early access supports effective organizational change management by having the users see the system and imagine their future. It also supports user learning processes by allowing users to work in the sandbox before and after any formal training. Delivered prior state training documentation can be the starting point for the development of formal training materials. As new functionality is added through the use of services, agency users will be able to participate in the development process without having to leave their county office. This may increase the amount of overall participation by removing the barrier of cost and time to travel.

The process for development and implementation differs from a custom-development solution built to prescribed specifications. The transferred product functionality will be compared to the CWS-identified scope in a gap analysis. During the analysis, gaps and differences will be documented. Once gaps are identified, decisions on an appropriate action will be reviewed and either a modification will be made by building a service, by changing how the system or business rules are configured, or by modifying the way data are entered into the system. The latter two actions can be tested in the sandbox environment prior to the more costly step of building a custom-built service.

As with any customization, a service is not a one-time cost. The challenge for this solution will be obtaining an existing product that meets the majority of Nebraska's unique business requirements.

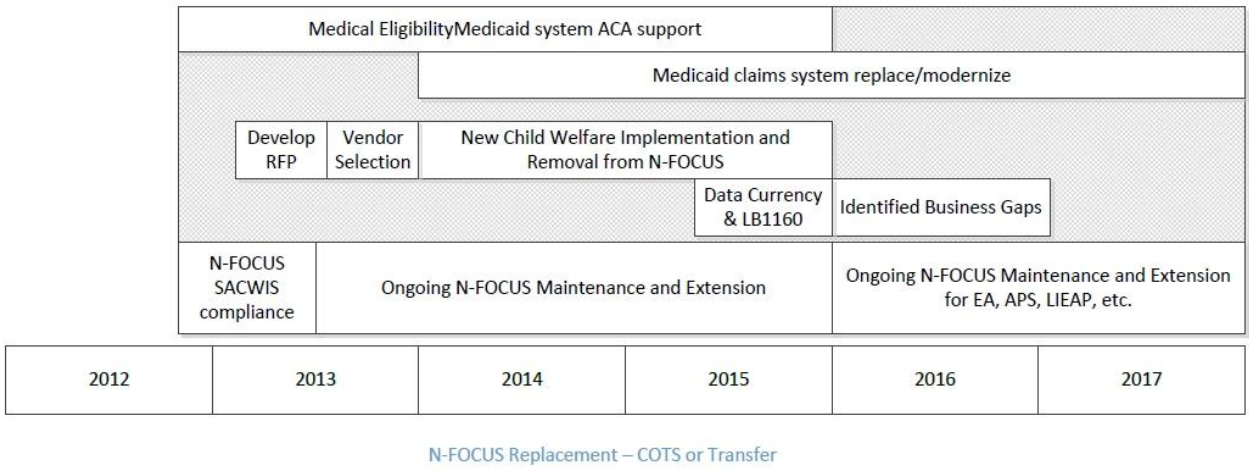
The transferred systems alternative has the ability to support CWS practice and has a comparable time-to-benefit as the COTS alternative.

6. SACWIS Compliance

This alternative can achieve SACWIS compliance. This alternative has a longer completion time and but since it starts with an existing solution that addresses SACWIS compliance the compliance process is more predictable. Therefore, it is unlikely ACF will suspend SACWIS level funding with this alternative. If the Transfer is not consistent with each unique Nebraska requirement, additional services will be designed and implemented to meet them. While this does not guarantee SACWIS compliance it is a good basis to start compliance activities since it was compliant in a previous implementation.

7. Timeline

The timeline to execute the transferred systems approach has been provided with a focus on the identification and selection of a systems integrator, and implementation and extension phases of the alternative.



8. Cost Assumptions

Note that state transfer systems do not generally bring down the overall cost of a system significantly. What they do tend to accomplish is to start the discussion of what functionality is needed sooner and reduce risk for compliance. The normal trend is the data migration and process changes usually make up for whatever product cost savings you may see.

Acquisition of Transfer Child Welfare System	$60-85 M
Open systems Computing Platform	$2-5M

Includes:

- Dual Database Servers with Fail Over
- Dual Application Server
- Dual Web Server Cluster
- Dual Load Balancing Routers

- Storage Area Network
- Dual Fiber Channel Switches
- Backup and Recovery Facility
- Print Management Facility

Address data currency and Gap Functionality	$5-10M
Total	$67-100M

DHHS' FY 2012-2013 budget for mainframe computing costs for N-FOCUS is $6.84M. Migration of the Child Welfare system from the N-FOCUS system running on the mainframe computing platform to an Open Systems Platform holds the potential to save DHHS up to $150,000 annually in computing platform costs. Anticipate these savings to be offset by the operations and maintenance costs associated with this alternative in the form of additional state staff resources and training or by contracting with a vendor to provide system maintenance services.

9. Risks

- Inability to achieve agreement with selected vendor on terms and conditions during contract negotiations.
- Unanticipated adjustments in project scope require additional funding.

VI. PROPOSED SOLUTION STRATEGY

Several factors have been taken into consideration when arriving at a proposed solution strategy for the State of Nebraska's Department of Health and Human Services' (DHHS) challenges addressing outstanding issues associated with Child Welfare Information System (CWIS) resources and capabilities. The following considerations will be included in the proposal presentation.

- Operational cost savings
- Program Staff Impact
- IT Staff Impact
- Time to Implement
- Risk
- Technology Advancement
- Flexibility and Preparation for the Future

The following options have been considered to address the long term needs of a Child Welfare Information System in the State of Nebraska.

	Alt	Option	SACWIS Compliant	N-FOCUS Enhanced	CWIS Enhanced	Project Cost	Annual Oper cost	Annual savings	DHHS Net cost
1		Status Quo	No	No	No	0	$6.3M	0	0
2	A	Maintain and extend Current N-FOCUS Legacy Architecture	Yes 2008 Standard	Yes	Yes	$1-10M	$6.3M	0	0
3	B	Modernize, Refresh ad extend the Current N-FOCUS Legacy Architecture.	Yes 2008 Standard	Yes	Yes	$17-40M	$2-3M	$3-5M	-$3M
4	C	Build a New Custom System on a Modern Architecture	Yes 2012 Standard	No	Yes	$202-255M	$2-3M + $6-8M N-FOCUS	$150K	+$3M
5	D	Implement a COTS Framework on a Modern Architecture	Yes 2012 Standard	No	Yes	$82-155M	$6-8M + $6-8M N-FOCUS	$150K	+$8M
6	E	Implement a State Transfer Solution on a Modern Architecture	Yes 2012 Standard	No	Yes	$67-100M	$2-3M + $6-8M N-FOCUS	$150K	+$3M

Note annual operating cost represents the cost of infrastructure and support and annual COTS licensing (20% of initial) however this does not include cost of FTE staffing or contracting alternatives.

The following recommendation will incorporate proposed actions that promote a long term strategic direction plus short term tactical actions to immediately address outstanding requirements and concerns for the Child Welfare system.

A. Recommendation

UmmelGroup recommends that the State of Nebraska embark on a strategy of "Modernize, Refresh, and Extend the Current N-FOCUS Legacy Architecture" as described as alternative B in section V.B above.

The N-FOCUS system embodies a level of integration between program area automation support systems that most states have been pursuing, mostly unsuccessfully, for years. It is commonly understood in the human services community that having the ability to manage clients in a holistic manner ensures that clients receive all support resources for which they are eligible in order to place them back on a track to self sufficiency as quickly as possible. With staff having access to a complete master file showing service eligibility along with case management tools for tracking and administration, they are able to provide a comprehensive level of service to clients served. Even though Child Welfare services are not provided on an eligibility basis but rather on an incident basis, once child protection services are deemed appropriate, other economic assistance services can come into play for the child, for foster families, or for adoptive parents. The level of integration between these program support facilities available in the N-FOCUS system provides case management staff the tools to provide the most comprehensive level of support. At a high level, the goals of this recommendation and the results of executing this recommendation are:

- Address the immediate need for SACWIS compliance.
- Address the identified LB 1160 requirements of:
    - Facilitating legislative oversight of the child welfare system through an improved electronic data collection system.
    - Improving child welfare outcome measurements through increased reporting.
    - Implement a web-based, statewide automated child welfare information system to integrate child welfare information into one system.
    - Improving access to information and tools that support consistent policy and practice standards across the state.
    - Facilitating timely and quality case management decisions and actions by providing alerts and accurate information.
    - Providing consistent and accurate data management to improve reporting capabilities, accountability, workload distribution, and child welfare case review.
    - Providing payment processes and procedures for tracking services available and provided to children and accurately paying for those services.
    - Utilizing business intelligence software to track progress through dashboards.
    - Access to real-time data to identify specific child welfare cases and take immediate corrective and supportive actions.
- Position N-FOCUS for long term viability.
- Eliminate risk areas for N-FOCUS and Child Welfare including dependency on the mainframe, the CA-Gen development platform, and the CA-AION business rules engine.

1. Positive Attributes of N-FOCUS

Several foundational architecture strategies are already in place in DHHS which can be expanded and built upon. These include the following:

- Relational data base/core data model. Less than 20% needs revisited and possibly redesigned
- Existing interfaces
- Reporting solution architecture
- Well integrated functionality
- Content management infrastructure
- ACCESSNebraska public portal

2. Current Shortcomings of N-FOCUS

There are several areas where business functionality is limited by technology capabilities. It is essential to evolve the business functionality to enable all citizens, contractors, and providers to interact with the system directly via access of choice (mobile app, phone, internet, etc). Enhancing access via the internet and web based facilities will allow presentation technology to modernized and enhanced with minimal system impact. To enable these access capabilities foundational architecture components are needed.

B. Strategic Long Range Actions

1. Modernize N-FOCUS

See Modernizing and Migrating the Current N-FOCUS Legacy Architecture" as described in section V.B above.

- RFP for modernization effort
- Modernization effort for foundational architecture

To support this modernization effort there are technology areas that place the business system at risk or reduce effectiveness and capabilities. These areas should be evolved through strategic investments by the agency and should align with state OCIO strategies where possible.

- N-FOCUS areas of weakness that should be fixed as part of application modernization effort.
  - Entire CICS/Client server code base of CA-GEN. Target should be .Net or Java
  - Access to current data for Reporting
  - Business rule platform replacement
  - Data quality needs defined and fixed (especially contractor handoffs and users expectations)
  - It is also recommended that in addition to the modernization effort that several architectural components necessary for strategic efforts be implemented as part of this project and leveraged to improve processes and efficiencies

- Adoption of web services and SOA to enhance intra-agency data exchanges. Strategic for all inter-agency and external long term exchanges
- Process/Workflow engine. Initiate a process solution architecture using one core essential process. Example: Enable the ACCESSNebraska form completion to initiate a process to deliver content to process server, capture content image, store data and deliver the form to the appropriate person/group for additional processing
- Mobile strategy. Enable one or more mobile applications for workers and/or citizens. Strategic for worker effectiveness and citizen self service

At the end of these efforts the N-FOCUS application will be a web enabled application. The Nebraska DHHS will have removed dependence on the mainframe platform and will be ready for the future with an open architecture. The agency will have also eliminated the risk areas of the CA-Gen code base and CA-AION rules engine. Additionally, the agency will be positioned to build upon a solid solution architecture to continue the strategic evolution.

These solutions should be surfaced so that interaction is supported via loosely coupled interfaces supported through an Enterprise Service Bus (ESB) to the core HHS applications and possibly a Master Person Index (MPI). These access solutions will also support other state, federal, public, and private sector interface requirements and will support the continual migration of those interfaces, which can, go from batch to real time. A real-time interface requires work at both ends of the interface.

2. Extend Infrastructure to N-FOCUS Programs

In order to take advantage of DHHS investments and to exploit some of the current system technologies, various solution architectures and services will need consideration as DHHS goes through the HHS/CWIS "Next Gen" development. These areas would include expanded document and content management, automated workflow and business processing, data warehouse, reporting data and reporting technologies, data movement technologies, worker/ partner/citizen security and access.

The DHHS architecture should be expanded and leveraged for all DHHS functionality including the core application architecture deployed as part of the DHHS "framework" for Medicaid, TANF, SNAP and other human services programs. This expansion could be achieved through the addition of one or more HHS applications which leverage shared enrollment, eligibility, and enforcement investments already made by the State of Nebraska.

While not recommended to be included as part of initial modernization efforts, we do recognize that there are several components that will be needed to support this DHHS evolution. This list includes areas where new investments will need to be made in software and skills to leverage effectively.

- Architectural patterns that should be in a mature/modern system that are not in N-FOCUS today or will not be utilized to fullest extent possible at completion of modernization effort described above:
  - Process capability - form completion to services delivered
  - Data warehouse, data marts, dashboards, parameter driven, real time reporting, ad hoc user generated reporting, performance reporting, forecasting
  - Archival of data
  - Contractor data exchange, real-time focus for all data
  - Mobile access for workers, contractors or for clients
  - Full functional web access for clients, contractors, workers.
  - MPI for master person identification to minimize fraud and abuse. Sharable with other agencies. Possibly HIT enabled
  - Web and data services

DHHS should be moving to web services transactions through the ESB. Although shared application framework components would not be required in this scenario, web service definitions could be federated across multiple DHHS program and functional areas.

Some discussions in the above scenarios will involve sharing data and processes with other agencies and other branches of state or local government (i.e. Judicial). Discussions to support state level or cross-agency process automation and data sharing via an ESB or similar concepts will enable a more efficient overall work stream and end to end process improvement.

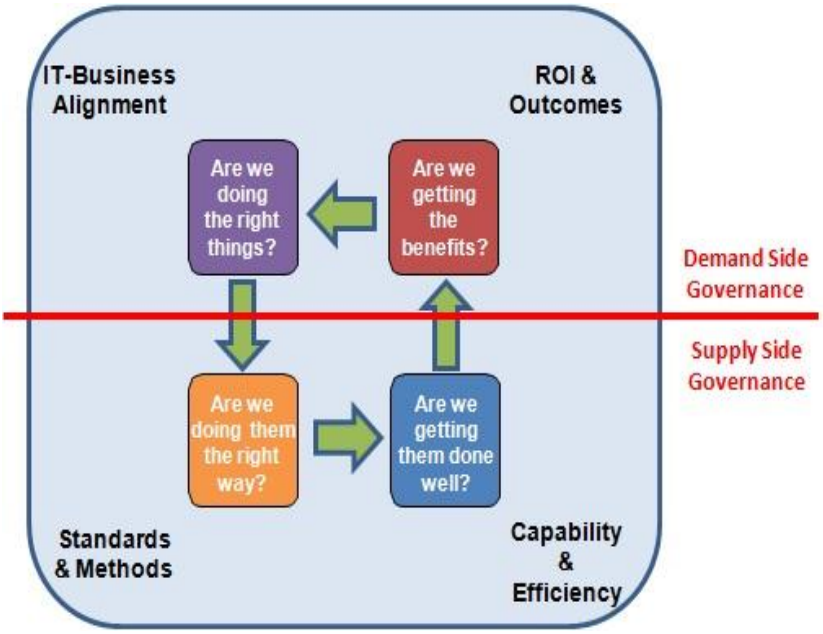
3. Management Considerations for Strategic Implementation

While DHHS and the N-FOCUS support teams in program areas and IS&T are doing a good job supporting and evolving the current system, the degree of change discussed here is dramatically different in scope and size. In order to effectively manage the continual evolution of these complex and integrated DHHS systems it is possible that there are skills and management activities that may need to be enhanced. The following is a list of possible areas where IT management might need enhanced tools, skills or processes.

- **Work effort oversight** - Agency and program area work effort and funding prioritization system. Visibility into all work efforts by program and funding area, progress and resource tracking, i.e. a portfolio/project management system with financials for all IT work efforts.
- **Skills** - Skills evolution into target technology patterns. Moving some legacy support personnel to .Net/Java developers. New skills include process design, form design, web services, ESB flow designs, and mobility development. Also essential are skills in RFP and requirements development, procurement support and evaluation, vendor negotiations and financial management.
- **Architecture** - In order to support system evolution at the scale considered here, including the options that some of these systems may be supported with outsourced arrangements, adoption of a strong enterprise architecture and a mature project architecture culture is

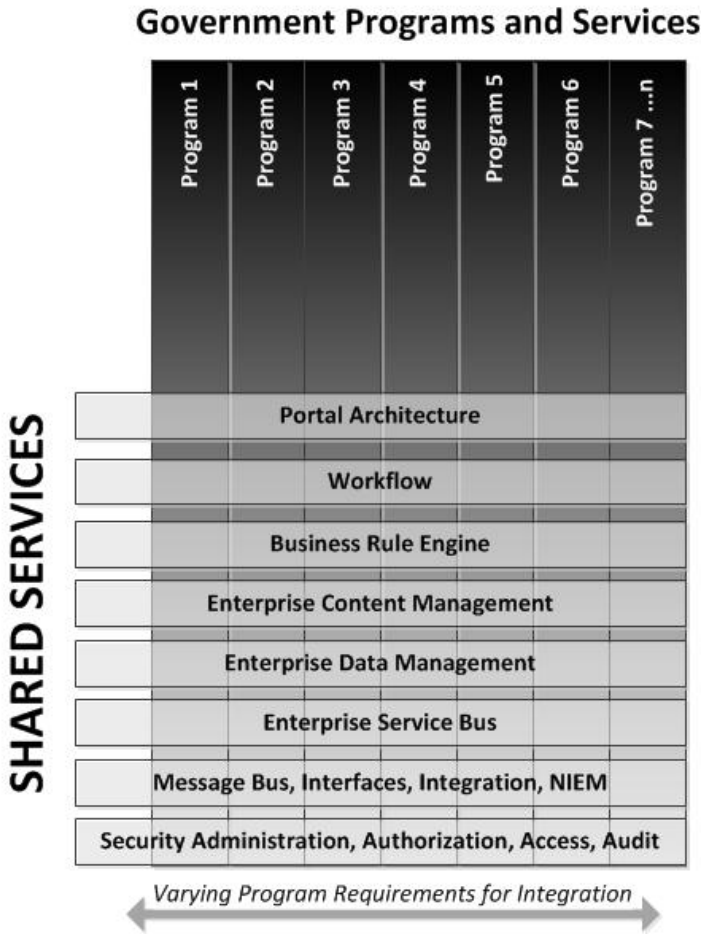
necessary to reduce conflicts, redundant effort, and rework. Data architecture and technology architecture specialists are necessary to support both the enterprise and project architecture. The cost of mistakes made in architecture runs into the millions while mistakes in development are dramatically less.

- **IT Governance Model** - N-FOCUS has an effective governance model but it is imperative that, as the DHHS moves forward, a full enterprise focus is considered as well as specialty program needs and expectations. The following model is proposed to assist with focusing on those enterprise and technology needs and capability as well as program and operation needs and opportunities.



In a modern "21st century" systems environment, discussions of "standalone" or "siloed" systems are clearly out of date.

Over the last 25 years, systems developers have learned a great deal about the design of more flexible systems. Over this period, nearly all the major elements of systems have been abstracted and pulled apart. Today, we tend to think about these various elements as layers in a well architected information technology portfolio: the presentation (or portal) layer, the workflow layer, the business rule layer, a services layer, and the data management layer. The evolution of these layers and associated support tools make it possible to pull the major pieces of large systems apart into loosely coupled components so that changes, even major changes, can be made with far less difficulty, and related business programs might realize efficiencies by sharing common architecture where practical and appropriate.



A highly structured, but loosely coupled architecture is clearly the wave of the future. Service Oriented Architecture (SOA), one approach of integrating such systems, is among the major initiatives involved in the design and implementation. SOA takes advantage of modular thinking about the design of large scale systems that goes back to a time of highly integrated systems.

Indeed, research has concluded that while most large, complex systems are highly modular, those that are the easiest to modify and maintain are ones in which the major modules possessed two very important characteristics: "high cohesion" and "low coupling". *High cohesion modules* were ones that did only one (or a very small number of) function and were connected to other modules through *loosely coupled* but carefully designed interfaces.

4. DHHS Concept of Operations - Target

It should be noted that an agency modernization and strategic approach described here does not eliminate the need to continually evaluate the market place and look for better solutions. The commercially available products are maturing more every year and integration of

functionally rich products is becoming easier as more solutions move toward support of standardized interfaces like NIEM.

The tactical and strategic efforts described here will deliver a solid roadmap and platform for 5 years and potentially up to 15 years. It is advisable that DHHS look at options for replacement in the 5-10 year time frame.

VII. APPENDICES

A. STRATEGIC PLAN APPROACH AND METHODOLOGY

Plan for the Statewide Automated Child Welfare Information System (SACWIS) as described in Section 4 of Nebraska Legislature Bill 1160

- Project Kickoff
  - Review RFP requirements
  - Review Nebraska Legislative Bill 1160
  - Review RFP deliverables
- Program Assessment and Requirements Analysis
  - Intake
  - Eligibility determination
  - Case management
  - Resource management and workload distribution
  - Reporting requirements
  - Financial management and payment processes and procedures
  - Investigations
  - Document current business processes and workflow
    - Conduct onsite visits at local offices
    - Facilitate focus groups
    - Document current (As Is) business environment
    - Identify unmet program needs and missing functionality
    - Document program interface requirements
    - Document program reporting requirements
- Current System Design and Functionality Review
  - Review current technical architecture
  - Document current (As Is) technical environment
  - Identify unmet technical needs
  - Review strategic IT plan
  - Review enterprise architecture
- Perform Gap Analysis
  - Document current application strengths and weaknesses
  - Document desired ease of use features
  - Document missing functionality
  - Document issues of separation from N-Focus
- Assess System Replacement Options
  - Application modernization
  - Build versus buy
  - Available vendors with COTS solutions
  - Opportunities for system transfer
  - Document cost alternatives
- Develop Proposed Solution and "Next Steps" Roadmap

B. OUTREACH AND DISCOVERY

a) System Strengths:

- Does what it is supposed to do
- Comprehensive – both programs and data
- Integrated data base, programs
- Strong change management practices
- Able to access other program data
- Extensive interfaces
- System stability
- System is fast
- Document Imaging and content management
- Flexible user profile system
- System is well documented
- Intakes flows well and easy to use
- Personal history spans system changes well
- Alerts – both system and worker generated
- Organization of data by households
- Displays family relationships
- Cross references between programs and households
- User friendly, intuitive
- Fairly easy to use
- Non-CFS workflow implemented via the expert system
- Easy to move around in system
- Name search
- Address changes across programs
- Address search capability
- Numerous and comprehensive reports
- Daily claim processing

b) System Weaknesses:

(1) Training:

- Need more training for users
- Need better documentation on how to use system
- Takes a lot of time to learn system, especially where to find information
- System is so complex it can seem overwhelming
- Training on how to navigate around in system
- Training on system changes, also better documentation
- Users need a guidebook
- Training needed on how to use reports

- Some staff not clear on who can close a master case
- Improve client focused training and empowerment
- More training on the use of narratives, what goes where

(2) Security and caseworker assignment issues:

- Complex security profiles challenge regression testing
- Security is hard coded (RACF profiles cached for application use)
- Casework assignments can be changed by others
- Need to review security profile system to maximize user ability to do jobs
- System allows non-Resource Development staff to make changes to organization information
- Sometimes when a new case manager is assigned it messes up other worker assignments
- Security permissions come and go with no explanation
- Alerts sent to previous worker are not sent to new worker
- Home visit function does not transfer completed home visit to new worker, so looks like new worker missed visit when it was in fact done by previous worker
- When some changes happen worker is locked out

(3) Reporting:

- No ability for user generated reports
- Field staff and supervisors create excel spreadsheets to track caseloads, etc.
- Need caseload management tools for workers and supervisors
- Workers need to be able to pull pending case actions
- Need ad-hoc reporting capability
- Need ability to create reports more quickly
- Queries are difficult
- Data issues related to timeliness, not real-time. Appears to be related to creation of the shadow environment
- Caseload changes do not show up till the next month
- Worker reports are not sensitive to date work is assigned
- Need online versions of reports
- Need data warehouse with expanded access to the data for enhanced, faster queries and reporting by staff without ITS involvement

(4) Data Quality:

- Information on system has a lot of errors and omissions, needs more and better edits
- Need a more prescriptive workflow
- Verification tracking for policy adherence with automated enforcement

- Need accurate date of death, when not accurate causes payment problems
- More rules for eligibility to lower errors
- Edits to require address on new person
- Stronger edits to prevent one person from being on multiple master cases

(5) Practices:

- Need management support and enforcement of policy and resources
- Different localities use fields differently and have different interpretations of data
- Different localities document in narratives differently
- Need uniform practices for documenting in narratives
- CW system allows too many overrides
- Protocols need to be developed on how programs treat households so to not cause problems for others.
- Field staff are told reports are wrong, but not told how to fix (what field is causing problem)
- Staff track deadlines off the system
- Shadow files are kept offline of provider information missing in N-Focus
- Information on system has a lot of errors and omissions, needs more and better edits
- Some workers manipulate information to create duplicate master cases on the system

(6) Design:

- System is cumbersome to use, often have to go through several screens to get information
- Cumbersome to add organizations
- Home study is cumbersome, lacks print preview to check completeness of study
- Too many narratives, no comprehensive view of narratives
- Need simplified user interface and workflow within N-Focus
- Takes 4 to 6 weeks to get worker set up on the system
- Need to be able to make changes timely
- Unclear requirements
- Difficult to find information
- To get history of assessments must go into previous assessment systems
- Requires a lot of moving around through windows to find information, takes a lot of time
- Partners go through Citrix
- Some payments should be on MMIS
- More frequent update cycles

- Enforcement for missed or ignored alerts
- Hyphenated names cause problems for searches
- Name normalization
- System needs to recognize partial month eligibility
- Cutoff date causes date of closure to be wrong (all cases close at end of the month on the system but not in policy)
- System allows sharing and publicizing of organization information even if organization does not want it shared (example foster family or childcare provider that will only serve one specific child)
- Hard to close one child on a master case
- Difficult to get person history if they have been on multiple master cases
- Reviews are sent on adoption subsidy cases even though reviews are not required
- Ability to read scanned documents is poor, too small and poor resolution

(7) Missing functionality

- Needs automated detention, hospital and PRTF billing
- Doesn't support a mobile workforce
- Needs interfaces with Departments of Corrections and Education, MMIS (bringing information back into N-Focus) banks
- Document imaging for child welfare
- Intake and Intake supervisors need 24/7 access to system
- Incorporate an automated/scripted/interactive interview process
- Childcare licensing should be included in the system
- Automated downloading of information from online application
- Needs information on managed care enrollment
- Need to match providers with eligible clients to help prevent fraud
- For each person need a summary screen with history of programs, master cases, etc.
- MMIS needs a specific screen with the data they need in one place
- Need to be able to view and read a comprehensive, chronological narrative
- Word/phrase search in narratives
- APS needs document imaging
- Need spell and grammar checks in narratives
- Organization search does not have "sounds like" capability
- Need ability to do targeted mass mailings
- Staff directory should include phone numbers and email addresses
- Phone number look up/search
- Need to be able to enter TPL information on N-Focus and not use MMIS
- Print screen capability

- Workers need access to system after 10:00 PM or after 6:00 PM on Sundays

(8) Ease of use changes:

- Need notification sent to providers when service authorizations are set to expire
- Resource Development referrals contain city, but no county
- Need to be able to save SDM as draft, so worker can move to other parts of N-Focus to find information.
- Need ability to fix errors in SDM
- Supervisors to do not get an alert that assessment is ready for review
- When case is opened contact information on assessment does not automatically move to new case.
- Need to be able to tag an organization to an individual
- Need ability to view, rather than print in numerous instances
- More room for criminal history information
- N-Focus allows staff to “mess around” with a case without notification going to caseworker
- Need to be able to do intake on multiple children at one time, not have to keep repeating same information
- Study more efficient ways to start a new case
- Do changes on multiple persons at once
- Address changes should prompt for other household member inclusion
- Need to know when licenses and criminal background checks end on different dates (new alert)
- Need to clean up organization list (many duplicates) and person list (many with no information attached)
- Need edits to prevent wrong rates being assigned to providers
- Spell check is at the bottom of the window stack, not easy to access
- Spell check to run constantly (like in Word)
- SDM does not have alerts for upcoming deadlines
- LTC services can be authorized that are not on the service assessment
- Need more hard edits
- TPL information needs to be improved both for how reported and quality of information
- Need more finite definitions of SPI codes
- Ability to change SPI codes as law changes
- MMIS staff need notification on retroactive eligibility
- Risk assessments should stand alone
- Narrative entries on same day do not display chronologically
- Need a liaison with Business Analysts
- Printing is odd in SDM for cases with no risk assessment

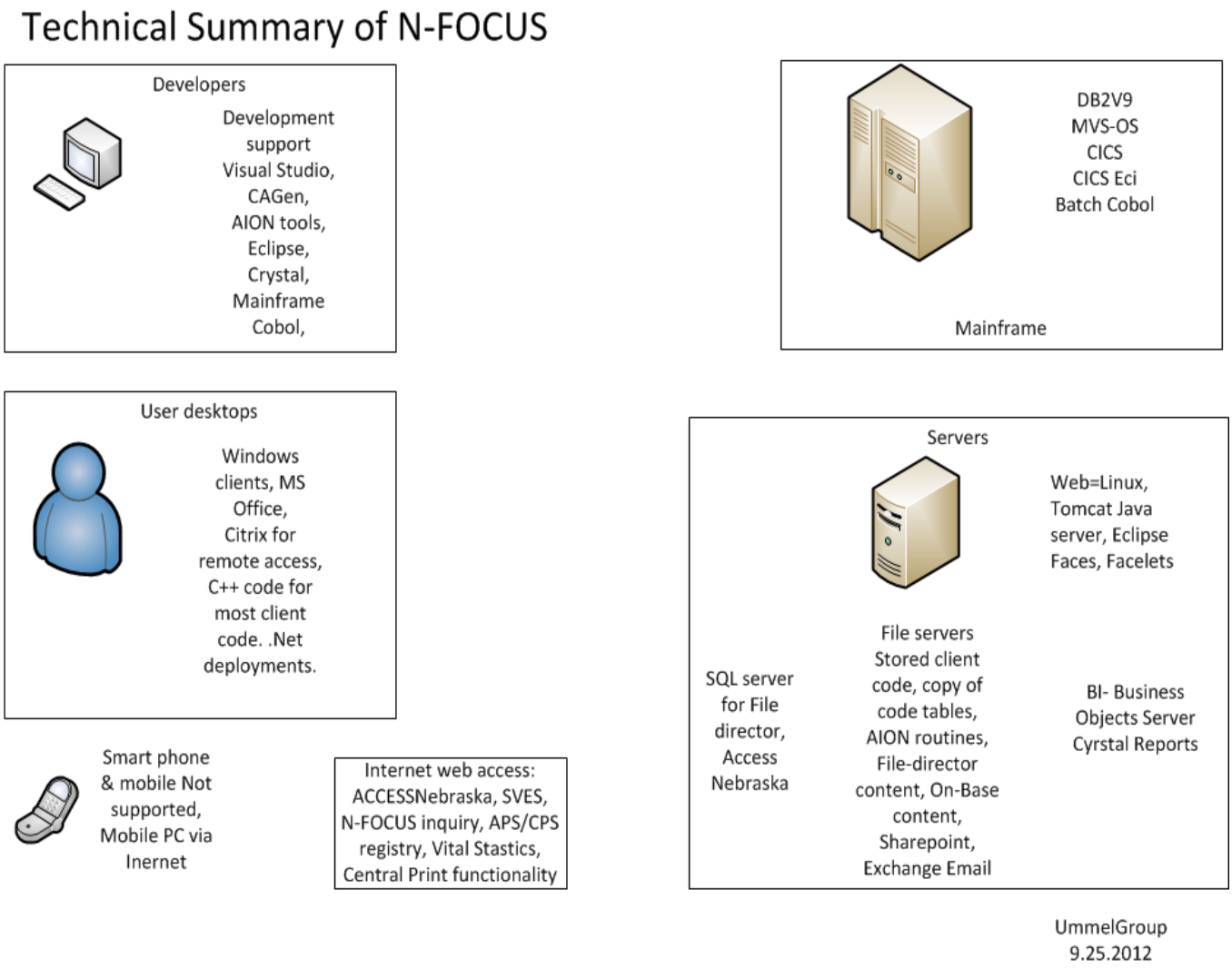
- Need to be able to fix facility type and not have to create a new organization
- Need to be able to locally print licenses
- Need to be able to correct correspondence once saved
- Tag options for scanned documents is too limited, need more options (license, medical assessment, etc.)
- No auto reference between organization and family
- Search does not work easily
- Need to do service approvals on organization or tie together. Current process is time consuming.
- When ward has baby, difficult to set up
- System should populate some fields where data is already in the system
- Need summary by person
- Difficult to change findings or know who can make change
- Need worker history with start and end dates
- Need birthdates to calculate and display age
- Court reports are difficult and time consuming to create
- Court report process needs a print preview options (often workers must print report to see what is not complete)
- Placement agreement and creation of kinship placements create a dilemma on the system. Which goes first?
- Printing is difficult
- Foster care pay list does not have options relevant to juvenile or status offenders
- Independent living plans are not user friendly
- Make APS documentation easier
- Streamline home study documentation process
- Need alerts for service authorizations that are about to expire.
- Alerts need to be issued closer to the event, some are three months in advance Need alerts for service authorizations that are about to expire.
- Ability to generate a report of juvenile offenses
- Need voice recognition capability

(9) Miscellaneous:

- Help desk needs training in APS
- Need enhanced quality assurance
- Need improved communication and involvement among staff
- Plan more, less: ready, shoot, aim
- Management commitment (Don't throw stones, get in the game)
- Improve timeliness and responsiveness to the client

- Modernize and integrate MMIS
- Remove all Medicaid claims from N-Focus
- Help Desk staff are not always helpful or friendly

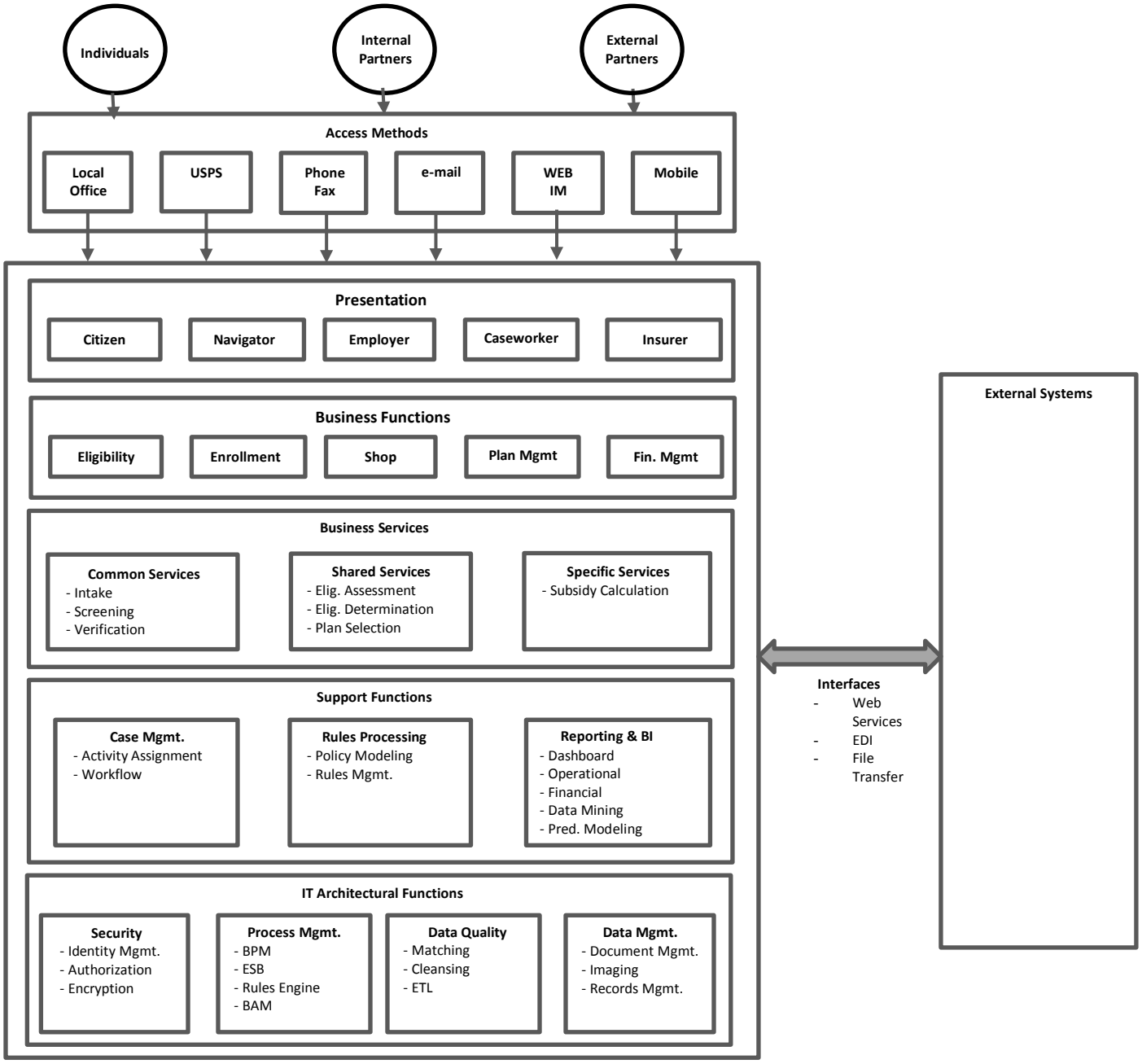
C. CURRENT N-FOCUS ARCHITECTURE OVERVIEW



D. DESIRED FUTURE "TO BE" ARCHITECTURE

The following three documents were provided by DHHS as representative of desired future application and computing platform architectures.

1. To Be Description



2. System Stack

Presentation Layer includes:

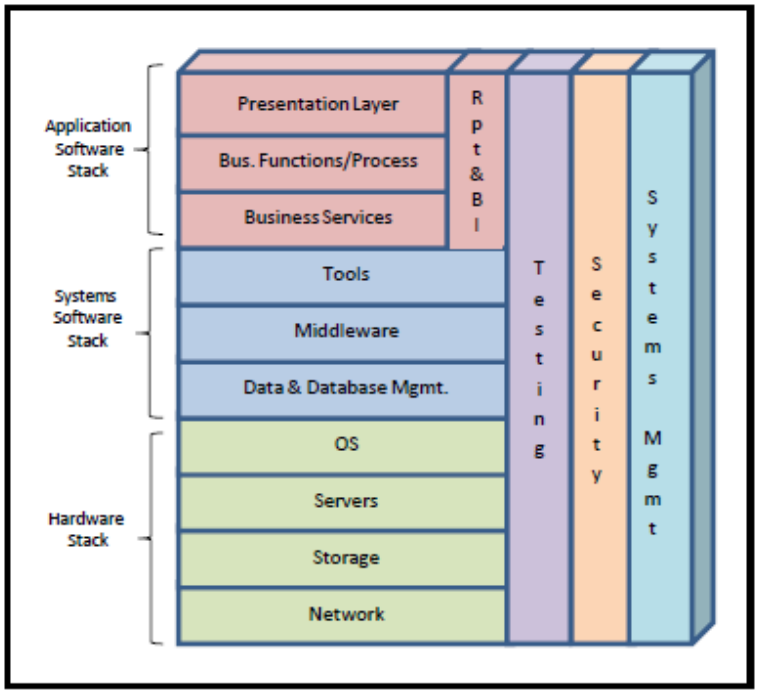
- User Interface(s)
  - Lightweight
  - Role based
  - Access Method based
- Data Entry validation
  - Complete
  - Type
  - Logical
- Help screens/prompts
- Standards compliant

Business Functions/Processes:

- Predefined Business processes/workflows like:
  - Eligibility
  - Enrollment
  - Plan Selection
  - Change of Circumstances
  - Renewal
- Configurable through external rules and/or business process/workflow definitions

Business Services:

- Predefined services used to construct Business Functions:
  - Determine Medicaid Eligibility
  - Conduct Verification
  - Verify Citizenship
  - Determine MAGI Eligibility
  - Calculate MAGI
  - Transfer Account
  - Check Exchange Enrollment
- Configurable through external rules



Systems Management includes:

- Performance Monitoring & Reporting
- Business Activity Monitoring (BAM)
- Workload/Job Scheduling
- System Backup & Recovery
- Configuration Management
- Release Management
- Change Management
- Event/Incident Management
- Problem Management
- Capacity Management
- Financial Management/Cost Allocation

Security includes:

- Identity Management
  - Authentication
  - Authorization
  - Access Control
  - Single Sign-On (SSO)
- Non-Repudiation
- Auditability
- Data Integrity
- Data Protection & Confidentiality
- Encryption (static and in motion)
- Intrusion Detection System (IDS)
- Firewalls
- Virus and Malware Detection

Testing includes:

- Test Management
- Functional/Regression Test
- Load & Performance Test
- Test Case Development
- Test Data Generator
- Capture & Playback
- Web App/UI
- Standards Compliance

Data & Database Management includes:

- Enterprise Content Management (ECM)
- Document Management & Imaging (DM)
- Extraction, Transformation, Load (ETL)
- Data Conversion
- Data Migration & Transfer
- Data Quality (DQ)
- Database Management Software (DBMS)
- Database Management & Monitoring
- Database Backup & Recovery
- Data Archival & Retrieval

Middleware includes:

- Business Process Management/Workflow (BPM/WF)
- Business Rules Management/Rules Engine (BRM/RE)
- Enterprise Service Bus/Message Broker (ESB/MB)
- Enterprise Application Integration (EAI)
- Electronic Data Integration (EDI)
- Web Application Server (WAS)
- Web Server (WS)
- Interactive Voice Response System (IVR)
- Computer Telephony Integration (CTI)

Tools includes:

- Integrated Development Environment (IDE)
- Source code control (check in/out, versioning, etc)
- Debuggers
- Report Development and Generation
- Ad-hoc Query & Reporting
- On-line Analytical Processing (OLAP, ROLAP,MOLAP,OOLAP)
- Data Mining

State of Nebraska
Department of Insurance

Technology Framework

Version: 1.0
Last Modified: September 8, 2012

1.1 General

As part of this RFP procurement process the State is looking for systems and technologies that can form the basis for an Enterprise Architecture that can be utilized and leveraged by other Agencies within the State. As such, we are looking for a solution that is built upon a technology framework that will support and promote this desire. The remaining sections of this document describe what the State considers a "technology framework" and sets forth a set of criteria by which the technical portion of proposals will be evaluated.

1.2 Definitions

Architecture - the fundamental organization of a system embodied in its components, their relationships to each other, and to the environment, and the principles guiding its design and evolution.

Service-Oriented Architecture – an architecture that aims to enhance efficiency, agility, and productivity of an enterprise by positioning services as the primary means through which solution logic is represented. Services act as containers of related capabilities. High-quality service-oriented architectures are consistent with the following principles:

- Standardized service contract – services within the same service inventory are in compliance with the same contract design standards.
- Service loose coupling – service contracts impose low consumer coupling requirements and are themselves decoupled from their surrounding environment.
- Service abstraction – service contracts only contain essential information, and information about services is limited to what is publish in the service contracts.
- Service reusability – services contain and express agnostic logic and can be positioned as reusable enterprise resources.
- Service autonomy – services exercise a high level of control over their underlying runtime execution environment.
- Service statelessness – services minimize resource consumption by deferring the management of state information when necessary.
- Service discoverability – services are supplemented with communicative meta data by which that can be effectively discovered and interpreted.
- Service composability – services are effective composition participants, regardless of the size and complexity of the composition.

Framework – for the purposes of this RFP, a framework is an extensible software platform providing general purpose and domain-specific services in the context of a uniform, reusable, service-oriented architecture with consistent abstractions. A framework may include the ability to both directly instantiate end-user capabilities and to provide developer-centric capabilities.

1.3 MITA Technical Principles

The Framework should support the MITA technical principles:

- **Business driven.** Technology will only be used when it supports a business goal or objective; technology will not be used for technology's sake alone.
- **Implementation neutral.**
- **Platform independent.** Application software and infrastructure components should be developed for reusability and platform independence.
- **Adaptable, extensible, and scalable.**
- **Open technology and standards based.** The advantages of standardization (e.g., data sharing and interoperability) should be leveraged.
- **Security and privacy** must be integrated into a system.
- **Interoperability standards** are established and followed.
- **Quality data** are enabled to support good decision making.
- **Current and proven technology** is selected.

1.4 Seven Conditions and Standards

In order to receive enhanced Federal financial participation (FFP), the State must implement solutions that are consistent with 42 CFR 433.112 and related guidance from the Centers for Medicare and Medicaid Services (CMS), e.g., *Medicaid IT Supplement MITS-11-01-V1.0*, commonly referred to as the seven conditions and standards ("Seven Conditions"). The

Framework must allow the State to satisfy, to the greatest extent practical, those portions of the Seven Conditions that are system-related. The Seven Conditions are:

- Modularity Standard
- MITA Condition
- Industry Standards Condition
- Leverage Condition
- Business Results Condition
- Reporting Condition
- Interoperability Condition

1.5 Framework Attributes, and Areas of Commonality

1.5.1 Attributes

The following attributes are desired in the proposed framework:

The Framework for the Exchange should be consistent. A framework is not merely a random or semi-related set of utilities or generic services. Various services, tools, and data structures should use a unified design paradigm and design patterns (service calls; service arguments and return values; data types, etc.) to improve productivity and reduce defects driven by "impedance mismatches." Frameworks encourage the use of helpful design patterns, but don't force developers into deep levels of abstraction that detract from their productivity (e.g., factories of factories of factories). Database schema are normalized; data are stored in only one place within the framework and its resulting applications; and these data are accessible only by service calls to the services "owning" the data.

The Framework for the Exchange should promote interoperability. The use of standards (where standards exist) and the use of well-documented information interchange specifications (where standards do not exist) assist the using organization in producing and consuming information and services that are interoperable with other systems and organizations. Frameworks should make using interoperable standards easier than creating homegrown interface solutions.

The Framework for the Exchange should externalize parameters that are prone to frequent change. These include:

- Business rules
- Workflows
- Configuration, environment, and startup parameters
- Localization resources
- Security roles
- User interface elements

The Framework for the Exchange should be service-oriented. The Framework should provide a discoverable service inventory containing service contracts having granularity that is neither so coarse as to result in performance and governance issues nor so fine as to result in excessive developer burden and poor reuse. Service orientation principles may be compromised to the extent necessary to meet performance standards.

The Framework for the Exchange should enable functional build out by configuration rather than customization as much as is practical. This likely requires that the base functionality, as delivered, has been used and is configured to support the Medicaid and health insurance domains.

The Framework for the Exchange should have a standard, domain-specific base data model. This data model should be consistent, normalized, and incorporate the common data elements used in Medicaid eligibility, enrollment, and member management. The data model must be extensible via documented processes, and must not have any proprietary restrictions on the State's use or extension of the data model.

The Framework for the Exchange should encourage reuse. Areas of reuse may include:

- Intra-application. Developers on a single team should find it easy to reuse base framework services or custom services built by other team members.
- Inter-application. Developers on different teams within the same organization should find it easy to reuse base framework services to promote commonality and to discover and use services created by other application teams.
- Inter-enterprise. Developers in sister human and social services agencies and in sister states should find it easy to reuse base framework services to promote commonality and to discover and use services created by other agencies.

The Framework for the Exchange should have a security architecture that supports standard security principles. These principles are:

- **Confidentiality** – prevent disclosure to unauthorized persons or systems.
- **Integrity** – data cannot be modified undetectably.
- **Availability** – access is not inappropriately blocked or denied.
- **Authenticity** – validation that the parties to a transaction are who they say they are and that their communications are genuine.
- **Non-repudiation** – parties to a transaction cannot deny their participation in the transaction.
- **Auditability** – track and log data changes including the user or system making the change. Track and log any inquires, views or access of data that may require such tracking as a result of law, policy or data use agreements including user or system making inquiry, doing the viewing or accessing the data along with the data and time of the inquiry, view or access.

The Framework for the Exchange should be multi-platform unless user or enterprise needs require targeting specific hardware/operating system platforms. As the use of specific CPUs, hardware architectures, and operating systems change rapidly, the State prefers not to be tightly bound to a particular platform. Support for various UNIX and UNIX-like (e.g., Linux) platforms as well as Windows and the Mainframe is desirable. In addition, the State strongly prefers the use of products that can be run in virtualized environments while recognizing that some components may have performance needs that preclude or contraindicate the use of virtualization.

Additionally, the current migration towards mobile platforms is likely to continue for the foreseeable future. A framework should assist with and automate activities needed to optimize applications for mobile devices as well as desktop devices, including addressing touch interfaces; limited display sizes; limited bandwidth and intermittent network connectivity; limited processor capabilities; and the movement towards standards-based Web technologies, such as HTML 5.

The Framework for the Exchange should be architecturally-rich. A framework should have a thoughtful architecture that is better than one in which an organization would normally invest for a single project. Because a framework is intended to be reusable, the framework developer must ensure that the breadth and depth of the services extend to cover the uses that can be reasonably foreseen. Other attributes of the architecture are:

- The functional and structural abstractions chosen to implement the architecture are intuitive, robust, and consistent. Confusing, frail, or inconsistent architectures can destroy using development organization productivity and induce high defect rates.
- The framework is easily extensible. Lacking extensibility, a framework is merely an incomplete software application.
- The framework supports scalable, high-performance applications.
- Security and privacy are built into the architecture as primary considerations rather than as afterthoughts.

The Framework for the Exchange should enhance the productivity of the using organization. An important reason for an organization to use a framework is to improve productivity. The increase in productivity should enable an organization to deliver needed capabilities more rapidly and at a lower cost. It should also enable the organization to respond to life-cycle changes in business needs with greater agility. Frameworks enhance productivity by:

- Providing tools that assist the using organization in performing common, redundant, or complex tasks with ease.
- Providing pre-constructed features, services, and capabilities with default behavior that shorten the time from inception to deployment while allowing fine-grained control to avoid the need for workarounds.
- Being supported by a long-term maintenance concept that continues to improve the features and usability of the framework, reduces the burden of workarounds (particularly security workarounds), and minimizes "reinventing the wheel" by the using organization.
- Using self-documenting tools (e.g., maintaining the official business process diagrams in the business process management system) to avoid having to maintain business and technical design artifacts in multiple locations.

The Framework should minimize the number of programming languages necessary for its use, consistent with developer need and balanced against other principles. The State has the following goals for various types of programming languages:

- General – the State prefers using open, standards-defined programming languages to the greatest extent practical. The State understands that there are some domains today (particularly business rules and business process management) where standards are still emerging and permeating the market.
- Object-oriented – the State prefers the use of a single object-oriented language, that uses automated memory management, to create the majority of custom services and to extend the Framework. While it would consider other languages, the State prefers Java.
- Procedural – the State prefers little or no use of procedural languages (e.g., C) in the Framework.
- Declarative – the State prefers that declarative languages (e.g., HTML) largely be limited to displaying Web-based user interfaces. Even when building user interfaces, the State prefers to substantially limit the amount of hand-coding necessary by using graphical design and construction tools.
- Scripting – the State prefers that scripting languages be limited to functions such as user interface code , build management, system startup, and integration with non-service based external systems. Even when

performing these functions, the State prefers to substantially limit the amount of hand-coding necessary by using graphical design and construction tools.

- Business rules – the State prefers that business rules are represented in English-like statements that are easy to interpret by business users and business analysts. While the State is not currently planning to allow business analysts to make changes directly to a production system, the ability for these analysts to create and interpret the business rules in the Framework's native rules language will substantially improve productivity and agility in managing business rules. Based on the state of the market, the State would be willing to accept rules languages that are more developer-focused.
- Business Process Management System (BPMS) – the State prefers the use of Business Process Execution Language (BPEL) for executing managed business processes. Direct consumption of Business Process Model and Notation models (perhaps via the XML Process Definition Language format) is also acceptable. As this area is still maturing, the State would accept other languages for BPMS process execution, particularly if they are transformable to BPEL for forward compatibility. While the State would like direct access to the process execution files for manipulation, including the ability to "round trip" modifications through the Integrated Development Environment, the BPMS must have graphical design and construction tools as directly coding BPEL and other related languages would likely result in substantial productivity reductions and an increase in defects.
- Database – the State prefers the use of standards-based Structured Query Language (SQL) for database queries. Based on the use of other languages and general purpose frameworks within the Framework (e.g., Java), programming language-specific query languages may also be acceptable (either for relational or object queries). The State discourages the use of database stored procedures or DBMS specific functionality other than in those instances where needed performance can only be obtained with such use.
- XML-based – the State encourages the use of XML-based documents for purposes such as system configuration and messaging. The Framework should generate documents without requiring the developer to hand-code XML; however, direct access to the XML documents for manipulation is desirable, including the ability to "round trip" modifications through the Integrated Development Environment.
- Proprietary languages – while there may be specific needs for using proprietary programming languages, the State prefers to avoid proprietary languages to the greatest extent practical.

1.5.2 Areas of Commonality

In the list below, the State has identified the areas of commonality it expects to be supplied by the Framework or supplied by the State to supplement the Framework. These have been identified using common product-oriented terminology, but that does not mean that each capability must be satisfied by a separate, self-contained product. While the State has a preference for using general purpose COTS products to perform major functions (where Framework capabilities and performance are not compromised), it is not mandating that the functions of the major capabilities be supplied by general purpose COTS products nor is it mandating that the functions are even performed by standalone software services partitioned as listed below. For example, while the State prefers the use of general purpose COTS business process management and business rules management components, it would be willing to accept an integrated business process/business rules capability as part of the Contractor's COTS suite. The State does not intend the list of capabilities to be all-inclusive. Bidders must propose a complete suite of capabilities to comprise the Framework.

1.5.2.1 Framework Areas of Commonality

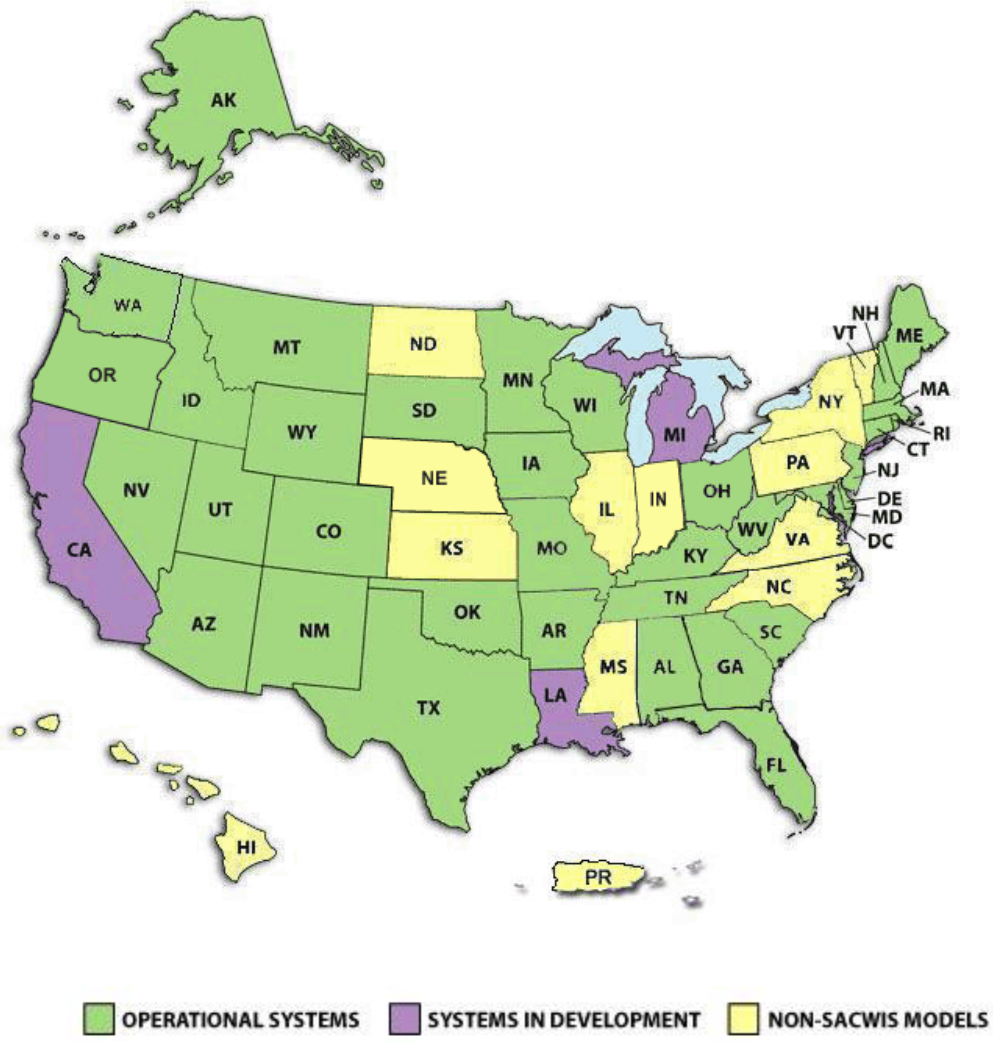
The following areas of commonality and capabilities are consistent with the State's goals for the Framework:

- **Unified data source/database** – this is a capability to store/persist information using a unified data model on a common database product. The unified data source should support the use of effective time segments and a "never delete a record" approach to enable maintaining complete historical data and referential integrity.
- **Business Process Management** – this is a capability to design and execute business processes enabled by automation for the purposes of orchestration (automated execution of a workflow) and choreography (coordinated interaction between two or more independent parties or services). While these may include steps executed synchronously, business process management tools excel at automating processes where most or all tasks are executed asynchronously, potentially over extended periods of time.
- **Business Activity Monitoring (BAM)** – this is a capability to monitor and manage business processes, transaction volumes, and quality indicators, in real time and retrospectively. This capability may include statistical analyses of the execution of the indicators being monitored.
- **Business Rules Management** – this is a capability to design and manage the business rules logic within the system and is supported by a repository for the rules.
- **Interaction Management** – this is a capability that allows an organization to manage information about and interactions with stakeholders or clients via multiple channels including easy access to historical data.
- **Case Management** – this is a capability that allows an organization to manage information and transactional activities over time relative to a specific entity.
- **Correspondence** – this is a capability to generate and manage communications with stakeholders via multiple channels, and includes the ability to generate canned, semi-custom, and custom messages.
- **Service Integration/Enterprise Service Bus** – this is a capability that allows the discovery and interaction of distributed services via synchronous and asynchronous messaging in a service-oriented architecture. Through adapters, service integration should also allow interaction with non-service based capabilities.
- **Web Portal** – this is a capability that allows for configurable Web access to backend services. While any sort of Web page could conceivably allow access, a Web portal automates the access, security, and configuration of Web access, and is configurable by not only the developers, but to a limited extent by the end users (e.g., what information is shown and where on the page is it shown).
- **Reporting/Business Intelligence** – this is a capability that allows for textual, tabular, and graphical representations of data needed to answer questions, monitor/control parameters, and make decisions and querying to gather data to fill these reports.
- **Call Center Integration** – this is a capability for the Framework (and resulting system) to integrate with common call center technology to be able to link telephone calls to records, automatically call up useful information for the call center operator, etc.
- **Integrated Development Environment** – this is a capability to develop, integrate, build, test, deploy, and control configuration of software using a unified, integrated, and coherent suite of tools.
- **Security** – while security is an attribute that should apply across the suite of capabilities in the Framework, in this particular case it is a capability to manage authentication, authorization, and access to the system, including a single sign-on capability.
- **Data Management Tools** - This is the capability of collecting, aggregating, matching, consolidating, persisting, securing and distributing data and its meta data to ensure consistency and control in the ongoing maintenance and use of the information.

- **Online Help** – this is the capability to manage, produce, and publish help files, training, and reference information that is integrated in a context-sensitive fashion with the Framework and resulting applications.
- **Document Management*** - this is a capability to store, index, and access electronic documents and images of paper documents in a structured and scalable manner. The capability may have standalone uses or be integrated into an enterprise system via documented interfaces or services.

  *Note that the State has designated and procured Hyland OnBase as the enterprise document management system. The preference would be to leverage OnBase as part of the Framework; therefore the Bidder should provide details regarding how their proposed Framework could integrate seamlessly with OnBase.

E. STATUS OF LEADING STATES IN SACWIS MODERNIZATION EFFORTS



SACWIS Status September 14, 2012
http://www.acf.hhs.gov/programs/cb/resource/sacwis-status