

A GUIDE TO THE POWERFUL POTENTIAL OF A.NET E-COMMERCE ECOSYSTEM



A look at the robust e-commerce ecosystem that the Microsoft.NET Framework can help build and run, complete with all essential elements of an online store

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INTRODUCTION

E-commerce is in the midst of an unprecedented boom. At last count, there were 191.1 million online buyers in the U.S. alone, purchasing products worth \$7.3 billion in the first quarter of 2014. This figure represents a **23% jump** from the previous year. In Europe, online sales are expected to touch \$216 billion by the end of 2014, which would be an increase of 18% over the previous year.

According to eMarketer, an independent market research firm, online sales already accounts for 13% of the total UK economy, and is expected to increase to 15% by 2017. There is considerable scope for growth as well, considering that only 28% of small businesses in the U.S. are selling their products online, according to estimates released by US SBA.

The e-commerce ecosystem integrates all the different facets—including personalized content, shopping cart, payment options, customer support, marketing, back end operations, and more.

The success of an e-commerce venture depends on many factors; but a primary factor is the selection of a sound and robust platform, backed by an equally flexible and resilient ecosystem.



THE PLATFORM

The e-commerce platform is the hub of the overall e-commerce system. If done right, it delivers exponential cost savings and efficiency improvements to promoters. Selecting the wrong platform runs the risk of the reverse happening.

Among the various platforms available, the Microsoft.NET Framework is ideal to develop scalable, robust and cost-effective technology platform for an e-commerce venture.

According to Microsoft, the .NET framework provides:

1. A consistent object-oriented programming environment, regardless of whether the object code is hosted locally or in the cloud.
2. An environment, which eliminates the performance problems traditionally associated with scripted or interpreted environments.
3. Minimal conflicts over versioning or other deployment issues.
4. An environment to execute code safely, including code generated by third-parties.
5. A consistent developer experience across Windows-based applications, Web-based applications, and other appliances.
6. Seamless integration with any other code. .NET has the capability to not just co-exist with existing codes and integrate with legacy systems, but can also enable building and running the next generation of applications and XML Web services, including the cloud.

The availability of a wide variety of pre-built components enables faster time-to-market, and launch or test new markets and products.

Needless to say, the .NET framework essentially lives up to its claims, as evident from the 6 million+ developers using this framework today, across all possible devices, including mobile devices. The sheer number of users also means that maintenance and support is kept low, and there is a large and strong community of helpful enthusiasts, normally associated with open-source offerings such as PHP.



THE ONLINE STOREFRONT

Having selected the platform, the first task is to set up an online storefront that showcases all products of the e-commerce store. Customers enter the store page and navigate different pages, view and select different products, and add products they wish to purchase to the shopping cart. A good e-commerce site allows customers to shortlist, store and compare products.

Success depends on having an intuitive search functionality in place that allows visitors to quickly find what they are looking for.

An intelligent function that shows related items when a visitor does a search makes things easy for him. In the backend, this requires intuitive use of displaying selected data to customers across pages. It is also important to structure the pages and sections in a logical order, keeping the customer's buying habits, branding and the logistical needs of the business in mind.

Co-opting third party apps offers tons of added functionality that makes the search function more powerful and user friendly. [Brow.si](#), for instance, makes it easier for consumers to search, discover, share and purchase products from mobile devices.



CONTENT MANAGEMENT SYSTEM

Apart from regular product descriptions, complete with enlargeable images and key statistics of the product, a good e-commerce site requires the ability to customize content for different audience.

A good e-commerce system segments and targets customers to deliver personalized content to channels on the devices chosen by the them.

Customization also manifests as promotions, which are now a proven way to woo customers psychologically. The best promotions are dynamic in nature, delivering personalized promotions to the audience, depending primarily on location, but also on other factors such as date of birth, sex and so on. All this requires making dynamic changes to shop pages.

The dynamic nature of ASP.NET makes it easy to render changes to webpage content. ASP.NET and HTML work well with each other, and the basic ASP.NET classes are impressive to develop a data driven project. However, this is inadequate for the purpose of e-commerce websites, and the developer would need to enhance the classes by developing their own library of code classes. As a matter of fact, a content management system makes this task still easier, allowing for publishing, editing, modifying and maintaining content from a central interface, and facilitating workflow management in a collaborative environment.

There are literally dozens of .NET based content management systems. The likes of DotNetNuke (DNN), Kentico, Umbraco, Sitefinity, Mojoportal, Sitecore, Composite C1, and Orchard stand out.



THE SHOPPING CART

The major differentiator between e-commerce websites and other dynamic data driven websites is the shopping cart. Unless the e-commerce portal is too simplistic in nature or deals with a single product, a shopping cart is indispensable.

Customers who navigate the different store pages finally make their way to the shopping cart to check out with the products they wish to purchase. It is important to have the shopping cart integrate with the storefront so that shoppers can add items to their purchase list without ever leaving the product pages, and enter the shopping cart only when they are ready to check out.

A good shopping cart allows customers to add or remove products, make changes to the quantity of products, and add shipping address and other contact details. At the back end, a fulfillment module collects the necessary information such as product numbers, vendors, and handling instructions, and passes these on to the shopping cart module. The shopping cart module then generates an order form or report that includes all necessary information from every product in the order. Once the customer checks out of the shopping cart, only the payment part of the transaction remains.

It is possible to develop a customizable shopping cart using ASP.NET code. However, there are already hundreds of ready-made shopping cart modules designed for use with ASP.NET.

StoreFront, ZNode, CyberStrong, CyberShop/CyberOffice, VP-ASP, Comersus, CactuShop, BV Commerce, E-commerce templates (ECT), ClickCart and mCart are few top names in this category. These products, rolled out by third party vendors, provide varying levels of methods, properties and controls, delivering flexibility. Almost all of them offer a varying level of add-on functionality such as free interfaces, electronic payment gateways, real time shipping, real-time stock level monitoring, integrated coupon or voucher promotion system, paid online download, frequent buyer rewards, and more. Make sure you select an offering that is simple for end use, yet offers comprehensive features.



THE PAYMENT GATEWAY

Any e-commerce system worth its salt will have a secure system for accepting online payments. The payment gateway creates a secure online connection to confirm the availability of funds with the customer, then initiates an electronic transfer, and finally creates a record of the transaction. Safety precautions such as SSL encryption and address confirmation, to cut down on fraudulent purchases, come in-built with most payment gateways.

While e-commerce developers can develop their own payment gateway, that would be an extensive process and akin to reinventing the wheel.

As always, there are literally hundreds of third-party vendors offering ready-made and customizable real-time payment processing solution. They integrate all the major payment systems and gateways such as PayPal, Authorize.net, LinkPoint, iBill, Verisign, and others, besides all major credit cards.

A module worth adding, especially for e-commerce sites that accept international transactions, is currency exchange. Make sure that this add-on is comprehensive enough to support as many currencies as possible and also performs real-time value lookups with local multi-level caching for near instant returns, automatic rate updates at any interval, and XML data storage.

An important point to consider is that much of the information required for the merchant gateway, such as name, address, amount and other details, are also used for the shopping cart, and as such it is important for the shopping cart software to be compatible with the merchant gateway.



SHIPPING

The final component in the e-commerce flow chain is the shipping module. When developing a custom module using ASP.NET, the best approach is to create new public classes for each shipping provider. Developers should be careful here to get the shipping costs and calculation of taxes correct, for failure to do so may result in the owner losing money, or conversely, being accused of tax fraud.

It may also be worthwhile to co-opt for ready-made modules. [Envoimoinscher](#), for instance, allows a comparison of different shipping providers and enables customer to choose as per his requirements. [DPD](#) works well for the back-end by making shipment management fast and easy and consolidating tracking. Select a shipping module that gives real-time charges from all the major delivery channels, and also offers intuitive user friendly features such as adjustments, algorithm based rate backup, dimensions, and rendering return as form elements. Make sure that the module supports tracking without the customer having to go to the shipping provider portal.



CUSTOMER SUPPORT AND CHAT

No matter how simple or clear-cut the e-commerce portal is and how comprehensive and clear the contents are, customers would invariably have doubts, and need follow-up or clarifications. A customer support option, featuring live chat and other help features, is now an essential feature in any reputable e-commerce portal. This functionality also finds use in initiating marketing calls.

When selecting a .NET based customer support module it is a good idea to look for an advanced AJAX chat client, along with a complete operator console application. It is also a good idea to ensure that it supports simple FTP deployment and usage on shared hosting providers.



MARKETING

The marketer's job is to ensure that visitors stay longer on the website, and induce them to make a purchase. This is a challenging job, and requires analytical insights.

At the back end, marketers would do well with intuitive functionalities such as:

- *Location analysis, which looks into the visitors' IP addresses and browser details to reveal country, location, language and other details.*
- *Dynamic button generation with stunning visual results, which facilitates on the fly customization and integration with simple control based usage within ASP.NET, and automatic state creation.*

Marketers have to make sure that such analytics are undertaken in real-time for them to be of any use.

As always, the e-commerce ecosystem has components that facilitate such ends, with scores of third party apps offering ready-made functionality. [Ma Pub Facile](#), for instance, facilitates the creation of targeted advertising campaigns easily.

No e-commerce ecosystem is static, more so in today's highly fluid business environment. New technologies that emerge almost every day render existing technologies obsolete. Even within the existing technologies, there is a need to change the content and structure frequently to cater to changing customer tastes and preferences. A dynamic website that offers unmatched flexibility and resilience is the key, and here the .NET framework makes the cut.



Suyati Technologies

Suyati is a young, upwardly mobile company focused on delivering niche IT services to support myriad Digital Engagement strategies. Our expertise also includes integration and delivery of CRM, CMS and eCommerce solutions.

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