

The INTERNET



Introduction

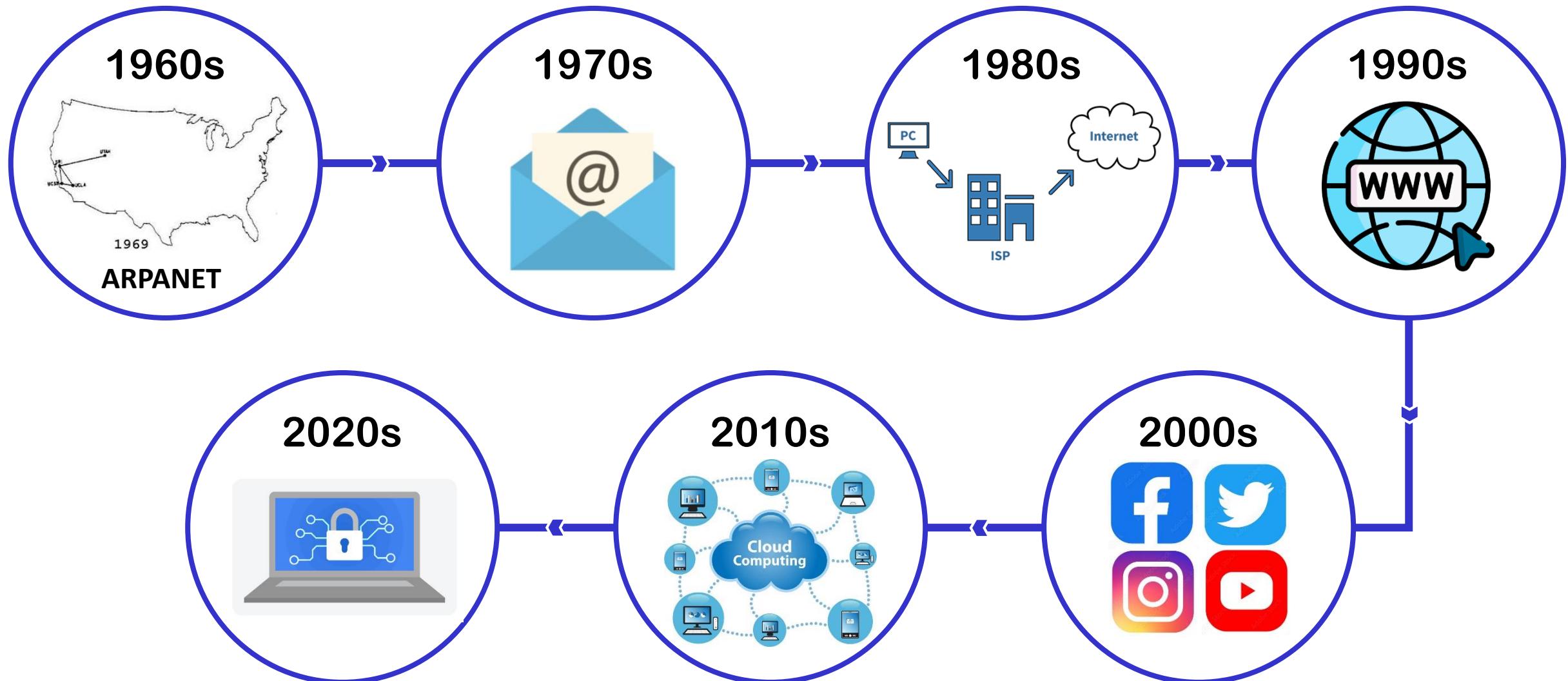
This lesson introduces the student to the history and importance of the internet.

Objective

At the end of this lesson, the student will be able to:

- Recount the history of the internet.
- Explain cloud computing.

HISTORY OF THE INTERNET



USE OF INTERNET



USE OF INTERNET



Search Information

Using the Internet, everything that we want to know is almost **searchable** using a computer connected to the internet. It could be just a simple word, a certain document, article, or book that we are searching, it can still be found on the internet.

USE OF INTERNET



NEWS

Digital News is what is new. It is **paperless**, it cannot be limited in terms of how much you can read and it is **easier to access** rather than doing it before where you wait on a television to deliver news to you or by receiving a daily newspaper.

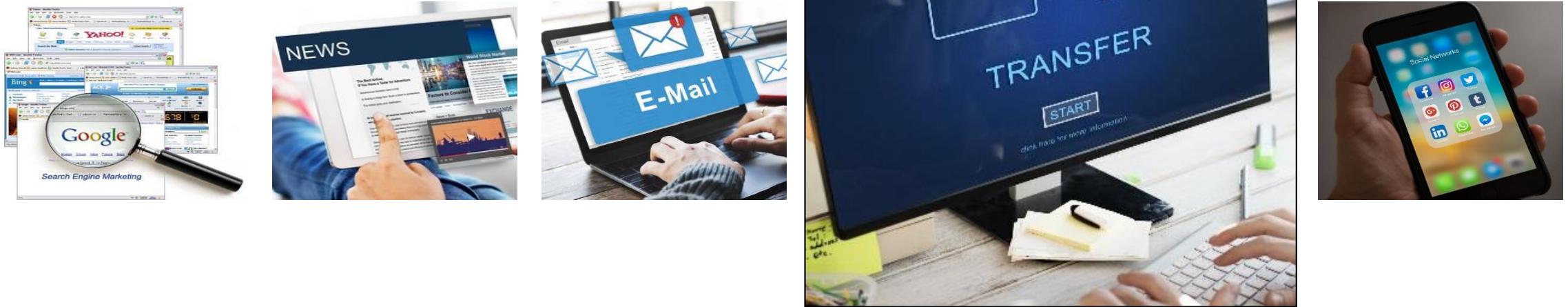
USE OF INTERNET



COMMUNICATION

Communication is one of the best things that made the internet famous. We can now send and receive messages to **anyone in the world real time** may it be through messaging or video calls.

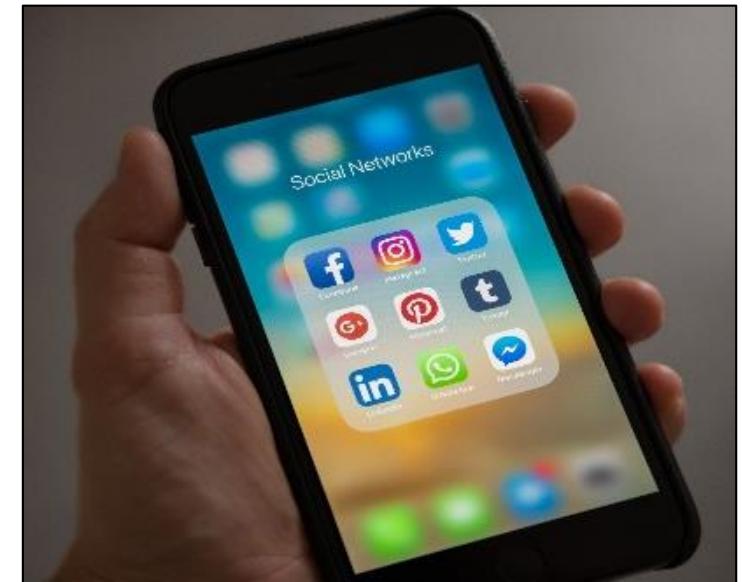
USE OF INTERNET



DATA TRANSFER

Sending data over the internet has been very useful to us. It provides us with **an easier way** of providing information when we need it. This has revolutionized the way we do business today. It has speed up some processes that would usually take days to be done.

USE OF INTERNET



SOCIAL NETWORKING

Right now during the pandemic, the use of the Internet has never been more important. When most countries have been locked down due to the pandemic, we were able to utilize the use of internet for communication. We can socialize with other people through different portals using the internet. Making the quarantine life more bearable.

Internet of Things (IoT)





INTERNET OF THINGS



PROS

- ability to access information from anywhere at any time on any device
- improved communication between connected electronic devices
- transferring data packets over a connected network saving time and money
- automating tasks helping to improve the quality of a business's services and reducing the need for human intervention



CONS

- the potential that a hacker could steal confidential information also increases
- collecting and managing the data from all devices will be challenging
- every connected device will become corrupted if a bug is in the system
- there is no international standard of compatibility for IoT



CLOUD COMPUTING

The term **Cloud** refers to a Network or Internet in other words, in other word, it can be say that Cloud is something which is present at **remote location**. Cloud can provide services over network, i.e, on public networks or on private networks, i.e WAN, LAN or VPN.

Applications such as e-mail, web conferencing, customer relationship management (CRM) all run in cloud.

What is Cloud Computing?

- It refers to **manipulating, configuring, and accessing** the application **online**. It offers online data storage, infrastructure and application. Cloud computing is both a **combination of software and hardware** based computing resources **delivered as a network service**.
- Cloud computing allows companies to avoid or minimize infrastructure cost for IT solutions. It also provides improved management, security, economic, scalability and manageability.

Why do we need to learn Cloud Computing?

Every company wants to have scalable, **manageable** and **economical** infrastructure. But infrastructure comes with a cost and in a fast growing startup fund are a major issue, cloud computing can be very handy in this situation where you just need to **pay for the service you use** and no need to buy new infrastructure you can just pay and use for the time you want.

Even enterprise companies also use cloud services for their products and different services.



Basic Concept

There are certain services and models working behind the scene making the cloud computing feasible and accessible to end users. Following are the working models for cloud computing:

- 1. Deployment Models** - define the type of access to the cloud, i.e., how the cloud is located? Cloud can have any of the four types of access: Public, Private, Hybrid and Community.
- 2. Service Models** - the reference models on which the Cloud Computing is based. These can be categorized into three basic service models as Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS)

Deployment Models

Cloud Model	Characteristics	Example	Real-World Use
Public Cloud	Shared, scalable, cost-effective, third-party hosted	AWS, Azure, GCP	E-commerce, startups
Private Cloud	Dedicated, secure, controlled	OpenStack, Vmware	Banks, healthcare
Community Cloud	Shared by organizations with similar needs	FedRAMP, IBM Healthcare Cloud	Governments, research institutions
Hybrid Cloud	Mix of public and private for flexibility	Azure Stack, AWS Outposts	Retail chains, media companies

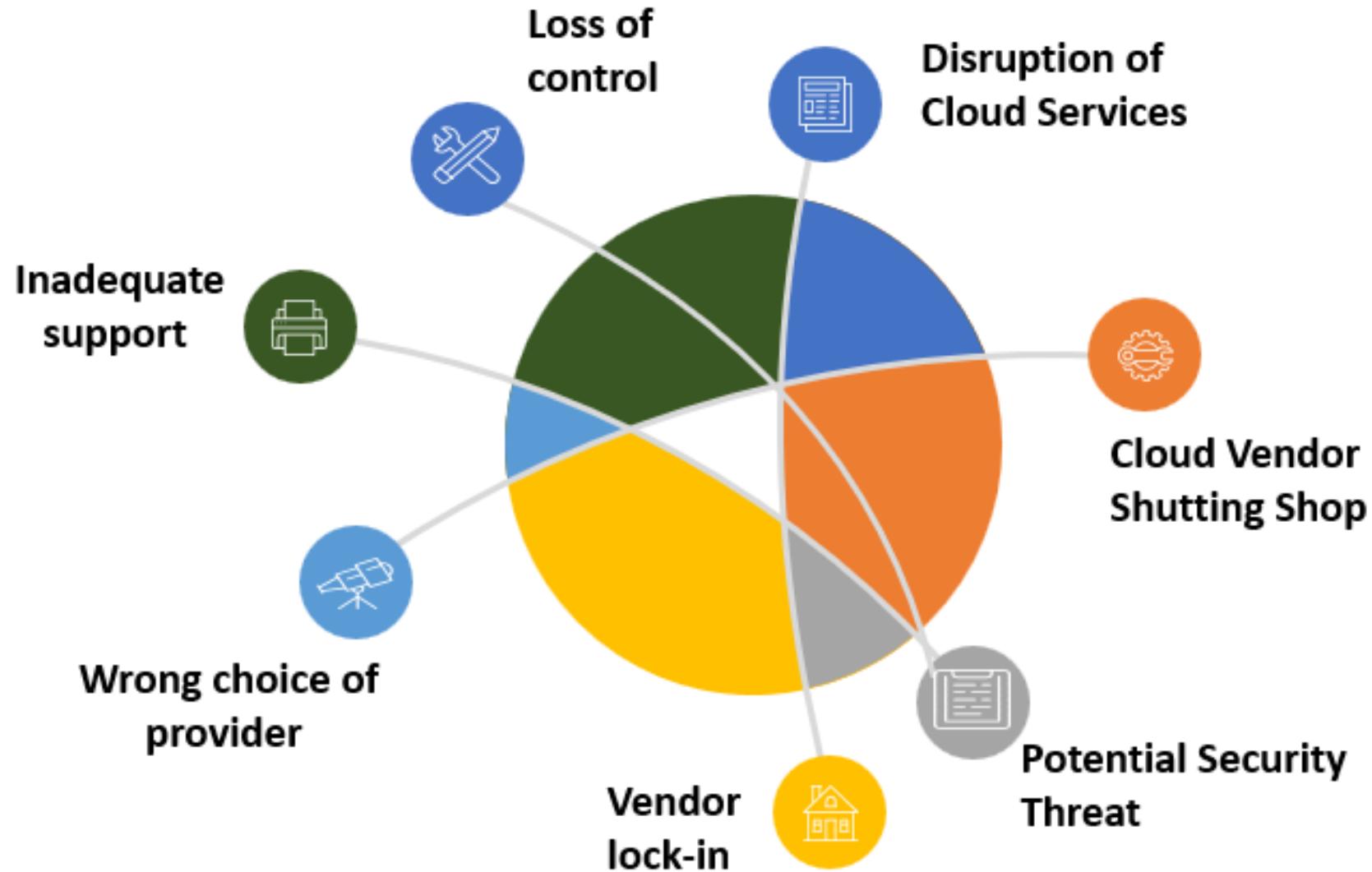
Service Models

Cloud Model	Purpose	Examples	Real-World Use Cases
IaaS	Provides infrastructure like VMs, storage, and networking. Users manage OS, apps, etc.	AWS EC2, Google Compute Engine, Azure VMs	Hosting apps, disaster recovery, testing environments.
PaaS	Offers a platform for app development and deployment.	Google App Engine, Heroku, Azure App Service	Web and API development, microservices hosting.
SaaS	Delivers software accessible over the internet. Users only consume the application.	Google Workspace, Salesforce, Microsoft 365	Collaboration, CRM, business productivity.
FaaS	Runs code in response to events without managing servers.	AWS Lambda, Google Cloud Functions	Event-driven tasks, IoT data processing, real-time workflows.

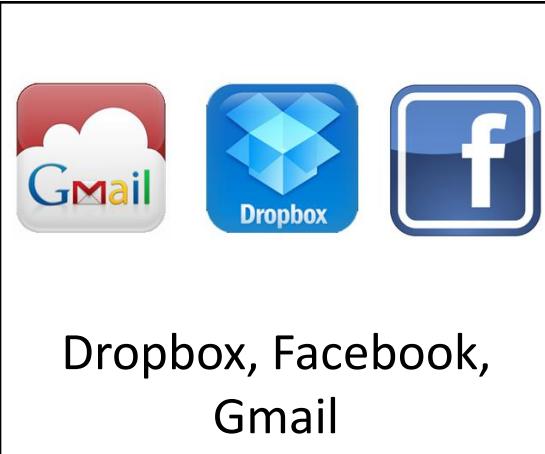
Advantages of Cloud Computing



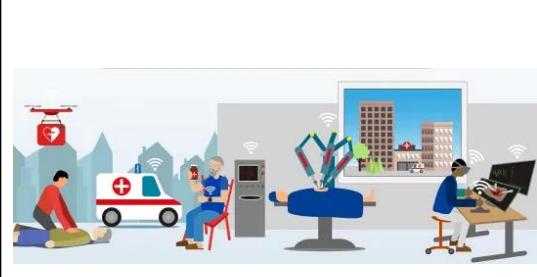
Disadvantages of Cloud Computing



CLOUD COMPUTING IN DIFFERENT FIELDS



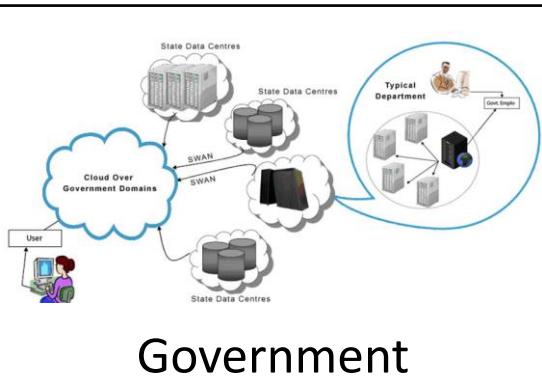
Banking, Financial Services



Health Care



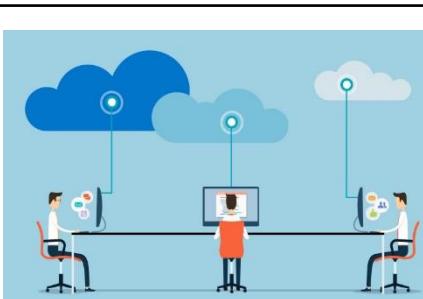
Education



Big Data Analytics



Communication



Business Process

Internet Security

- Internet security is a catch-all term for a very broad issue covering **security for transactions** made over the **Internet**.
- Generally, Internet security encompasses browser security, the security of data entered through a Web form, and overall authentication and protection of data sent via Internet Protocol.

WHY WEB SECURITY IS SO IMPORTANT

- Web security is important to keeping hackers and cyber-thieves from accessing sensitive information.
- Without a proactive security strategy, businesses risk the spread and escalation of malware, attacks on other websites, networks, and other IT infrastructures.
- If a hacker is successful, attacks can spread from computer to computer, making it difficult to find the origin.

How Do I Know if a Website Is Secure?

There are many ways to know if a website is secure, including implementing **HTTPS** on your website.

In addition to HTTPS, you can tell if a website is trustworthy by asking yourself:

- Is the website an established authority institution?
- Does the site provide expert value?
- Does the website look spammy, broken?
- When I hover over the links does the link look spammy?

How Do I Make My Information on the Web More Secure?

- Use Strong Passwords
- Two-Factor Authorization
- Always Use Secure Networks
- Use More Than One Email Address
- Be Cautious About Posting Your Email Address Online

INTERNET PROTOCOL

- **TCP/IP (Transmission Control Protocol/Internet Protocol)**
a connection is negotiated between a client and a server
- **HTTP (Hypertext Transfer Protocol)**
used to transmit all data present on the World Wide Web
- **FTP (File Transfer Protocol)**
used to transmit files between computers connected to each other by a TCP/IP network, such as the Internet