

SYSTEM INTEGRATION DONE RIGHT

In 2001, Mellon Financial Corporation (Mellon) established Mellon Transition Management Services (MTMS) to focus on pursuing the significant business opportunity in transition management. Mellon's new transition management team made a key decision to design and build its technology infrastructure from the ground up—leveraging the latest in best-of-breed software and employing state-of-the-art implementation methodology. Based on experience from several large-scale IT investment management projects, the team knew that an optimal system integration strategy would be crucial to the overall success of the business.

INTEGRATION BENEFITS

The benefits of system integration detailed in the box below may be obvious; however, it must be done right if the ROI is to justify the cost. What follows is a description of an integration approach that has enabled MTMS to rapidly benefit from new technologies through timely and cost-effective implementation. It also has the group on the path to Straight Through Processing and T+1 readiness.

INTEGRATION BENEFITS

- More efficient business processes
- Reduced operational risk
- Faster deployment
- Faster processing times
- Reduced operating costs
- Elimination of redundant systems
- Standardized business processes
- Global sharing and reporting of information
- Lower development and maintenance costs
- Competitive advantage – faster time to market

INTEGRATION STRATEGY

Initially, we wanted to make sure that MTMS' system implementation would enable it to quickly and effectively support the business. However, we also wanted to try to ensure that the IT function would be able to quickly adapt to change and support the rapidly growing business for years to come.

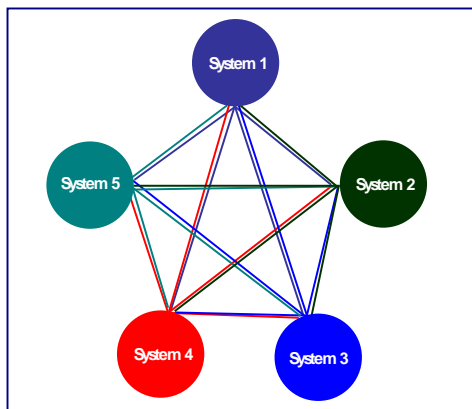
Every business requires the ability to change and upgrade its systems in a rapid, cost-effective manner. Consequently, integration should not be viewed as just a project – it should be considered a core business process similar to accounts receivable or human resources. To that end, every business needs an integration strategy. The integration strategy should be holistic and should be piloted by the business drivers of the company – risk management, better customer service, lower costs, speed, more volume, etc. In addition, the integration strategy must have buy-in at the highest levels of the organization, and the benefits of integration should be continuously reinforced as key business drivers at all levels.

The MTMS integration strategy is based on the following key objectives:

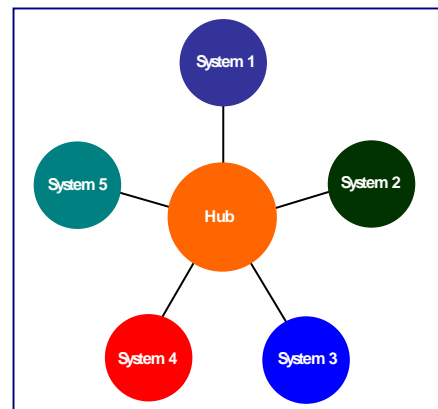
- Implement business workflow for optimal operational efficiency
- Maintain systems in production with minimum effort and cost
- Effectively manage change as ever more sophisticated processes are required to support the evolving business
- Minimize the risk of operational errors
- Maintain flexibility to add new or replace current products with minimum effort and cost
- Achieve Straight Through Processing
- Provide access from anywhere – Intranet/Internet
- Ensure ability to scale in order to handle growth and increased usage

HUB & SPOKE MODEL

The MTMS integration strategy is built on a Hub & Spoke Model. The company has thus avoided reliance on “point-to-point” interfaces, a potentially costly pitfall that makes adding new systems or changing systems expensive and time consuming. Going with the Hub & Spoke Model significantly reduces the number of connections between systems and avoids the exponential increase in connections inherent in the point-to-point model. Reducing connections, in turn, reduces the maintenance effort and the integration effort required every time a new system is added.



POINT-TO-POINT



HUB & SPOKE

The Hub & Spoke Model has additional benefits, including:

- The ability to use best-of-breed products as spokes and not be tied to a single vendor's product suite
- An abstraction layer provided by the hub, which enables legacy systems to be replaced with minimum disruption and cost
- Reduction of implementation effort and project risk, as best-of-breed products may already have been integrated in the hub

- Since the hub contains data from the spokes, it is relatively easy to perform ad hoc queries (usually a custom effort with point-to-point interfaces); the hub can be used to maintain a centralized audit trail
- The hub can be used to monitor business processes and performance, correlate events and alert MTMS if necessary; monitoring can be used to detect errors quickly, thereby reducing their impact

FLEXIBILITY

The abstraction layer provided by the Hub & Spoke Model was key in addressing MTMS' objectives. In addition, we wanted to use loose binding rather than tight binding because loose binding makes changes easier, which is beneficial during development when changes occur frequently. Loose binding is also helpful if ongoing changes are likely to occur. Tight binding, however, typically achieves a higher level of data integrity.

Getting users to adopt new technology is perhaps the most significant challenge facing technologists. We used the Hub & Spoke Model with its abstraction layer to enable us to introduce the new workflow in parallel with the current processes. This allowed users to become comfortable and confident.

RISK

When we started down the path to create the optimal system infrastructure and workflow for MTMS, we had already identified the following main sources of potential risk in the process:

- Multiple independent solutions for recurring issues – In a rapidly growing business, end users have a tendency to leverage spreadsheets and other single-use solutions as a means to quickly address evolving process requirements and respond to growth. Spreadsheets are used not only to manipulate data but also to store business-critical data. Users enter data manually without validation, and multiple users can manipulate the same spreadsheets. Links can become invalid, and there is no audit trail. Changes cannot occur as a transaction, and there is no formal testing to validate spreadsheet logic changes. These are just some examples of the inherent issues surrounding the application of single-use solutions such as spreadsheets.
- “Islands of automation” – Highly specialized user groups with complex business requirements tend to adopt applications that provide narrowly focused business functionality, such as portfolio optimization and risk analysis. Such applications often lack ability to communicate with the other systems in the workflow. Applications are either purchased or built internally to address highly complex and specific business requirements, such as risk analysis or portfolio optimization, often with limited consideration given to the need for integration and overall workflow.

These risk points are common in every industry and constitute pitfalls that we wanted to avoid.

The Hub & Spoke integration model allows us to significantly reduce potential exposure to these issues. When we were selecting the suite of applications to support our process, the ability to

implement the required workflow was a key consideration. Where this was not possible, we developed custom applications to fill the gaps. And, rather than eliminating spreadsheets, we embraced the user benefits while eliminating the potential risks. We did this by allowing business users to access the hub from Excel using worksheet functions and macros. We felt this was an effective way of designing new workflow processes that would eventually be replaced by more robust products or custom applications.

MAINTAINABILITY

Based on many years of experience, the team has a list of operational issues that need to be addressed pre-production. This information comes from projects as well as personal experience maintaining systems in production. MTMS used this list of issues to make sure that products it considered had tools that would help us troubleshoot and repair problems that might arise in production. If gaps existed but we liked the product regardless, we purchased or built the tools required prior to production.

THIN-CLIENT SOFTWARE

Because it is desirable for users to access our systems at remote satellite offices, while traveling, and at home, we tended to favor thin-client over thick-client software. Browser-based client software is ideal in terms of centralized maintenance and easy deployment, however, this can constrain an application's presentation, and there are security issues that naturally must be addressed. Thick-client software, on the other hand, tends to have a richer user experience because it is freed of the constraints imposed by the HTML protocol.

MTMS solved this dilemma by choosing a browser-based application that actually downloads sophisticated controls to the individual's browser that help enrich the user experience without sacrificing the ease of deployment and maintenance associated with thin-clients. The end result is a browser-based client software that offers the processing power required by sophisticated business processes while also allowing multiple global offices to share a common workflow and the ability to recover quickly in event of a disaster. This combination truly offers the ability to deliver the best of both worlds.

STRAIGHT THROUGH PROCESSING

To MTMS, Straight Through Processing (STP) means the ability to process trade information from order creation through settlement without human intervention. A trade should be able to go through its entire life cycle without manual handling and without duplicate or redundant processing. STP provides risk reduction, cost reduction and the ability to handle increasing volumes.

SCALABILITY

We took great care to understand how the products chosen would scale based on an expected increase in the number of users due to projected business growth. This led us to look at n-tier products built on technologies with scalability in mind. We wanted vendors to prove that their products could scale regardless of the chosen platform, as it is all too easy to create applications that look very impressive on the front end but end up bottle-necking on the back end as soon as dozens of clients are added.

FUTURE

The Hub & Spoke Model acts as both a provider and a consumer of data services. Data can be provisioned in a natural way by building a Web Services interface on the hub itself. However, the real benefits of cross-platform data exchange can occur only if Web Services are built on to the legacy systems that comprise the spokes. This approach takes time but fortunately can be done in an evolutionary manner one spoke at a time as budgeting and resources permit.

ABOUT THE AUTHOR

Paul Holthe

Director of Information Technology

Mellon Transition Management Services

MTMS was recently ranked first in operational efficiency and overall service and analysis in the April 2004 *Global Investor Magazine* worldwide survey of more than 200 plan sponsors.