NSLDS II Reengineering
Definition Phase:
System Requirements - Draft

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Document Ownership

FSA Sponsor: Harry Feely – Deputy CIO

Revision History

Date	Version No.	Author	Reason for Change
2/22/02	.1	NSLDS II Reengineering Team	Initial Version
4/02/02	.2	NSLDS II Reengineering Team	Draft version distributed for comments
4/08/02	1.0	NSLDS II Reengineering Team	Formal Delivery - Incorporated review feedback from selected focus group participants

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1.0 Introduction

1.1 System Requirements Document Overview

The System Requirements document is the first deliverable of the Definition Phase of the NSLDS II Reengineering project. This document describes the business drivers for reengineering as well as the conceptual designs, referred to as our "big ideas". This deliverable will provide high-level descriptions of requirements for the following areas:

- **Functional**, which describes the main functions performed by NSLDS, key comments from FSA users concerning these functions, as well as requirements that should be addressed during the reengineering project
- **Technology**, which describes the data (acquisition, storage and access) and technical (platforms and tools) features that are needed to support the business requirements
- **Deployment**, which describes requirements such as data conversion, training, deployment, and maintenance, which occur later in the Solution Life Cycle (SLC) and impact the delivery of the solution

Please note that this version of the System Requirements is a DRAFT. It will be revised during the remainder of this phase of work and be included in final form as part of the Preliminary Design document, which is scheduled for completion at the end of June 2002.

The information within this document is proprietary and confidential to the Department of Education and Modernization Partner.

1.2 NSLDS Overview

The National Student Loan Data System (NSLDS) was established as part of the Higher Education Act of 1965, as amended, to provide a comprehensive repository of information about Title IV recipients and their loans, grants, lenders, guaranty agencies (GAs), servicers and schools. As NSLDS has evolved since its implementation in 1994, it has become much more than an analytical and reporting system and, today, supports key operational requirements. Specific capabilities include:

- Determining student eligibility for Title IV student aid – both pre-screening and post-screening
- Calculating default rates for schools, guarantors and lenders

- Supporting financial management activities including:
  - Guaranty Agency LPIF and AMF payments
  - Budget formulation / execution and modeling
  - Reasonability of payments to guarantors and lenders
- Tracking student enrollment status
- Providing information to policy, research and other groups

Currently, NSLDS is hampered by a number of challenges related to discrepancies between the quality and timeliness of NSLDS data and the system of record, as well as its operating costs.

1.3 Project Objectives

Given these challenges, a project to modernize the system – NSLDS II Reengineering – has been undertaken with the following objectives in mind:

- Improve financial integrity
- Reduce FSA costs associated with NSLDS and related operations
- Improve customer satisfaction through better quality and usability of NSLDS information, benefiting the Department and other NSLDS users in the financial aid community
- Balance FSA data needs with burdens placed on the financial aid community
- Improve usability of the NSLDS data repository through new tools
- Take greater advantage of data resources available within FSA and from the financial aid community

1.4 "Big Ideas" for Reengineering

At the heart of the design for a reengineered NSLDS solution are four "big ideas" for radically changing the underlying processes, data structures and technical platforms supporting the existing system. All four of these ideas were explored as a part of this System Requirements phase. Of these four "big ideas", the current NSLDS II Reengineering project will move forward with a focus on two ideas that concentrate on NSLDS technical infrastructure and internal FSA sources of data. These two ideas, which will be thoroughly assessed in terms of their functional, technical and financial viability during the course of the NSLDS II design phase, are as follows:

- **Data Warehousing**, which provides for restructuring of the NSLDS data repository to support modern data mart analytical tools

- **Internal FSA Direct Access**, which supports timelier, "snapshot-in-time," views of FSA-maintained Title IV aid data
  - Positions FSA systems to support a future FFEL and Perkins fetch capability

The remaining two "big ideas" will follow in the next phase of NSLDS Reengineering (NSLDS III). These initiatives will build on the improvements achieved through NSLDS II Reengineering to further improve the data quality and customer satisfaction for NSLDS users. These two ideas are:

- **FP Data Feed Reengineering**, which aims at integrating FP data reporting with FSA's FP payment processes
  - Interest subsidy and special allowance payments for lenders (Form 799)
  - AMF/LPIF payments and reinsurance payments for guaranty agencies (Form 2000)
- **Outsourced Enrollment Tracking**, which provides for combining FSA and National Student Clearinghouse (Clearinghouse) enrollment data into a single repository and outsourcing Student Status Confirmation Reporting (SSCR) to the Clearinghouse

In addition to addressing the major objectives of overall NSDLS Reengineering, these "big ideas" support - in a much broader context - several key themes prescribed by the Bush Administration:

- **Unify** . . . government operations to reduce redundancy and consolidate into larger operations that promise economic gains (reduced unit costs) through economies of scale
- **Simplify** . . . the work processes of government so that less "new work" and less rework is needed to produce the desired result. This translates to lower unit cost
- **Best Practices** . . . adopt the most effective federal government practices (policies and work processes) to achieve better customer service and lower unit costs

1.5 Timeframe and Approach

The project schedule for NSLDS II Reengineering calls for completing the design of the first two "big ideas", by the end of June 2002 and retiring the legacy system by the end of FY03. A multi-phased approach will be taken to minimize risk and provide for "early returns".

A key element to our approach in developing the System Requirements has been to actively engage key individuals representing a broad cross-section of executives and NSLDS users from FSA. To date, approximately 50 individuals have participated in two-hour focus group meetings to continually refine the "big ideas" and identify other opportunities for improvement.

Specific focus groups were conducted for:

- Financial Partners
- Schools
- Students
- CFO
- Program Analysis
- Ombudsman
- CIO

As the project moves forward, the NSLDS II Reengineering team will meet with other NSLDS users inside and outside of the Department, including key stakeholders directly affected by the proposed changes (e.g., lenders, servicers, GAs, and schools).

1.6 Format

The System Requirements document is organized as follows:

- **Reengineering Solutions,** which provides the conceptual design for the four "big ideas":
  - Data Warehousing
  - Internal FSA Direct Access
  - FP Data Feed Reengineering
  - Outsourced Enrollment Tracking
- **Functional Requirements**, which describes the major business requirements and opportunities for improvement based on feedback from focus group meetings
- **Technical Requirements**, which describes – at a high level – the proposed technical solutions to satisfy the functional requirements
- **Deployment Requirements**, which describes the key factors, risks and considerations that will drive the successful implementation of a reengineered NSLDS solution
- **Appendices**
  - Business Function Matrix
  - NSLDS User Matrix
  - Function Description Reference Matrix
  - Meeting Minutes
  - Higher Education Act of 1965, as amended – Section 485B

2.0 Reengineering Solutions

There are four proposed reengineering solutions that are part of the NSLDS vision:

- Data Warehousing
- Internal FSA Direct Access
- FP Data Feed Reengineering
- Outsourced Enrollment Tracking

The initial focus of the work will be on modernizing the NSLDS technical platform, which includes providing for both near real-time access to FSA-maintained data and data warehousing. Following the implementation of the NSLDS II, future work will focus on data feed reengineering and outsourced enrollment tracking as part of the next generation of NSLDS (NSLDS III).

2.1 Data Warehousing

Over its eight-year life, NSLDS has served as both a transactional system supporting the "latest information" needs of systems and users, as well as the role of FSA's analytical Title IV aid data warehouse. Focus group discussions with key NSLDS users and stakeholders led the Reengineering team to conclude that the system must continue to service these needs while addressing targeted improvements in data and financial integrity, customer satisfaction, and reduced operational costs. One opportunity for achieving improvements in each of these target areas is through reengineering the data warehouse functions of NSLDS.

Reengineering the existing NSLDS architecture can be split logically into two parts: data architecture changes and technical platform changes. Data architecture changes address the functional use and source of data stored in the warehouse, while technical platform changes address the storage architecture and tools used to access and represent this data. Data architecture changes are documented in the upcoming FP Data Feed Reengineering and Internal FSA Direct Access initiatives. This Data Warehousing "big idea" for NSLDS II Reengineering focuses on achievable improvements in the technical platform area.

The collection of detailed data to support the transactional functions of NSLDS has enabled NSLDS to grow into a deep data repository. For example, some data goes back as far as 1965. NSLDS analytical functions such as program analysis, research and policy development, budget formulation and execution, and financial aid history trending rely heavily on the ability to mine and display this valuable repository of historical data.

Although NSLDS supports these functions today, reengineering opportunities exist to improve the usability of this data and to reduce the annual costs associated with operating the system.

Currently, NSLDS data is stored in a DB2 database maintained in a mainframe platform in the Virtual Data Center (VDC). Actions and updates to this database are performed primarily in a batch fashion through COBOL programs generated with COOL:Gen, a Computer Associates (CA) Computer Aided Systems Engineering (CASE) tool. Other than batch updates, users and NSLDS support staff can also access and manipulate NSLDS data through various mainframe tools including SPUFI (used for updates and data manipulation) and Query Management Facility (QMF). In addition to these mainframe-based user interfaces, a website is available for users to access individual financial aid history or request the execution of "canned" reports.

The two opportunities detailed below focus on improving the tools and methods used to access NSLDS data to better meet the needs of its users while realizing potential reductions in NSLDS operational costs.

Improved Data Usability

A major theme throughout the focus group discussions with FSA stakeholders was that accessing NSLDS data and generating reports is difficult and time consuming. In today's NSLDS environment, users have one of three choices to access views / reports from NSLDS:

- Launch a pre-defined report, returning results in as little as hours or as much as days.
- Develop an ad-hoc query using the mainframe QMF tool. Using this tool can be difficult and time-consuming if the user does not have experience with Structured Query Language (SQL) or the NSLDS data model and codes. Even with this knowledge, use of QMF can result in lengthy query execution times and incorrect result sets.
- Request the creation and execution of custom reports by NSLDS's support staff. In addition to costs associated with custom report creation, lead-time required to get the requested information may be excessive.

To improve the timeliness and ease with which reports can be generated, users should be given easier-to-use, self-service query access to NSLDS II. One method for providing this access is to redesign the database structure so that it can better serve the analytical and information delivery functions as well as to the necessary transactional functions. To implement these changes, the redesign would involve reorganizing the data into a more warehouse friendly (in some cases de-normalized) structure. This reorganization would be performed either within DB2 or potentially another database platform suitable for very large data warehouses, such as Teradata. Users should also be provided a modern query tool, like MicroStrategy, so that they can focus on the value and usefulness of the data, rather than on the capabilities and limitations of the tools.

In addition to improving the delivery of NSLDS II data through reports, users have requested that demographic information about the data (metadata) be available in views and reports.

Knowing this information about the data will help users determine its timeliness and accuracy. For example, data should be displayed with effective dates so that users know when a loan record was last updated.

Reduce Operational Costs

The other goal of the data warehousing component of NSLDS II Reengineering is to reduce existing NSLDS operational costs. The cost of NSLDS to FSA will be approximately $16 million in FY02. Approximately $9 million will be spent on application maintenance and help desk support. The remaining $7 million will be spent on VDC/operations costs. Based on the experience of the Modernization Partner, re-platforming NSLDS from its more expensive mainframe platform to a more cost-effective mid-range platform is one way to reduce these costs. These savings can be realized in a number of ways, including: lower annual software licensing costs, lower annual hardware maintenance/licensing costs, and lower annual maintenance staff costs (i.e. the need for fewer Database Administrators, report programmers, etc.).

However, strictly re-platforming NSLDS is only one part of the equation. Re-platforming should be performed in concert with improving the tools and examining the processes performing data acquisition, data storage and data access. There are many questions to be considered during the redesign of NSLDS, such as: how is data acquired, how is data stored, how much data is stored, how is NSLDS accessed, how much data can be accessed with/without the help of support personnel, and how much effort/cost is expended on system maintenance and support. During the remainder of the definition process, these cost-saving opportunities and open questions will be addressed in greater detail.

Data Warehouse Platform Alternatives

As part of this phase of work, two options for the redesign of the data warehouse platform were drafted. The first option builds on a foundation that positions NSLDS II as the enterprise data warehouse, using its broad base of current and historical Title IV information at a summary and detailed level. The second option spreads the enterprise data across an environment of multiple data marts.

Single NSLDS II Enterprise Wide Data Warehouse

This option focuses on designing and positioning NSLDS II as the enterprise-wide data warehouse that feeds other data marts as required (Figure 2.1).

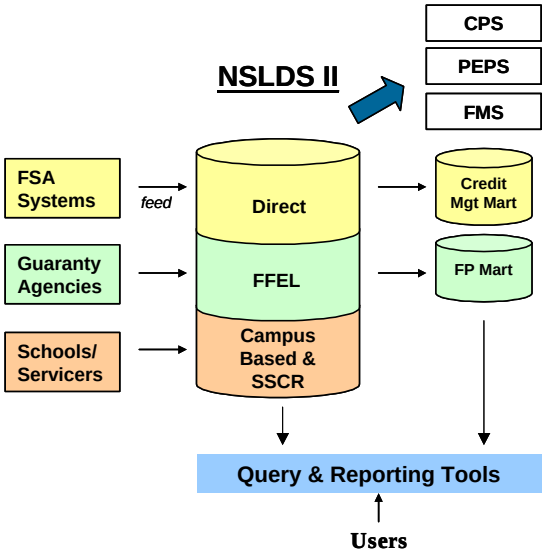

Figure 2.1 Option 1 for NSLDS Architecture – Enterprise-Wide Data Warehouse

Some major advantages of this option are:

- Single data acquisition infrastructure, positioning NSLDS II for future "fetches" and data feeds into a single repository
- Centralized and consistent data
- Streamlined data acquisition, storage and access helps reduce development, infrastructure and maintenance and support costs
- Cross-system detail and summary data provide decision support and Executive Information System capabilities
- Enhanced ability to provide consistent information about reports and report fields to users (metadata)

Challenges for this option are:

- Requires modification to existing FSA data marts in order to take advantage of the redesigned NSLDS II architecture.
- Higher initial costs to build the enterprise platform and convert the existing NSLDS data

Expand Existing Data Marts

This option involves the expansion of existing data marts to assume major data categories from NSLDS. For example, the Financial Partner Data Mart would be expanded to include detail FFEL Loan data in addition to the summary FFEL data it stores today. Also, the Credit Management Data Mart would be expanded to include all FSA system data, like demographics and Pell grant data, in addition its current Direct Loan detail data. As a result, NSLDS II would then store the data from areas not covered by these expanded marts. See Figure 2.2 below.

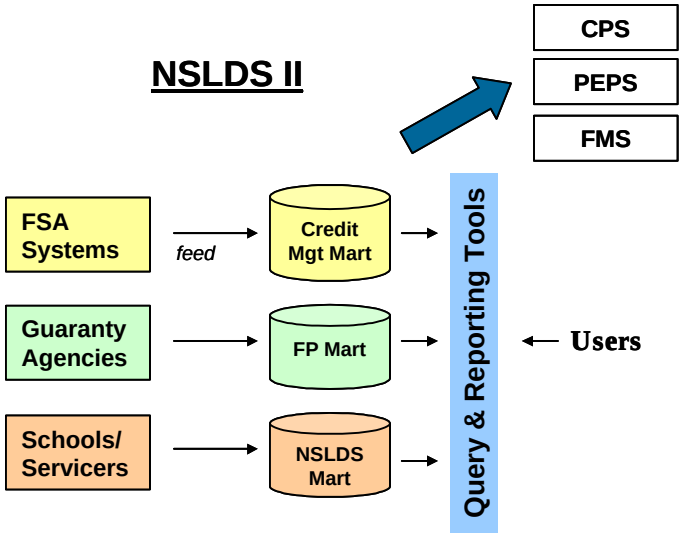

Figure 2.2 Option 2 for NSLDS Architecture – Expand Existing Data Marts

Some major advantages of this option are:

- A staggered investment approach, meaning that rather than retiring and re-platforming all NSLDS functions at one time, portions of NSLDS functionality can be retired from the existing system as they are consumed by the other data marts
- Lower initial costs, since the platforms and marts are already in place, these would require enhancements rather than initial deployment

Challenges for this option are:

- No longer a single data acquisition infrastructure, making it difficult to position NSLDS II for future "fetches" and feeds into a single repository
- Data acquisition, storage and access are distributed resulting in higher long-term development, infrastructure and maintenance and support costs
- Difficult to create cross-system detail and summary reports and queries

When dealing with historical and analytical data, it is the experience of the Modernization Partner that the best practice is to build an enterprise data warehouse. As this data warehouse is built, it should be placed on a platform that can take advantage of best-of-breed COTS tools, such as Informatica and MicroStrategy, to streamline the data acquisition and data access processes. These solutions will help achieve the objective of increasing customer satisfaction through improved data usability and reduced operational costs.

2.2 Internal FSA Direct Access

Another key element of NSLDS II Reengineering is to provide direct access to more timely information for FSA-maintained aid. This includes detailed information from internal FSA systems regarding direct loans, Pell grants, default collections, and demographic data for students, schools, lenders, servicers and GAs. These FSA-maintained systems send NSLDS flat-file data extracts as follows:

- CPS, which sends student demographic information (quarterly)
- PEPS, which sends school and partner demographic information (weekly)
- RFMS / PGRFMS (to be replaced by COD), which sends Pell grant information (daily)
- DLSS, which sends direct loan servicing information (weekly)
- DMCS, which sends loan default and grant overpayment information (weekly)

As listed above, NSLDS receives its data at varying intervals, resulting in old, stale data and inconsistent "snapshot-in-time" views within its database. Opportunities to improve this process are:

- Acquiring data more frequently from FSA systems
- Standardizing the timing of data feeds to have a consistent effective date

In order to address these opportunities, NSLDS II Reengineering is exploring two methods for implementing timeliness improvements:

- **"Push" Method**, which continues to rely on the existing approach of "pushing" data from source systems into NSLDS II, while introducing improvements in the frequency and standardizing the timing of data feeds
- **"Fetch" Method**, which provides for the direct access or "fetching" of data from source systems for FSA-maintained aid and NSLDS II for other aid programs (e.g., FFEL, Perkins)

"Push" Method

In the "push" method, FSA systems would extract changed records daily (vs. weekly, monthly or quarterly) and send the data to NSLDS II over the EAI bus. As a result of these daily feeds, data for FSA-maintained aid stored in NSLDS II would be consistent and current. Since NSLDS II will also continue to store FFEL aid, Campus-Based aid and enrollment information, the EAI bus does not need routing logic to support transactional requirements such as eligibility checking. For example, when CPS requests pre-screening data from NSLDS II, it would still deliver pre-screening data from its own database as it does today. However, NSLDS II would now have data for FSA-maintained aid that is only one day old, rather than a week old.

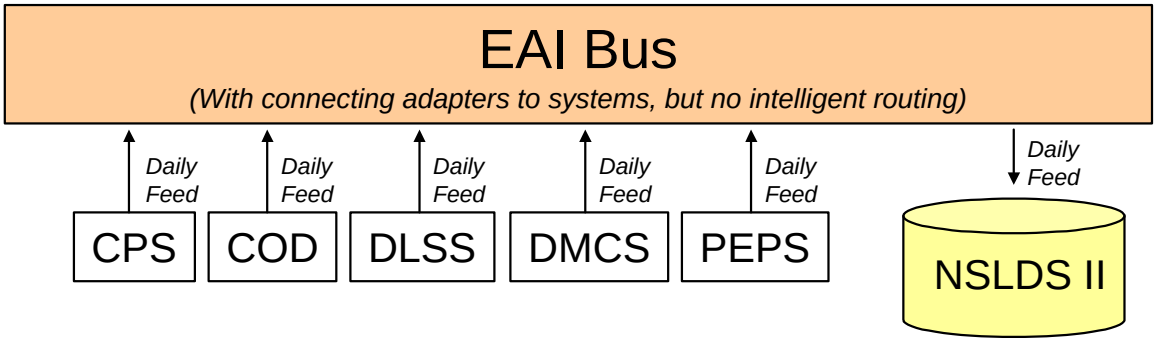

Figure 2.3 "Push Method"

Advantages of this method are:

- Eliminating the "snapshot-in-time" views issue
- Improving the timing so that data in NSLDS II is as current as one day old
- Minimizing peak time processing burden for queries against core systems (unlike the "fetch" option below)
- Reducing error correction cycles

Challenges for this method are:

- Data in NSLDS II may not be as current as the source system
- Requires minor changes to core systems to "push" data more frequently
- Uses the existing batch data exchange capabilities of EAI, rather than exploiting its potential real-time data "fetch" capabilities

"Fetch" Method

In the "fetch" method, NSLDS II would directly fetch FSA-maintained aid data from FSA systems. It would do so using an intelligent router to point to the source systems and an aggregator to assemble the returned data. The EAI bus will continue to query NSLDS II for FFEL aid, Campus-Based aid and enrollment information. For example, when CPS requests pre-screening data from NSLDS II, the EAI bus would contain the logic to know where to go – DLSS, DMCS, COD, etc. –directly to get direct aid data, and to NSLDS II for FFEL and Perkins data. The EAI bus would also have the logic to assemble pre-screening data results "fetched" from these systems.

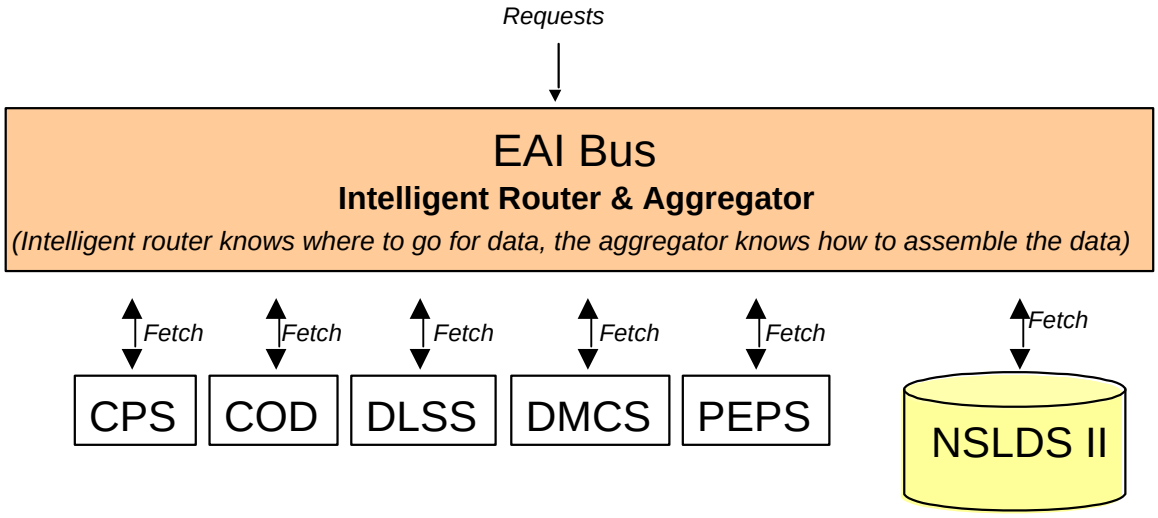

Figure 2.4 "Fetch Method"

Advantages of this method are:

- NSLDS II delivers functions with the most current data possible
- Positions FSA for the future by taking advantage of the intelligent routing and aggregation features of the EAI bus

Challenges of this method are:

- Issuing large real-time queries against FSA core systems (DLSS, COD, DMCS, etc.) could cause adverse performance impacts
- Requiring potential major changes to core systems to accept real-time queries
- Introducing higher level of complexity by providing routing intelligence and aggregation within the EAI bus

Based on the NSLDS II business requirements, real-time access to FSA-maintained aid is not essential – particularly since most of the source systems are updated in batch instead of real-time. Direct access to these source systems may only provide access to day-old data. However, creating the infrastructure to deliver near real time access to FSA-maintained aid is the correct modernization step to take toward improving the quality of NSLDS.

2.3 FP Data Feed Reengineering

One of the main tenets of future NSLDS Reengineering (NSLDS III) will be to focus on improving the quality of detail FFEL loan data feeds submitted to FSA. Currently, FFEL loan details are submitted to FSA through a network of 36 GAs on a monthly basis (Figure 2.5). Today, loan details pass through a series of edits along this path into NSLDS. Each GA receives data from the lenders and servicers for whom they guaranty loans, on at least a quarterly basis. Before acceptance, the GA may validate the data for format but most do not validate it for content by reconciling the data to their own system. This validation process varies from GA to GA and is completely outside the scope of the existing NSLDS. Once on the GA system, the Data Prep software extracts data from the GAs source system(s) and executes a set of edits once a month. Next, Data Prep slims down the monthly extract file to include only those records that changed since the last data submission. The extracts and edits performed on the GA system by Data Prep are common to all GAs. GAs also report on their own portfolio of loans to NSLDS. This portfolio is comprised of loans on which the GA has paid a claim to the original lender and the GA is now the holder and servicer of the loan. Existing monthly data feeds to NSLDS represent a combination of these two types of detail information for loans that have changed in the GAs system since the latest monthly submission.

Separate from the loan detail data feed to NSLDS, GAs also submit summary loan portfolio information on the Guaranty Agency Financial Report (Form 2000) directly to the FSA Financial Management System (FMS). GAs use Form 2000 to request payments from and make payments to ED under the FFEL Program. ED also uses this information to monitor the agency's financial activities, including activities concerning its federal fund, the operating fund, and the agency's restricted account. GAs must maintain detailed records to support each entry on the Form 2000 and be able to reconstruct the entries back to individual loan, borrower or lender levels, or to specific GA level transactions. This includes keeping accurate records of reinsurance payments and collections on defaulted loans at the loan and borrower level. ED's instructions to the GAs state that records must be available for verification by the Secretary of Education or other authorized representatives of the U.S. Government.

While the two feeds created separately and are sent to different destinations, the summary information on the Form 2000 must be consistent with and comparable to relevant detail information reported to NSLDS by the GA. Currently, minimal reasonability checks are performed to verify that data consistency is evident.

Independent of detail loan data submissions to GAs, FFEL lenders are also required to submit a quarterly summary of their student loan portfolio data to receive interest subsidies and special allowances and to report origination / lender fees due to ED. ED will pay the interest on eligible FFEL loans that have a status of in-school, grace or authorized deferment. ED also pays a special allowance to lenders for the life of eligible FFEL loans. These payments are based on the

receipt of a valid lender's Interest and Special Allowance Request and Report, or Form 799. (Note: Form 799 is currently being redesigned. The new, on-line lender reporting system (LARS) application will function similarly to the Form 2000 submission application) Unlike the data submitted by the GAs, because of timing and reporting requirements, summary information reported by a lender on the Form 799 will not necessarily be consistent with and comparable to relevant detailed information reported by the lender to NSLDS through the GA. In fact, audits performed today to enforce financial integrity can only be successfully executed on data that is at least two quarters old.

Based on discussions with internal FSA focus groups, the current model of FFEL data feeds has the following opportunities for improvement:

- The timing delay between quarterly lender/servicer loan detail submission to GAs and monthly loan detail submission by GAs to NSLDS makes the tracking of current loan details difficult to use for customer inquiries, audits and fee payment reasonability checks
- Underlying loans paid-in-full through consolidation do not tie back cleanly to their "parent" consolidated loan
- Accuracy in the reporting of defaulted loan details maintained by the GAs needs to be improved

These three opportunities should be addressed by re-evaluating the quality and quantity of data elements collected as well as the timing and sequencing of data collection from the FFEL loan community.

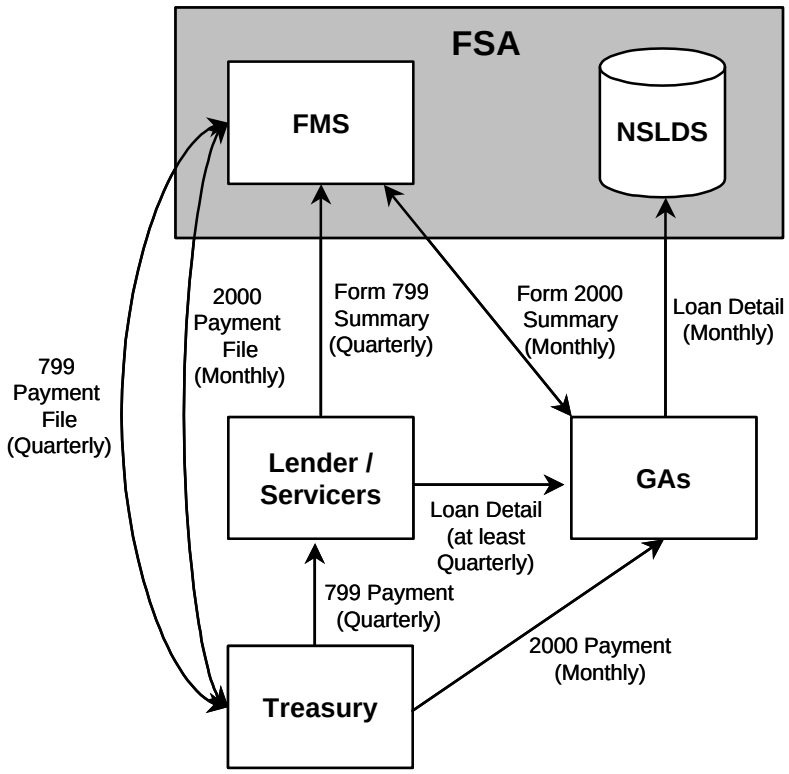

Figure 2.5 "As-is" (effective June 2002) Financial Partner Data Feed Diagram

Data Feed Timing

Given the data flow structure illustrated in Figure 2.5, the major opportunity for increased data integrity is to increase the frequency of data feeds from lenders / servicers to GAs from quarterly to monthly and to align them with the quarterly reporting cycle specific to each lender (Figures 2.6 and 2.7). This improvement can be achieved in a number of ways; two of which are detailed in this document. Both would result in changes to the timing of Form 799 submissions and an increase in reporting frequency from quarterly to monthly. This increase in submission would be a voluntary act on the part of the lender or servicer, but could be incented by the possibility of a monthly fee remittance. Timing changes for these submissions and payments are subject to potential regulatory validation as well as FSA system (i.e., FMS) and Treasury scheduling logistics.

One option for improving FFEL data quality is to work with the GAs and lender / servicer community to fully embrace a common data exchange standard for use in data exchange between FFEL loan data providers (Figure 2.6). Acceptance of a standard, Common Account Maintenance (CAM), is well underway, but to-date has not been fully accepted and

implemented by the Financial Partner community. Adherence to this standard would help raise the level of quality for data passed to GAs and ultimately to FSA.

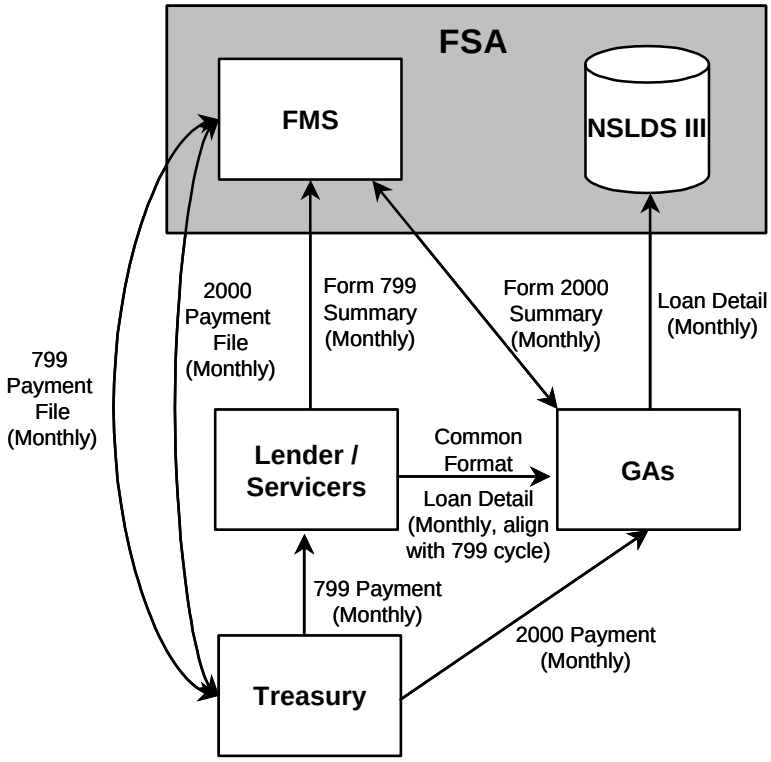

Figure 2.6 Option 1 for Financial Partner Data Feed Reengineering– Common Format

Another option to achieve the desired improvement is to add an Integrator to the process (Figure 2.7). This FFEL Integrator would play the role of a single FFEL repository and act as the "source" of FFEL loan data for FSA. Edit checking and validation would be centralized at this location. This option would also provide a single destination for lenders, servicers, and GAs to submit FFEL loan details, eliminating a large number of data feeds between multiple GAs and lenders / servicers. Rather than each lender / servicer sending a data feed to each of its associated GAs, it would send one data feed to the FFEL Integrator. Rather than NSLDS III receiving data feeds from each of the 36 GAs, it would receive a single integrated data feed from the FFEL Integrator.

The GA would also benefit from this integration as it would receive a single feed from the FFEL Integrator rather than data feeds from multiple lenders and servicers. In addition to this reduction in data transmission burdens, this new model also provides a FFEL loan data repository where corrections, validations and reasonability checks can be performed on isolated financial partner data instead of using the data warehouse platform.

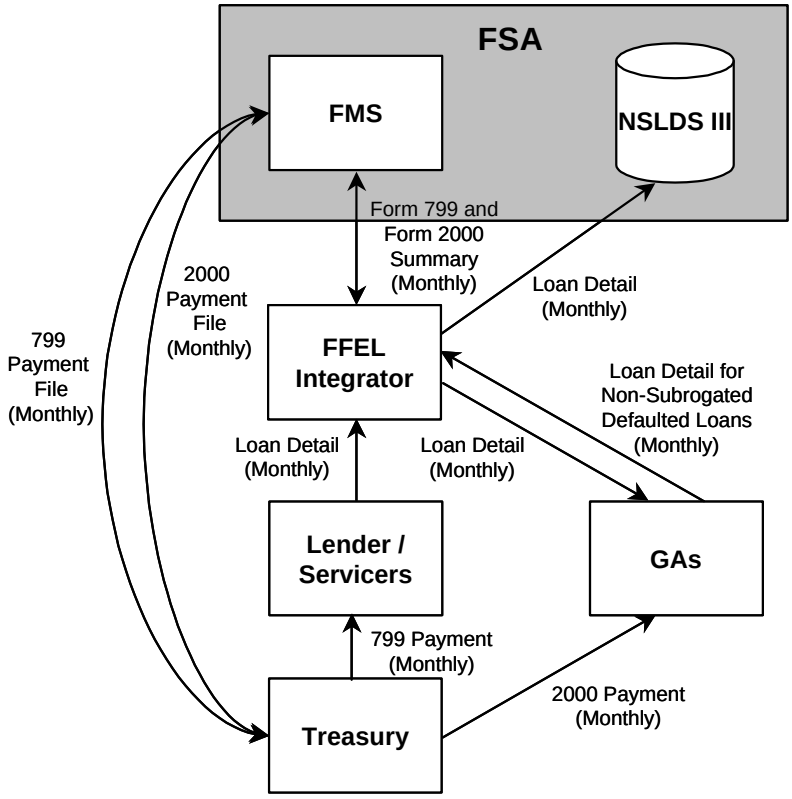

Figure 2.7 Option 2 Financial Partner Data Feed Reengineering – FFEL Integrator

The creation of a new entity in this space raises some logistical and business questions. For example, two major open issues are, 'Who performs the role of this new FFEL Integrator?' and 'What affect will this change have on the role and contractual agreements between lenders and servicers?'. One potential candidate for the role of FFEL Integrator is the creation of a Mutual Benefit Corporation funded by GAs. During later NSLDS phases much more research and discussion will focus on these questions as well as the design impacts on the Financial Partner community.

Tying underlying loans to Consolidation Loans

The consolidation loan is a relatively new student aid program. Consolidation loans enable borrowers to pay off loans (in some cases even defaulted loans) through the creation of a new consolidated loan. These programs simplify loan repayment by combining several types of federal education loans, which may have different terms and repayment schedules or may have been made by different lenders, into one new loan. The interest rate may be lower on one or more of the underlying loans. In addition, the monthly payment amount on a consolidation loan is usually lower and the amount of time to repay may be extended beyond what was

available in the separate loan programs. These features should result in more manageable debt and should make borrowers less prone to default. Each of these features provides great flexibility to the students and borrowers.

With this new loan vehicle came the logistical challenge of properly reflecting status and applying transactions to each loan involved in consolidation. Add to this challenge the fact that the underlying loans can be from multiple lenders and/or GAs, ED Collections, as well as the Direct Loan servicer and the potential for error and inconsistency is heightened. Finally, the NSLDS of today was not designed to handle this level of interdependence. Members of multiple FSA organizations have indicated that they need to be able to verify within NSLDS that the underlying loans of a consolidation loan are reflecting accurate status and amounts. Recent enhancements to NSLDS to address the "paid-in-full through consolidation" related status may help address this issue going forward, but the historical loan consolidation data is not adequate to meet the needs of the users. Research into potential changes to the current NSLDS data model as well as the data cleansing options should be conducted to determine the best way to accommodate the cross referencing of existing underlying loans to their related consolidation loan.

Improved Data Accuracy

By design, the source of NSLDS FFEL data is the network of 36 GAs. To address the user community's concerns regarding data accuracy and integrity, FSA must work with this network of GAs to improve the quality and quantity of information maintained and reported by each GA. As part of the reengineering effort, the team will work with the GA community to identify areas for improvement in data accuracy in two key data collection areas:

1. Detailed defaulted loan data from GA systems
2. Loan status reporting from Financial Partners

Improving the quality of detailed defaulted loan information will enable the CFO and FP organizations to better gauge the performance of GAs as well as the financial picture of the debt serviced by each partner institution. Bettering this information will also give a head start to the FSA Debt Collections team by providing better background information if and when these defaulted loans, currently serviced by the GAs, are subrogated to ED for collection.

A critical component of eligibility information is the status of Title IV loans issued to a potential borrower. Improving the quality of this important decision-altering data element will have a large effect on the quality of eligibility data mined from NSLDS. Loan status is also used to determine and/or validate many financial payments both to and from ED with regard to its Financial Partners. More accurate reflection of loan status will have a direct effect on the quality and integrity of Account Maintenance Fee (AMF) and Loan Processing and Issuance Fee (LPIF) payments as loan status is directly related to the calculation of these fees. In addition to these fees, improvement in status information coupled with improved defaulted loan information

will lead to better financial integrity regarding Reinsurance Claims paid to GAs. Improving the quality of these two critical data areas is core to improving the use of NSLDS to make credible financial and eligibility decisions.

Ultimately, as the largest source of Title IV Aid, the overall quality of data in NSLDS is very dependent on the quality of FFEL data received from lenders, servicers and GAs. Improvement in the quality of this data has already been achieved through focused clean-up efforts and process improvements on the part of GAs working with lenders and servicers as well as the current NSLDS staff. The goal of FFEL Loan Data Feed Reengineering is to build on these efforts and continue to improve this critical FFEL loan detail information to better service NSLDS customers.

2.4 Outsourced Enrollment Tracking

Since the passage of the Higher Education Act of 1965, schools have been required to confirm and report the enrollment status of attending students who receive Title IV Aid. This reporting process is called the Student Status Confirmation Report (SSCR). A student's enrollment status determines his or her deferment privileges and grace periods, as well as the government's payment of interest subsidies. It is also a primary driver of loan status; one example is that six months after a borrower's status changes from "in-school full time" to "graduated" their loans will change status from "in-school/in-grace" to "in repayment". Accurate loan status has many financial and eligibility implications including proper calculation of Cohort Default Rate. The SSCR is critical for effective administration of Title IV loans. It is the primary means of verifying students' loan privileges and the federal government's monetary obligations.

In the past, GAs assumed responsibility for SSCR on behalf of the lenders that they served. Schools received a roster from each agency responsible for borrowers who were enrolled at their institution and verified enrollment for each. As the loan programs grew and technology advanced, this process became increasingly inefficient. In 1994, ED began using NSLDS to track and monitor student loan borrowers and grant overpayments and has since incorporated SSCR into the NSLDS to centralize and automate the enrollment verification system.

Currently, NSLDS generates an SSCR Roster File and places it in schools' Student Aid Internet Gateway (SAIG) mailboxes on the first business day of the month. This is determined by the SSCR schedule that schools have set-up through online NSLDS screens. Each institution is required to provide its enrollment update responses to the SSCR Roster File within 30 days of the roster's arrival in the institution's mailbox.

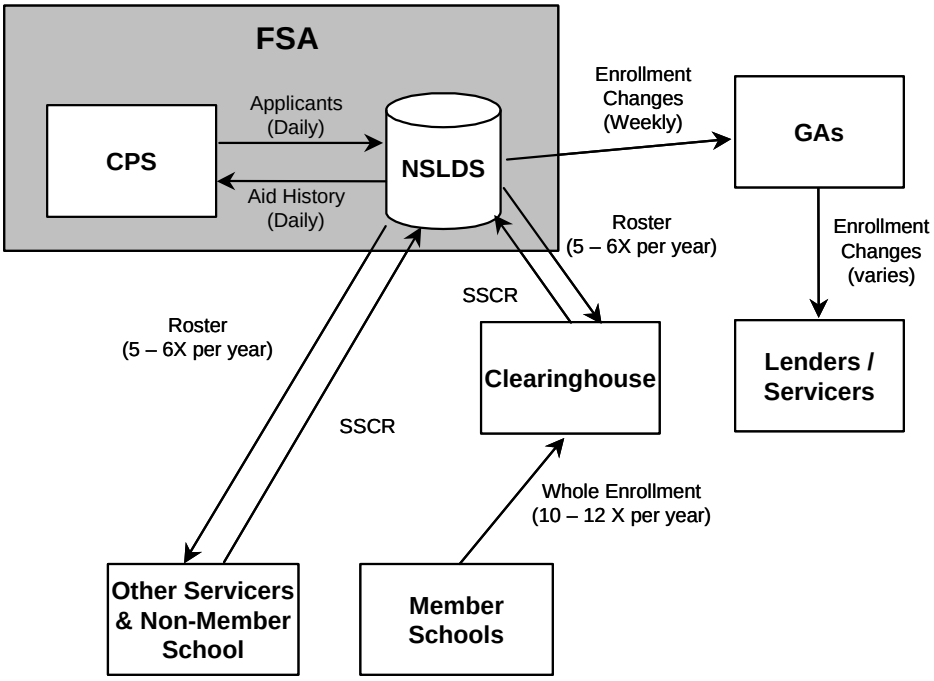

Figure 2.8 "As-is" SSCR Reporting and Submission Process

Along with program growth and technical advances, servicers have also emerged as options for schools to employ for the performance of their enrollment reporting functions. One such enrollment servicer is the National Student Clearinghouse. The Clearinghouse is the largest enrollment servicer, representing about 2600 of the over 7000 institutions with nearly 80% of Title IV Aid recipients' enrollment information. As a participant of the Clearinghouse each member school sends a copy of their entire enrollment to the Clearinghouse 10-12 times per year (average). Members then indicate via the NSLDS SSCR Web Interface that, rather than mailing SSCR information to the school directly, NSLDS should send SSCR information to the Clearinghouse for processing. Then, using the SSCR process description above, the Clearinghouse acts and is treated as a school (Figure 2.8).

After sketching out the data flow processes, the redundancy in the existing SSCR process takes shape. It appears that efficiency gains could be realized if FSA outsourced the remaining 20% of enrollment processing to the Clearinghouse. Then, rather than retaining a redundant copy of this data, FSA would contract with the Clearinghouse to be the official FSA source for enrollment data. The Clearinghouse would be placed on the EAI bus to take advantage of the FSA Modernization Plan architecture (Figure 2.9). By placing the Clearinghouse on the EAI bus, daily changes made by schools within the Clearinghouse database would be available for decision and inquiry functions performed across FSA systems, like CPS. Another potential

functional improvement the Clearinghouse could provide is direct enrollment change feeds to lenders / servicers in addition to GAs.

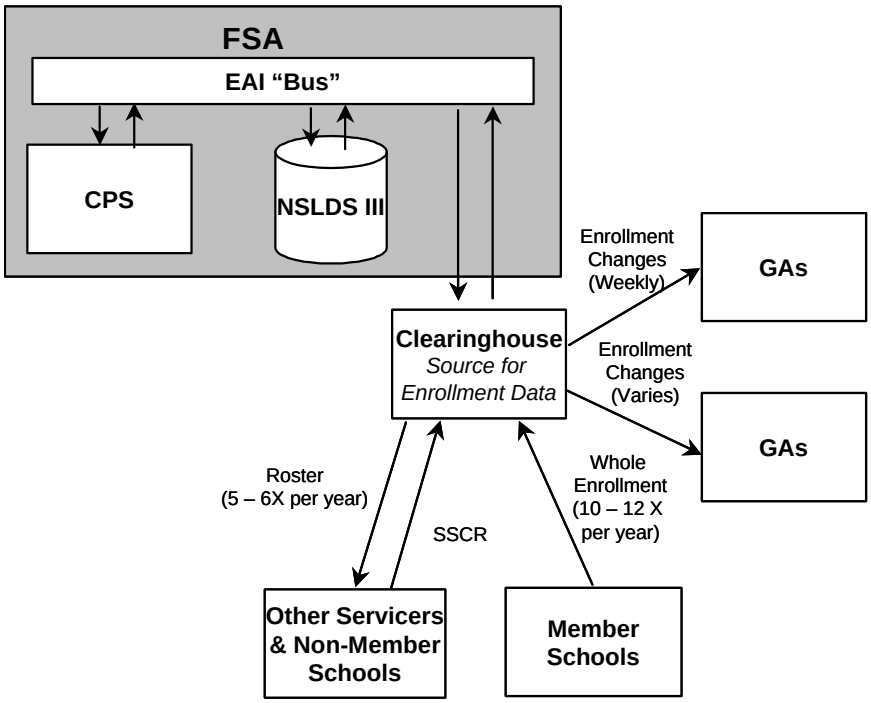

Figure 2.9 "To-be" SSCR Reporting and Submission Process – Clearinghouse

This process change would enable FSA to take advantage of a repository dedicated to enrollment data and to track information and history not retained in today's FSA systems. For example, as part of the services provided, FSA could have the Clearinghouse maintain enrollment history, including a history of enrollment status changes and their associated effective dates. In addition to history, more focus should be also placed on accurately reflecting the true enrollment status of borrowers who have graduated rather than withdrawn from an institution (today, since this distinction has no financial or eligibility implications, the Clearinghouse does not actively make schools distinguish between the two status). These types of enhancements would improve the usability of the FSA data by adding new dimensions FSA data repositories.

Outsourcing enrollment processing raises significant questions, including:

- **Cost-Benefit:** Does outsourcing this function and paying a premium to the Clearinghouse really save enough operational cost to justify the changes?

- **Agent of ED:** What contractual provisions will be necessary between ED and the Clearinghouse to protect the government's interest, data privacy and security? Will these provisions be acceptable to the Clearinghouse?

Cost-Benefit

Before implementing a model that would outsource enrollment data tracking and storage to the Clearinghouse, a thorough Cost Benefit Analysis (CBA) should be performed. This CBA should assess the viability of an outsource model and its impact on the operational costs of NSLDS.

Agent of ED

By outsourcing enrollment processing to the Clearinghouse and effectively proclaiming it the official ED source of enrollment data, certain rights and assurances will need to be contracted to protect government interests. For example, in the event the Clearinghouse could no longer perform its contractual duties, ED would need to have access rights to the data and be prepared to assume responsibility for relocating data processing operations. Also, schools that are and wish to remain non-members of the Clearinghouse must be able to retain the same rights to privacy of data as they enjoyed when ED ran the SSCR process through NSLDS. In short, to protect the rights and interests of the involved parties, these issues and more would need to be explored with each organization involved. Finally, clear contractual language should be crafted to address the concerns of the participants.

3.0 Functional Requirements

The purpose of the NSLDS II Functional Requirements is to identify the business needs that will allow end users to execute their tasks accurately and efficiently when using data from NSLDS. The functional requirements were gathered through discussions with key stakeholders from various business units within FSA.

The functional requirements for NSLDS II have been developed to support the following core NSLDS functions:

- Student Aid Eligibility
- Financial Aid History
- Student Transfer Monitoring
- Loan Transfer Tracking
- Payment Reasonability
- Cohort Default Rate
- Enrollment Tracking
- Audit and Program Reviews
- Research and Policy Development
- Budget Formulation and Execution

The following chart describes the layout for each core requirement of NSLDS:

Column	**Description**
Function	Name of the NSLDS II core business function.
Function Description	Describes the background, objective, and existing requirements of the function.
Focus Group Key Points	Documents feedback provided by stakeholders during focus group meetings.
Key Point Impacts	Lists the business needs that should be addressed in the release of NSLDS II.

Function:	3.1 Student Aid Eligibility (Individual Loan Level Data)
Function Description:	NSLDS currently supports student aid eligibility verification by housing a searchable single source of aid history for borrowers. This repository is accessed by two processes specifically targeted at assisting other FSA systems gather eligibility information for dissemination to schools, students and financial institutions: pre-screening and post-screening. **Pre-screening** A pre-screening of all Title IV applicants is performed as the first step in identifying whether a financial aid applicant is eligible to receive Title IV Aid. Pre-screening is initiated as a batch request by the Central Processing System (CPS) and occurs for all Free Application for Federal Student Aid (FAFSA) applicants. NSLDS supports this process by identifying applicants who: • Are in default on an existing Title IV loan. • Owe overpayments on a Pell grant. • Have already borrowed the maximum amount allowed based on annual loan limits or aggregate loan limits (based on unpaid principal) for each loan type. **Post-screening** Post-screening is the process of confirming the eligibility of all Title IV screening applicants after the pre-screening has been completed and prior to disbursement. NSLDS supports this process by validating or verifying if any significant changes to an applicant's financial aid history have occurred since the pre-screening that may impact the eligibility for Title IV Aid. For all Title IV Aid, this process is automated and occurs based on automation rules within NSLDS.
Focus Group Key Points:	1. Schools receive more data than is necessary via the ISIR. This happens in part because the student lifecycle has not been analyzed when designing systems to determine specific information needs and at exactly which point in the process this information is needed. 2. Today NSLDS cannot provide real-time information for eligibility checks. NSLDS submits daily batch files to CPS. 3. The number of schools that receive renewal FAFSA transactions each year could be reduced if CPS knew at which school a student is enrolled.

	4. If FAFSA misreporting were tracked in CPS, then the correlation between aid applicants who misreport on their FAFSA and also default on their loan(s) could be calculated.
Key Point Impacts:	The reengineering efforts of NSLDS should address the following new requirements related to student aid eligibility: 1. Ability to provide relevant data to schools throughout the student lifecycle. 2. Ability to approve student eligibility real time.

Function:	3.2 Financial Aid History (Individual Loan Level Data)
Function Description:	NSLDS maintains an integrated copy of a student's financial aid history enabling schools and students to monitor changes over time. For example, authorized users (students, financial aid professionals, etc.) can use a student's financial aid history to determine: • Whether the student is in default or owes an overpayment on a loan or grant. • The student's scheduled Pell grant and the amount already disbursed for the award year. • The student's balance on all loans. • The amount and period of enrollment for all loans for the award year. Providing this service must also be weighed with the schools' need for flexibility in managing student access to financial aid history during loan origination.
Focus Group Key Points:	1. The process of finding a loan in NSLDS can be difficult due to the following factors: • There is no single unique loan ID number. • Three identifiers (i.e., SSN, last name, and date of birth) must be used when searching for a loan. • When a school closes and its servicer does not transfer the loan to ED or continue to service the loan, the school's Perkins loans become very difficult to manage and ED cannot make updates. • HEAL loans do not have a unique identifier. • When a school changes servicers, it is often difficult to determine whose loan identifier to use. • Data submitted to NSLDS often has missing or mismatched loan identifiers. 2. When loans are consolidated, there is no positive loan ID association maintained in NSLDS between the underlying loans and the consolidated loan. As a result, there is no positive confirmation of the loans included in the consolidation loan reflected in NSLDS. 3. The tracking of the loan/borrower history in NSLDS should be improved: • The date on which a loan record was last updated is not provided.

	• The dependency status of the student should be tracked. Knowing this status will simplify the process of determining if a student has already received the maximum loan amount for which he/she is eligible. 4. The current process for updating inaccurate NSLDS data is cumbersome; a more efficient and timely quality assurance (QA) method to request updates is needed. 5. When unscheduled data manipulations are needed, a SPUFI request must be filed with the NSLDS contractor whose response, due to the QA process, could take as long as a couple of months. 6. Once the requested data change is made in NSLDS, it can be overwritten by future data feeds from data providers.
Key Point Impacts:	The reengineering efforts of NSLDS should address the following new requirements related to financial aid history: 1. Ability for each loan to have a single unique key identifier. 2. Ability for direct edits made in NSLDS to remain accurate after future data feeds. 3. Ability to maintain or reduce the number of data exchanges in the loan details submission process that involves the lenders/servicers, GA's, and NSLDS. 4. Ability for data to be retrieved from source systems without degradation in performance standards. 5. Ability to search and locate a loan using a single unique key identifier. 6. Ability to search and locate a loan when key data fields are missing. 7. Ability to make case-by-case edits to data marked as historical (i.e., before a determined date).

Function:	3.3 Student Transfer Monitoring (Individual Loan Level Data)
Function Description:	NSLDS enables a school to place a student who intends to transfer to its institution on a list for monitoring. This function, known as transfer monitoring, is the process of monitoring a student's financial aid history and alerting the requesting school of any changes, other than the default or overpayment information reported in the post-screening process, that may affect the student's current award(s). The transfer monitoring process includes three steps: inform, monitor and alert. • Inform - The requesting school must notify NSLDS when it receives a transferred student. • Monitor – NSLDS will monitor transferred students for a change in financial aid history that may affect current awards for a period of 90 days after the start of the next term. • Alert – When NSLDS creates an alert for a transferred student, it will send an email notice to the requesting school's designated contact person. An alert is generated to the requesting school when a: - New loan or Pell grant is being awarded. - New disbursement is being made on a loan or Pell grant. - Loan or Pell grant (or a single disbursement is) is cancelled - Student's aggregate totals change.
Focus Group Key Points:	None. No substantive comments relating to the student transfer monitoring function in NSLDS were made during the focus group discussions. However, improvements to the overall data quality of student financial aid history will have a direct affect on this area.
Key Point Impacts:	The reengineering efforts of NSLDS should address the following new requirement related to student transfer monitoring: None.

Function:	3.4 Loan Transfer Tracking (Individual Loan Level Data)
Function Description:	NSLDS supports two aspects of loan transfer tracking. One aspect is the monitoring of loan transfer activity by maintaining the dates of sale and names of loan holders. This information helps resolve typical loan identification problems with participants and helps evaluate the administration and billing by lenders and GAs in the FFEL loan program. The other aspect of loan tracking is that NSLDS is required to enable borrowers to identify the current loan holder or servicer of their loan. Tracking the transfer or sale of a loan from one entity to another also facilitates proper notification of the sale or transfer to the borrower. This action is the responsibility of the seller and buyer of the loan, or of the transferring parties. The seller and buyer must also notify the guarantor of the loan.
Focus Group Key Points:	1. The student loan industry is very volatile. Loans are sold frequently between lenders. This may result in the appearance of duplicate records within NSLDS during the transitory period unless the design accounts for this. 2. The correct loan holder information is not known in a timely manner when loans are transferred from one holder to another. 3. When a school closes and its servicer does not transfer the loan to ED or continue to service the loan, the school's Perkins loans can become very difficult to manage and ED cannot make updates.
Key Point Impacts:	The reengineering efforts of NSLDS should address the following new requirement related to loan transfer tracking: 1. Ability to identify redundant data records within NSLDS.

Function:	3.5 Payment Reasonability (Individual Loan Level Data)
Function Description:	NSLDS is used to verify the reasonability of three types of payments made to lenders and guaranty agencies. **Reinsurance Payments to Guaranty Agencies** Reinsurance payments are distributed to the GA's once a loan is defaulted and the GA's have paid a reinsurance claim to a lender. This compensation is monthly and is based on the submission of an ED Form 2000 to FMS by the GA's. Both current regulations and direction from OMB require that detailed level data be collected and retained to substantiate these payments. NSLDS is used to perform this substantiation. **Issuance and Maintenance Fee Payments to Guaranty Agencies** ED pays two types of quarterly maintenance fees to the GA's. These fees are 1) Loan Processing and Issuance Fees (LPIF) and 2) Account Maintenance Fees (AMF). LPIF is calculated as the amount of disbursements for newly guaranteed loans held by the GA for the current quarter * 0.0065. AMF is calculated as the original principal balance of open loans (i.e., the open loan guarantee amount) * 0.001 then divided by 4 to arrive at the quarterly payment. Both current regulations and direction from OMB require that detailed level data be collected and retained to substantiate these payments. FSA calculates these fees based on the detailed records that the GA's currently submit to NSLDS each month. **Interest and Special Allowance Payment to Lenders** ED pays lenders Interest and Special Allowance payments in accordance with Federal credit accounting regulations. This quarterly compensation is based on the submission of the ED Form 799 to FMS by the lenders. The data to substantiate these payments is received monthly from GA's and housed in NSLDS.
Focus Group Key Points:	1. Statutory requirements may allow for not more frequent than quarterly interest and subsidy payments to lenders. This needs to be researched with Program Development and OPE. 2. The GAs bridge the gap between the loan identifiers in the lenders'/servicers' systems and the loan identifiers used in NSLDS. Until each loan has a unique identifier, the GAs need to be included in the submission process of the loan details from lenders/servicers.

	3. In order to calculate an average daily balance, one must have the balance of the loan every day. If FSA is to pay lenders based on NSLDS data, FSA must either collect the daily balance on each loan or require the lender to provide the average daily balance to NSLDS. 4. While FSA would like to receive loan level data directly from the lenders (i.e., source system), as this may reduce data integrity issues due to better control of the data, this data is not necessary to perform a "clean audit". 5. Collection information (defaulted loans held and serviced by the GA) from GA's should be more accurate. This will allow the CFO group to perform better reasonability checks, enhanced reporting, and more accurate budget analysis. 6. Form 799 should contain risk category information. This will allow for improved budgeting and distribution of funds. 7. The frequency of FFEL loan reporting needs to increase. Currently, the lenders report quarterly, while the GA's report monthly. This makes for a considerable lag time between update and correction submissions until its reflection in NSLDS.
Key Point Impacts:	The reengineering efforts of NSLDS should address the following new requirement related to payment reasonability: 1. Ability to reconcile default payments to GA's with loan level details before reinsurance payment.

Function:	3.6 Cohort Default Rate (Individual Loan Level Data)
Function Description:	NSLDS supports the calculation and analysis of cohort default rate (CDR). This is the process of calculating and assessing draft and official CDRs that reflect a measure of the overall default rate for student loan programs. NSLDS also supports the generation of the Loan Record Detail Report (LRDR) used by schools for reviewing rates and potential submission of challenges and appeals. The CDR is defined as the percentage of a school's student borrowers who entered repayment on FFEL and / or direct loans in the cohort fiscal year who default on those loans during the same or following fiscal year. For example, the fiscal year 1999 Official CDR was calculated and mailed to recipients in fiscal year 2001. ED calculates draft and official CDRs for schools, lenders and GAs using data from NSLDS. Each draft and official rate is sent to the recipient with a copy of the corresponding LRDR. A school can also request a monthly Repayment Information Report (notional CDR), either in a summary format or detailed file format, from NSLDS, to preview the data that will eventually feed into the school's draft or official cohort default rate. A draft CDR is calculated in January, and mailed to schools in February. Official CDRs are calculated in August, and mailed to all recipients in September. ED is required by statute to notify schools of their CDR by September 30. A school may challenge its draft CDR and may, in some instances, appeal or request an adjustment to its official CDR. Timeframes for the submission of challenges and appeals are strictly outlined based on existing regulation. A school with a low CDR may qualify for specific regulatory exemptions while a school with a persistently or excessively high official CDR may lose FFEL, Direct Loan and / or Pell grant eligibility. In addition to the draft and official CDR, ED produces a Repayment Information Report, or notional CDR, monthly to assist schools in monitoring their current rate on an ongoing basis. A CDR is also calculated and published for each lender and GA. There are currently no consequences or benefits associated with lender and GA CDRs. Due to a lack of consequences, the lender or GA cannot appeal its rates if it identifies discrepancies in the data. (Note: Data corrections by schools, made by GAs, would be reflected in the lender and GA rates.) Schools are currently notified of their draft and official rates through a paper based mailing (this information is available through NSLDS on line by

	request of an individual school but this is not an automatic notification). The Default Management office is exploring an electronic enhancement for this paper-based process. The solution would possibly require that PEPS push the notification letter to NSLDS where it compile the notification letter and the LRDR, then pushes this information out to the school's Student Aid Internet Gateway (SAIG) mailbox. At this point, lenders and GAs are not being considered for these electronic mailings.
Focus Group Key Points:	1. The quarterly timeframe for submitting loan details by lenders / servicers explains the reason why all loans are not included when calculating a draft or official cohort default rate. 2. There is only integration of FFEL and direct loan (not Perkins) portfolios when calculating the cohort default rate. 3. Tracking of consolidated loans (FFEL and Direct) should be improved. These loans and their statuses have a big impact on the calculation of CDRs. 4. Schools should receive consolidated (FFEL / Direct Loans) delinquency reports on a regular basis so that they can better manage their portfolio to prevent defaults. If a school participates in both the FFEL program (and has multiple GAs), and the DL program, then it receives multiple delinquency reports.
Key Point Impacts:	The reengineering efforts of NSLDS should address the following new requirement related to cohort default rate: 1. Ability to track delinquent loans (FFEL and Direct) that are not yet in default. 2. Ability to support an electronic solution for distributing draft and official CDR notification packages.

Function:	3.7 Enrollment Tracking (Individual Loan Level Data)
Function Description:	NSLDS is used to centralize and fully automate enrollment tracking. Enrollment tracking is the process of reporting student status changes correctly and in a timely manner to the loan holder. This information enables loan holders to perform the critical steps of placing a borrower into repayment, initiating repayment grace periods, and extending in-school deferments. Status changes include the identification of borrowers who have: • Withdrawn / Graduated from school. • Transferred from one school to another. • Returned to school and are eligible for a deferment. • Continued in school and are eligible for a deferment extension. NSLDS orchestrates the Student Status Confirmation Reporting (SSCR) process by creating a single, consolidated roster and by sending loan holders a consolidated enrollment status file of information about their borrowers. NSLDS accepts and applies corrections and changes to the database upon return of the updated roster.
Focus Group Key Points:	1. Only one enrollment status can be assigned to a student for one time period, however a student could be enrolled in multiple schools simultaneously. 2. The enrollment history of a student could be made clearer by having to-from dates. 3. In order to maintain a high level of customer service, schools need the ability to submit Title IV student enrollment information online. 4. The Clearinghouse's enrollment records often only use two enrollment statuses: enrolled or withdrawn. When the school does not report that a student is enrolled after the expected graduation date, the status of withdrawn is automatically applied to this student. The Clearinghouse does not verify this enrollment status with the school.

Key Point Impacts:	The reengineering efforts of NSLDS should address the following new requirement related to enrollment tracking: 1. Ability to collect and display enrollment statuses for a borrower enrolled in multiple schools for the same time period.

Function:	3.8 Audit and Program Reviews (Individual Loan Level Data)
Function Description:	NSLDS supports the participant selection and execution of Financial Partner audits and program reviews. Audits and program reviews cover a number of compliance areas as defined by ED regulation, including the accuracy of a lender's billing for interest and special allowance. ED and guaranty agencies perform audits and reviews on schools, servicers, and lenders who participate in the FFEL Program. NSLDS also provides auditors and reviewers with detailed data to facilitate participant selection and maximize the effectiveness of reviews. The overall selection criteria for these reviews are as follows: **Schools** • More than 20% cohort default rate in either of the last two years. • At the GA's discretion, review schools that: - Experienced a major increase or decrease in cohort default rate over the previous year. - Are suspected of violating ED regulations based on supporting evidence. **Servicers/Lenders** • Have 2% or more of the loan volume of FFEL loans guaranteed by the GA (by $ volume). • In the top 10 in loan volume (by $ volume) for the GA. • Have $10M or greater in loans held by the GA. • At the GA's discretion, review a servicer/lender that: - Experienced a major increase or decrease in CDR over the previous year. - Are suspected of violating ED regulations based on supporting evidence.
Focus Group Key Points:	1. Loan data (other than status) does not match between the Lender/Servicer system, GA system, and NSLDS (e.g., cancellations remain reflected as loans guaranteed and either awaiting disbursement or already disbursed). 2. Older loans (10+ years old) have incomplete information and historical records at the Lender/Servicer, GA and ultimately NSLDS are not accurate or complete. Reconciliation and resolution of issues with these older loans is very difficult particularly when the loan holder cannot be located.

	3. In the normal course of business, ad hoc queries of NSLDS are necessary. These manual ad hoc queries can be time consuming to generate and execute. 4. There are small lenders that do not provide loan data to FSA (through their GA). 5. Some loan updates never reach NSLDS because of load edits in the data feed process. 6. Perkins loans are not sent from the servicers to NSLDS. 7. There are small lenders that submit loan data in a paper format because they do not have the capability to file electronically via the Internet. 8. Schools are requested to keep their own files / databases and NSLDS accurate but are only audited to ensure the accuracy of their own records. These source databases and NSLDS are not in synch. 9. Reconciliation errors between Lender / Servicer and GA systems cause the reflection of incorrect statuses for FFEL loans in NSLDS (e.g., loans actually paid in full still reflect an open status). 10. The underlying loans of a consolidation, those paid through the act of consolidation, are not properly closed in the NSLDS, GA, or Lender / Servicer system. They are correctly reflected in one system and not others, making reconciliation difficult and time consuming. 11. The GA Reporting schedule should be posted on the user interface. This will assist in determining when the last update was made to the loan record and when the next update will occur. 12. NSLDS needs to have a way to tie underlying loans to a consolidated loan. When reviewing a consolidated loan, it should be possible to determine the amount and status of all underlying loans.

Key Point Impacts:	The reengineering efforts of NSLDS should address the following new requirements related to audit and program reviews: 1. Ability to track and access demographic information about loan records in NSLDS. 2. Ability to receive data from NSLDS without limiting the size of a query result.

Function:	3.9 Research and Policy Development (Aggregate Loan Level Data)
Function Description:	NSLDS supports many analytic functions used in research and policy development. Internal ED offices and external government agencies, as well as other members of the financial aid community use these analytic functions. **Internal and External Analysis** Internal and external analysis is the process of assisting internal (CFO, OIG) and external (CBO, GAO) users in performing research, policy analysis and performance assessment of Title IV aid delivery system participants and aid programs. NSLDS provides data at varying levels of detail – ranging from focused queries about a single student or guaranty agency to queries requiring the aggregation of large amounts of data. **Financial Partner and School Analysis** Financial partner and school analysis is the process of providing guaranty agencies, lenders, servicers and schools with reports for researching and assessing their own performance in administering FFEL aid programs. NSLDS provides data to support this research, which generally aims at evaluating the effectiveness of specific organization and program practices from both short-term and long-term perspectives.
Focus Group Key Points:	1. Data in NSLDS is not accurate and has many inconsistencies and exceptions. This requires a significant learning curve, extensive data knowledge and V&V. This may also require the Program Analysis group to go to each of the source systems, obtain data, judge its quality, and manually assemble reports. 2. A single query tool would be helpful in accessing data in multiple systems and various formats. Queries, unlike the current environment, should yield results quickly. 3. There are gaps in the historical data within NSLDS. There is limited metadata to help understand the data's currency. 4. Standardize the frequency of the data feeds to allow for accurate "snapshot" analysis. 5. NSLDS has history file problems (i.e., data is sometimes lost when rewritten from cycle to cycle).

Key Point Impacts:	The reengineering efforts of NSLDS should address the following new requirements related to research and policy development: 1. Ability to perform hypothetical analysis for reporting purposes. 2. Ability to reduce application maintenance and help desk support costs.

Function:	3.10 Budget Formulation and Execution (Aggregate Loan Level Data)
Function Description:	NSLDS's data is relied upon when formulating and executing the FSA budget, as well as responding to ad hoc budget questions. **Budget Formulation and Execution** Budget formulation is the process of developing input for the President's budget based, in part, on projected loan program costs for a seven-year period. Budget execution is the process of executing the budget within the parameters defined during budget formulation (i.e., money is disbursed as allocated). NSLDS data is used to develop reliable, sound forecasts and program estimates for the Department of Education budget. By providing Title IV-related aggregate amounts (e.g., loan disbursements, collections, defaults) and performing trending analysis, a baseline and possible areas for budget fluctuations from the previous year can be established. **Budget Analysis** Budget analysis is the process of assisting FSA – in particular, the Analysis and Forecasting Division – in responding to budget-related questions from other entities within the ED as well as Office of Management and Budget. NSLDS also assists in performing necessary hypothetical analysis.
Focus Group Key Points:	1. Form 799 should contain risk category information. This will allow for improved budgeting and distribution of funds.
Key Point Impacts:	The reengineering efforts of NSLDS should address the following new requirement related to budget formulation and execution: 1. Ability to receive loan summary information by cohort year, risk category, and loan type.

4.0 Technical Requirements

The technical requirements are driven by the business and functional requirements. This section was developed with two goals: identify technical areas of NSLDS where costs could be reduced, and provide enabling tools and technical infrastructure to support the four-part NSLDS reengineering strategy. For example, an easier data access tool, in which the user does not need understanding of the underlying database or query language, would enable customer and employee satisfaction.

To understand NSLDS's technology costs and drawbacks, it is important to understand NSLDS's three technical components:

- **Data Acquisition** - includes infrastructure related to data feeds, and architectures which considers data feed frequencies, data file formats, edits and error handling
- **Data Storage** - includes database design, database tool capabilities, archiving, indexing, and data segmentation (for example, summary data may be in one database vs. the main detail database)
- **Data Access** - includes query / reporting architecture and tools

The diagram below illustrates how business functions drive data areas, which in turn drive technology.

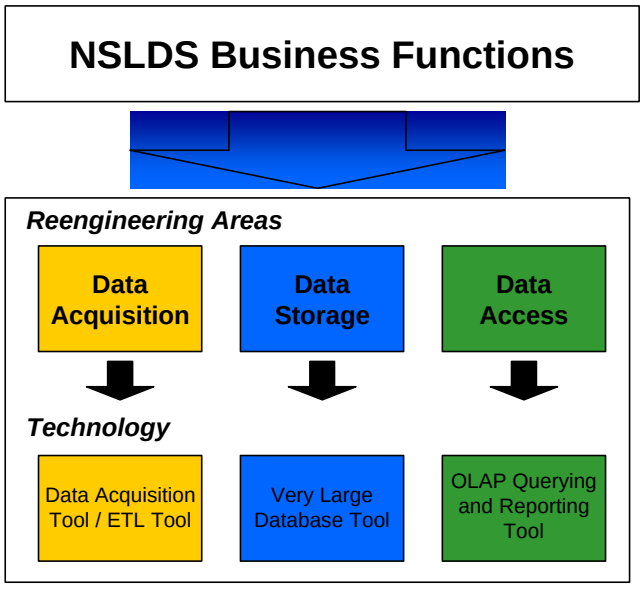

Figure 4.1 Business Function, Reengineering Areas, and Technology Relationship Diagram

The data acquisition area would benefit from a COTS tool that could handle a large number of feeds. Currently, NSLDS uses COOL:Gen generated COBOL to accomplish data acquisition.
The data storage area would benefit from a redesign of the database as well as a database engine that could handle large queries more easily. Currently NSLDS uses DB2 on the mainframe.
The data access area would benefit from a redesign of the query / report architecture and an tool that is intuitive to use. Currently, NSLDS uses either COOL:Gen COBOL for batch queries or allows users access via the mainframe QMF query tool.

Using the above model as a baseline, it can be expanded into a more detailed model of the NSLDS architecture as illustrated below.

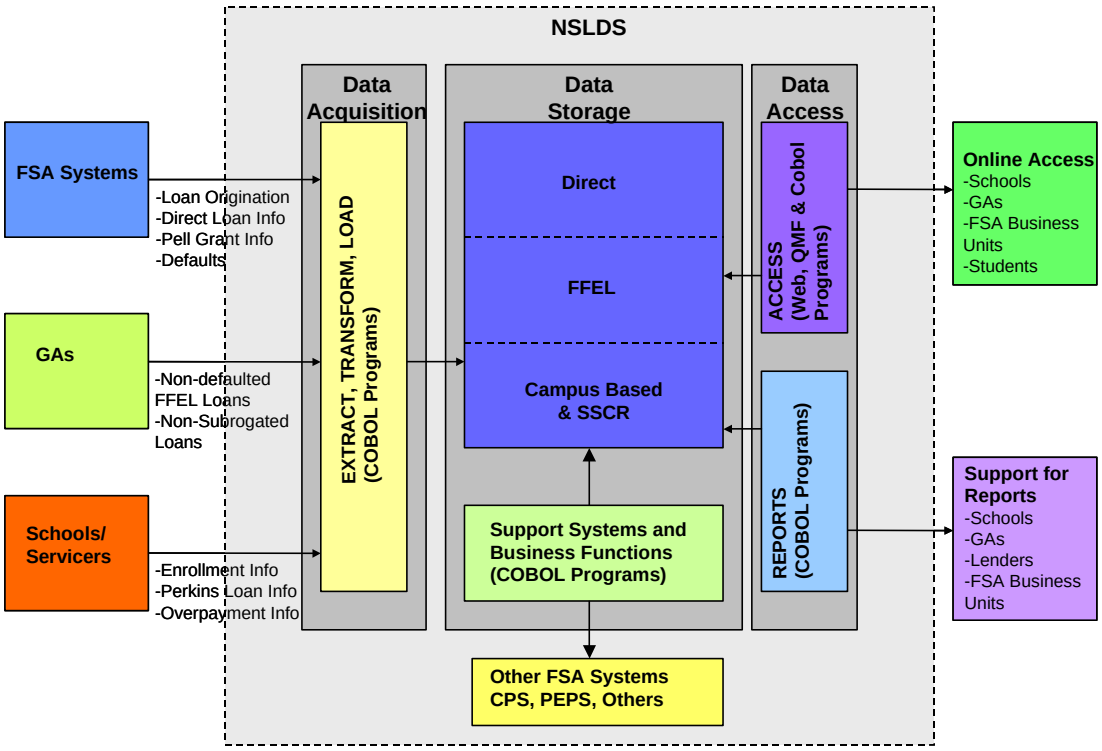

Figure 4.2 "As-is" NSLDS III Data Feed Diagram

These two diagrams represent the framework for both the existing NSLDS and the reengineered NSLDS III. The technology recommendations and requirements that are part of the NSLDS II Reengineering effort build on this framework using modern warehouse tools and architecture. They represent a combination of both Modernization Partner and Industry experience. The following technical requirements were drafted to build a modernized NSLDS II that will deliver higher data quality and customer satisfaction at a lower operational cost.

The following chart describes the layout for each technical requirement:

Column	**Description**
Function	Name of the NSLDS II technical area.
Function Description	Describes the function of the technical area.
Key Considerations	Lists the technical needs and gaps that should be considered in the release of NSLDS II.
Target Architecture Considerations	Lists the technical requirements to address the needs and gaps identified in the Key Considerations section of this chart.

Function:	4.1 Data Acquisition
Function Description:	Data acquisition includes both data feed process reengineering and the technical tools and infrastructure. A data acquisition tool should provide a complete, flexible solution to handle large and multiple data feeds, with extensive editing and "transformation" capabilities so that it is suitable for loading into NSLDS.
Key Considerations:	Currently, NSLDS uses COOL:Gen generated COBOL to perform edits and transformations, and to create reject records. COOL:Gen costs, skill set availability in the marketplace and compatibility with the EAI tool are key considerations in this area.
Target Architecture Considerations:	Key requirements for the data acquisition tool, also known as an extract-transform-load tool (ETL) are: 1. Ability to handle large volumes of data feeds, with extensive editing and transformations required for data scrubbing. 2. Ability to be compatible with MQ-Series (EAI Bus). This is important because under modernization, most data exchanges are envisioned to happen on EAI. 3. Ability to quickly add more feeds. 4. Ability to reduce the overall cost of the ETL tool. • Ability to lower licensing and license maintenance. • Ability to lower ETL development and maintenance costs. 5. Ability to have lower-cost hardware affinity.

Function:	4.2 Data Storage
Function Description:	The Data storage area should be focused on users and delivering functions. Doing this efficiently on a very large database requires solid database design, and archiving and data segmentation strategies.
Key Considerations:	NSLDS currently runs on DB2 on IBM's mainframe platform. The data model is in 3rd normal form, which is not typical of query / report systems. This design may need to move to a "star" or a "snowflake" schema for more efficient query and report processing. Another consideration is having a database engine that can efficiently handle very large databases. The leading database vendors are IBM, NCR Teradata, Oracle, Sybase and Microsoft.
Target Architecture Considerations:	Key database tool requirements for this area are: 1. Ability to quickly load bulk information, without interrupting users' ability to perform queries. 2. Ability to perform fast queries on very large multi-terabyte databases. 3. Ability to handle several thousand to several million users. This is important as NSLDS could be accessed by hundreds of customer service representatives and students and schools to varying degrees. 4. Ability to handle multiple data modeling techniques (normalized, star, and snowflake schemas). 5. Ability to be compatible with multiple industry-leading query / report tools, including MicroStrategy. 6. Ability to lower overall cost. • Licensing and license maintenance costs. • Database development and maintenance costs. • Hardware affinity costs.

Function:	4.3 Data Access
Function Description:	The data access area should provide an easy and efficient way for users to get access to NSLDS's data. This includes having the right database design, the right query and reporting architecture (web, client/server access, etc), as well as a tool.
Key Considerations:	NSLDS provides self-service queries through the mainframe QMF tool or through pre-defined reports. QMF is difficult to learn and users reportedly need to know how NSLDS's database is set up and some of its codes. The pre-defined reports do not yield quick results, and users often get unexpected result sets. Users can also request the NSLDS support staff for reports to be run on their behalf. However, this requires waiting and can be expensive. A key consideration in this area is to move to a self-service model, where users can access data directly from NSLDS with little or no support from the NSLDS staff. This can reduce the overall cost of NSLDS reports by reducing the support.
Target Architecture Considerations:	Key requirements for the data access tool are: 1. Ability to have intuitive user interface, with anytime, anywhere access. This is important because self-service user access to NSLDS is currently difficult. 2. Ability to create ad-hoc queries without significant knowledge of SQL or database design. 3. Ability to handle multiple data models or schemas (star, snowflake or 3rd normal) 4. Ability for performance and compatibility with very large database engines. 5. Ability to make quick changes, as user needs change and more users are added with new needs.

	6. Ability to lower overall cost. • Licensing and license maintenance costs. • Application development and maintenance costs. • Lower-cost hardware affinity.

Cost reductions are likely to occur if NSLDS is re-platformed to a less expensive mid-range platform from its current mainframe platform. Moving to a mid-range platform also offers improved compatibility with other FSA technical infrastructure components, including EAI and data access tools.

5.0 Deployment Requirements

The purpose of the NSLDS II Deployment Requirements is to identify processes and procedures that will assist in successfully implementing NSLDS II for the student financial aid community. The deployment requirements will provide a framework to be followed when transferring NSLDS II from the development stage into the production environment.

The deployment requirements for NSLDS II are developed to support the following objectives:

- FSA's main business concerns are addressed.
- Regulatory, Statutory, and Compliance requirements are met.
- FSA quality assurance standards are observed.
- System operates as designed.
- Data integrity is upheld and improved.
- End users have the ability to operate the system.
- End users are willing to use the new system; "buy-in" has been generated.
- Support and maintenance personnel are in place.

The deployment requirements have been categorized into the following areas:

- Management
- Regulatory, Statutory, and Compliance
- Quality Assurance
- Testing
- Conversion
- Training
- Implementation
- Maintenance and Support

The following chart describes the layout for each deployment requirement:

Column	**Description**
Function	Name of the NSLDS II core business function.
Function Description	Describes the background and objective of the function.
Key Point Impacts	Lists the deployment needs that should be addressed in the release of NSLDS II.

Function:	5.1 Management
Function Description:	FSA business owners must be involved in the conceptual design and support of the new processes implemented as a result of NSLDS reengineering efforts. This requires continuous monitoring of the impacts to the student financial aid community, providing status updates to the student financial aid community when appropriate, and addressing concerns from external and internal stakeholders.
Key Point Impacts:	1. Ability to meet with FSA executives and inform them about NSDLS II progress and solicit feedback. 2. Ability to have executive influence and support from all channels (i.e. business owners) affected by NSLDS II. These business owners include: • CIO • CFO • Students Channel • Schools Channel • Financial Partners 3. Ability to have active participation from key decision makers within each of the channels / business units. 4. Ability for NSLDS II to be signed off by the following key stakeholders: • Harry Feely

Function:	5.2 Regulatory, Statutory, and Compliance
Function Description:	NSLDS II must comply with all directly or indirectly related federal regulations. Direct regulations consist of policies that specifically refer to NSLDS (e.g. only Title IV data may be stored within NSLDS). Indirect regulations consist of policies that are not specifically targeting NSLDS but still affect the business processes it supports (e.g. GPEA).
Key Point Impacts:	1. Ability for NSLDS II to comply with the following directives: • Higher Education Act of 1965, as amended • Credit Reform Act of 1992 • Section 508 compliance standards • Government Paperwork Elimination Act (GPEA) • National Institute of Standards and Technology (NIST) 800-18

Function:	5.3 Quality Assurance
Function Description:	Quality assurance (QA) is the process of verifying that standards are followed when developing the system. Standards help promote quality and consistency during system development.
Key Point Impacts:	1. Ability to develop and execute a quality assurance plan that addresses the criteria and standards outlined in the: • FSA Technology Standards and Products Guide

Function:	5.4 Testing
Function Description:	Testing is the process of verifying the system meets FSA's business and technical requirements, functions as designed, and serves FSA's business processes.
Key Point Impacts:	1. Ability to develop and execute a test plan that includes unit, system, performance, and end-user testing. 2. Ability for the test plan to address at least the following open issues: • Performance testing to handle data greater than one terabyte • Coordinate interface test with large financial community • Coordinate testing with modernized systems as they roll out in advance to NSLDS II implementation 3. Ability to establish a separate development, test, and production environment.

Function:	5.5 Conversion
Function Description:	Data conversion is the process of migrating data from the existing system database to new platforms. Data conversion includes the process of determining which data will be deleted, archived, or transferred to the new system database. It also identifies needed measures to clean, correct, and repair existing data.
Key Point Impacts:	1. Ability to develop and execute a data conversion plan. 2. Ability for the data conversion plan to address at least the following open issues: • Size of the data (greater than one terabyte) • Current interfacing applications • Data sanitization • Fully paid loans • Unique identifiers • Potential use of EAI bus for data internal to FSA • Use of other data marts • Platform implications • Archiving criteria

Function:	5.6 Training
Function Description:	Training is the process of educating end-users about the new system so that they are able to continue performing tasks effectively. Training will allow users to understand the overall process changes and to prepare for the changes that specifically impact, either directly or indirectly, their tasks or area of responsibility. Training also enables a smoother transition to the new system.
Key Point Impacts:	1. Ability to identify training audiences, including maintenance and support personnel. 2. Ability to develop and execute a training plan. 3. Ability to develop and deliver clear and concise training materials to the appropriate audiences.

Function:	5.7 Implementation
Function Description:	Implementation of NSLDS II encompasses all activities associated with the "roll-out" of the new system to the student financial aid community. The implementation timeframes should consider the implementation schedule of other FSA modernized systems when developing the implementation strategy. This will allow for a smooth transition and minimize impact to the user community.
Key Point Impacts:	1. Ability to develop and execute an implementation strategy that identifies rollout phases and a timeline. 2. Ability to develop a communication plan to notify internal/external personnel of implementation. 3. Ability to deploy NSLDS II to a pilot group. 4. Ability to determine criteria for retiring NSLDS.

Function:	5.8 Maintenance and Support
Function Description:	After NSLDS II is implemented, a personnel team will maintain and support the system. This team will fulfill the following duties: • Monitor the system and troubleshoot any problems • Answer end-user questions • Retire NSLDS once NSLDS II retirement criteria is met • Respond to future ad hoc system requirements
Key Point Impacts:	1. Ability to incorporate NSLDS II central call center support as part of Common Customer Care. 2. Ability to develop and monitor service level agreements (SLA's) for performance and reliability with hardware/software vendors. 3. Ability for SLA's to address at least the following open issues: • Backup recovery • Disaster recovery • Response time for query execution • System reliability 4. Ability to develop a resource allocation plan to maintain and support NSLDS II. 5. Ability to develop processes to establish proper maintenance and support is available after "go-live."