

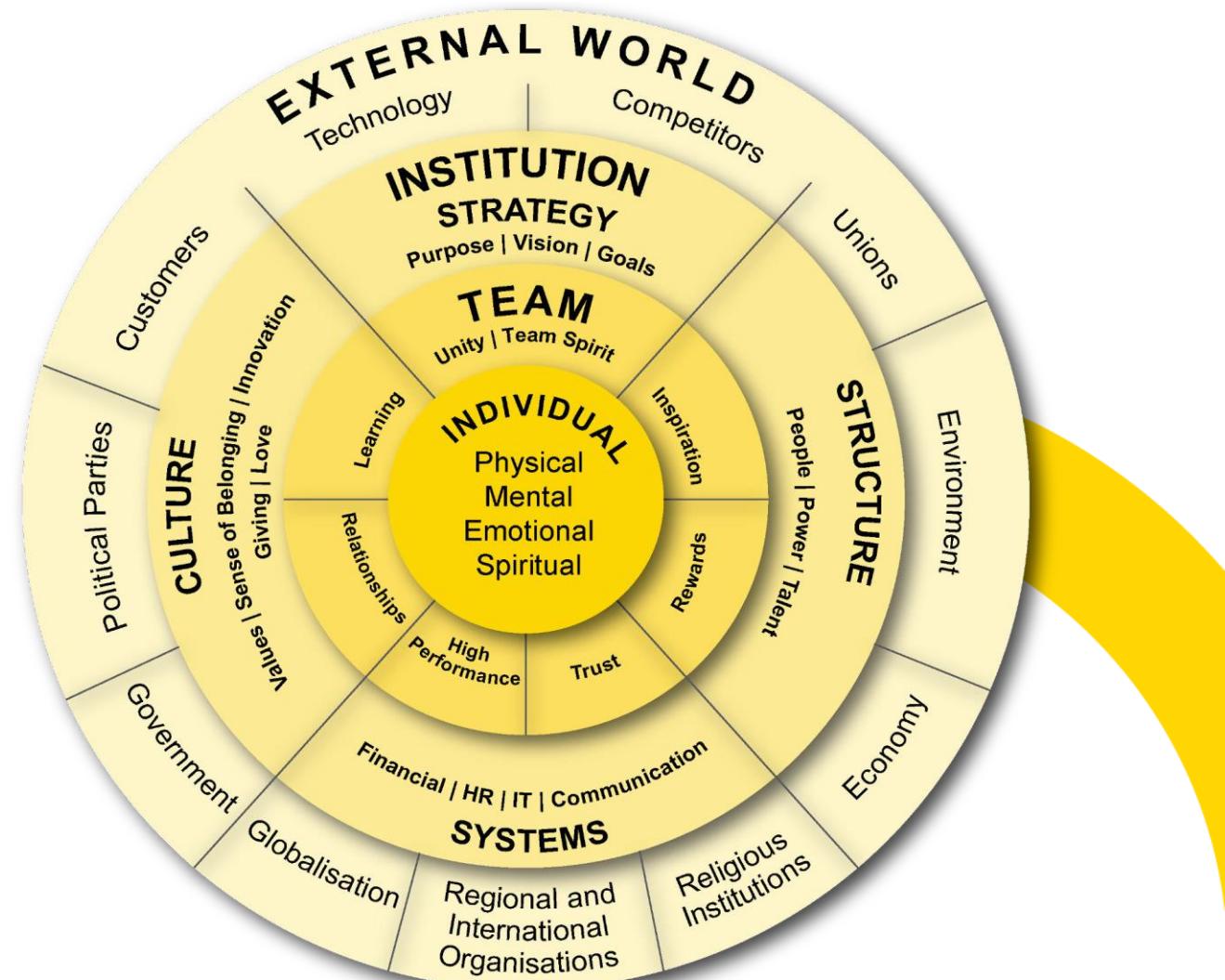
A photograph of a woman with short curly hair wearing glasses and a yellow t-shirt. She is looking up at several yellow sticky notes attached to a wall. A large yellow circle is overlaid on the bottom left corner of the image.

CYBER SECURITY FUNDAMENTALS

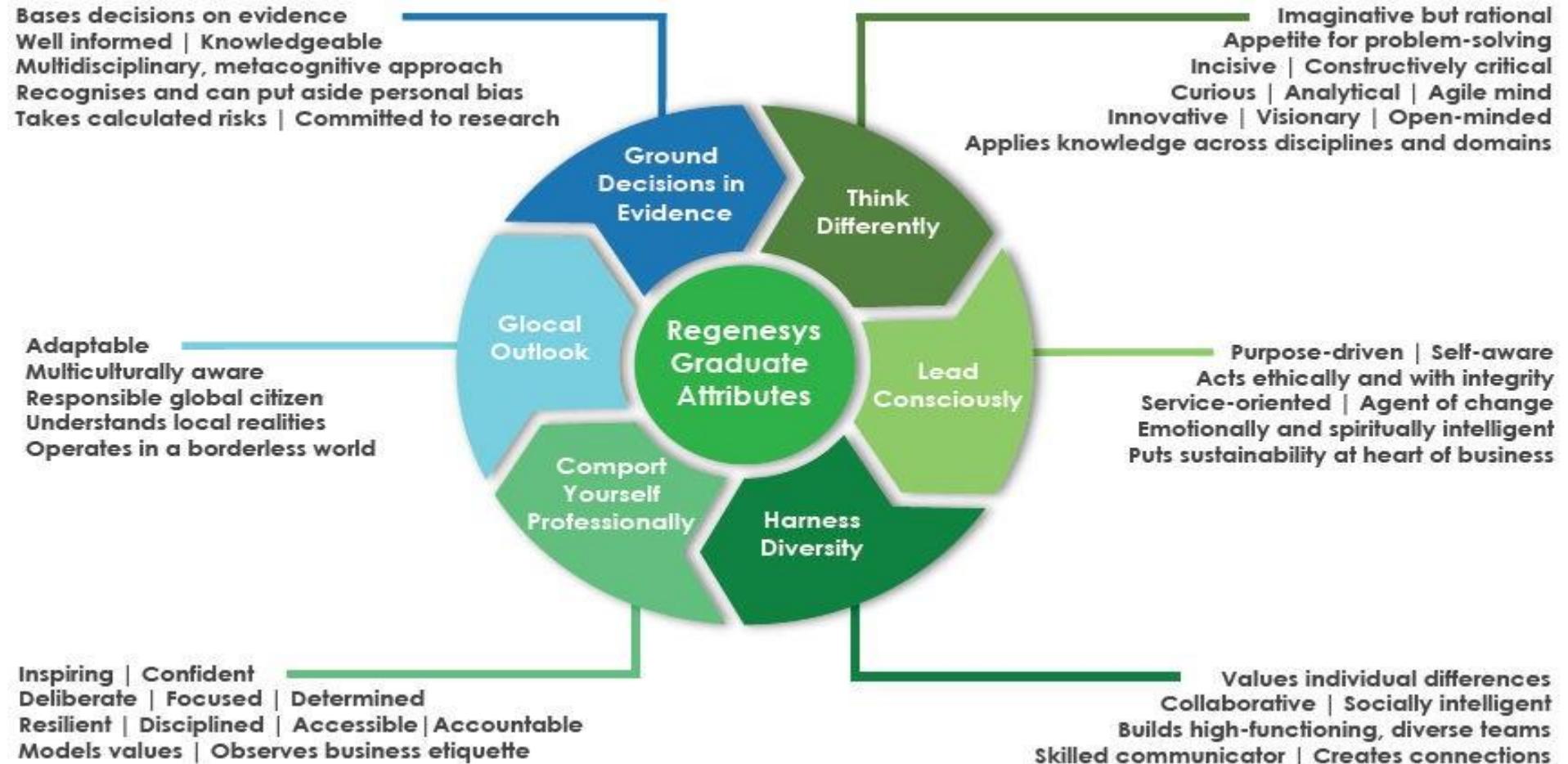
DATE: 14.02.2025 & 15.02.2025

REGENESYS' INTEGRATED LEADERSHIP AND MANAGEMENT MODEL:

- **Holistic** focus on the individual (SQ, EQ, IQ, and PQ)
- **Interrelationships** are dynamic between individual, team, institution and the external environment (systemic)
- **Strategy** affects individual, team, organisational, and environmental performance
- **Delivery** requires alignment of strategy, structure, systems and culture



REGENESYS GRADUATE ATTRIBUTES:



KNOW YOUR FACILITATOR:



Dr. Saquib Ahmad Khan

- Dr. Saquib Ahmad Khan is a highly respected professional in the cybersecurity field.
- He holds a Ph.D. in Computer Science and possesses multiple cybersecurity certifications, establishing him as an esteemed expert in cybersecurity.
- Dr. Khan is a prolific author, with numerous research papers and articles to his credit, focused on advancing the field of cybersecurity.
- He is a frequent speaker at prominent industry conferences and events, where he imparts his knowledge and insights to fellow professionals.
- Dr. Khan also possesses a strong foundation in marketing, management, information technology, and various applications, bolstered by multiple degrees.



GROUND RULES:

- Be open-minded
- When speaking, use “I think”, “I feel”, etc.
(you are a very important aspect of this learning)
- Listen carefully
- One conversation at a time
- Respect the opinions of others
 - Give constructive feedback
 - Build on the ideas of others rather than destroying them
- Take some risks and share new ideas

**HAVE FUN AND ENJOY THE
EXPERIENCE !**

MODULE 02

Building Strong Cybersecurity Fundamentals: Exploring Enterprise Architecture, BYOD, and IoT Security

- Enterprise Architecture
- Organizational Security Policy and Components
- Internet & Networking Basics
- Introduction to Secured Architecture
- Wireless Networks
- Network Security Controls
- Cloud Virtualization
- BYOD and IOT Security Testing

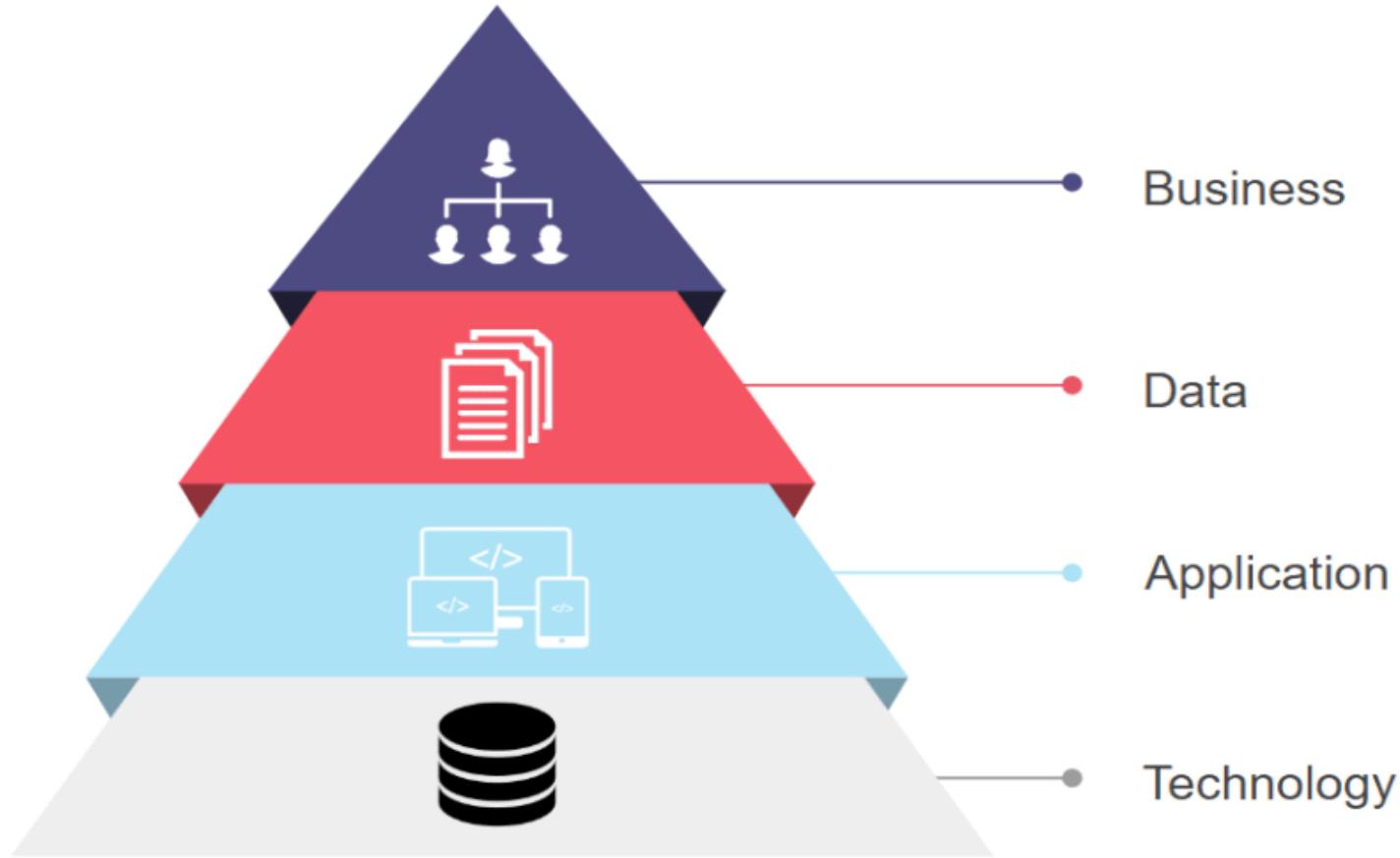
On completing this module, you should be able to:

- Understand different parts of Enterprise Architecture and identified how they work together.
- Define the main goals of Enterprise Architecture and explained their significance for making better business choices.
- Identify and describe the basic components of Enterprise Architecture.
- Articulate the importance of Enterprise Architecture in improving decision-making and business performance.
- Describe the significance of following security rules for protecting business assets.
- Explained the importance of the Internet and provided an overview of its technology and rules.
- Understand computer networks, their types, and why they're used.
- Explain the OSI model, how data moves through it, and the importance of each layer for communication.

On completing this module, you should be able to:

- Define virtualization in cloud computing as the creation of virtual computing resources.
- Explain BYOD as employees using personal devices for work, highlighting associated security challenges and strategies for securing BYOD environments.
- Understand the importance of security in the Internet of Things (IoT) ecosystem.
- Identify and describe layers of an IoT architecture, including perception, network, and application layers.
- Explore additional layers in IoT architecture and their functions, list and analyze the security challenges associated with IoT deployments, and propose security recommendations and best practices to mitigate IoT security risks and vulnerabilities.

DOMAINS OF ENTERPRISE ARCHITECTURE:

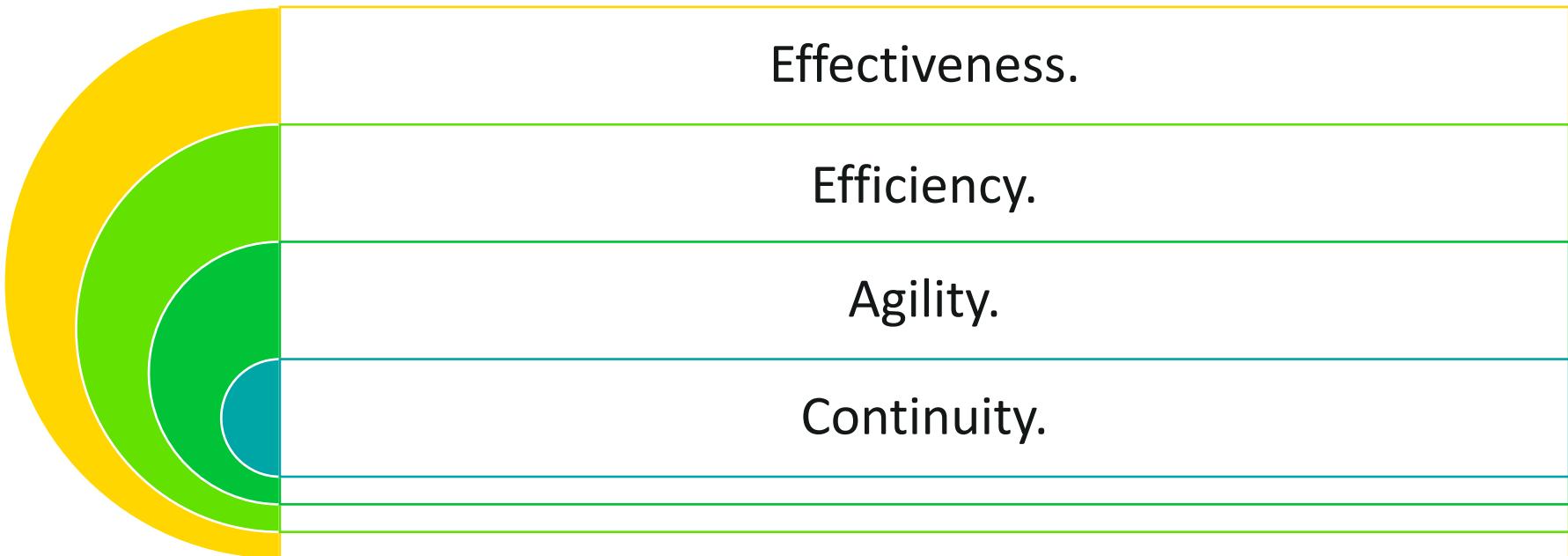


(Source: <https://linkurious.com>)

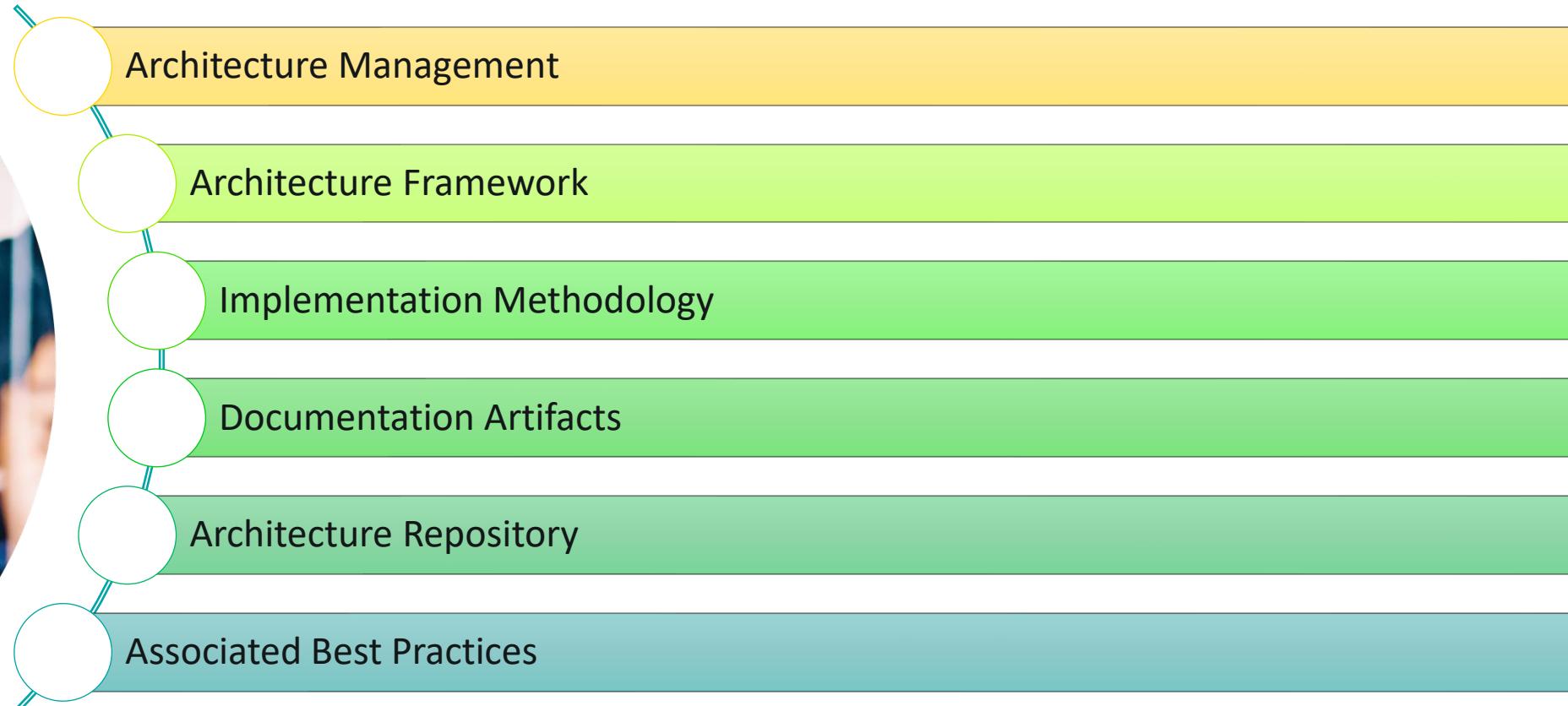
GOALS OF ENTERPRISE ARCHITECTURE:



EA is also a roadmap to guide an organization with planning and maintaining business goals over time and bolstering them through technology. General goals of any EA are:



BASIC ELEMENTS OF EA:



ENTERPRISE ARCHITECT ROLE:



Leadership

Proficiency with
Code

Documentation
Management

Education

THE QUESTION IS....



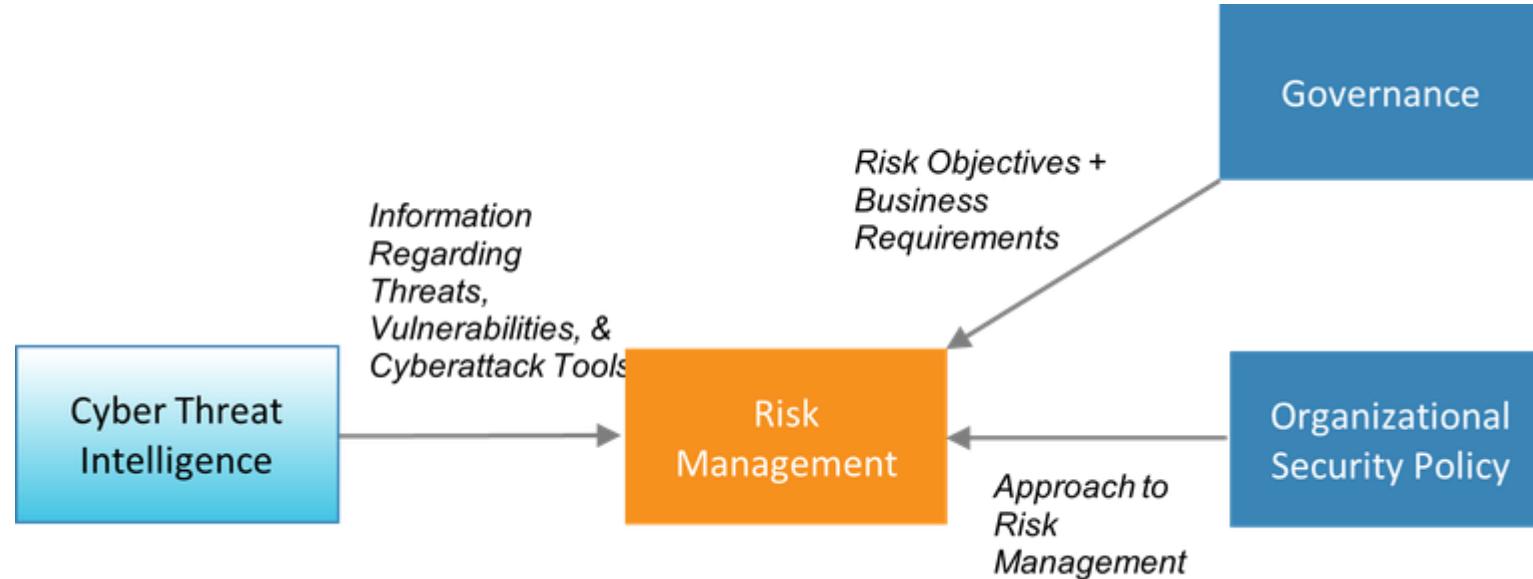
Why is
**ENTERPRISE
ARCHITECTURE**
important?

ORGANIZATIONAL SECURITY POLICY:



(Source: <https://resilient-energy.org>)

ORGANIZATIONAL SECURITY POLICY:



(Source: <https://resilient-energy.org>)

WHAT IS INTERNET?



Network of networks that connects billions of digital devices worldwide.

Standard protocols allow communication between these devices.
Those protocols include

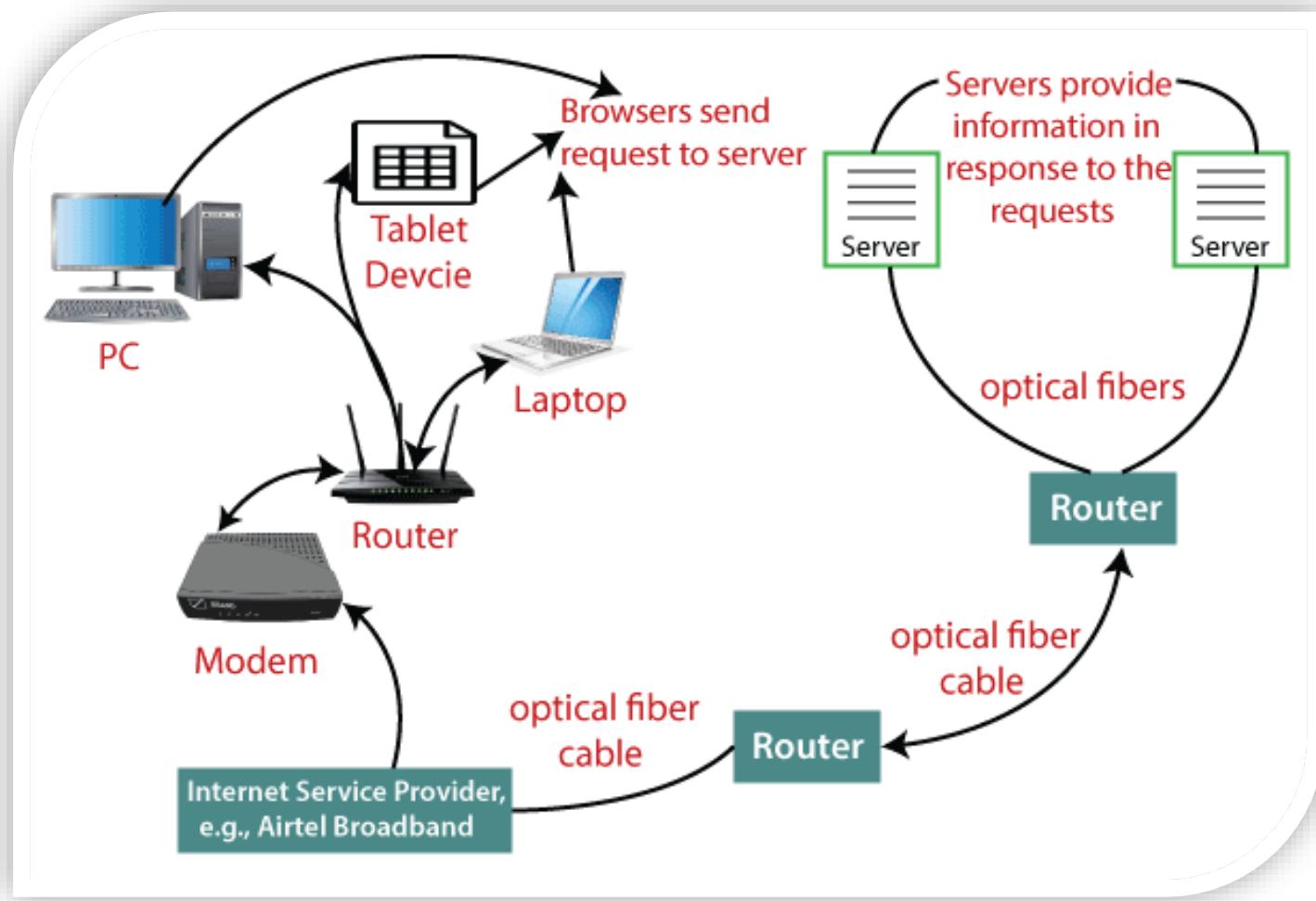
- Hypertext Transfer Protocol (the ‘http’ in front of all website addresses).
- Internet Protocol (or IP addresses)

THE QUESTION IS....



**Why is the
Internet called a
Network?**

HOW DOES INTERNET WORK?



(Source: <https://www.javatpoint.com>)

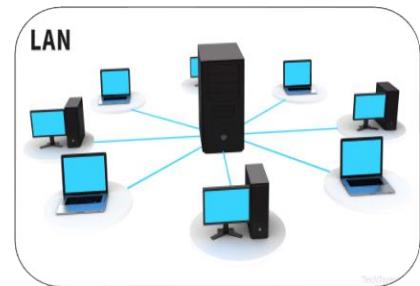
COMPUTER NETWORK:



Source: <https://www.weareyourit.co.uk>

COMPUTER NETWORK TYPES:

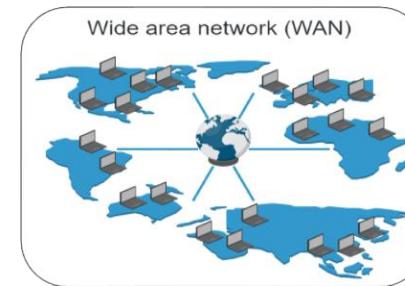
As networking needs evolved, so did the computer network types that serve those needs. Here are the most common and widely used computer network types:



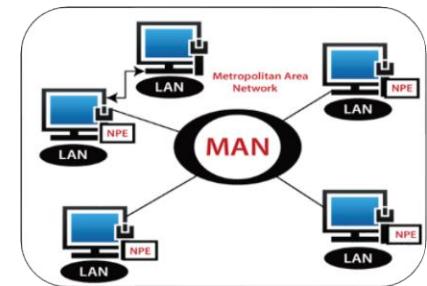
LAN (Local Area Network)



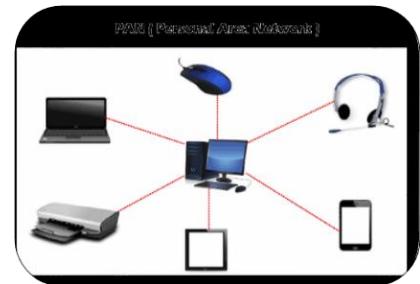
WLAN (Wireless Local Area Network)



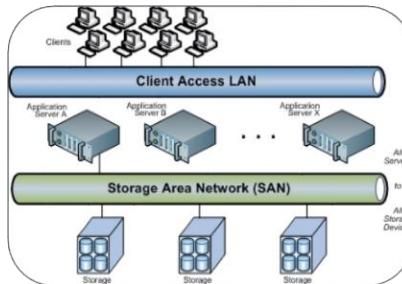
WAN (Wide Area Network)



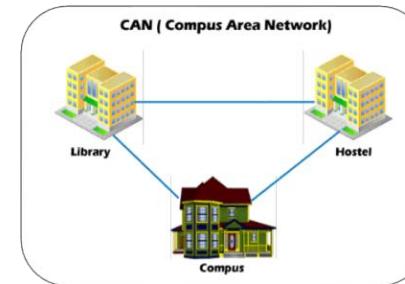
MAN (Metropolitan Area Network)



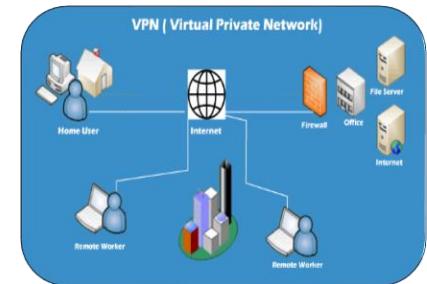
PAN (Personal Area Network)



SAN (Storage Area Network)

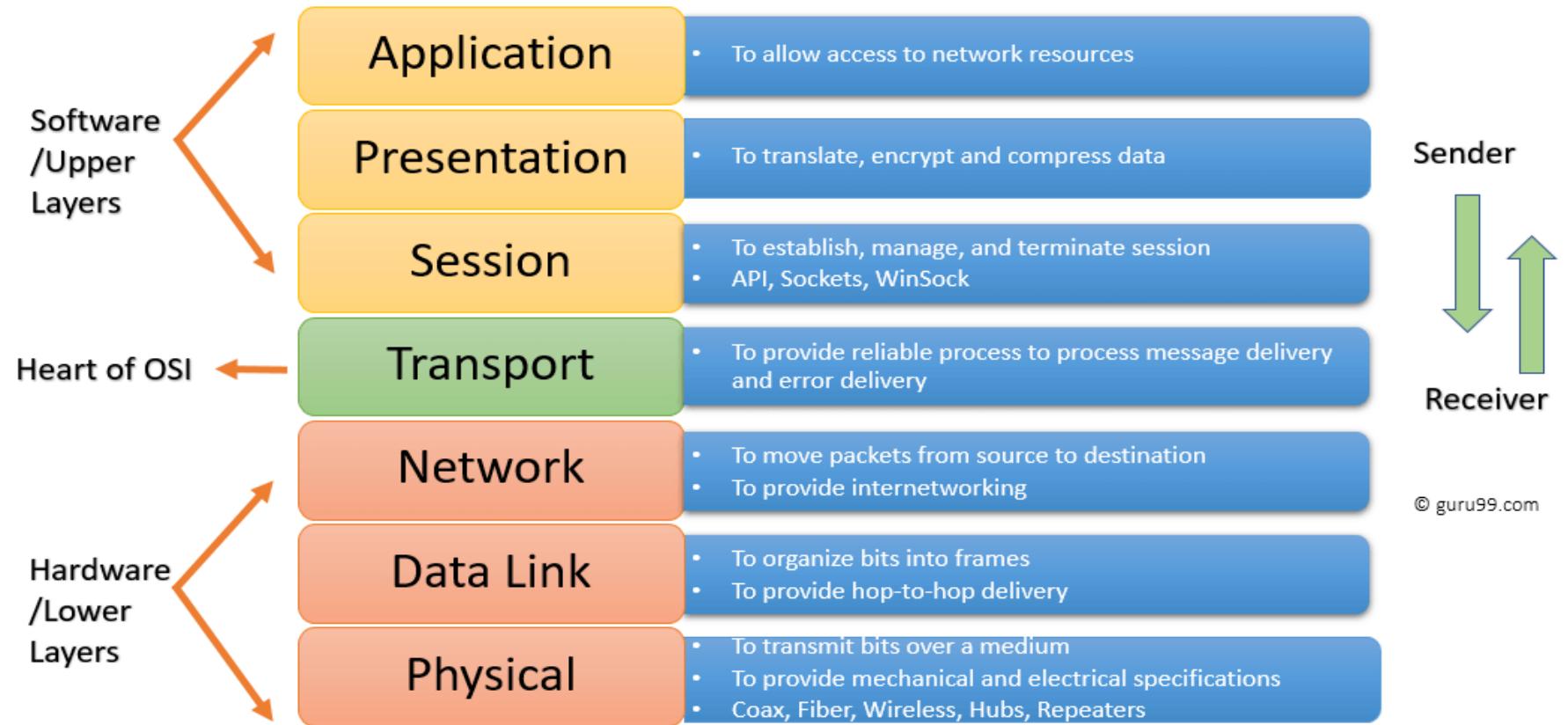


CAN (Campus Area Network)



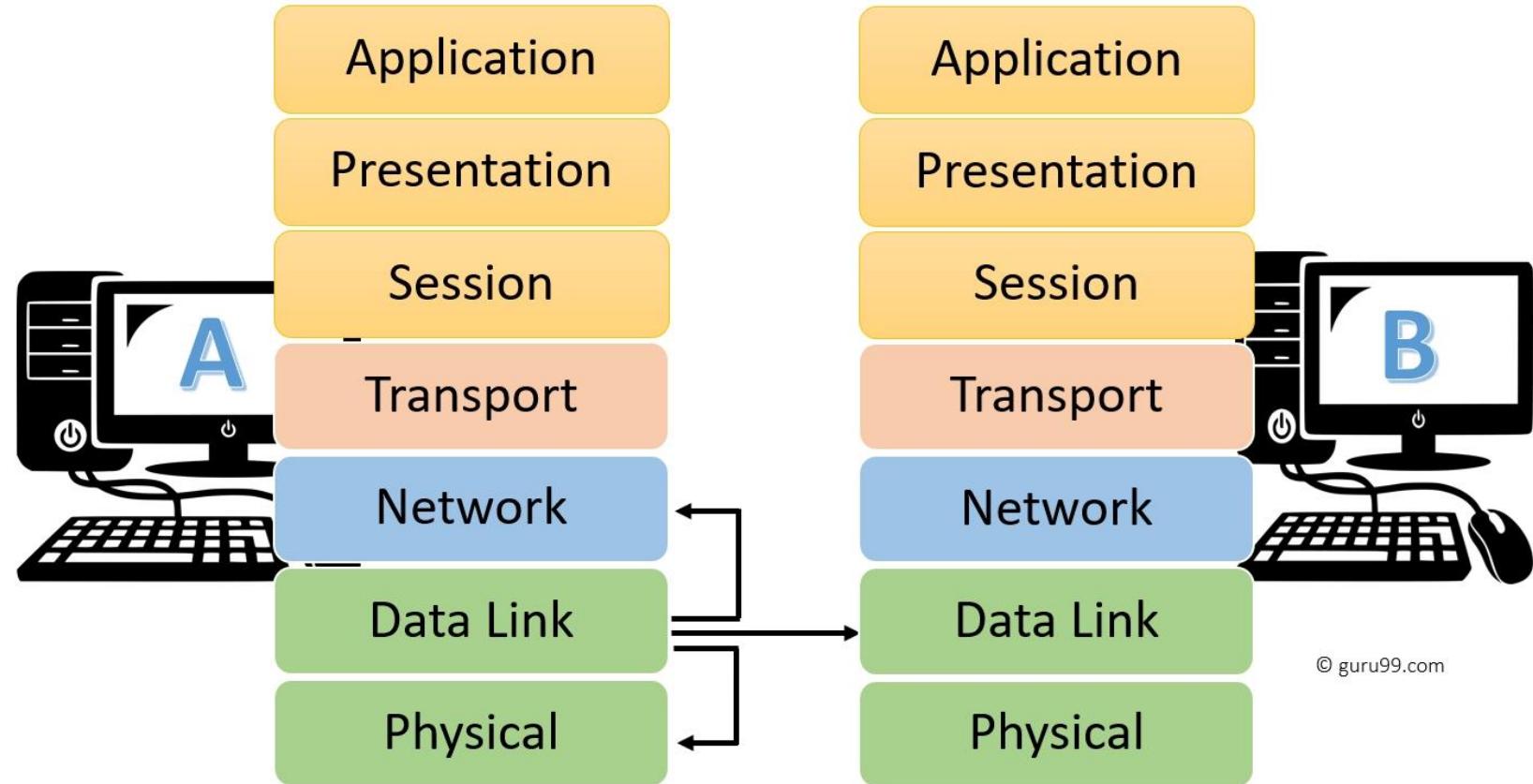
VPN (Virtual Private Network)

OSI-MODEL:



(Source: <https://www.guru99.com>)

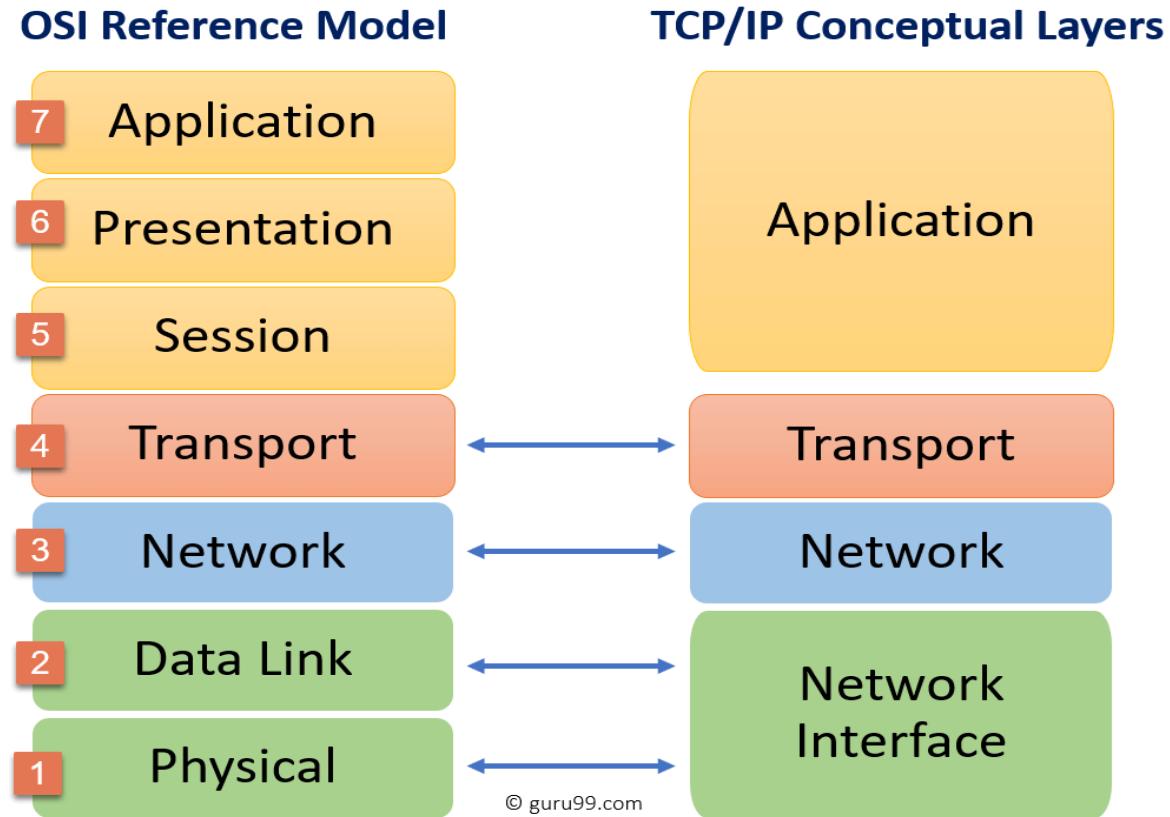
INTERACTION BETWEEN OSI-MODEL:



(Source: <https://www.guru99.com>)

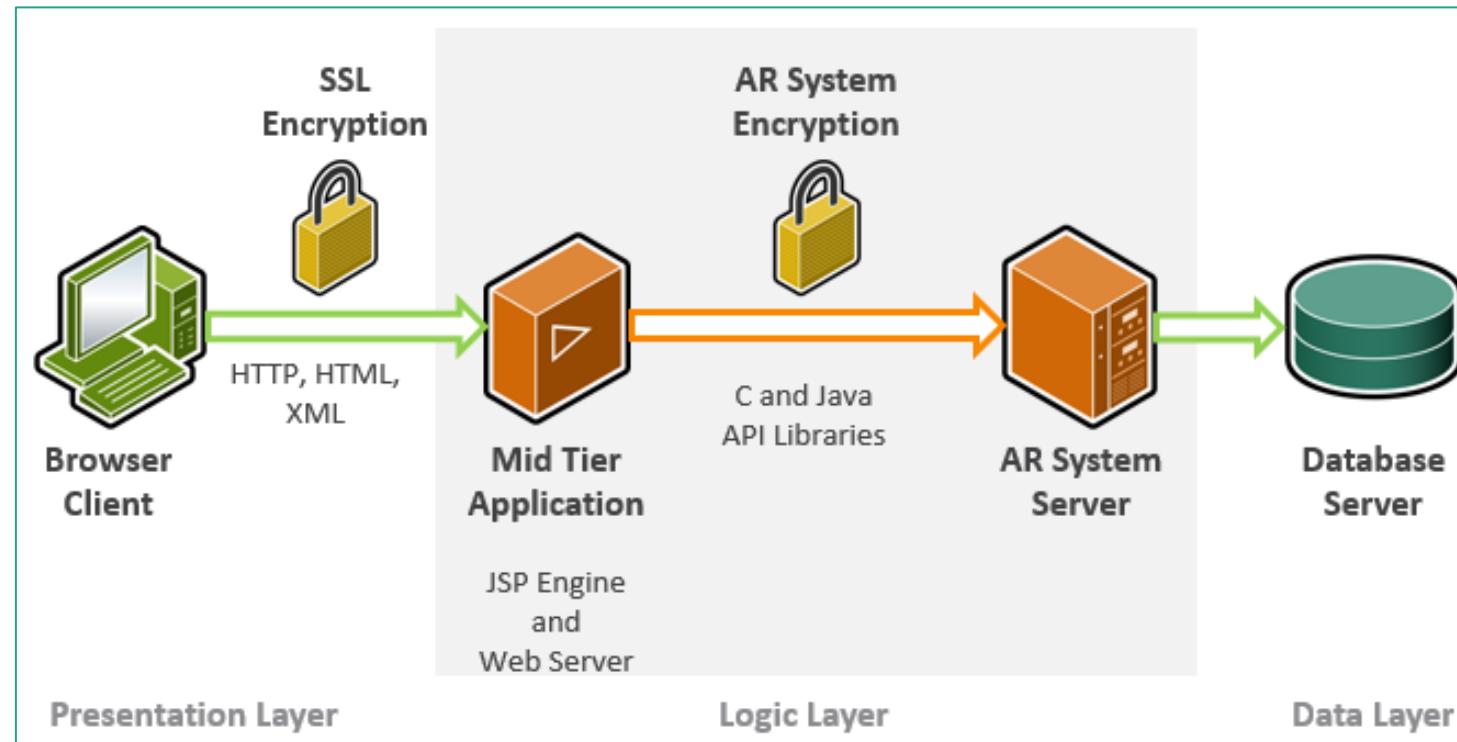
© guru99.com

INTERACTION BETWEEN OSI-MODEL:



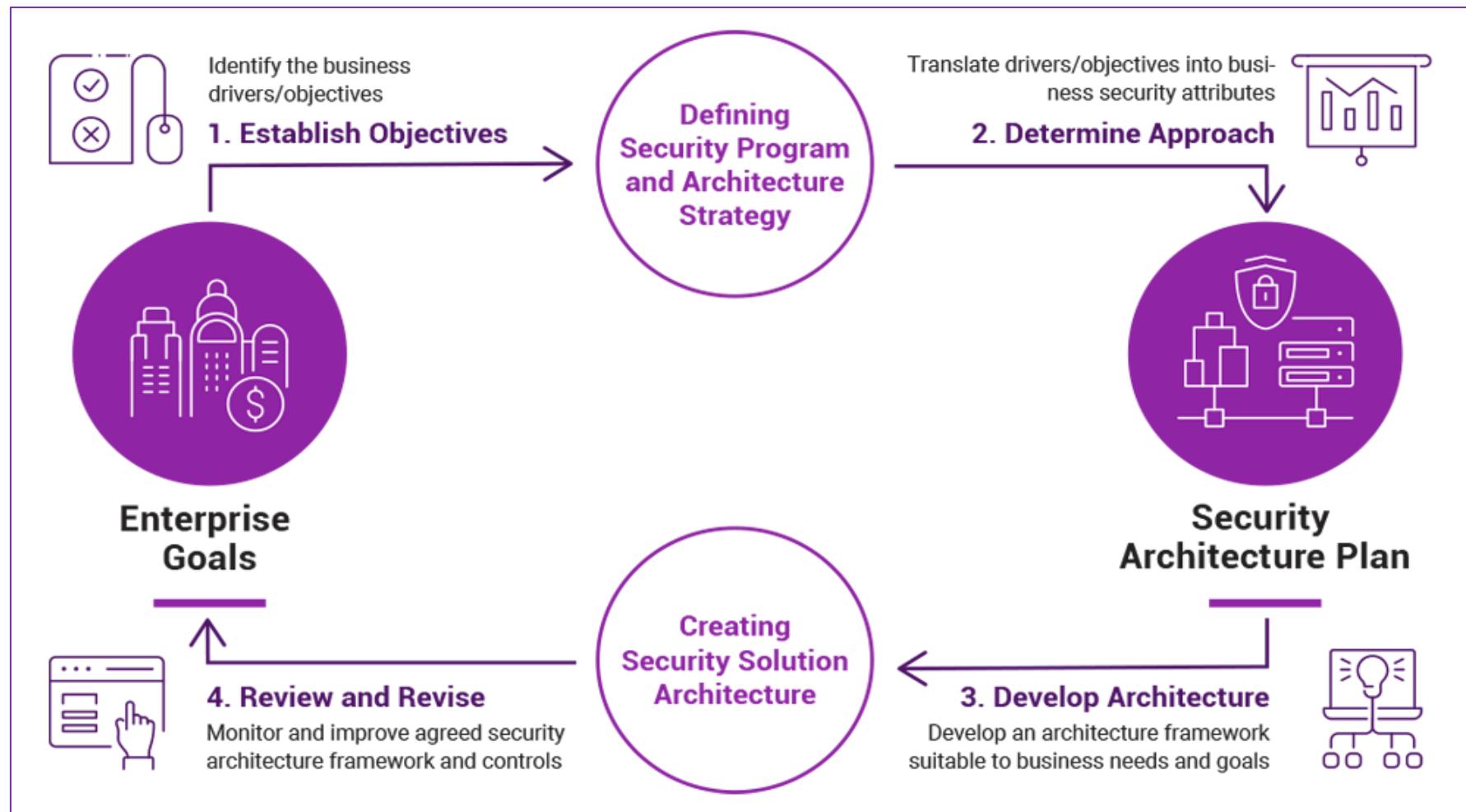
(Source: <https://www.guru99.com>)

SECURITY/ SYSTEM ARCHITECTURE:



(Source: <https://docs.bmc.com>)

WORKING OF SECURITY ARCHITECTURE:



(Source: <https://www.dig8ital.com>)

VIRTUALISATION IN CLOUD COMPUTING:



Hardware
Virtualization.

Operating system
Virtualization.

Types of Virtualization

Server
Virtualization.

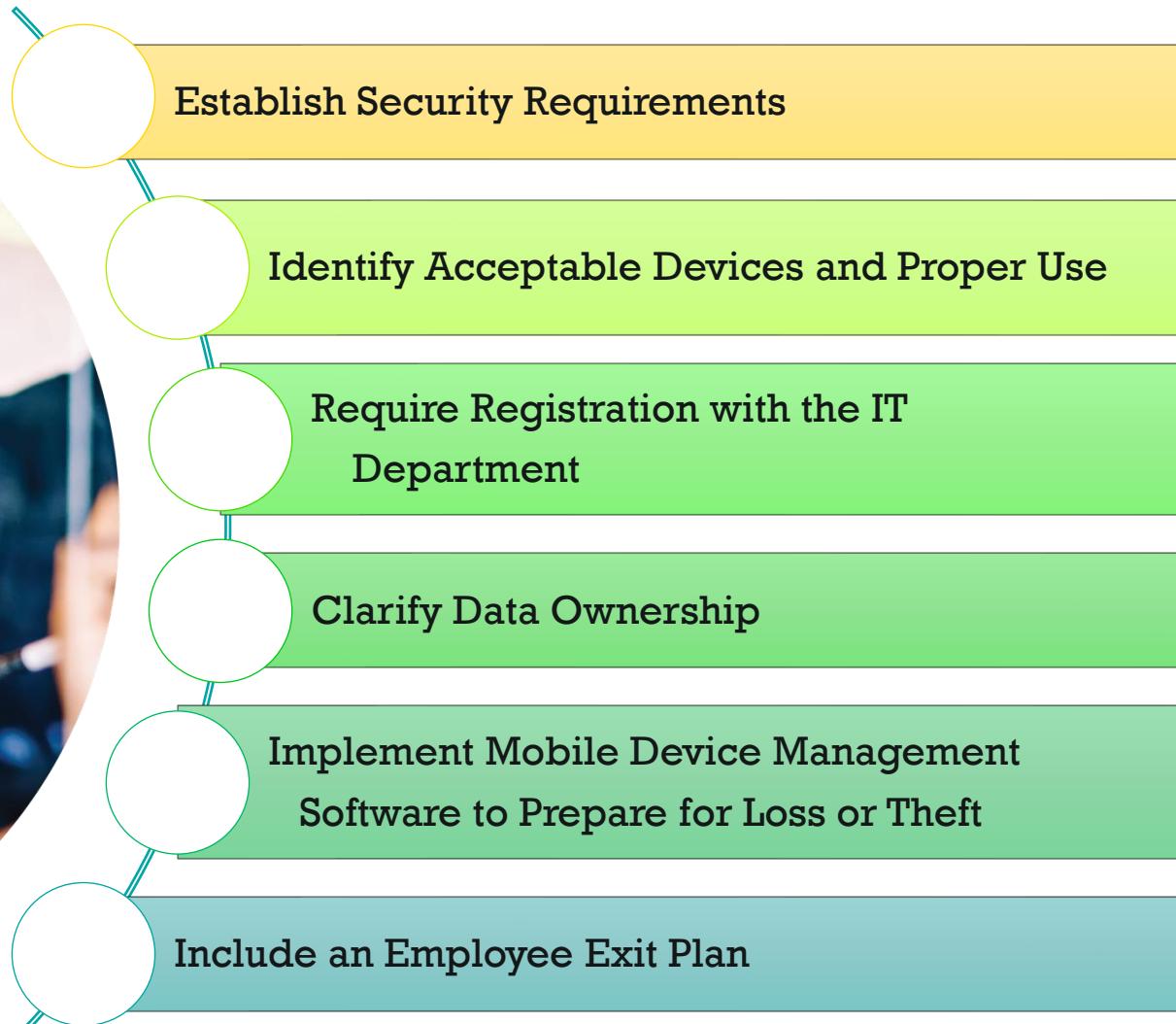
Storage
Virtualization.

THE QUESTION IS....



How does
Virtualization
work in
Cloud Computing?

BYOD SECURITY:



BYOD BENEFITS:



Bring Your Own Device *Managing The BYOD Revolution*

Thousands of organizations around the world are going BYOD to save money and improve productivity by allowing more end-users to use their own personal devices in the office, classroom or out in the field.

BENEFITS OF BYOD



It's expensive for organizations to purchase new or update old technology systems and devices



Organizations, schools and governments are recognizing how technology and mobile access can enhance learning, working and general productivity



Organizations with limited resources and tight budgets want cost-effective ways to increase access to technology



Studies show that most employees prefer to use their own devices rather than those issued by their organizations

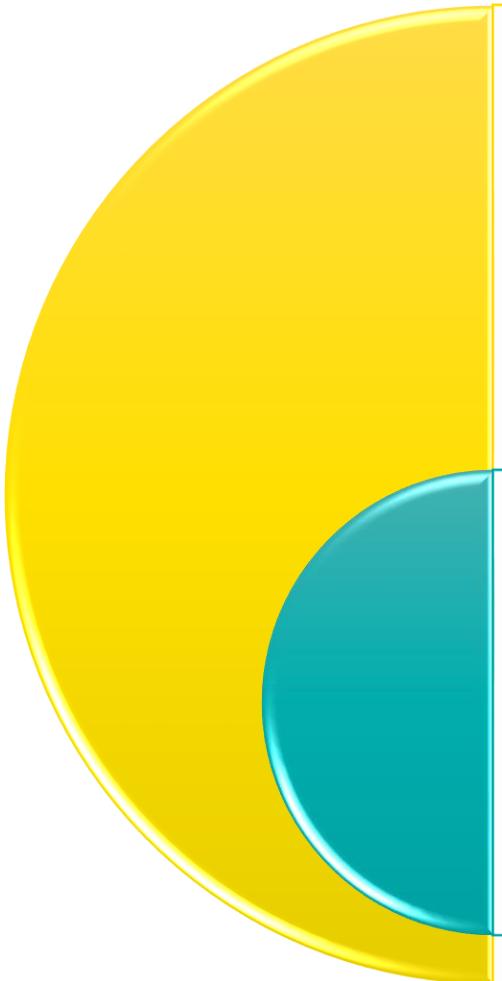


Employees in the workplace and students in educational environments can use the devices they already own like laptops, tablets and mobile phones to connect to company IT resources

Source: BrightPath Foundation

(Source: <https://baymcp.com>)

IOT SECURITY:



The Internet of Things (IoT) describes the physical objects that are embedded with software, sensors and other technologies that allow them to connect and exchange data with other devices and systems over the Internet.

Consequently, IoT security refers to all the measures we can take to ensure the (cyber)security of this kind of devices, while also keeping in mind the various dangers that threaten them. .

LAYERS OF IOT ARCHITECTURE:

Three Layer IoT Architecture

Perception

Network

Application

Five Layer IoT Architecture

Perception

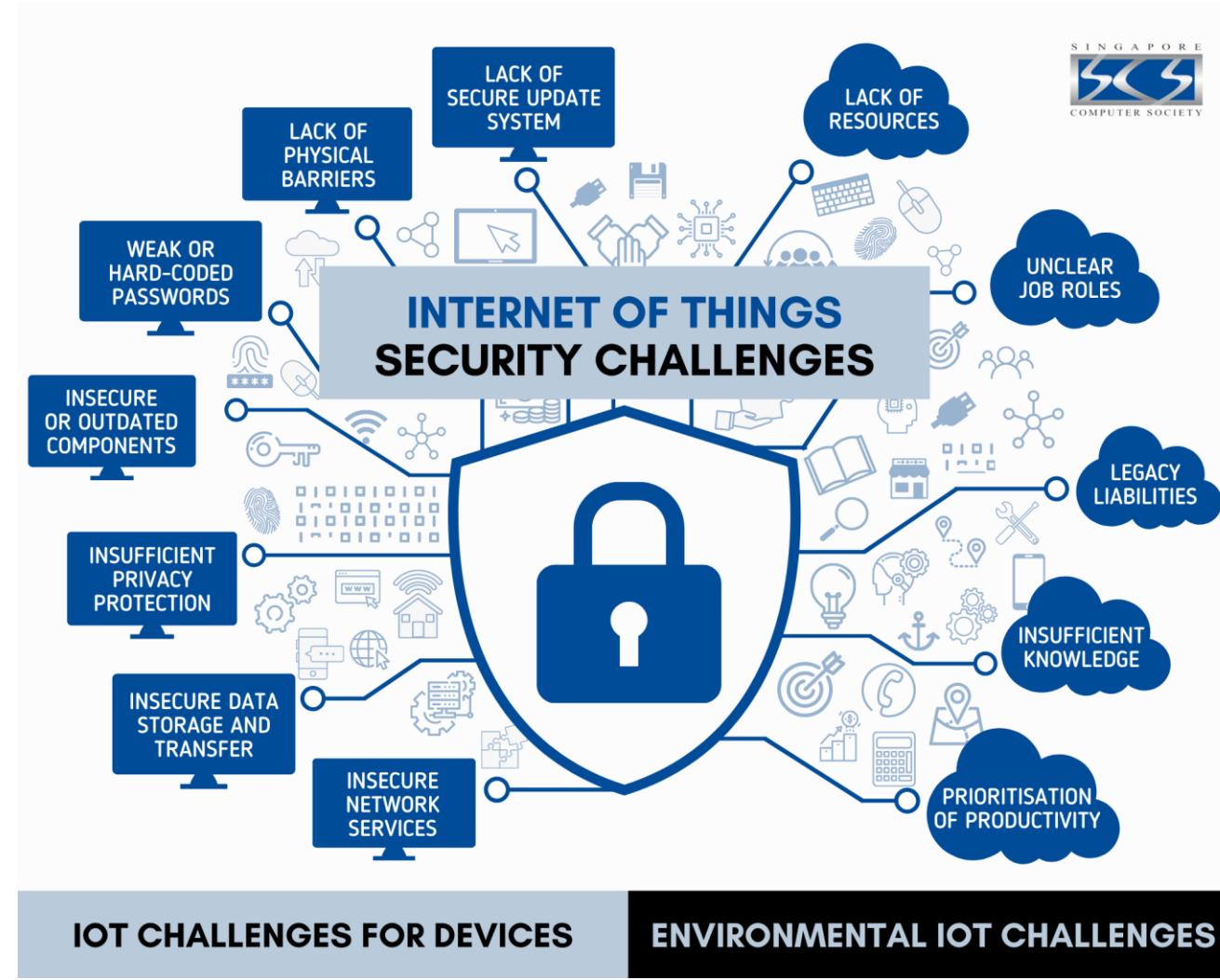
Transport

Processing

Application

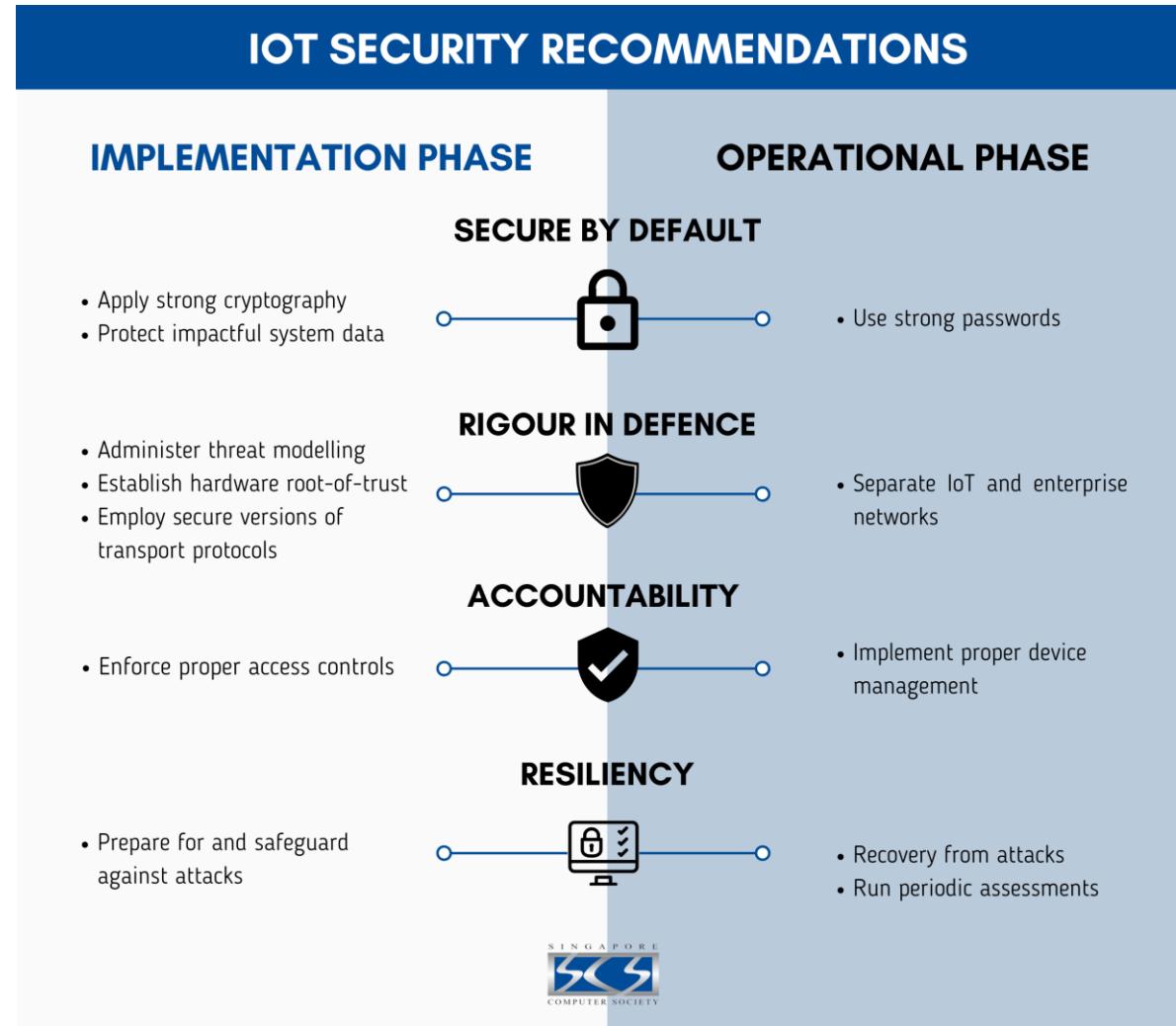
Business

IOT SECURITY CHALLENGES:



(Source: <https://www.scs.org>)

IOT SECURITY RECOMMENDATIONS:



(Source: <https://www.scs.org>)

A black and white photograph of a man with a beard, wearing a white long-sleeved shirt, sitting at a desk and writing in a notebook with a red pen. He is looking down at his work. In the background, there is a large green plant and a white brick wall.

THANK YOU