



*“We Help
Put America
Through
School”*

FSA Data Strategy: Standard Student Identification Method (SSIM)

Implementation Strategy

August 6, 2003

Meeting Objective and Agenda



Objective:

The focus of this meeting is to break out into groups to discuss change processing and error notification, high level requirements, and overall sequencing.

Agenda:

- SSIM Implementation Recommendation Recap (30 min)

**Please reference SSIM Implementation Recommendation presentation if you need additional information.*

- 2 Breakout Sessions (reps from each system should attend each)
 1. Error Notification and Change Processing Breakout (2 hours)
 2. High Level Requirements/Sequencing Breakout (2 hours)
- Sessions will conclude when each break out group is finished.
- Next Steps :
 1. Results from all groups will be compiled and distributed for review.
 2. Follow up meetings will be scheduled as needed.

Breakout Session Process



Purpose:

To establish implementation guidelines on error notification/change processing and start flushing out high level requirements for the SSIM implementation. May need additional meetings to flush out system specific details.

Process:

- Review Matching Algorithm
- Run through scenario based examples
- Answer key questions
- Brainstorm guidelines/requirements through discussion questions

Key Question Examples:

- Should sending system be responsible for error notification?
- Should error notifications be sent to systems other than the sending system?
- Should there be a centralized error resolution team or FSA resources dedicated at the system level?
- Do systems want to be notified of name and DOB changes backwards in the lifecycle?
- What is the requirement for keeping change history?
- What are the requirements for pseudo SSNs and plug dates?
- Should the algorithm be consistent or can there be system specific changes based on business need?



Recommendation Consensus

The recommended SSIM implementation option consists of two stages, that will allow early realization of the SSIM benefits, but also maintain alignment with the FSA overall vision.

Stage One –

Implement the algorithm at the system level and use centralized routing (EAI) for error notification and change processing.

- Individual application's implementation of the matching algorithm option for processing input files from one system to another.
- Correction processing and error notification would be implemented through centralized routing (EAI) to allow communication/propagation to systems as determined.
- Implementation would begin in the next cycle year.



Recommendation Consensus

Stage Two –

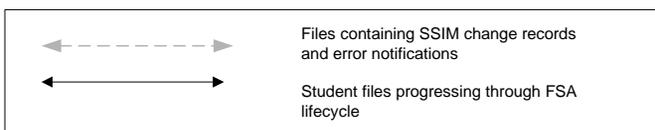
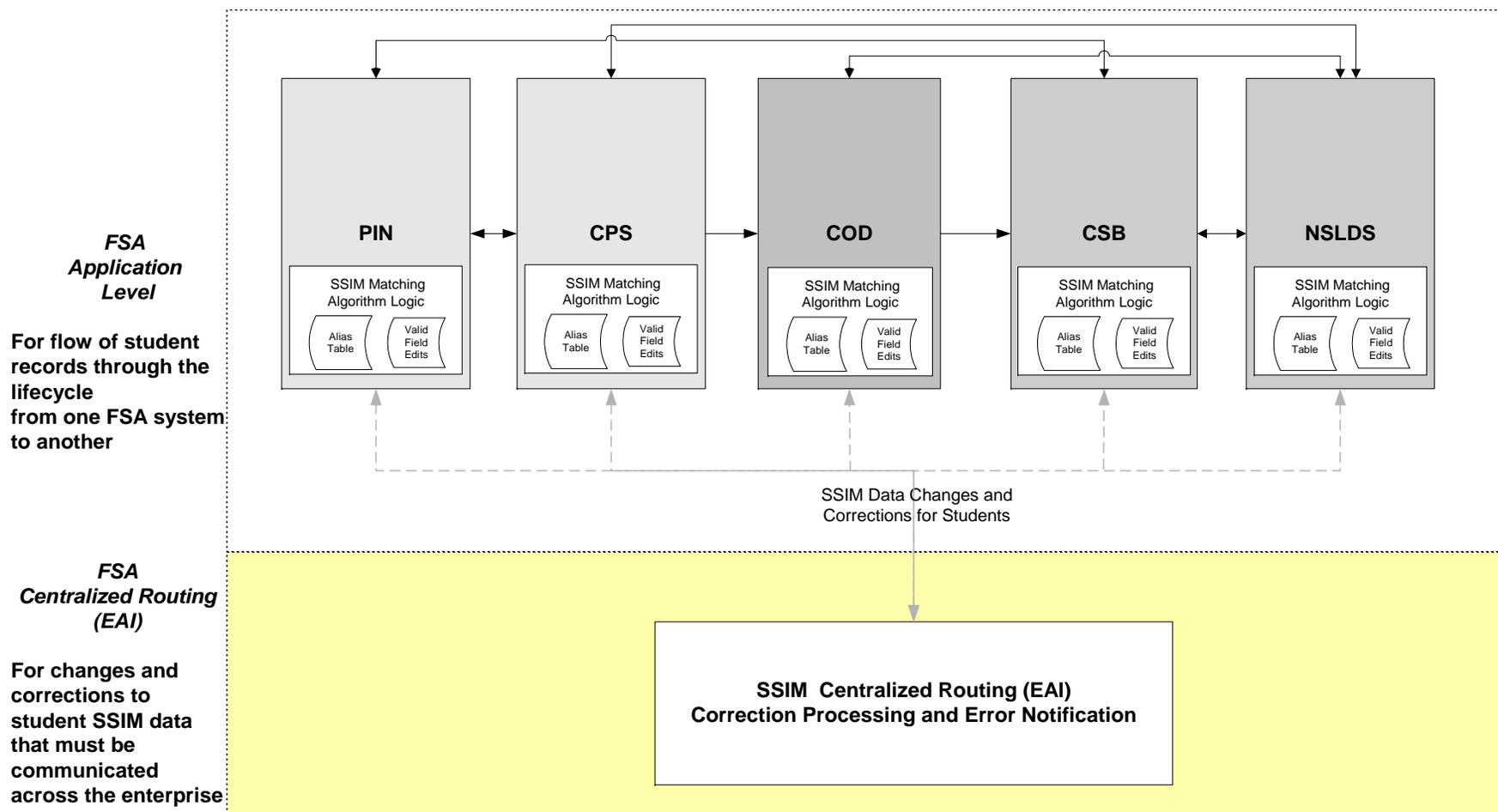
The team will create a picture and high level plan on how to include SSIM in the overall Data Strategy 3-5 year vision. This plan may include the following:

- Maintain current service for identifier changes and updates.
- Assess the value of adding centralized logic as a service for running the matching algorithm against the central data store (may or may not remove logic from individual applications for verification against).
- Permits validation against sending and receiving systems as well as potential central data store.
- Implementation would begin in the next 3-5 years.

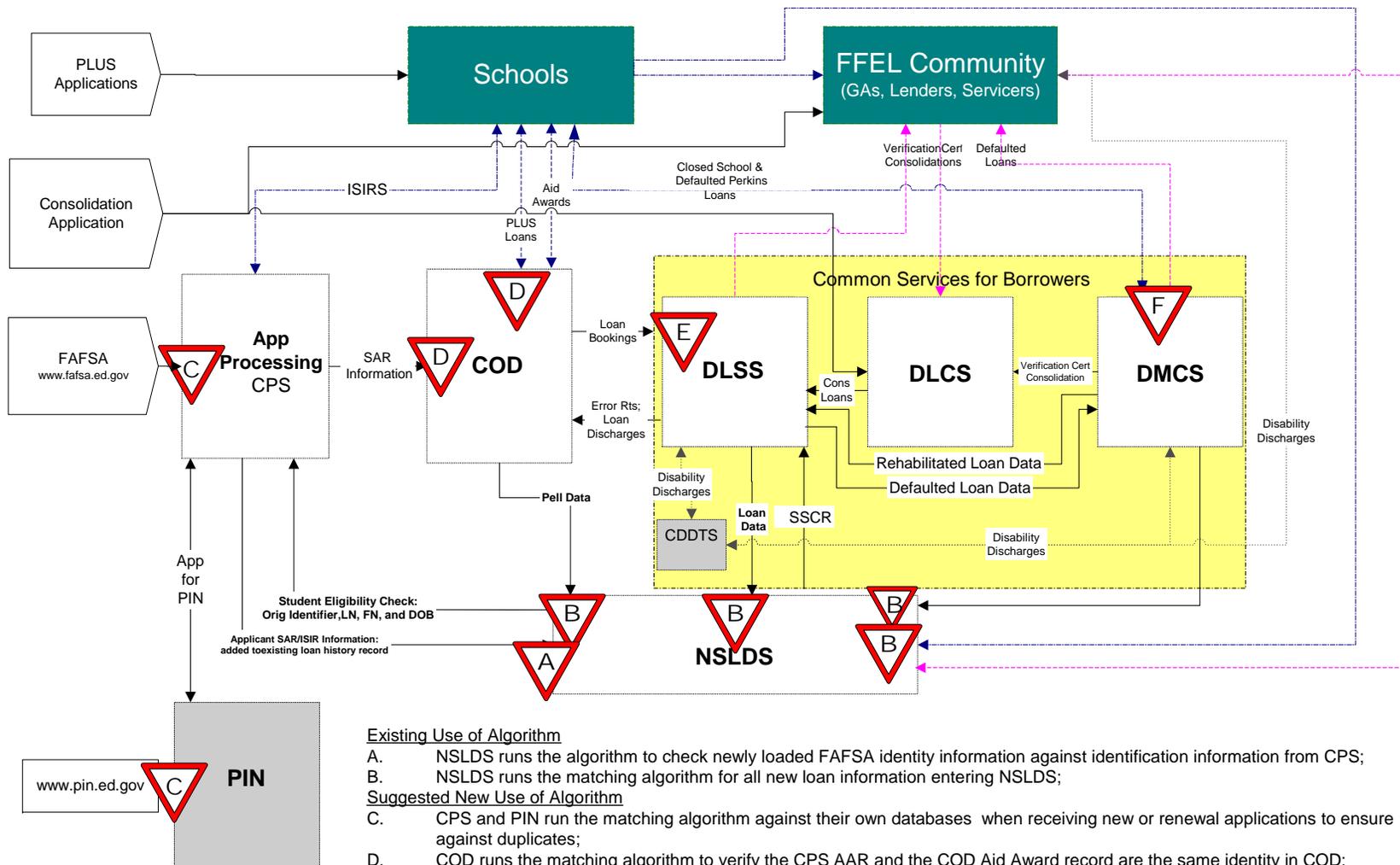
Questions/Feedback?



Implementation Options Analysis – Overview SSIM Picture



Matching Algorithm Reference



Existing Use of Algorithm

- A. NSLDS runs the algorithm to check newly loaded FAFSA identity information against identification information from CPS;
- B. NSLDS runs the matching algorithm for all new loan information entering NSLDS;

Suggested New Use of Algorithm

- C. CPS and PIN run the matching algorithm against their own databases when receiving new or renewal applications to ensure against duplicates;
- D. COD runs the matching algorithm to verify the CPS AAR and the COD Aid Award record are the same identity in COD;
- E. DLSS (CSB) runs the matching algorithm to match records received from COD, DLCS, and DMCS with those existing in DLSS;
- F. DMCS (CSB) runs the matching algorithm to match debts received from DLSS, Schools, or FFEL community with those existing in DMCS;



Matching Algorithm Reference

The matching algorithm will be a series of 4 comparisons of identifying data. Any one successful comparison constitutes a successful match. This matching algorithm requires the systems to be unique on the SSN of the student.

Comparison	SSN	First Name	Date of Birth	Last Name
1st SSN, First Name, and DOB	Current SSNs must match exactly on all 9 digits of the SSN on the student record.	3 of the first 4 significant characters of the first name must match in sequence* (in current or history), <i>or</i> alias matches exactly. Names of 3 characters or less must match exactly.	Year matches exactly; <i>or</i> Year matches plus or minus one, with month matching exactly; <i>or</i> Year matches plus or minus ten, with month and day matching exactly; <i>or</i> Date is an acceptable plug date	N/A
2nd Transposed First and Last Names	Current SSNs must match exactly on all 9 digits of the SSN on the student record.	Three of the first four significant characters of <i>last name on incoming record</i> must match in sequence (in current or history), the first name on the receiving record. <i>or</i> alias matches exactly. Names of 3 characters or less must match exactly.	Year matches exactly; <i>or</i> Year matches plus or minus one, with month matching exactly; <i>or</i> Year matches plus or minus ten, with month and day matching exactly; <i>or</i> Date is an acceptable plug date	N/A
3rd First Initial Provided for First Name w/ exact DOB	Current SSNs must match exactly on all 9 digits of the SSN on the student record.	First name begins with same letter as first initial (a name that is an initial only or an initial followed by a period, not a comma).	<i>Day, Month, and Year Match Exactly</i>	N/A
4th First Initial Provided for First Name w/ check on Last Name	Current SSNs must match exactly on all 9 digits of the SSN on the student record.	First character of first name matches first character of first name or first initial (current or history).	Year matches exactly; <i>or</i> Year matches plus or minus one, with month matching exactly; <i>or</i> Year matches plus or minus ten, with month and day matching exactly; <i>or</i> Date is an acceptable plug date	Five of first seven significant characters of last name match in sequence (current or history). If fewer than five characters, all characters must match.



Suggested Discussion Format

Each breakout groups should consider the processes and issues related to their specific topic.

- Try to agree on a recommendation/conclusion for all of the questions or issues related to that topic.
- Nominate a team recorder to maintain a written record of the feedback **per system**
- Nominate a timekeeper to keep the discussion on track
- If your group reaches an impasse, move on to the next topic/question in the list
- When considering the question, first examine the current method/process and modify it to suit the new solution

Topic One – Error Notification/Change Processing



General Guidelines (as stated in the SSIM High Level Design)

- Dedicated resources must be identified to resolve errors and exceptions for the SSIM.
- Unsuccessful and partial matches will be involved in correction and error processing.
- Changes to a customer's identifying information should be communicated to all necessary phases of the lifecycle; all systems should be able to send and receive such changes. It is not necessary to communicate every change to every system in every instance; however, the *capability* to do so must exist.
 - Verified changes to SSN should be communicated forwards and backwards in the lifecycle.
 - Verified changes to other demographic information such as name and date of birth may not need to be communicated backwards in the lifecycle.
- To enable the most accurate change information, the communication of such changes should include:
 - Original or previous SSIM data
 - Corrected or revised SSIM data
 - Date/time the change was received
 - Source of the change request

Topic One – Error Notification/Change Processing



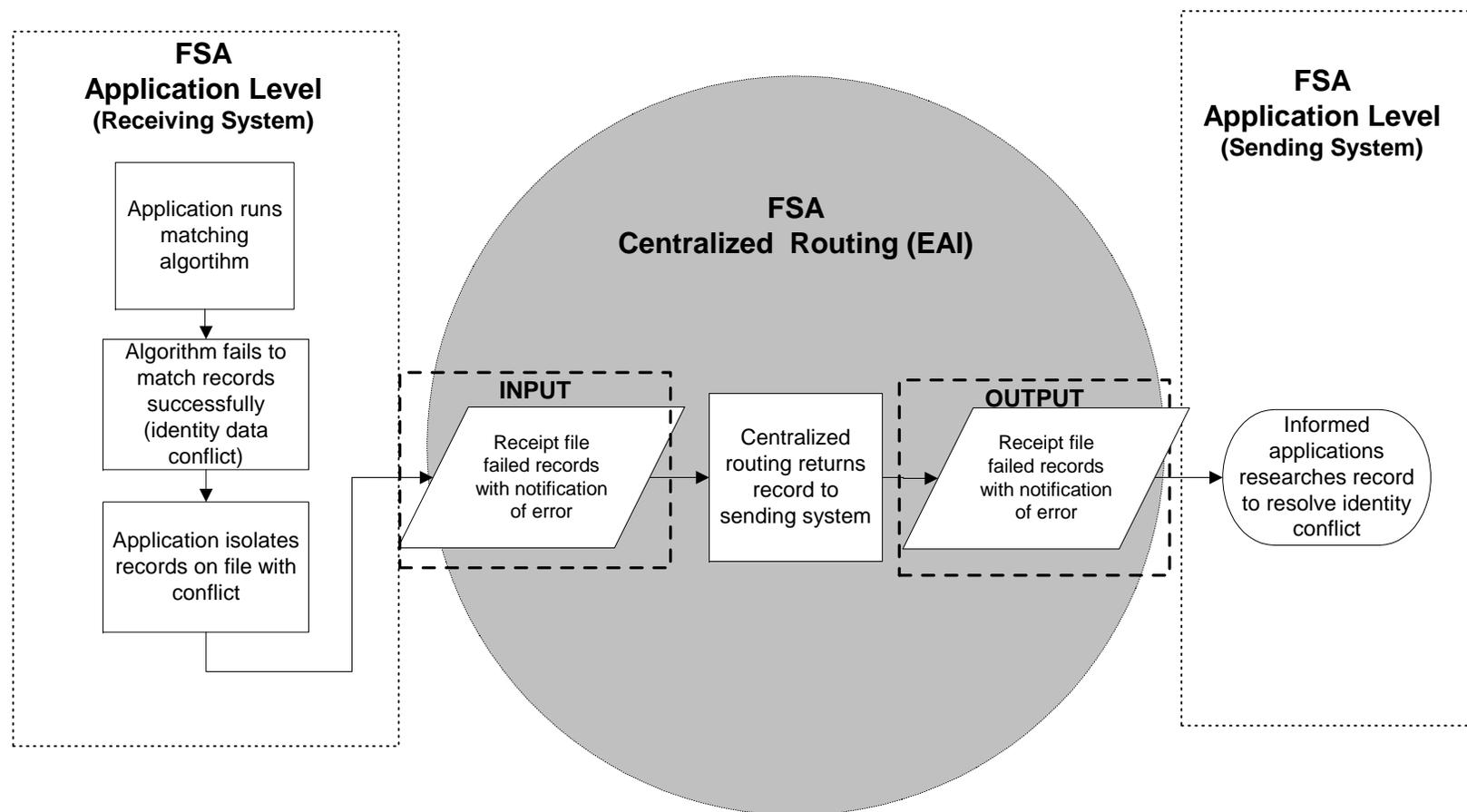
General Guidelines (cont.)

- Standards for verifying SSN changes include:
 - Receipt of a successful SSA match (match flag of 4)
 - Submission of a valid Social Security Card or Drivers License that displays the SSN
 - Change request received from a data provider who requires similar credentials
- Standards for verifying name and date of birth changes include:
 - In the instance of a last name change, proof of a marriage license, divorce decree, or legal name change document
 - Change request received from a data provider who requires similar credentials; specific documentation standards exist in the NCHELP Common Manual
 - Dates of Birth corrections do not require additional documentation



Topic One – Error Notification

Centralized routing (EAI) will be used to send error notifications to FSA systems based on business rules. Usually errors will be sent from the receiving system to the sending system.





Topic One – Error Notification

Scenario One:

- CPS runs algorithm when processing FAFSA applications and receives error
 - CPS resolves error with applicant
 - Does CPS need to notify anyone else of error?

Scenario Two:

- CSB runs algorithm on COD input file and receives error
 - CSB sends error notification to COD through EAI
 - COD resolves error
 - Does CSB need to notify anyone else of error?

General Questions:

- Should sending system be responsible for error notification – similar to today?
- Should error notifications be sent to systems other than the sending system?
- Should there be a centralized error resolution team or FSA resources dedicated at the system level?

The focus of the upcoming questions are to determine the error notification impacts, business rules, and high level requirements. Please use the Matching Algorithm reference slides to help facilitate scenarios/discussions.

Topic One – Error Notification



System:	
Recorder:	



Topic One – Error Notification

Question	Response
<p>Should errors be sent to sending system only or other systems as well?</p>	<p>Errors should be sent from receiving to sending system. There is not a business need to send errors to other systems.</p>
<p>Should the sending system be responsible for resolution or should there be a centralized team?</p>	<p>The sending system (party) will be primarily responsible for resolving the error, as they are most familiar with their own system. However, in many situations the receiving system or other data providers will also work in combination with the sending system to resolve the error.</p>
<p>What do you think FSA needs to do to support your answer above?</p>	<p>There will be an initial increase in errors due to the SSIM implementation. FSA will need to support the resolution of these issues.</p> <p>FSA should require dedicated resources at the system level as well as a central team to mediate exceptionally complex cases.</p>
<p>Do you want to receive only algorithm error notifications from the receiving system or partial matches as well?</p>	<p>For Stage 1, the team decided errors would be enough to handle. The team may look into partial match notifications in Stage 2.</p>
<p>What information needs to be included in the error notification?</p>	<p>The incoming SSIM fields, the receiving system conflicting information, pseudo flag, SSA match flag, effective date, and source of information in receiving system. The sender should receive what it sent (so sender can match up with its records) and what is on receiving system (so sender can determine the specifics of the conflict). In addition, sender should also receive info on others who have provided data to receiver on the student. This enables sender to contact all parties that may have a relationship with person. Note: Need to confirm with OGC if FSA can send this information to external systems in all cases. Also need to check on whether SSA match can be performed on delinquent/defaulted loans. As a result, SSA Match may not be an element available on all systems.</p>



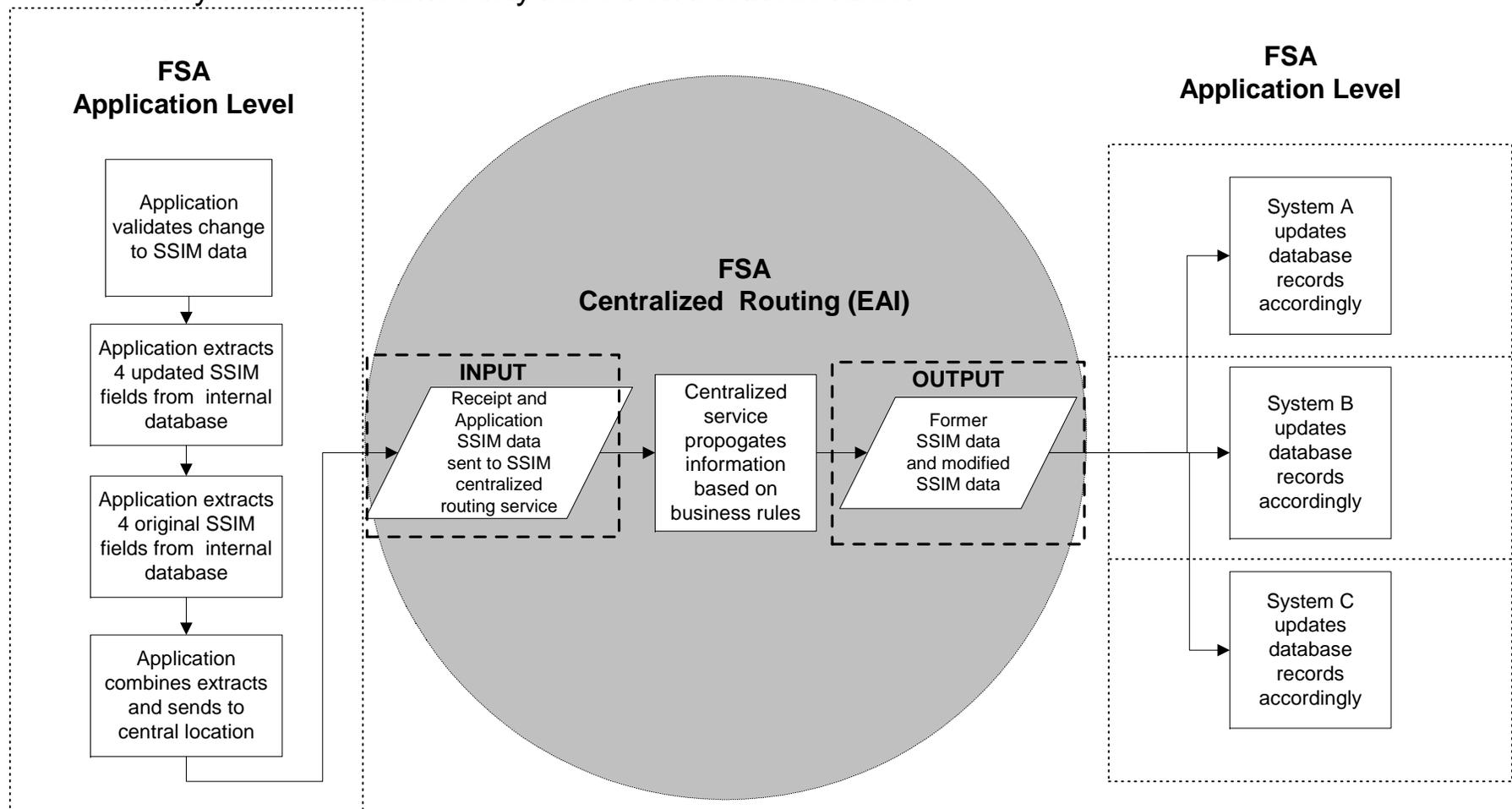
Topic One – Error Notification

Question	Response
<p>What do you think the positives are around the Error Notification solution?</p>	<p>More information is included on error notification. Will help resolve errors and make it easier for sender to contact other data providers.</p>
<p>What do you think the drawbacks are around the Error Notification solution?</p>	<p>Trust factor if FSA is sending external systems the conflicting data from the receiving system, will external parties just resend the information as resolved without true confirmation?</p>
<p>What currently works/does not work in Error Notification between systems?</p>	<p>Not enough resources to adequately research and resolve all current error notifications. Or, no effort made to resolve errors and conflicts.</p>
<p>Other thoughts/feedback on Error Notification?</p>	<p>Stage 2 should include a check and balance process where if FSA has had the student record for X number of years and a change comes from an external party, the change would need to be validated/confirmed prior to an update in FSA. If error resolution results in receiving system adopting change, that system should update effective date and source, as well as, any required historical fields.</p>
<p>If you have time, please start listing system specific requirements for change processing and error notification.</p>	<p>For NSLDS: Will need to capture SSA results flag, pseudo flag, source and effective date Add contact info to error process Receive and resolve errors from systems that return error files to NSLDS</p>



Topic One – Change Processing

Centralized routing (EAI) will be used to propagate Correction Processing to multiple FSA systems simultaneously based on business rules.





Topic One – Change Processing

Scenario One:

- CSB receives a validated SSN change from a student
 - CSB sends the SSN change to EAI
 - EAI notifies CPS, COD, and NSLDS of the SSN change

Scenario Two:

- COD receives a validated last name change from a student
 - COD sends the last name change to EAI
 - EAI notifies CPS of the last name change (if CPS would like to be notified of name change)
 - EAI also notifies CSB and NSLDS if the loan has been booked

General Questions:

- Do systems want to be notified of name and DOB changes backwards in the lifecycle?
- What are the business rules for sending change notifications forwards and backwards in the lifecycle?

The focus of the upcoming questions are to determine the change processing impacts, business rules, and high level requirements. Please use the Matching Algorithm reference slides to help facilitate scenarios/discussions.

Topic One – Change Processing



System:	
Recorder:	



Topic One – Change Processing

Question	Response
<p>How does receiving validated SSN changes from other systems (forward and backwards in the lifecycle) impact your system?</p>	<p>All validated SSN changes should be sent forward and backwards in the lifecycle. Entirely new processes:</p> <ul style="list-style-type: none"> ▪to update person records. ▪to notify other data providers when identifier information on a person changes for internal and external systems.
<p>Do you want to receive validated name and DOB changes from other systems? How would this impact your system? If so, please specify which changes and from what systems.</p>	<p>All validated name and DOB changes should be sent forward and backwards in the lifecycle.</p> <ul style="list-style-type: none"> ▪a new process to be developed. ▪change database to store added data (such as SSA flag, source, effective date) to history
<p>Do you want to propagate name and DOB changes forward as done today through natural lifecycle or through centralized routing?</p>	<p>Changes to the SSIM fields should be propagated through centralized routing to all systems. Open status records should be updated. Systems will need to determine how to handle closed, archived, and record not found updates. Note: A record may not be found if the system is forward in the lifecycle.</p>
<p>What current change files are sent/what would need to change?</p>	<p>The main change would be that all SSIM updates would be sent through centralized routing to all systems in the lifecycle.</p>



Topic One – Change Processing

Question	Response
<p>How does the requirement to store change history on all 4 SSIM fields impact your system?</p>	<p>Please see High Level Requirements. A standard will be determined for how much history systems should store. Note: This may also be dependent on the Stage 2 recommendation.</p>
<p>Do you agree with the standards in the HLD for SSN, Name, and DOB changes?</p>	<p>May want to add pseudo flag, SSA match flag, effective date indicator.</p>
<p>What do you think the positives are around an EAI solution for Change Processing?</p>	<p>Will help resolve system identity errors; Permits easy routing of data to other ED systems; Centralized rules as to who needs updates; Facilitates standards;</p>
<p>What do you think the drawbacks are around an EAI solution for Change Processing?</p>	<p>May cause rework if a bad change record is sent. Example: If NSLDS sends a change to COD, CPS, and CSB. CSB rejects back to NSLDS. NSLDS determines the change was not correct. NSLDS has to resend update to COD and CPS. Will not ensure data integrity, since data is only as good as the input – garbage in/garbage out.</p>
<p>What currently works/does not work in Change Processing between systems?</p>	<p>Change Processing not done systematically' usually a manual process to update records after research is completed. Several approvals are needed before such an update can be made which slows the process and increases the cost of making Changes.</p>



Topic One – Change Processing

Question	Response
Other thoughts/feedback on Change Processing?	<p>May well be the most important process to bring all systems in sync. Will likely help ED with collections and default aversion. Fewer conflicts and more accurate person data will result in a reduced number of borrowers who get lost and cannot be found.</p>
If you have time, please start listing system specific requirements for change processing.	<p>Design system to generate change notification when a person's identifiers are changed by a data provider. Determine who else to notify about changes particularly Gas and schools (enrollment and Perkins data). Design system to receive, store and process identifier changes when received from another system outside of the normal data load process.</p>



Topic Two – High Level Requirements/Sequencing

General Guidelines

- Matching Algorithm Logic will be implemented at the system level, according to individual system timelines.
- Centralized Change Processing and Error Notifications will be implemented by using a centralized routing functionality (EAI), and will be phased based on sequencing plan.
- To enable the most accurate change information, the communication of such identifier changes should include:
 - Original or previous SSIM data
 - Corrected or revised SSIM data
 - Date/time the change was received
 - Source of the change request
- Systems must maintain some level of historical data to run the matching algorithm.
- Systems must be enabled to send and receive SSIM change and error notifications.
- Systems should indicate the presence of “pseudo” identifier values, specifically SSN, on the student’s SSIM records.
- Due to the flexibility of this implementation method, systems are capable of modifying SSIM logic to satisfy a specific business need (e.g., DOB values for DMCS records, checking against SSN histories for NSLDS).

Topic Two – High Level Requirements/Sequencing



System:	
Recorder:	

High Level System Requirements – General System Requirements



Data Structure

Question	Response
What changes may be required for specific systems (see system impacts)?	CPS Data Structure: May need to be unique on Current SSN Some systems will need to start generating error files. Others will need to start processing error files. All systems will need to develop change notification process for sending and receiving changes.
What are the overall guidelines for all systems regarding data structure?	Unique on SSN, Capture First Name, Last Name, and DOB Save/maintain changes or history of the identifying information
What is the least amount of history that should be required for each system for each SSIM element?	The systems stated no “bare minimum” requirements requirements for histories. NSLDS and CPS – Track all changes within a person’s record. DLCS, DMCS, and DLSS – maintain histories of at least the past two transactions PIN - Currently no history is stored or linked. In the re-engineering process, it may be possible to link and associate changes to SSIM data in a history. All systems should track some form of history for use by the matching algorithm.
What changes must be made to include pseudo-SSN and plug date indicators?	Analysis should be done to determine the volume of usage for these pseudo values. It is assumed that the volume will warrant at least a pseudo SSN indicator, and perhaps a DOB plug-date indicator as well. CPS Pseudo Volume - Approx. 1,000/year
What changes must be made to consistently name and recognize Pseudo SSNs?	Going forward, the systems that use pseudo SSNs should agree on the valid values and ranges for pseudos. The algorithm should also recognize older, valid pseudos prior to the establishment of enterprise pseudo-SSN standards.
To consistently name and recognize DOB plug dates?	Going forward, the systems that use plug dates should agree on the valid value while recognizing dates previously used as plug values by data providers . The algorithm should also recognize older, valid plug dates prior to the establishment of enterprise pseudo-SSN standards. Suggested plug dates from high level design include:19000101 or 000000.

High Level System Requirements – General System Requirements



	Question	Response
Technical Capabilities	Are the systems enabled to employ the recommended technologies?	CPS, PIN, and NSLDS are EAI enabled. The current DLCS, DMCS, and DLSS systems have limited EAI capability.
	If not, what is required to become so enabled?	The CSB Statement of Objectives includes conforming with FSA's Data Strategy, including EAI capability.
Timing/Sequencing	What are the deadlines for the next phase of system requirements, if any?	CPS – April 23, 2004 Requirements Deadline PIN – April 23, 2004 Requirements Deadline NSLDS – Spring 2004 Requirements Deadline (April): NSLDS does not have a specific requirements schedule so the changes could be implemented anytime CSB – Requirements Definition begins October, 2003 COD – Requirements defined: April - June 2004
	Are major re-engineering efforts planned, and how does that affect system enhancement?	CSB and PIN re-engineering do not have defined implementations, but their timelines must be considered in SSIM implementation.
	Please note any other general system requirements/sequencing dependencies.	Peak time for CPS and PIN: February and March Peak time for Servicing: August and January

High Level System Requirements – Use of the Matching Algorithm



Algorithm Logic and Processing

Question	Response
<p>How does the system currently handle empty First or Last Name fields (e.g. Madonna/Cher)?</p>	<p>CPS – accepts name (either last or first) as given by borrower. One of the two name fields is permitted to be blank.</p> <p>PIN – Last Name is required – First Name optional (?)</p> <p>DMCS – First and Last Name is required. If only one name exists, request is to send in Last Name field, with “NFN” in First Name field (which will populate blanks on the database).</p> <p>COD - Requires Last Name, not first</p> <p>DLSS - accepts records provided by COD</p> <p>NSLDS - requires both names, and populates empty fields with NFN or NLN for “no first name” or “no last name”</p> <p>External Partners - generally require both names, and if a single name is provided, that name populates both the first and last name fields</p>
<p>How does the system currently handle empty DOB fields?</p>	<p>DOB fields are required w/o plug values for CPS, PIN, COD, DLSS</p> <p>DOB fields are required and allow plug dates for NSLDS</p> <p>DOB fields are not required for DMCS, but are sometimes populated with plug dates or spaces</p>
<p>How would a requirement of populating empty name fields with NFN/NLN affect current system data or processing?</p>	<p>For CPS and PIN this would create additional correction processing for any instance where NLN or NFN would be visible to the applicant (e.g., SAR, FAFSA, etc.). Any requirements for system population of “NFN” or “NLN” should be invisible to any customer-facing contact (letters, web sites, etc.).</p> <p>Also, the population of a blank field as NLN or NFN should be defined.</p>
<p>Should requirements of Matching Algorithm Logic be different for systems that exhibit the business need?</p>	<p>Through the testing and initial SSIM stages, exceptions and recurring instances should be tracked to provide solid justification to any changes in the SSIM logic or data requirements. Such documented, quantifiable instances could warrant a modification for SSIM logic in a specific system.</p>
<p>If so, which systems, and what should the requirement be?</p>	<p style="text-align: center;">TBD</p>

High Level System Requirements – Use of the Matching Algorithm



Interfaces – Internal Data Exchange Interfaces – External Data Exchange

Question	Response
What business processes/input files will involve use of the algorithm?	DLSS – nightly feeds with PIN ; PIN – creation of new identities; CPS – check with NSLDS Any input files with records containing student level information.
What are existing external requirements that impact SSIM Matching Algorithm use?	External matches (SSA, VA, DHS, DOJ, and SS) do not have any requirements based on the algorithm as long as verified SSN is provided.
What data processing/input files will require use of the algorithm?	CPS Entry of FAFSA application; pre/post screening with NSLDS; Accepting recipient file from COD COD Accepting AAR file from CPS and Award records from Schools; DMCS - Acceptance of files from GA's FISL, POVR, Perkins and DSL
How will additional data affect current processing (e.g., SSA match flag/pseudo indicator, etc.)	Flags and/or pseudo-indicators can be added in the annual requirements process, if deemed necessary.
Please note any other algorithm requirements/dependencies	Must confirm that SSA match requirements conflict with SSIM Matching Algorithm requirements.

High Level System Requirements – Use of the Centralized Routing



Business Processes

Interfaces – Internal Data Exchange

Question	Response
<p>What business processes/input files will require use of centralized routing?</p>	<p>CPS, PIN, COD, CSB, NSLDS - Processing of correction records; receipt of name updates from trading partners.</p> <p>PIN – use of the e-signature names must match up (e.g., signing with new married name on a loan held in a maiden name)</p>
<p>How does this method change current notification processes within FSA systems?</p>	<p>Error messages may be received from other systems that require resolution. Must be implemented in new/re-engineered CSB.</p> <p>Would change to SSIM data and PIN runs a successful SSA match be routed to other systems?</p> <p>The change process would be new to all systems</p>
<p>How will the additional data affect current processing:</p> <ul style="list-style-type: none"> ▪Corrected or revised SSIM data ▪Original or previous SSIM data ▪Date/time the change was received ▪Source of the change request 	<p>Business rules needed to guide the use and storage of centralized SSIM updates received by systems.</p> <p>Add effective date and system create date to records being sent, to indicate the most recent identifying information.</p>
<p>Please note any other centralized routing requirements/dependencies.</p>	