

## Design on Office Automation System based on Domino/Notes

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**Abstract.** The IBM Lotus Domino/Notes is excellent office electronic collaboration platform, and collaborative platforms, industry leading news IM solution integration with industry leading enterprises, to create a collaborative solution. This paper USES the ideas and methods of software engineering, based on Domino/Notes. First, the Domino/Notes platform architecture and composition; Then, the design by B/S and C/S combination of office automation system structure; Then, design a Domino database components, including access control list, logic and data; At last, the design structure of directory service, convenient storage, access, management and use of resources. In this paper, the research content, give full play to the advantages of the Domino/Notes platform, to improve the efficiency of software development and quality plays an important role.

### Introduction

Office automation, it is to combine the modern office and computer network function and a new type of office way. No unified definition of office automation, all in traditional office used in a variety of new technology, new machines and equipment engaged in the business office, belongs to the field of office automation. By implementing the office automation, or digital office, can optimize the structure of the existing management organization, adjusting management system, on the basis of efficiency, increase coordination office ability, strengthen the consistency of the decision, finally achieve the purpose of increase the efficiency of the decision. Along with the computer popularization, the network office has become a trend, office automation system to improve the efficiency of network office has the very vital significance. Every corporate sector in recent years, successively adopted computer office, office software has become one of the hot spots, office automation system is also for the enterprise internal management was put forward. Office automation system, with its stable performance, reliable system, easy to use, process the information fast, accurate and comprehensive functions, and many other characteristics, widely used by many departments, become an indispensable software facilities of the office. By means of efficient management system for office management, company or department can save manpower, material resources and financial resources for the enterprise, improve the work efficiency, reduce the management cost; The information data processing more quickly; Interactivity is more and more strong; For information data storage is more reliable, together with the widespread use of network to be able to make information data sharing, better use of resources.

Office automation system development has experienced three stages: the first stage, the transactional office automation system, limited to single or simple small LAN auxiliary tools such as word processing, spreadsheet, database application; The second stage, the information management office automation system, with the increasing information using the importance, the transactional work system and the comprehensive information integration in the combination of information processing system; The third stage, the decision support model of office automation system, information provided by the integrated database system, structure or choose decision-making mathematical model, combined with related internal and external conditions, performed by the computer decision-making procedures accordingly. Along with the network communication, computer and database and so on three core backbone technology matures, office automation system to enter a new stage, the system has four new features: integration, the

integration of software and hardware and network products, people and systems integration, single office systems with the social public information system integration, formed a "seamless" open system; Intelligent, face daily transaction processing, auxiliary complete intelligent labor people, including Chinese characters recognition, understanding of the document content and deep processing, auxiliary decision-making and dealing with accidents, etc.; Multimedia, including a number, text, images, sound and animation etc. Comprehensive treatment; Using electronic data interchange, through the data communication network, exchange between computers and automated processing. This article is aimed at the new stage of office automation system design.

### Domino/Notes Platform

IBM Lotus Domino/Notes is excellent office electronic collaboration platform, has a unique security features, from the bottom to the top with a total of eight levels of security control, respectively is: the security of network channel, session security, server security, database security, form view security, documentation, extents and domain security. In the design of the new IBM Lotus Domino/Notes integrated instant messaging function, is designed to help the end user management increasing amount of electronic information and speed up the business. Through industry leading news and collaboration platform, IM solution integration with industry leading enterprises, IBM created a collaboration solutions, help enterprises to improve employee productivity, to more quickly respond to customer needs and market opportunities. IBM Lotus Domino/Notes architecture is shown in Fig. 1.

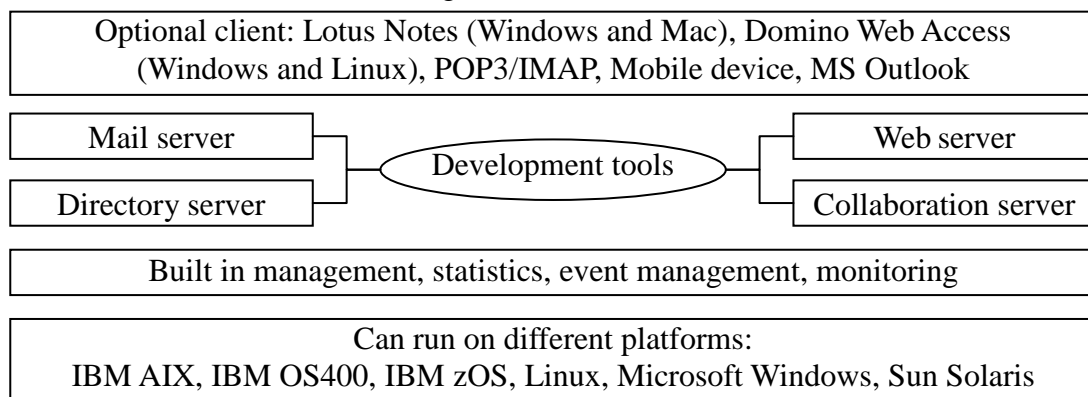


Fig. 1. Architecture on IBM Lotus Domino/Notes

Lotus Domino/Notes is mainly composed of four parts: the Domino Server, the Administrator, Notes and Designer. The Domino Server is the server, and the rest is the client application. The Lotus Domino Server is the Server component. Divided into the Domino mail server, application server and Domino Domino server three categories. Through to the configuration file Settings, can work together to realize office automation system, workflow management, information publishing and information sharing, and other functions. Domino structure of object storage mechanism is the core technology, is the basis of the structure, is based on the storage objects related operation service, the third layer is the application program interface; Lotus Domino Administrator to manage the Domino server client, does not perform the daily operation, also allows users from all relevant interface implementation management operations, including the registered user information management, database configuration, the configuration file setting, tracking, and state statistics, etc.; Lotus Notes is the client application component that provides a friendly and simple user interface, the platform is daily work environment. By connecting to the Domino server, send and receive email in everyday work, schedules, and remind the function such as; Lotus Domino Designer is the client application development environment, for the Notes/Domino database development tools, used to operate a variety of OA system elements, make development a member easily build conform to the requirements of the application.

## Structure Design on Office Automation System

The traditional office automation system based on Client/Server (C/S) structure, make full use of the advantages of both ends hardware environment, will distribute the tasks to the Client and Server side implementation, reduce the communication overhead of the system. C/S has the following advantages and disadvantages: the structure of the application server run data load lighter, more transparent data storage management function, high maintenance costs and poor investment big, cross-platform application.

With the rapid popularization of Web technology users work done by the Browser interface, few transaction logic on the front end, Browser/Server (B/S) structure gradually rise, simplifies the client computer load, reduce the cost of system maintenance and upgrade and workload, reduce total cost of the user. C/S has the following advantages and disadvantages, simple maintenance and upgrade method, reduce the cost and choose more operation data, application server, the heavier load, the safety problems, speed, and interactivity.

Given the rigor of C/S structure and B/S structure of flexibility, using the Lotus Domino Server as development background, the Client browser and Notes as the front desk, the B/S combined with C/S model of development. The system structure is shown in Fig. 2.

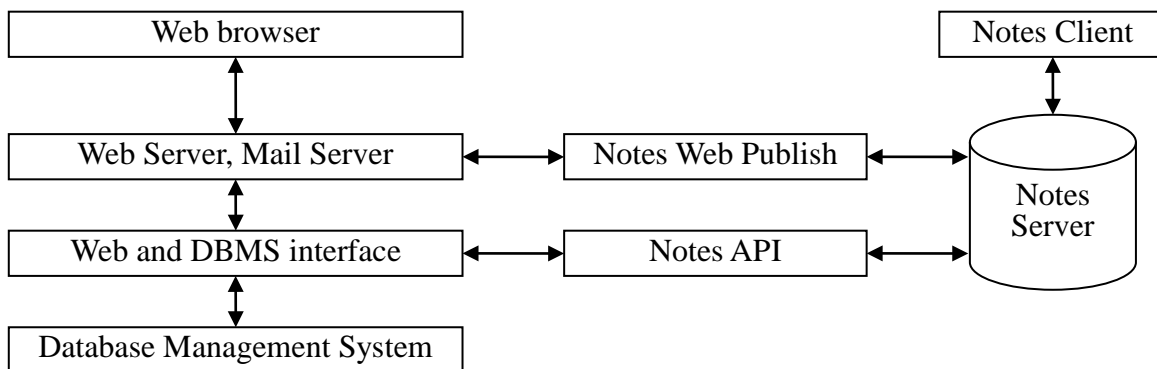


Fig. 2. Structure diagram on office automation system

Fixed installation Notes client office function, through the client using the Domino resources, make full use of the Notes security technology to ensure the safety of information. Notes provides authentication, access control, field level encryption and four security measures, such as electronic signature in order to safeguard the safety of data at the same time, also ensure safety means flexible enough, the user according to the level of permissions to access the database. At the same time, using the Notes Web Publish function, make the Internet a office users through a browser to access information and communication, to achieve the client zero installation and zero maintenance. System provides access to external database interface, external data sources integration to office automation system. Using this structure, not only save development cost, speed up the development, and realize the cross-platform development, is advantageous for the user group of extension and application of systems management.

## Component Design on Domino Database

Lotus Domino as IBM/Lotus Internet/Intranet core product of a complete solution, is the advanced single architecture document database and electronic mail system, provides a workflow automation and standard Web service, application and development of environment, and integrated application of infrastructure, which users can use the Lotus Domino to set up E-mail system, groupware system and Internet/Intranet applications. The great potential and value of Lotus Domino can pass on its platform is simple, rapid development and implementation of the ability to embody and carry forward.

Domino database structure by form, domain, document, view, and other display components. Form is used to create the form appearance and the function of the components; Domain is one of

the important elements, constitute the form for data entry, storage and display; The document is the main form of stored information, equivalent to a row in a relational database; View is a document of display window, can add conditions. Domino database and relational database management system (RDBMS) data exchange tool: Notes Pump achieved with RDBMS database data between periodic replication; LEI between Domino and relational database server in the middle. Domino database component by the access control list, design components, logic, data and so on, as shown in Table 1.

Table 1. Domino database components

Components	Function	Example
Access control list	Defined which users have access to applications, and access permissions.	Any user can read the information, but only certain users can create information, including text, graphics and connections and so on.
Design components	Schema modules of application, programmers use a variety of design components to control the way users interact with the application data.	Webpage, statements, frame, navigation, view, folder, frame, sharing resources, agent and so on.
logic	Programmers to add logic to the designed components, to achieve the following objectives: to calculate, modify, or access value; make operations automation.	Given the length of data of beginning and ending time, when the user clicks the button that the data storage.
Data	The data is the information interacted with applications, by designing components, the user to create, modify and read data.	Name of the customer, address, phone number and so on.

### Structure Design on Directory Service

Directory services mainly to solve in the server in the network environment more effectively organize, manage, and share network resources. Directory service is information database, in the computing environment, easy used to effectively store, access, manage and use information of various kinds of users and resources. Because of user information and network resources through directory services centralized management, so the management of the entire network becomes very easy to use directory services can effectively reduce the management cost and improve the efficiency of management. A directory service is essentially a kind of information service based on client/server model, relies on the catalog database. Compared with the relational database, directory database are better at the query. A directory service structure as shown in Fig. 3.

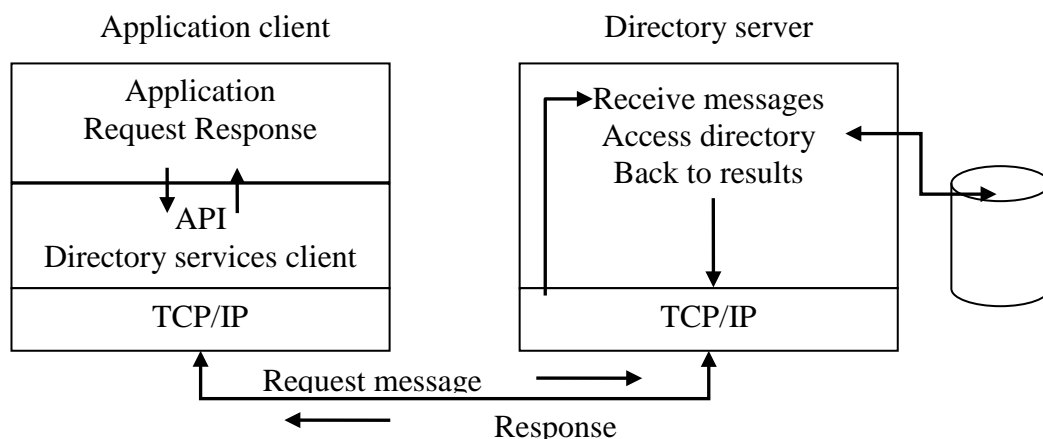


Fig. 3. Directory service structure

A directory service usually works adopts client/server mode. An application to read and write

data from the directory does not deal directly with the directory server, but to call a series of API application interface, these API to operation command message to another process. Received message process is responsible for the actual processing, the results of the processing returns a call process. Application request, send to the directory server via TCP/IP, directory server again as a client to access the database to get the results, through the TCP/IP is sent back to the client. Message passing among format must have certain requirements, these are defined by the LDAP protocol, transparent to users, users see is API.

## Conclusion

Office automation system is to use technology to improve office efficiency, thus realize office automation system. Using Internet/Intranet technology, based on the concept of workflow, make enterprises internal personnel, convenient and quick to share information efficiently work together; Change the past complicated and inefficient manual office procedures, to achieve rapid and comprehensive information collection, information processing, decision and management for the enterprises and institutions to provide scientific basis, favored by many enterprises and institutions. This article is based on Domino/Notes platform design, give full play to the advantages of the platform, to improve the efficiency of software development and quality is of great significance.

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