Enterprise Content Management

An Industry Report

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IBM Content Manager OnDemand®

For Customer Service Solutions

Preface

The IBM Content Manager portfolio provides the enterprise content management infrastructure to store, access, and manage the full spectrum of digital information generated in e-business -- from vertical line of business applications to customer service, enterprise resource planning, and supply chain management to digital asset management and web content management. This integrated content can accelerate business process automation across the enterprise for small, medium and large e-businesses.

The Content Manager portfolio manages and integrates access to scanned images, facsimiles, electronic office documents, XML and HTML files, computer output, audio, and video.

Components of the portfolio include:

- *IBM Content Manager - optimized for the capture, storage and management of large volumes of large objects such as scanned correspondence & facsimiles and for audio & video objects.*

- *IBM Content Manager OnDemand® - optimized for very high volumes of smaller objects such as computer print output consisting of statements, bills & transaction reports.*

- *IBM Content Manager VideoCharger -- for media streaming applications*

- *IBM Content Manager CommonStore for SAP -- for archiving SAP data & documents*

- *IBM Content Manager CommonStore for Lotus Domino -- for archiving e-mail & attachments*

This paper addresses the use of OnDemand® to connect e-business, e-billing, customer service and other front office functions with back office generated reports, bills, and statements.

THE NEED FOR MANAGING DOCUMENT CENTRIC BUSINESS CONTENT

"Show me my statements -- I need my statements for the last two months, and I need them today!" How does your organization respond to that customer query? Can you locate the statement and e-mail or fax it (in the same format as the original, printed document) while the customer is on the phone? Alternatively, can the customers find their own statements in a self-service mode over the Web? Retrieving invoices, credit memos, and statements while the customer is on the telephone is the new definition of customer service. Intranet and extranet access to data documents by customers, partners and employees is a competitive necessity. This requires an enterprise content management infrastructure that is Internet enabled.

What if you could:

- manage all e-commerce computer generated documents – bills, statements, and report transaction detail -- in a single repository, with unlimited current and historical access to output from heterogeneous legacy and client/server systems?

- provide answers to your customers' questions during the initial customer call?

- capture, automatically, your existing formatted print files in an organized, indexed, page-segmented repository with individual page level security - with no programming effort?

- transform documents from any print output file format (IBM AFP, XEROX Metacode, Postscript, HP-PCL for e-bill, statement and report detail intranet and extranet Web presentation – once again without programming effort?

- integrate bills, statements and transaction reports with Call Centers, Portals, Electronic Bill Payment & Presentment, and Customer Relationship Management systems?

- implement a system that either is, or can be, easily enabled for wireless document delivery?

Enterprise content management systems deliver all of these advantages, seamlessly moving bills, invoices, statements and transaction report data to browsers for instantaneous electronic access by employees, customers, business partners and vendors. They can be implemented in relatively short time frames using proven, off-the-shelf software. Other applications include:

- **Internet document delivery** -- invoices, bills and credit card statements can be automatically transformed to an Internet format on demand and without programming from the historical repository. Customers can access their statements anywhere, anytime.

- **E-commerce data exchange** -- purchase orders, invoices, credit memos, inventory status, order status, payment status, price lists, and other information is available for business-partner access and customer service using standard Web browsers. Purchase orders, invoices, inventory status, and prices lists appear in a "virtual" customer file when retrieved.

- **Inter-company document exchange - -** departments share computer-based information with any other department or business units regardless of their location or computer systems. Human resources, training, legal, compliance, operations, accounting, and sales can all exchange documents regardless of the system on which the data originated.

Customer-centric, *Web-enabled computer data documents* are a key element of a customer relationship, vendor, or partner management strategy. The development of self-service access to computer generated bills, statements, invoices and business-to-business documents such as purchase orders, price lists, and inventory reports is a critical success factor for any organization that expects to compete in a global, Internet-driven world. Content management systems offer rapid implementation with relatively minor disruptions to the existing information technology infrastructure. And, they eliminate extended software development and on-going maintenance of specialized Web-to-host software.

THE BUSINESS CASE

Content management systems deliver proven results. Demonstrably, they create a significant return on investment by:

- increasing call center productivity by as much as 30 percent,

- eliminating return phone calls by 90 percent,

- improving cash flow by reducing days sales outstanding,

- linking invoices and bills with transaction report data, thus speeding dispute resolution,

- enabling customer self service by allowing Internet access to invoices and statements

When these quantitative benefits are included as a part of a customer relationship management, e-business document exchange, or electronic bill and presentment business case analysis, they provide much of the cost justification that is generally ignored in today's corporate return on investment calculations for these types of systems. The qualitative benefits of an improved business process, superior customer service/self-service and fast access to data makes the case for content management even more compelling.

Documents vs. Database's – The Key Issues

Enterprise data has always been document-centric. Although on-line, record-oriented systems and data warehouses' store the customer data as one or more "records" in databases, the data is ultimately composed, formatted, printed, or electronically distributed and viewed as a *document*. Computer data -- whether originating in an operational database, a web server or a data warehouse -- are presented as formatted bills, statements, or report documents with calculations, column heading information and form overlays for easy viewing and interpretation by users. The display of a document format is a highly desirable feature that allows employees, partners and customers to understand the information.

Computer documents represent the primary corporate memory in today's Internet delivery and customer service environment -- they are both the current and the historical (seven or more years) reference to internal corporate activity as well as the primary method of communicating with customers, partners and vendors. They are necessary for customer service, accounts receivable, collections, and legal departments, as well for internal and external auditors. In many cases, they are a regulatory necessity.

Content Management Systems leverage this fact and simply use the same document format in which data is originally delivered to the customer to index, store, retrieve and view information. Even though this document content is a key element of customer service, the vendors of customer relationship management, e-commerce software, and e-billing and payment systems are just starting to exploit and integrate this readily available, off-the-shelf technology.   This "information black hole" exists because most organizations are too focused on the online legacy or enterprise resource planning system database, believing that it is the only available solution to their information delivery problem. *They have not recognized the availability of affordable technology and customer-friendly systems that deliver statements and bills and related report documents in an easily viewable format – the one in which they were originally created.*

Content Management Technology

Content management systems manage the full range of unstructured data: scanned documents and facsimiles, audio and video objects, and computer-generated print output. They enable **e-Report Management or e-Statement Presentment** solutions by electronically storing, accessing and delivering this *formatted* computer document data from any location or system, to any location, person or system, at any time. Content management systems use the host computer print file document format to index, store, retrieve, view and electronically distribute customer information through wide area networks, local area networks, virtual private networks, wireless, and the Internet. The technology creates metadata for document-specific access and security, and it enables browser access and automatic transformation of bills from their original format to an Internet format without programming. These customer documents can be from a single system or from disparate legacy and client/server systems. Simply put, bills, statements and transaction reports are managed by the content server to provide a consistent view of business documents across the enterprise for customers, employees, and business partners.

E-Business Content Architecture

Enterprise Application Integration: Legacy System/ERP – integrate output documents in any format from any system

Enterprise Information Portal integration

Call Center, CRM, ERP, Workflow Integration

Scalable Document Warehouse: millions of documents & users

Internet Document Format Transformation: XML, HTML, PDF, GIF, JPEG

Business Intelligence – Ad-hoc reports, analysis

Document Specific Security

E- Business Content Management Platform

Text,spreadsheet, computer output: link any back office document from any system

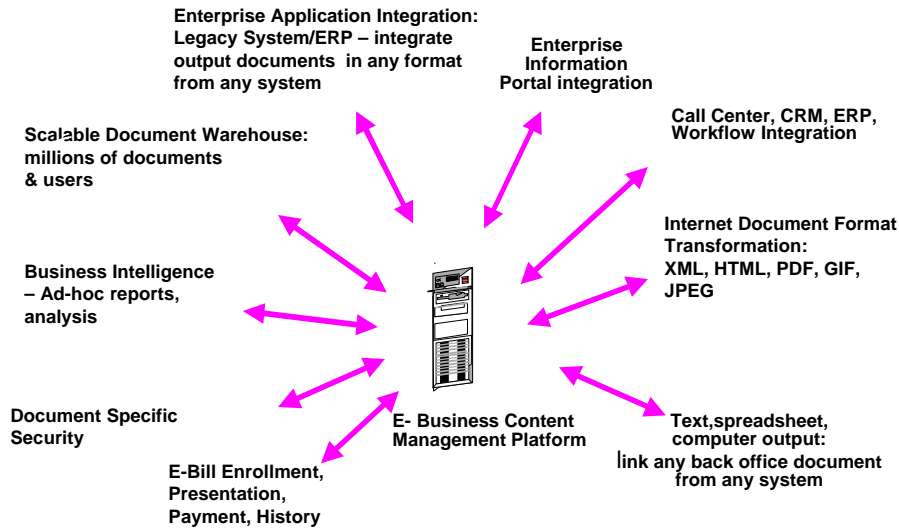**E-Bill Enrollment, Presentation, Payment, History**

Figure 1. Content Architecture

As illustrated in figure 1, e-business content systems deliver a wide range of capabilities, all of which are necessary for the support of enterprise applications such as Customer Relationship Management, Business Partner document exchange, and e-Billing and Payment. When these systems are then coupled with Call Center and Enterprise Portal software the resultant "back office to front office" link truly makes Web enabled content management the backbone of any enterprise information system.

As with many new applications, the terminology associated with the potential solutions gets in the way. This technology comes under a number of different banners. It may be positioned by vendors as any of the following: COLD – Computer Output to Laser Disk, Enterprise Report Management (ERM), Output Management, Content Management, Object Management or simply a Document Archive. Regardless of the name, they all essentially perform in the same manner. However, there can be, and are, significant differences in each vendor's implementation. The key features and technology inherent in a world-class system appear below. "Content Management" is the generic term used in this white paper that refers to all of the above named systems.

Key Benefits of Content Management as a Customer Service and Business Process Improvement Solution

Content management delivers extremely high value by providing front office access to legacy and other host computer data. They enable **"first call resolution"** customer service with immediate access to external "customer relationship" (bills & statements) documents and also improve the back office operations by improving the accessibility to internal reports. As a result, a content management repository is a key component of mission-critical, e-business applications. Some of the specific business processes that content management systems address include:

- **E – Presentment** -- "outbound" customer documents, that is, statements, invoices, confirmation notices, explanation of benefit notices, and others, are indexed, stored and electronically available in their original format. The ability of content management systems to automatically transform complex statement and bill data formats into a Web format without programming is a key feature of this class of system. The automated transformation process speeds implementation by eliminating the programming time usually required to Web enable e-presentment or e-billing applications. Transformation software automatically converts the stored original ASCII, EBCDIC, PCL, IBM/AFP or Xerox/Metacode bills to XML, HTML, PDF or bit-map Internet formats such as GIF, PNG or JPEG. This automatic transformation capability is important for customer service, since any customer document can be retrieved, viewed, printed, faxed, and e-mailed during the initial customer call.

- **Application integration** – bills, statements and transaction report documents generated on different host systems can be captured in the content repository for central access to all documents. For example, one of the primary issues in customer relationship management systems is the difficulty of accessing customer data from different legacy or client/server systems. The content repository solves this problem.

- **Scalable infrastructure** -- the ability of the high performance content management systems to store literally billions of individual pages for as long as ten years -- without degradation in performance -- solves the customer service problem of access to history. Similarly, it solves the legal and accounting history requirement, which dictates the availability of these documents for time periods often exceeding seven years.

- **Document display** -- full-page (exact replica) statement and invoice display eliminates the requirement of on-line record oriented systems to access multiple screens. All of the information required to solve a problem or answer a question is contained on a single document.

- **Workflow** -- documents can be electronically moved to appropriate work areas, for example, forwarding bills to accounts receivable for credit or adjustment.

- **Online access** -- customer requests for copies (reprints) of statements, invoices, and other documents are easily and instantly handled from the Customer Service Representatives' screens without the resource overhead and delays associated with a rerun request to computer operations. Individual documents can be faxed or e-mailed during the initial customer call.

- **Unlimited history** -- long term availability has particular applicability to bills and checks for legal, audit, and accounting compliance.

- **Report mining** – provides access to clean report data for statistical analysis. Report output contains all of the information from the operational database at a given point in time as well as calculated summary information. It is both accurate and reliable data. Ad hoc report mining software lets users create new individualized reports from legacy reports without programming. Users may analyze report data to identify hidden trends, extract selected report data for input directly to spreadsheet applications, or generate graphical views of legacy report data.

- **Intranet (employee) and extranet (customer or business partner) access** -- any document, which users have been authorized to view over any time period can be retrieved. Registration of users and e-mail delivery -- with view anywhere and print anywhere capability -- gives any employee, customer or business partner access to pertinent information at any time. The index is the key to Intranet performance since, unlike file-oriented systems, it allows a specific page or document to be located and electronically disseminated. This minimizes network traffic. For example, when a worker requests a single "total" page of a 100,000-page internal report, that single page can be viewed and distributed without downloading the entire report.

- **Check image and metadata capture** -- is a particular ability of high-performance content management systems. A check image repository allows a bank, or the customer of a bank, to store and access processed checks as an electronic image rather than paper. Bank check scanners create an "image check", eliminating the process of handling paper checks. Check image repositories can import these checks and index and store them for customer service.

  Content management software is the preferred system for this check image application due to the very fast indexing that is required for capturing and indexing the high volumes of checks that banks process. Check processing in large banks can be even larger than computer document output volumes, often requiring indexing and database updating greater than 10,000,000 checks *per day*. Content management systems store and update the account number, the

check amount, and the check number in the index database for as long as ten years without deletions and without performance degradation. Traditional document repositories are not designed for indexing at this volume level. High-performance content management systems, however, *are* designed to index at these volumes. Enterprise content management software, because of this high-performance indexing capability, does double duty and manages both check images and computer report output.

- **Content for Enterprise Portals** – document based computer content has high business value and a quantifiable return on investment. A single point of access to computer generated bills, statements, purchase orders, inventory reports, price lists, order status, payroll reports, and commission statements provides a consistent view of data across the enterprise (even when the data is from disparate systems) for customers, employees, and business partners. When documents are retrieved, they are electronically linked with other relevant documents in a virtual "file folder". For example, the software ties invoices to credit memos through a global metadata index using the account number as the access key.

- **Legal admissibility** -- the Digital Signature bill, recently enacted by Congress, means that electronic bills and statements are now legal in the United States. There is no longer a necessity to keep paper or microfilm to provide a legal historical record. This means that there is a need for an electronic document repository capable of meeting the law's requirement for up to seven years of legal and audit history. A key element of "e-sign" is that documents must be organized, stored, and capable of replication in *essentially the same format in which they were presented to the customer.* This means storing the original statement and bill output and being able to reproduce an identical copy for the legal life of the document.

Content management systems configured for a mainstream customer service operation have the proven ability to index, store and retrieve as many 100 million documents per month, provide high speed Intranet and Extranet access and maintain ten years or more of historical billing and statement information on-line!

Examples of some of the uses of content management systems in an e-commerce, e-billing, customer relationship management, and e-presentment environment:

Global Processing Services, Inc. Delivers Legacy Documents on the Internet

Global Processing Services (GPS), a wholly-owned, U.S. subsidiary of Deutsche Bank (DB), www.db.com, delivers check processing and related services to the bank, as well as providing services for companies seeking to outsource check image archiving, cash management, and other back office services. In the U. S., DB – which acquired Bankers' Trust in 1999 – is a business bank. On its behalf, GPS processes a relatively modest 600,000 checks per day, but the value of the funds passing through each day run between $3-8 billion. GPS decided to make the check images available inside and outside the organization.

IBM Content Manager OnDemand® provides a repository for computer output data and check images. With these available, a bank teller, for example, can access an image of a customer signature and compare it with the signature on a check. What makes this work is mainframe generated line data reports linked to Advanced Function Presentation (AFP) statements and check images. With this facility, productivity is greatly improved in the call center by enabling customer service representatives to quickly access statements and fax or email them while the customer is on the telephone.

Customers search a secure Web site to access both images of their checks and past statements by simply keying their account number and a security code. This customer self-service application eliminates what had been as much as 25 minutes by bank personnel to service each of these requests.

OnDemand® provides cost reduction, increased productivity, and improved customer service for the bank – and because it was an off the shelf solution, it was installed with a minimum of disruption to bank operations.

GPS cost-justified the system based on three elements: operation efficiencies, print and microfiche replacement, and sales of services to internal bank groups and external business partners.

AT&T e-Bill Presentment and Payment

AT&T, www.att.com, wanted to present bills to customers – and receive payments -- over the Internet. IBM Content Manager OnDemand® became the repository to store customer bills in the native legacy system print format, index them by individual customer number, and automatically transform and deliver them over the Web.

OnDemand® was chosen due to the speed of the document capture, indexing, and Web transformation process. The system stores and indexes bills at rates that exceed two million pages per hour. When the system retrieves a bill, it automatically transforms it to HTML, eliminating what would have been time consuming and costly development costs in creating entirely new Internet delivery software. Customers access bills from the OnDemand® repository (the repository will eventually store seven years on line) without intervention by a customer service representative. Viewing the bill, customers get immediate answers to questions about balances, charges, due dates and more. Implementation was painless because the OnDemand® repository converts to an electronic bill presentment and payment system by simply adding a payment, e-mail subscription and dispute resolution module. The concept of maintaining the original print format facilitates long term storage of bills and makes the legacy to Web process both easy to implement and simple to maintain. Revision control that resides in the OnDemand® software insures that any change in future bill formats will be recognized, and the correctly formatted bill will be available regardless of when the bill was originally produced.

Also important is the ability of the system to capture, index and transform bills from heterogeneous legacy systems. This means that any bill, created on any AT&T legacy system, can be stored and delivered to customers regardless of the operating system or application software.

Key advantages are:

- Internet customer self-service for bills.
- On-line dispute resolution -- customers can enter billing queries and have disputes reconciled without human intervention.
- On-line viewing significantly reduces bill reprinting. However, since exact replicas of the bills are stored in the repository reprints are instantly available if needed.
- Revenues have increased substantially due to faster collection of overdue accounts. (The ability to ask customers who log on to AT&T's Website when payment can be expected has reduced days outstanding).
- Targeted marketing of new products and services is enabled since new messages can be posted with each bill.

Electronic Bill Presentment and Payment is an integral part of billing and CRM systems and can be the connector of two previously separate applications. OnDemand® has significantly changed the way AT&T delivers bills and receives payments. The unique ability to store legacy bills for long time periods and enable fast and efficient customer self-service is a major ingredient of long-term success of this e-business initiative.

AutoZone, Inc. Intranet Solves Legacy Data Access Problem

AutoZone is the U.S.' biggest auto parts retailer with over 3000 store in 42 states. AutoZone, www.autozone.com, employs 1200 people at its Memphis, TN. headquarters and 40,000 nationally. Annual sales run over $4 billion.

In the late '90s, the company had two major information management problems: computer output to microfiche costs skyrocketed to $200,000 a year, and staff members were hiring assistants just to store and retrieve paper printouts for viewing. Although reports were stored online for short periods of time by the mainframe report distribution system, these reports were in a different format than the printed output. This caused users to stay with the paper rather than try to interpret a format that was not easy to understand. The company also produced microfiche to archive sales detail reports for audit purposes. OnDemand® eliminated the computer output microfiche expense and the cost of paper. Distribution charges associated with personnel in the mailroom disappeared. OnDemand® created quantifiable dollar savings that resulted in a very rapid return on investment. It operates on 300 Windows® desktop clients in Memphis, but personnel across the country have immediate access to all legacy system reports through the Web.   Extranet capability lets vendors directly access legacy report data to monitor AutoZone's inventory rather than relying on voice phone calls for updates on available parts and products.

Since OnDemand® captures reports from mainframe applications, output from Human Resources, Accounts Receivable and Payroll are available to employees as soon as they are created. The demise of paper printing, binding and physical delivery has reduced costs and greatly improved information availability.

Key Features of High Performance Content Management Systems

The content management repository has both back office and front office ramifications. It provides the **backbone of enterprise customer service architecture**. World-class content management must address all of the major issues of enterprise information delivery:

- Electronic bill, statement, and e-business transaction document long-term archiving and storage management,

- Automatic transformation of all legacy, client/server and mini-computer print stream formats, {ASCII, EBCDIC, IBM Advanced Function Presentation (AFP), Xerox Metacode/DJDE, HP-PCL, and PostScript to Web formats, including HTML, XML and PDF},

- Automatic index extraction and database updates of document-specific metadata that allows individual pages or documents to be accessed and viewed,

- Graphical user interface for metadata index extraction of individual pages that is point-and-click" oriented, eliminating any need for the programming of each output application,

- Management of content from any digital data document source including word processing text documents, spreadsheets, (Lotus Notes™ and Microsoft Office™) e-mail, Web content, and any host print stream output,

- Optionally scan and index paper documents and provide the ability to link the scanned image to any other related document,

- Capture of imaged checks and the associated index information from banks, linking the checks to any associated statement, payables system or payroll information,

- Report mining capabilities that provide marketing analysis capabilities and ad hoc report generation directly from both current and historical reports and statements,

- Scalable, high-performance, document specific, metadata indexing software that allows high volume capture, instant availability, and access to billions of pages for seven or more years without performance degradation,

- Security, based on the page-specific metadata, that allows only authorized (internal or Internet) users to access documents,

- Print anywhere, view anywhere with e-mail "push" and fax capability for universal access by devices inside and outside the organization,

- Form overlay to enable exact replicas of invoices, statements, bills and other customer oriented documents to be presented as they were originally printed,

- Application programming interfaces to link with workflow, collaborative software, or applications such as sales automation, enterprise resource planning, customer relationship management, or electronic bill presentment and payment systems,

- Customer-specific case file capability – virtual file-folders delivered upon retrieval, of all related documents from single retrieval screens.

- Workflow to allow any statement or bill to be moved and processed according to specified work rules and pre-conceived tasks.

- Portal connectivity to provide access to computer-generated content, as well as any other information source inside or outside the organization.

The IBM Content Manager OnDemand® Solution

Organizations are searching for packaged software, such as OnDemand®, to provide access to information. They want to **speed the customer service process**, cement the relationship between the organization and the customer, and **sell additional products** to the existing customer base. OnDemand® provides seamless access to information: it can dynamically link any computer document, image, e-mail, image check, text document in a virtual, electronic file folder and make that file available anywhere, anytime over the Web and to any enterprise workstation.

OnDemand® is integrated with the IBM Enterprise Information Portal middleware, which provides the ability to conduct a federated search of multiple information sources regardless of location or technology. Documents from any repository can be accessed and displayed from a single search screen. The portal capability eliminates the requirement to use different screens to access different application repositories to locate information.

The functionality, shown in figure 2, illustrates the versatility of IBM Content Manager OnDemand®.
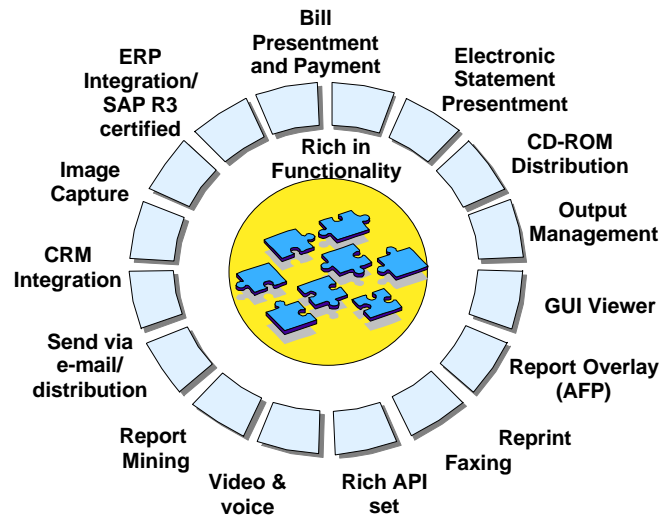
Content Manager OnDemand
Modular Solution

Bill Presentment and Payment
ERP Integration/ SAP R3 certified
Electronic Statement Presentment
Rich in Functionality
CD-ROM Distribution
Image Capture
Output Management
CRM Integration
GUI Viewer
Send via e-mail/ distribution
Report Overlay (AFP)
Report Mining
Reprint Faxing
Video & voice
Rich API set

Figure 2. IBM Content Manager - OnDemand® Capabilities

The IBM Competitive Advantage

OnDemand®, with its robust performance and multi-function object management architecture, has exceptional all around capability. The software operates on Windows NT/2000 and UNIX servers as well as on OS/390, z/OS and OS/400 (iSeries), platforms. Unix servers include Sun Solaris, HP-UX, and IBM AIX. Client software is the same across all platforms insuring that input and retrieval screens are the same, regardless of the host application server. There is also software for both the e-Server I-Series (formerly AS/400) 5250 and CICS 3270 native terminals to preserve investments.

OnDemand® can be **the backbone of an e-business, enterprise information strategy**.
E-business requires access to corporate back- office documents (image, text, and data) with an architecture designed to manage all of this diverse corporate content. OnDemand® is clearly differentiated from its competitors by the ability to store and access all digital Information types and make them globally available to employees, partners and customers over the Web, regardless of the original format.

High-Performance Metadata Indexing

IBM has designed one of the fastest index insertion and update engines on the market. Inasmuch as one of the basic concepts of a document repository is continuous update of large page volumes with no deletion of records, the metadata index insertion speed is a determining factor in performance. This performance is particularly important in high volume billing applications where all-points addressable print formats (IBM/AFP and Xerox/Metacode) are used. OnDemand® maintains the same index insertion level of *2.0 to 3.0 million pages per hour regardless of the print format.* This is clearly a significant advantage when an exceedingly large number of bills, statements, reports or checks must be regularly processed.

Intranet and Extranet Print Stream Transformation for Statement Presentment, e-Billing, Report Distribution and Customer Service

OnDemand® is an excellent choice for an Internet customer service model. Statement and bill output is stored in native, all-points-addressable (IBM/AFP or Xerox/Metacode) format and **transformed to an Internet format** when these documents are viewed. This method of storage enables reprinting of documents on the host laser printer when, and if, required – an option that is lost when AFP or Metacode is transformed and stored in the repository in another format. This transforming software also eliminates the programming that is often undertaken by corporations to create Web to Host document delivery.

OnDemand® transformation software also supports options to automatically convert ASCII, EBCDIC, Postscript, HP-PCL print file output to XML, HTML, or PDF Internet formats. The repository can also ingest, index and store and manage XML document formats.

The e-mail module of OnDemand® provides e-bill, statement, internal report notification and "push" capability to send individual pages or documents to designated employees, partners and customers. The software for "notification and delivery" automatically notifies an employee or customer that the document has been received. Users can add custom text messages, and send the document as an e-mail attachment. Additionally, a link can be sent with the e-mail notification for accessing the document repository. For example, when used in an Intranet environment, only a single "totals" page of a 5,000 page report could be sent to designated managers, but access to all of the report detail is available by "pulling" it from the repository as needed. E-bills and statements similarly can be pushed or pulled in an extranet e-presentment/e-billing or customer self-service application.

For z/OS and OS./390 installations, the OnDemand® Distribution Facility (ODF) is an optionally priced feature of IBM Content Manager OnDemand® that enables the bundling and automatic distribution as well as the indexing and storage of report and statement output. Output can be directed to any valid JES destination as print or network output. Reports are first stored in OnDemand®. Then, an automated scheduling component extracts and bundles the content for printing and distribution over the network. Documents are distributed based on definitions for the recipients, which are created by an administrator using an ODF client. Output documents can be enhanced and selected segments of output can be distributed as needed by the application.

Business Intelligence: Easy-To-Use Analysis and Ad-Hoc Report Creation

OnDemand® leverages the data format of output reports with integrated Report Mining software (DataWatch® from Monarch). A user points-and-clicks on multiple columns of data to extract information. For example, a report with a stock symbol located in columns 24 to 30, a stock price in columns 40 to 50, and the number of shares in columns 90 to 110 could be analyzed to extract data in just these three columns to create a new *ad hoc* report. The result can also be exported to 1-2-3, Excel, another database, a data warehouse or another application for analysis. Queries can be saved as a predefined standard template and executed each time the original report is created to generate the new report.

Simplified Access

Access to OnDemand® is notably intuitive and easy. A step-by-step login and security process leads a user to the appropriate search screen that has been set up for that particular document category, with self explanatory fill-in-the-blank retrieval field options. Once an account number, invoice number, or other data have been entered, OnDemand® locates all documents relevant to that customer, regardless of when or how they were originally created. **Version control** insures that each page is displayed with the correct form overlay. For example, if the statement or bill output format has been changed since archived, the software will automatically retrieve and display the correct form with the data from when the document was originally archived

Easy Application Setup

The ability to easily define and extract key fields from individual pages is important to bringing applications online without programming and time delay. With the point-and-click application setup module, a user defines key fields by simply marking the field to be captured on the page. Similarly, a user can enter specialized field edits ("must be all numeric", "maximum number of characters", etc.) if desired. **Eliminating the need to program** these extraction templates greatly reduces the implementation time for new applications.

IBM Enterprise Information Portal (EIP) Links IBM and Non-IBM Content Repositories

EIP enables simultaneous, real-time access to IBM Content Manager, IBM Content Manager OnDemand®, Lotus Domino.Doc® and non-IBM content repositories. EIP allows a **federated search of multiple repositories** with presentation to the user through a Java client or standard browser. Additional and/or future repositories -- such as those that may be acquired as the result of a merger – can be connected to EIP middleware. EIP utilizes a unified, application-programming interface toolkit that connects repositories and enables the creation of a single user logon and access procedure. A user gains access to the repositories from a common screen with one sign-on; the resultant combined search appears on the retrieval screen.

Enterprise Resource Planning Integration

The **SAP-certified** IBM CommonStore for SAP along with OnDemand® can manage output from SAP R/3 Enterprise Resource Planning (print list reports, invoices and statements**)** for both long-term access and Web delivery. Users can directly access "my SAP®" reports and customer invoices or statements as well as PC desktop documents and e-mail. Similarly, users can import output documents from other computer systems such as IBM legacy systems or other client/server applications such as PeopleSoft® or Oracle into the OnDemand® repository to provide common access to documents regardless of the system on which they originated.

Advanced Workflow

IBM has augmented the advanced report management OnDemand capabilities with flexible, **dynamic routing** of documents. Serial and parallel routing allows documents to be managed through a business process, so decisions can be made with necessary/pertinent document data.

Output Management and CD-ROM Creation

Although electronic delivery is here to stay, paper printing of bills is certainly not going to end soon. OnDemand® includes output management capabilities that set priorities, routes, and monitors and audits these printed output documents. Additionally, the system can publish an electronic version of the printed statements, bills or reports to CD-ROM, which may be used in lieu of, or in addition to, paper or Web distribution. IBM is one of the few companies that couples the paper and CD distribution options in their system. This option is particularly useful when there is a **transition from a legacy mainframe** application with report-distribution software to a client/server Enterprise Resource Planning system, which may not have the sophisticated paper output management capability that exists on the mainframe.

Application Programming Interface (API's)

The API set of OnDemand® provides the ability to closely **integrate with other key corporate business initiatives** such as electronic bill presentment and payment, customer relationship management, e-business, and call center applications. The API set empowers business partners to build or integrate their own applications on top of the OnDemand ® server.

Library Server/Object Server Architecture

With its **high performance metadata management** capability OnDemand® can readily incorporate any electronic object in its repository. Storing images, text, e-mail, and data documents makes overall system performance an essential element of the architecture. The key to managing the volumes is the OnDemand® architecture, which builds and maintains a separate metadata index (Library Server). The metadata locates any and all document locations and "points" to the desired page or pages, which are stored in print file format in the Object Server(s). The metadata is never deleted and can grow to almost unlimited size without performance degradation.

High-Performance Check Image Processing

IBM has the only very high-performance **check image** repository on the market. Developed to allow banks to research errors and shorten the turnaround time in adjusting customer accounts, the segmented DB2 database utilized by the check image repository captures the index data and checks at rates that currently exceed 20.0 million items per day. This proven high performance spurred the creation of a new company called Viewpointe Archive Services, a joint venture of IBM, Bank of America and Chase Bank. Its goals are to facilitate the electronic exchange of check images between member banks and to link checks to bank statements, providing single-point access for retail customers and corporate accounts. Users can retrieve, view, print and route checks and statements within corporate departments and to customers via the Web. The software displays and prints an exact replica of the check and the statement. The goal of the system is to capture and store the more than 50 million checks that Chase and Bank of America now process daily.

Document Annotation Increases First Call Closure Rates

A simple annotation capability lets any authorized user apply an electronic note to a document. This is extremely important in customer service to alert representatives that a customer has previously called with a complaint or a request. An additional "paperclip" feature allows a notation to a specific page within a document. This lets a user make references to items on a particular page rather than to the document as a whole, again narrowing the margin for error in customer communications and improving the ability to respond to second or third calls from customers for the same problem resolution.

The Bottom Line: IBM Content Manager OnDemand® Customer Service Solutions

Today's call centers and front office e-business systems often operate with incomplete information -- islands of technology exist that do not communicate with each other. Information is not electronically available, either offline in paper or microfilm, or unavailable in another digital repository. It is self-evident that this translates to poor customer service, increased telephone and labor cost due to callbacks, fewer up-selling and cross-selling opportunities, and inevitably, lost revenue and customers.

Many organizations have been slow to provide electronic access to computer documents. There is a **new standard for customer service**: call centers, customer relationship management systems, e-business and e-bill and presentment systems that retrieve, display, e-mail and re-print invoices, credit memos, bills, or statements, as well as providing Internet self-service. The ability of businesses to achieve a competitive advantage will depend, in large part, upon the development of a business portal and content management capability that OnDemand® provides. Accessing computer output data documents from any repository in the enterprise with any workstation or browser is a giant step in achieving this competitive advantage.

Technology *that increases service levels and at the same time decreases the unit costs of delivering those services is truly revolutionary.* IBM Content Manager **OnDemand**® is a technology solution with proven industrial-strength and the ability to manage documents for access by employees, business partners, and customers. This versatility empowers OnDemand® to become the "data document" infrastructure for enterprise e-customer service initiatives.

Contact IBM at <u>www.software.IBM.com/data/cm</u> for more info on IBM Content Manager® and IBM Content Manager OnDemand®....