Security by Design: Project 1: Infrastructure design process

Project description:

A museum is located in a modern building consisting of 20 rooms, organized on 4 floors; it wants to equip itself with a solution that allows:

To the museum staff operating in the facility to:

- Monitor the state of the building, this includes:
  - room temperature
  - brightness of the premises
  - air humidity
  - air quality
  - Smoke detection (fire risk).
- Continously monitor the number of visitors currently in each room.
- Receive messages (test and/or voice), from the museum's operational management.
- Monitor the status of access to spaces (doors, windows, elevators, …).

To visitors to receive information about:

- the artworks on display.
- the artists who produced them.
- The estimated time in the museum (from when you entered to now and how much time is estimated to be needed to finish the visit).
- To the number of visitors currently in each room.

The museum management is interested in keeping a history of visitors so that they can know:

- Nationality, gender and age.
- Visitors with an invitation or named voucher (usable only once).
- Information/statistics on the flow of access to spaces (days of the week, times).
- Viewing the premises through CCTV camera.
- Interface the systems described with the accounting management system used in the museum.

The whole system is to run with new servers in a new datacenter being set up. The project therefore starts with full flexibility on the choice of tools and infrastructure to be used.

Propose an appropriate solution that ensures confidentiality, service continuity and reliability.

TASKS:

1. Please study real cases of attacks on museum facilities or disruptions of the same to gather the necessary knowledge regarding the peculiarities of the services and the specific sector..

2. Study the project and define an architecture that meets the client's expectations.

3. Establish a plan of the infrastructure to be purchased and installed. The same should include the technical infrastructure, computers, sensors of various types needed by the project, software programs, and other infrastructure needed to achieve the client's objectives.

4. Propose a list of infrastructure and a cost estimate.

5. Study the security level of the chosen infrastructure, justify the choice, and list ALL the precautions that will be used to secure the systems and data and to ensure the continuity of the proposed facility..

6. List the protocols used by each element of the proposed infrastructure.

7. List the proposed software and analyze their licensing, the level of security compliance stated by the manufacturer, other factors that could affect the security of the museum and its services.

8. List the software development solutions used to implement the proposed systems.

9. Conduct an impact analysis that explains the consequences of failure of one or more components of the designed system.