

# **Rapid Application Development (RAD) for Data Migration**

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## **White Paper Solutions**

# Rapid Application Development (RAD) for Data Migration White Paper Solutions

## Background

The changes occurring in business today inevitably require some form of data migration - the process of moving data from an existing system to a new replacement system. Data migration is driven by business mergers and acquisitions, movement from legacy systems to packaged solutions (e.g., Lawson, Oracle, PeopleSoft, SAP, Siebel, etc.), implementation of data warehouses and data marts, application system expansion, web access to legacy systems, movement to outsourced and ASP solutions, as well as many other system development projects.

## Code, Load & Explode

The actual cost of migrating the data for these projects is frequently much greater than was initially anticipated. Large data migration projects often fall into the vicious cycle of **"Code, Load & Explode"**.

The symptoms of Code, Load & Explode will sound familiar to most implementation teams: develop programming logic - run a test load - the load fails - discover that data assumptions were incorrect and unexpected data quality issues exist - react by cleansing data and changing specifications - delay to adjust programming - re-test the load - the load fails - find additional incorrect data assumptions and additional unexpected data quality problems . . . react again . . . delay again . . . react again . . . delay again . . . over and over.

In all too many data migration projects, the vicious cycle of Code, Load & Explode goes on, and on, and on, **increasing the cost beyond anyone's worst imagination, and often jeopardizing the success of the entire implementation.**

A recent study by the Standish Group estimates that **72% of all data migration projects either fail or suffer significant cost overruns.** In many cases the unanticipated costs have soared to millions of dollars.

## The Objective and Focus of this White Paper

The process introduced in this white paper is intended to demonstrate a new approach to data migration that mitigates the risk of Code, Load & Explode.

This white paper describes the advantages of using Applaud, a rapid application development tool, to quickly deploy comprehensive solutions for data migration.

While this white paper is in general addressed to firms implementing repetitive solutions for multiple clients (e.g., IT consulting firms, software firms, outsourcing firms, etc.), the approach introduced has equal value for in-house implementation groups.

## The Three Primary Problems in Data Migration

The underlying causes of Code, Load & Explode are usually related to three problems:

1. **Lack of Data Knowledge** – Data migration projects frequently fail due to a lack of understanding of the data in the legacy system. Documentation for legacy systems is often incomplete, out of date, or missing entirely. Assumed relationships of data are often inaccurate. Most organizations assume that they understand the structure and content of the data in their systems, so they feel the data migration project will be a trivial part of the new system implementation. ***Unfortunately, most organizations don't learn that their assumptions are incorrect until much effort and expense has been wasted, and the implementation timeline is in jeopardy.***
2. **Data Quality Problems** – Data quality problems in legacy systems are often the cause of major delays and cost overruns in data migration projects. All too often data migration projects must be placed on "hold" while unanticipated data cleansing projects are completed. In many cases data quality problems are not discovered until the new system is failing. A recent study by The Data Warehousing Institute found that ***62 percent of data migration projects resulted in significant data quality problems after the new system was implemented.***
3. **Lack of Flexibility for Specification Changes** – The inability to quickly react to specification changes is the cause of major delays and cost overruns in many data migration projects. It is estimated that as much as 90% of the specifications initially provided for data migration projects change significantly during the life of the project; and over 25% of the specifications will change more than once (in many cases several times) before the project is complete. Further, many of the changes don't occur until the late stages of the data migration project, just prior to the "go live" date. ***The inability to react to changes quickly and efficiently can jeopardize the entire implementation project.***

**Without the ability to solve these "Three Primary Problems", data migration projects will continue to experience the syndrome of Code, Load & Explode.**

## Conventional Alternatives Don't Solve the Three Primary Problems

Unfortunately the alternatives used for essentially all data migration projects today do not address the Three Primary Problems and thus are destined to the syndrome of Code, Load & Explode. Consider the three alternatives currently used:

- **Traditional programming** - Most data migration projects today are still accomplished through some form of traditional programming. A variety of programming tools are used (A few examples: SQL-based tools, Visual Basic, Access, Excel, C, Cobol, and many other programming languages), but every one of these tools has the same deficiency: ***Traditional programming does nothing to address the Three Primary Problems in data migration.*** (Again, a lack of understanding of the data in the legacy system, data quality problems in the legacy system, and the inability to quickly adjust the migration rules as specifications change throughout the project.)
- **Offshore Resources** - Offshore resources have been used on some data migration projects, but for the most part have delivered less than desirable success. While offshore resources have the potential to reduce the cost of data migration, they use traditional programming and thus offer nothing to solve the Three Primary Problems in data migration. They offer no ability to understand data, resolve data quality issues, or improve responsiveness to specification changes. To make matters worse, ***time zone differences and communication issues often make the ability to respond to specification changes significantly worse.*** As a result, very few firms are willing to take the offshore risk when it comes to migration.
- **ETL Tools** - Several software vendors offer products that perform portions of the needs of data migration. Many of these products fit into a category of tools called "ETL" (Extract, Transform and Load). Unfortunately ***ETL tools are designed for data integration*** (the on-going interface between two or more application systems), ***not data migration*** (the movement of data from the prior system to the new system). Since they are not primarily designed for data migration, ETL tools do nothing to solve the Three Primary Problems in data migration (understanding data, resolving data quality issues, and improving responsiveness to specification changes). In fact, ***most ETL tools are so complex, they can substantially slow the response to specification changes even further.***

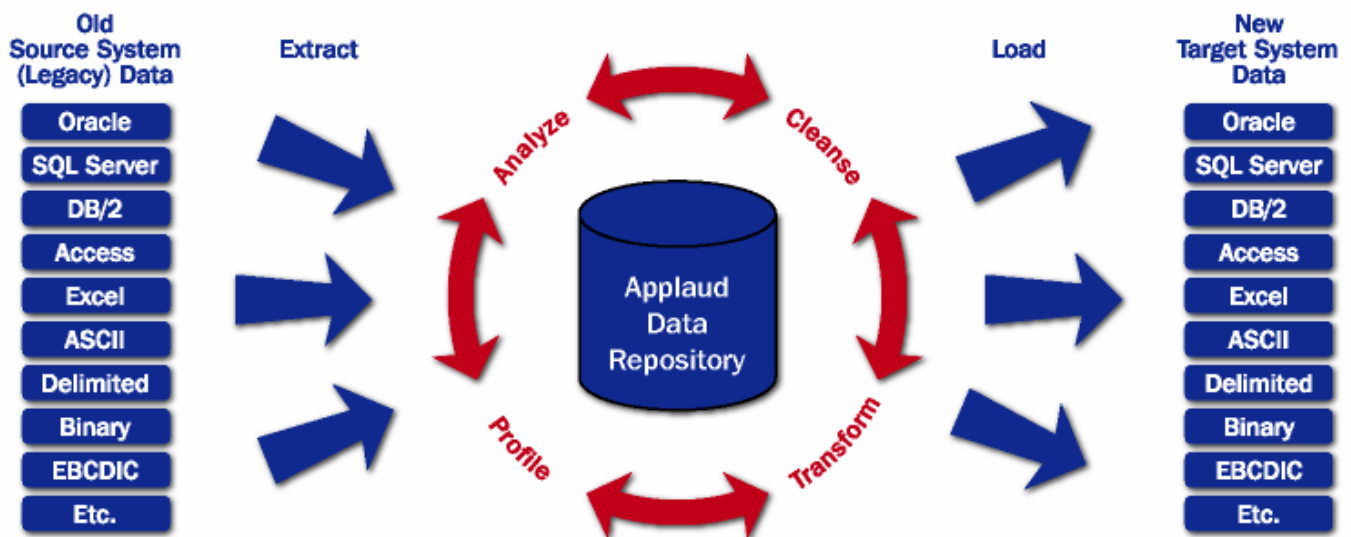
**None of the current alternatives used for data migration offer any help for the Three Primary Problems, and thus are almost certain to be doomed to the vicious cycle of Code, Load & Explode.**

## A New Approach to Data Migration

Applaud is the only software product specifically designed for data migration. Many software products are designed for data **integration**. Applaud is the only product designed for data **migration**. Applaud's design provides the only comprehensive solution for the Three Primary Problems in data migration. Three unique design elements solve the problems:

- **Integrated Tools** - Applaud is the **only** software with integrated tools to extract, profile, analyze, cleanse, transform and load data. Much more than just a data mapping or ETL tool, **Applaud addresses every data need throughout the data migration project.**
- **Data Repository** - Applaud is the **only** software that provides a data repository designed for data migration. The data repository is a flexible storage facility to speed profiling, analysis, cleansing and transformation. **In most Applaud migrations, the data repository is the central location of all data throughout the entire project.**
- **Rapid Application Development** - Applaud is the **only** Rapid Application Development tool designed for data migration. Applaud's rapid application development tools reduce the time and cost of building data migration components. **With Applaud, specification changes are handled quickly and efficiently.**

### Applaud offers a New Approach to Data Migration



The next three sections of this white paper explain how these features work together to solve the Three Primary Problems and eliminate the syndrome of Code, Load & Explode.

## **Integrated Tools to Extract, Profile, Analyze, Cleanse, Transform and Load Data**

As mentioned above, Applaud is the only software product that includes integrated features to extract data from any source (legacy) system, profile the data, analyze the data, cleanse data to eliminate data quality problems, transform the data, and finally load the data into the target system. Applaud's solution supports every data need during the migration project, from the early days of requirements discovery, through the final "go live" date.

With Applaud, the data migration project begins by extracting data from the source (legacy) system and building components for profiling and analysis. The results of the profiling and analysis become the basis for the transformation and data mapping specifications (i.e., instead of guessing at the rules for the transformation and mapping based on out-of-date documentation, the specifications are determined based on the actual data values and the actual data structure).

Cleansing components are constructed when they are needed based on data issues discovered during the profiling and analysis phase. Transformation components are defined as the data mapping specifications are established. Additional analysis components are quickly created to validate the cleansing and transformation. For test runs and at the "go live" date, additional components are used to load the data into the target system.

The importance of fully integrated tools cannot be over emphasized. First, ***integrated tools enable components to include any combination of multiple features.*** For example, a single component in your Applaud migration solution may include features to extract data from a source system, profile the data, perform cleansing, transform the cleansed data, provide analysis that the cleansing and transformation were accurate, and also load the data into the target system.

Second, and maybe most important, ***integrated tools make it easy to build additional components for profiling, analysis, cleansing and transformation as they are needed.*** With any other software solution, you would need to acquire, learn, and use multiple products to perform the separate aspects of profiling, analysis, cleansing, and transformation. Integrated tools offer a seamless solution that is easily adapted to changing requirements.

**Integrated tools are essential to the solution of the Three Primary Problems. Applaud offers the only integrated toolset.**

## A Data Repository Designed for Data Migration

Applaud is the only software product that includes a data repository designed for migration. Applaud's data repository is a dynamic storage facility for profiling, analysis, cleansing, and transformation. The data repository provides the ability to store temporary tables, simulate target tables (without a connection to the target database), and even replicate the entire legacy system to analyze data relationships. As mentioned above, ***in most Applaud migrations, the data repository is the central location of all data throughout the project.***

In the initial phase of the migration project, data is extracted out of the source (legacy) system and loaded into the data repository for profiling and analysis.

For example, suppose the source data is in several disparate systems including a combination of mainframe systems, PC-based systems, RDBMS systems, and even a few homegrown systems based on Access and Excel. Applaud enables you to quickly extract data from all sources into the repository and then analyze the impact of the combined data.

***Duplicates, orphans, inconsistencies, constraints issues, parent/child problems, and other data integrity and structure issues are quickly identified.*** This information can be used to adjust the rules ***before*** the data migration project is underway. Understanding this information early in the project is vital to the success of the project.

Applaud's data repository offers the important ability to dynamically change the structure and definition of data as the requirements change. ***Conventional RDBMS technology is much too slow in its ability to react to changes.*** Applaud's data repository is an innovative approach that responds dynamically "on the fly" to changing needs.

For example, suppose that you have extracted source data into the data repository and later find that a data element that you initially thought was a character field is really a number. With Applaud, you simply change the data definition and the change is complete. There is no need to drop the column and re-create the column and there is no need to extract the data again. The Applaud data repository knows what the data definition was when the data was extracted. ***When it observes a change is made, Applaud instantly knows how to process the data based on the new definition.*** And best of all you made the change yourself, with no DBA involvement. The amount of time saved is substantial.

An additional benefit is the ability to gracefully handle data exceptions. If a data exception occurs, Applaud produces a report documenting the condition (key information and data values) and continues processing.

Furthermore, the data repository allows users to work on the data migration project while not connected to the target RDBMS. Applaud's repository provides the ability to easily simulate all target system tables, thus allowing consultants to work off-site on unconnected desktops and notebook computers.

**The data repository is a crucial element in the solution to the Three Primary Problems in data migration. Applaud is the ONLY software product that includes a data repository designed for data migration.**

## Rapid Application Development for Data Migration

As explained above, Applaud is the only "Rapid Application Development" (RAD) tool designed specifically for data migration.

The design of Applaud is the product of a thorough analysis of the activities performed on data migration projects. This resulted in eleven types of Applaud "Specifications". Each Specification allows migration components to be constructed with essentially no programming.

When you use Applaud, you use intuitive screens to define components for your data migration "System". With Applaud you define components to extract, profile, analyze, cleanse, transform, and load data, all with minimal programming. ***Applaud makes the development process much faster than traditional programming (conservatively a 20:1 difference).***

When the rules change (as they inevitably do) you use the same rapid application development tools to change the components. Applaud's rapid application development features dramatically reduce the time required for specification changes.

***Applaud also includes an innovative set of tools to help you explore the migration from the "30,000 foot view".*** These features enable you to quickly understand how components interrelate and how new changes will affect the components. This further reduces the time spent on changes and also helps avoid the problem of introducing new bugs when changes are made.

Further, Applaud's analysis features have two uses. In addition to the ability to analyze source system data, ***Applaud's analysis features are also designed to be able to analyze the results of cleansing and transformation.*** In other words, Applaud makes it easy to include features to validate your work as an integral part of the solution. This speeds the development/testing process even more and delivers a superior product in the end.

**Rapid Application Development speeds both the initial development and specification changes. Applaud is the ONLY Rapid Application Development tool designed for data migration.**

The next three sections of this document explain in more detail how the Applaud solution addresses the Three Primary Problems in data migration projects: **1)** the lack of understanding of the data in the legacy system; **2)** data quality problems in the legacy system; and **3)** the inability to quickly adjust the migration rules as specifications dynamically change throughout the project.

## Problem 1 Understanding the Data in the Legacy System

In traditional migration projects, data analysis is frequently the weakest stage and often does not occur until the new system is being tested, or even worse, after it fails in production. ***With Applaud, the data analysis is accomplished at the beginning of the project, where it can effectively set the migration on the proper course.***

***Applaud produces many profiling and analysis reports automatically.*** For example, when data is "imported" into Applaud's data repository, a series of profile reports are automatically produced showing statistics for all data and identifying all distinct values of all character data and their frequency distribution. Likewise, when data is "exported" out of Applaud, automatic reports are produced showing control totals (which may be used to balance with the target system). Every time data exceptions are encountered, a report is automatically produced documenting the condition. These are just a few examples of the many automatic reports produced by Applaud.

In addition to the many automatic reports, ***Applaud offers four report generators, each designed for a different style of report.*** Since each report generator is designed for a specific report format, it usually only takes a few minutes to define a report.

Applaud's four report generators include:

- **Columnar Report Generator** - Produces column-style reports with flexible totaling logic;
- **Exception Report Generator** - Identifies missing, erroneous, and inconsistent data;
- **Matrix Report Generator** - Provides analysis of data conditions (in a two, three, or four-dimensional matrix format);
- **Detail Report Generator** - Often called the "client buy-off report generator" for its ability to produce a random sample of the data for client approval as well as its ability to quickly profile any combination of data.

Applaud's data repository also plays an important role in the data analysis phase. As mentioned previously, Applaud makes it easy to replicate portions (or all) of the data structure from any source system and then quickly build tests to understand the relationship of the data structures (and any failures in the relationship rules).

Frequently the findings from the profiling and analysis are so significant, they actually alter the direction for the entire implementation project. For example: The analysis may identify undocumented types of data, which after research, turn out to be an entirely new business requirement that was not anticipated in the new system. Finding this situation up-front is crucial to the success of the overall implementation project.

**With Applaud, specifications for the migration are based on actual data content and structure instead of out-of-date documentation and assumptions.**

## Problem 2 Correcting Data Quality Issues

In traditional migrations, data quality issues are often not found until the migrated data causes problems in the new system. With Applaud, data quality problems are identified and corrected in the early stages of the project, thus facilitating a smooth implementation transition.

Applaud can easily identify and correct data quality problems such as missing data, invalid data, inconsistent data, duplicates, orphans, failures in data relationship rules, invalid integrity constraints, parent/child issues, and essentially any other data quality problems. ***Applaud's data cleansing tools may be easily deployed at any time during the project, and may be quickly adapted and enhanced as the rules change.***

***Applaud also provides advanced tools to cleanse name and address data for customers, vendors, employees, etc.*** Applaud's tools can quickly identify duplicates based on an unlimited number of flexible criteria (including advanced phonetic encoding techniques to find duplicates that may have misspellings). Applaud's cleansing tools also include the ability to correct addresses to postal standards, verify that addresses actually exist, and compute zip+4/postal codes.

Once the data quality issues are identified, they must be corrected. There are three ways that Applaud is used to cleanse the data. In most projects all three are applied in various areas of the data migration:

- **Correct Data Problems in the Source System** - The ideal solution is often to use the source system (i.e., the legacy system that is being replaced) to correct the data problems. This is accomplished by providing Applaud's data validation reports to the client with instructions for the data correction. After the data is corrected, the data analysis components that identified the data problems may be easily run again to ensure that all problems are fully resolved.
- **Build Data Cleansing Logic into the Migration System** - Applaud's tools may be used to correct the data problems as an integrated part of the migration system. In this solution, rules are built into the data migration system to correct the data as the data is migrated. (Applaud may also be used to build features for subsequent data analysis to ensure that the data problems are corrected and resolved.)
- **Build Data Entry Screens to Capture Data Changes** - Applaud includes the ability to quickly construct data entry screens to capture changes for selected data. These screens can be used as needed to enter data changes into the source tables (in the system being replaced), target tables (in the new system being implemented), or intermediate tables (in the Applaud data repository). Data changes stored in the Applaud data repository can easily be used to "override" appropriate data values at the "go live" date.

**Applaud offers the ability to find and correct data quality problems long before the "go live" transition.**

### Problem 3 Quickly Handling Changes to the Data Migration Rules

With the traditional approach to data migration, delays due to specification changes are an expected (and accepted) part of most projects. Does this sound familiar? . . . "The next test load cannot be run until the most recent specification changes are handled". Round after round of specification changes with sluggish response can jeopardize the entire implementation timeline.

With Applaud, ***changes to the data migration components are made with the same rapid application development tools that were used initially to construct the data migration system.*** New data migration rules are quickly implemented using Applaud's rapid application development tools. New data sources are easily extracted into the data repository for profiling, analysis, cleansing and transformation. The data repository's ability to accommodate data structure changes "on-the-fly" speeds specification changes relating to data type, size and structure.

In addition, Applaud includes tools to help users understand the data migration logic, and how various components interrelate. This family of tools makes it ***easy to determine how a change will impact other components.*** For example, Applaud's "Where-Used" feature – the ability to see where and how each component is used throughout the data migration system - provides the ability to quickly analyze all aspects of the processing for any data element. This feature provides the ability to "chase" each thread of logic and to further "chase" related threads, to fully understand how the components interrelate.

Applaud also includes the unique ability to visually "expand" data migration logic - ***the ability to graphically view how data migration logic is used*** - and again "chase" each thread of the logic.

Applaud includes an intuitive programming language. Applaud's high-level tools are so comprehensive they handle about 95% of the migration needs. Since Applaud's programming language is only needed for a small portion of the migration logic, by design it is much less complex than other programming languages. In fact, ***Applaud's programming language is so straightforward, it only requires the user to learn 15 instructions.*** As a result, programming changes are accomplished much faster than with conventional programming tools.

In addition, Applaud includes a ***robust debug tool***, enabling users to view migration logic as it runs real-time. This further speeds the response to specification changes and reduces the likelihood of bugs.

Applaud also includes a ***unique ability to automatically "link" related rows in related tables***, making it easy to view the actual data values that are involved in a transformation. It is then easy to determine if a problem is due to unexpected data values in the source system, an error or omission in a cross-reference table, a failure in the transformation logic, etc.

**Applaud's Rapid Application Development approach provides the fastest response possible to specification changes.**

## A Few Additional Features Worth Mentioning

Applaud also includes several additional valuable features:

- **Reusable Solutions** - Every component developed in Applaud is reusable. Entire components may be easily moved from one client system to another, making it **easy to leverage work from prior projects**. For example, components that are constructed for one client's data migration project can be easily reused in future projects for other clients. With Applaud you build the solution once, and reuse the components as needed. **Applaud is the only software with "Component Plug & Play" reusability.**
- **Templates** - Applaud is designed as a consultant's tool for repetitive, similar projects. Consulting firms define one or more "templates", or partially built Applaud solutions. Consultants begin each project with a template and use Applaud's rapid application development tools to build the needed customization. **Templates further reduce the development time, in some cases as much as 90%.**
- **On-Going Interfaces** - Applaud is also the ideal solution for on-going interfaces. **Applaud's rapid application development tools dramatically speed the development of on-going interfaces.** Applaud's reusability enables components constructed for the initial migration to be reused in on-going solutions, thus delivering the seamless solution.
- **On-Going Data Cleansing** - Applaud is also the ideal solution for on-going data quality initiatives. Applaud data quality processes can identify missing/invalid/inconsistent data, correct problems, cleanse addresses, produce data quality metrics, as well as several other data quality-related processes. Again, rapid application development delivers solutions quickly and at low cost and **everything developed in the initial migration project is reusable in on-going data quality solutions.**
- **Robust Batch Scheduler** - Applaud provides a robust batch scheduler to run multiple components in specified sequences at specified times. **Applaud's batch scheduler can be used for both the initial migration as well as on-going interfaces and data quality processes.** Alternatively, other schedulers may launch Applaud components.
- **Standardized Methodology** - The Applaud solution is a comprehensive "methodology" for data migration projects. **Using a standard methodology for all migrations enables consulting firms to share both resources and solutions among multiple projects.**

## The Solution for Code, Load & Explode

To summarize, Applaud is the **only** software product designed specifically for data migration. Applaud's approach is unique:

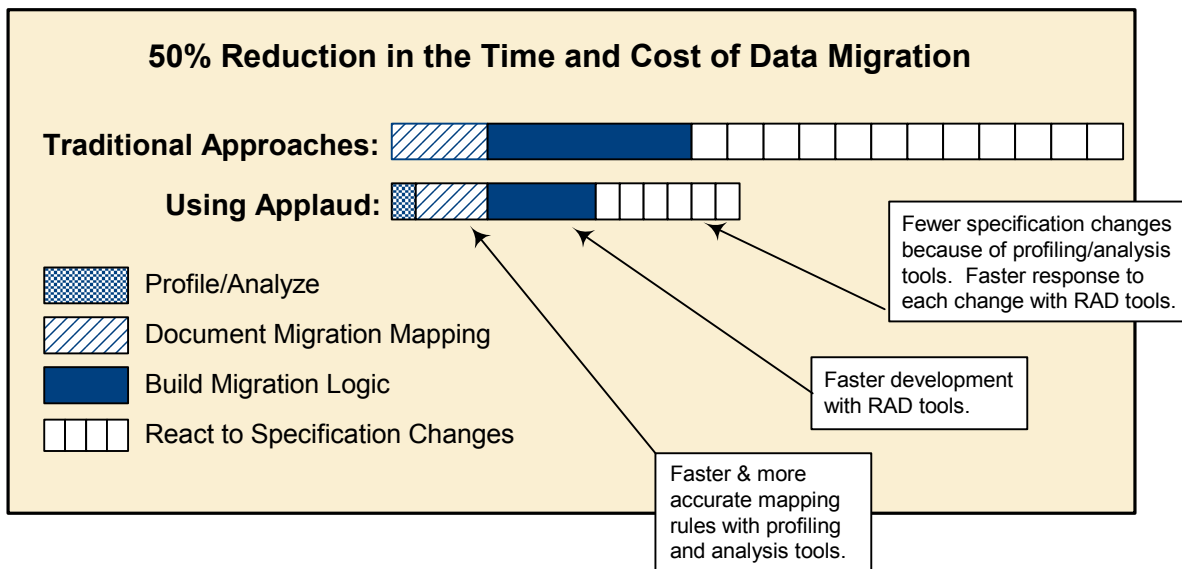
- **Integrated Tools** - Applaud is the **only** software with integrated tools to extract, profile, analyze, cleanse, transform and load data.
- **Data Repository** - Applaud is the **only** software that provides a data repository designed for data migration.
- **Rapid Application Development** - Applaud is the **only** Rapid Application Development tool designed for data migration.

As a result of these key design elements, Applaud provides the **only** solution for the Three Primary Problems in data migration and therefore **Applaud is the only solution to the syndrome of Code, Load & Explode.**

## 50% Reduction in the Time and Cost of Data Migration

Applaud solutions are developed quickly and at very low cost. Users conservatively report **at least a 50% reduction in the time and cost of data migration**, no matter what alternative was used in the past.

The diagram below illustrates how Applaud reduces the time required for data migration. Traditional approaches are subject to the vicious cycle of Code, Load & Explode. Applaud migrations are performed in a fraction of the time.



The 50% reduction in time shown above is conservative. **It is realistic to expect a substantially larger reduction.**

The next section of this document provides a case study to illustrate how quickly Applaud can deliver comprehensive solutions.

## Case Study

### Data Migration Project for a Large East-Coast Organization

**Project Objective: Merge data for 10,000 employees from 28 sources, analyze data, validate data, cleanse data, convert data and populate five target tables, all as quickly as possible.**

The client was implementing a new system for employee benefits. The initial objective was straightforward: extract data from two existing payroll/HR systems and populate five tables in the new system. The project was on a critical time schedule. The legacy system would be unable to process the new benefit plans for the organization's 10,000 employees. There was no flexibility in the implementation date.

The data in four flat files was loaded into the Applaud data repository for profiling and analysis. Unfortunately the initial data analysis quickly showed that the payroll system data was inaccurate to the point it was totally unreliable. The only alternative was to obtain the required data from the client's 19 insurance carriers. Emergency meetings were quickly scheduled with each of the 19 insurance carriers, data formats were obtained (essentially all different), and development commenced using Applaud to construct a comprehensive system to perform the necessary data analysis, data cleansing, and data migration.

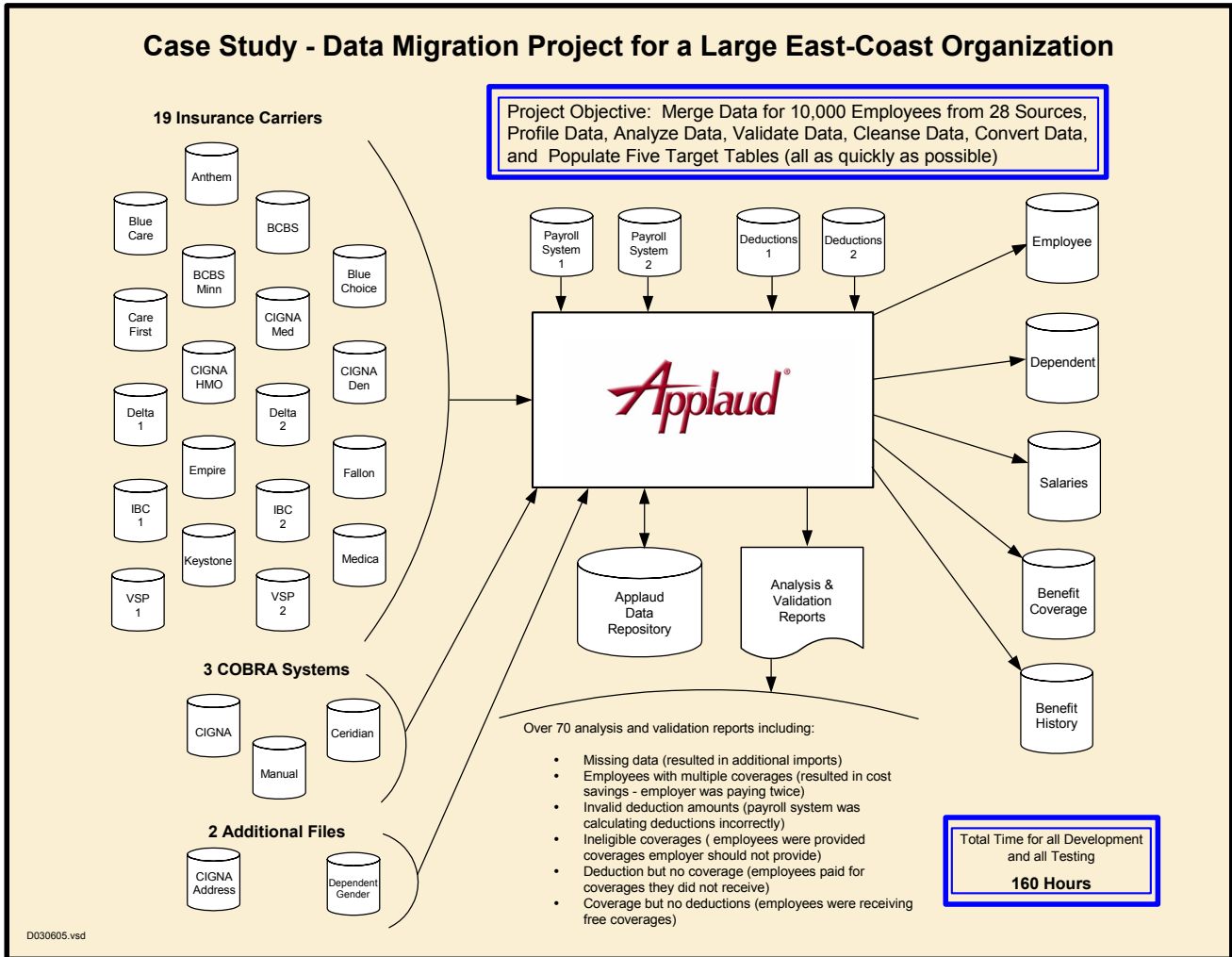
Applaud's tools reacted quickly to the dynamic nature of the project. The rules for the data migration were repeatedly changed throughout the project. New data sources were identified at several points during the project. In the end, data was merged from 28 sources. Over 70 reports were produced to analyze and validate the data.

The analysis reports identified many critical business problems including:

- **Payroll deduction but no insurance coverage** - The data analysis identified many individuals who were paying for insurance coverage but the insurance carrier had no record of coverage.
- **Insurance coverage but no payroll deduction** - Conversely, the analysis also identified many employees who were receiving free insurance coverage. The insurance carrier was providing coverage but the payroll system was not deducting the cost from the employees' paychecks.
- **Employees with multiple insurance coverages** - The data analysis identified many employees with multiple insurance coverages (e.g., insured by two medical carriers). This resulted in a substantial cost savings – the employer was paying twice.
- **Invalid payroll deduction amounts** - The analysis identified a substantial number of instances where the payroll system was calculating deductions incorrectly.

- **Ineligible insurance coverages** - The analysis also found that many employees were receiving insurance coverage for which they were not eligible.

Applaud provided the tools and the flexibility to ensure success. The new system was implemented on the original scheduled date and without issues. In spite of all of the problems, **the total time for all development and all testing for the data migration was under 160 hours.**



## Conclusion

Applaud is the **only** software product designed specifically for data migration. The benefits of Applaud are:

- **Extensive Data Knowledge** - Integrated profiling and analysis tools enable data migration specifications to be based on facts rather than assumptions. Result: Data migration specifications are substantially more accurate, requiring significantly fewer specification changes.
- **Improved Data Quality** - Integrated cleansing tools enable data quality problems to be identified in the early stages of the project and corrected before the "go live" date. Result: Easier "go live" transition and better system acceptance.
- **Reduced Time Spent** - Rapid application development tools reduce the effort required and speed the project timeline. Result: Conservatively a 50% reduction in the time required.
- **Fast & Painless Specification Changes** - Rapid application development tools also speed specification changes. Result: Substantially reduced risk of implementation delays.
- **Reduced Cost** - Reduced time results in substantially reduced cost. Result: Conservatively a 50% reduction in the cost of data migration.
- **Standardized Methodology** - One standardized approach for all migration projects enables resource sharing. Result: Easy to move resources from project to project.
- **Reusable Solutions** - "Component Plug & Play" reusability enables consultants to leverage work from prior projects. Result: Strategic advantage over competitors.

The chart below compares Applaud to the alternatives currently used for data migration.

Comparing Applaud to Other Alternatives				
	Applaud	Traditional Programming	Offshore Resources	ETL
Extensive Data Knowledge:	✓	No	No	No
Improved Data Quality:	✓	No	No	No
Reduced Time Spent:	✓	No	No	No
Fast Specification Changes:	✓	No	No Possibly worse	No Possibly worse
Reduced Cost:	✓	No	✓	No
Standardized Methodology:	✓	No	No	No
Reusable Solutions:	✓	No	No	✓

**The most important benefit of Applaud is the ability to minimize the risk of problems. Applaud provides the tools to ensure success.**

**Web Site**

Additional information regarding Applaud may be found at [www.premier-international.com](http://www.premier-international.com)

**About the Author**

Jim Hempleman is the founder and President of Premier International, and is the visionary behind Applaud. Jim has been an IT consultant for over 30 years and has led teams implementing solutions in a variety of industries and application areas. Prior to founding Premier International, Jim was a consultant with Touche Ross & Co, the predecessor to Deloitte & Touche.

Jim's background includes substantial experience in building rapid application development tools. Applaud is the fifth rapid application development tool he has designed. Jim holds three U.S. patents, one on a portion of Applaud's innovative features.

**Premier International**

Founded in 1985, Premier International has structured a role of "consultants to consultants". Premier International is dedicated to delivering products and services that increase the effectiveness and profitability of consulting firms and other organizations providing repetitive solutions to multiple clients.

To further enhance the value of the Applaud solution, Premier International offers a full range of related professional services. Services include training, support, and template design as well as full outsourcing of data migration, data analysis, and data cleansing projects.

Premier International has grown over 1,300% during the past nine years (average 34% per year), and is a multiple-year winner of the Deloitte & Touche "Fast 50".



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