

# **Security Strategies in Web Applications and Social Networking**

## **Chapter 2**

### **From Brick-and-Mortar to E-commerce to E-business Transformation**

# Learning Objective and Key Concepts

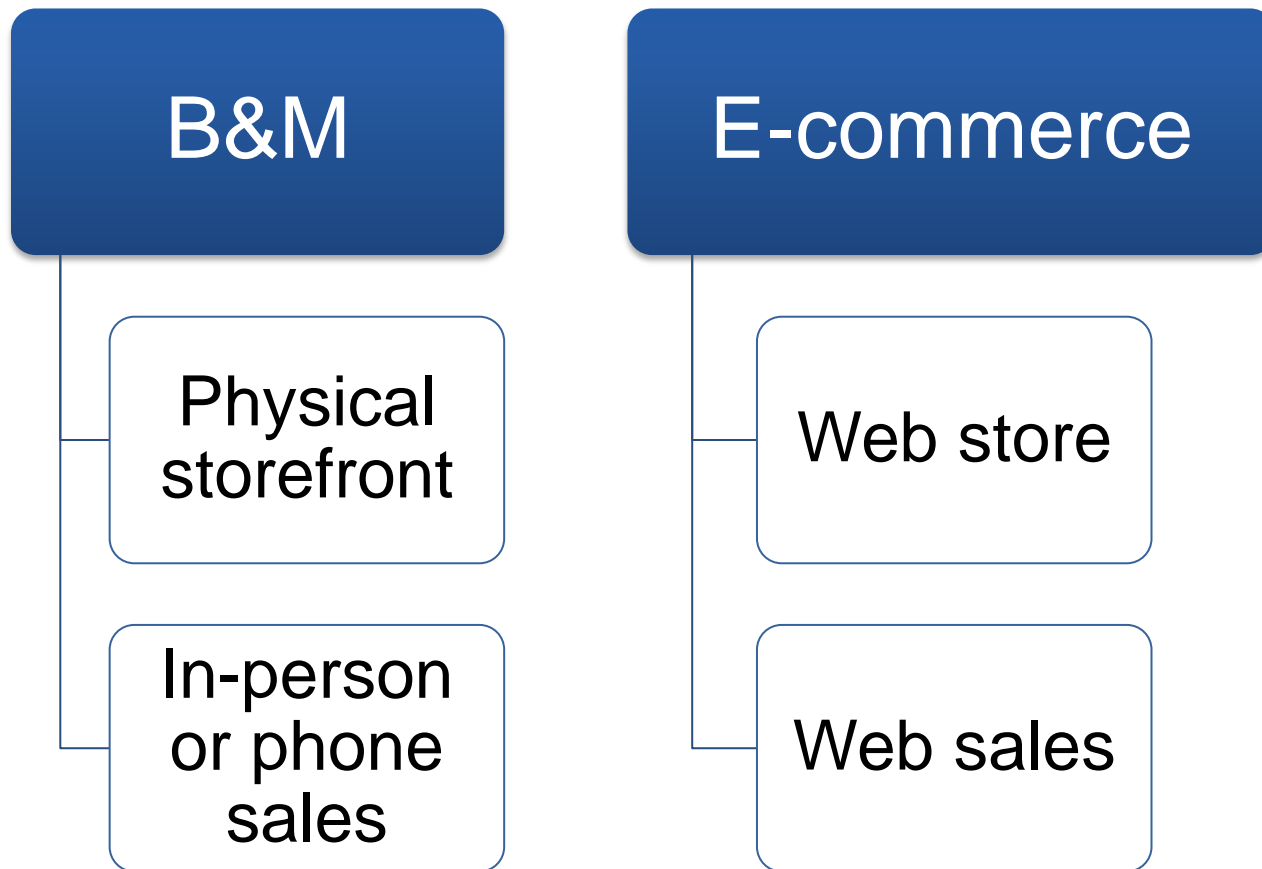
## Learning Objective

- Analyze the impact of the Internet and Web applications on the business world.

## Key Concepts

- Challenges associated with the shift from traditional to online business models
- E-business problem-solving and strategies
- Changes in the risk landscape as business moves online

# Brick-and-Mortar vs. E-commerce



# Business Drivers

Growth

Efficiency

Revenue  
Expansion

Customer  
Service

Customer  
Base  
Expansion

# Growth

- Web presence is a must for business today
- Potential customers use the Web to find information about products and services
- Easy-to-use and informative Web site to expand a company's services.

# Efficiency

- The Web makes some business processes easier and more efficient.
- Tie your inventory database to a Web interface.
- Real-time inventory updates to streamline ordering and customer delivery.
- Web presence can save on printing and mailing sales fliers and product lists.

# Revenue Expansion

- Reliability and availability are key factors for e-business.
- Robustness of the Web or e-mail server and its ability to continue service in the event of failure.
- Accessible 24 hours a day.
- Downtime equates to a loss in sales and loss of customers.

# Customer Service

- Building a Web-enabled customer service strategy
- Web chats, instant messaging (IM), forums, social networks, and e-mail.
- Use these forms of communications to meet the expectations of modern consumers.
- Engage customers more dynamically with technologies they like.



# Customer Base Expansion

- Use Internet marketing
- Acquisition is critical (visitors are potential customers)
- Use of acquisition consultants who specialize in driving traffic to corporate Web sites

Google Analytics is a freemium web analytics service offered by oogle that tracks and reports website traffic, currently as a platform inside the Google Marketing Platform brand. Google launched the service in November 2005 after acquiring Urchin.

helps profile our visitors. who goes to checkout and not make purchase

who visits once and never comes back

helps us better make business decisions and develop online presence

# Business Challenges

Planning

Customer  
Management

Internet  
Marketing  
Strategy

Creating New  
Revenue  
Streams

Enhancing  
Customer  
Service

High  
Availability

# Planning

- Market research — Research the competition's Web sites.
- Business plan — Have a detailed business plan with sales projections, budgets, goals, and actions.
- Domain name — Reflects your business and identifies it in URL. so that it shows up in Google search on first page
- Target market — Target demographic, web surfing habits, income.
- Advertising budget — Have a realistic marketing budget.
- Distribution — Establish distribution channels, optimize shipping costs and payment methods.
- Revenue stream — Do you sell goods, services, advertising?
- Data management — Have a published policy about how customer information will be gathered, stored, and secured.
- Return policy — Establish a return policy and state it clearly.
- IT support — In-house or outsource IT support.
- Customer service — Methods could differ from offline stores.

# Customer Management

- Acquisition—Attracting visitors to your site ex. advertising, blogs, inserting links to other popular websites
- Conversion—Getting visitors to perform a desired action on the site, such as a purchase
- Retention—Drawing customers back for future business

# Internet Marketing Strategy

- Participate related forums building relationships with people that could extend the customer base.
- Submit articles to e-zines and drive traffic to the site with article links.
- Issue online press releases for new products or services.
- Develop a social networking site for like-minded people.
- Develop a blog.
- Develop a link exchange program with related Web sites.
- Use click-based advertising on related sites.
- Develop instructional videos and post them on Web.
- Register the bookmarks of your business online with companies such as [delicious.com](http://delicious.com).

# Creating New Revenue Streams

- Advertising — Common way to increase revenue for popular sites.
- Subscription revenue — Requires quality and original content that customers cannot easily find for free.
- Products and service revenue — Products can be virtual, downloadable, or a physical product that requires shipping.
- Commission revenue—Commission revenue is made from paid marketing alliances and affiliate marketing.

# Enhancing Customer Experience

- Reply to customer queries quickly.
- Define customer service policies and stick to them.
- Be open, friendly, and approachable.


# High Availability

RAID (Redundant Array of Independent Disks, originally Redundant Array of Inexpensive Disks) is a data storage virtualization technology that combines multiple physical disk drive components into one or more logical units for the purposes of data redundancy, performance improvement, or both.

- Hardware failures --- (RAID) hard disks, multiple memory, and failover servers.
- Software failures — Hardening applications using the latest service packs.
- Virus infection — Constant updates on the checkers.
- Denial of service (DOS) attack — Use secure protocols.
- Infrastructure failure — Use redundant infrastructure equipment.
- Power outage — Use uninterruptible power supplies (UPSs).
- Natural disasters — Have an alternate remote network location.



# E-business Transformation Strategies

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- Know your target demographic
  - Develop appropriate marketing strategies
  - Create a marketing budget
  - Monitor traffic and visitor trends

# E-business Transformation Strategies (Cont.)



Create a customer support plan

Devise a method of client contact

Determine your primary marketing technique

# Traffic Acquisition

Who is your target market? Women? Children under 12? Doctors? Sports fans over 25?

- Isolate the demographic
- Design a site that meets the needs of the demographic The language, tone, and feel of a site will be different if marketing to snowboarders than to seniors. The site is designed around the demographic with its unique needs and expectations in mind.
- Identify demographically appropriate marketing avenues

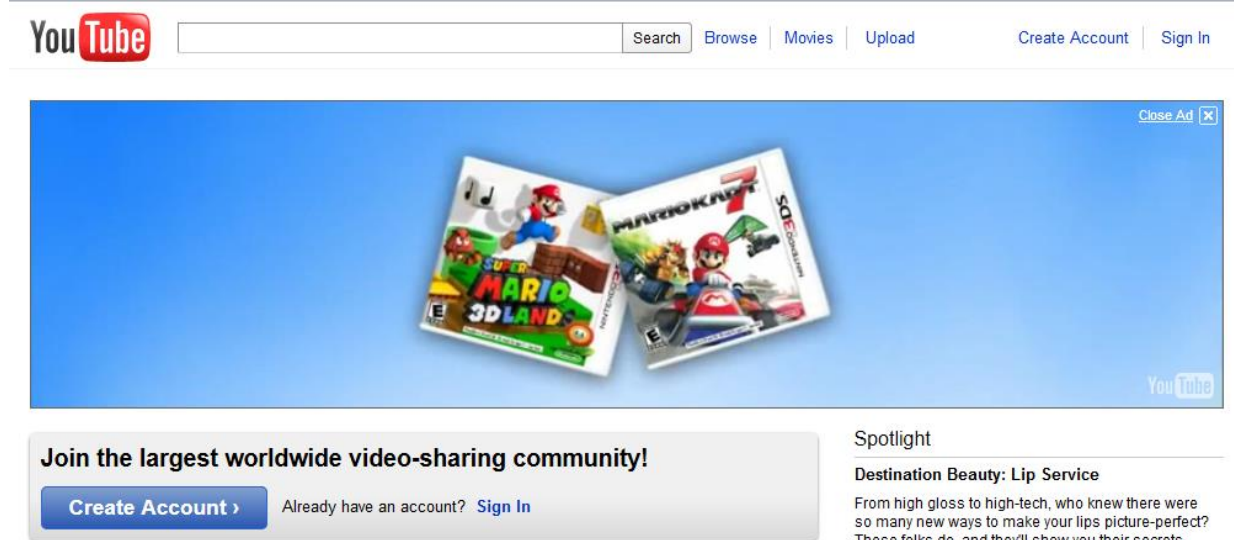
There are many ways to market online. For example, a senior poker enthusiast is more likely to see an advertisement on a poker-related Web site than on Facebook.

# Internet Marketing Strategies

- Pay-per-click (PPC) revenue model
- Affiliate marketing
- Banner advertising

Affiliate marketing is a type of performance-based marketing in which a business rewards one or more affiliates for each visitor or customer brought by the affiliate's own marketing efforts.

Banner ads are image-based rather than text-based and are a popular form of online advertising. The purpose of banner advertising is to promote a brand and/or to get visitors from the host website to go to the advertiser's website.



The screenshot shows the YouTube homepage interface. At the top is the YouTube logo, a search bar, and navigation links for Browse, Movies, Upload, Create Account, and Sign In. Below the navigation bar is a large banner advertisement. The banner has a blue background and features two video game boxes: 'Super Mario 3D Land' and 'Mario Kart 7'. In the bottom right corner of the banner is a 'Close Ad' button. Below the banner is a section titled 'Join the largest worldwide video-sharing community!' with a 'Create Account' button and a link for users who already have an account. To the right of this section is a 'Spotlight' area featuring a video titled 'Destination Beauty: Lip Service' with a brief description and a link to the video.

# Internet Marketing Strategies (Cont.)

- E-mail distribution lists and e-mail blasting
- Lead-generation Web sites
- SEO marketing

In marketing, lead generation is the initiation of consumer interest or enquiry into products or services of a business. Leads can be created for purposes such as list building, e-newsletter list acquisition or for sales leads.

One of the main marketing strategies that can help online retailers build a successful Internet business is search engine optimization (SEO), the process of tailoring your website to the algorithms that search engines use to rank websites based on "signals" that the site emits

The Google logo, featuring its characteristic multi-colored letters (blue, red, yellow, blue, green, red) in a sans-serif font.The bing logo, with the word "bing" in a blue sans-serif font, featuring a small orange dot above the 'i' and a trademark symbol.The YAHOO! logo, with the word "YAHOO!" in a purple, stylized, outlined font, followed by a registered trademark symbol.

# Risks

Risk – The potential for loss, damage or destruction of an asset as a result of a threat exploiting a vulnerability. Examples of risk include financial losses as a result of business disruption, loss of privacy, reputational damage, legal implications and can even include loss of life.

- Being connected to the Internet means being connected to the world and all the good and bad things that it implies.
- E-businesses, by definition, are allowing others to access their organizations in a way that presents risks.
- These businesses must consider the implications of allowing this access.

Risk can also be defined as follows:

$\text{Risk} = \text{Threat} \times \text{Vulnerability}$

You can reduce the potential for risk by creating and implementing a risk management plan. Here are the key aspects to consider when developing your risk management strategy:

1. Access risk and determine needs.
2. Include a total stakeholders perspective.
3. Designate a central group of employees
4. Implement appropriate policies and related controls.
5. Monitor and evaluate policy and control effectiveness.

# Threats

Threat – Anything that can exploit a vulnerability, intentionally or accidentally, and obtain, damage, or destroy an asset.

- Web sites are prone to:
  - Attacks from crackers, hackers, terminated employees, competitors, and others
  - Scrutiny from customers, competitors, “society”, government organizations, and others

A threat refers to a new or newly discovered incident with the potential to do harm to a system or your overall organization.

There are three main types of threats – natural threats (e.g., floods or a tornado), unintentional threats (such as an employee mistakenly accessing the wrong information) and intentional threats.

There are many examples of intentional threats including spyware, malware, adware companies or the actions of a disgruntled employee. In addition, worms and viruses are also categorized as threats, because they could potentially cause harm to your organization through exposure to an automated attack, as opposed to one perpetrated by humans.

# Mistakes

- No visitor tracking — Use visitor tracking tools such as Google Analytics.
- Poor site design --- Visitors don/t convert to customers.
- Confusing check-out procedures — Analytic software could identify if visitors leave at checkout.

Although these threats are generally outside of one's control and difficult to identify in advance, it is essential to take appropriate measures to assess threats regularly. Here are some ways to do so:

- Ensure that your team members are staying informed of current trends in cybersecurity so they can quickly identify new threats. They should subscribe to blogs (like **Wired**) and podcasts (like **Techgenix Extreme IT**) that cover these issues as well as join professional associations so they can benefit from breaking news feeds, conferences and webinars.
- You should also perform regular threat assessments to determine the best approaches to protecting a system against a specific threat, along with assessing different types of threats.
- In addition, penetration testing involves modeling real-world threats in order to discover vulnerabilities.



# Vulnerabilities

Domain	Common Vulnerabilities
User	Weak passwords Authenticating in public places
Workstation	Public computers with unknown security
LAN	Accessing content from public networks and Wi-Fi hotspots

A vulnerability refers to a known weakness of an asset (resource) that can be exploited by one or more attackers. In other words, it is a known issue that allows an attack to be successful. For example, when a team member resigns and you forget to disable their access to external accounts, change logins or remove their names from company credit cards, this leaves your business open to both intentional and unintentional threats. However, most vulnerabilities are exploited by automated attackers and not a human typing on the other side of the network.

Testing for vulnerabilities is critical to ensuring the continued security of your systems by identifying weak points and developing a strategy to respond quickly.

# Vulnerabilities

Domain	Common Vulnerabilities
LAN-to-WAN	Domain-poorly configured firewalls and routers
WAN	Internet service provider (ISP) reputability and security
Remote Access	Security on Web servers, proxies, and users' browsers
System/ Application	This is an obvious, specific concern in e-business!

# Privacy

Customer privacy is a critical concern for e-businesses:

- E-commerce applications house personal and private information about customers.
- Customer credit card information is received, processed, and stored on e-business systems.

# Summary

- Challenges associated with the shift from traditional to online business models
- E-business problem-solving and strategies
- Changes in the risk landscape as business moves online cannot stop the attacks but need to work around them

The **threat** of a hurricane is outside of one's control. However, knowing that a hurricane could potentially hit can help business owners assess weak points and come up with an action plan to minimize the impact. In this scenario, a **vulnerability** would be not having a data recovery plan in place in the event that your physical assets are damaged as a result of the hurricane's winds or heavy rains. The **risk** to your business would be the loss of information or a disruption in business as a result of not addressing your vulnerabilities.

Accurately understanding the definitions of these security components will help you to be more effective in designing a framework to identify potential threats, uncover and address your vulnerabilities in order to mitigate risk.