

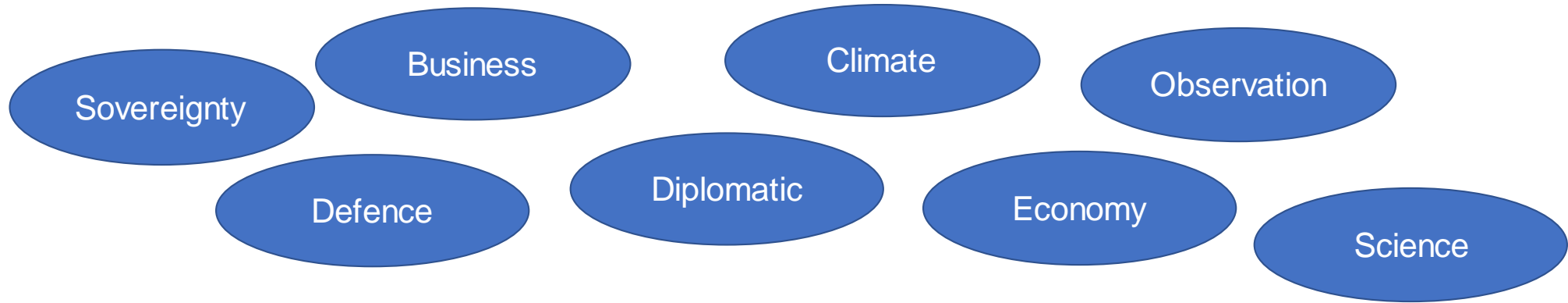


COMET Cybersecurity for Space systems operations

Day Introduction

Pierre Lods – Director of Security - CNES

Space as a critical sector

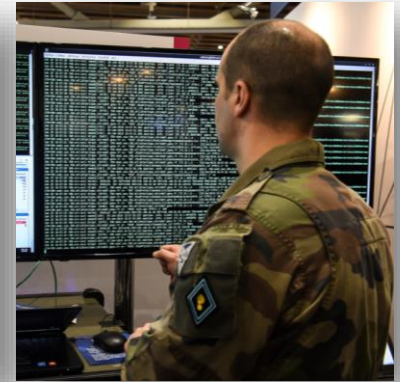
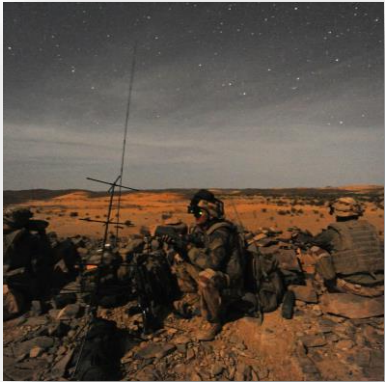


All our societies are dependent on space :

- ❖ A citizen uses in average 50 satellites per day (weather, GNSS, telecommunications)
- ❖ In 2018, in Europe, space industries generated 8,48B€ in sales and employed 45 000 FTE. Worldwide it was 261 B€, expected to be 2700 B€ in 2047.
- ❖ Considering this growth, space is evolving with new actors and systems to secure and operate.

Cyber context of space operations : “New” war zones

Space and cyber are far from being peaceful environments.



Many organizations have defensive and offensive capacities in both space and cyber environments.

How do space operators stand ?

Space, the new frontier

Space systems evolution is introducing new vulnerabilities...

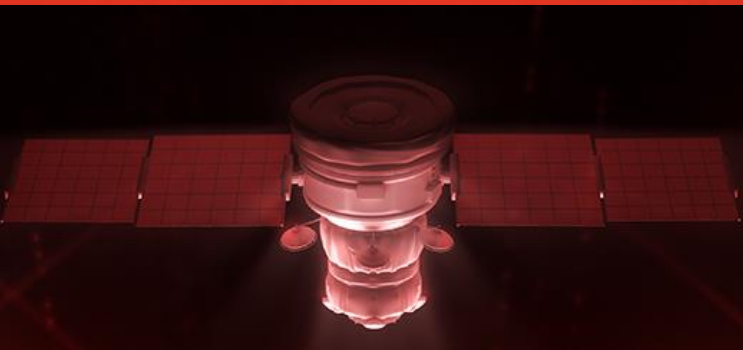
- ❖ Supply chain complexity : many new actors, Commercial Off-The-Shelf.
- ❖ Convergence with operational technologies, automation, openness to the Internet, use of “cloud” services.

As security practitioner, we now face:

- ❖ Asymmetrical context:
 - threats with unlimited skills and means,
 - an increasing attack surface,
 - hard to protect systems.
- ❖ Unprecedented speed of attacks execution
- ❖ Unregulated space



PUTTER PANDA



Space « Cyber » threats

Putter Panda (2014)

- ❖ Attributed to PLA Unit 61486 by CrowdStrike.
- ❖ Targets:
 - Space, satellite, and remote sensing technology (particularly within Europe);
 - Aerospace, especially European aerospace companies [...].

Turla group (2015)

- ❖ Used com-sat downlink hijack to hide command and control traffic from infected hosts to the attacker.
- ❖ Traffic was hidden in Middle East / Africa downstream Internet Service Provider

Luch-Olymp-K (2018)

- ❖ Conjunction with France-Italy military telecommunications GEO satellite Athena-Fidus.
- ❖ Qualified as « an act of hostile intelligence »

What's next ?

Let's talk about it today but :

- ❖ Embrace the convergence between Information Technologies and Operational Technologies (and discuss it at next COMET-CYB).
- ❖ Work together.
- ❖ Use standards and regulations opportunities to build strong and efficient security programs, to the service of OPS.
 - Evaluate and identify cyber risks, starting with threats.
 - Buy, build and operate secure technologies
 - Blend security in all missions during all their lifecycle.



Thanks, enjoy the day!