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PROJECT

ENG

PRO

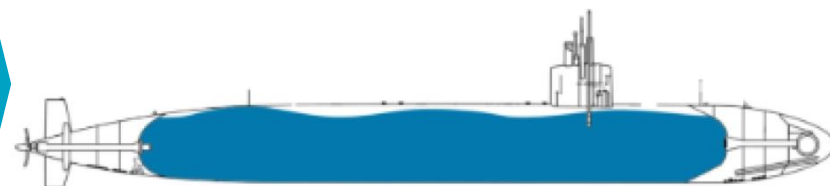
# CYBER SECURITY FOR INDUSTRIAL CONTROL SYSTEMS

By Project **ENG PRO**



# Network Segmentation in Cybersecurity

Without Segmentation



With Segmentation





# Network Performance

- Segregation, also known as network partitioning or isolation, works as a traffic controller for data within the network. It divides the available bandwidth into distinct sections, each serving specific purposes.

# Operational Performance



REDUCED NETWORK  
CONGESTION



EFFICIENT TRAFFIC  
FLOW



IMPROVED RESOURCE  
ALLOCATION



ENHANCED SECURITY

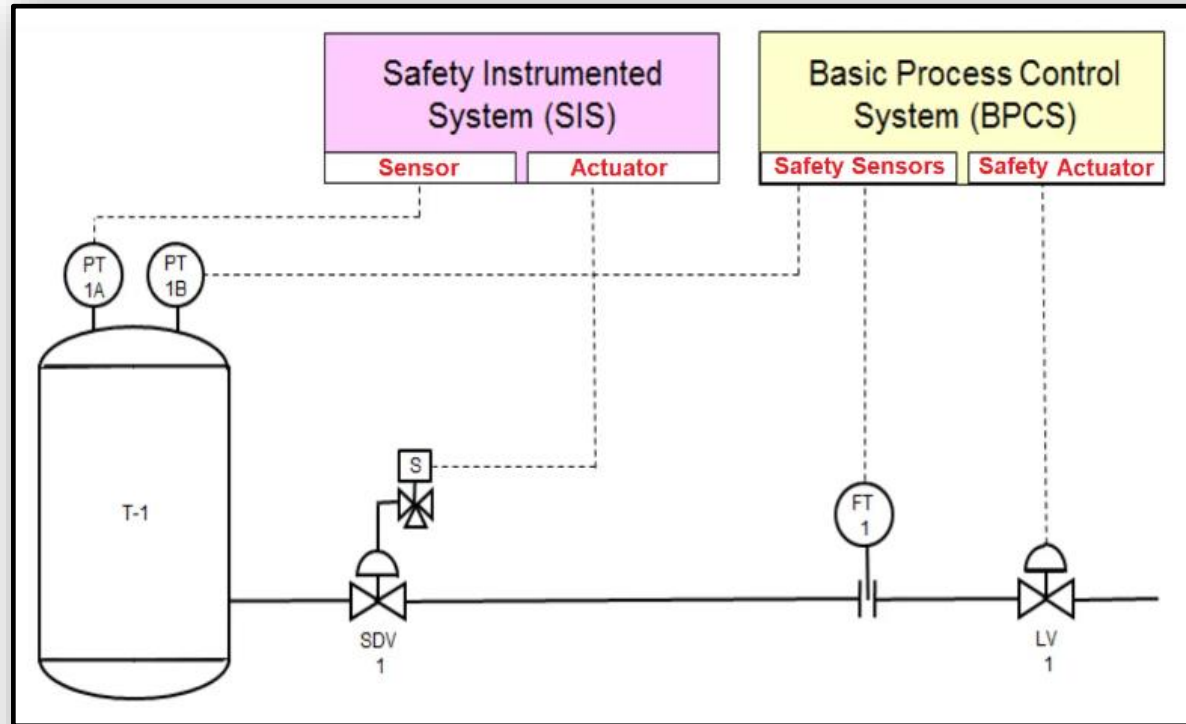


TARGETED  
MONITORING AND  
MANAGEMENT

**Consider the scenario where a malware outbreak occurs – without segmentation, the malware can propagate freely across the entire network, causing widespread damage.**

**However, when segmentation is implemented, the malware's impact is confined to the segment where it originated. This containment prevents the attack from spreading to other sections of the network, limiting the potential damage and reducing the scope of the breach.**

# Safeguarding Vulnerable Devices



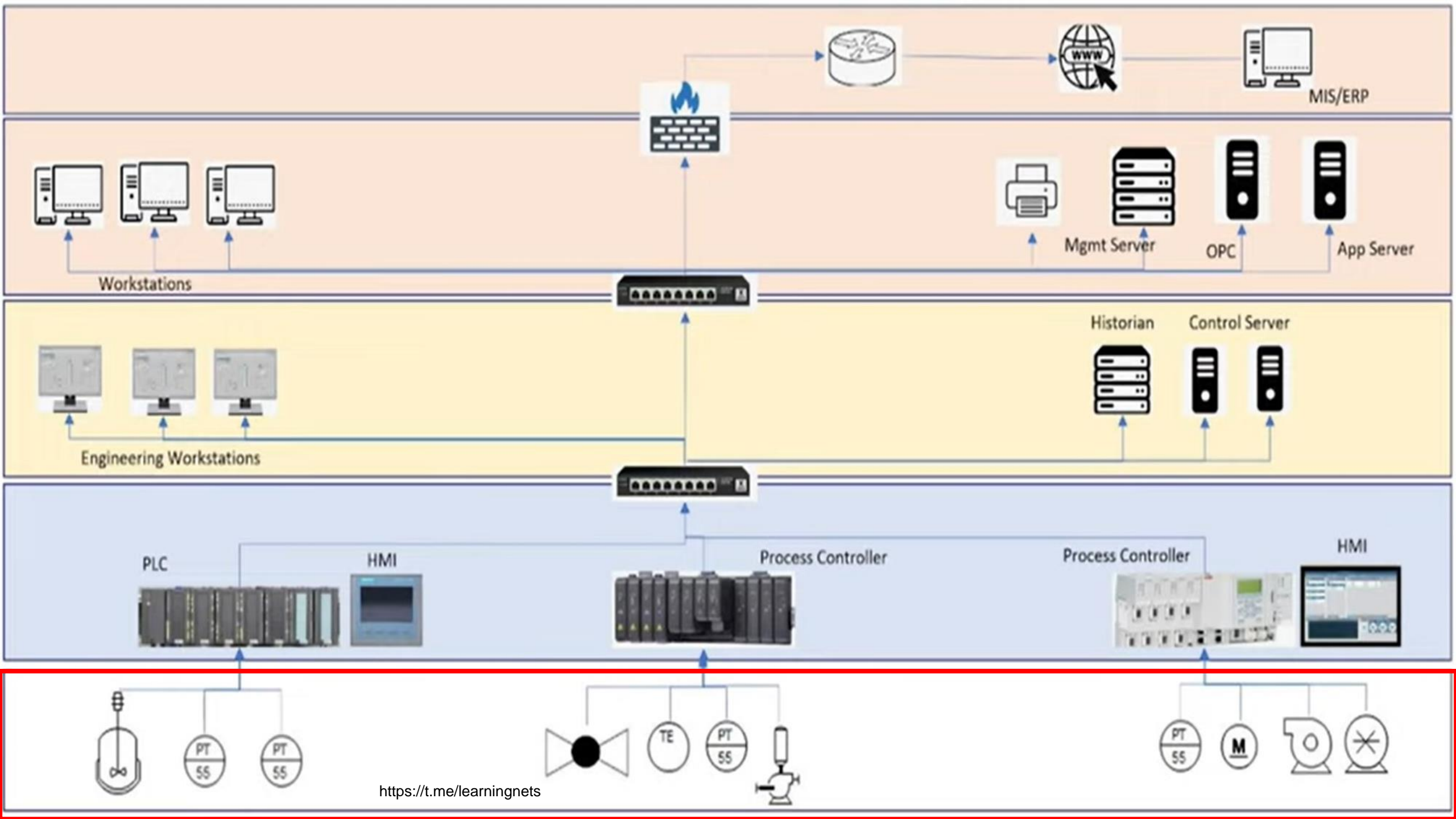
Safety Instrumented Systems

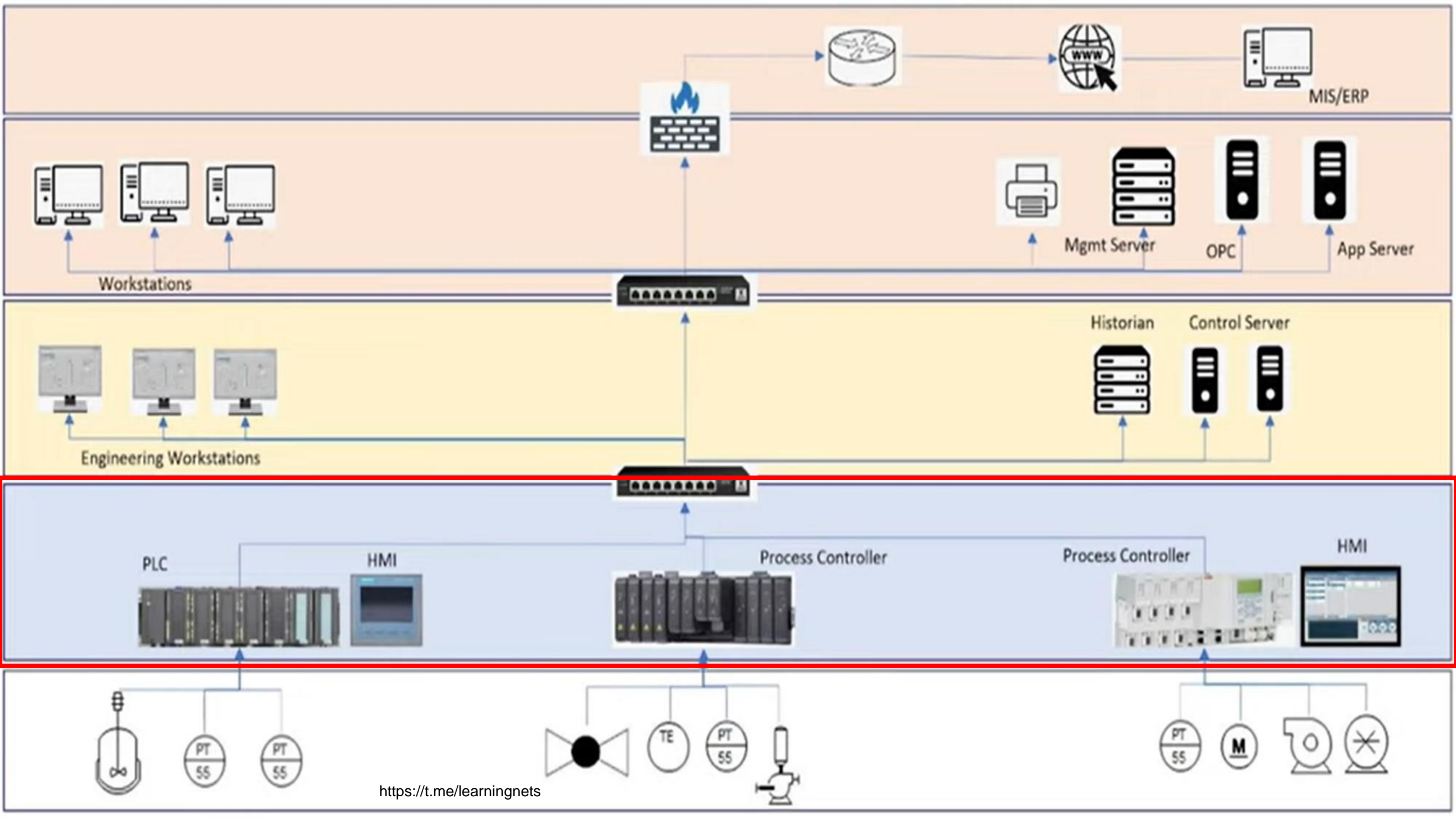


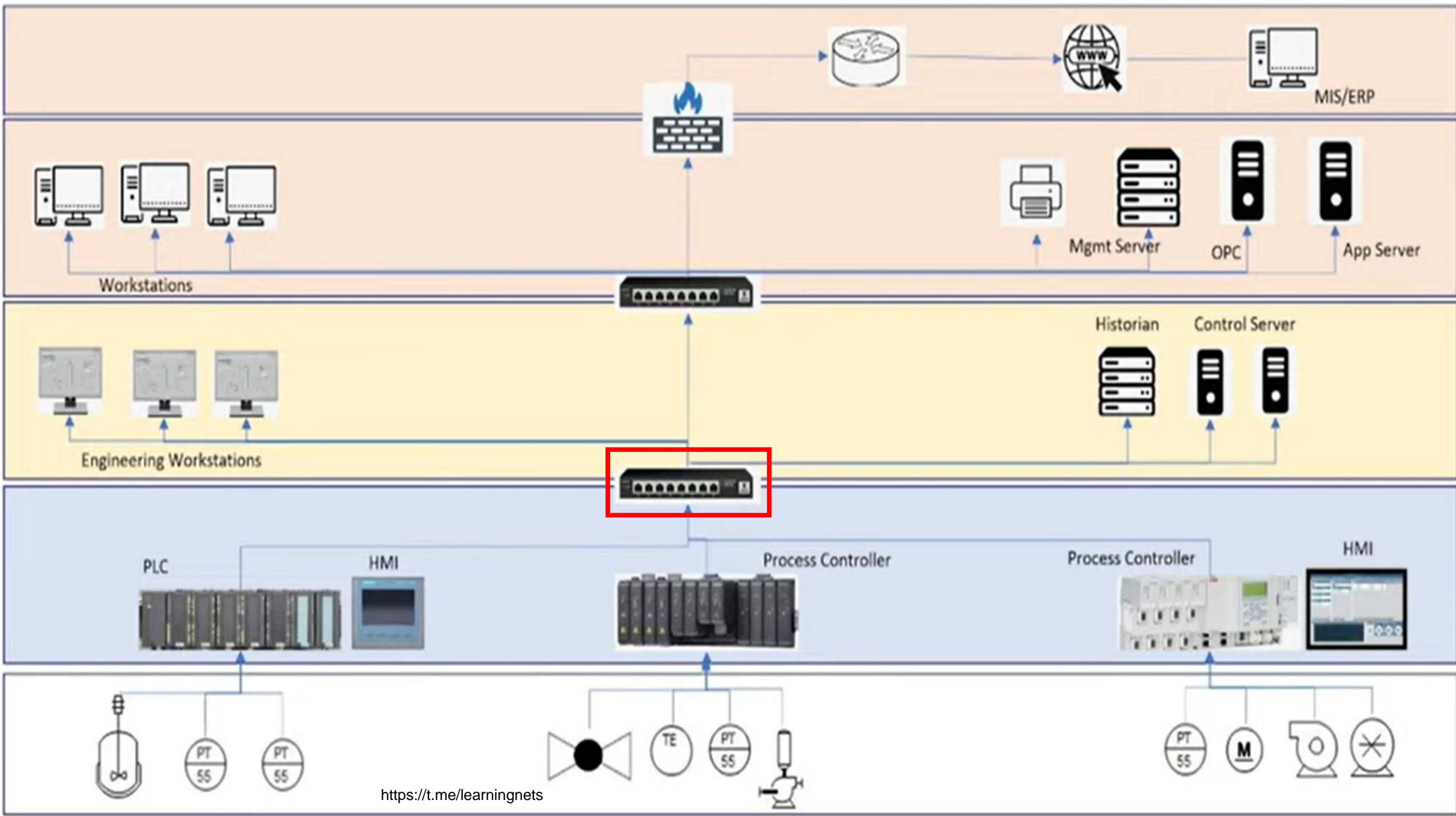
Infusion Pumps

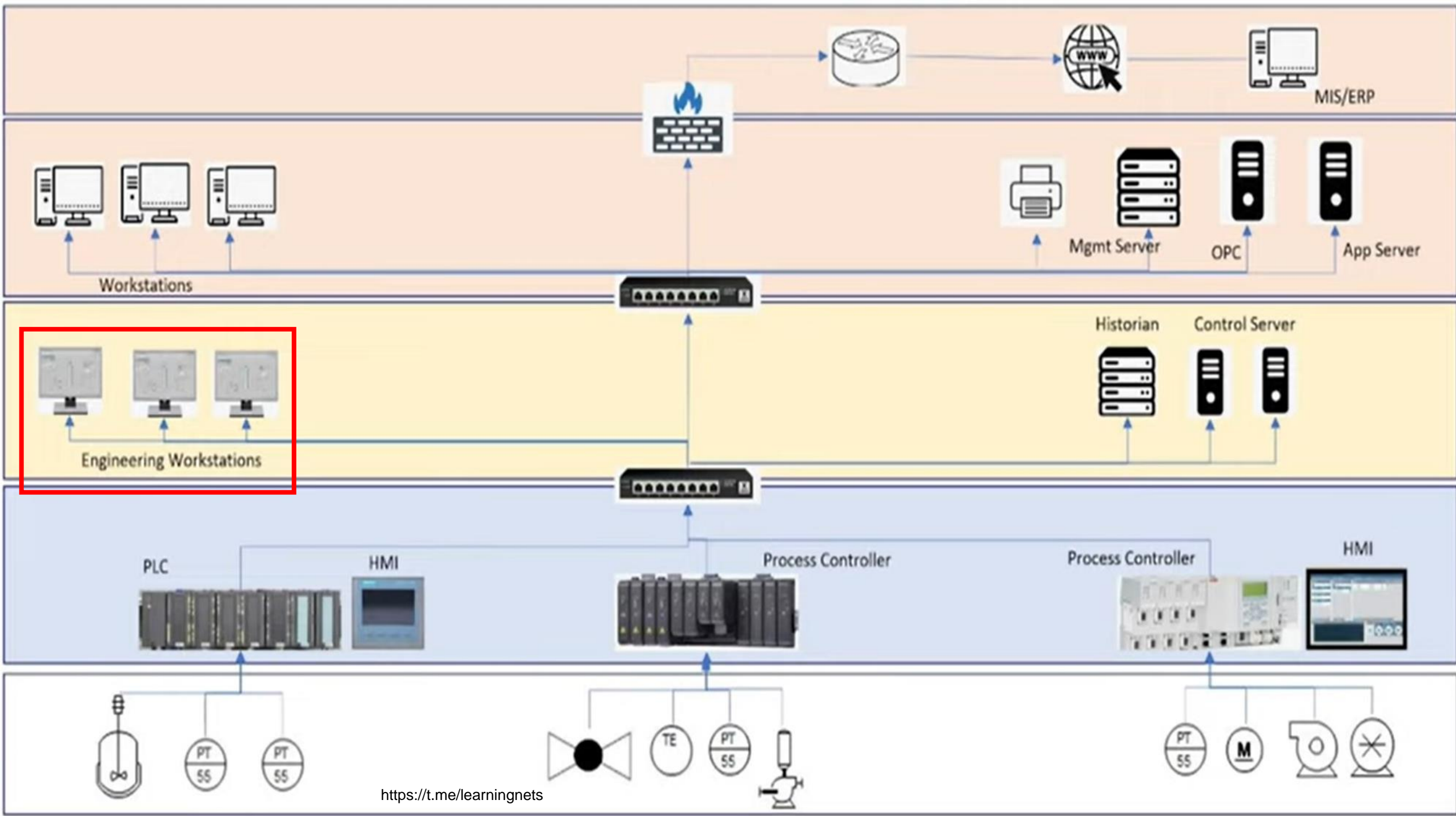
By implementing segmentation, the organization can create distinct segments for systems that handle payments and those that do not. This division effectively limits the scope of compliance efforts to only those systems directly involved in payment processing.

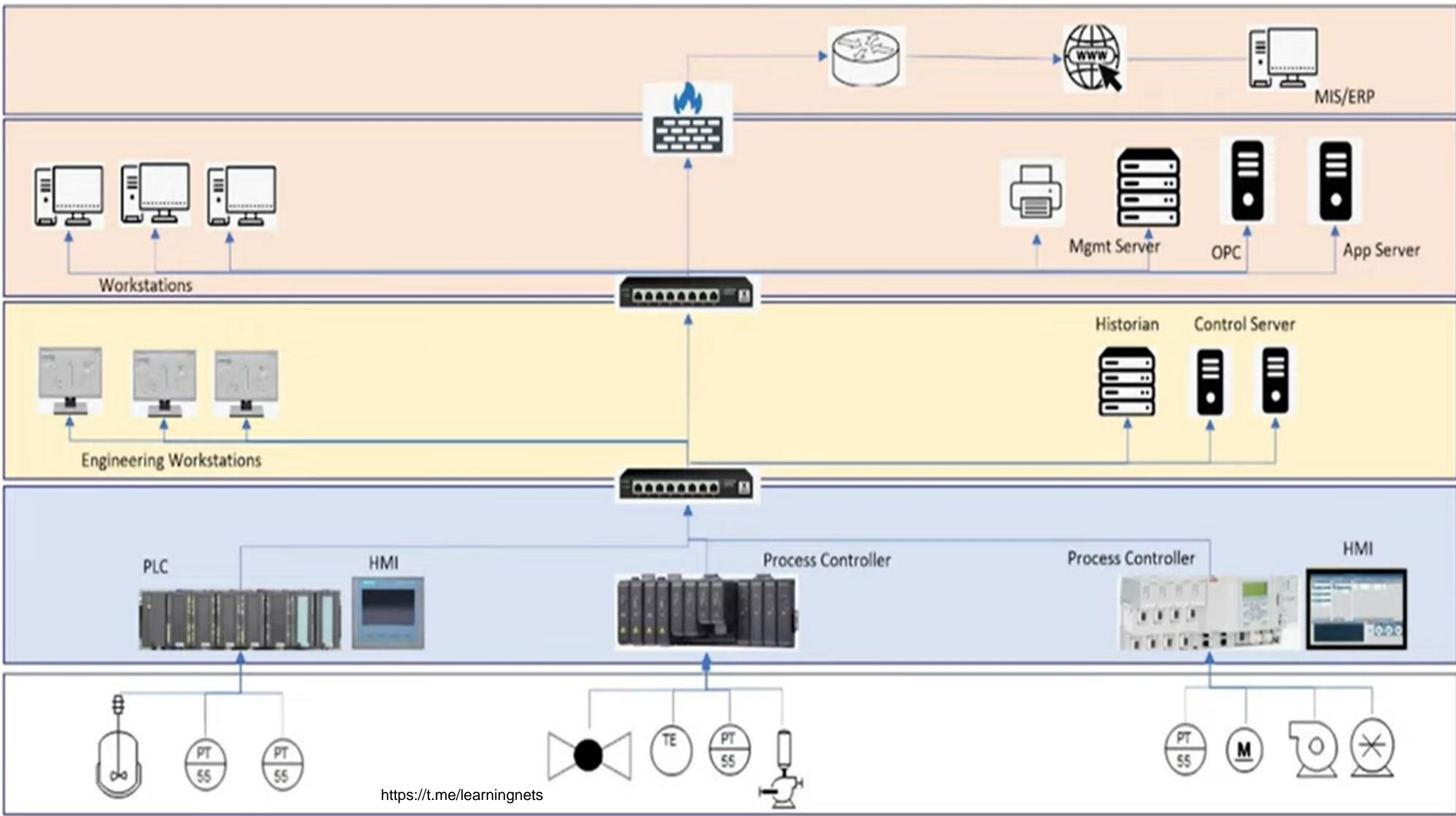


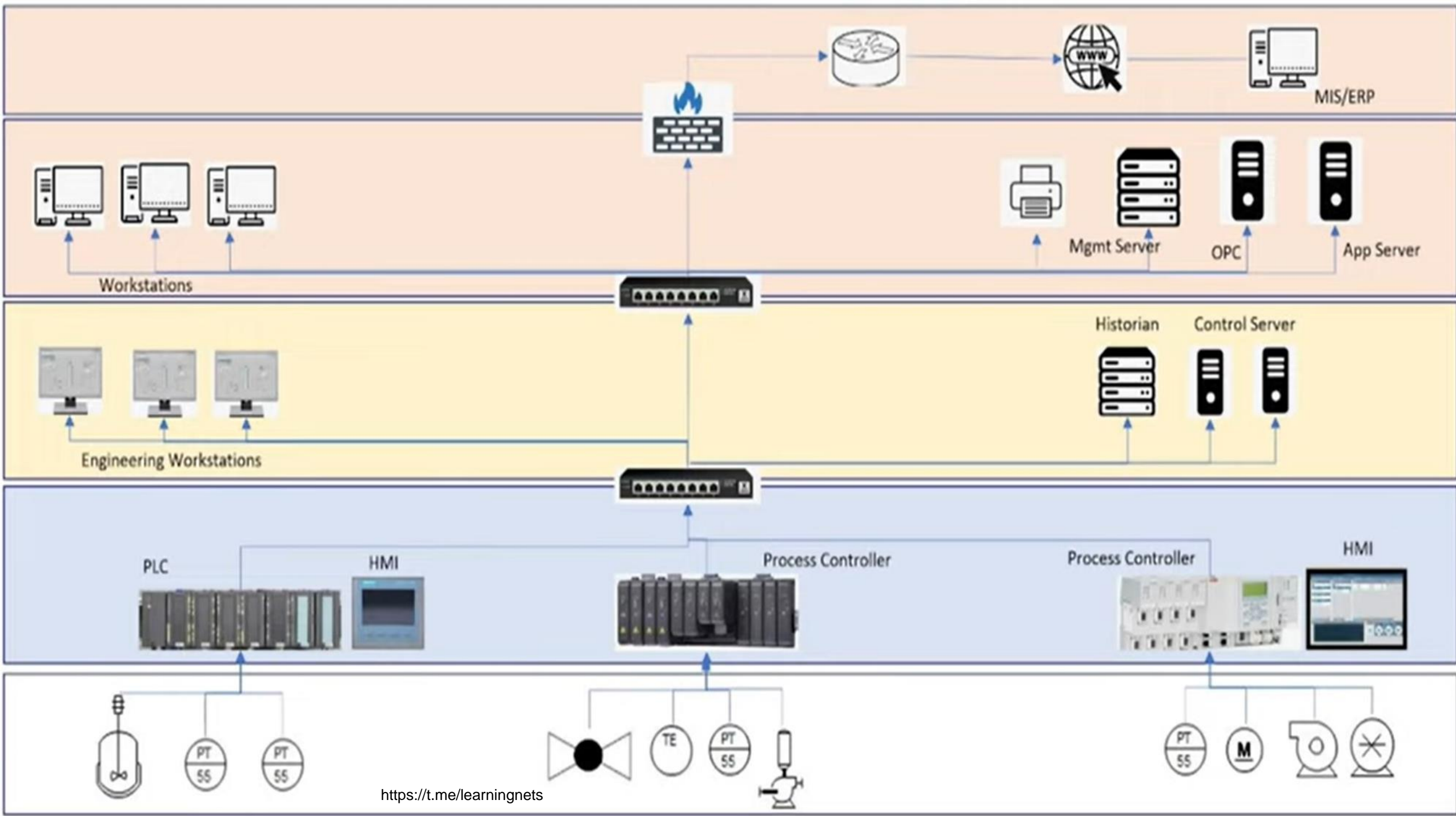


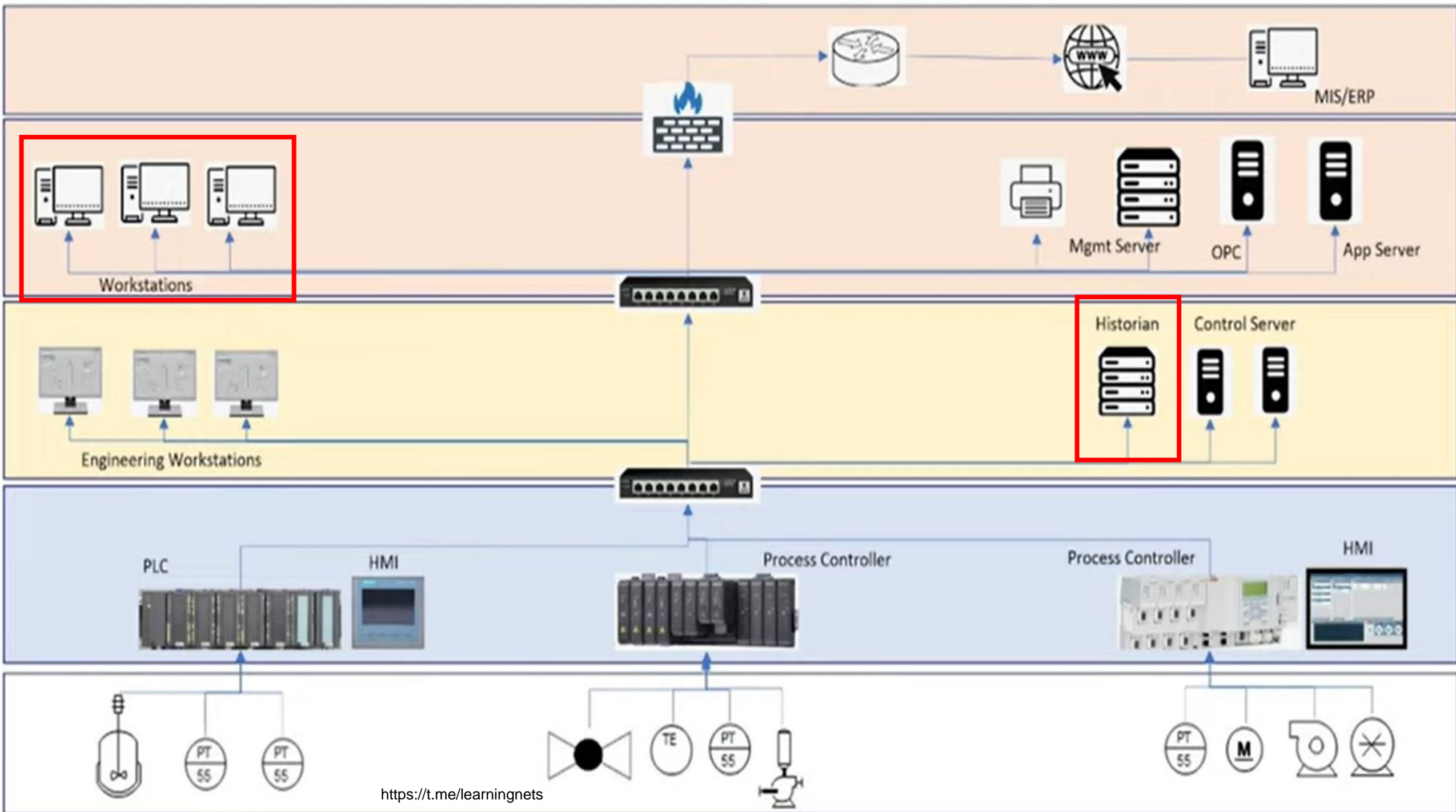


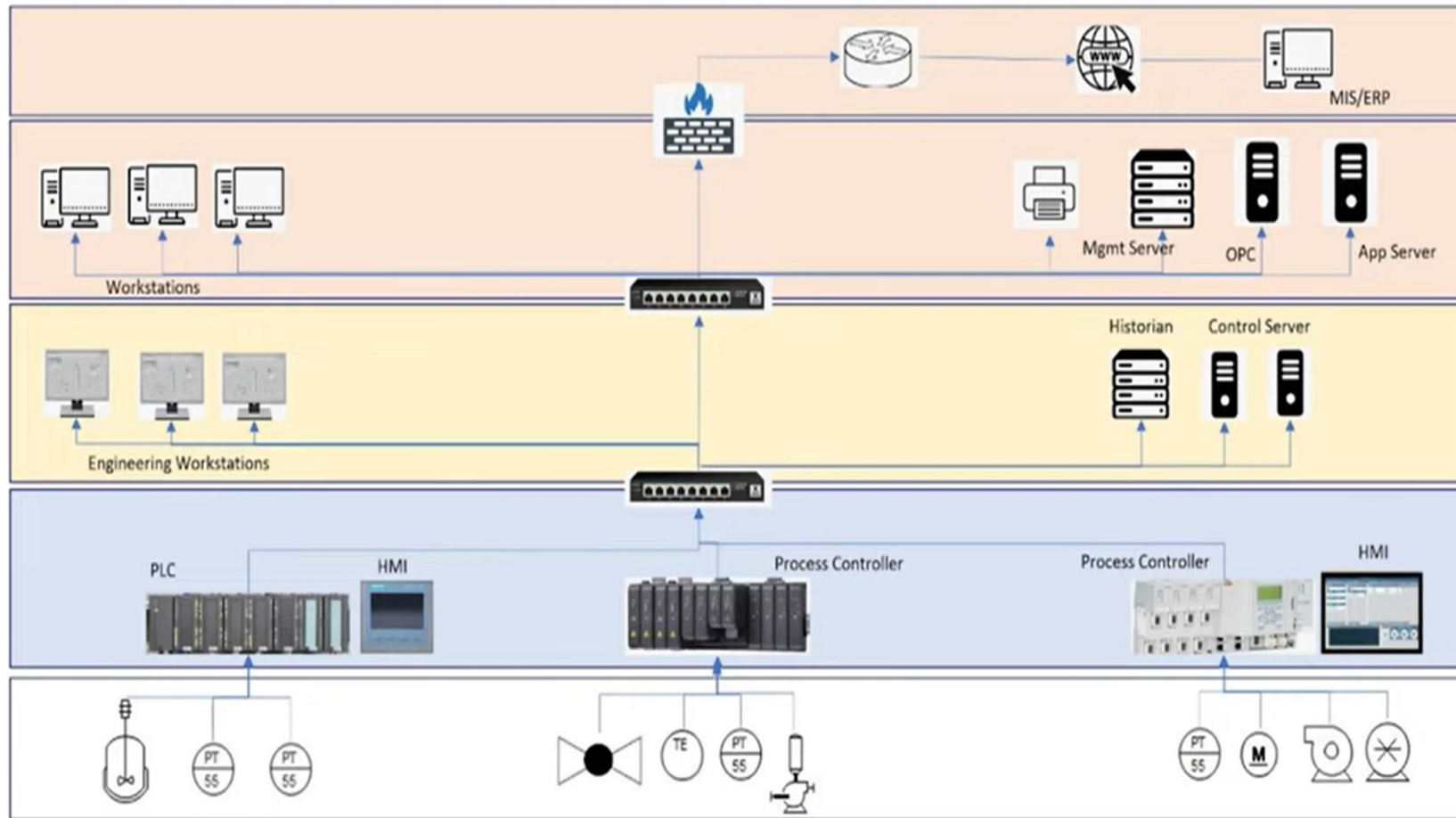




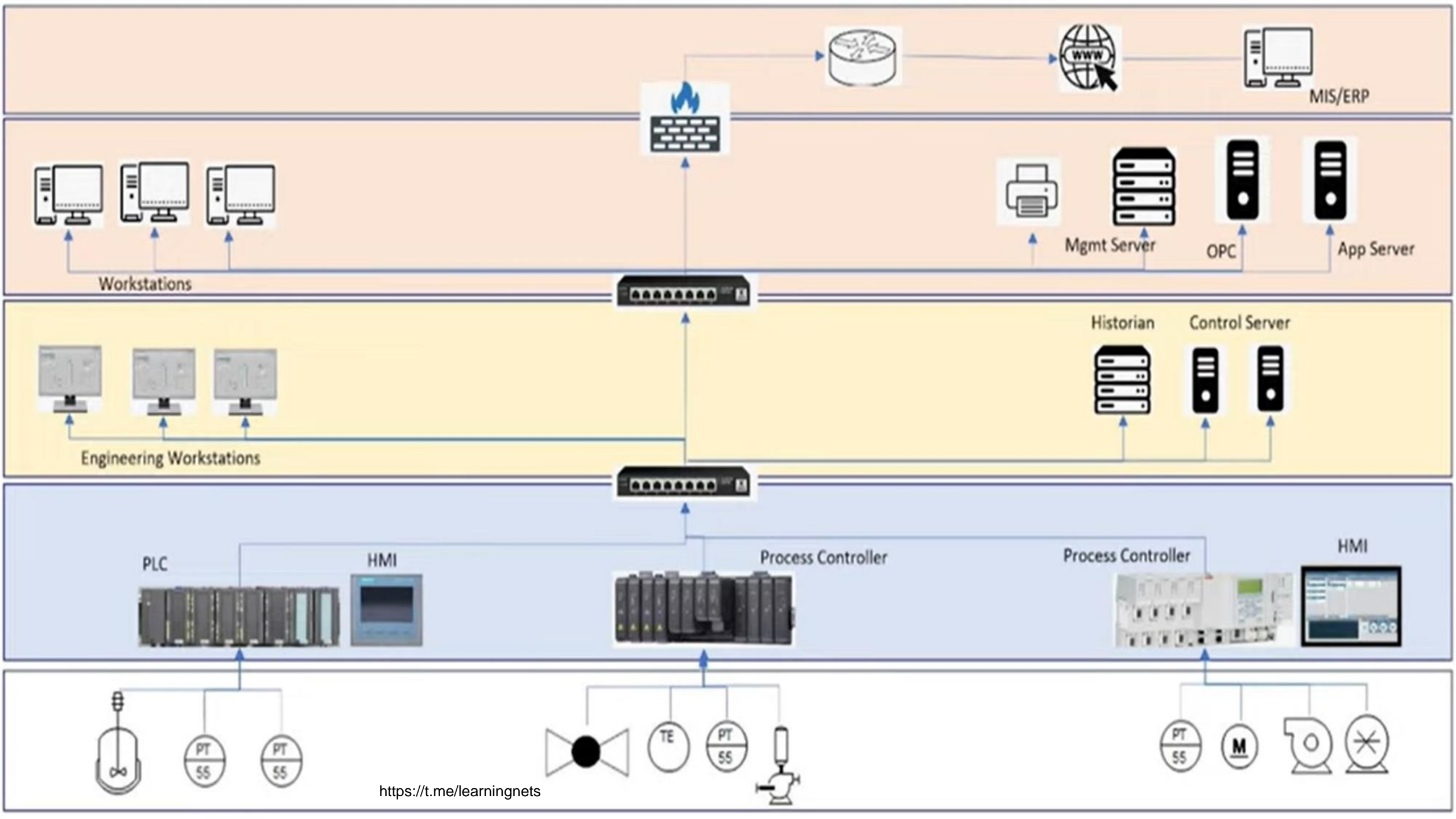








Firewalls play a fundamental role in achieving segmentation. Additionally, routers and Layer 3 switches equipped with access controllers can be utilized for this purpose. The most effective methods for segmentation involve the use of firewalls and routers, along with VLANs to enhance network security and control.



# Wrap Up

Network segmentation benefits:

Enhances performance by reducing congestion.

Improves security via segment isolation.

Grants traffic flow control.

Assists in compliance and risk management.

Contains threats effectively.

Offers scalability and flexibility.

Effective implementation requires robust security and strategic network design.





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