Data Center Lifecycle Management: A Holistic Proposal on Physical Security

Marcelo Campos, DC BU Manager, Roxtec
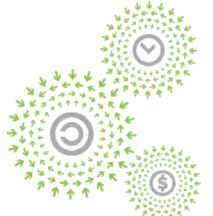Cliff Jones, Global DEC Manager, Facebook

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Mission Statement

Physical Infrastructure, devices and systems that control and monitor Data Centers worldwide are increasingly at risk from threats.

These same threats can impact availability of services, as well as safety on-site & can lead to a data breach.

Our goal is to drive a marked increase of the security posture of these systems by establishing frameworks and standards that can be utilized during the entire lifecycle of these assets.

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Security State of Play

As both IT and OT networks converge, the threat landscape is also escalating...

...Why is this happening? and what does this convergence mean for the Data Center industry?

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Existing Approach

DATA CENTER FACILITIES

Network Communications

Device Authentication

Monitoring & Analytics

Device Management

Physical Security

Drive adoption of modern communication frameworks such as IPv6 and define new standards to increase device visibility

Develop & define authentication standards that can be used to implement things such as 802.1x & 2FA for device and network authentication

Define frameworks & standards that can be used to standardize log formats and device visibility even when behind a PLC Ring

Define Standards and frameworks that can be utilized to create APIs for device control & monitoring

Often Physical Access can lead to data loss. As we work to better logically secure this equipment how do physically secure it as well.

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Why focus on "Physical Security"?

Critical Security
- Information (Data)
- Network
- Devices

Non-Critical Security
- Infrastructure
- Perimeter
- Others

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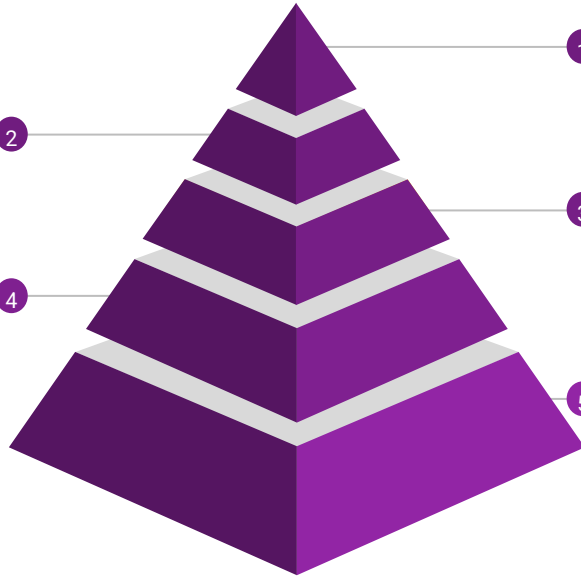NOVEMBER 9-10, 2021

Asset Awareness

Deterrence   Detection   Delay   Response

DATA CENTER FACILITIES

Site
Site selection, availability of resources, connection to the grid, access to the facilities

Perimeter
Perimeter protection is the first layer of physical security, also known as Security Envelope.

Building
Data center facility elements within the physical security envelope must be considered

Data Center
From a physical security perspective, the weakest link of a data center is the number of building access points and external equipment openings..

Racks and OEM
Last and highest levels of security expected on this level

Knoke, M. E., C., & Managing Editor. (2012). Protection of Assets: Physical Security (First Edition). ASIS International.
ASIS International. 2021. *Physical Asset Protection* (Standard ASIS PAP-2021).

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Lifecycle Management

- Security at Planning Stage
- DEC encompassing all aspects of physical security
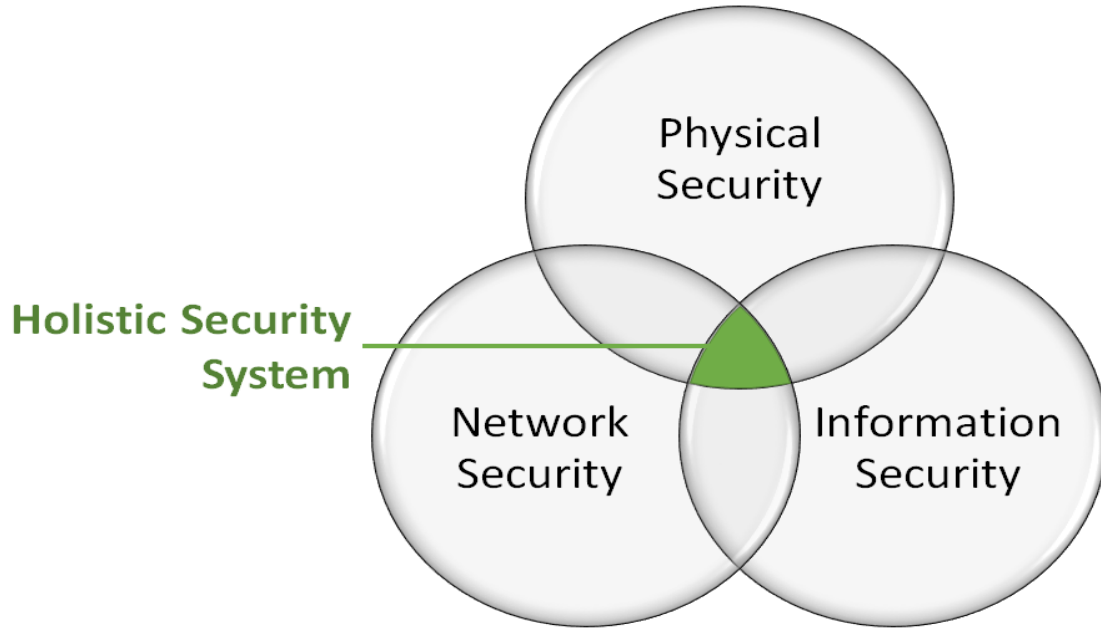- Feedback into recycle, so Planning is optimized

Plan

Design

Build

Operate

Assess

Refresh/Retrofit
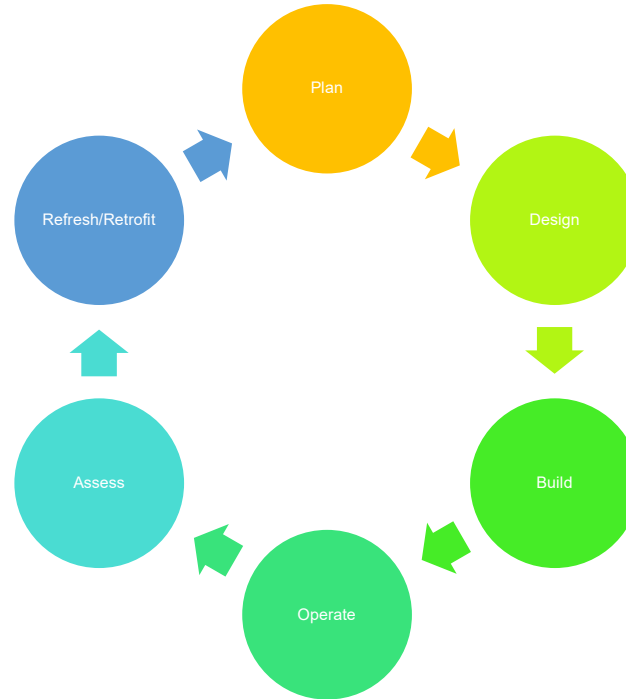
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Holistic Security System

Kang, H. (2015). An Efficient and Secure Physical Security Method of Data Center. Journal of Security Engineering, 12, 609-620.

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Applicability

- Physical Security is a broad and diverse topic
- OCP Physical Security workstream aims to provide guidance for the industry and increase awareness
- Performance Objectives still under evaluation
- In scope vs Out of Scope under discussion
- Physical Security will drive our efforts towards a more reliable DC Infrastructure
- The industry will benefit from this initiative in the long run

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Why don't you join us?

- Reach out to Joey Arato at joey.arato@ocproject.net

- Get involved in the Project/Sub-Project Community

- We are actively searching for more "Contributors"

- Where to start?

Make sure you access the following links:

Operation Technology Security Group: https://www.opencompute.org/projects/operation-technology-security-incubation

Project Wiki: https://www.opencompute.org/wiki/Data_Center_Facility/Operation_Technology_and_Security

Mailing list: https://ocp-all.groups.io/g/OCP-DCF

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