FORTINET

SMART GRID FORUMS | Understanding IEC 62443

Adopting IEC 62443 across a wider range of power grid industrial automation control systems

Wednesday 27th October 2021

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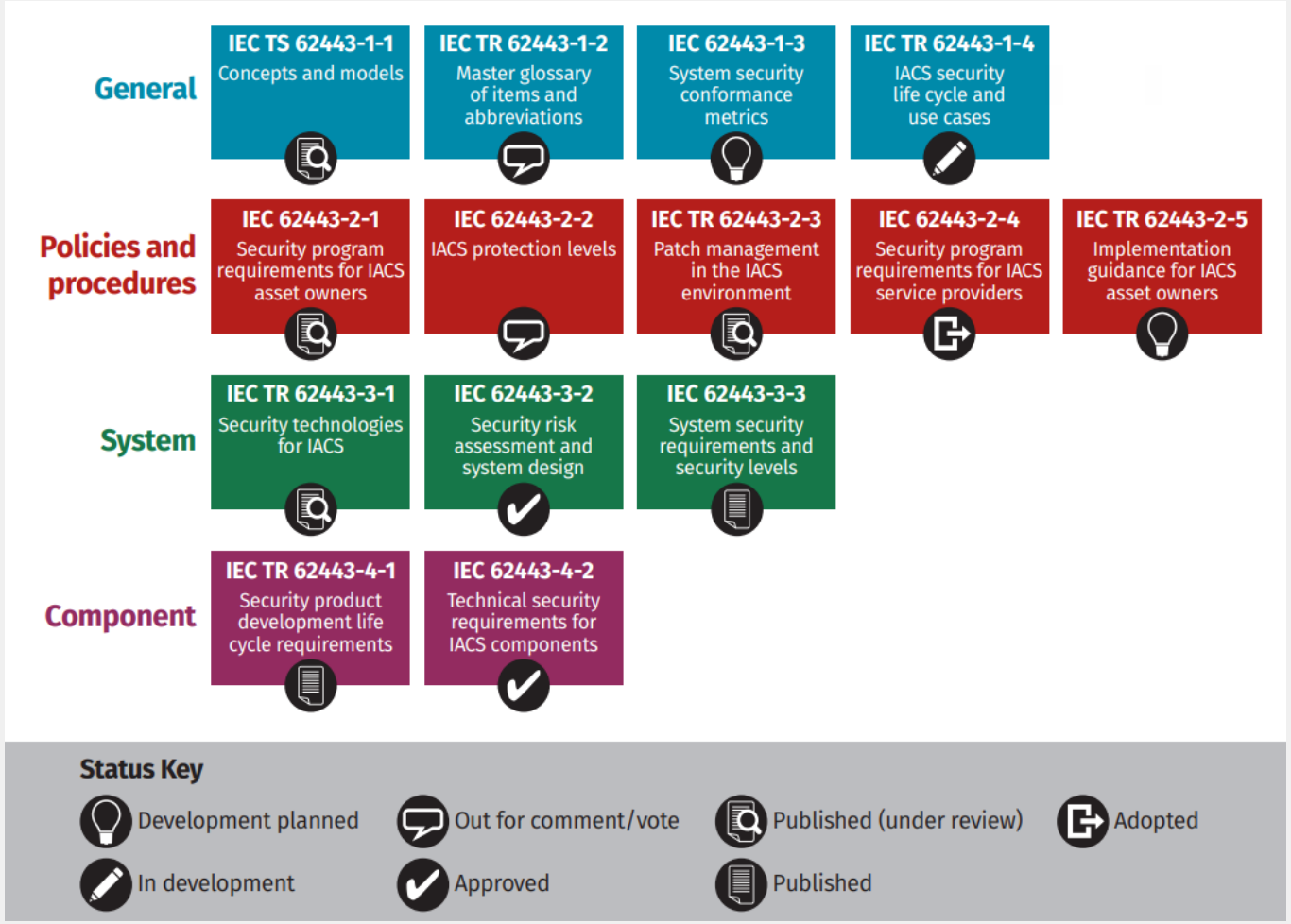
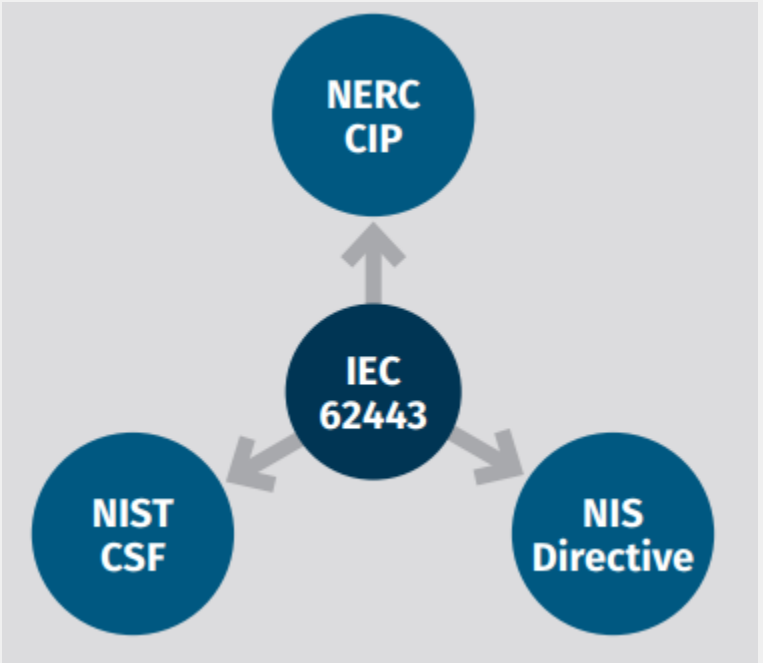
ISA/IEC 62243 Regulatory Compliance

How Product Vendors support Asset Owners and System Integrators?





SANS Institute – Managing ICS Security with IEC 62443 Standard

Compliance is an Ecosystem Responsability

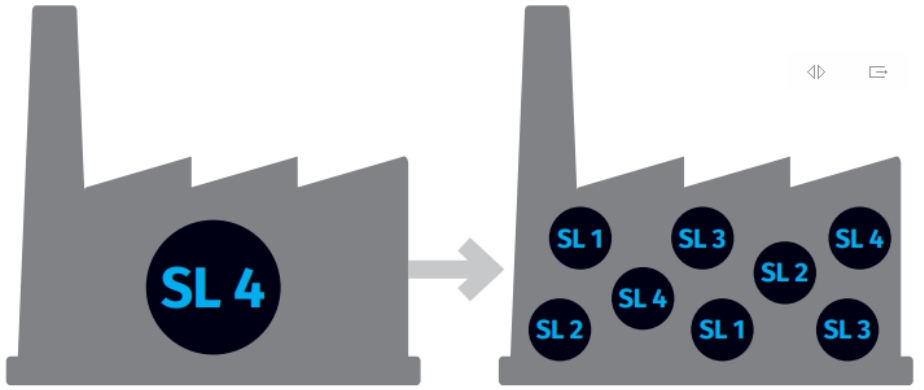
Foundational Requirements & Security Levels

Foundational Requirements (FRs)

- **FR1** Identification and authentication control (IAC)
- **FR2** Use control (UC)
- **FR3** System integrity (SI)
- **FR4** Data confidentiality (DC)
- **FR5** Restricted data flow (RDF)
- **FR6** Timely response to events (TRE)
- **FR7** Resource availability (RA)

SL 0	No specific requirements or security protection necessary
SL 1	Protection against casual or coincidental violation
SL 2	Protection against intentional violation using simple means with low resoucres, generic skills and low motivation
SL 3	Protection against intentional violation using sophisticated means with moderate resources, IACS-specific skills and moderate motivation
SL 4	Protection against intentional violation using sophisticated means with moderate resources, IACS-specific skills and high motivation

SRs and REs			SL 1	SL 2	SL 3	SL 4
FR 1	**Identification and authentication control (IAC)**					
SR 1.1	Human user identification and authentication	5.3	✔	✔	✔	✔
SR 1.1 RE 1	Unique identification and authentication	5.3.3.1		✔	✔	✔
SR 1.1 RE 2	Multifactor authentication for untrusted networks	5.3.3.2			✔	✔
SR 1.1 RE 3	Multifactor authentication for all networks	5.3.3.3				✔
SR 1.2	Software process and device identification and authentication	5.4		✔	✔	✔
SR 1.2 RE 1	Unique identification and authentication	5.4.3.1			✔	✔
SR 1.3	Account management	5.5	✔	✔	✔	✔
SR 1.3 RE 1	Unified account management	5.5.3.1			✔	✔
SR 1.4	Identifier management	5.6	✔	✔	✔	✔



Monolithic Security Approach

Segmented Security Approach

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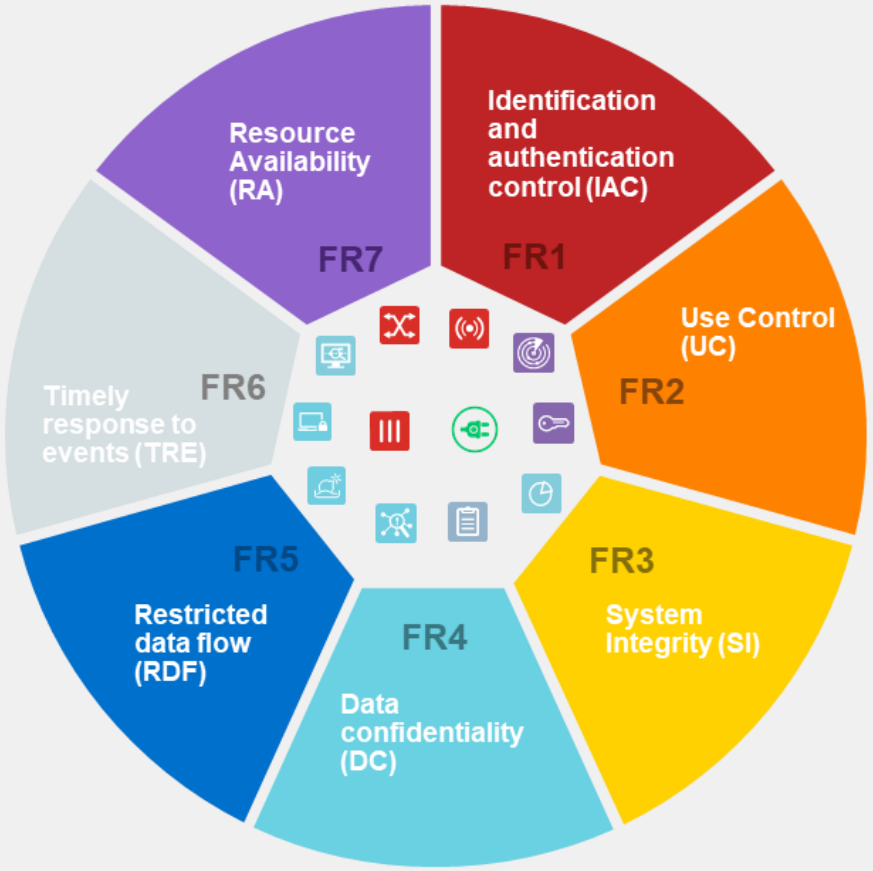
SL are targets set against Risk Acceptance

Cyber Solutions mapping to IEC 62443

From Critical Controls to NextGen Cyber Security



IEC 62443-3-3 FRs, SRs and REs					Fortinet Solution Mapping and Compliance		
FR 1 – Identification and Authentication					FR 1 Product Mapping: Fortigate, FortiWiFi/FortiAp, FortiAuthenticator, FortiToken, FortiClient, FortiEDR, FortiAnalyzer, FortiManager		
FR 1 – SRs and REs	Security Levels				Relevance	Compliance	Solution Description
	SL 1	SL 2	SL 3	SL 4	IACS/Fortinet	Full/Partial/None	P: Product, C: Configuration, N: Note
SR 1.1 – Human user identification and authentication	✔	✔	✔	✔	Both	Full	P: FortiGate, FortiAuthenticator

IEC 62443-3-3 FRs, SRs and REs					Fortinet Solution Mapping and Compliance		
FR 5 – Restricted data flow (RDF)					FR 5 Product Mapping: FortiGate, FortiSwitch, FortiNAC, FortiClient, FortiEDR, FortiAnalyzer		
FR 5 – SRs and REs	Security Levels				Relevance	Compliance	Solution Description
	SL 1	SL 2	SL 3	SL 4	IACS/Fortinet	Full/Partial/None	P: Product, C: Configuration, N: Note
SR 5.1 – Network segmentation	✔	✔	✔	✔	Both	Full	P: FortiGate, FortiNAC C: Product(s) integration and implementation of zones and

IEC 62443-3-3 FRs, SRs and REs					Fortinet Solution Mapping and Compliance		
FR 7 – Resource availability (RA)					FR 7 Product Mapping: FortiGate, FortiClient, FortiEDR, FortiAnalyzer, FortiM Fabric-Ready Partner Solutions		
FR 7 – SRs and REs	Security Levels				Relevance	Compliance	Solution Description
	SL 1	SL 2	SL 3	SL 4	IACS/Fortinet	Full/Partial/None	P: Product, C: Configuration, N: Note
SR 7.1 – Denial of service protection	✔	✔	✔	✔	Fortinet	Full	P: FortiGate C: Using the product(s), implement DoS protection polici
SR 7.1 RE 1 – Manage communication loads		✔	✔	✔	Fortinet	Full	P: FortiGate C: Using the product(s), implement DoS protection, SYN f protection, rate-limit, traffic shaping policies
SR 7.1 RE 2 – Limit DoS effects to other systems or networks			✔	✔	Fortinet	Full	P: FortiGate C: Using the product(s), implement DoS protection, SYN f protection, rate-limit policies
SR 7.2 – Resource management	✔	✔	✔	✔	Both	Full	P: FortiGate

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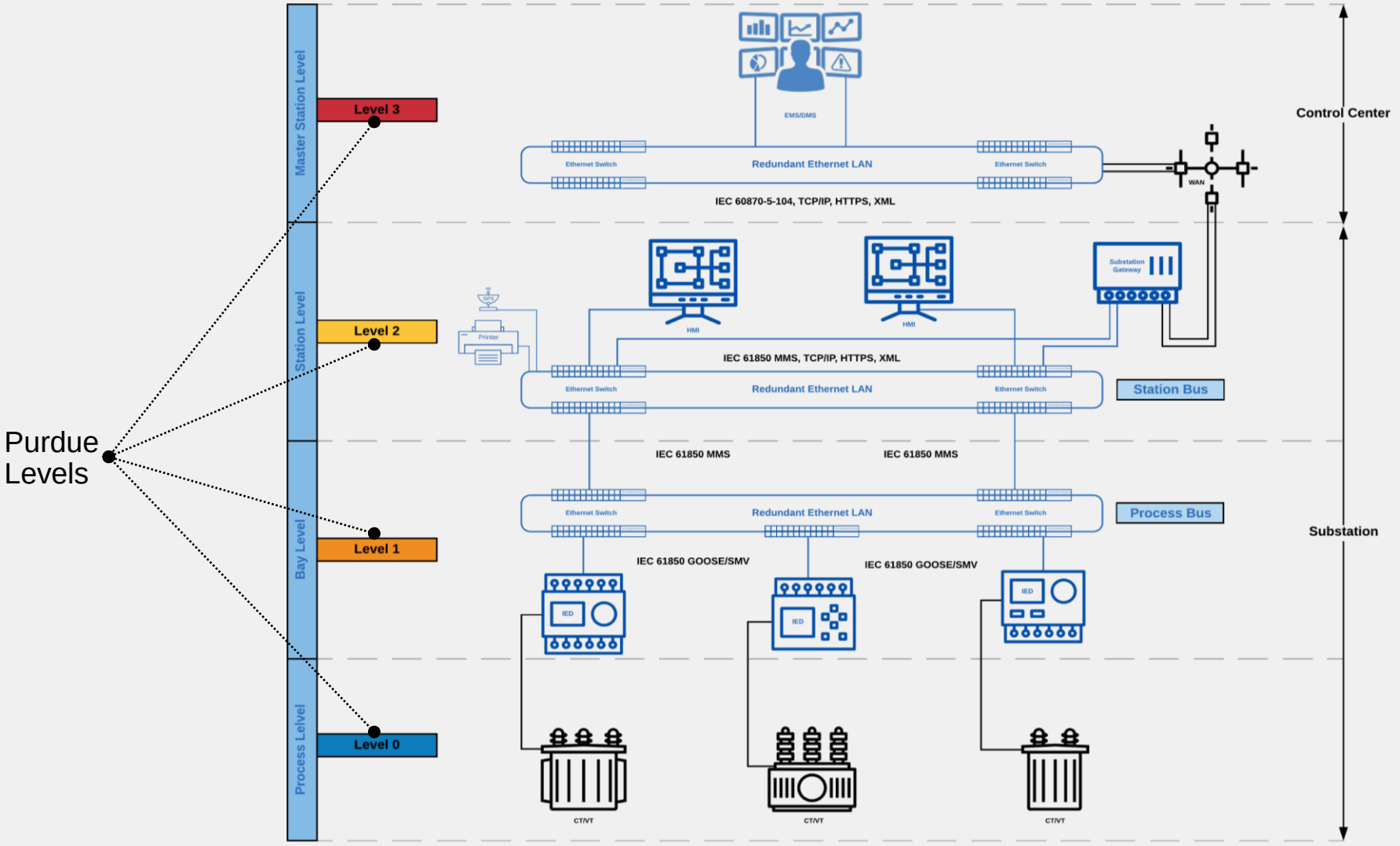
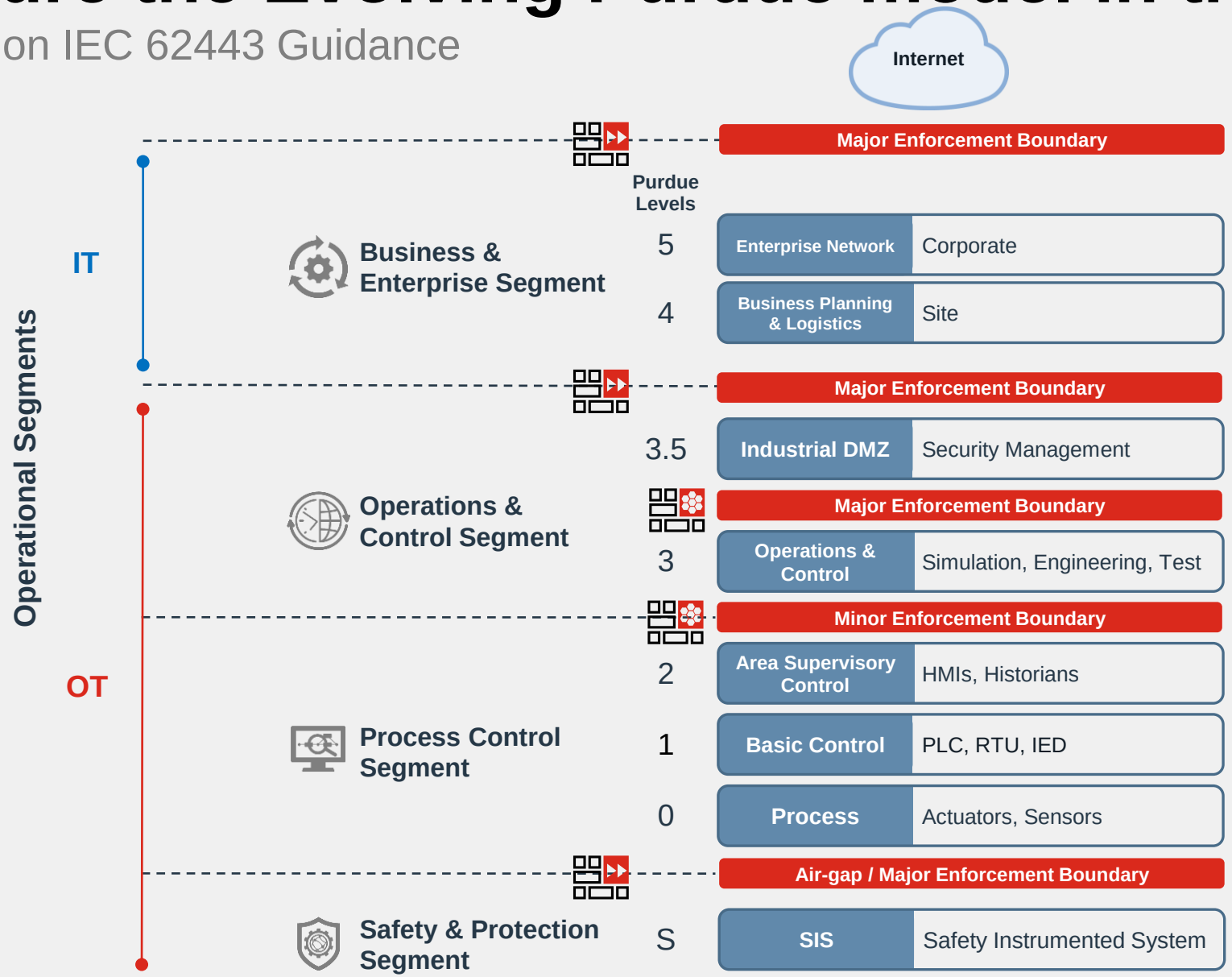
Using PERA Levels for SmartGrid Environments

… To qualify Security Products & Solutions on Reference Architecture



Secure the Evolving Purdue model in the face of IIoT

Based on IEC 62443 Guidance



Secure the Evolving Purdue model in the face of IIoT

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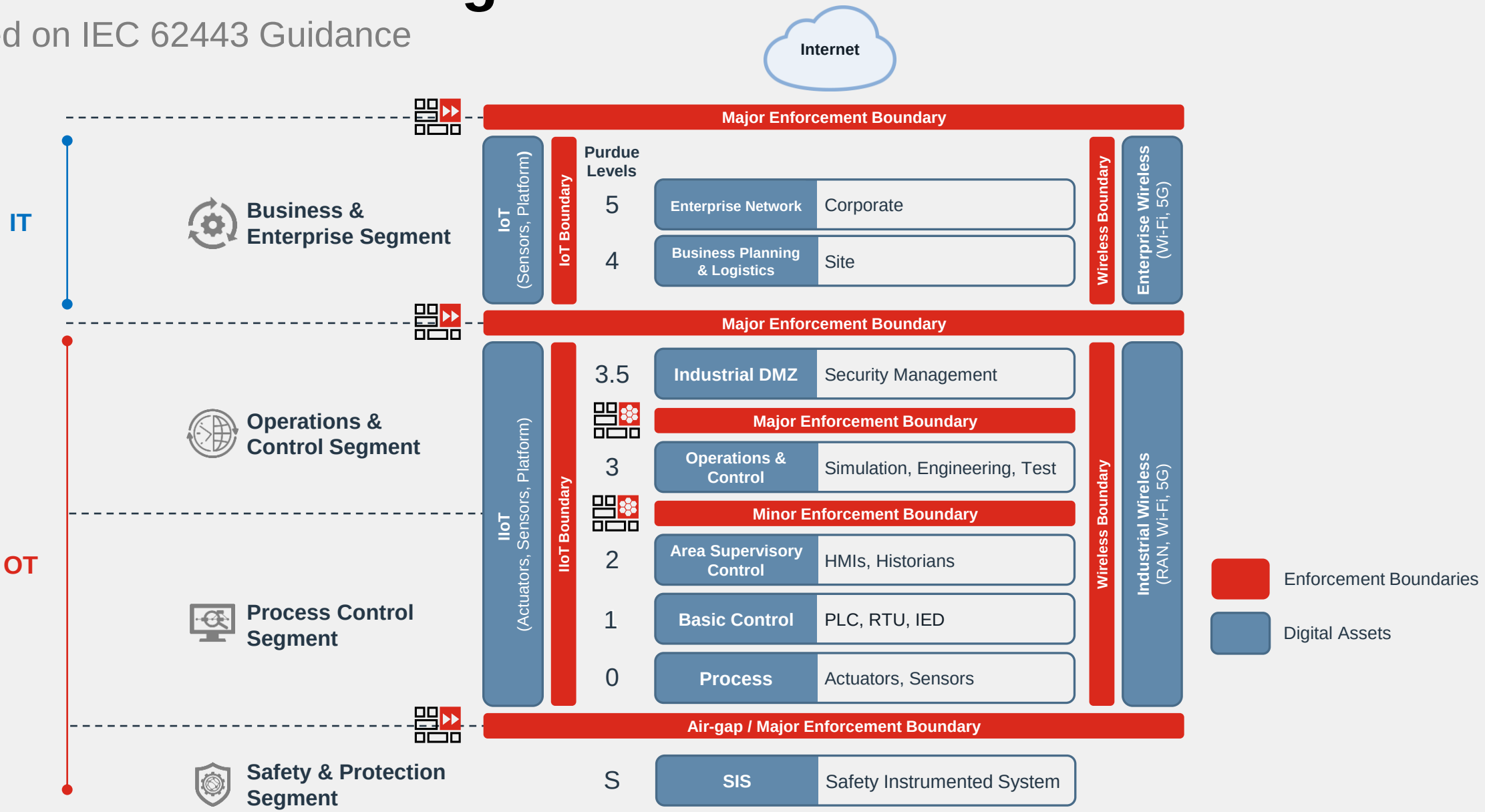

Secure the Evolving Purdue model in the face of IIoT

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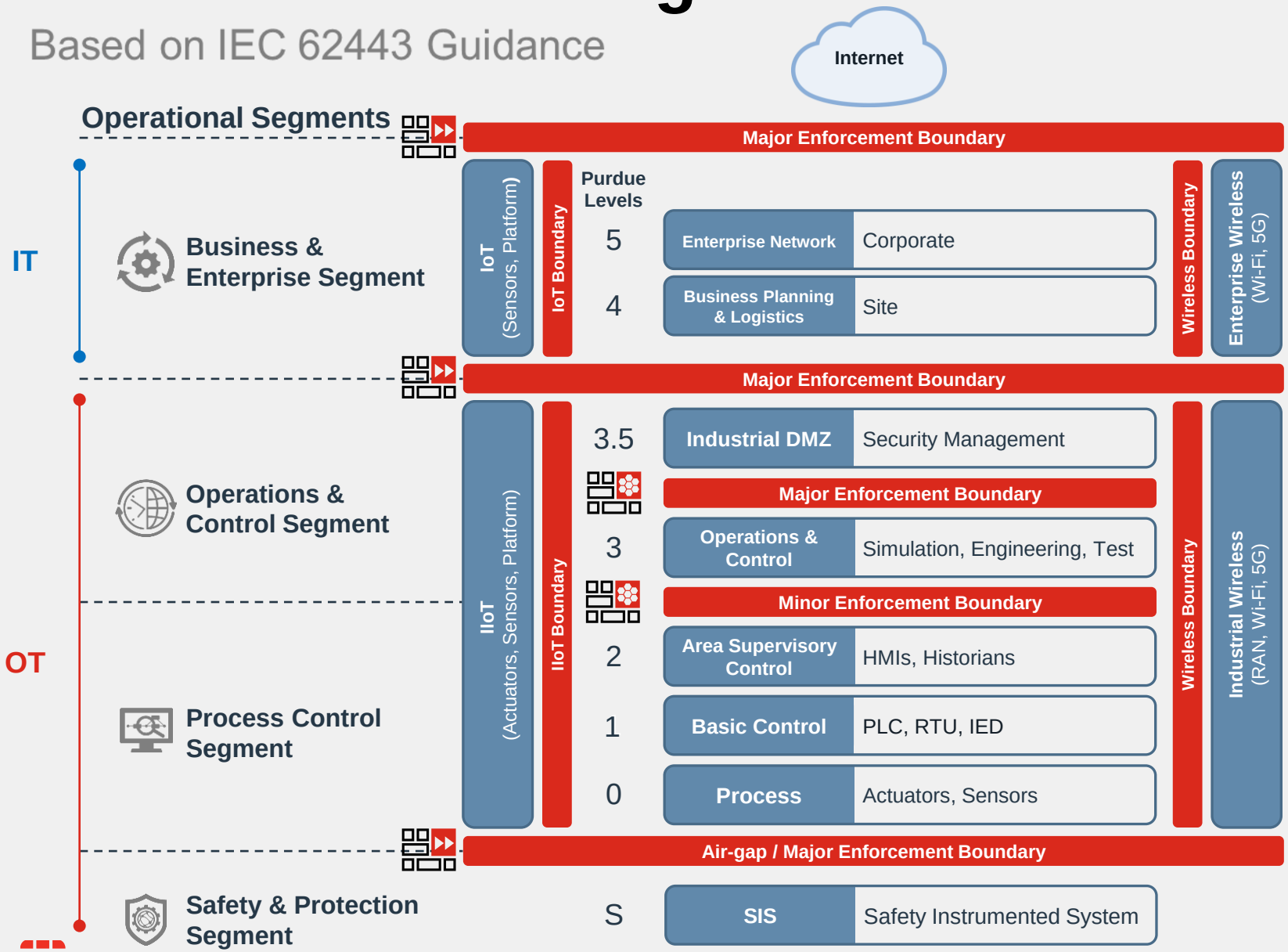

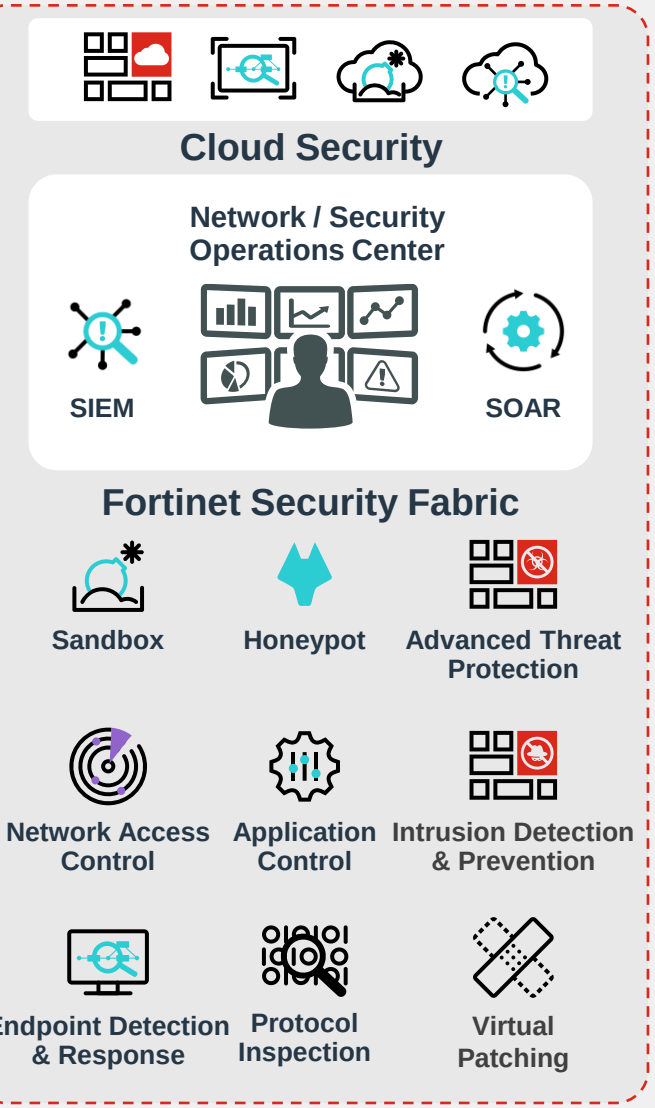

Digital Assets

Enforcement Boundaries

Key take away for Asset Owner and System Integrators

- Select your Partner ecosystem based on your compliance journey
- Think Simplicity, Life Cycle, Integration, and Orchestration
- Mind IIoTs and Wireless devices
- Make OT Cyber Security Standards and Best Practices your Roadmap

https://www.sans.org/white-papers/39960/

Invest in PEOPLE, Process, and Technology


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