Sun Java™ System Content Delivery Server

Providing Bell Mobility With First-to-Market Advantage in the Delivery of Customizable, Downloadable Content Services

Organization
Bell Mobility, the largest mobile operator in Canada
www.bell.ca

Vertical Market
Telecommunications

Key Challenges
- Meet user demand for and be first to market with customizable, downloadable content services
- Create a seamless, integrated content delivery process
- Deliver customized content in the English and French languages
- Integrate with existing infrastructures

Solution
- New revenue stream generated
- Quick implementation and easy integration enables first-to-market advantage
- Automated content submission, verification, and aggregation enables rapid development, cataloging, and delivery to maximize resources and meet user demand
- Rapid deployment of new content and devices delivers new revenue streams
- Rapid download speeds help ensure customer satisfaction

Business Results
- End-to-end solution manages complete, wireless content delivery process
- Flexible architecture enables faster, easier integration
- Fast performance ensures customer satisfaction
- Universality of Java™ technology-based content enables expansion of content delivery to new handsets

"Sun Java™ System Content Delivery Server software provided us with a complete solution that maximized our resources and enabled us to quickly introduce a robust content delivery solution to the market. Being first to market with this solution has enabled Bell Mobility to reassert its position as an industry leader."
– Brian O'Shaughnessy, Vice-President of Wireless Technology, Bell Mobility

As Canada's largest wireless service provider, Bell Mobility, the wireless division of Bell Canada, offers a complete range of innovative wireless communications solutions, including PCS and cellular, Web browsing and data, two-way messaging, paging, and airline passenger communications services. A recognized leader in wireless data innovation, Bell Mobility strives to offer new and unique services to retain its loyal customer base of over four million customers and attract new customers.

In June 2003, Bell Mobility introduced Canada's first enhanced content download service, which enables wireless customers to download customized content such as ringtones, pictures, wallpaper, and games to personalize their wireless handheld devices. Since that time, customers from across Canada have downloaded games such as Sony Pictures' JEOPARDY!, ringtones like Beethoven's Moonlight Sonata, and screensavers such as hockey team logos. Bell Mobility will also soon offer productivity applications such as calendars and access to e-mail. In just six weeks, the service has grown from 40 available content offerings in their catalog to over 1800 different pieces of marketable content.

"We introduced our content download service to meet customer demand," explains Jag Grewal, associate director of services development at Bell Mobility. "Instead of providing preloaded content, we wanted to give our customers the ability to download customized content so that they could personalize their handsets."

To enable a rapid introduction of the service and ensure it could be quickly expanded once launched, Bell Mobility needed an end-to-end content delivery solution to automate management of relationships with content providers, administer content as well as deliver the content, and manage customer relationships. A flexible architecture was required so that the solution could be easily integrated with its existing wireless services infrastructure, including a billing system, Sun Java™ System Directory Server software, a new Wireless Application Protocol (WAP) 2.0 gateway, Short Message Service Centers (SMSC), a push proxy gateway (PPG), and its Simple

Rapid implementation time enables first-to-market advantage.

"Sun Java System Content Delivery Server software's flexible and extensible architecture resulted in a rapid deployment because we were able to easily integrate the system with our existing infrastructure."
– Edwin Chan, Wireless Data Architect in Technology Development, Bell Mobility

Mail Transfer Protocol (SMTP) solutions. Bell Mobility also required an extensible content framework that would provide the flexibility to easily add support for new content types. As with any wireless content downloading service, speed and ease of use were key to providing a positive user experience. And finally, the solution had to support delivery of content in multiple languages to meet the needs of both English- and French- speaking customers.

A Complete Content Delivery Ecosystem

At the core of Bell Mobility's enhanced download service is Sun Java System Content Delivery Server software, a high-performance, robust, and rich server that enables wireless operators to manage the complexity of delivering downloadable content to subscribers. The content delivery service runs on four Sun Fire™ 480 servers running Sun's Solaris™ 8 Operating System. Two Sun Fire 480 servers run a BEA WebLogic Application Server, and the other two servers run an Oracle9i database server that is used to store client profile details such as contact, billing, and service plan information.

The Java System Directory Server manages user authentication and service provisioning, and is the central store of information on over four million Bell Mobility wireless customers. Multiple applications, from order entry to billing to the Java System Content Delivery Server, leverage the Java System Directory Server for subscriber authentication. Two Sun StorEdge™ A1000 disk arrays store the downloadable content. The open standard interfaces of the Java System Content Delivery Server made it easy for Bell Mobility to integrate the solution with its billing system.

The Java System Content Delivery Server was selected after an extensive technical evaluation at Bell Mobility's Technology Development Laboratory. Performance was assessed under load and stress testing. With millions of customers, it was imperative the solution demonstrate rapid response times as well as the ability to support high availability through clustering and load balancing. The Java System Content Delivery Server maintained or beat the target response time during prolonged and repeated exposure to peak loads. Built upon Sun's Java technology framework, the Java System Content Delivery Server provides Bell Mobility with carrier-grade scalability and robustness. The team was given two weeks to integrate the Java System Content Delivery Server into back-end systems. Again, the solution outperformed and integration was completed in a week.

"Sun Java System Content Delivery Server software's flexible and extensible architecture resulted in a rapid deployment because we were able to easily integrate the system with our existing infrastructure," explains Edwin Chan, wireless data architect in technology development, Bell Mobility.

Building Profitable Partnerships

A content downloading service is only as good as the content it offers. Providers like Bell Mobility must develop an effective way to upload, test, and manage content submissions from content development partners. Bell Mobility uses the Catalog Manager in the Java System Content Delivery Server to manage content providers, verify and certify content, and list and manage content inventory.

Content providers can use the upload wizard, or the API-based content aggregator interface located on Bell Mobility's Developer Portal, to submit content. The Catalog Manager verifies and certifies content conducting byte-code verification. Because much of the content is based on Java technology, once verified, Bell Mobility can be assured that the content is suitable for download to multiple handheld devices. The Catalog Manager also verifies that content submitted conforms to the content provider plan. Using Tiered Developer Plans, Bell Mobility can offer privileged services and information, such as premium APIs, to its top-tier content providers.

The Catalog Manager offers flexible pricing models, which enables Bell Mobility to establish multiple avenues for revenue based on the relationship with the content provider. Content providers can monitor submissions by viewing content history and status. The Java System Content Delivery Server generates detailed download reports that are used to calculate content provider payments.

The Java System Content Delivery Server and its Catalog Manager capability have helped Bell Mobility automate the content submission and evaluation process. This provides an efficient way to establish and maintain relationships with both content developers and content aggregators. Customers also benefit from Bell Mobility's ability to rapidly expand is content offerings.

Flexible and Efficient Catalog Management

Once content is deemed suitable, it is stored and organized in the Catalog Manager. With flexible category management, content can be organized in more than one category and at multiple levels. This capability provides Bell Mobility with the flexibility to store content in a single catalog and distribute it in many ways, making it fast and easy for customers to search Bell Mobility's extensive content catalog.

The Catalog Manager also supports the management of multiple content types. The Extensible Content Framework feature in the Java System Content Deliver Server enables Bell Mobility to add support for new downloadable content, legacy content, and other types of content without the help of a system integrator and without interruption to the download service. This flexibility allows Bell Mobility to deliver the best services and content to its customers – regardless of content type.

The Content Editions feature in the Catalog Manager enables Bell Mobility to promote and price an application once, yet deliver different versions to subscribers' handsets based on the capabilities of the handset. This allows Bell Mobility to reach a broader spectrum of customers with its content, and will enable Bell Mobility to support new handsets and handset features as they emerge.

Creating an Effective Online Content Storefront

Bell Mobility uses the Vending Manager in the Java System Content Delivery Server to present content to customers for download at the Bell Mobility Web site. The Vending Manager has enabled Bell Mobility to develop "try before you buy" and "ringtone preview" services, which subscribers use to preview content. It has also helped Bell Mobility market and create incentives to buy new content.

Bell Mobility has the ability to customize multiple presentations of content. For example, the Java System Content Delivery Server will be used to extend content to Bell Mobility partners like Aliant Mobility, MTS Mobility, and SaskTel Mobility. These partners will be able to offer downloadable content to subscribers without establishing an in-house infrastructure. Using the Vending Manager, each provider brands, promotes, prices, and offers customized content and applications while taking advantage of a common back-end Catalog Manager. Bell Mobility has extended the reach of its content delivery service to new audiences, gaining a valuable revenue stream in the process. Customers from across the country also gain access to Bell Mobility's extensive list of content.

The Vending Manager has been integrated with Bell Mobility's billing system to automate the billing process. The Digital Locker feature of the Vending Manager is used to store the rights to content and enforces access restrictions and application use. In addition, the Subscriber Portal, a feature of the Vending Manager, is accessible through multiple avenues, which makes the purchasing process easier for customers who can buy content on a computer or wireless handset. The Subscriber Portal has been localized to enable subscribers to view the pages in the language of their choice. For example, a subscriber in Quebec City can view content in French, while a subscriber in Vancouver can view content in English. The Vending Manager also ensures subscribers have access to only content compatible with their device.

Fulfillment Made Easy

The Fulfillment Manager in the Java System Content Delivery Server delivers the last step in the content delivery process, providing a dedicated, high-performance, scalable solution for delivering content to subscribers. The Fulfillment Manager's support of multiple delivery protocols, including Sun's Mobile Information Device Profile (MIDP) 1.0 over-the-air (OTA) provisioning protocol, enables Bell Mobility to deliver multiple content types to users while ensuring device compatibility. The Fulfillment Manager has been integrated with the Java System Directory Server for authentication of customer information. This integration enables Bell Mobility to automatically verify subscribers' identity and rights to content before they download or run an application.

First-to-Market Advantage

The rapid implementation time of the Java System Content Delivery Server enabled Bell Mobility to establish a first-to-market advantage as the first wireless provider to offer a comprehensive content downloading service in Canada. The company has maintained its reputation as a market leader and innovator, being able to set the future direction for the content delivery market. Bell Mobility has been rewarded for its effort by attracting early adopters from across the country who have enthusiastically embraced the new service to instill a unique personality in their handsets and take advantage of cool new handset features.

"Sun Java System Content Delivery Server software provided us with a complete solution that maximized our resources and enabled us to quickly introduce a robust content delivery solution to the market," says Brian O'Shaughnessy, vice president of wireless technology for Bell Mobility. "Being first to market with this solution has enabled Bell Mobility to reassert its position as an industry leader."

The flexibility of the Sun Java System Content Delivery Server also helps ensure that the solution will be able to grow and extend to accommodate Bell Mobility's content delivery program, regardless of what direction it takes. "Sun Java System Content Delivery Server software provides an extensive content framework that will see our content delivery program through to future iterations," says Grewal. "As handsets get more and more progressive, the Java System Content Delivery Server enables us to leverage all the new bells and whistles on these phones and deliver better services to our customers."

Sun Technology

- Sun Java System Content Delivery Server Software
- Sun Java System Directory Server Software
- Sun Solaris 8 Operating System
- Sun Java 2 Platform, Micro Edition
- Sun Fire 480 Servers
- Sun StorEdge A1000 Disk Arrays

Get the details.
For more information on Bell Mobility, visit bell.ca. And for additional information on Sun software, programs, products, and solutions, visit sun.com/software.

Sun Microsystems, Inc. 4150 Network Circle, Santa Clara, CA 95054 USA **Phone** 1-650-960-1300 or 1-800-555-9SUN **Web** sun.com

Sun microsystems
The Network is the Computer™

Sun Worldwide Sales Offices: Argentina +5411-4317-5600, Australia +61-2-9844-5000, Austria +43-1-60563-0, Belgium +32-2-704-8000, Brazil +55-11-5187-2100, Canada +905-477-6745, Chile +56-2-3724500, Colombia +571-629-2323 Commonwealth of Independent States +7-502-935-8411, Czech Republic +420-2-3300-9311, Denmark +45 4556 5000, Egypt +202-570-9442, Estonia +372-6-308-900, Finland +358-9-525-561, France +33-134-03-00-00, Germany +49-89-46008-0 Greece +30-1-618-8111, Hungary +36-1-489-8900, Iceland +354-563-3010, India–Bangalore +91-80-2298989/2295454; New Delhi +91-11-6106000; Mumbai +91-22-697-8111, Ireland +353-1-8055-666, Israel +972-9-9710500 Italy +39-02-641511, Japan +81-3-5717-5000, Kazakhstan +7-3272-466774, Korea +822-2193-5114, Latvia +371-750-3700, Lithuania +370-729-8468, Luxembourg +352-49 11 33 1, Malaysia +603-21161888, Mexico +52-5-258-6100 The Netherlands +00-31-33-45-15-000, New Zealand–Auckland +64-9-976-6800; Wellington +64-4-462-0780, Norway +47 23 36 96 00, People's Republic of China–Beijing +86-10-6803-5588; Chengdu +86-28-619-9333 Guangzhou +86-20-8755-5900; Shanghai +86-21-6466-1228; Hong Kong +852-2202-6688, Poland +48-22-8747800, Portugal +351-21-4134000, Russia +7-502-935-8411, Saudi Arabia +9661 273 4567, Singapore +65-6438-1888 Slovak Republic +421-2-4342-94-85, South Africa +27 11 256-6300, Spain +34-91-596-9900, Sweden +46-8-631-10-00, Switzerland–German 41-1-908-90-00; French 41-22-999-0444, Taiwan +886-2-8732-9933, Thailand +662-344-6888 Turkey +90-212-335-22-00, United Arab Emirates +9714-3366333, United Kingdom +44 0 1252 420000, United States +1-800-555-9SUN or +1-650-960-1300, Venezuela +58-2-905-3800, or online at sun.com/store