CUTAWAY SECURITY

INFOSEC CONSULTANTS

Prioritizing OT Security Efforts:

The Five Tactical Things to Accomplish While Leadership Defines a Security Program

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Don C. Weber / Cutaway Security, LLC

- SANS Instructor
  - ICS410: ICS / SCADA Security Essentials
  - Hosted: Accessing and Exploiting Control Systems
- ICS Security Assessments
- Penetration Testing
- Security Research

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Agenda

- Why are we here?
- Security Programs
- Approaches
- Strategic / Tactical / Operational
- Tactical Direction
- Desired State

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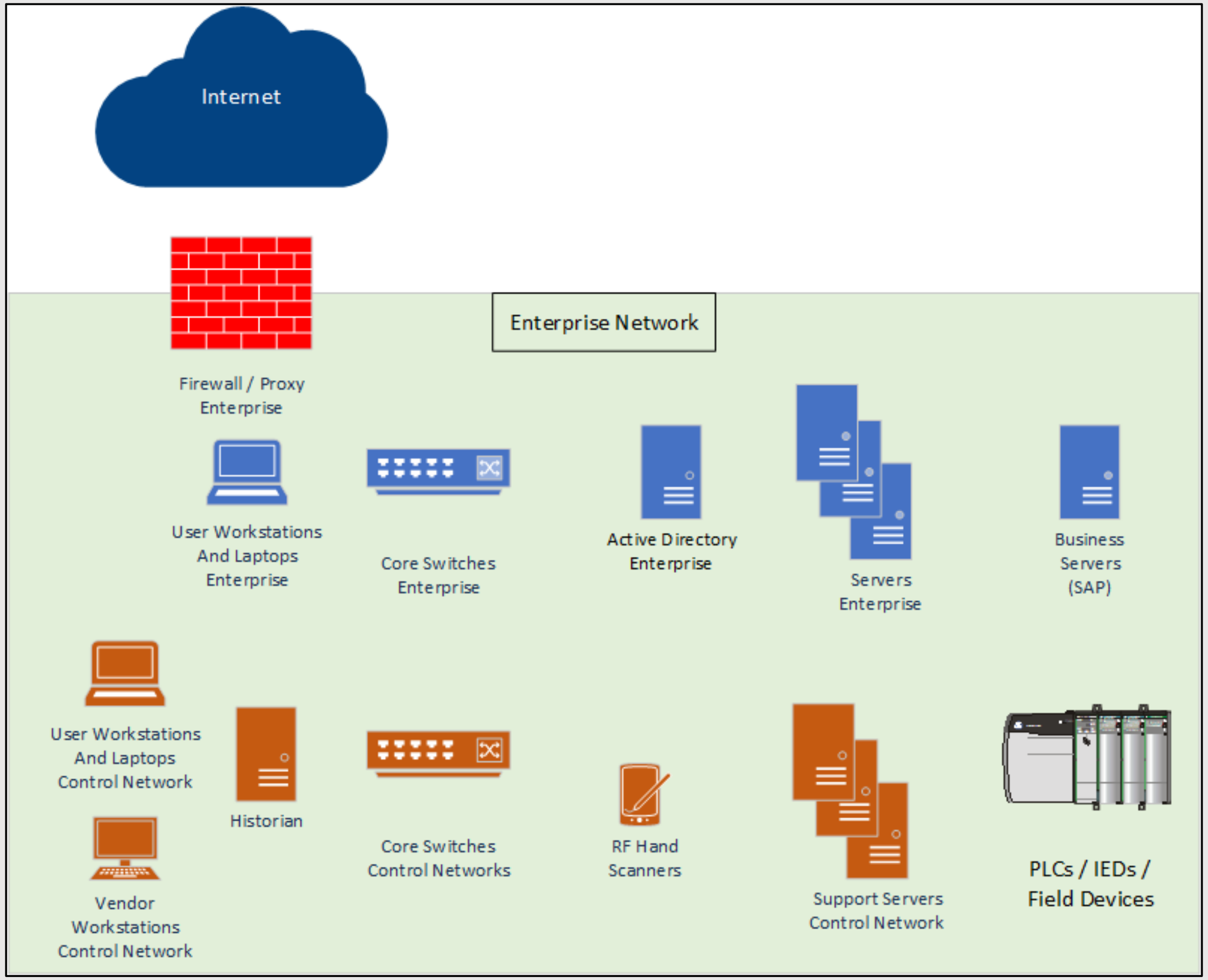
OT Worst Case Scenario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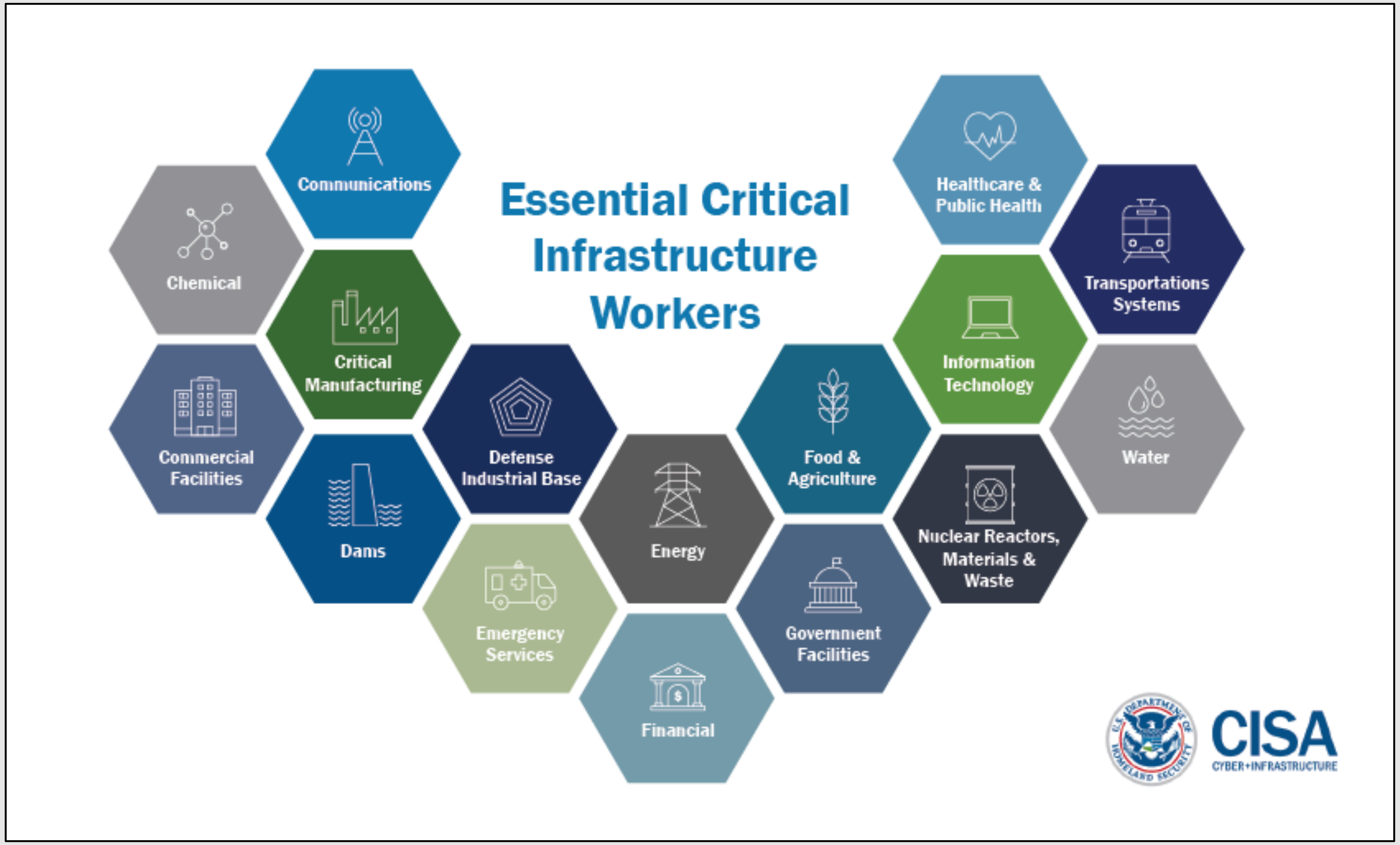
OT / ICS Security Programs

- Critical Infrastructure
  - Defined for you
- Non-Critical Infrastructure
  - Fend for yourself



Source: https://www.cisa.gov/identifying-critical-infrastructure-during-covid-19

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Cybersecurity Program Guidance

- ISO 27001 – Information Security Management
- NIST 800-53 - Recommended Security Controls for Federal Information Systems and Organizations
  - NIST 800-82r2 - Guide to Industrial Control Systems (ICS) Security
- NIST Cyber Security Framework – a framework to help organizations achieve a better understanding of itself with the goal of improved management to reduce cybersecurity risk.

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NIST CSF for OT

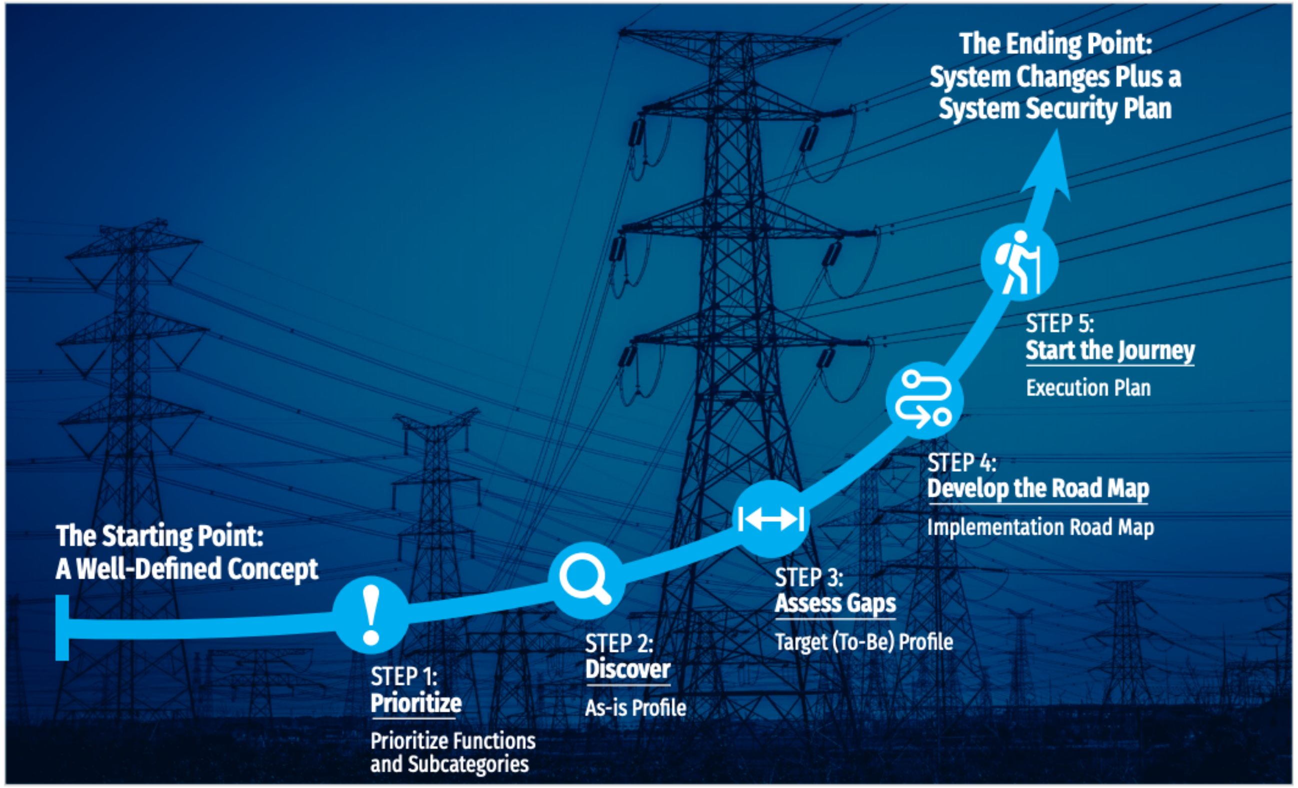

Figure 2. NIST CSF Gap Assessment Process Overview

SANS White Paper: Security by Design: A Systems Road Map Approach by Barb Filkins

Source: https://www.sans.org/reading-room/whitepapers/analyst/security-design-systems-road-map-approach-39370

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Strategic Ordering of NIST Functions

1. Protect – most efficient risk reduction via network architecture
2. Recover – set requirements, obtain management buy-in, test
3. Identify – asset inventory
4. Respond – no sense in detecting if you are not ready to take action
5. Detect – gather information about activity

Ordering the NIST CSF Functions for Efficient Risk Reduction
by Dale Peterson, Digital Bond

Source: https://dale-peterson.com/2020/04/23/ordering-the-nist-csf-functions-for-efficient-risk-reduction/

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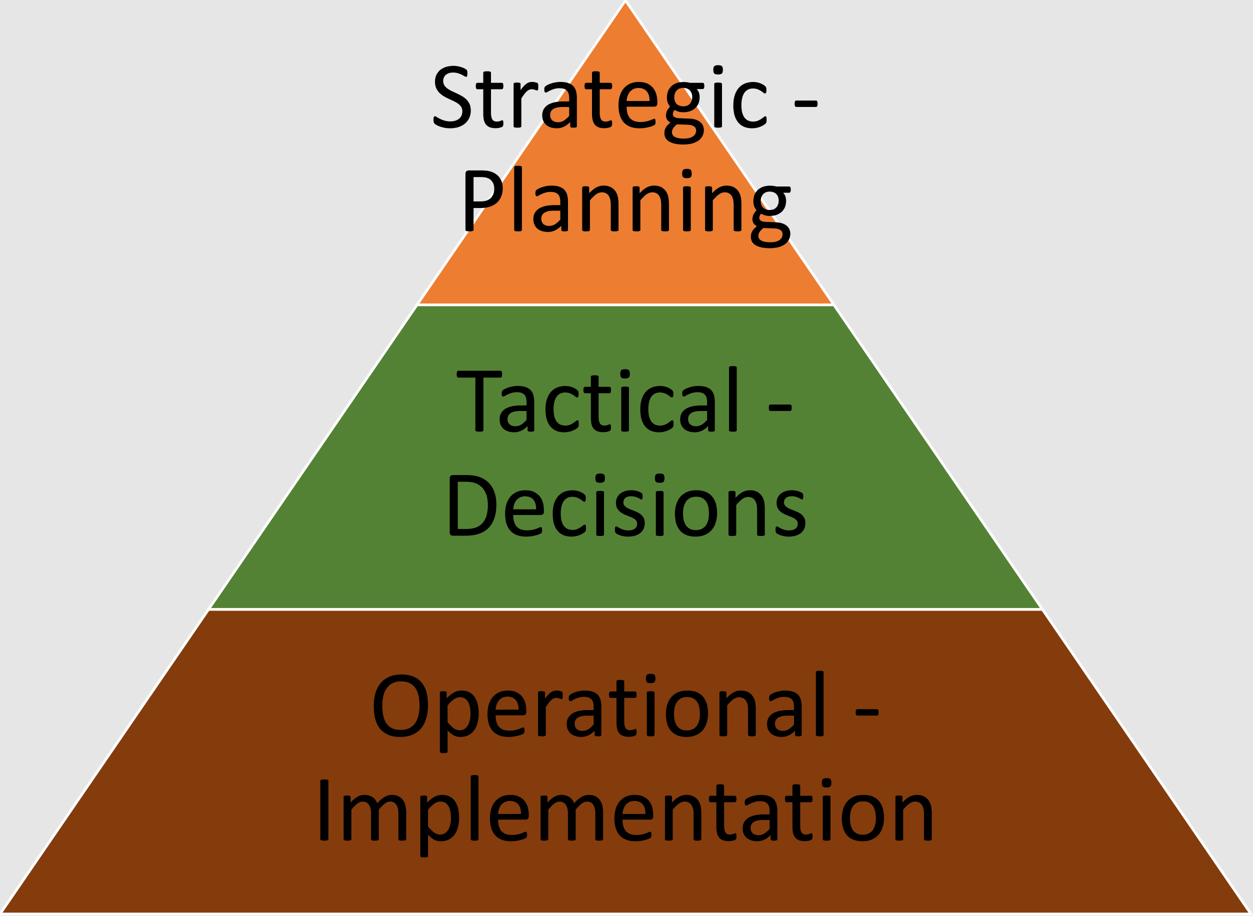
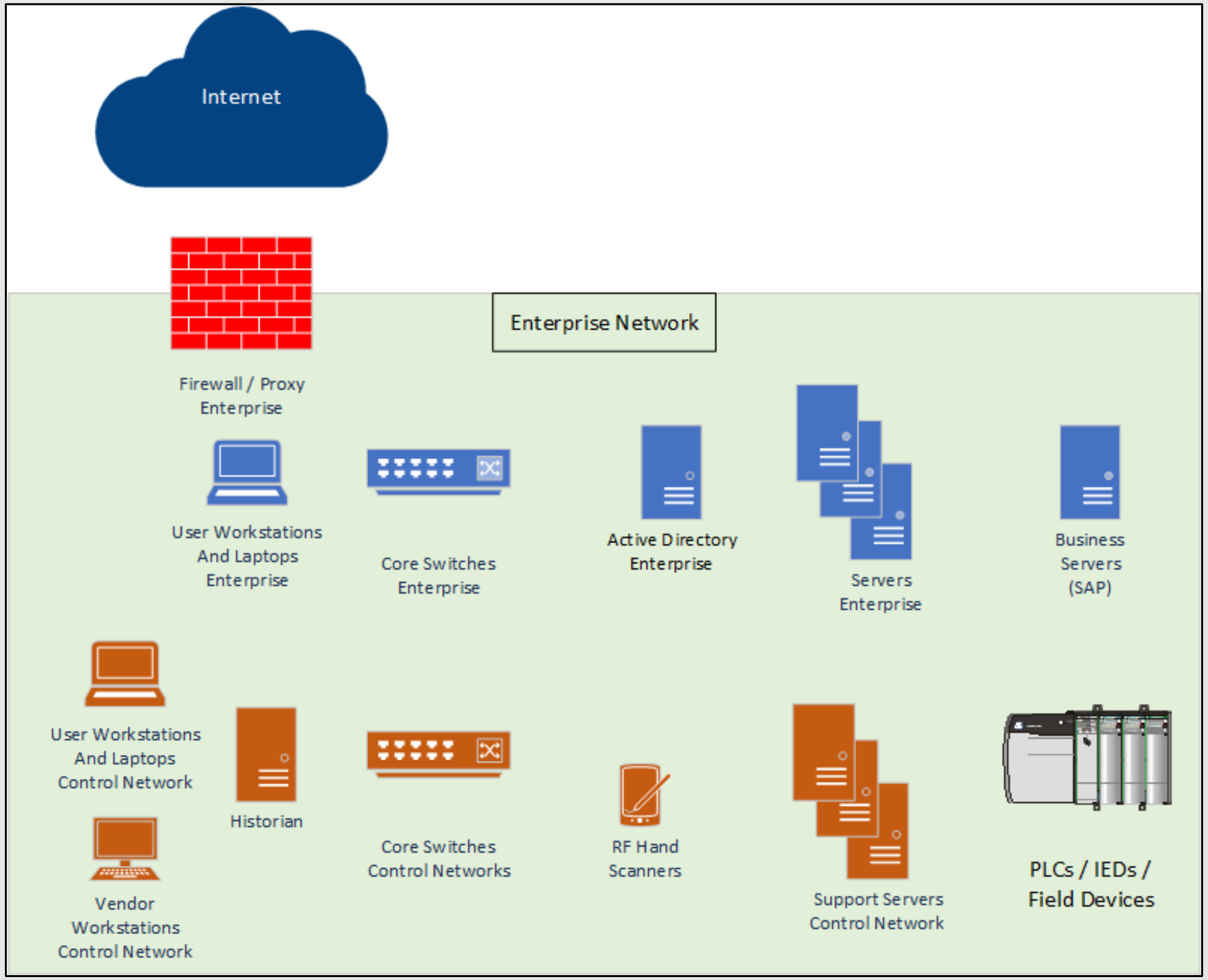
Decision Pyramid



Strategic - Planning

Tactical - Decisions

Operational - Implementation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IT / OT Security Effort Prioritization

- Segmentation and Isolation
- Access Control
- Logging and Monitoring
- Asset Inventory
- Incident Response and Recovery

Tactical ICS Security Starts Here

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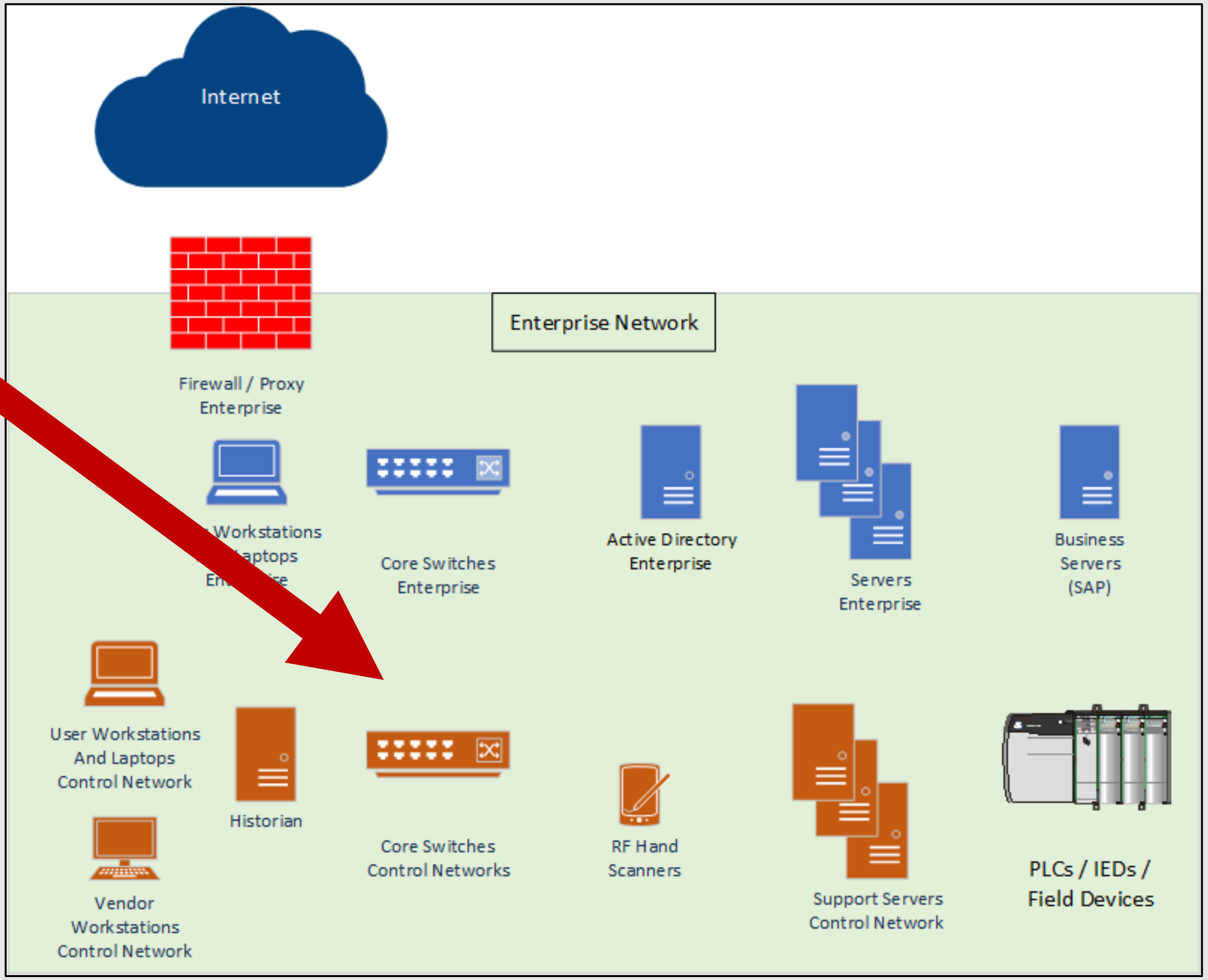
Network Segmentation / Isolation

- Segmentation and Isolation
- Access Control
- Logging and Monitoring
- Asset Inventory
- Incident Response and Recovery

Start With: Enforcement Boundary Between Purdue Level 3 and 4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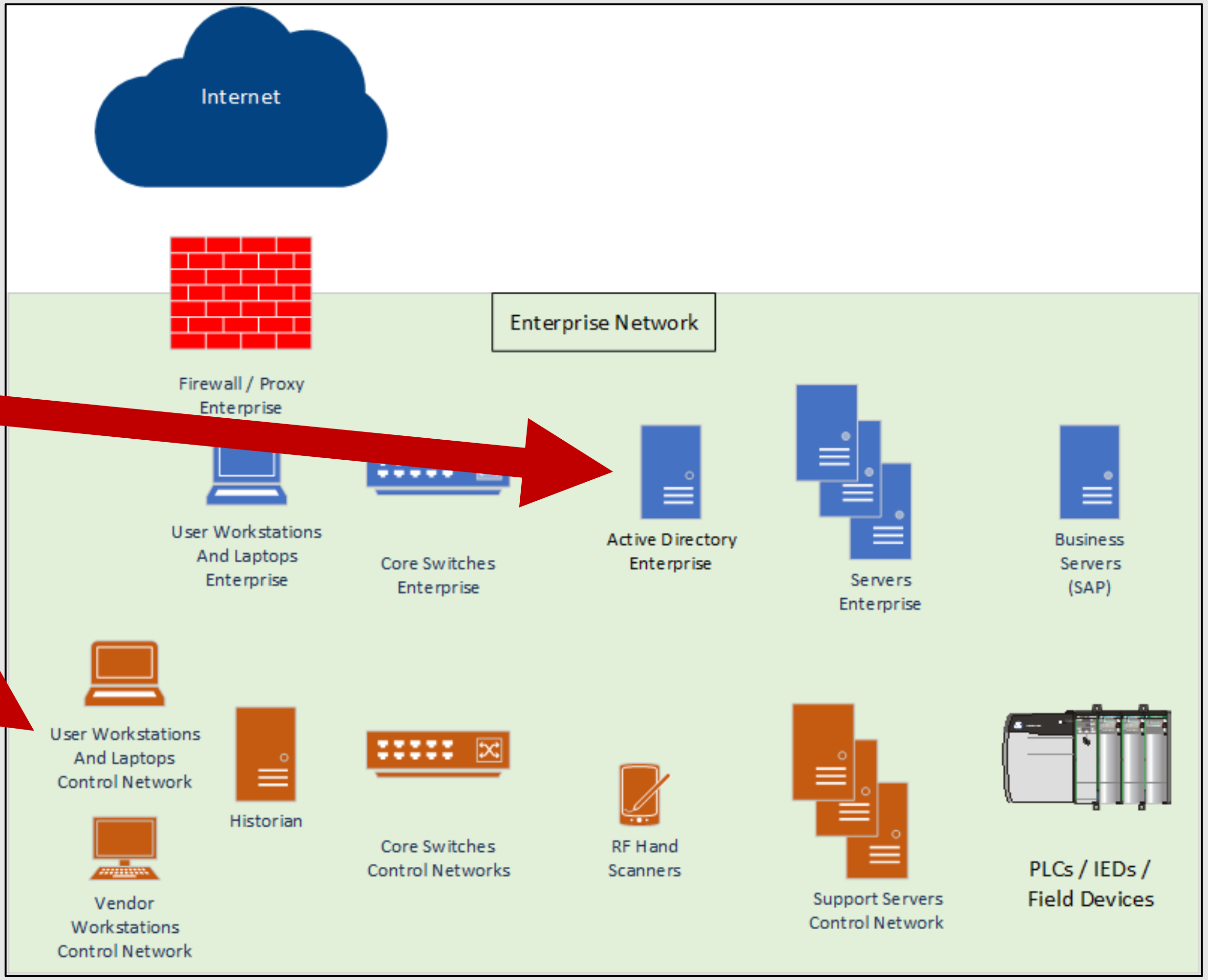
Access Control

- Segmentation and Isolation
- Access Control
- Logging and Monitoring
- Asset Inventory
- Incident Response and Recovery

Start With: Separate Enterprise and Control Accounts and Integrator / Vendor Access



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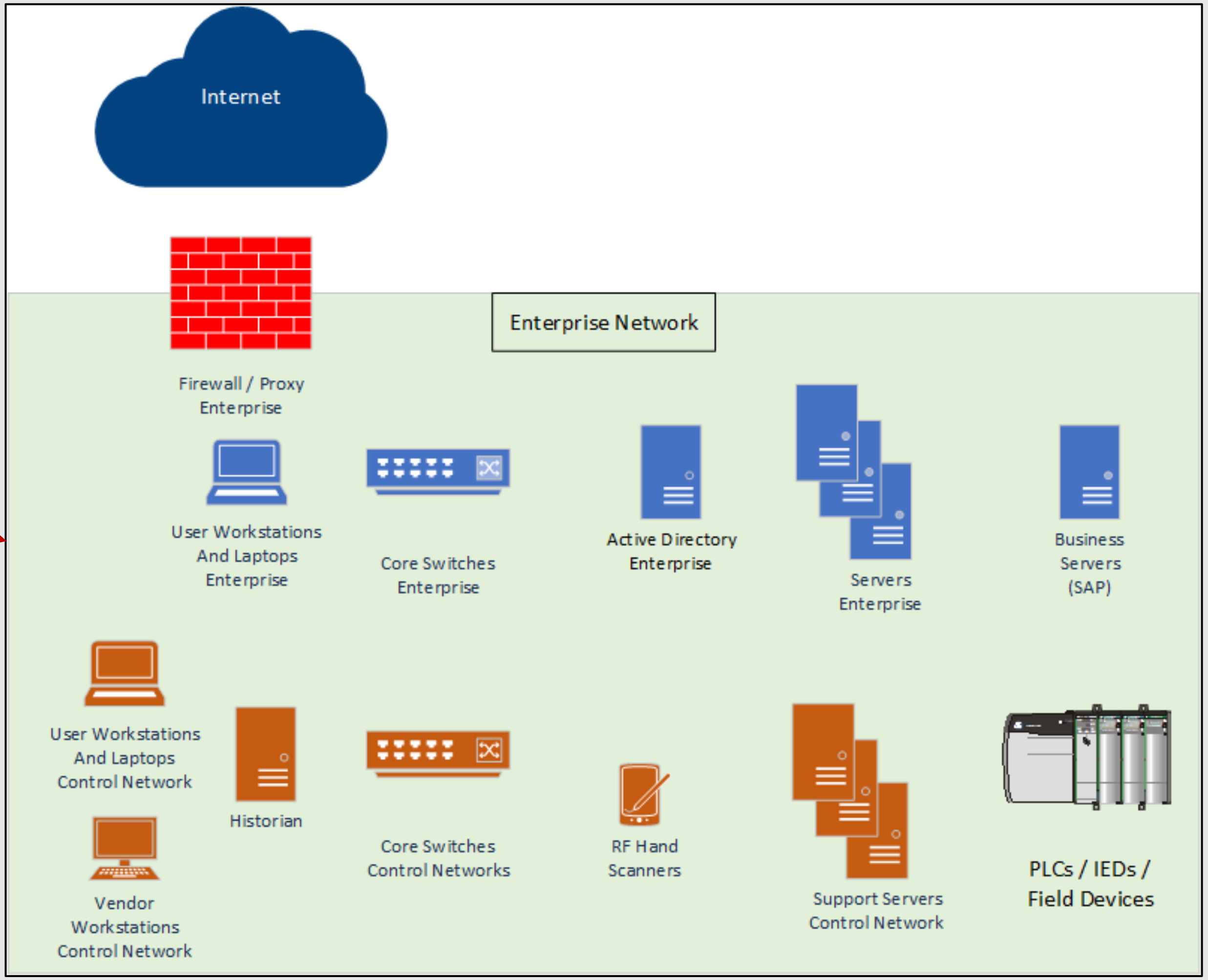
Logging and Monitoring

- Segmentation and Isolation
- Access Control
- Logging and Monitoring
- Asset Inventory
- Incident Response and Recovery

All The Things!!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Start With: Increase Master Server Local Log Sizes and Centralize

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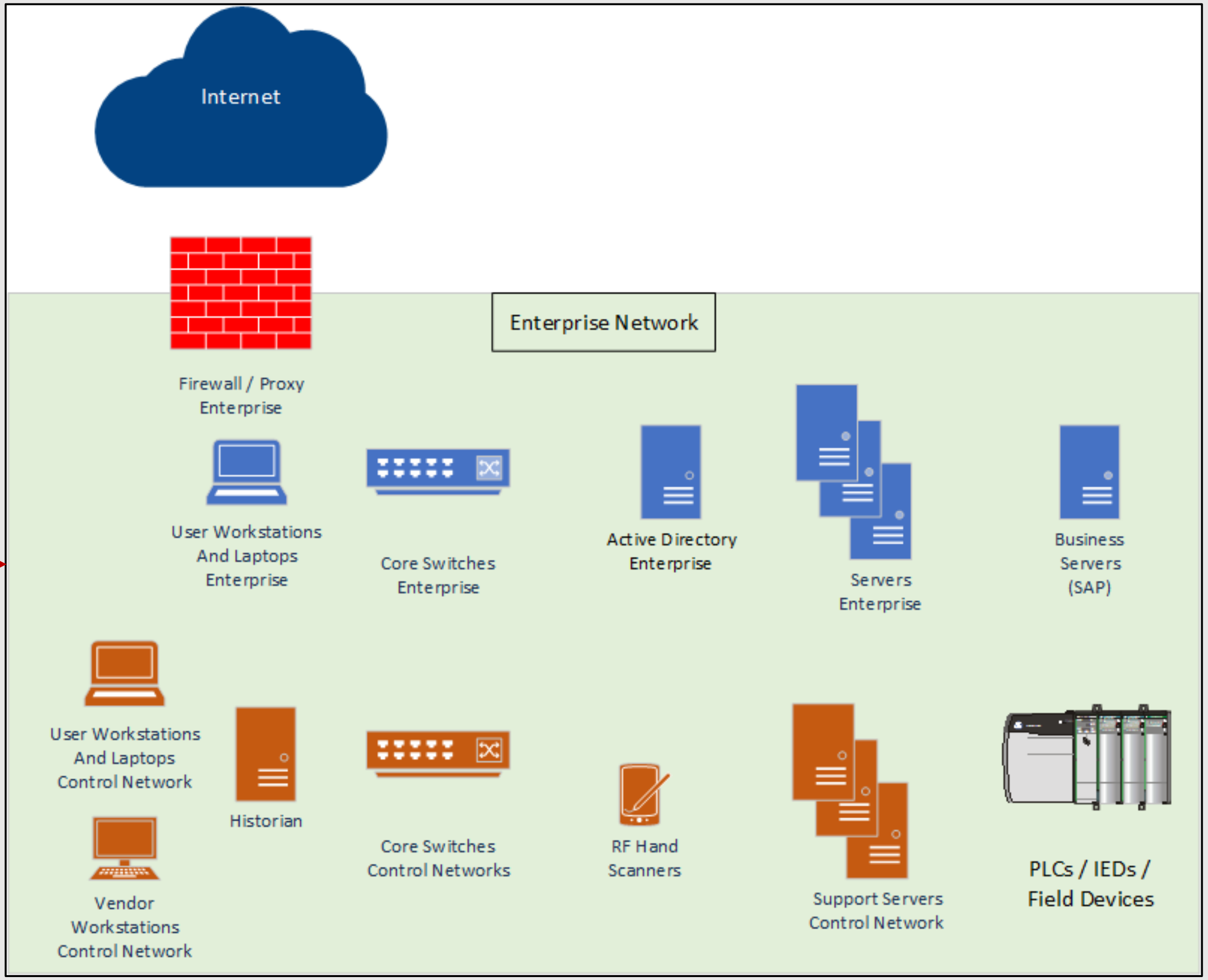
Asset Inventory

- Segmentation and Isolation
- Access Control
- Logging and Monitoring
- Asset Inventory
- Incident Response and Recovery

All The Things!!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Start With: Passive Information Gathering using Netflow / PCAP

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Incident Response

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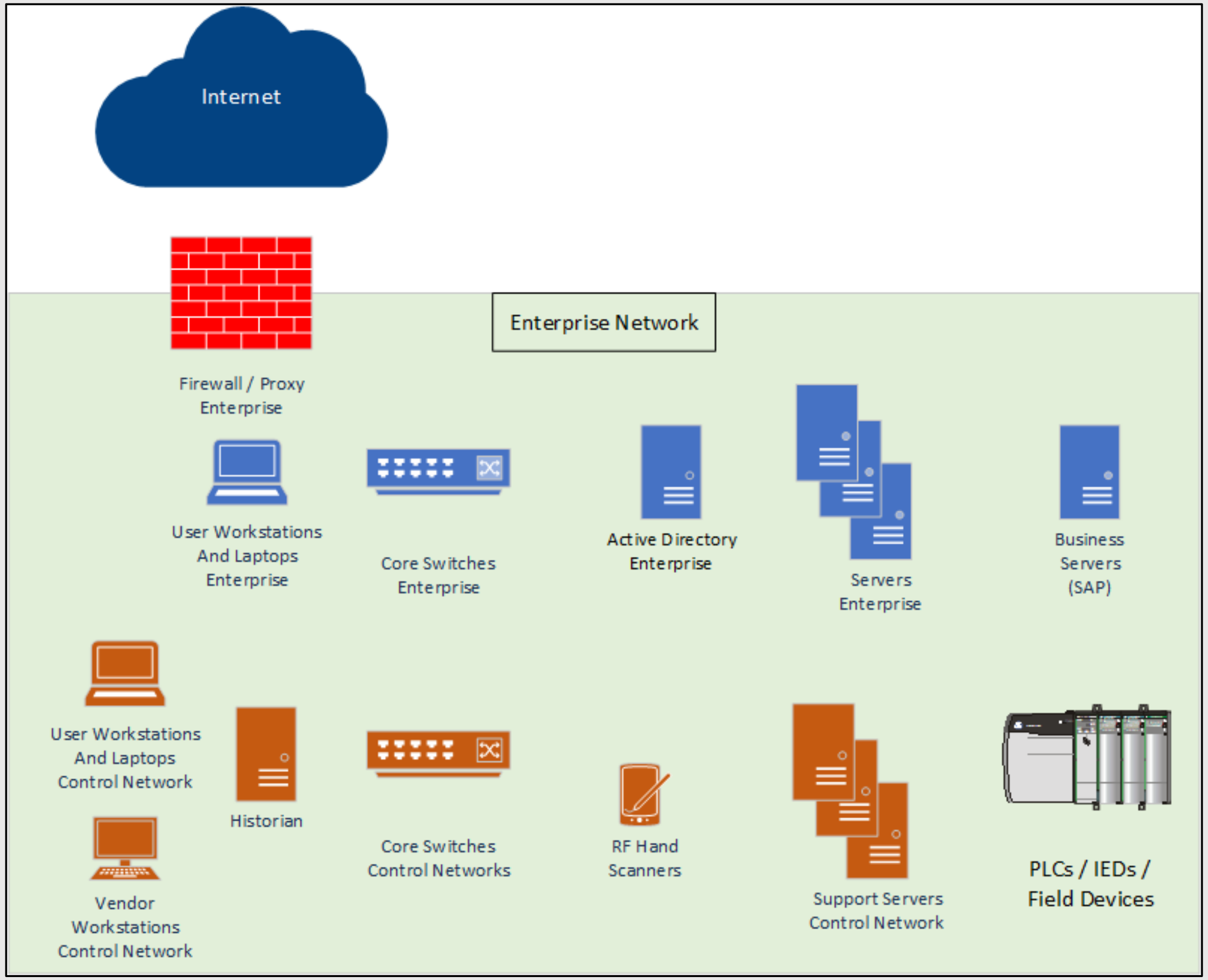
- Access Control
- Logging and Monitoring
- Asset Inventory
- Incident Response and Recovery

Start With: Table-Top Training Exercises with IT / IT Sec / OT Teams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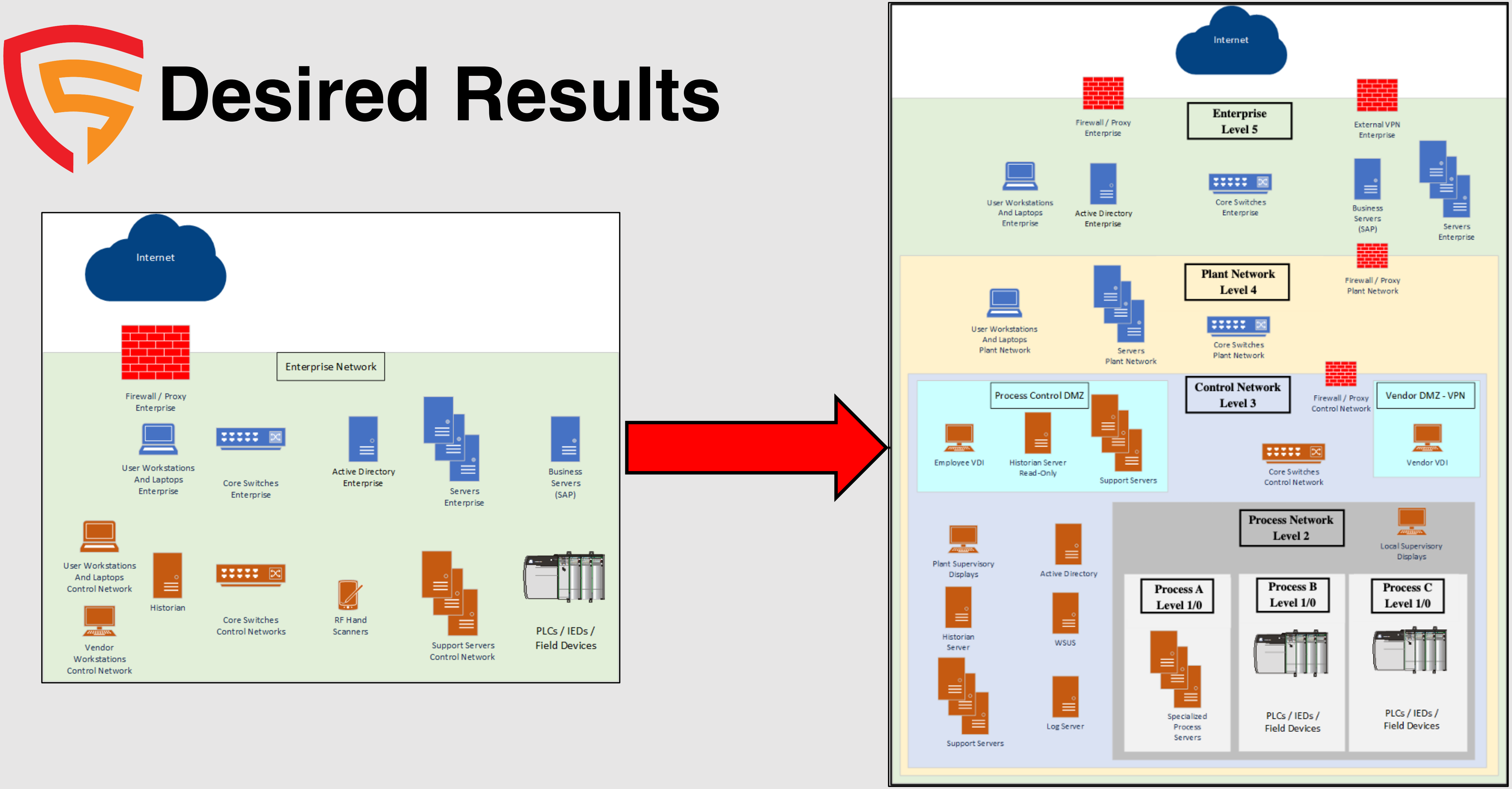
Desired Results



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Conclusion

- Management needs to provide strategic guidance.
- OT / IT teams need to gather information to feed into the strategic process.
- OT / IT teams need to secure the control networks during the strategery.

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