

**Aktion DataLink/400: *Integrating Legacy Data with  
Contemporary e-business Applications***

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Contemporary e-business Applications**

Aktion DataLink/400 Mission:  
*To provide a valuable tool that is small, easy to use,  
predictable, fault tolerant, flexible, and accessible for  
AS/400 developers to transport DB2/400 data to  
Lotus Domino.*

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## Introduction

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### **e-business**

*A secure, flexible and integrated approach to delivering differentiated business value by combining the systems and processes that run core business operations with the simplicity and reach made possible by Internet technology.*

Changes caused by the e-business movement are sweeping across the business community. Virtually, no business will be left untouched, regardless of the markets served. Certainly there is a lot of hype but underneath it all is opportunity.

Significant amounts of money are being spent to be the first to market and therefore shape that market.

### **Business-to-Business Commerce**

The trend that began in the business-to-consumer market is now spreading into the business-to-business market. Companies are recognizing the value of the medium as they look for ways to cost-effectively reach their audience and stretch their marketing dollars.

Online business-to-business commerce sites like Commerce One<sup>1</sup> and Ariba<sup>2</sup> are attracting companies such as General Motors and Staples for product procurement with their trading partners. They provide value by reducing costs for the buyers while opening up new markets for the sellers.

Two objectives for companies to prosper in the business-to-business market are 1). Be there where and when the customer wants and 2). at a price that the customer is willing to pay. That's another way of describing how companies are competing for a shrinking dollar while being expected to provide an ever-increasing level of customer service.

### **Beyond Commerce**

However, e-business is not just about revenue. It's also about improving operational efficiencies and reducing operating costs. It's about automating manual processes and managing and

sharing information. It is about improving communications and creating value for customers.

### **Integrating Legacy Systems**

New software has emerged to meet the needs of e-business. These products generally fall into three categories. Web-serving, collaborative computing (groupware), and email serving. Although they can operate independently of business accounting systems, companies have realized greater value by integrating these new systems with their legacy accounting software.

Some organizations purchased "web-enabled" accounting software. For those who did not, a third piece of software is required to integrate their legacy software with the new e-business software. This class of software is known as "middleware". Middleware acts as the information conduit between systems.

### **A Solution for AS/400 Companies**

The remainder of this document describes a software product called Aktion DataLink/400, developed by Aktion Associates, Inc. Aktion DataLink/400 resides on an AS/400 and provides a vehicle for transporting data from the AS/400 into Lotus Notes.

### **Lotus Notes Domino**

IBM purchased Lotus Development Corporation in 1995 for their industry-leading groupware and web-serving software. Lotus Notes is a web server, email server, and an application server all rolled into one. Lotus Notes Domino refers to their server software while Lotus Notes refers to their client software. In 1998, Lotus introduced a version of Lotus Domino that runs natively on the AS/400. Since that time, the AS/400 has become one of the fastest growing platforms to run Lotus Notes.

Lotus Notes is particularly valuable to the AS/400 community because of its unique ability to access AS/400 databases quickly and efficiently.

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<sup>1</sup> [www.commerceone.com](http://www.commerceone.com)

<sup>2</sup> [www.ariba.com](http://www.ariba.com)

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## Executive Overview

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Two important events occurred that created the need for Aktion DataLink/400. First, the arrival of the e-business movement. Second, the introduction of Lotus Domino for AS/400.

### **Domino Provides Value for AS/400 Users**

Lotus Domino for AS/400 is the native AS/400 implementation of Lotus Notes. It is of particular interest to AS/400 customers because of its powerful integration capability with the AS/400's database called DB2/400. This integration allows AS/400 customers to tap into Lotus Notes' ability to transport information effortlessly across a private network (Intranet), public network (Internet) or a network of related businesses (Extranet).

### **The Business Opportunity**

Lotus Domino, combined with Aktion DataLink/400, gives companies a competitive advantage and a jumpstart on the transition from traditional business to e-business.

Aktion DataLink/400 is cost-effective in that it enables AS/400-based companies to modernize their legacy applications without incurring the expense of replacing those systems.

AS/400 companies can choose several methods for transporting data between AS/400 applications and Lotus Domino applications. These methods include:

- Programming the links in Lotus Notes using Lotus Script
- Using a pump type product such as LEI (Lotus Enterprise Integrator) to transport data on a scheduled basis
- Using DECS (Domino Enterprise Connection Services).

Although each method has its advantages, all are initiated within Lotus Domino rather than within the AS/400 where the data resides.

### **Aktion DataLink/400**

By definition, Aktion DataLink/400 is a real-time data integration tool that resides on the AS/400<sup>1</sup> and provides a stable, predictable RPG programming-like interface to the Lotus Domino<sup>2</sup> Hi-Test APIs with proper error handling.

Aktion created Aktion DataLink/400 to be the data integration tool that resides on the AS/400 and is initiated by the AS/400. Controlling the data from the AS/400 application rather than from Lotus Domino allows AS/400 developers greater flexibility and the ability to create new, powerful functionality in existing applications. Further, such a tool enables companies to leverage their investment in AS/400 development skills.

### **Aktion DataLink/400 works with DECS**

Based on Lotus's HiTest C API technology, Aktion DataLink/400 allows AS/400 developers to integrate data from AS/400-based applications with Lotus Domino, complementing the services provided by DECS.

### **Minimal Learning Curve**

Aktion DataLink/400 is unique in that it does not require a steep learning curve for developers with AS/400 language skills.

Aktion DataLink/400 provides AS/400 developers with a rich palette of Lotus Domino function without having to learn C or understand the Hi-Test APIs.

### **Product Benefits**

- Aktion DataLink/400 saves time by providing access to Domino from the AS/400 without having to learn complicated APIs.
- Aktion DataLink/400 allows companies to leverage their investment in AS/400 development skills by providing AS/400 developers the ability to create the links between their data and Lotus Domino applications.
- Sophisticated error handling maintains your data integrity.
- Enjoy greater control, flexibility and timelines of data synchronization. Since synchronization is initiated from the AS/400 application, you control when your data is transported to Domino.
- Greater flexibility lets you create more complex and powerful applications.
- Aktion DataLink/400 integrates Domino workflow functionality into legacy AS/400 applications.
- Aktion DataLink/400 creates new opportunity by allowing companies to modernize their current business applications with e-business functionality.
- Aktion DataLink/400 provides real-time AS/400 data to a Domino applications.

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## Creating Business Value with Aktion DataLink/400

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### **Conducting e-business**

According to Daniel Amor, in his book *The E-business Revolution – Living and Working in an Interconnected World*, conducting e-business consists of linking the legacy systems of a company's Intranet to their web site allowing retrieval of information from internal databases for communications with customers or other businesses.

Some common examples of e-business functionality are:

- Automated communications with employees, business partners, and customers.
- 7X24 access to information.
- Secure, controlled access to critical business systems.
- Integrated data and messaging systems.
- Workflow processing.

In this, costs savings are realized through business process automation followed by profits made from their online business.

### **Domino for AS/400**

The challenge for companies transitioning to this new e-business model is choosing the enabling technology that integrates their current business support systems and provides web functionality.

IBM has provided companies using an AS/400 as their business system, a powerful solution in Lotus Notes Domino. Since Domino resides on an AS/400, data integration with the business data is possible at the micro-code level, which is much faster than the alternative, ODBC.

Aktion DataLink/400 extends AS/400 applications by triggering Domino workflow functionality based on changes to data in the business application. As an example, changes to a production schedule could generate a notification to sales internally as well as to the customer over the Internet.

Another example is the automatic creation of a review cycle with accounting and sales based on a customer exceeding their credit limit.

### **Application Modernization with Aktion DataLink/400**

In the post-Y2K era, application modernization has become an important and desirable activity for AS/400 customers in response to the changing marketplace. Businesses are looking for improvements to their business support systems that bring real value to their organizations.

Value realized by implementing improvements to a business support system can come in many forms. Although it differs by company and industry, generally that value can include:

- Improved speed to market
- Increased sales through improved customer service.
- Entry into new markets through greater reach and improved accessibility.
- Reduce operating costs through process improvements.

Replacing legacy business systems may not be practical for companies with unique data requirements or business processes that are not supported in commercially available software.

For those companies, Aktion DataLink/400 becomes an indispensable tool. Standard Lotus Notes features such as email, workflow, and web presentation are easily embedded in legacy systems.

Published by D.H Andrews Group, *AS/400 Application Modernization Strategies*,<sup>3</sup> explores the importance and financial justification for modernizing AS/400 applications.

### **e-business Application Deployment with Aktion DataLink/400**

A wide variety of commercial applications are available for Lotus Domino<sup>4</sup>.

Aktion DataLink/400 is also a good solution for maintaining AS/400 data within available

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<sup>3</sup> [www.as400.ibm.com/developer/tools/documents/index.html](http://www.as400.ibm.com/developer/tools/documents/index.html)

<sup>4</sup> [www.lotus.com](http://www.lotus.com)

Domino applications. Minimal changes to the applications, if any, are needed to incorporate AS/400 data into Domino applications.

Aktion DataLink/400 was designed to work outside of these applications using triggers and datahandling programs to pull data from the AS/400 and into Domino.

**Top Lotus Notes Applications**

- Sales Force Automation
- Customer Relationship Management.
- Help Desk
- ISO9000/QS9000
- Document Management
- Business Workflow

**A Replacement for OfficeVision/400**

Since IBM announced the discontinuance of OfficeVision/400, companies who wrote applications using the OV/400 APIs are looking for a functional replacement.

Aktion DataLink/400 and Lotus Domino represent a solid replacement incorporating e-business functionality along with OV/400's mail merge and letter creation capability.

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## Technical Overview

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**What is Aktion DataLink/400?**

Aktion DataLink/400 is an interface to Notes Domino that allows AS/400 applications to create, update, and delete documents in one or more Notes databases, and also to create Notes Mail documents. AS/400 application programs can use this interface just by adding records to a couple of simple transaction files.

Aktion DataLink/400 also includes a set of sample application programs, which illustrate how to add transaction records to the Aktion DataLink/400 transaction files. These samples are complete working programs, well documented with tips on how to modify them to fit your applications.

**How does Aktion DataLink/400 work?**

Aktion DataLink/400 contains two transaction files, one for creating Notes Mail documents, and one for maintaining other Notes database documents. Various AS/400 applications place requests to add or maintain documents into these transaction files. The Aktion DataLink/400 transaction processor reads these files in a continuous loop, formats the requests into the form required by the Notes HiTest C APIs, and passes them on to the APIs for processing.

Aktion DataLink/400 runs in its own AS/400 subsystem, and the transaction processor

job starts and shuts down automatically when the subsystem is started and ended.

**How does Aktion DataLink/400 access Notes documents?**

In order to maintain existing Notes documents, the Notes database must be designed with a special "document keys" view. This is usually defined as a hidden view, and it must contain a set of key fields that will uniquely identify the document. These key fields are normally set up to match the key fields of the AS/400 file or files that the document was created from.

**How does Aktion DataLink/400 handle errors?**

Aktion DataLink/400 has been designed to handle and automatically recover from most of the common errors returned from the HiTest APIs. The transaction requests are designed to include recovery options for such common problems as adding a document that already exists (update it instead or ignore the request). Transaction records always remain in the transaction files until they are successfully processed, so Aktion DataLink/400 can be shut down and restarted at any point without losing any data.

An unhandled error will cause Aktion DataLink/400 to send a Notes mail message to a designated administrator, as well as an AS/400 system operator message, and then

suspend operation for a period of time before retrying. A persistent, recurring error (such as the Notes server being down) will cause Aktion DataLink/400 to send a final message and then shut down until the problem can be addressed.

***What do the sample application programs include?***

The first sample program is designed for an "initial load" of a Notes database from one or more existing AS/400 application files. This program is designed so that it can also be rerun at any time to resynchronize the Notes

database with the AS/400 files, if they should get out of synch for any reason.

The second sample program is a trigger program, which can be attached to an AS/400 file to catch any changes that are made to the file, and echo those changes to the Notes database via Aktion DataLink/400.

The third sample program illustrates how an application can create Notes mail documents, to alert users to some error condition, or for any other purpose.

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AS/400 is a registered trademark of International Business Machines  
Domino is a registered trademark of Lotus Development Corporation  
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