

Introducción a la Seguridad de Sistemas Ciberfísicos

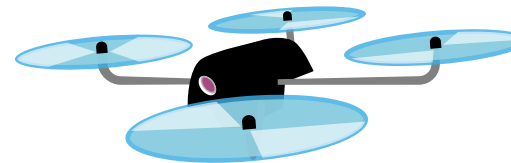
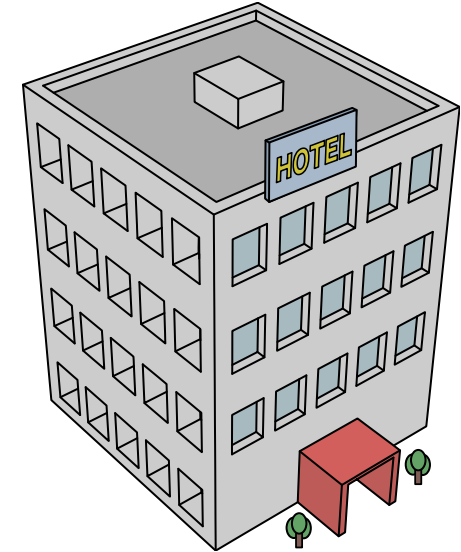
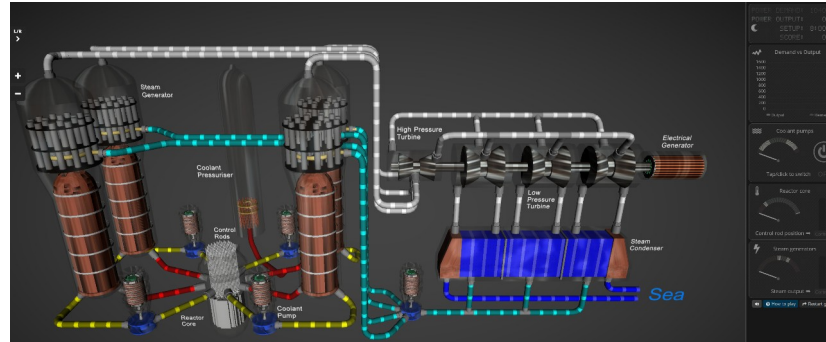
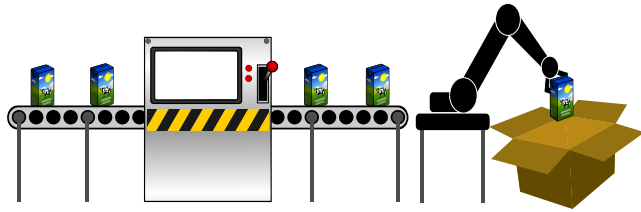
Dr. Herson Esquivel Vargas

Programa de Maestría en Ciberseguridad

TEC | Tecnológico
de Costa Rica

¿Qué son los Sistemas Ciber-Físicos (SCFs)?

- Término acuñado en 2006 por la NSF (EEUU)¹.



¹ <https://web.archive.org/web/20060912154017/varma.ece.cmu.edu/cps/>

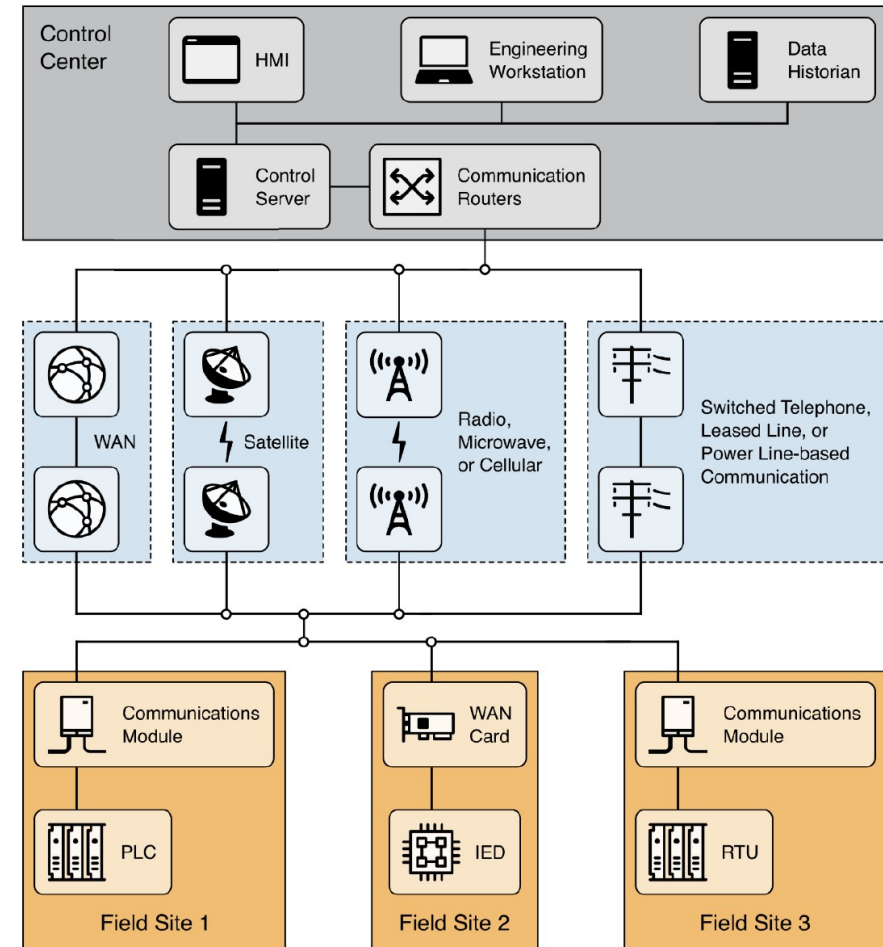
¿Qué son los Sistemas Ciber-Físicos (SCFs)?

“The term [**SCF**] refers to a new generation of systems with integrated computational and physical capabilities that can interact with humans through many new modalities.”¹

¹ Baheti, R., & Gill, H. (2011). Cyber-physical systems. The impact of control technology, 12(1), 161-166.

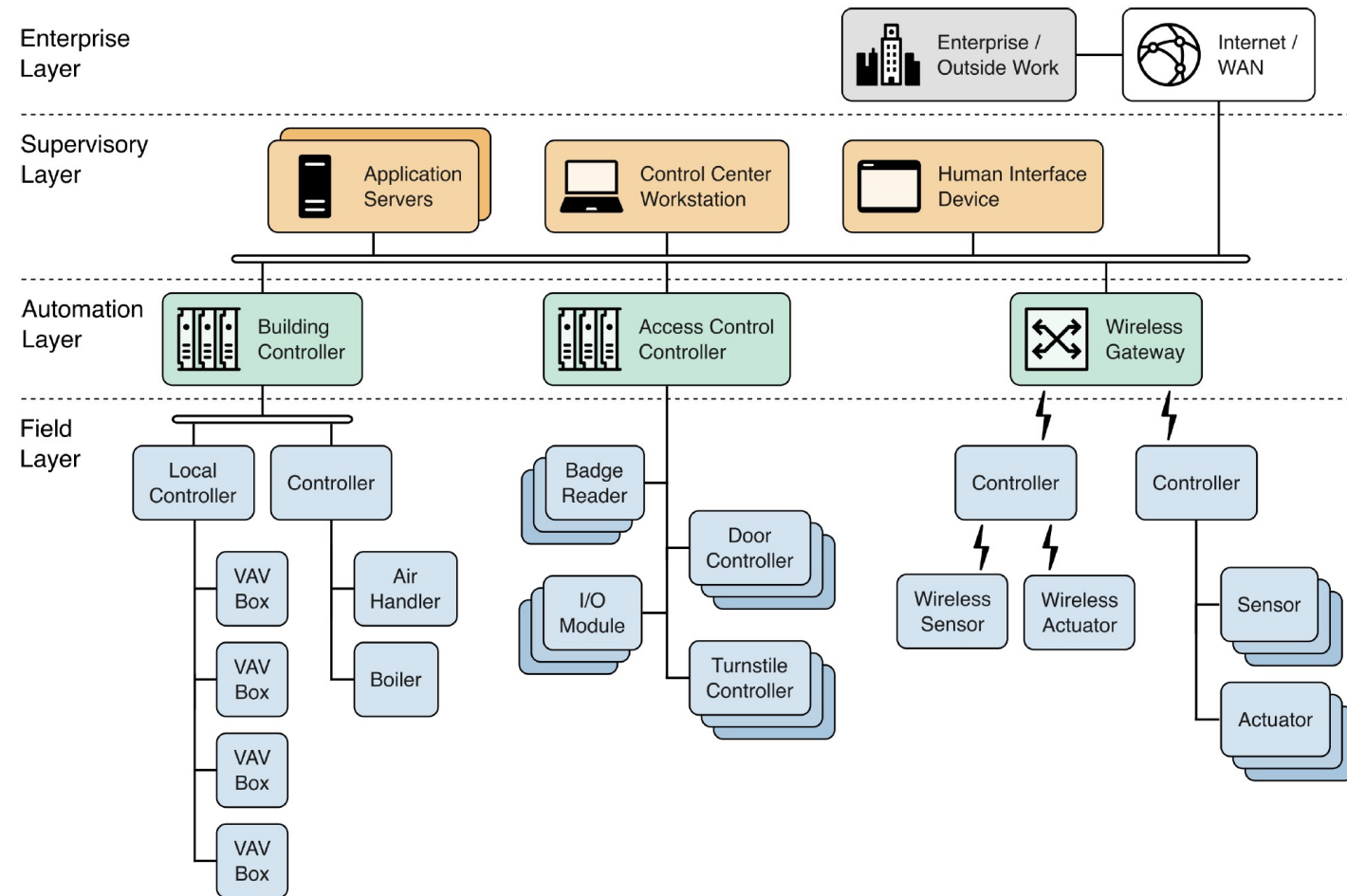
Tipos de SCFs

- Supervisory Control and Data Acquisition (SCADA)



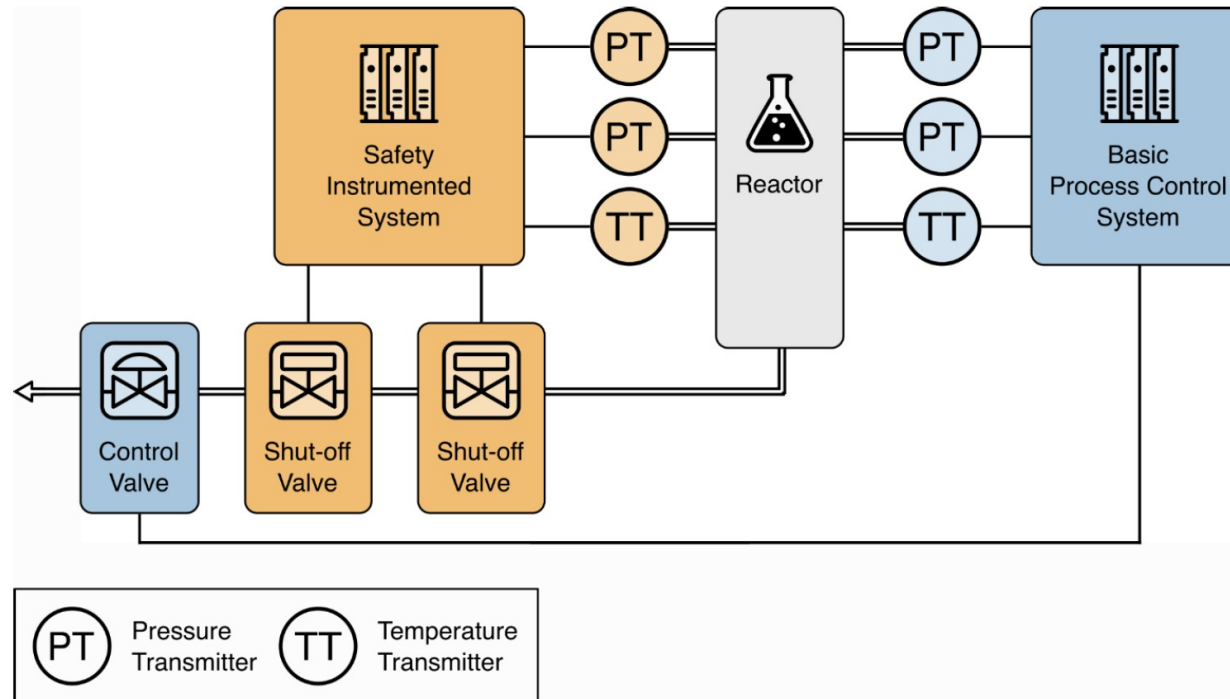
Tipos de SCFs

- Building Automation and Control Systems (BACS)

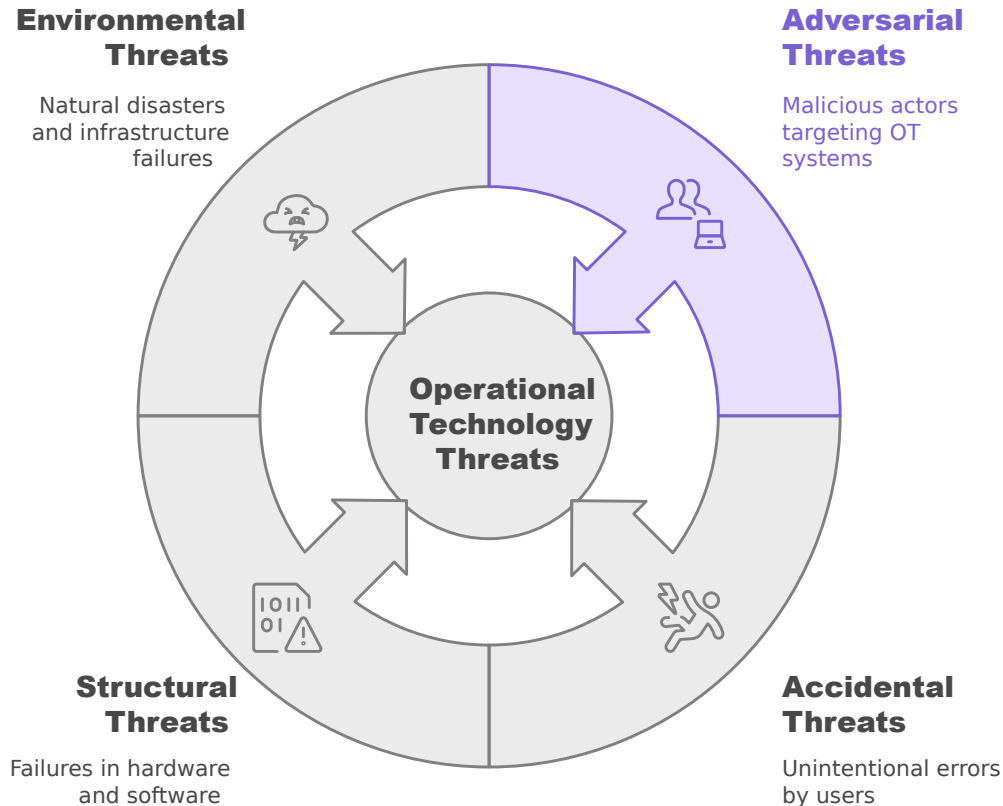


Tipos de SCFs

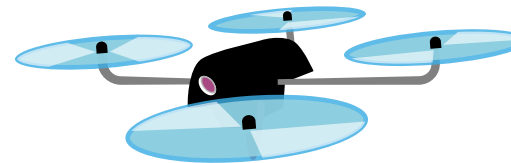
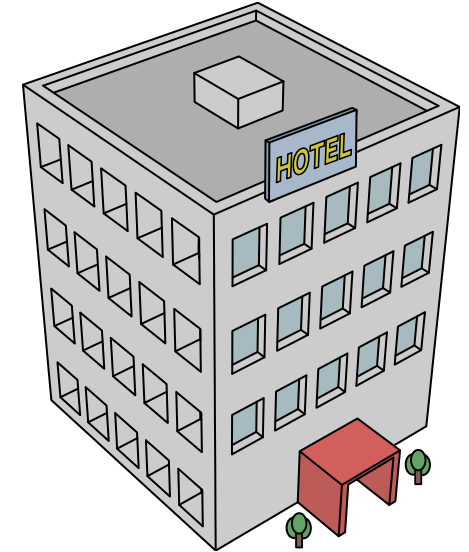
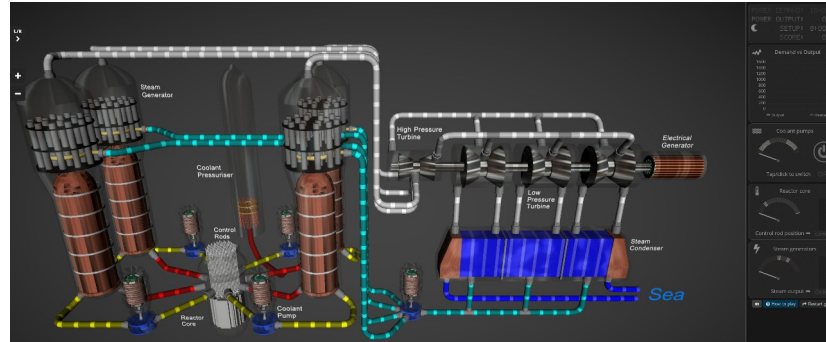
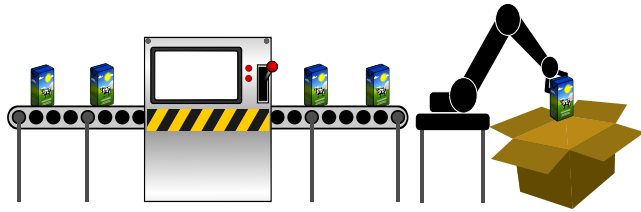
- Safety Instrumented Systems (SIS)



Amenazas en SCFs

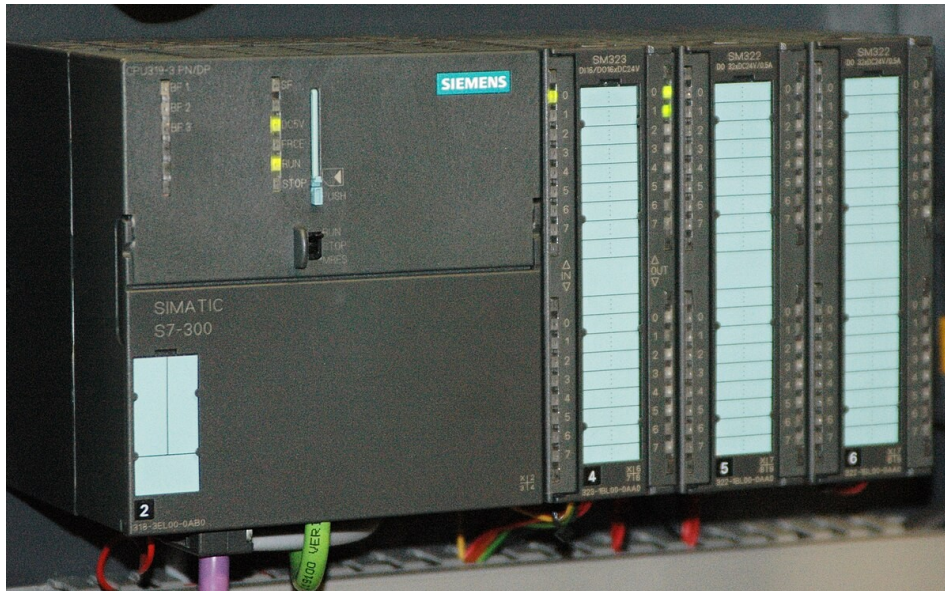


Impacto de ataques contra SCFs

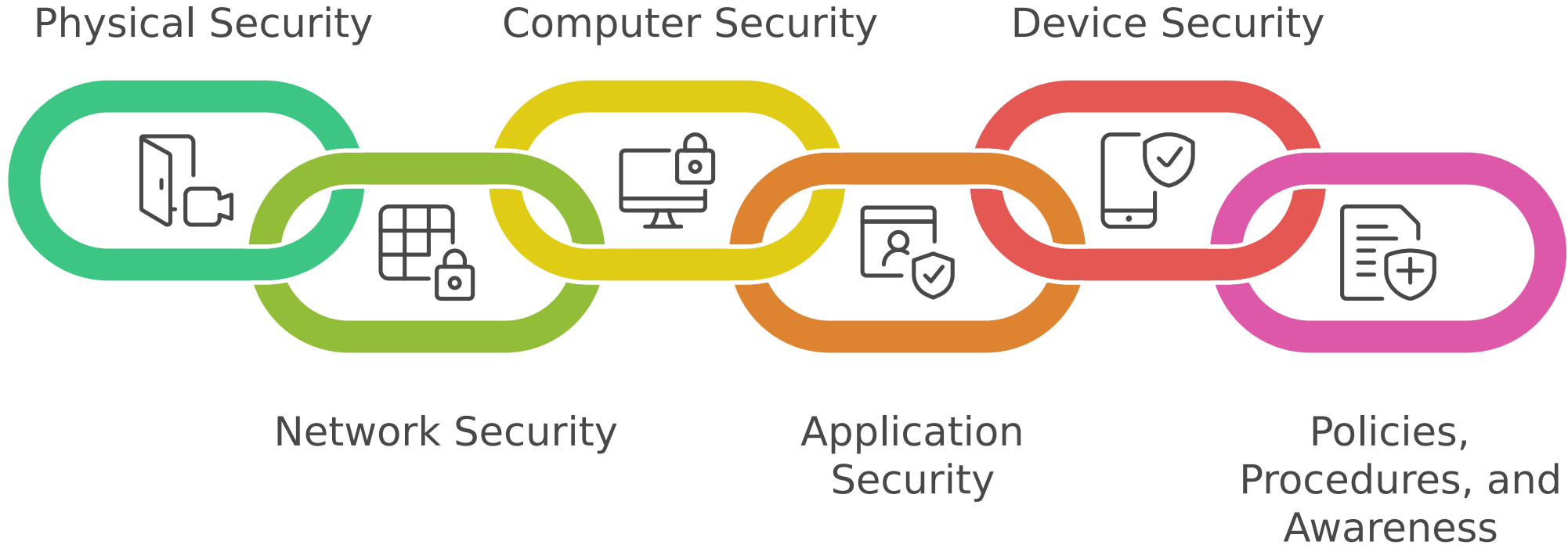


Impacto de ataques contra SCFs

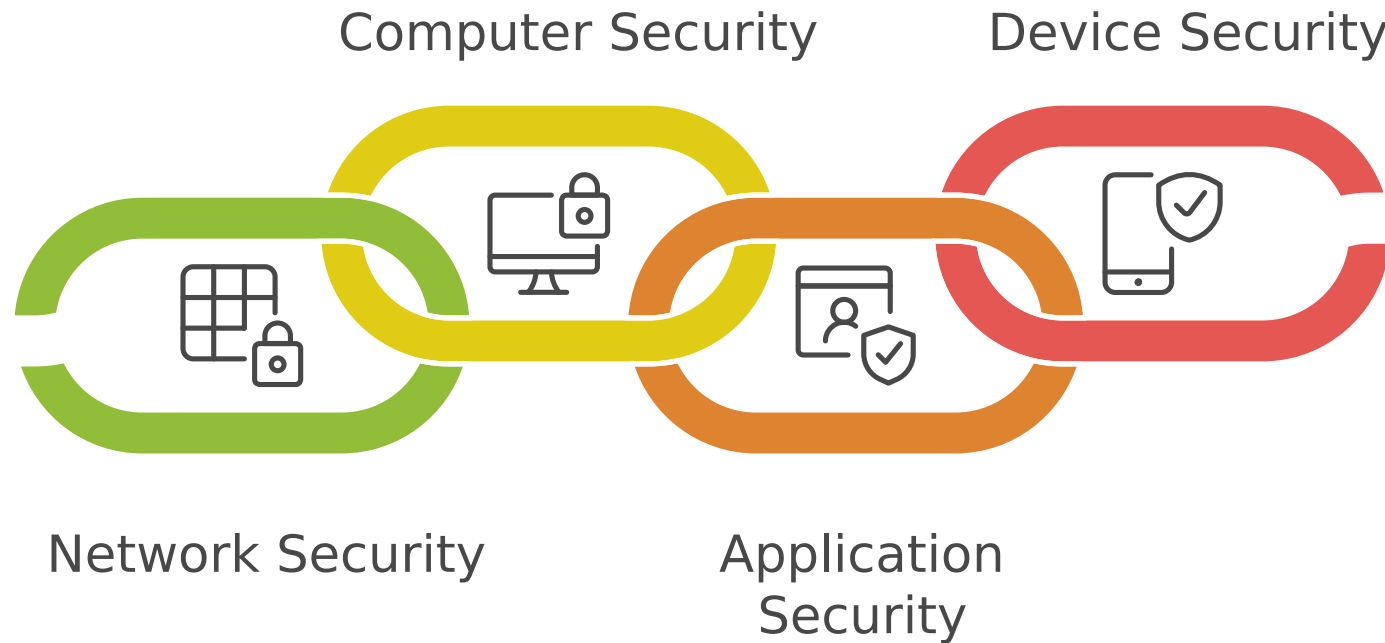
- Stuxnet



¿Cómo defender SCFs amenazas adversarias?



Problemas abiertos



Conclusión

- Los SCFs cumplen funciones vitales para la sociedad
- Los ataques contra SCFs no solo son factibles, han ocurrido y son de gran impacto
- Es urgente educar sobre ciberseguridad en general y en SCFs en particular

Preguntas / Comentarios

Dr. Herson Esquivel Vargas

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