

The background features a collage of sketches and photographs. At the top, there are sketches of industrial structures, including a large dome-like structure and a vertical cylindrical component. Below these, a photograph shows a brown rectangular sign with a yellow triangle and the text '!! PRUDENCE !!'. The bottom section of the image is dominated by a large yellow banner containing the main title. Below the banner, there are more sketches, including a road with a guardrail and a close-up of a yellow object with the 'HITEC' logo.

# SNT PARTNERSHIP-DAY

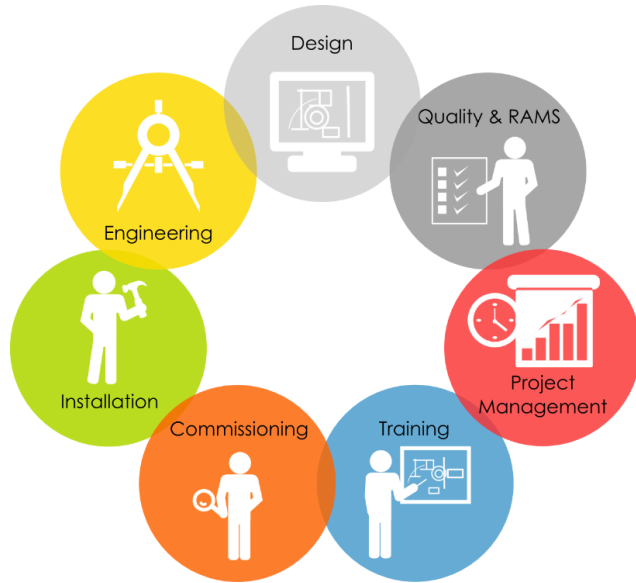
HITEC Luxembourg S.A.

# ABOUT

# US

THE BASICS

# COMPLETE LIFECYCLE FOR 100% CUSTOMER SATISFACTION



over **45**

multidisciplinary employees from many industrial & technology backgrounds

**4**

main fields of activity in which we offer our clients innovative solutions

**100%**

Luxembourg owned company since the inception in 1986

**100** plus

industrial customers in over 30 countries worldwide

**6**

core competencies, combined to deliver integrated and innovative solutions

**2**

more than decades in research & development

## FACTS

# MISSION CRITICAL SYSTEMS

IMPROVING  
SITUATIONAL AWARENESS &  
COMMUNICATION CAPABILITIES





DISP®

Efficient and uniquely interactive solution to obtain and increase situational awareness

NoSaCo® Compact

Easy to deploy and to operate satellite communication terminal offering broadband communication

NoSaCo® Rapid

Rapid response and heavily ruggedized satellite communication system for disaster relief operations

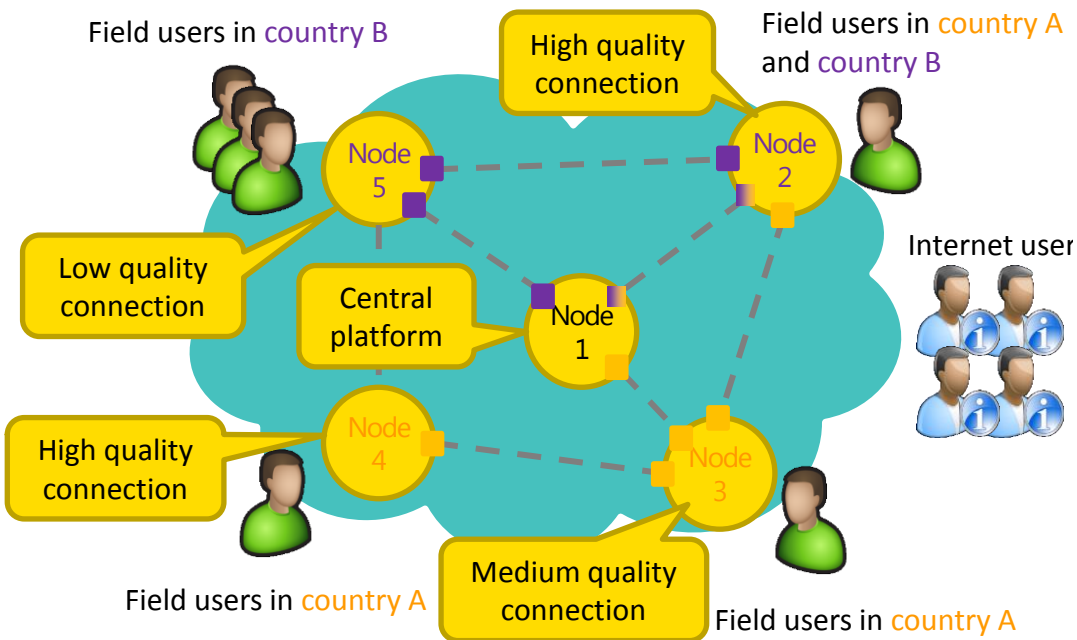
NoSaCo® Regular

Rapid response and heavily ruggedized satellite communication system for disaster relief operations

# DISP®

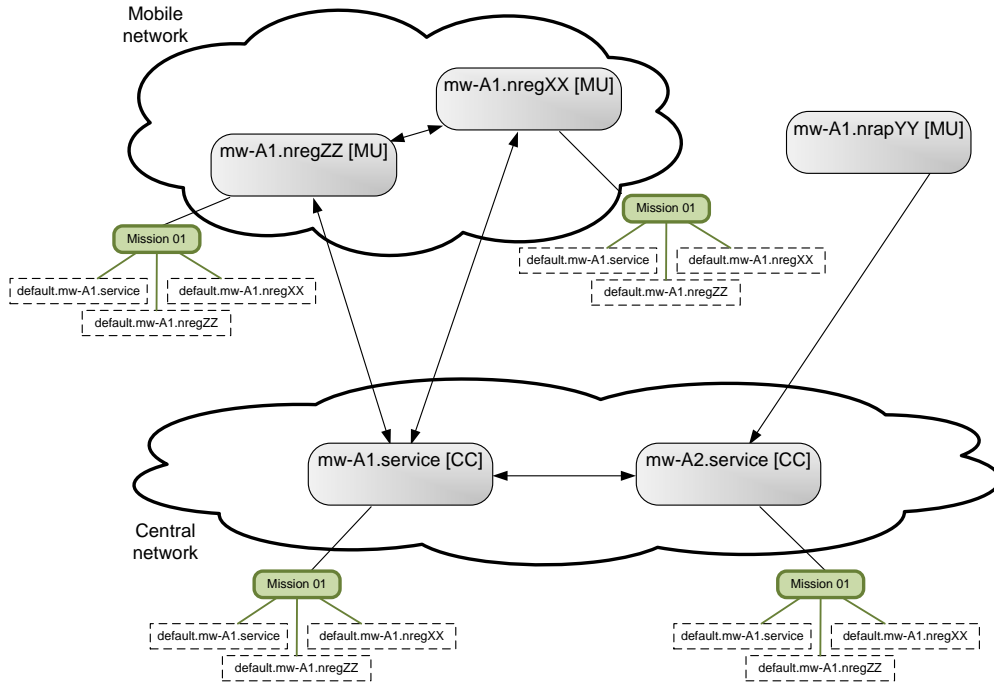
DEFINITION AND  
PROBLEMS

# DISP PRINCIPLES



- The “Cloud Model” relies on the idea of creating:
    - Different places where services are implemented
    - Each “places” has the same role in the infrastructure
    - Connections between the “places” stable
  - The “DISP Model” relies on similar and different paradigms:
    - Different places where services are implemented
    - Each “places” has the same role in the infrastructure
- In crisis situation the chain of responsibility and “commandment” imposes the creation of deported (local) Service Point of Presence with limited capabilities (in term of access to information and functionalities)
- ~~The connections between the “places” permits a reliable and constant synchronization~~
- The links between the connected nodes are realised via critical (then expensive) and not reliable links (often limited in capacity or down)

# AGENT MODEL FOR INFORMATION MANAGEMENT



- The DISP model is then more relying on an agent model, having a certain autonomy of delivering service without the access to central referrals.

(Neuronal approach)

- Synchronisation mechanisms integrate different parameters (type of information, mission, location, connection performance)



# SECURITY CONSIDERATIONS...

- A distributed system is always a problem for a coherent global security
- Agent model requires a certain autonomy (self-managed application)
  - **HITEC Luxembourg is creating a new model to assess the security situation at the agent level**
- The user access can be highly unsecured (imagine the situation accessing refugee information in the middle of Syria)
- The definition of the Access Controls is very complex:
  - Based on the Role Base Access Control (RBAC) model
  - Contains contextual information (on-going mission, location, time)
  - **At the implementation and run-time level, a validation is required**

# WORK WITH



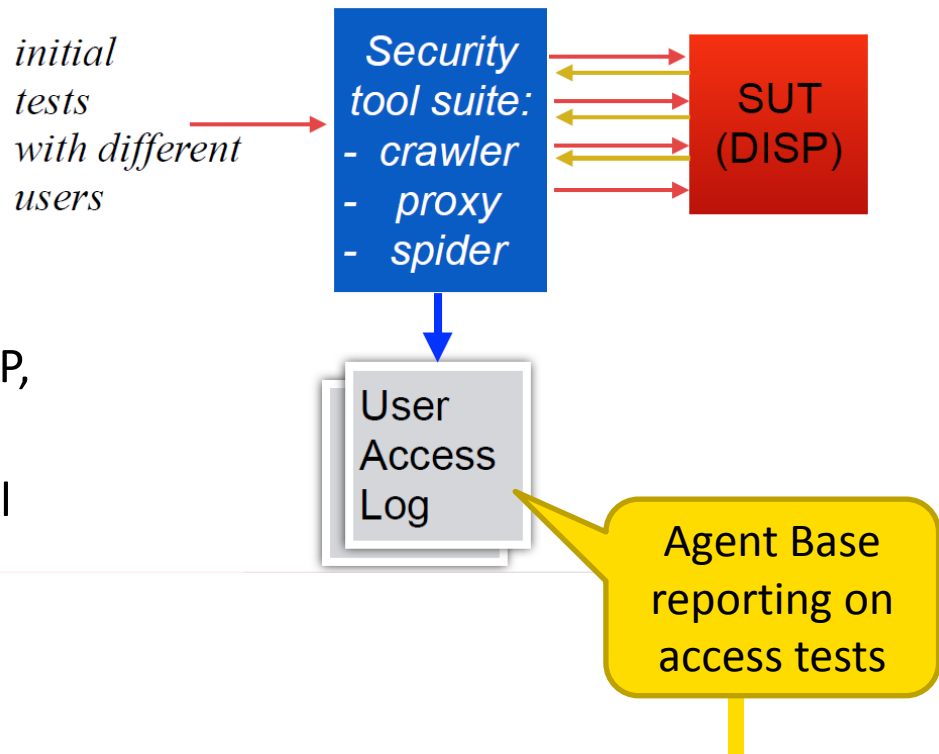
RESEARCH ACTIVITY  
SUPPORT

# A TWO PROJECTS STRATEGY

- The strategy defined was to address the challenges from two sides:
  1. The **evaluation of the real implementation** (PenTests, Automatic Testing with different kind of injections),
  2. The **evaluation of the process to define the rights and permissions** (Modelling of the RBAC (Role Base Access Control) policies, integration in the code, compilation and run-time validation)
    - At the end, the same Roles will permit to provide inputs to both projects.

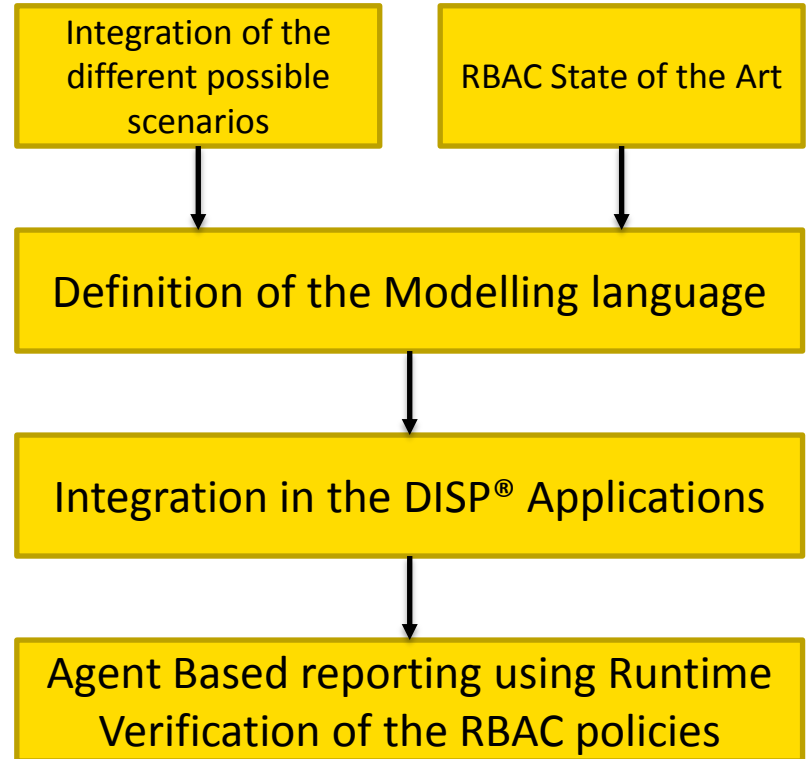
# EVALUATION OF THE REAL IMPLEMENTATION

- Objectives:
  - An automated, effective testing approach to detect AC (Access Control) vulnerabilities
  - At the application level:
    - detecting AC vulnerabilities in DISP,
    - transferring to HITEC manageable industry-used technology and tool



# EVALUATION OF THE RBAC DEFINITION PROCESS

- Objectives:
  - Expressing the RBAC constraints at the logical level.
  - Separating constraints enforcement code from the business logic.
  - Providing automatic enforcement of the constraints and preventing mistakes in their definition.



# CONCLUSION

NEED TO BOOST YOUR  
RESEARCH ACTIVITIES?

# CONCLUSION

- For HITEC Luxembourg, the collaboration with SnT permits to identify the important topics to identify the key elements inside the Role Base approach in the software implementation.
- The Research activities create a different point of view from the commercial or operation activities:
  - Leveraging a new view for the future of the products
  - Integrating a more exhaustive analysis, different from the empiric approach
- Highly specialised technical and analysis support with appreciated pragmatic approach