
APPENDIX H – TECHNICAL ALTERNATIVES ANALYSIS

In developing our assessment of the technical feasibility of building and implementing a system to collect, process, store, secure, analyze, and disseminate cross-border funds transfer reports, we gathered information from published sources, issued a Request for Information from private sector information technology developers, and consulted with data systems experts from other government agencies. The study is also based on the lessons learned from a funds transfer proof-of-concept system developed in partnership with our colleagues at AUSTRAC. Other conclusions derive from discussions with technical experts from both the government and private sectors with experience in the design and construction of systems for the collection and analysis of extremely large volumes of data.

Assumptions About System Architecture

The underlying premise of the assumptions listed below is that the architecture of a system to collect, process, store, secure and disseminate cross-border funds transfer data must enable FinCEN to leverage existing infrastructure, interfaces, capabilities, and services; to benefit from the return on the investment in BSA E-Filing and other systems; and to integrate these under a common data architecture with shared application and data services.

FinCEN made the following assumptions when preparing this report:

- FinCEN plans to improve the level of constructive control it exerts over BSA data collection and management and to assume over time the full lifecycle BSA data management responsibilities.
- FinCEN plans to enhance the use and capabilities of its BSA E-Filing system as an integral component of the integrated BSA data center.
- FinCEN would provide direct, private, and secure communications between its collection system and reporting institutions' systems.
- Stability - The funds transfer system will meet all uptime and response time performance specifications as FinCEN's current and planned BSA data systems.
- Failover and disaster recovery processes and technologies should be in place.
- Risk – The architecture design should introduce minimal impact on the existing FinCEN technical environment.

- Flexibility – The chosen architecture must easily integrate existing and new technologies.
- Scalability –The architecture design should be easy to expand and scale. The target funds transfer system must scale to process 350-500 million transaction records per year, securely store 3-5 years of data available for online access, initially serve several hundred reporting financial institutions and several thousand data users, and provide 24/7/365 availability.

Data Warehouse Architecture Design Principles

A data warehousing architecture defines the technical framework needed to ensure that a variety of data warehousing components work together to provide the decision support capability expected by business users now and in the future. There are five main objectives of the architecture. 1) *Business Value*: Information systems are a means to an end, not an end unto themselves; 2) *Usability and Performance*: funds transfer data warehousing systems should be easy to use and provide useful business information within acceptable timeframes; 3) *Adaptability*: Data warehousing systems should accommodate changes in requirements and technologies in a cost effective manner; 4) *Interoperability*: A data warehouse should work well with the large number of operational and decision support systems in use at FinCEN; and 5) *Availability*: The data warehouse should incorporate redundancy sufficient for decision support and should meet the availability requirements typical of mission critical systems.

Service-Oriented Architecture

A Service-Oriented Architecture (SOA) provides the necessary components to facilitate the secure distribution and sharing of funds transfer data between FinCEN, financial institutions regulators, law enforcement agencies, and the intelligence community. In SOA, development is component-driven and based on reusable parts or services. SOA itself is not an application, but more of a methodology or architecture. One element of an SOA is the enterprise service bus (ESB). The role of an ESB is to provide the backbone on which you can build a SOA. SOA handles all of the service definitions, service creation, integration, and deployment and management. SOA enables the entire lifecycle of building, deploying, and managing multiple services while introducing minimum impact on the component parts. ESB simply acts like an application server. SOA permits a system owner to leverage the architecture design with existing technologies and systems, and to reuse the functionality of existing systems rather than building them from scratch. Eliminating overlapping point-to-point connections simplifies maintenance and integration. Developing the funds transfer system using the SOA design will provide FinCEN with a flexible integration approach based on dynamic (just-in-time integration), not hard-wired (point-to-point) integration.

Web Services

Most SOA implementations use Web services based on XML and HTTP.⁸² The Web services a standardized way of integrating web-based applications using XML, SOAP, WSDL and UDDI open standards over an internet protocol backbone.⁸³ XML is used to tag the data, SOAP is used to transfer the data, WSDL is used for describing the services available, and UDDI is used for listing what services are available. Web services allow organizations to communicate data without intimate knowledge of each other's IT systems. Web services also allow different applications from different sources to communicate with each other without time-consuming custom development or significant modification of existing systems, and because all communication is standards-based, web services are independent of a single operating system or programming language. Because web services are loosely coupled and granular, they provide a better infrastructure for protecting confidential data and securing business processes than traditional, application-centric security approaches.

Data Acquisition

The process of receiving and processing funds transfer data is similar to collecting other BSA data electronically. It involves interaction with a wide range of financial institutions. These financial institutions range in nature from relatively small organizations and money services businesses, to large organizations. This implies that the funds transfer system must address a wide range in both the volume of submissions, and in the technical sophistication of these entities.

Ideally, FinCEN could deploy a single solution to communicate with all the reporting financial institutions. However, industry best practices reveal that no single information technology solution, whether a proprietary (Secure FTP), virtual private network (VPN), secure web-based protocols (S-HTTP), or customized application, is appropriate for all financial institutions. Accordingly, FinCEN must combine solutions to allow myriad financial institutions to transmit data to FinCEN securely. The use of SSL and S-HTTP, in conjunction with Web forms hosted by FinCEN should adequately serve low-volume reporting institutions. Large volume reporting institutions can use the secure protocols implemented in BSA E-Filing to transfer the funds transfer data from their network into the FinCEN system securely.

82 HTTP - HyperText Transfer Protocol, the underlying protocol used by the World Wide Web. HTTP defines standards for the format of data presented, and prescribes what actions Web servers and browsers should take in response to various commands.

83 SOAP - Simple Object Access Protocol, an XML-based messaging protocol used to encode the information in Web service request and response messages before sending them over a network. SOAP messages are independent of any operating system or protocol and support a variety of Internet protocols. WSDL - Web Services Description Language, an XML-formatted language used to describe a Web service's capabilities as collections of communication endpoints capable of exchanging messages. WSDL is an integral part of UDDI, an XML-based worldwide business registry. WSDL is the language that UDDI uses. UDDI - Universal Description, Discovery, and Integration. A Web-based distributed directory that enables businesses to list themselves on the Internet and discover each other.

The BSA E-Filing system currently serves exactly this type of user community. The BSA E-Filing system uses InFlowSuite™ a commercial off the shelf (COTS) tool to manage the submission process. The system can ingest submissions in a variety of formats and using a variety of protocols, and control these submissions by placing them in protected storage. The system then queues submissions for subsequent processing. This allows the system to operate over a wide range of load conditions, queuing submissions received during periods of high stress for processing when submission volumes diminish. This gives the system an extremely wide “dynamic range” within which it can remain responsive to submitters’ needs.

Because the BSA E-Filing system employs service-oriented architecture design and web services, the integration of funds transfer data into BSA E-Filing becomes possible. The BSA e-Filing system is stable, and adheres to a 99.999% availability standard. Usage is growing and FinCEN currently receives 47% of its total BSA filings using the system. To date reporting institutions have filed over 9 million reports electronically and with the recent inclusion of larger banks, FinCEN is processing 350,000 to 380,000 reports through the system per month (as compared to an anticipated 30-40 million funds transfer reports per month). Over 300 of the 650 identified top filers are using the system.

To accommodate the concerns of filing institutions about data security, the BSA E-Filing system implements a solution that combines SSL (Secure Sockets Layer), S-HTTP (secure HTTP) and web-based forms. SSL and HTTPS are mature open standards-based communication protocols that enjoy wide adoption and that all World Wide Web browsers implement. For the end user, the use of browser technology eliminates the need to purchase and deploy specialized software and lowers maintenance and support costs. Both Canada and Australia have adopted this approach in their reporting systems. For example, a medium-volume reporting institution could prepare a file containing all of the required reports and by logging into a secure web portal hosted by FinCEN, manually upload the file to the FinCEN system. In addition, FinCEN could provide a secure web-based form by which small-volume reporting institutions could file reports regarding single transactions.

FinCEN’s BSA E-Filing system relies upon Sterling Commerce's Connect:Direct software to provide reporting institutions with a secure communications tunnel between their network and FinCEN’s. Large-volume reporting institutions can employ FinCEN’s BSA E-Filing system by using the Connect:Direct FTP protocol over SSL to secure the control and data connections over the internet. This has proved to be an effective method for hundreds of financial institutions to send their reports to FinCEN. The benefits of extending this tool include having a highly secured and homogeneous environment, which reduces the need to support multiple communication standards. This solution does require reporting institutions to obtain and implement compatible communications software.

Data Transformation, Enhancement, and Loading

Data Quality

Data quality assessment is an integral part of data warehouse development. The objective in implementing a data warehouse is to enable the users to produce better analysis and make better decisions by making available accurate, correct, and high quality data. If the data does not satisfy high quality standards, the value of the data is lost.

There are a number of data quality problems that a data warehouse architecture must address:

- Data Validity - Non-conformance of the submitted data to permitted values.
- Data Decay - Values are correct at one point in time but the values change and the data is not automatically updated to reflect the change.
- Synchronization - Values of core data stored in multiple places are not maintained in consistent ways.
- Business Rules - Values that have rules associated with them are not programmatically enforced.

Without consistently high quality data, users may miss opportunities of detecting potentially important information in the data. For example, a recent search of FinCEN's BSA reports revealed 144 variations in a single street address. Because FinCEN does not have direct quality control over the data collection process, in order to make it useful and sensible, data must be enhanced and improved before analysts and investigators can make use of it.

If data quality is suspect, analysts cannot effectively use the information or share it properly. The challenges FinCEN may face while trying to integrate the cross border funds transfer data with BSA data include:

- Finding authoritative information sources (master data stores)
- Knowing the underlying location, structure, context, quality and use of information
- Determining how to resolve differences in meaning (semantic reconciliation)
- Understanding how to profile and ensure data quality
- Applying methods to connect to data sources (choosing among several data integration technologies)

- Knowing how to encapsulate information models to support business service composition

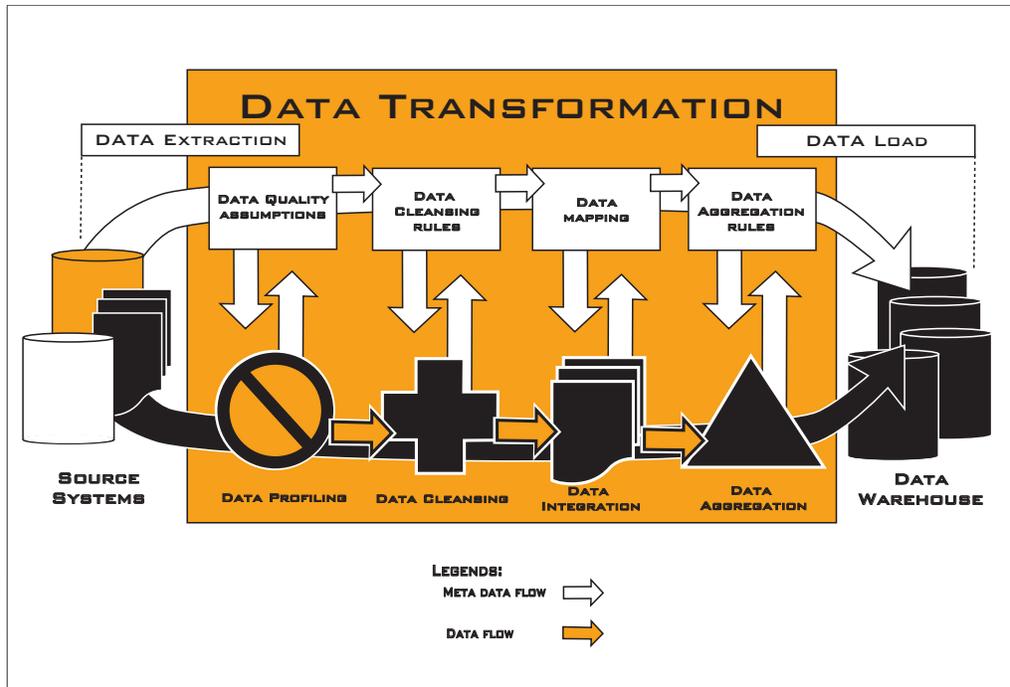
High quality data is a prerequisite for a successful data warehouse and for effective data mining and other quantitative analysis. Managing data quality requires system developers to view data quality as a business issue and to approach it in a structured manner. The methodology for data quality management must focus on three critical components:⁸⁴

- **People and skills:** Cultural and organizational change to build awareness, understanding, ownership and engagement of key stakeholders
- **Processes:** Establishing standard and repeatable workflows for addressing data quality, including metrics, a focus on data quality trends and iterative tuning of data quality rules
- **Technology:** Implementing data quality analysis, monitoring, controls and enhancement functionality

Data transformation is computationally intense, and requires sufficiently powerful systems to accomplish the task within acceptable periods. For example, determining whether two different funds transfers originated from the same individual is not easy. Funds transfer instructions rarely contain unique indicators such as a Social Security number; small variations in format and spelling can defeat simple word matching; addresses are not always provided and money launderers can use multiple, shifting account numbers.

Simply put, a data warehouse system must establish a standard for data quality and upon receipt, the system must examine the submitted data, identify and correct errors, convert it into a form suitable for analysis, and load the data into the data warehouse. In terms of technical feasibility, a funds transfer reporting system must incorporate adequate processes and technology to manage the data quality. These steps in this “enhancement-transformation-and-load” (ETL) process are data profiling, data enhancement, and data load.

84 Data Quality Methodologies: Blueprints for Data Quality Success, Ted Friedman, July 26, 2005



Data Profiling

To ensure that a data warehouse system can handle all these problems and establish links to other data, the system must incorporate a data profile. In general, data profiling is a process of discovering the characteristics of a target set of data. Data profiling is a critical diagnostic process that provides information about the quality of the collected data.

Data profiling generally includes data consistency discovery, data business rules validation, and data relationships verification. Data consistency discovery checks whether the patterns within the submitted data adhere to expected patterns or formats. Data business rules validation typically focuses on analyzing and determining if the data values are accurate (i.e., identify ZIP codes that contain only four digits), complete, and compliant with the business rules (i.e., text appearing in the “amount” field). Data relationships verification encompasses not only the identifying data redundancy and potential key inter-data relationships but also optimizing the relationships between data elements, and data tables. In simpler terms, it looks for repetitive use of the same information in multiple places in a data record and begins to identify common elements between different data records (i.e., an account number may appear in both a funds transfer report and a Currency Transaction Report – the data profile will reflect this common element).

To develop meaningful business rules, identify the relationships between funds transfer reports and other BSA data, and to handle the errors or rejected records, will require extensive requirements development. Commercial off-the-shelf (COTS) data profiling tools exist that can analyze a given set of data and proffer appropriate business rules to apply to the data. These products usually include common business rules that apply to any organization. During the development of a funds transfer reporting system, it will be vital to apply data profiling analysis and tools to sample data.

Data Enhancement

Data enhancement is the process of applying the business rules that arise from the data profiling process, to “improve” the data. The enhancement of the data can include “data cleansing” - the alteration of certain data elements to ensure consistency (i.e., 5-digit zip codes expanded to ZIP+4 format) or the addition of data elements to enhance the usefulness of the data (i.e., addition of “county” information based on address and ZIP code); “data integration” – the conversion of multiple data structures (i.e., SWIFT and non-SWIFT funds transfer messages) into a single consistent format and the conversion of certain data elements into human readable form (i.e., “bank identifier codes” into the full name of a financial institution); and “data aggregation” - the summarization of certain elements of the data to enhance accessibility. The data enhancement process ensures that data is consistently structured into correct and appropriate fields, formatted (e.g., abbreviations are expanded into full words), and is grouped into appropriate collections.

Metadata Management

After the system enhances the data and structures it consistently, the next step is to integrate and aggregate the data. Depending on the source of data, data integration can be very complicated. The result of data integration usually generates new data entities or attributes, which are easy for end users to access and understand. Data aggregation is a key data warehouse requirement that facilitates the presentation of data in the form of business reports. Systems also generally implement data aggregation to improve query performance.

Overall, the ETL process results in the creation of “metadata” or “data about the data.” Metadata is information about the data such as data source, data type, extraction and transformation rules, and any other information needed to support and manage the operation of the data warehouse.

There are three types of metadata that are associated with data warehousing, including technical metadata, operational metadata and business metadata. Technical metadata describe the data and explain what has been done to cleanse, enhance, and standardize the data. The operational metadata created during the ETL process includes records of the job executed, the date and time when the job executed, the job status (successful/failed), a system generated

Batch_ID and the number of records extracted and loaded. The metadata adds a layer of context to the data by providing consistent views of, for example, abbreviations, acronyms, and other codes in the data.

As a result, the “size” of a data set increases dramatically through the enhancement process. The addition of new elements and the transformation of others have a significant impact on storage requirements. All these operational metadata are available to the user in support of analysis and reporting activities.

Designing an appropriate ETL process requires both familiarity with the specific types of data and general database skills. Therefore, both skilled database administrators and end users should be involved in this task. Because familiarity with funds transfer message data will be central to the design of the system, FinCEN will need to rely heavily upon the expertise of U.S. financial institutions throughout the development process.

Data Load

Once the transformation process is complete, the system must load the enhanced data into the data warehouse. The data load process depends primarily on the kinds of query operations the users will perform and the volume of data that must be available on the system. These factors will determine the structure of the data warehouse itself, and in turn, the process for loading the data.

Data Warehouse Architecture Alternatives – Centralized or Federated

The three most common data warehouse architectures are: (1) hub and spoke architecture (i.e., centralized data warehouse with dependent data marts), (2) centralized data warehouse (with no dependent data marts), and (3) federated data warehouse (independent data marts with common elements). The first two are centralized approaches and the third is a non-centralized approach.

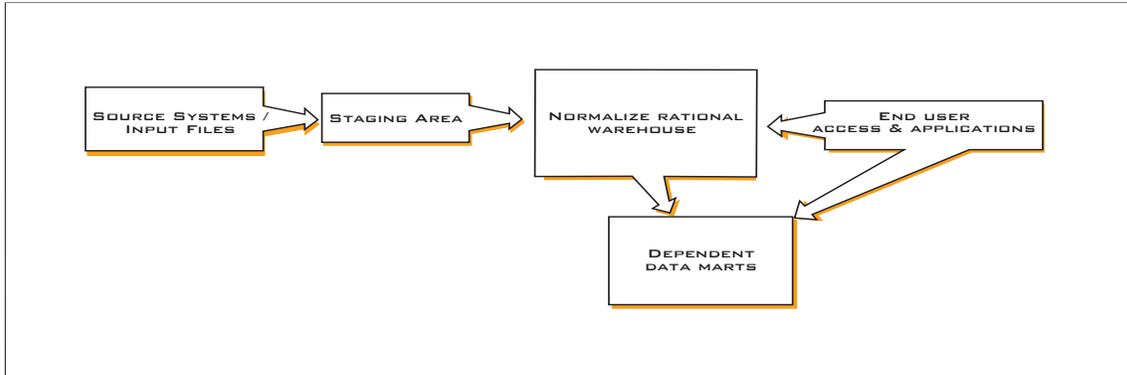
Eight factors potentially affect the selection of the data warehouse architecture.

- Information Interdependence -- There is a high level of information interdependence where one or more funds transfers relate to one or more large cash transactions recorded in the CTR data, for example. In this situation, the ability to share and integrate divergent information sources is important.
- Urgency of Need -- Some architectures are more quickly implemented than others, which can impact the architecture selected.
- Nature of End User Tasks -- Some users perform more complex tasks than others do. Detailed requirements analysis in close partnership with FinCEN's law enforcement and regulatory partners would be a prerequisite for defining the appropriate architecture.

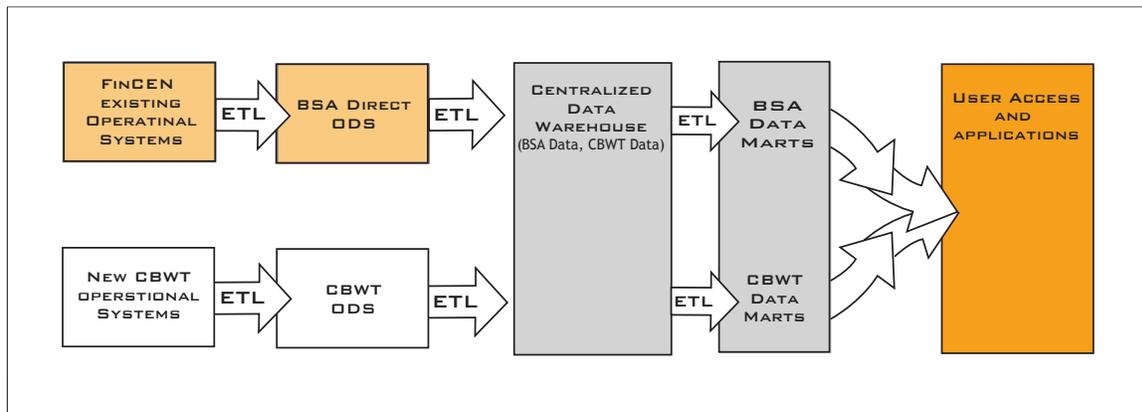
- Constraints on Resources -- Some data warehouse architectures require more resources than others do. As a result, the availability of IT personnel, business unit personnel, and monetary resources can influence the selection of the architecture.
- Strategic View -- Based on current FinCEN's strategic view of the warehouse, integration of multiple different information sources is necessary.
- Compatibility with Existing Systems -- There are many benefits to implementing solutions that are compatible with existing systems. The cost and time benefits of implementing a funds transfer data warehouse that is compatible with existing systems are substantial.
- Perceived Ability of Developers -- It will be essential that FinCEN dedicate sufficient and appropriately skilled project management resources to the management of the acquisition and development of such a system.
- Technical Issues -- A variety of technical considerations affect the choice of architecture – the ability to integrate metadata; scalability in terms of the number of users, volume of data, query performance; the ability to maintain historical data; and the ability to leverage existing infrastructure.

Hub and Spoke Architecture

A hub-and-spoke architecture builds upon an enterprise-level analysis of the system users' data requirements. A hub-and-spoke architecture is a scalable and maintainable infrastructure. The architecture is developed in an iterative manner, subject area by subject area. That is to say that initially, all data is combined into a single data repository, and other specialized "data marts" are created by extracting subsets of that data based on frequently used queries. These data marts enhance certain queries by organizing the data according to pre-defined needs of certain users. For example, a centralized data warehouse might contain a complete collection of all BSA reports, while separate data marts contain SARs, CTRs, CMIRs, funds transfer reports, and so on.

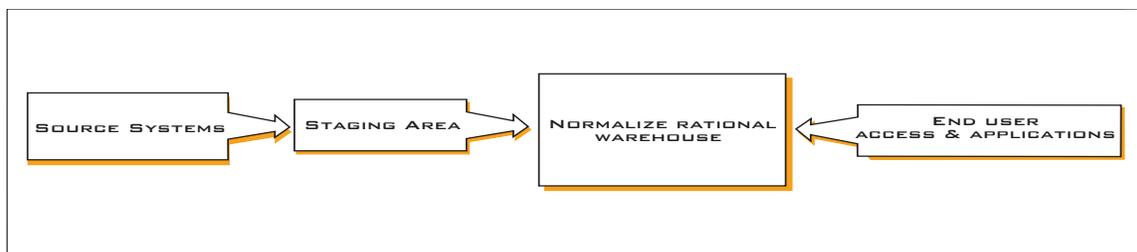


The figure below represents a hub-and-spoke approach to a funds transfer data system. Under this scenario, FinCEN would consolidate data from both the funds transfer and the BSA data systems into a single, centralized data warehouse. During the data transformation process, the existing reference data and business rules can be reused to cleanse the funds transfer data before it is loaded into the data warehouse. Depending on the business requirements, the system could extract a subset of data from the data warehouse to create data marts for answering specific questions.



Centralized Data Warehouse

A centralized data warehouse is similar to the hub and spoke architecture except that there are no dependent data marts. The data warehouse contains atomic level data, some summarized data and logical dimensional views of the data. Users perform queries directly on the centralized store of data. The following figure illustrates this architecture.

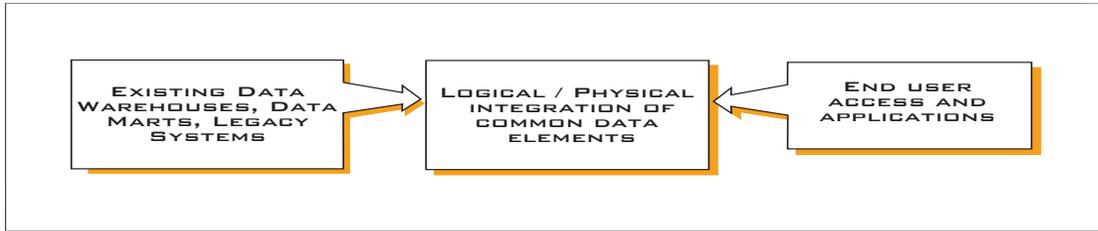


Implementation of a centralized data warehouse requires that FinCEN would implement an entirely new system for the collection of all BSA reporting, including funds transfer information. The proof-of-concept system developed by FinCEN and AUSTRAC implements a centralized architecture.

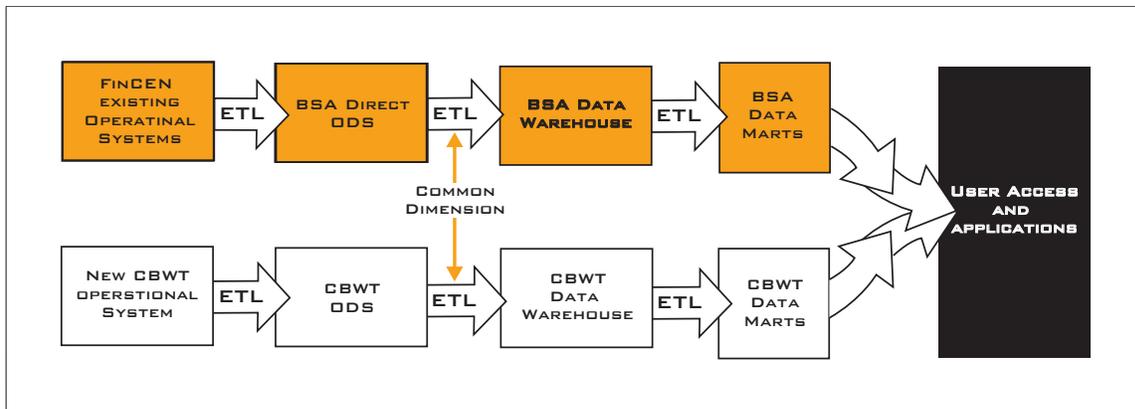
Whether the funds transfer data system includes dependent data marts or not, a centralized data warehouse architecture will entail more up-front investment in time and money. FinCEN will need to be able to identify the common data elements between the existing BSA data and funds transfer data in order to establish the linkage between the two systems so that an integrated and consistent view of the data is available to the users. FinCEN must create a new data model to represent both BSA and funds transfer data simultaneously. The new integrated data model also would require structural changes to the existing BSA databases. Depending on the complexity of the changes, it may require significant effort to implement. FinCEN would also need to modify and enhance the current ETL procedures and reports. Further, FinCEN would need to create new business rules to replace the ones currently used or significantly modify existing business rules to accommodate the new data.

Federated Data Warehouse

A federated architecture extends the existing operational systems, data marts, and data warehouses that are already in place. A federated architecture introduces a “services layer” between the user and the multiple data sources available (i.e., current BSA data and cross-border funds transfer data). Based on users’ varying business requirements, the system manages the distribution of the users’ queries across the multiple data sources, aggregates the results, and presents a single result to the user. From the users’ perspectives, there is a single data source and the technical management of the query is invisible to the user. This process integrates multiple sets of data either logically or physically using these common or shared elements, global metadata, distributed queries, or other methods. As a result, users conduct queries on the integrated data elements, reducing the computational load on the respective systems that house the data, and increasing the response time of the system. The separate data sets remain available as well for more detailed query and analysis. A federated architecture provides a solution for environments that already have a complex, existing decision support environment or multiple data sets and do not want to create an entirely new environment.



The figure below depicts a federated database for the funds transfer system. With this design, FinCEN would create a new funds transfer data warehouse. In this example, the current BSA data continues to reside within a separate BSA data warehouse. Each system will maintain its own ETL procedures, implementation schedules and data warehouse. However, the working ETL procedure logic and tools will apply effectively to the funds transfer system. Both systems would apply the same reference data to cleanse the funds transfer data to make it consist with the BSA data. Minimum design changes will be required for the existing BSA data systems. The implementation schedule of this kind of funds transfer system can be flexible and will not impact significantly on the existing production systems. The federated environment also provides funds transfer system with more choices of the infrastructure selection that allows FinCEN to choose the latest and best technology.



A federated architecture also provides a strong foundation for distributing the computing load and adapting the system to the various needs of different user communities. With a federated architecture, FinCEN would be able to deploy customized portals designed to serve the needs of different external user groups (i.e., regulatory, law enforcement, internal FinCEN users) without the need to redesign the system, limit system capabilities to a “lowest common denominator” of features, or build a system that is all things to all users. By avoiding “one size fits all” architecture, FinCEN will be better able to focus on the particular needs

of different user communities. Such an approach also permits more control over system changes and facilitates an incremental investment in the system development. The initial investment will focus on the data collection and storage system, while hardware, bandwidth, and other infrastructure costs that arise as user needs develop can be distributed over time.

The keys to the success of a federated architecture lie in the development and adherence to a consistent data standard, the use of standardized extracts, a robust metadata repository, and toolset to maintain and translate multiple sets of data definitions. It is also critical that a common business model be defined which will provide the basis for common dimensions. The common dimensions represent the dimensions having identical business meaning, structure, and data. For example, the “currency” of the data (i.e., its age) is a common dimension for both traditional BSA data and funds transfer reports. However, the currency of the BSA data is very different from the funds transfer data. The funds transfer data may be as little as twenty-four hours old if filed daily, but the other BSA data may be as much as two months old when it is first available to analysts because the BSA allows filers to submit the data up to 60 days after the transactions occurred. The volume of the funds transfer data is many times larger than the BSA data. To maintain an acceptable performance level, the system might only make three years worth of funds transfer data available to users while it offers more than ten years worth of BSA data. FinCEN will need a very robust services layer that can query two very large volumes of data warehouses and integrate the information on the fly to provide users with a consistent view. The system hardware that supports both data sets must be substantial so that the response time is acceptable.

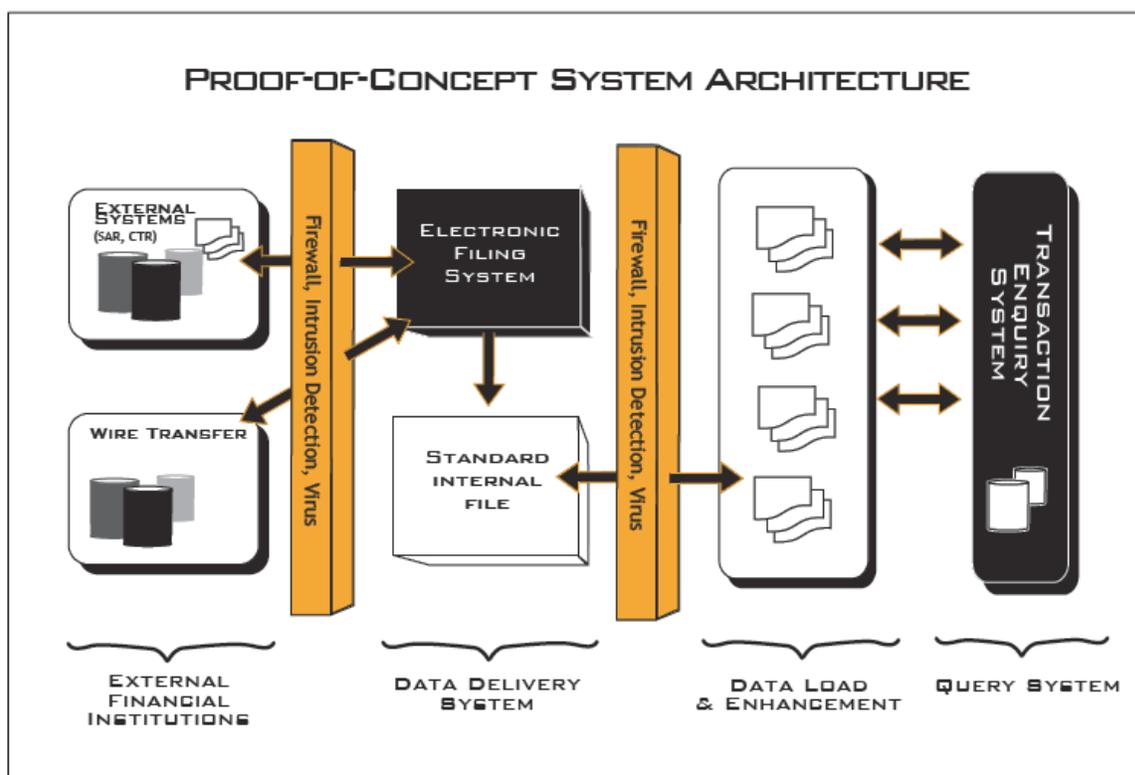
Fortunately, technology continues to evolve. For example, grid computing enables the virtualization of distributed computing and data resources such as processing, network bandwidth and storage capacity to create a single system image, granting users and applications seamless access to vast IT capabilities. Grid computing relies upon an open set of standards and protocols — e.g., Open Grid Services Architecture (OGSA) — that enable communication across heterogeneous, geographically dispersed environments. With grid computing, organizations can optimize computing and data resources, pool them for large capacity workloads, share them across networks, and enable collaboration.

Many financial services businesses have implemented grid computing technology and realized increasing productivity and flexibility in sharing data and computing resources. Grid computing technology provides a means to leverage FinCEN’s existing investments and infrastructure and to optimize the utilization of computing capabilities.

Lessons Learned Technical Issues – Proof-of-Concept

Beginning in March 2006, FinCEN constructed a proof-of-concept system based on an architecture and software employed by AUSTRAC for managing the

receipt, storage, analysis, and dissemination of its IFTI reports. The proof-of-concept system was, necessarily, a very small-scale version of the system, designed to permit FinCEN to test AUSTRAC's architecture and to determine whether a similar approach might fill the needs of FinCEN in the event it requires such reporting under the BSA. As noted above, AUSTRAC's system implements a centralized data architecture for the management of IFTI reports and the other reporting AUSTRAC collects. AUSTRAC and FinCEN personnel modified the system to accommodate SARs, CTRs, and funds transfer data from U.S. institutions. The figure below illustrates, at a high level, the general architecture of the proof-of-concept system.



Through this experiment, FinCEN was able to draw the following general conclusions about handling cross-border funds transfer data in the U.S. First, a cross-border funds transfer data warehouse should make available to the user only those data elements that their partner agencies find useful to analysis. The data warehouse should separately preserve the entire funds transfer report for auditing and advanced analytical purposes. To make the entire funds transfer message available to all users will dramatically increase the data load and dramatically increase storage requirements. Second, the system should distribute data sources for special analytical requirements. In other words, depending on the requirements, the system should replicate and store the data in a separate environment for particular purposes such as data mining, link analysis, or other advanced analysis by specific subsets of users. Third, based

on a robust user requirements analysis, the system should integrate multiple commercial off-the-shelf (COTS) tools to satisfy users' needs. The system design must reflect that one size does not fit all and therefore should implement appropriate tools at the services layer. Fourth, the proposed system should integrate COTS products as much as possible. AUSTRAC's system contains mainly custom software developed by in-house IT staff. This solution is viable for AUSTRAC because it employs such staff. FinCEN employs a much smaller number of in-house technical experts and therefore should consider COTS products for ease of maintenance. Last, FinCEN must pay special attention to the development of a data load process tailored to high volume reporting. The data load method adopted in the AUSTRAC system is not optimized for loading the much larger volume that FinCEN anticipates.