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Cybersecurity Challenges In Nuclear I&C

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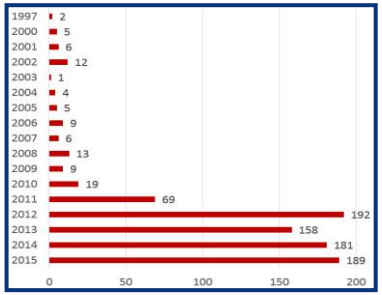
CONTENT

1. Cybersecurity of critical industries

Industry challenges



Evolution of disclosed vulnerabilities in Industrial Control Systems (source: Kaspersky labs)

Operators of critical/ sensitive infrastructures are facing new threats:

- Increase in incidents
- Increase in government regulations
- Increase in connectivity needs (IoT, 5G…)

>> Risk awareness and counter-measures are lagging behind reality

Top challenges for these critical industries:

- Need to establish a cybersecurity strategy and efficient organization
- Need to develop means to ensure the security and monitoring of their installations
- Need to maintain their installation's security continuously

>> Need to find the right balance : investment vs outcome

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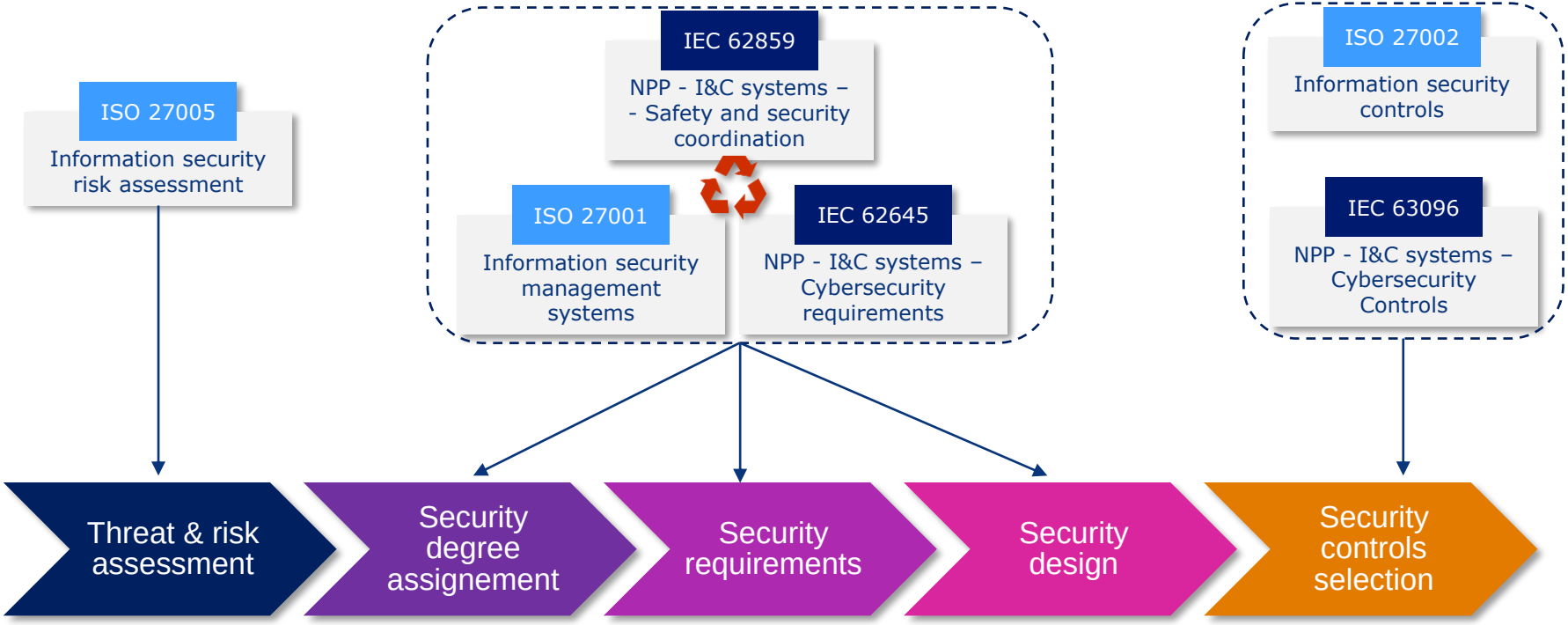
2. Cybersecurity approach in nuclear facilities

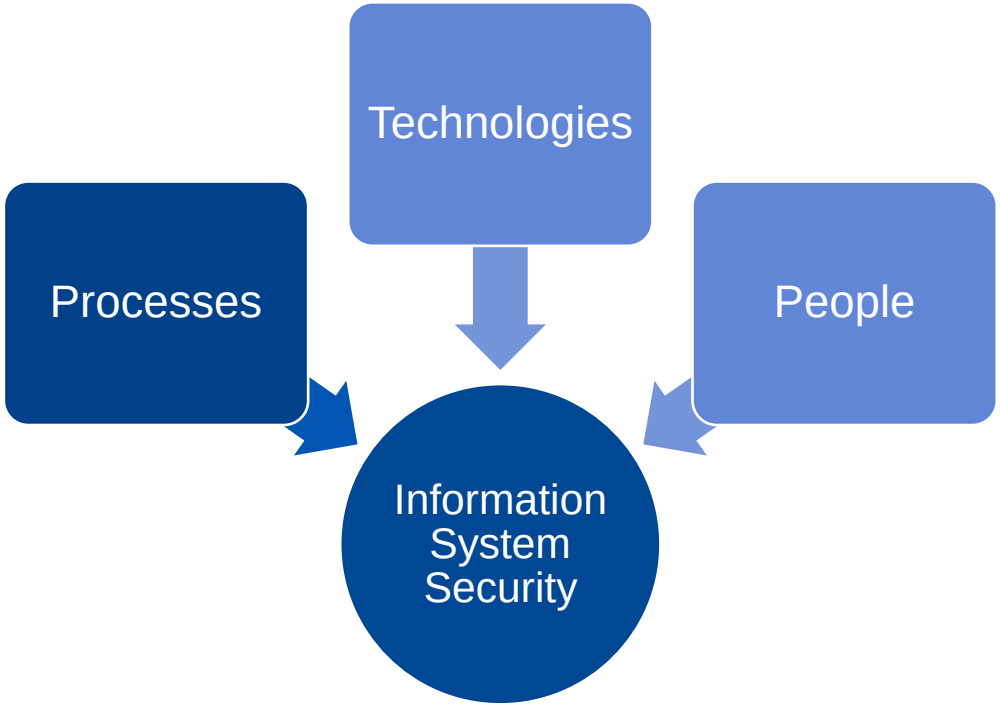
1. Framatome cybersecurity approach

An approach based on REX and industrial best practices



2. Organizational best practices

Pillars to consider for introducing information security



3. Technological security for I&C systems

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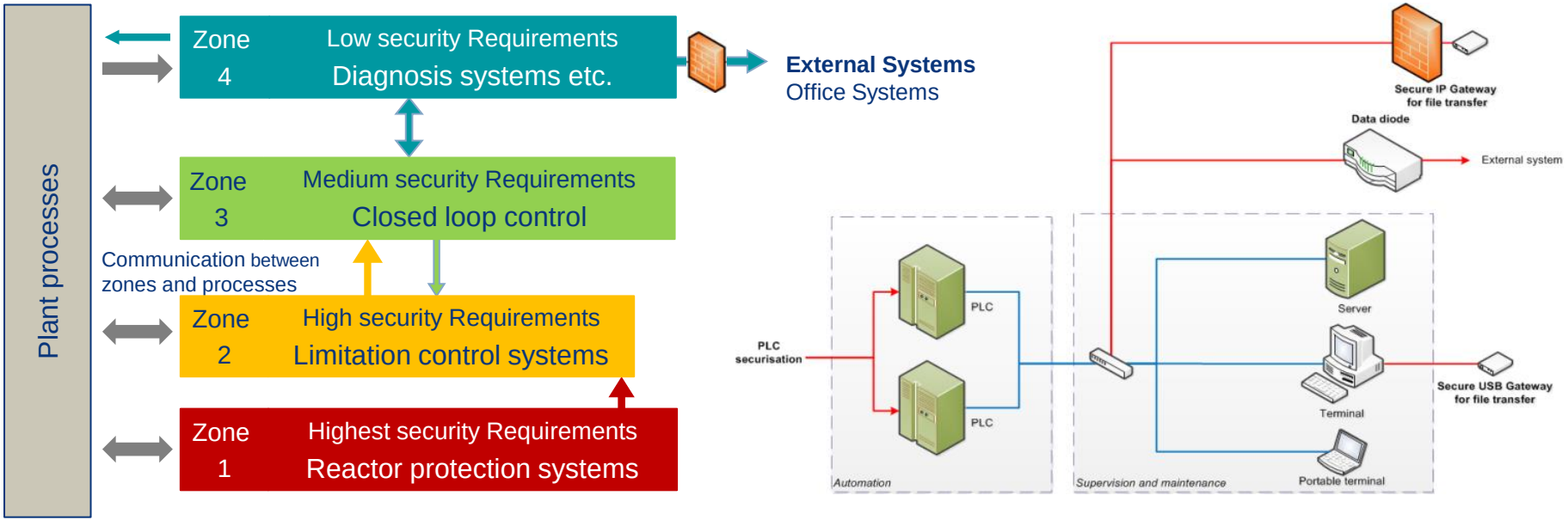
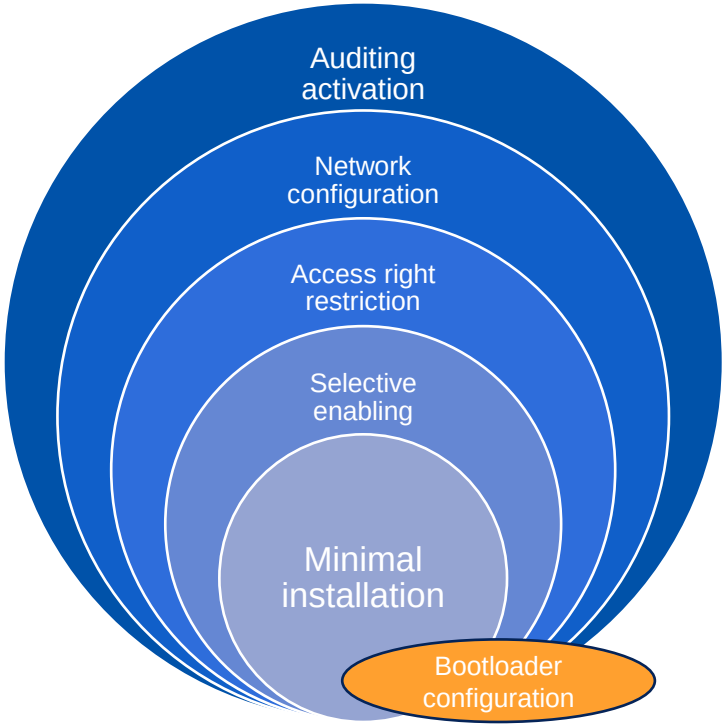
Segment and segregate systems in overall architectures



3. Technological security for I&C systems

System hardening



- A multi-layered approach for hardening to support **defense-in-depth**
- Specification, implementation and validation tests of hardening measures **from application to operating system and network**
- Hardening measures adapted to **functional needs and operational constraints**

Conclusion

- Cyberwarfare is real and NPPs can be targets for attackers.

- The most important criteria on NPPs are **integrity** and **availability**, before **confidentiality** and **traceability**.

- The purpose of Information Systems Security is not to be obstructive but to:
  - Fulfill the security needs of assets.
  - Guarantee a sufficient protection level to information and personnel.
  - Contribute to the quality of service to users.

- **Safety** is always privileged over **security** in the nuclear context -> maintaining a system in security conditions contributes to safety.

- **NIS 2 directive under preparation** – increased cybersecurity requirements placed on significantly more industrial facilities in EU will become mandatory - > preparation is necessary.

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Thank You!