



Migrating Lotus Notes Applications to the Microsoft Platform

Strategies for Success

An InfoStrat White Paper

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Executive Summary

Microsoft has become the most popular platform for office collaboration such as document management, intranets, and line of business solutions. Many customers are migrating to the Microsoft platform from other products and technologies such as Lotus Notes.

There is no simple recipe for migrating from Lotus Notes to the Microsoft platform. A migration project requires planning and analysis prior to installing infrastructure and migrating Lotus Notes applications.

This white paper explains how Lotus Notes applications may be converted to the Microsoft platform, the migration techniques and tools available, and best practices for migration to the Microsoft platform. It focuses on the more complex Notes apps which often are the highest barriers to migration and highlights the use of Microsoft Dynamics CRM as part of the entire Microsoft application platform.

Microsoft has developed a detailed approach to migration from Lotus Notes. The most comprehensive treatment of this approach is in Microsoft's [Application Analysis Envisioning Process for Lotus Domino Applications](#) by Scott Andersen et al. We are simplifying and summarizing this approach in this white paper and adding how Microsoft Dynamics CRM fits into the Microsoft platform and offers a rapid way to migrate many complex Lotus Notes applications.

Our target audience is information technology managers, project managers, software architects and software developers evaluating the Microsoft collaboration platform and planning migration projects.

Background

Lotus Notes defined the first generation of collaboration software. It provided integrated messaging, document management, and a platform for business application development. Lotus Notes allowed end users and power users to define solutions that otherwise would have required programmers and custom development. Over the years, Lotus Notes' solutions proliferated in business and government.

Throughout the last decade, Lotus Notes has lost market share to Microsoft in the email messaging market falling from as much as sixty percent market share to an estimated twelve percent in 2008 according to Ferris Research. The study found Exchange in 65 percent of 917 organizations surveyed worldwide.

As mobile email clients have grown in the past four years, Lotus Notes market share as an email client has dropped by 54.44% to 0.07% from 2011 to 2012, according to Campaign Monitor (<http://www.campaignmonitor.com/resources/will-it-work/email-clients/>).

IBM offers not only Lotus Notes, but other collaboration products as well. According to IDC, IBM's market share for collaborative environments slipped 5 percent to 37.7 percent while Microsoft holds a 52 percent market share. This category includes not only Lotus Notes but other IBM products. IBM's new Workplace initiative, a J2EE (Java)-based web services platform, competes with Lotus Notes and seems to be recognized as the flagship of IBM's messaging products. The confusion between the two offerings from IBM is difficult for companies, their constituents and clients. This has also lead to other problems in the marketplace for Lotus Notes and IBM.

The number of Notes developers has also decreased along with market share, making it more difficult to find people to maintain these applications. Users have also expressed concern that innovation in Notes is slowing down and that the product is not keeping up with the latest technology. IBM's promotion of Java and J2EE development tools has led some Notes developers to switch platforms rather than continue with Lotus Notes. Others have been discouraged by the steep learning curve of Java because they were initially drawn to Notes as a rapid development platform that non-programmers could use.

"We were die-hard Notes fans. We can say to customers that yes, Notes was a great product, but the time has come now for a switch." Said Mo Khan, General Manager at Xelleration. "The world is changing, and if you don't do it now, than you will become an island by yourself." (Microsoft [Case Study](#))

Even long term Lotus Notes customers are considering the switch to Microsoft:

Some Lotus Notes customers who have switched to another email product retain legacy Notes applications remain, creating challenges for maintenance and interoperability. Indeed,

many organizations operate both Lotus Notes and Microsoft platforms despite maintenance, training and compatibility issues. This unfortunately leads to further complications, and an ultimate loss of productivity. The reasons include lack of trained developer on either system or both, user compatibility issues and technology that is not keeping up with the industry.

Lotus Domino has also lost market share in recent years. In 2014 it is running about 0.1% of websites, down from 0.55% in February 2013 (<http://w3techs.com/technologies/details/ws-lotusdomino/all/all>).

The Lotus Notes Migration Process

Microsoft provides several documents on the migration process from Lotus Notes to the Microsoft platform (see Sources below). A Notes migration may be accomplished using the following steps, shown in figure 1.

First, inventory all the Lotus Notes applications in your enterprise. Second, classify the applications according to features and complexity. Third, prioritize which applications should be migrated first. Fourth, map the Lotus applications to the target Microsoft products and technologies. Finally, implement the migration according to your plan.



Figure 1 Steps for Lotus Notes Migration

Lotus Notes combined many functions that were previously available in discrete types of products. Therefore, a Notes installation contains many elements:

- Messaging (email). The approach for migrating email to Microsoft Exchange is well tested and documented. Microsoft and many Microsoft partners are experienced with migrating messaging. We will not devote attention to messaging migration in this white paper.
- Data entry. These are principally web pages and Lotus Notes Forms. They map to SharePoint web pages and to Microsoft InfoPath forms.
- Scripts. These automate functions and contain business logic, such as calculations, derived fields, and other actions.
- Data. Data elements are captured from forms and stored in Lotus Notes.
- Metadata. This includes the data model itself.

Inventory the Lotus Notes Applications

Before you can migrate anything, you need to make a list of what you have. This is a great time to determine whether all your applications are still being used, and which could be eliminated, improved or combined. Many applications were developed for temporary use, or the business rules upon which they were based have changed, rendering the applications obsolete.

Gather data such as the following on all Notes applications:

- List of all Lotus Domino Servers
- Report of all Domino templates
- List of users, groups and permissions
- Usage report by application and by user
- Geographic distribution of applications and servers
- Applications by server

In addition, you may want to interview key stakeholders to determine which applications are most important and identify unfulfilled requirements or known problems with the applications. If you can enhance the applications during the migration process the chance of adoption will be higher than merely switching to a new platform and retaining existing functionality.

Figure 2 is a sample of the application inventory for a Notes shop:

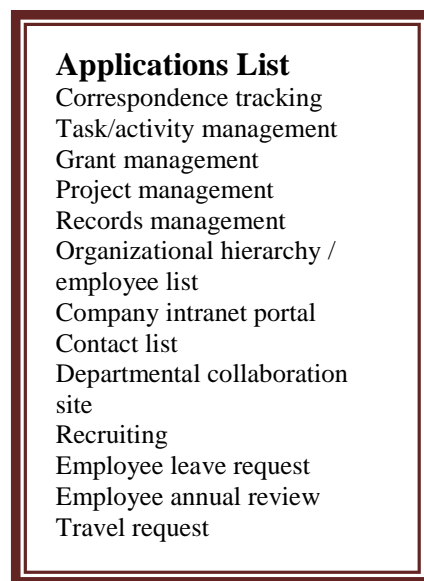


Figure 2 Applications List

Now that you have a list of the Notes apps, you can analyze them and classify them.

Classifying Lotus Notes Applications

A key step in migration is classifying Lotus Notes applications to determine where they will end up and how they will get there. Using the information you have gathered, organize the applications into groups with similar characteristics. We generally categorize the applications in two ways: application type and complexity.

The application type is determined by the Notes features that are used. For instance, some Lotus Notes applications are heavily centered on documents. They provide a folder structure for document storage and processes for teams to develop documents.

Here are some application types:

- Document Management
- Workflow
- Integration with external data source
- Form entry of structured data
- Threaded Discussion databases
- Real Time Collaboration

You can also categorize base on the complexity of the application. For instance, does the application use Java script? Does it contain Java mail send commands? Does the application connect to other Notes applications or to other systems? Does it consume external data? Does it push data to another system? What kind of workflows are in the application? We can organize the complexity along the spectrum shown in figure 3.

Complexity Level	Description	Example	Target
Simple	Map to off-the-shelf Microsoft functionality	Task list	SharePoint
Medium	May contain custom data elements or scripts	Document approval	SharePoint with workflows
High	Additional data elements and metadata; sophisticated workflow	Case management	Dynamics CRM and SharePoint
Very High	Real time device interfaces; sophisticated integration; non-standard user interface	Inventory management	Dynamics CRM and Custom Development

Figure 3 Complexity Spectrum

In most installations, the majority of Lotus Notes applications tend to be simple ones, and highly complex applications are rarest of all. This means that migration of messaging and documents usually takes care of the majority of Notes applications and users.

In addition to the application type and complexity, the application may be classified according to usage patterns. How many people use the application? Is their use daily or less frequent? Who are the people who use the application?

Do not assume that a Lotus Notes application is simple without verification. Many of these applications have grown organically over many years and can be quite complex. There is no guarantee that they are documented or follow consistent design practices, any more than other programming tools.

Mapping Notes Applications

A Lotus Notes application could be architected in multiple ways on the Microsoft platform. Microsoft offers multiple tools in its “stack” of server and client products, and many possible integration points among products. Figure 4 shows logical mapping for Lotus Notes applications.

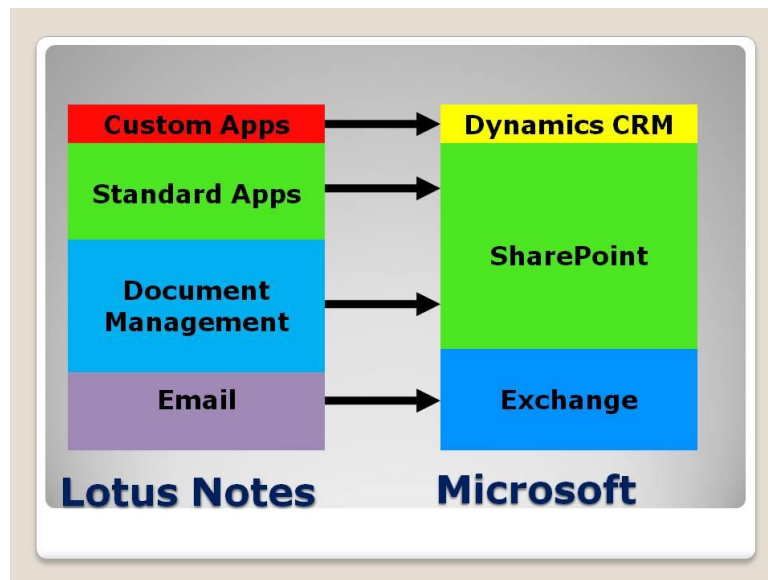


Figure 4 Mapping Lotus Notes to the Microsoft Platform

Starting at the bottom of figure 4, Notes email maps to Microsoft Exchange and the Outlook email client. Document management maps to Microsoft SharePoint. Many simple applications, including some that are standard with Lotus Notes, map to SharePoint. For instance, SharePoint contains team workspaces, task lists, shared calendars, and templates for common business functions which are similar to those used in Lotus Notes.

The custom Lotus Notes applications present a greater mapping challenge. Some may be handled by out-of-box Microsoft functionality in SharePoint, but others are a much better fit for Dynamics CRM.

Dynamics CRM as an Alternative to Custom Development

Microsoft Dynamics CRM can be an alternative to custom development for complex Notes applications. It can reduce the time required for migrating custom Notes applications to the Microsoft platform by providing a data model, user interface, offline client, and other pre-built components for many common business functions. Unfortunately, rather than taking this approach many hours and dollars have been spend on creating custom Lotus Notes applications. These custom Lotus Notes applications attempt to provide what is off-the-shelf Dynamics CRM functionality, such as contact management, call center trouble tickets, sales and marketing activities, public outreach and more at a higher cost. Unfortunately, problems can arise during maintenance of these applications, which can again have expensive fixes. Microsoft Dynamics CRM instead offers these functions standard, in one complete package.

A [Microsoft case study](#) describes how an accounting firm migrated a Lotus Notes application to Dynamics CRM.

“Plante Moran used an application based on IBM Lotus Notes to manage client contact records and track its sales pipeline. However, client contact and sales data were stored in separate databases. Moreover, the system lacked a unified, easy-to-use interface for accessing these different functionalities. Plante Moran’s consultants could not quickly or easily merge data stored in a variety of formats in the Lotus Notes–based system with the applications they rely on each day, such as Microsoft® Office Excel®.”

Even for solutions that are based on custom entities and fields, Dynamics CRM offers significant savings in time and effort compared to custom development.

For instance, when converting a Lotus Notes application for health inspections, financial auditing, or mine safety inspection. In Notes, it consists of a collection of documents organized in folders which may be taken offline, completed, and synchronized to a central store on the network when the inspector returns to the home office.

How could this be mapped to SharePoint? There are several options for mapping the application which vary in complexity in the same way that Lotus Notes applications have varying levels of complexity. The paradigm of SharePoint is centered on web sites which are accessed by workgroups. These sites which contain elements such web pages, list objects (simple database tables) rendered on web pages, document libraries, and web parts on portal pages.

One way to map the field inspection application to SharePoint is to use document libraries to store documents, combined with the workflow capabilities of SharePoint and the offline client (Groove for SharePoint 2007 or renamed SharePoint workspace for SharePoint 2010). Users would check out the documents, go offline for the inspection, complete the documents and check them in after connecting to the office. This approach would be closest to the original Lotus Notes application, but would be difficult to use for reporting and aggregation. It is not easy to calculate totals for a range of dates, for instance, in a folder full of documents.

Another SharePoint approach would be to use list objects to capture the data from the inspections by adding custom fields for the information to be gathered. InfoPath forms could be used as a data entry interface. List objects would allow enhanced reporting compared to the document-centric approach, but complex calculations and reporting are not easy to implement from a SharePoint list without custom programming.

Another mapping alternative is to use Dynamics CRM for the solution, creating custom entities and attributes, and using the built-in offline and mobile clients for Dynamics CRM. SharePoint could be included in the solution to allow lightweight document management such as version control.

Finally, the solution could be mapped to custom development using a SQL Server back end and a web client created in Visual Studio. The developer could choose from a number of programming languages supported in Visual Studio such as C# and Visual Basic.net. This approach makes sense when a non-standard user interface is required rather than an interface similar to Microsoft Office which is offered in Dynamics CRM.

The mapping stage is a good time to consider reporting enhancements to your application. The Microsoft platform offers much more powerful reporting options than Lotus Notes, and users often appreciate improvements to reports. You can also add data visualization such as business graphs to provide management with dashboards showing key performance indicators.

Advanced reporting and business intelligence functions are often overlooked in Lotus Notes applications because they are not supported in Notes without add-in products. On the Microsoft platform, however, these capabilities are built into both SharePoint and Dynamics CRM. SQL Reporting Services may be used to create simple or complex reports, and Excel Services in MOSS provides powerful analytics without programming. Adding reporting and business intelligence to applications such as the above, provides users with tangible benefits and justification for the cost of effort of the migration.

Prioritizing Applications to Be Migrated

Once you have inventoried, classified and mapped your applications, you must set priorities and schedule the migration. There are many factors to consider and several approaches to prioritization.

One approach is to tackle the most difficult application first. The theory is that success with the most difficult conversion will increase confidence in the capabilities of the platform and garner user support.

The opposite approach is to target “low hanging fruit”, that is to migrate the easiest applications.

“These three applications were chosen because they illustrate increasing levels of customization by DIMA and thus increasing complexity. Migrating the NAS, in particular, would demonstrate the power of SharePoint Products and Technologies as a customizable, programmable environment that can handle migrating very complicated Notes applications. It would also demonstrate integrating SharePoint features with a SQL Server-based application, showcasing the flexibility and coordination between the two products.”

Source: [Microsoft Case Study](#)

This approach creates the appearance of progress because you are checking off items on the application list quickly. It may also impact a large number of users and allow you to get more users off the Notes platform quickly.

Something like the Noah's Ark approach is to take one or two applications from each level of complexity and convert them to prove the platform can be successful with the full range of applications. The Australian Department of Immigration and Multicultural Affairs (DIMA), for instance, picked simple, average and complex Lotus applications to start.

In addition to complexity, prioritization may consider the number of users for the application, criticality of the application, and even the department where the application resides. In many occasions the information technology department migrates to gain experience and better integrate the product to the unique company culture. This helps to minimize disruption to other departments.

However, sometimes user priorities or business needs drive priorities for migration. If the chief financial officer depends on an application for budgeting, for instance, it may be elevated to the top of the list over requests from other departments.

Implementing Migration

Once priorities have been set, the migration can be conducted, following the development lifecycle that your organization prefers. This phase includes standing up infrastructure such as messaging, web servers and database servers, as well as implementing, testing, and training for the applications that are migrated.

The implementation team should consist of people who specialize in business analysis, infrastructure specialists such as network engineers, and potentially developers. Often the staff who are proficient in Notes development are concerned about their role during and after the migration. We have found that Dynamics CRM provides an excellent opportunity for these individuals to contribute to the project and improve their technical skills.

Lotus Notes Migration Tools

Microsoft and other vendors offer several tools to assist with migration from Lotus Notes. The following is a summary of these tools with links for additional information.

Tool	Description	Vendor
Quest Notes Migrator for SharePoint	Tool for analyzing and migrating Notes, QuickPlace/QuickR and Domino.Doc application content to SharePoint and SharePoint Online. Notes Migrator scales from automated migration of standard Notes applications to advanced migration of complex custom Notes applications.	Quest
DocAve Lotus Notes Migrator for SharePoint	Transfers documents and application content from Lotus Notes/QuickPlace/Quickr to Microsoft SharePoint 2007 or 2010.	AvePoint
DocAve Lotus Notes Migrator for Exchange	Provides lossless and secure migration of Notes server-based data and personal data to Microsoft Exchange.	AvePoint
Easy2Share		Verinon Technology Solutions Ltd
ecKnowledge		CAS AHL Technology, Inc
Lotus Notes Export to PDF	PDF Converter connects directly to your ECM/DMS repository such as Microsoft SharePoint, EMC Documentum, IBM FileNet, Alfresco, Nuxeo and more. An archiving job can be configured so the resulting PDF documents are directed to an existing document repository, along with metadata obtained from Notes fields and formulas.	Swing Software
Microsoft Online Notes Inspector (MONTI)	The Microsoft Online Notes Inspector (MONTI) application helps evaluate how much data needs to be migrated from a customer's Lotus Notes	

	environment to the Office 365 messaging platform.	
Export Notes NSF to Outlook Converter		SYSTOOLS Software
Tsunami Deployer For Lotus Notes Migration	Tsunami Deployer for Lotus Notes® enables Lotus Notes migration into SharePoint products and technologies. Tsunami Deployer for Lotus Notes is part of the Tsunami Deployer Family of Products, which has been developed specifically to respond to all SharePoint 2007/2010 migration requirements.	Tsunami Inc
VisiMigrate Enterprise	Suite of tools for IT professionals to accomplish tasks such as migrating documents, migrating content and extracting user security information from the Lotus Notes platform, using scripts to automate the steps required for migration.	Visionet Systems

Microsoft Services

Microsoft Services has a practice devoted to Lotus Notes migration, focused on migration to Microsoft Exchange.

Microsoft Partners can access training materials and methodology information on Lotus Notes migration:

https://training.partner.microsoft.com/learning/app/management/LMS_ActDetails.aspx?UserMode=0&ActivityId=563429&CallerURL=/learning/app/taxonomy/TAX_Search.aspx?UserMode=0&NodeID=0&SelectedNodeID=0&VSC=ItemName&VSO=A&SourceRef=-1&DispMode=normal&AdvType=0& .

Additional Resources and References

<http://blogs.technet.com/vedant/archive/2009/10/08/migrating-lotus-notes-applications-to-sharepoint-2007-part-3.aspx>

<http://blogs.technet.com/vedant/archive/2009/10/08/migrating-lotus-notes-applications-to-sharepoint-2007-part-3.aspx>

References

[Ferris Market Research Study](#)

- Exchange has a 65% market share across all organizations
- Domino has a 10% market share across all organizations

[IBM's Lotus Notes Traveler Misses Key Security Features](#) – Gartner

[Ferris Support Staff Requirements & Costs](#)

- Found that Notes systems can cost twice as much to support as Exchange 2007

[MarketScope for Email Systems](#) (14 May 2008, Matt Cain)

- “Business conditions in the email market remain challenging for Lotus Notes/Domino as IBM continued to cede share to Microsoft in 2008”

Case Studies:

- [Brinks Home Security](#) - “Users understood the advantages of moving to the 2007 Office release and Outlook 2007 from the very beginning,” he explains. “In fact, when we first announced the move from Lotus Notes to Outlook 2007 at an all-managers meeting, we got a standing ovation and cheers.”
 - [Hennepin County Medical Center](#) - As a result of its new messaging and collaboration solution, HCMC has cut email costs by nearly \$1.1 million per year, accelerated productivity, streamlined mobile access and system administration, and boosted security.
 - [Sogrape Vinhos](#) - “There were problems with email access,” recalls Alves, “because the application we used at the time, Lotus Notes, was quite cumbersome.” The setup was also difficult to adapt to the new generation of mobile devices, such as smart phones and personal digital assistants. “The synergies in Exchange Server 2007 are clear. We immediately saw greater productivity and flexibility in the remote access of our employees working outside the company,” says Alves.
 - [Union Bank of California](#) – Among the 25 largest banks in the US based on assets, UBC was a Lotus Notes Customer, migrating 13,000 accounts to Exchange.
-

Press: Customers that have moved to away from the IBM/Lotus Notes Platform

Coca-Cola Enterprises

- [**Microsoft Lands Coca-Cola as an Online Services Client**](#) – The Atlanta company is beginning to shift from International Business Machines Corp. software it runs itself to Microsoft Online Services
- [**Microsoft Announces Expansion of Microsoft Online Services to All Businesses**](#)
“By working with a world-class leader like Microsoft to leverage the power of software plus services, we can continue to drive innovation throughout our organization and more effectively address the complexities of today’s global business environment.” - John Brock, president and chief executive officer, Coca-Cola Enterprises

[Eddie Bauer](#) - <link coming soon (Post 11/17)> - Rich Mozack, chief information officer, Eddie Bauer. “The online aspect of the solution enabled us to transition from our old environment to the Microsoft tools very quickly and smoothly. On a Friday, 1400 of Eddie Bauer’s associates went home as Lotus Notes users, and on Monday they came to work as Outlook users with Microsoft Online Services.”

About InfoStrat (Information Strategies, Inc.)

Since 1987, Information Strategies (InfoStrat) has been delivering IT solutions to government and business customers, focusing on portals, customer relationship management, and custom database applications and integration. We were named Microsoft Federal Partner of the Year in recognition of our work with the U.S. government and are winners of numerous Microsoft Partner Awards. InfoStrat has completed over 800 technology projects.

Together, we have over 60 publications to our credit, including the most recent book *Building Portals, Intranets, and Corporate Web Sites with Microsoft Servers* (Addison Wesley, 2004). This book was the first to address the entire Microsoft portal platform, and contains valuable information not only for software developers but also for chief information officers and other technology managers. InfoStrat helped develop one of the largest portals used by the U.S. federal government, www.employeeexpress.gov, hosted by the Office of Personnel Management. The portal has over one million users from dozens of civilian federal agencies.

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