Introduction
To help customers meet their exceptional web experience goals in the most efficient and flexible manner possible, IBM has introduced Project Northstar – IBM’s vision and multi-year roadmap for how organizations can create differentiated, exceptional web experiences.

IBM Project Northstar brings together the right combination of capabilities needed to deliver compelling online experiences, including web content management, an enterprise portal and mashup presentation framework, built-in social and real-time communication features, search, personalization, marketing tools, comprehensive integration capabilities, mobile device support, analytics, commerce, and rich media management.

E-Commerce and Exceptional Web Experiences
E-Commerce is no longer simply about presenting and selling products online. It is about delivering a smarter shopping experience that is seamless and integrated across all customer touch points. It is about providing a rich, relevant, personalized experience across multiple channels of your business. But ultimately it is about doing more to leverage the power of your brand and present its value consistently to your customers.

With the focus of Business Leaders shifting to drive top-line revenue growth1 and to get closer to their customers2, delivering and continuously improving an exceptional web experience is a strategic priority for many organizations. E-Commerce can play an important role in that endeavor. An IDC study showed “Improving e-Commerce” as one of the top 3 priorities cited by survey participants as reasons for enhancing their public websites3.

This should not be surprising as many businesses are driving a growing share of their revenue through the web. According to the latest data available from the U.S. Census Bureau, US retail e-commerce sales reached almost $142 billion in 2008. From 2002 to 2008, this represents an average annual growth rate in retail e-sales that is approximately 5x higher compared with total retail sales over the same period (21% vs 4%)4.
While the benefits of e-Commerce to customers and businesses are generally well understood, there are several market trends and drivers that are influencing online customer expectations and the web experiences that companies need to deliver to meet their customers’ demands:

- **Increased adoption of social media and Web 2.0** – with Social Networking being the most heavily used online activity, counting for almost 25% of US internet time, companies need to reach their target audiences wherever they spend time online and deliver or facilitate an engaging social commerce experience.

- **Shift from transactional to relationship based customer interactions** – successful web experience strategies address the intricate interplay between online marketing, sales, and customer service throughout the customer interaction life-cycle; this often means that functional business applications, information, business processes, and other organizational resources that go beyond the core e-Commerce domain need to be carefully woven together to deliver a mutually beneficial online customer interaction experience.

- **Convergence of web experience and adjacent technologies** – enabling these new web experiences frequently requires a “potpourri of product options from (multiple) software vendors” including Commerce, Portal, Web Content Management, Social Media, Web Analytics, and other capabilities’ causing technical integration and deployment challenges.

Figuring out how to address these market and customer trends is well worth it. According to a study by Forrester Research, Inc, an exceptional web experience can deliver benefits that are difficult to ignore:

- 400% higher visit-to-lead conversion rate
- 200% higher visit-to-order conversion rate
- 41% lower page abandonment rates
- 16.6% more recommendations by customers for products and services
- 15.8% fewer customers lost to competitors
- 14.4% repeat purchase interest by customers

**WebSphere Commerce Interoperability with IBM Customer Experience Suite**

In order to help customers meet their exceptional web experience goals in the most efficient and flexible manner possible, IBM has recently released IBM® Customer Experience Suite. The Customer Experience Suite is the centerpiece of the IBM Project Northstar offering and is designed to help organizations create highly engaging, personalized, and differentiated web experiences.

**Figure 1: IBM Project Northstar offerings**
For an overview and description of the IBM Project Northstar Offering components, see www.ibm.com/northstar.

Organizations who seek to enhance their online experiences with market-leading e-Commerce capabilities need look no further than IBM WebSphere Commerce. IBM provides pre-built, configurable WebSphere Commerce components that can be utilized within IBM’s web experience software.

The following sections provide an overview of the integration and interoperability of the Commerce Module with these capabilities of the Customer Experience Suite:

- Portal
- Web Content

For each area we will describe typical business and technical value case scenarios, integration options, and customer use case examples.

**WebSphere Commerce and Portal Integration**

**WebSphere Commerce Overview**

IBM WebSphere Commerce provides a powerful customer interaction platform for cross-channel commerce that can be used by companies of all sizes, and industries. It provides easy-to-use tools for business users to create and manage precision marketing campaigns, promotions, catalog and merchandising across all sales channels, allowing them to centrally manage a cross-channel strategy.

WebSphere Commerce is a single, unified platform which offers the ability to do business directly with consumers (B2C), with businesses (B2B), indirectly through channel partners (indirect business models), or all of these simultaneously.

With WebSphere Commerce, the entire end-to-end shopping experience is supported with a wide variety of marketing and merchandising capabilities as well as site presentation aids:

- Starter stores come with standard e-commerce functions such as browsing, searching, site maps, profile management, registration, address lists, wish lists, shopping carts, checkout, order history, advertisements and discounts. In addition, you can add social commerce features, and mobile support.
- Site designers can easily customize the appearance of the site by changing the stylesheet.
- Using the extended sites business model, you can quickly create multiple site stores that appear unique to different customer audiences.
- International support is provided via multiple built-in languages, currency and cultural support.
- Display advertisements and discounts that are relevant to both the current shopper and the current site context.

**Portal Overview**

A portal is a Web foundation that provides users with a single point of access to Web-based resources by aggregating those resources in one place and by requiring that users log in only to the portal itself, and not to each portlet they use.

Web portals allow partners, employees and customers to choose their user experience, with personalized applications based on role, context, actions, location, preferences and team collaboration needs.

The portal capabilities of the IBM Customer Experience Suite provide a composite application or business mashup framework and the advanced tooling needed to build flexible, SOA-based solutions, as well as the unmatched scalability required by any size organization. They also provide personalization and productivity functions along with the scalable portal framework. Portal can deliver Web content to mobile devices, Smart phones, and to various Web browsers.
Benefits of using Portal and WebSphere Commerce together

There are several web experience use case and requirement patterns, where it makes sense to leverage the capabilities of both WebSphere Commerce and Portal together.

Some of these business and technical use cases include:

- **Composite presentation of Commerce and non-Commerce services**: Customers are offered a site that integrates a range of capabilities into a unified experience. Portal provides the ability to aggregate and to present contents delivered from services, whether they are provided by WebSphere Commerce or 3rd party applications. Not only can the customer have access to commerce functions, but also forums or communities, access to self-service applications, microsites and more.

- **Portlet-to-Portlet communication standards compliance**: Portlets that render WebSphere Commerce content are context aware and enabled for Portlet eventing which enables them to work with other vendors’ portlets to deliver a rich user experience.

- **Customization and personalization of UI experience**: Enables WebSphere Commerce portlets to use the Portal’s personalization engine to offer each user a very customized experience. Web site creation and maintenance (e.g., content layout, changes to themes and skins) made easier through the Portal’s powerful site creation tools and templates.

- **Single-sign-on**: Single-sign-on from Portal provides a secure method of authenticating a user one time within an environment and using that single authentication as a basis for access to WebSphere Commerce Services.

- **Multi-channel and multi-device enablement**: WebSphere Commerce services rendered through portlets can be re-used in other sites and devices (e.g., microsites, mobile devices)

WebSphere Commerce and Portal Integration Options

WebSphere Commerce supports multiple presentation layer options:

- Stand alone, Web container based
- Integrated through a Portlet container (using WebSphere Portal)

The appropriate presentation layer should be based on the business requirements. For example, if the business processes are represented by WebSphere Commerce business logic and data, then a stand alone, web container based presentation layer might be the appropriate choice. However, if the use case scenarios for example require composite presentation of Commerce and non-Commerce services, then it may be appropriate to use WebSphere Portal for the presentation layer.
The consequent separation of the presentation logic and the business logic enables a Web designer to develop the presentation layer at the same time as an application developer implements business logic.

In the Web container option, a browser request is routed to a servlet that acts as a controller. Using local Java calls, the controller calls the model for processing. The controller then dispatches the appropriate view to render data. The model encapsulates all business logic implemented using the command pattern. The JSP pages retrieve data from the database using data beans, then format the output.

In the WebSphere Portal framework, the browser request is routed to a portlet that acts as a controller. The portlet calls client libraries (Java classes). The client library sends a service request to WebSphere Commerce business logic for processing. When the portlet renders the data, it dispatches it to a JSP page in the portlet container. The JSP pages use tags that delegate to the client libraries to retrieve data from the WebSphere Commerce system.

**Programming Models**

There are two main approaches to customizing the WebSphere Commerce Portal integration.

- Using Client Library Style leveraging Commerce MVCPortlets
- Using Direct Web Services Style leveraging Portal programming techniques

1) **Integration Using Client Library Style** - Using Commerce provided MVC Portlets

- This programming pattern greatly reduces code redundancy as well as maintains a consistent behavior across all WebSphere Commerce portlet actions
- The WebSphere Commerce Portlet (MVCPortlet) is a generic implementation of the MVC (Model-View-Control) pattern

- It allows portlet designers to set up one or more portlets, each with its own configuration, to easily call various WebSphere Commerce services
- The goal is to cleanly separate Model (application logic interacting with database) from the View (html) and the Controller (integrating view and model)
- It uses the client library that comes with WCS v6x (FEP2) or WCS v7.x (built-in)

WebSphere Commerce v7.x (built-in) and v6.x (with FEP 2) provide out of the box integration via a dozen customizable Commerce MVC Portlets.

**Out of the box available WebSphere Commerce Portlet samples:**

- **My Account portlet JSP sample**: The My Account portlet provides customers with the ability to create, change, remove account information
- **Catalog portlet JSP sample**: The Catalog portlet displays a list of all active sales catalogs.
- **Search portlet JSP sample**: The search portlet provides customers with the ability to search on a product name and description. The result is shown in the Product portlet.
• **My Order portlet JSP sample**: The My Order (order history) portlet provides customers with the ability to view Order history and Order history details.

• **Product portlet JSP sample**: The Product portlet displays product details to customers. From this portlet customers can select items to add to the shopping cart. For each product, the offer price is shown.

• **My Cart portlet JSP sample**: The My Cart portlet displays the shopping cart details to the user and allows the shopper to check out the order and specify shipping and payment information.

Refer to the WebSphere Commerce Information Center at this link for additional details on the WebSphere Commerce MVC Portlets

2) **Using Direct WebServices Style** – Using all Portal programming techniques

• In this style of programming, a portlet can invoke the back-end WebSphere Commerce web services directly without the need for the client library

• This technique is less restrictive than MVC Style. It allows the user to take advantage of productivity gains from WebSphere Portlet Factory or select a preferred web programming framework of choice. On the other hand this technique requires more custom code and configuration

• Portlets that render WCS content can be JSR-168 or JSR-286 compliant, enabling them to work with other vendors’ portlets

WebSphere Commerce provides integration points via over 350+ SOA based Web Services.
**Portal and Commerce Conceptual Integration Architecture: Customer Example**

The following client example shows the conceptual integration architecture for a customer using Commerce and non-Commerce related functionality to deliver the requirements of the customer’s “next generation web experience”.

The benefits of this layered architecture for the customer included:

- **Aggregation / delivery of diverse content**: Increase flexibility and time-to-value by using a common platform for UI presentation and administration; delivering a unified web experience using a mix of UI technologies and consumption of data and services from multiple systems and applications.

- **Increased re-usability across the entire site**: Encapsulating Commerce services functionality using the portlet design pattern enables reuse of business rules and functionality across user interfaces and channels.

- **Increased branding consistency and stickiness**: Increase consistency of branding and user experience across micro-sites by leveraging Portal based UI development automation techniques.

- **Increased effectiveness of up-/cross selling through personalization**: Personalized offers based on user data such as device type, cart contents, or recent transactions; complementary personalization capabilities of Portal and Commerce.

**Commerce and Web Content**

One attribute of an exceptional web user experience is content that is highly targeted and personalized to its users. The web is often used as a first means of researching products – richer content is not only informative but better portrays brand value online and supports customer research and decision making. Customers are no longer satisfied with static, one-size-fits-all site content and design. In fact, conversion rates tend to be lower and shopping cart abandonment higher, unless potential customers are captured with compelling content and personalized offers.

The growing need for regularly updated, dynamic, personalized content can cripple IT without the right tools and business user empowerment. IBM WebSphere Commerce in conjunction with the Web Content Management capabilities of the IBM Customer Experience Suite provide a powerful solution.

WebSphere Commerce uses the concept of E-Spots and Content Spots to deliver static and dynamic content throughout a site. E-Spots are connected to campaign rules and allow for dynamic targeting and personalization. Content Spots are for static content targeting all customers (e.g., About Us, FAQ). Spots can contain images, flash, text or dynamic product recommendations.
Benefits of using WebSphere Commerce and Web Content Management together

The business benefits of E-Spots and Content Spots in supporting the effective promotion of products, offers, and other marketing content throughout a website are clear:

- Decrease IT costs for site development and update by putting business users in control of promotional site content
- Increase conversion rates through personalized offers and dynamic content
- Increase site “stickiness” with rich media and compelling contents
- Increase visibility of particular catalog categories or items
- Increase order size by leveraging e-spots for cross-sell and up-sell opportunities

To enable these benefits, the Web Content Management capabilities of the IBM Customer Experience Suite are used to author, manage, and publish web content for delivery and presentation through the e-Spots and Content Spots of an e-Commerce site. Web Content Management allows business users of all skill levels to author and submit content. It enables rapid development of sites through reusable, out of the box components and templates. And by separating content from presentation, it gives business users and content authors the flexibility and control to author and manage the web content to optimize the online sales, marketing, and branding efforts.

Key capabilities of Web Content Management in conjunction with e-Commerce include:

- End-to-end content creation, management
- Author once, publish to multiple destinations
• Role based access to determine site flow, build templates, create content using templates
• Workflow, versioning, audit history
• Enable both web and commerce updates within a WebSphere Commerce Workspace
• Link to/from unstructured content and marketing spots and products

By integrating WebSphere Commerce and Web Content Management, business users can manage the entire content creation and deployment process of store page content without intervention from technical support, including creation, editing, approval, and publication.

**WebSphere Commerce and Web Content Management Integration**

The Web Content Management integration for WebSphere Commerce focuses on associating Web content with product pages in a Commerce store. For example, an article about camping can provide links to camping-related products found in the store catalog. Or, as discussed previously, Web Content Management is used to create and author the content for E-Spots and Content Spots.

As the following schema depicts, content is created and managed using IBM Web Content Manager and synchronized with WebSphere Commerce via the WCM API or with RSS/Atom Feeds.

A basic use case scenario would be as follows:

• A business user creates and publishes the content in Web Content Management using templates and workflow
• Using the WCM API or RSS/ATOM Feeds, a feed is created that makes the content available after it is published
• Commerce consumes the feed and makes the content available in the Commerce attachment library
• A Commerce Workspace manager previews and approves the content and assigns it to marketing assets or tasks (e.g., ties the content to a Marketing Spot or product catalog data)
• Once the content is approved, it gets published into production and a web store user can view the content on the store page

**WebSphere Commerce and Web Content Management Integration Assets**

IBM Business Partner Ascendant Technology, www.atech.com, has created the “WebSphere CatalystSM for Commerce” to allow for the consumption of content by WebSphere Commerce from remote systems via standards based feed technology. The storage of the content leverages out of the box functionality available in WebSphere Commerce.

**WebSphere CatalystSM for Commerce – High Level Overview**

Ascendant Technology's CatalystSM for Commerce provides true time-to-value by allowing seamless integration with WebSphere Commerce and content providers. It empowers business users such as product and marketing managers to handle content needs without involving IT resources.

The CatalystSM for Commerce service offering available for WebSphere Commerce 6.x and newer uses standards based XML syndication to consume content feeds from other applications. The third party content is stored in the WebSphere Commerce authoring server and can then be used to drive content and design for all pages on your site.
Key Features:

- Seamless content integration for the end user requiring no additional tools to learn beyond base WebSphere Commerce Management Console
- Standards based xml feeds
- Integrates with IBM Web Content Management or any 3rd party Content Management System that has the ability to provide content feeds
- Associate 3rd party content with categories, products, content spots and e-spots
- Deployed on the WebSphere Commerce authoring server; propagation to production occurs using base WebSphere Commerce functionality
- Scheduled jobs consume the remote feeds on a predefined schedule updating them in WebSphere Commerce
- Easy to deploy and configure

For additional info on the WebSphere Catalyst™ for Commerce, contact www.atech.com

WebSphere Commerce and Web Content Management – Case Study

The North Face offers an extensive line of performance apparel, equipment and footwear. Pushing the boundaries of innovation, the company is the first choice of many of the world’s most accomplished climbers, mountaineers, extreme skiers, snowboarders, endurance runners and explorers.

Challenge

The North Face wanted to launch a new business-to-consumer Web site that would allow it to sell merchandise directly to the public and deliver an integrated brand experience to match the “Never Stop Exploring” spirit. The company wanted the Web site design to feature imagery, content and media to showcase many of the 50-plus athletes sponsored by The North Face.

Solution

software. The new architecture enables brand content to be woven throughout the Web site and showcases sophisticated imagery that inspires action and features athletes in their trials and triumphs.

The site also leverages Web 2.0 technology, including rating and reviews, video and RSS feeds. Striving to provide the best customer experience, The North Face uses IBM WebSphere Commerce Sales Center software to manage customer care and looks to deliver a multichannel integration with a pickup-in-store option.

**Benefits**

- Supports Web traffic exceeding one million page views per day, helping the company meet or exceed its sales expectations
- Allows marketing, merchandising, and sales staff to control and manage Web site content without help from IT
- Helps increase average order size with smart up-sells and cross-sells
- Eases the process of rolling out international Web sites in multiple languages, currencies, and idioms.

**Commerce and Social**

Social Commerce is a phenomenon that has taken the e-commerce world by storm. Unlike many technologies to emerge over the years, social commerce has had a rapid adoption. A few years ago, Facebook, Twitter, YouTube and LinkedIn were not common terms in our vocabulary. Few could have predicted how pervasive the social technologies have become not only online, but also in our daily lives.

Put simply, social commerce is the concept of word-of-mouth, applied to e-commerce. Social commerce has taken word-of-mouth where it never really existed before, the online shopping world. Customers now are looking for ways to leverage each other’s expertise, understand what they are purchasing, and make more informed and accurate purchase decisions. Retailers need to understand their customers and what they expect out of the shopping experience to develop a successful social commerce strategy.

For a detailed discussion on the definition of Social Commerce, the benefits of social commerce to retailers, and how IBM has enabled Social Commerce in WebSphere Commerce Version 7.0, please refer to this White Paper: Social Commerce White Paper

“With IBM technology, our new Web site capability exceeds our expectations. We can control and manage content, and we can easily roll out new Web sites in different languages.”

—Greg Pulsifer, e-Commerce Director, The North Face
Summary
The IBM Customer Experience Suite in conjunction with WebSphere Commerce enables organizations to deliver exceptional web based customer experiences for e-Commerce and non e-Commerce centric websites to improve the effectiveness of web-based branding, sales, marketing, and customer service strategies.

Delivering these web experiences typically requires a broad set of capabilities that are provided by the IBM Customer Experience Suite and WebSphere Commerce. A rich set of out-of-the-box integration accelerators and support for multiple interoperability mechanisms covering Commerce, Web Content Management, Portal, and Social capabilities provide customers with flexibility to handle customer-specific requirements while leveraging open standards and industry leading best of breed capabilities.

1 IBID. “In 2010, the focus for 71% of business leaders is a return to revenue growth.”
3 IDC April 2008 QuickPoll Survey, April 2008
5 Source: Nielsen NetView - June 2009/2010
8 http://www.forrester.com/rb/Research/best_practices_in_user_experience_ux_design/q/id/54101/t/2