

SECURITY ENFORCEMENT WITHIN MULTIPLE SHARED INFORMATION SPACE ENVIRONMENTS

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ROADMAP

How to enforce information security while living the “must share with need to know” mantra.

- **Recap: Environment and (military) challenge**
- **“Shared Information Space“ (SIS) in a nutshell**
- **Multi Level info domains for decision relevant information**
- **Our approach on information separation in an SIS environment**
- **Summary**



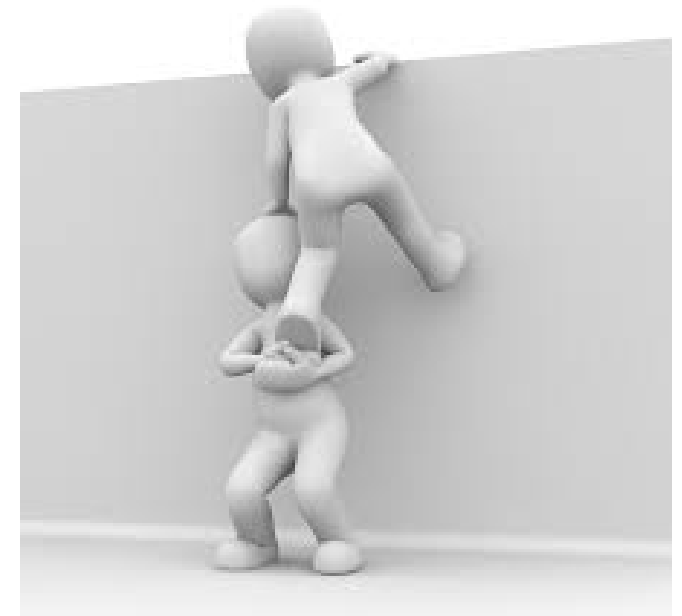
THE CHALLENGE FROM A MILITARY PERSPECTIVE

Environment

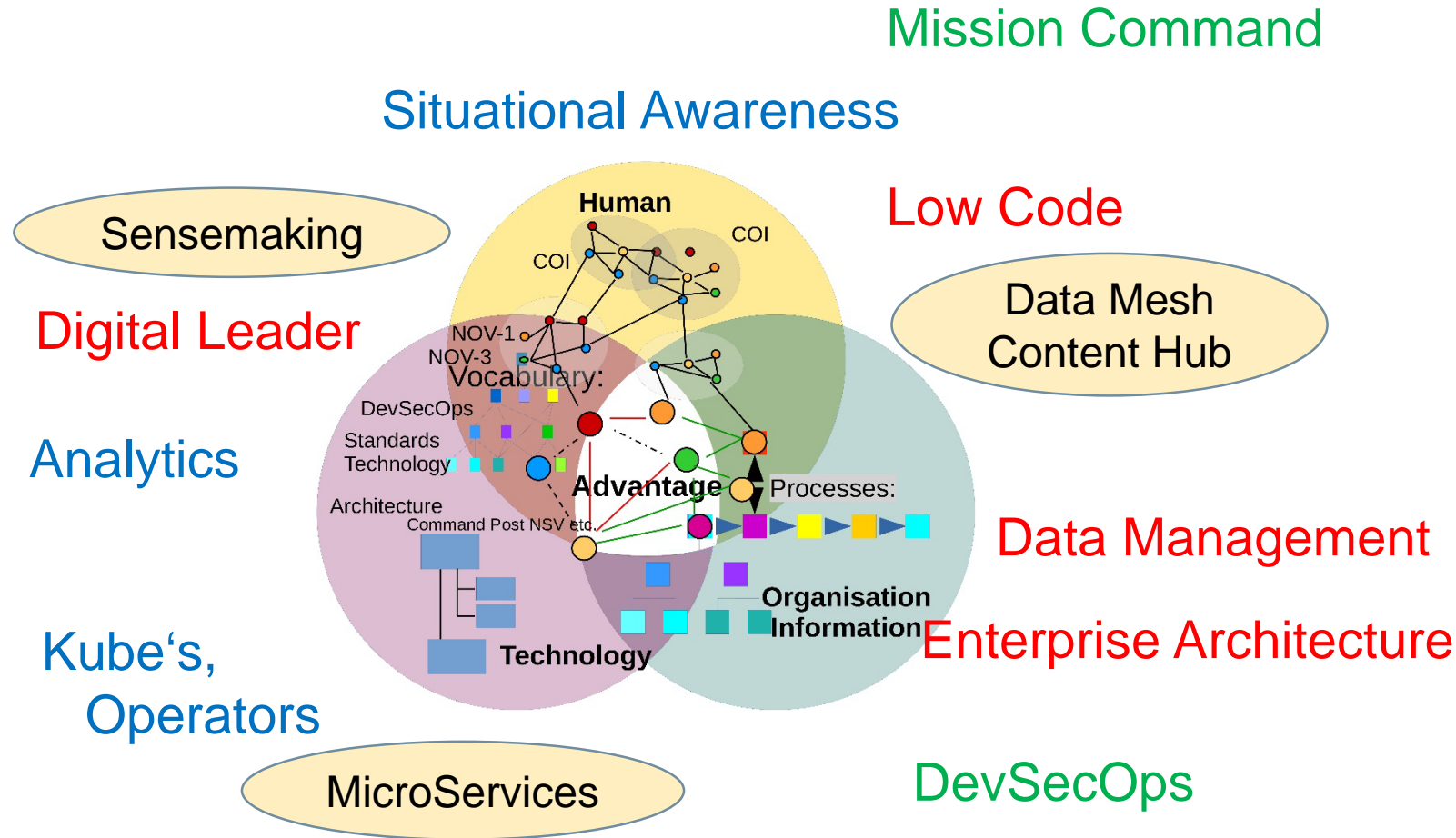
- **“Fog of War” (Clausewitz)**
- **Contested environment (physics, adversary)**
- **The urgent need for “Operational Speed” (Fighting by Minutes) [1]**
- **In consequence: Decisions in uncertainty**

Computer Supported Collaborative Work

- **Overcome the distributed colocation by “Shared Situational Awareness”**
- **“NATO Network Enabled Capabilities”, net centric & multi domain**
- **Collaboration, coordination of different arms / branches / hybrid [2], coalition**
- **“Command intent” as common DNA amongst own bodies, allies and partners**



OUR APPROACH FOR SHARING INFORMATION: THE "SHARED INFORMATION SPACE"



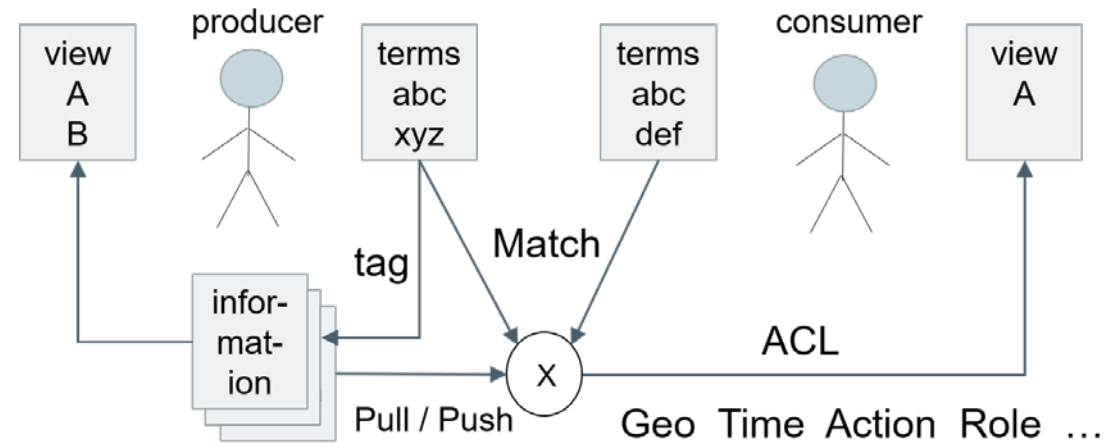
- SIS [6]**
- **Core techniques:**
 - **Distributed, but unique data source**
 - **Multi level security**
 - **Microservices [3]**
 - **Not only technique:**
 - **Information management**
 - **Decision making**
 - **Goal:**
 - **Sensemaking**
 - **Data mesh**
 - **Low code**

**Information pushes command towards combat superiority:
Hence, we need the SIS for seamless information sharing.**

MULTI LEVEL PROJECTION: THE "MUST SHARE WITH NEED TO KNOW" MANTRA

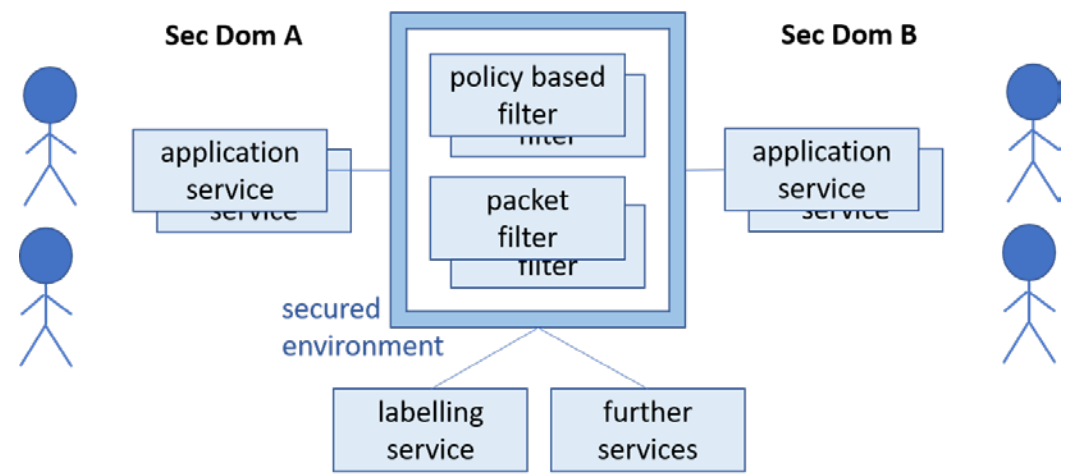
Shared Information Space with Multi Level Security [5]

- **Semantic tagging**
- **Tags match information needs**
- **Additionally controlled requests (ACL) [4]**
- **Views show selected partial information**



Reality with multiple Security Domains

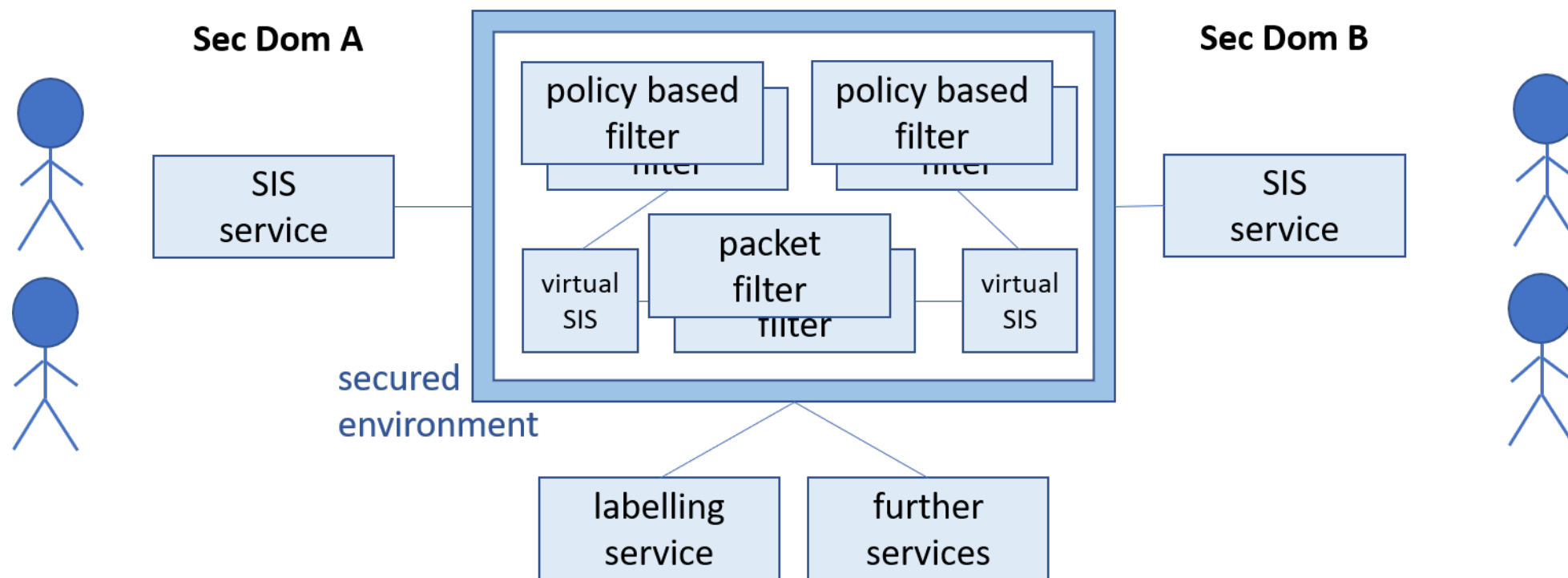
- **Security domains have to be physically separated**
- **Tags need a "hard" binding**
- **Data is "handled" as document**
- **Security gateways bridge the separated domains**



VIRTUAL SIS WITH RESPECT FOR REGULATIONS WHILE OFFERING CONTROLLED INFORMATION

Our approach

- **JSON-documents are documents**
- **The (partial) graph is accessed via REST**
- **The architecture (separation) is respected**



SUMMARY

The “must share with need to know“ mantra.

- **Shared situational awareness outweighs uncertainty**
- **Operational security prohibits sharing with everybody**
- **SIS is toolbox towards data extraction, transformation, aggregation, sharing and more**
- **Users must share, regulations hinder them**
- **Virtual SIS respects the regulations while offering “limited and controlled” shares**

THANKS



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