INTERNET COMMERCE BASICS

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INTRODUCTION

The Internet – some liken it to the advent of the railroad. Just as the railroad distributed goods to cities far and wide, the Internet distributes information around the world.

But where should this comparison end? Is the Internet merely a means to distribute information, or is it truly a new medium to distribute goods and services? Electronic commerce – the selling of goods and services over the Internet – is growing, but how quickly? In what areas? And when will it peak?

HOW FAST IS INTERNET USAGE GROWING?

The number of people with Internet access is on the rise. In fact, there has been a surge in the number of new host sites per year. Why? First, cheaper and faster Internet access. Telecommunications costs have been steadily decreasing around the globe due to privatization of and increased competition between telecommunication companies / Internet service providers. Increased bandwidth allows faster access, a trend that will continue as additional improvements, such as cable television access, become widespread.

The number of users from businesses and schools climb steadily, and with it, general Internet awareness and email usage. As a result, personal use is beginning to skyrocket, and the demographics of the Internet user are increasingly representative of the general population.

Around the globe, international governmental policies are encouraging Internet usage and protection. As a result, the number of host sites on the Internet has exploded in the past three years.

DO CONSUMERS FEEL SAFE BUYING OVER THE INTERNET?

A surge in Internet usage is not enough to prove that people will actually buy over the Internet. The success of commerce depends on the ability of the industry to combat the buyer's main concern: security.

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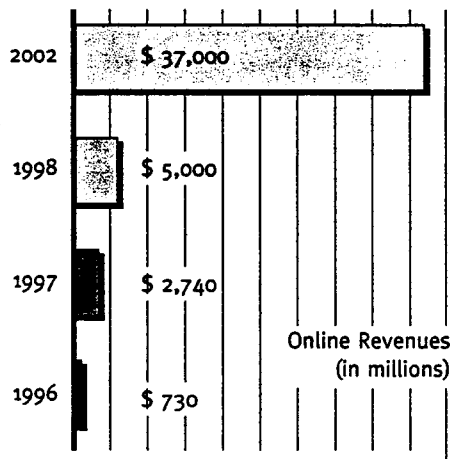
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Year	Online Revenues (in millions)
2002	$ 37,000
1998	$ 5,000
1997	$ 2,740
1996	$ 730

The good news? Studies show that users are becoming more trustful of the security of the Internet. According to Britain's NOP Network, one in 10 Internet users have given their credit card numbers over the Internet, up from just one in 25 last year. Credit card fraud is less than 1% on the Internet, compared to a much higher percentage off the Internet (Interactive Knowledge On-line).

There are three levels of security used by most commerce software. First, and most basic, is SSL, or secure socket layer. This layer, which can be seen on most browsers as a blue key in the left hand corner, and/or a blue bar running along the top of the browser, ensures that the session is secure. Second, encryption technology has been developed that allows the storage of payment data, such as a credit card number in a format which is very difficult to break. New 128-bit encryption helps ensure safety of the data, and through permits granted by the US government, this encryption technology can be used outside the US. Finally, industry experts are working together to combat the security issue. Organizations such as VISA and MasterCard have formed what they anticipate will be a new standard called Secure Electronic Transaction (SET) to promote secure Internet commerce. This will be described in detail below.

ARE PEOPLE ACTUALLY BUYING GOODS ON THE INTERNET?

Consumer confidence is beginning to soar. As the number of Internet domains and Internet users increases, so does the number of online purchasers. More than 1 in 10 households with personal computers has purchased something online. The 1997 holiday shopping season ended with approximately $800 million spent by Internet consumers, closing out the year at over $2.7 billion, estimated by Yankee Group. They expect this to number to double in 1998, reaching over $5 billion. In fact, large e-tailers, such as REI, QVC and Eddie Bauer, say online sales grew 40% to 400% over the 1996 holiday season. And Jupiter researchers predict e-tail-

ing will jump from more than $2 billion in 1997 to $37 billion in 2002. (ZDNet 1998).

IS IT TRUE THAT ONLY COMPUTER-RELATED GOODS ARE SELLING ON THE INTERNET?

We've heard success stories of computer giants Cisco, Gateway and Dell, who boast online sales in the $100s of thousands per day, exceeding 10% of their total sales. In fact, Dell topped $6 million/day in revenues from their Web site for a few days this holiday season.

However, it is not only computer sales which are succeeding online. According to ActivMedia (1997), the computer hardware and software industry is slowly but steadily losing its position as the number one industry in Internet commerce sales revenue. What's on the rise? The consumer products industry, up from 20% of overall web commerce in 1996, is approaching 35% of total web commerce in 1998, great news for e-tailers. Other studies agree.

A new study by CMP Research and Sage Research predicts that electronic commerce among large and mid-size companies will grow more than 50% in the next year.

WHAT FUNCTIONS SHOULD AN INTERNET COMMERCE TOOL CONTAIN?

An electronic commerce solution should satisfy the following requirements:

1. Security
   Security components should at a minimum include a Secure Socket Layer (SSL) session to ensure the secure transfer of data, and 128-bit or higher encryption of stored data, if credit card numbers are stored. In addition, it could include merchant certificates to ensure authentication and SET or other comparable security protocol. Velocity checking of credit card numbers is available to cut down on frequent abusers, and can be especially important for merchants who immediately download digital goods. Finally, message encryption ensures that the price, item, and/or quantity have not been changed once a purchase is made, thereby helping to maintain the integrity of the transactions.

2. User authorization and authentication
   User ID and passwords are a standard means of identification for users, but these are often enhanced by digital signatures, additional custom challenges for the buyer, certificates for the merchant and/or buyer, and security protocols.

3. Customer database
   Customer data management is extremely valuable to a merchant, allowing him to customize and personalize the buyer experience by showing items or discounts based on the buyer's profile. A customer account created by the buyer online allows the customer to maintain data accuracy. In addition, customer data stored online permits buyers to register at a site, and avoids the need to transmit credit card numbers multiple times over the Internet.

4. Order capture and management
   Order capture software should support digital, physical and subscription goods. It should issue shipping instructions for physical goods, and manage electronic downloads for digital goods. It should calculate the appropriate tax and shipping charges, and send a message to the fulfillment center. It should keep records of the transactions, allow the use of shopping carts, and produce audit trail reports and real-time transaction records for merchants.

5. Secure payment processing
   Payment processing can take the form of credit card processing, Smart cards, Mondex cards or debit cards, electronic cash, electronic checks, and purchase orders. The ecommerce solution should offer any of these options in a secure manner, e.g. it should provide real-time, credit card authorization and settlement. It should allow pay-per-view subscriptions, as well as trial and grace periods.

According to Media Metrix (12/97) the top 10 consumer online shopping sites include:

1.	bluemountainarts.com	online greeting cards
2.	amazon.com	books
3.	download.com	clnet's software download services
4.	columbiahouse.com	music
5.	qvc.com	jewelry, fashion, home and office furnishings, toys, etc.
6.	cdnow.com	music
7.	barnesandnoble.com	books
8.	hotfiles.com	software
9.	musicblvd.com	music
10.	onsale.com	online auction, includes sporting goods, electronics, etc.

The top five revenue generating sites for the 1997 holiday season were:

1.	Amazon.com	Books
2.	ColumbiaHouse.com	Music
3.	CDNow.com	Music
4.	QVC.com	General Merchandise
5.	SurplusDirect.com	electronics

6. Optimal customer service

Customers want both security and service. The merchant must ensure 24 hour/day, 7 day/week operation, so that buyers from around the globe can purchase goods. Buyers want online access to their order status and profile, and additional required authorizations when pre-established monetary thresholds are exceeded.

7. Fulfillment management

After an order is placed for physical goods, the good must be shipped before settlement requests can be satisfied (depending on country specific financial regulations). The commerce solution should integrate the shipping charges, and provide these to the buyer before the purchase is made. Ideally, the electronic commerce solution should communicate with shipping companies to update a buyer's order status, and communicate the order status to existing back office systems.

8. International Support

In order to take full advantage of the global nature of the Internet, the system should allow the modification and customization of screens, calculate VAT or other taxes and be understood in multiple languages. It should support ISO standard currencies and international address formats.

9. Traffic Generation

A merchant site cannot be successful unless traffic is driven to it. A good electronic commerce solution utilizes traffic-generation programs, which may include distribution of digital coupons, buyer-customized site content, and consumer profile-based discounts. Virtual communities, multiple merchants supporting a common theme, attract buyers interested in a particular topic or industry.

10. Ease of Upgrade

Staying current with the changing electronic commerce market can be expensive and time-consuming. A complete solution should be easy to maintain and include all the latest technology and industry trends. New payment mechanisms or security protocols should be easy to implement, customer service should be automatic and available 24/7, web site content should allow changes easily, and new technology developments or changes in hosting should be simple. Links to shipping companies, to keep the buyer informed of the fulfillment of their goods, will become essential.

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ZDNet: AnchorDesk, January 1998.

WHAT ARE THE DIFFERENCES BETWEEN THE VARIOUS TYPES OF INTERNET COMMERCE TOOLS?

Over the past three years, dozens of Internet commerce protocols and products have become available. Defined below are the pros and cons of various electronic commerce strategies:

Security Protocols (e.g. SET)

Security protocols, such as Secure Electronic Transfer (described above), are backed by well-known organizations like Visa and MasterCard to promote security over the Internet. Security protocols are intended to be used with additional software, i.e. they are not themselves a solution. Though SET may be one of the first, it has not been proven an accepted practice. There are sure to be others.

Payment Gateway

A payment gateway is a link to a financial processor, and usually requires set-up and transaction fees. A gateway should provide the secure payment features described above, but it will not provide all the components necessary for ecommerce. This data is not usually transmitted over the Internet.

Online Mall

Online malls facilitate the storefront building, help generate traffic, and are a low up-front investment. However, malls can inhibit the ability of small and medium merchants to customize the look and feel, and do not easily allow updates to content. In addition, the online malls created have not been able to generate as much traffic as originally intended.

Toolkit

Toolkits are software packages that allow small and medium merchants to build and customize their commerce solution. Though toolkits enable the store to be somewhat flexible in appearance, they take longer to implement than out-of-the-box solutions, and are very expensive to upgrade and maintain.

Custom Built

Custom built solutions allow large merchants to maintain control of their commerce solution, and are customizable with respect to taxation issues, language support, merchant branding, etc. However, custom solutions are extremely expensive, and upgrades and maintenance require huge resources.

Packaged Software Solution

A packaged software solution allows a speedy set-up, and provides a complete set of commerce functions for a lower cost than a custom built solution. Some packages offer good deals on upgrades and maintenance, making them much cheaper over the long term. The packaged solutions vary widely in price, depending on the number of functions provided.

Commerce Service Provider (CSP)

The CSP solution, defined by Open Market, offers small and medium merchants the ability to link to large, dependable companies (usually telecommunications companies or banks) for their commerce solution. For a small monthly fee (set by the hosting company), the merchant has access to a robust solution offering the financial stability and complex infrastructure needed for a full-service solution. The features include order processing, online customer service, secure payment clearance, walk-in or registered buyers, digital, physical or subscription goods, as well as ease of maintenance and periodic upgrades. However, it can be difficult to integrate these solutions with existing office systems.

WHICH TOOL IS RIGHT FOR ME?

The first step in determining the type of system is to understand what the goals of your company are. Are you a bank, telephone company, Internet Service Provider, or systems integrator trying to sell commerce services? Are you a small, medium or large merchant? Do you want to sell services, physical goods, digital goods or subscriptions? How much time do you have to implement the solution? What is your budget? How customizable does the solution need to be?

The following chart compares each of the electronic commerce solutions to some of these factors.

Solution	Merchant Size	Time to Mkt	Cost	Upgrades	Traffic
Secure Protocol (i.e. SET)	Large	Slow	$$	Medium	None
Payment Gateway	Small, Med.	Medium	$	Medium	None
Online Mall	Small, Med.	Fast	$	Medium	Some
Toolkit	Small, Med.	Slow	$$	Difficult	None
Custom Built	Large	Slow	$$$	Difficult	None
Packaged Software Solution	Large	Fast	$$$	Easy	None
CSP - Merchant	Small, Med.	Fast	$	Easy	Some
CSP - Service Provider	n/a	Medium	$$	Easy	Some

HOW CAN OPEN MARKET HELP?

Traditionally, merchants follow three logical steps in order to become active and successful in electronic commerce. First, they create a web site with information about their company. Next, they add details about the products they sell. Third, the web site is commerce enabled to allow the purchase of products directly online.

Though these steps are a fun way to prove the commerce concept, they are also expensive and time consuming. Often the phases are not well planned, causing difficulties and headaches. They become a creeping commitment. More and more money is spent trying to fix the web site, as it becomes a jumbled mass of problems, too expensive to scrap completely and start from scratch.

A better way for those new to electronic commerce is to leverage the learning experiences of the early adapters. Most important is to start with a solid strategy and a detailed business plan. A business getting involved in electronic commerce for the first time must realize that this is a new sales channel. Like any other new business venture it requires planning, investment, commitment and support to be successful.

OPEN MARKET SOFTWARE AND SERVICES

Open Market was one of the first companies to provide a software package for Internet commerce. Now on its fourth version, its *Transact* product has been proven successful in the market by over 100 implementations, in more than 20 countries around the world. Transact's out of the box solution provides state of the art security features and complete transaction solutions to merchants of all sizes.

Open Market's Services Group can also help. The *Commerce Business Solutions* practice uses its vast experience in Internet commerce business planning and strategy to help your organization clarify its goals, detail its business plan, understand the ecommerce value chain, predict the return on investment, set up sales channels, and help you understand the many variables involved in changing your business to allow electronic commerce. The *Internet and Information Commerce Implementation* groups have the experience to assist your organization in customizing or implementing Transact to create a solution that best meets your needs.

Whether you are a merchant wishing to sell goods online, a large publisher planning to offer subscriptions online, or a telephone company, bank, ISP or Systems Integrator wishing to provide commerce services, Open Market software and Services Group can help.