

# TOSHIBA REVIEW

2003. VOL.58 NO.2

Special Reports-1  
XML Web Services  
Special Reports-2  
Financial Solutions and Systems

<a href="#">Special Reports-1 XML Web Services</a>	<a href="#">Special Reports-2 Financial Solutions and Systems</a>	<a href="#">Feature Articles</a>	<a href="#">Toshiba Technologies for the New Century</a>
<ul style="list-style-type: none"><li>*Autonomous Web Services</li><li>*Technical Trends in XML Web Services</li><li>*XML Web Services Solutions</li><li>*Design Methodology for XML Web Services</li><li>*CrossMission™ XML Web Service-Compliant Business Framework</li><li>*Application of XML Web Services to TV Shopping Program</li><li>*XML Web Services Matchmaker</li><li>*Credit Risk Evaluation Web Services for Efficient Development of Credit Risk Management Systems</li></ul>	<ul style="list-style-type: none"><li>*Solutions for the Financial Sector Based on Three Core Technologies</li><li>*Latest Systems in Financial Industry and Tasks of Toshiba</li><li>*Knowledge Solutions for Financial Institutions</li><li>*Image-Intensive Management System for Claim Documents Realizing Loan Business Reform</li><li>*Agency Total Image Solution Rationalizing Nonlife Insurance Contract Data Input</li><li>*Financial Institution Network Risk Consulting in the Internet Era</li><li>*Toshiba's Solution Support in Establishment of Okinawa Special Financial Zone</li></ul>	<ul style="list-style-type: none"><li>*Vi-2201 Visual Inspection System for Semiconductor Chips</li><li>*Building Control System with Open Network and Internet Technology</li><li>*EXCELART™ SPIN Edition MRI System Featuring Reduced Noise and Improved Diagnosis Quality and Examination Efficiency</li></ul>	<ul style="list-style-type: none"><li>*22. Fabrication and Simulation</li></ul>

## Special Reports-1

### XML Web Services

#### \*Autonomous Web Services

Dr. Katia Sycara

#### \*Technical Trends in XML Web Services

YAMADA Masataka LU Zhenhong

XML Web services are a system integration technology using XML as the message format. They are a technology not only to integrate systems, but also to integrate businesses between enterprises. Therefore, as well as information technology vendors, many enterprises are watching this field with keen interest.

This paper introduces the technical trends in XML Web service standardization. First, we describe the base technologies for XML Web services: SOAP, WSDL, and UDDI. These technologies have been supported in many middleware tools. We then introduce advanced standardization activities in the fields of service description, registries, reliability of communication, transactions, and security.

#### \*XML Web Services Solutions

OHTA Tetsuo

In order to achieve a predominant position by supplying high-added-value products and services, enterprises create business models and reform their business processes. As enterprises are carrying on business in cooperation with other companies, the processes of not only the enterprise itself but also the other companies fall within the range of process reform. Business processes now depend on information systems, and the requirements for technologies that enable cooperation between enterprises (and inside enterprises) are becoming stronger. XML Web Services are attracting attention as a technology meeting these requirements.

Toshiba is researching and developing matchmaking methods and credit risk evaluation models (CRAFT scoring method) in order to realize dynamic services utilizing Toshiba next-generation XML Web Services.

#### \*Design Methodology for XML Web Services

YANO Rei

XML Web services have emerged as a system integration technology over the Internet using XML as the message format. As XML Web services integrate independent systems running even in different enterprises, the design of the message protocol between systems is crucial. Most traditional system development methodologies do not cover the concept of XML and are inadequate for the development of XML Web service systems.

Toshiba has therefore established a methodology for XML Web service system development that supports the design of XML messages exchanged between systems. Using this methodology, the processing flow, the data format of an XML message, and the service interface of each system can be appropriately developed.

#### \*CrossMission™ XML Web Service-Compliant Business Framework

HIRANO Kazunori TADAKUMA Yuji

CrossMission™ is the first Microsoft .NET-based application server in the world. It offers the development environment and the application execution environment for system engineers to build various systems on the Internet platform.

Toshiba TEC Corp. has been developing its own framework for Microsoft Windows to develop POS terminals and store server applications. All CrossMission™ development tools are compatible with Microsoft Visual Studio.NET, while the middleware components coincide with the Microsoft .NET Framework and Common Language Runtime (CLR). CrossMission™ has a function that enables back end business logic created on Visual Studio.NET and .NET Framework to be opened to the outside by making it into an XML Web service or Web application.

#### \*Application of XML Web Services to TV Shopping Program

IMANAKA Shinji NINOHEI Akira YAMAMOTO Junichi

Broadcasting digitization has been in progress in Japan since broadcast satellite (BS) digital broadcasting services were launched in 2000, and a cross-media service market that combines the Internet and digital broadcasting services is also growing rapidly.

Toshiba provides PrimeStation™, an application service provider (ASP) solution for cross-media services that supports XML Web services. This enables, for example, sponsors of TV programs to provide their services to audiences via the Internet. PrimeStation™ and its XML Web services facility have been applied to an interactive TV shopping program.

#### \*XML Web Services Matchmaker

KAWAMURA Takahiro HASEGAWA Tetsuo OHSUGA Akihiko

XML Web Services are expected to become the most popular technique for e-business within the next few years. At that time, strong demand for a search engine for services can be anticipated in order to find services to meet users' needs from among a huge number of services in the world.

Toshiba has therefore developed a search engine for services, XML Web Services Matchmaker, in cooperation with Carnegie Mellon University, U.S.A. This Matchmaker enables services to be found by looking at the semantics of the service such as the ontology and constraints on service invocation, which are not possible in keyword-based search engines. The Matchmaker can also return results that are consistent with actual program interfaces, so that the client program will be able to automatically run it without the intervention of human users. Toshiba will optimally utilize the Matchmaker as one of the features of our system integration business, in combination with the major platform of XML Web Services.

#### \*Credit Risk Evaluation Web Services for Efficient Development of Credit Risk Management Systems

UCHIHIRA Naoshi NISHIKAWA Takeichiro

A credit risk evaluation model that calculates default probability of corporations from their financial reports is indispensable for credit risk management systems. This paper proposes a system architecture for credit risk management systems for non-financial corporations using Web service components including a credit risk evaluation model.

We have developed a credit risk management pilot system using XBRL (eXtensible Business Reporting Language) and Web services based on the proposed architecture in cooperation with the Tokyo Institute of Technology and others. This pilot system demonstrates that it is easy to coordinate existing systems with Web service components.

## Special Reports-2

### Financial Solutions and Systems

#### \*Solutions for the Financial Sector Based on Three Core Technologies

OCHIAI Masao

#### \*Latest Systems in Financial Industry and Tasks of Toshiba

NAGAI Haruji KUBOTA Kazuhiro

The financial industry has been rapidly tacking systematization. However, major changes are expected to take place in the system accompanying the demands for a radical strengthening of management structures.

Toshiba recognizes the following four key principles in the context of such systematization: (1) new business processes that achieve a radical strengthening of management structures, (2) convenience for the customer or agent, (3) business processes that offer employee satisfaction, and (4) strengthening of the management of diverse risks.

This paper introduces typical solutions provided by Toshiba that embody these key principles, and their characteristic technologies.

#### \*Knowledge Solutions for Financial Institutions

FUNATSU Nobuyuki IDEGAWA Tamaki SEIKE Mariko

In the financial industry, there is a requirement to offer valuable services efficiently to customers with limited management resources. Knowledge acquired through daily activities must be utilized in order to satisfy this requirement.

Toshiba provides knowledge solutions that support the utilization of such knowledge, including a system that manages and utilizes information inside and outside of the company as knowledge assets, and a system that utilizes electronic documents, which are the basis of operating know-how. This paper describes the functions of these systems and their key technologies; namely, Japanese-language processing technology and XML technology.

#### \*Image-Intensive Management System for Claim Documents Realizing Loan Business Reform

HIRAI Yasuo ODAKA Satoshi OGISHIMA Koji

Loan business is one of the fields in the banking industry that are most lagging in mechanization. Now, however, in order to realize flexible policies for places of business as well as their rationalization by concentrating office work functions, solutions enabling intensive management of claim documents (loan contracts and incidental documents) are required.

Toshiba has developed a system that supports total management from receipt of claim documents to acceptance, inspection, and image registration in an operating center as well as storage management in a storage facility. By introducing this system, it becomes possible to rationalize the office work of places of business and to avoid or reduce operational risk by managing claim documents safely and securely.

#### \*Agency Total Image Solution Rationalizing Nonlife Insurance Contract Data Input

FUKUDA Masahiro NAGAKUBO Katsuhiko KONURI Yasuhiro

Nonlife insurance companies are speeding up the introduction of new business processes that improve the overall efficiency of contract-related office work by inputting insurance contract data at agencies. The aims of such efforts include strengthening the corporate structure by enabling business results to be immediately grasped, and rationalizing office work. However, there are some problems to be solved concerning these new business processes, such as timely acceptance of numerous types of small-volume work that insurance companies cannot expend much on in terms of costs, and timely collation with original slip images.

Toshiba is developing the Agency Total Image Solution to solve these problems. This paper provides an outline of our solution and the technologies supporting it.

#### \*Financial Institution Network Risk Consulting in the Internet Era

SAKUMA Atsushi ATARASHI Kunio YAMAURA Tatsuo

Various services have been offered via the Internet in recent years, and financial institutions consider the Internet to be an important strategic resource as a new point of contact with customers. However, services via the Internet increase risks, such as deterioration of an enterprise's image and perceived trustworthiness due to the circulation of rumors, that have not existed up to now.

Toshiba has reconfigured its know-how in homepage management as a reference for financial institutions and is offering risk consulting services to them.

#### \*Toshiba's Solution Support in Establishment of Okinawa Special Financial Zone

SAKAGAMI Mitsuhiro TAKEZAWA Nobuhisa ISHIKAWA Yukihiko

A special financial zone was established in Nago City, Okinawa Prefecture, in July 2002. Three years prior to this, Toshiba invested in the think tank that proposed and promoted the establishment of this special financial zone and supported its realization through participation in the related investigations.

Toshiba is supplying various types of solutions to the special financial zone, such as a financial Boltzmann model for risk management, and VOCMeister™ for back office work.

## Feature Articles

#### \*Vi-2201 Visual Inspection System for Semiconductor Chips

IMI Satoshi TAKEUCHI Hiroki

Accompanying the downsizing of information devices, advanced packaging that mounts semiconductor chips directly on a substrate is becoming popular. In this packaging method, the requirement for visual inspection is increasing because defects such as particles and scratches on chips cause impaired performance or failure.

We have previously released automatic visual inspection systems that have been well accepted by the market. However, issues remained in terms of inspection speed and user interface. We have now developed a new system that inspects four times faster than the conventional system. This system is also equipped with new functions such as automatic region setting, enabling recipes to be quickly and easily created.

#### \*Building Control System with Open Network and Internet Technology

FUJII Akihiro TONOZUKA Yoshikazu TAKEMURA Takuya

In response to increasing demand in the market, Toshiba has developed a building control system with an open network and Internet technology. This system has a local operating network (LON) that communicates via local controllers, and employs open technology using a browser. A local control server (LCS) is installed on-site on each floor or for specific equipment, and has functions to control the local equipment and their databases. The system architecture of the LCS enables a flexible system configuration to be realized.

#### \*EXCELART™ SPIN Edition MRI System Featuring Reduced Noise and Improved Diagnosis Quality and Examination Efficiency

YOSHIDA Tomoyuki OKAMOTO Kazuya

In magnetic resonance imaging (MRI) systems, as the scanning speed increases, so too does the scanning noise, which can cause considerable patient discomfort. Toshiba leads the competition in reducing noise and has developed a unique noise reduction mechanism, Pianissimo™, which consists of a vacuum seal structure and an independent support structure. In addition to this mechanism, SPIN technology, which aims to improve diagnosis quality and examination efficiency, is incorporated in the EXCELART™ SPIN Edition series 1.5-Tesla MRI system. SPIN technology is combined with a new high-speed scanning technology, SPEEDER, as well as interactive technology that includes improved operability and refinements in the noise reduction technology.

Toshiba considers SPIN technology to be the beginning of an important technological trend for MRI systems in the future.

## Toshiba Technologies for the New Century

### 22. Fabrication and Simulation