

# **Building Web Sites That Sell**

**How to put together all the things you need to get  
your web site to sell.**

**Psiphòn Consulting**

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# Building Web Sites That Sell

## Introduction

E-commerce is a growing phenomenon that more and more businesses are realizing is necessary to have as part of their business model. Unfortunately it is a complicated solution that requires knowledge of many back-end functional components that most people don't readily have.

This white paper will discuss the specific components that are required to get a web site to become e-commerce enabled. It will cover what the components are, how they need to be connected, and some solution providers that you can use to get your site up and running.

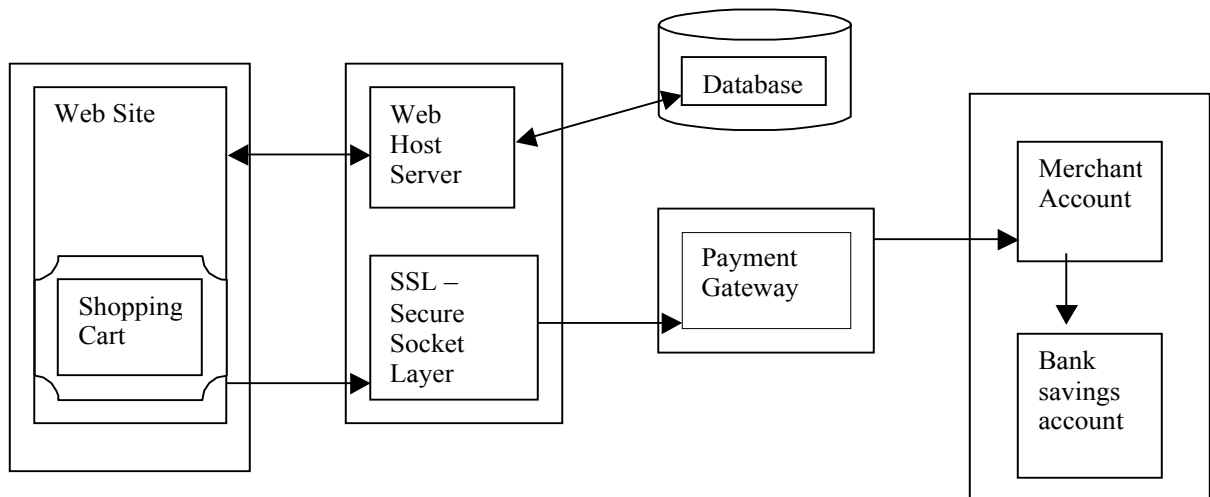
This white paper is written for someone who is familiar with the Internet, but who is not familiar with what occurs in the background to make Web sites e-commerce enabled. The reader is assumed to know what the terms HTML, JavaScript, database, Server, Hosting Service provider, Secure site, and a few other technology related terms mean.

## Overview on E-commerce enabled sites

### Components

E-commerce enabled sites all require specific components, or functions that are included in the diagram listed below. The functions can be provided through a number of different services. Many of them vary in cost and features. Which one you choose will usually depend on your pocketbook and the types of features you require (not necessarily in that order – because in this world, it is very much a “you get what you pay for” rule, and if you don't want to pay much, you really won't get much!)

Figure 1. E-commerce web site components.



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## Web Site

The first component you obviously need is a Web site. You can have a Web site that does not have E-commerce functionality, or dynamic web site capability (involving a database). This is the basic foundation of a web site. It is like building a house. You don't have any fancy upgrades, but you do have a foundation, walls and a roof. Any upgrades you may want can only be added after this point.

This is where you can work on the look and feel of the web site, and work on the marketing aspects of your web site. How do you get customers to buy from you? What should the content be for your web site, and how do you word things to get people to do what you want them to do? (In this case it would be to purchase items from your web site). For more information on how to do this and what is important in your content, you can go to <http://marketing.business-webtools.com/> and <http://website.business-webtools.com/>.

Getting people to your web site and getting them to purchase items from you is another separate subject. This step is usually done after the web site has been completed. It doesn't make any sense to send a lot of people to your web site if you aren't ready to sell them anything.

## Shopping Carts

The next step to getting your web site to sell is to add a shopping cart. What exactly is a shopping cart? A shopping cart is: *"A web application that allows multiple simultaneous users to select specific items for purchase, while keeping a running total of combined item and processing costs. The end result is the total costs of items and processing charges are charged to the customer, and all customer and order information is available to seller, so the purchase can be completed."*

So what is so special about needing a shopping cart? There are three things that a shopping cart must do to allow users to purchase from your site, especially if you plan on allowing more than one person to purchase from your web site at one time. They are:

1. Allow Multiple simultaneous users - Since the web is "stateless", the cart must be able to distinguish specific users from other users. This is called "Maintaining State", and is commonly done through cookies, hidden form variables, tracking IP address or a combination of the 3. (Session management is the automated process of maintaining state.)
2. Keeps a running total of combined item and processing costs - Through session management, we can keep track of each user's selected items (cart), and total the costs associated with those items. Cookies allow a shopping cart to track a computer's cart across sessions, and long time periods.

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3. Finalize the order - The customer is charged for each item purchased shipping, handling, tax, etc. Sometimes costs change, based on market, number of items purchased, type of purchaser (wholesale vs. retails, frequent flyer, etc.) sale prices, package purchases, shipping destination, etc. The storeowner receives all customer information, so the order can be packed and shipped, inventory reduced, and accounting updated.

### Database

The database holds the numerous data information that is collected during the shopping process and it can also hold other types of information that helps make the site function. Uses for the database include:

1. **Customer Data** - Keep track of all the customer information collected from orders in a database, if you want to allow one click re-ordering, track volume to sales per customer, send out marketing materials or special offers, etc.
2. **Customer Personalization** - Many times a site will want to keep track of the users/customers that use the site. Sites such as Yahoo and Excite have a place where you can log into the site and use it based upon your own preferences. These sites keep track of customer preferences such as what kinds of news they want to see on their site, where their home zip code is (to get local movie listings), which stocks they want to keep track of, etc. All of this information is stored in a database with the username and password. When the customer logs in, that information is retrieved based on the username, and the web page is built based on the customer's specifications. Each user will see something different based upon their preferences, and will provide greater customer service.
3. **Product Data** - Keep track of all the product data in a database, to allow inventory management, price changes, back ordering, wholesale and retail pricing, track ordering trends, track profit margins, feature specific items, allow the store owner to easily manage the products offered, etc. You can manage the inventory, for quick and easy updating. If the price changes, or the item color changes, or an item were no longer carried, etc. then the database would be updated to reflect the change. Any customers accessing the database (via a catalog function on the Web site) at a later time would instantly see the change and see what items are still available.
4. **Shopping Cart Contents** Storing each users cart contents in a database helps you keep track of the items, do suggestive selling, create a user profile, do load balancing across multiple servers, etc.
5. **Integrating With Other Systems** - Every application seems to have a different data structure, so storing data in a database allows you to create specific import/export features for differing types of systems.

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The database design should be robust and allow for growth. Putting in a few extra dollars in getting a good database designer will save you money down the road. The designer should be included in your plans for the growth of your web site so this growth can be designed into the database. A proper design will save you not only \$\$, but time, and headaches. There is nothing more frustrating than waiting a long time for search results on a web site because the database wasn't designed efficiently.

### Accepting Credit Cards

If you do not choose to accept credit cards on your site, then you don't need to use the following sections for payment. You can allow the user to print out the form and fax it into you, email it into you, mail it to you, or call you up over the phone and give you their order.

If you wish to increase your online sales by over 300%, you can accept credit cards on-line. If you choose to accept credit cards online, you will need the remaining sections of the diagram implemented in your web site.

### Secure Socket Layer (SSL)

SSL is a public/private key encryption process. This allows the sensitive data the user puts into the form to be sent to the server in an encrypted format. It basically secures the data from the shopper's browser to the web server. In English, it performs the following process...

- Browser requests a page beginning with https:

Browser says "I want to get information from you securely".

Server responds by sending public key:

Server says "OK, in order to keep this conversation secure, here's my encrypting code. Jumble up (encrypt) all your information with this code, so no one else can read it."

Browser sends an encrypted request for the specific file

Browser says the following (jumbled with the code) "I want to get the page "ssl.shtml", located in the e-commerce directory"

Server uses it's private key to un-jumble (decrypt) the message sent by the browser, and sends back the requested file.

- Since the information is encrypted, if someone tries to reads it as it travels between the 2 points, they won't be able to, as it's jumbled.
- Encryption is really using secret codes to encode (encrypt) and decode (decrypt) the information sent between the browser and the server.

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### **Payment Gateway**

This is a service/program that collects the sales amount, and the credit card information from the customer and sends the payment to the bank via the Internet. There are many places to obtain payment gateway services, which we will go through later.

The payment gateway needs to be connected to your web site and your bank account over the Internet. It acts as a money conduit between the shopper and your business bank account.

### **Merchant Account**

A merchant account allows your business to charge sales to credit cards. It's an account/agreement between your business, and a bank (in cooperation with Visa, MasterCard, American Express, etc.). Any business that accepts credit cards (on or off line) must have a Merchant Account

### **Business Bank Account**

This isn't just required for businesses accepting credit cards, but for any business. However, you will need a bank account that will accept the deposits for the credit card charges. As with anything else, business bank accounts vary in features and costs based upon the servicing bank.

Some banks offer entire packages of merchant accounts, payment gateways and bank accounts all in one package. There are plusses and minuses to getting these types of packages and depending on your needs, it may be a good fit or not.

### **Putting It All Together**

#### **Overall Flow**

The overall flow of a web site purchase is rather simple. Most of the action takes place in the back end, unknown the end user. Once a user decides on an item or items to purchase, they put these items in the shopping cart. The shopping cart acts as a temporary storage place to hold items until they are purchased (envision a shopping cart at the grocery store – you put items you want to purchase in them until you are ready to check out at the cashier counter).

When the user is ready to check out and purchase these items, they will usually click a checkout button that takes them to the next step of entering the required information on the next form. This usually includes cc information and billing and shipping information.

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## How a Shopping Cart Works

1. Each unique user (shopper) is assigned (tagged) a unique identity code to "maintain the individualized state".
2. When a user adds an item to their cart, that item (and its attributes) are recorded and associated with that user. This can be done in 2 ways. With the first way, all the data for that item, such as quantity, options, name, description, weight, etc. are recorded (written to a text file or database) and associated to the unique identity of that user. With the second way, the item number only is associated, with that user and when that user checks out, all of the other attributes are collected, such as description, weight name, etc. The tradeoffs are between speed and memory. The first way requires more memory, and the second way takes a bit longer during checkout.
3. When the users are ready to "check out", the customer information (shipping address, phone number, payment information, etc.) is collected, and total purchase costs are calculated and charged. Shipping may be calculated on weight, number of items, total purchase price, shipping type/destination etc. Tax may be calculated on specific items, shipping destination, etc, and may or may not need to be calculated on shipping and other charges.
4. In most cases, SSL encryption is used to protect the sensitive data collected during checkout.

The information is then sent over to the web server via a secure link (using the SSL – via a secure certificate) to the payment gateway. The payment gateway then connects with the merchant account and deposits the money with the merchant to the merchant bank account. It will also notify the merchant of the purchase so the merchant can ship the items out to the shopper.

## How to Encrypt Your Information Using SSL

- From a programming standpoint, using SSL is like using a different domain, with a few exceptions.
  1. The URL is preceded by https instead of http
  2. The domain in the URL must match the domain on the SSL certificate exactly (including the use or non-use of the "www").
  3. All files (images, external JavaScript, etc.) used on the page called with SSL must also use SSL, or an alert/warning stating that secure and insecure information is contained on the page will be shown to the user.

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- From a hardware and software standpoint, the server must have SSL server software and an SSL certificate installed.
  1. SSL stands for Secure Socket Layer, which is a public key/private key encryption process.
  2. The SSL certificate contains the public and private keys.
  3. Browsers recognize certain companies as "trusted" issuers of SSL certificates. The issuing process involves confirming business status and ownership of the domain being used on the certificate.
  4. Where to get an SSL certificate:
    - [Thawte](#)
    - [Verisign](#)
  5. It takes time to encrypt and decrypt all the information sent using SSL, so only use it when you need it. This is a bit tricky because you often want to link to an insecure page, but you must load all the images securely (see #3 in the first section).
  6. Because the encryption happens before any data is transferred, the html form page collecting the data doesn't have to be loaded with SSL, as long as it's sent to an SSL page. Despite this technical fact, it's always a good idea to use SSL on the html form page, so the user can see the solid key, and feel secure.
  7. SSL ONLY secures the data from the shopper's browser to the web server. How the information gets back to the site owner for processing is another issue.

### Accepting Credit Cards Online

You need to obtain a merchant account, and select a payment gateway.

- Select your online gateway based on what features you need.

Things to consider:

  1. How much integration do you need?
  2. How involved is the integration?
  3. Is it compatible with your hosting provider?
  4. Do you need to process recurring transactions?
  5. Do you want to use fraud screening?



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6. How you are going to fulfill the order?

7. How much does it cost?

- Find a reliable merchant account that is compatible with the gateway you selected, and sign up for the merchant account and the online gateway. (Usually you'll sign up for both at the same time, as they integrate closely with each other.)

Many Payment Gateways include a secure (SSL enabled) order form or basic shopping cart. Be cautious of the limits of these options, as they are usually non-customizable, and since they are on a different server, any integration with your site may be extremely difficult.

Gateways will often provide a one-page order form, where you can simply enter the customer information and amount to be charged into a web page. This is known as a "Virtual Terminal".

### Alternative Payment Acceptance Methods

There are some services available that will charge customers on your behalf, so you don't have to get a merchant account. The risk of fraud and charge backs is much higher, so these services charge much higher processing fees, usually between 8% and 15% of each sale. The cardholder's statement will show the company name of the merchant (not your company name), which often confuses cardholders, resulting in higher probability of charge backs.

You will still need a payment gateway, but many of these services usually have the payment gateway included with their services.

### Typical Costs Involved

#### Web Site Hosting Costs

These costs can vary greatly due to the type of hosting requirements you may have. They can range in costs to \$5/ mo. for minimal basic service, to \$500/m for high transaction intensive and very high traffic web sites.

#### Merchant Account Costs

- **Merchant Setup Fees** - This is the one time fee to get your merchant account setup. Amounts vary between \$0 and \$500, and usually include a contract of a specified length of time.
- **Merchant Account Discount rate** - This is the amount of the sale the merchant account provider takes off the top. Normally between 1.99% and

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3.49%. The low end of the percentage is for offline orders, where the magnetic strip on the card is scan, and a customer's signature is recorded on a receipt. Online rates are usually between 2.49% and 3.49%.

- **Merchant Account Transaction Fees** (may also be called or include "pass through fees") - Transaction fees are a set cost per transaction, and are charged regardless if the transaction passes or fails. Fees vary between \$0.15 and \$0.50 per transaction and may differ based on the use of Address Verification System or Card Not Present codes.
- **Merchant Account Monthly Minimum or Support Fees** - The merchant account will either have a monthly minimum of the fees above, i.e. you pay \$35/month or the discount and transfer rates above, which ever is greater, or a set monthly fee. These fees range from \$10 - \$45 a month, and are almost always charged, regardless if any transactions are made.
- **Merchant Account Statement Fee** - This is sometimes included in other fees, but more often is a listed separately. This monthly fee is said to cover the bank statement and/or cost of transferring funds to your bank, and is almost always charged, regardless if any transactions are made. These fees range from \$10 - \$35 a month, and are almost always charged, regardless if any transactions are made.

## Payment Gateway Costs

- **Online Gateway Setup Fees** - This is the one time fee to get your online gateway account setup. Amounts vary between \$0 and \$500, and usually include a contract of a specified length of time.
- **Online Gateway Account Discount Rate** - This is the amount of the sale the online gateway account provider takes off the top. Many online gateways simply charge a per-transaction fee, but some also charge a discount fee, normally between 0.99% and 2.49%.
- **Online gateway Account Transaction fees** (may also be called or include "pass through fees") - Transaction fees are a set cost per transaction, and are charged regardless if the transaction passes or fails. Fees vary between \$0.15 and \$0.50 per transaction and may differ based on the use of Address Verification System or Card Not Present codes.
- **Online Gateway Account Monthly Minimum or Support Fees** - The Online gateway account will either have a monthly minimum of the fees above, i.e. you pay \$35/month or the discount and transfer rates above, which ever is greater, or a set monthly fee. These fees range from \$10 - \$999 a month, and are almost always charged, regardless if any transactions are made.

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### Online Fraud/Security Issues

When accepting cards online, you will have to understand that you will be exposed to more cases of potential fraud. There are some things that you can do to help reduce the number of chargebacks and fraudulent charges to your credit cards.

Other issues you have to watch out for include:

- Since the magnetic strip is not scanned, the risk of stolen numbers is higher, so online processing fees will be higher.
- Since no signature is collected, customer has a very good chance of winning disputed online purchases.
- Take advantage of the fact the gateway is storing the credit card numbers, **DON'T STORE THEM ON YOUR SERVER!** Of course, this makes automatic recurring charges difficult. However, some merchant accounts are now providing a recurring charge service, which will allow you to do recurring charges.
- AVS (Address Verification System) When the bank confirms that the cardholder has sufficient funds, it can also confirm the customer's billing address (street address and zip).
- CNP (Card Not Present) - There is one set of numbers on the back signature panel of the credit card that is not included in the main number. Confirming this number can reduce fraud or use of stolen numbers. The credit card companies have VERY strict rules about not storing these numbers, with large fines if you are caught storing them.
- Fraud screening services are becoming more and more popular. It's similar to a credit report on the card number. Each card is scored, based on not only the information already mentioned, but buying history, charge backs, etc.

### Common Issues Web Commerce sites face as they evolve.

- **"I'm too small to take credit cards in real time"** - The cost of the merchant account and gateway will be made up with a small number of sales, when you consider the time it takes to type all the information into the terminal, or how long it takes to call back the customer when the card number is refused, miss-typed, or has insufficient funds. Processing online orders by a hand terminal is probably a violation of your offline merchant account contract, and you'll still be charged higher discount fees since the magnetic strip on the card is not scanned.

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- **Fulfillment** - Success will be your worst enemy if you haven't come up with a very efficient ways to fulfill your orders. Things such as getting the data into accounting systems, printing invoices, packing slips and shipping labels can really eat up profits, if you don't plan ahead. (PDFs are often needed to print things consistently, as web pages don't print well.) There are many 3<sup>rd</sup> party fulfillment houses that can handle your orders for you for a small fee. You can look at the following link to find some that may be in your area: <http://opsandfulfillment>.
- **Inventory** - When you have high sales volume, running out of inventory can mean a lot of back orders in a short time. If you can't back order, you'll have to do credit card refunds, call or email the customer, etc. When an offline store gets a "rush" of customers, a line forms, and if you run out of something, you can tell the people waiting in line that you are out of product. If that happens online (because you don't have good inventory management), you'll have even more angry customers, as they had actually purchased the item, their card has been charged, they have to get a refund, etc. <http://automate.business-webtools.com/>
- **"We Need a Online Sales Strategy"** - Don't throw away what made your business a success offline when you start selling online. Marketing online is a good thing, but doesn't forget why your product sells offline when creating your online marketing. <http://marketing.business-webtools.com/>.
- **Integrate Your Store into Your Site** - If someone is comfortable on your site, and they go to a completely different site to purchase the items, they may be less likely to go through with the purchase. However, it can be easy to make it look like they are on the same site if you decide to use an external shopping cart, just look at how much customization is available with the shopping cart.
- **Beta Test** - There is a lot going on in e-commerce, so plan on a lot of testing. Also, bugs can cause a lot more work than normal, as you not only have to fix them, but you may have to refund money, you may send out incorrect orders and have to do returns, etc.
- **Centralize and Automate as Much as Possible** - Many times the store will be automated for the shopper, but the store owner has to do 7 different things to get the order sent out. For more information on how to automate your online business check out <http://automate.business-webtools.com/>.

## Conclusion

Creating a Web site to sell requires complex technology, but it can be relatively straightforward. There are services out there that can easily provide the required functionality, and in most cases,

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Your greatest challenge is deciding what kinds of services you need, and then being able to connect the pieces together.

Once you have a site that sells, you can begin to create opportunities and reap the enormous advantages that e-commerce can bring to you.

Psiphon Consulting does consulting work in web site programming, business integration to the Internet, and web site promotion. They can be reached at 877 399 2016 or at [info1@psiphonconsulting.com](mailto:info1@psiphonconsulting.com)

### **Resources**

There are several resources you can use to implement the required technologies into your web site to enable it for e-commerce. In this section, we will list a few places that you can obtain these services to help reduce your research time.

#### **Hosting Services**

<http://hosts.business-webtools.com/>

#### **Shopping Carts**

<http://carts.business-webtools.com/>

#### **Payment Gateways – (for those merchant accounts without them included)**

Authorize.net

Verisign Payflow, formerly Signo and CyberCash

#### **SSL Certificates**

[Thawte](#)

[Verisign](#)

#### **Merchant Accounts**

<http://merchant.business-webtools.com/>

#### **Web Content Resources**

<http://content.business-webtools.com/>

#### **Web Automation Tools**

<http://automate.business-webtools.com/>

#### **E-Commerce Enabled packages**

<http://carts.business-webtools.com/>

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**Reference:** Sites That Sell. Peter Janett, [New Media One Web Services](#)