Case Study
Client: United States Department of Agriculture (USDA) Agricultural Marketing Service (AMS), Food and Nutrition Service (FNS), and Farm Service Agency (FSA)

Processed Commodities Inventory Management System (PCIMS) Feasibility Study

The Tri-Agencies –AMS, FNS and FSA -- engage in commodity management activities on an international scale, involving more than $1.5 billion of food purchases per year, coordinating the transportation, processing, and distribution of the final products to school districts, Indian reservations, and special-needs households. PCIMS is the core system supporting these activities.

The Tri-Agencies needed to move beyond the limited capabilities provided by the mainframe-based online batch system operated over an internal USDA network and accessible to only 2500 users. USDA required a system that would provide accurate and timely collection and distribution of information to potentially 2 million users nationwide, including producers, shipping houses, storage and processing facilities, and the consumers.

The Solution

ILS was contracted to design a New Technology PCIMS Environment (NTPE) infrastructure that could accommodate continuous programmatic and technological change. ILS conducted the effort in three phases – collection of user and system requirements, documentation of best practices for legacy system migration, and development of NTPE recommendations.

ILS conducted interviews and JAD sessions, identifying nearly 400 system and user requirements supporting the PCIMS vision. The requirements addressed areas such as web-enablement, data security and currency, universal access by authorized users, and scalability. ILS then researched best practices through case studies describing the experiences of various enterprises with the implementation of new technologies as well as identification of the best new technologies available in the marketplace. We used these technologies as the basis for the alternative architectures evaluated in the feasibility study.

ILS researched new the technologies by meeting with vendors and soliciting product demonstrations and cost information. Our legacy system migration case studies examined migration costs and results in terms of user satisfaction, customer satisfaction, and system performance.

The Results

ILS' recommended that the Tri-Agencies adopt a clustered processor architecture employing an Oracle data warehouse, thin client platforms, and a Rational software development environment. We recommended a phased implementation of workflow management beginning with administrative workflow for the contract management business function, along with a phased implementation strategy for legacy system migration. We also recommended that the Tri-Agencies evaluate the legacy PCIMS to identify stable and effective components for migration, as well as assess the redevelopment costs for GUI enhancement to the user interface.

The Technologies Assessed

Architectures:
> Shared Mainframe, Standalone Processor, Clustered Processors, Distributed Database, Thick Client, Thin Client, Linked Databases, Message Oriented Middleware, CORBA, Screen Scraper

Online Transaction Processing (OLTP) Systems:
> ERP Systems, Amalgamated COTS Systems

Software Development Infrastructure:
> Rational Suite, Sterling Suite, CA Suite

Data Warehouse:
> Microsoft, SAS Institute, Oracle

Workflow Management Approaches:
> Production workflow, Administrative workflow, Collaborative workflow, Ad hoc workflow

Migration Strategy:
> Phased Implementation vs. "Big Bang", System Replacement vs. Legacy, Integration, Evaluating Migration Candidates, Legacy Integration for Migration