"EMERGENCY.LU" SOLUTION

U.N. SPIDER WORKSHOP

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Context And Motivation (1/2)

- **January 12, 2010:** Haïti has just been hit by an earthquake of historic magnitude. Hours later President René Préval is wandering :

  "My palace collapsed… I have no connectivity for my cell phone to even call somebody for help…".

- **January 14, 2010:** Urban Search and Rescue (USAR) teams from Luxembourg arrive in Port-au-Prince, together with humanitarian workers from France and Belgium

- **January 15, 2010** (in the morning): USAR teams, with their dogs, are still blocked at the airport

→ During the 72 hours: due to lack of coordination, most of the help transported to the airport was unused whereas

→ However, first 72 hours are the most important to get a good situation awareness and needs assessments

Context And Motivation (2/2)

Earthquake
First experts leaving
Planes lands
First Experts starting situation analysis
USAR teams and heavy help arrive

T0   T0 + 2 hours   T0 + 12 hours   T0 + 72 hours

Need of advanced communication and services to improve coordination

- The deployment of small teams of expert deploying relevant communication equipments can improve the efficiency of the experts sent onsite
- The experts are not telecommunication or ICT engineers: the tools should be easy to use and deployable in a few minutes
- The size and weight of the solution should be limited for quick transportation

→ **The solution Emergency.lu has been set up to fill this gap**

- **Delivering Service on top of connectivity**

  The usual approach is to deliver point to point connectivity (VSAT model) or internet access.
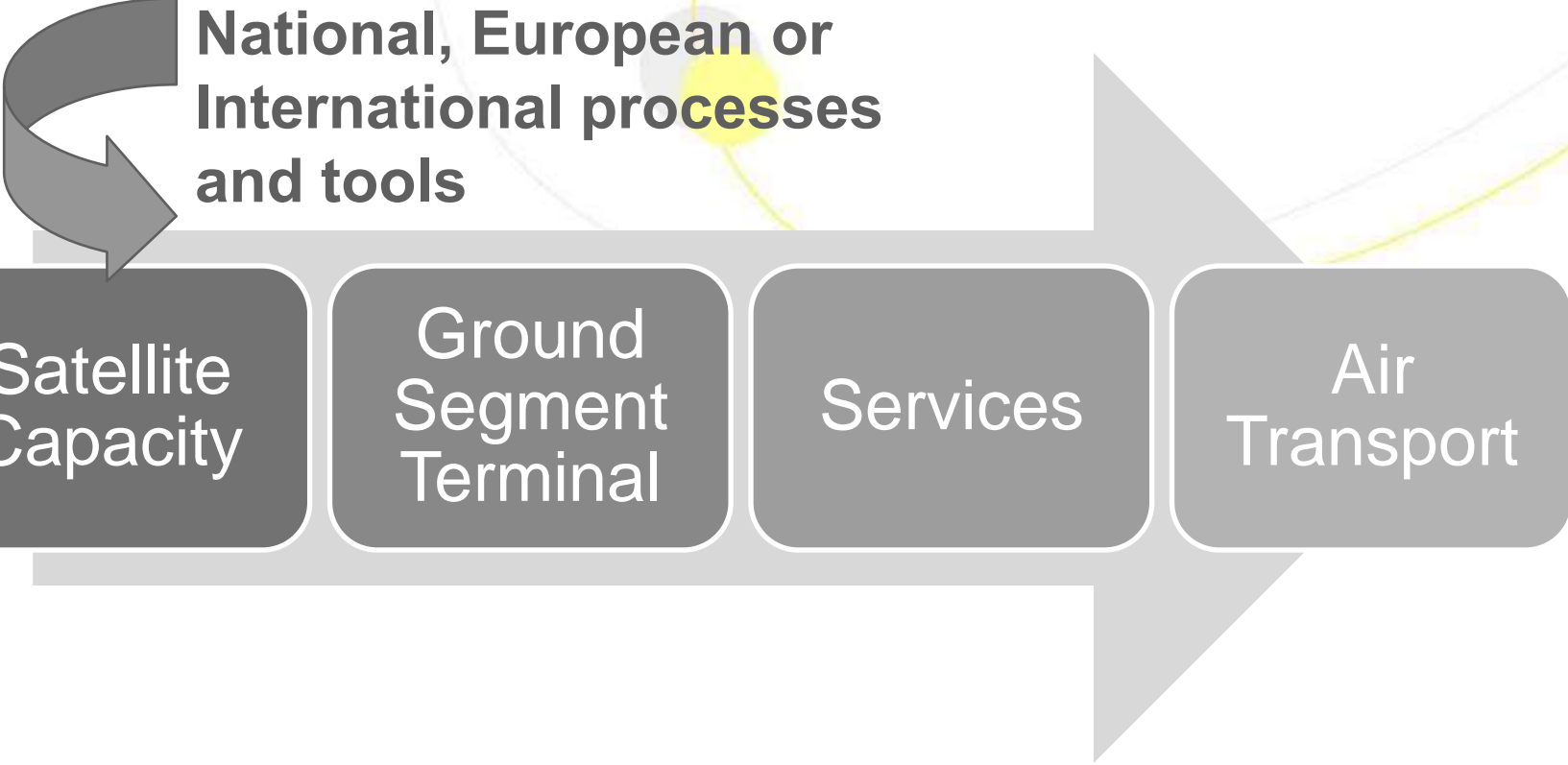
  Emergency.lu provides services to:
  - Capture information on local needs,
  - Facilitate pre-defined information sharing,
  - Improve the coordination at the global level and on site.

- **The basic services required:**
  - Voice communication,
  - Video and picture sharing and access,
  - Sensor deployment, values collection, sharing and triggering,
  - Definition and modification of situation maps,
  - Assessment of the critical needs.

→ The services should be accessible from different locations at the crisis site.

- To face the challenges, **Emergency.lu consortium covers the entire service chain**
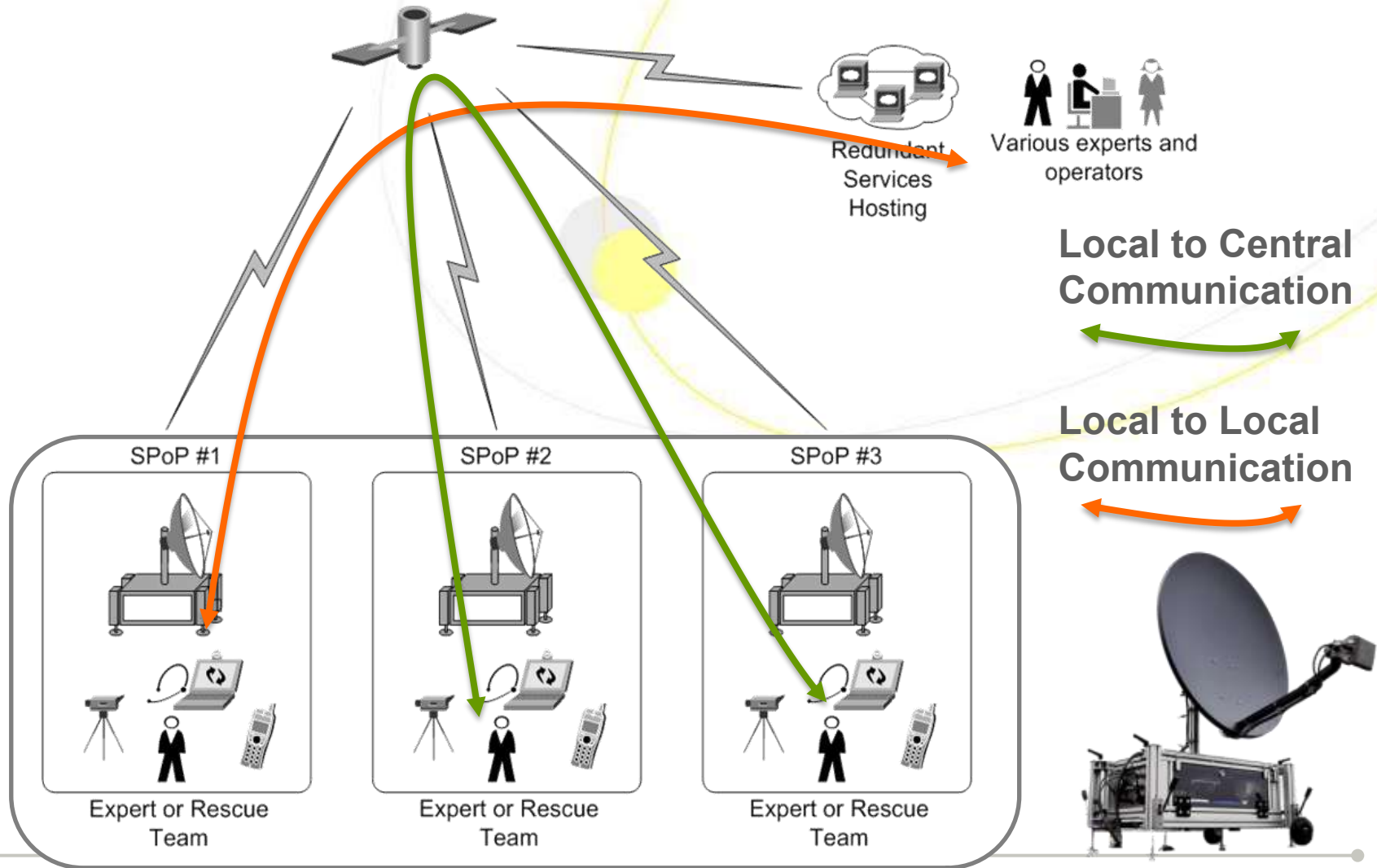
National, European or International processes and tools

| Satellite Capacity | Ground Segment Terminal | Services | Air Transport |

Crisis Location

- **Global organisation around three layers:**
  - Layer 1: Satellite communication technologies,
  - Layer 2: Middleware and service implementation,
  - Layer 3: End devices and services access.

- **Layer 1: Satellite communication technologies**
  - Telecommunication concept relies three geographically distributed hubs
  - HUBs implement advanced techniques such as:
    - DVB-S2 / ACM and LDPC FEC coding on outbound,
    - MF-TDMA and 2D 16-State coding on inbound.
  - Specific considerations for the TCP acceleration and QoS prioritisation have been implemented,
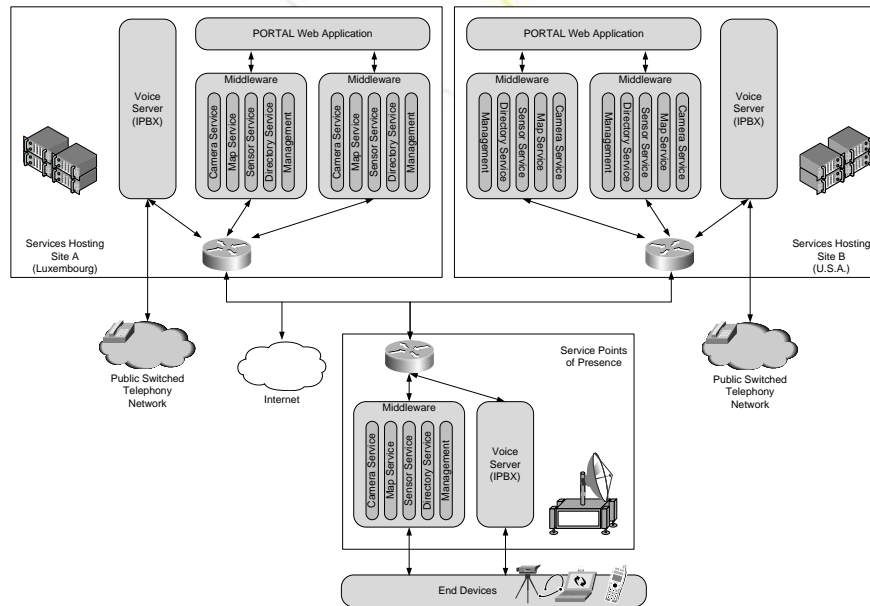 - Both Ku and C band can be used.

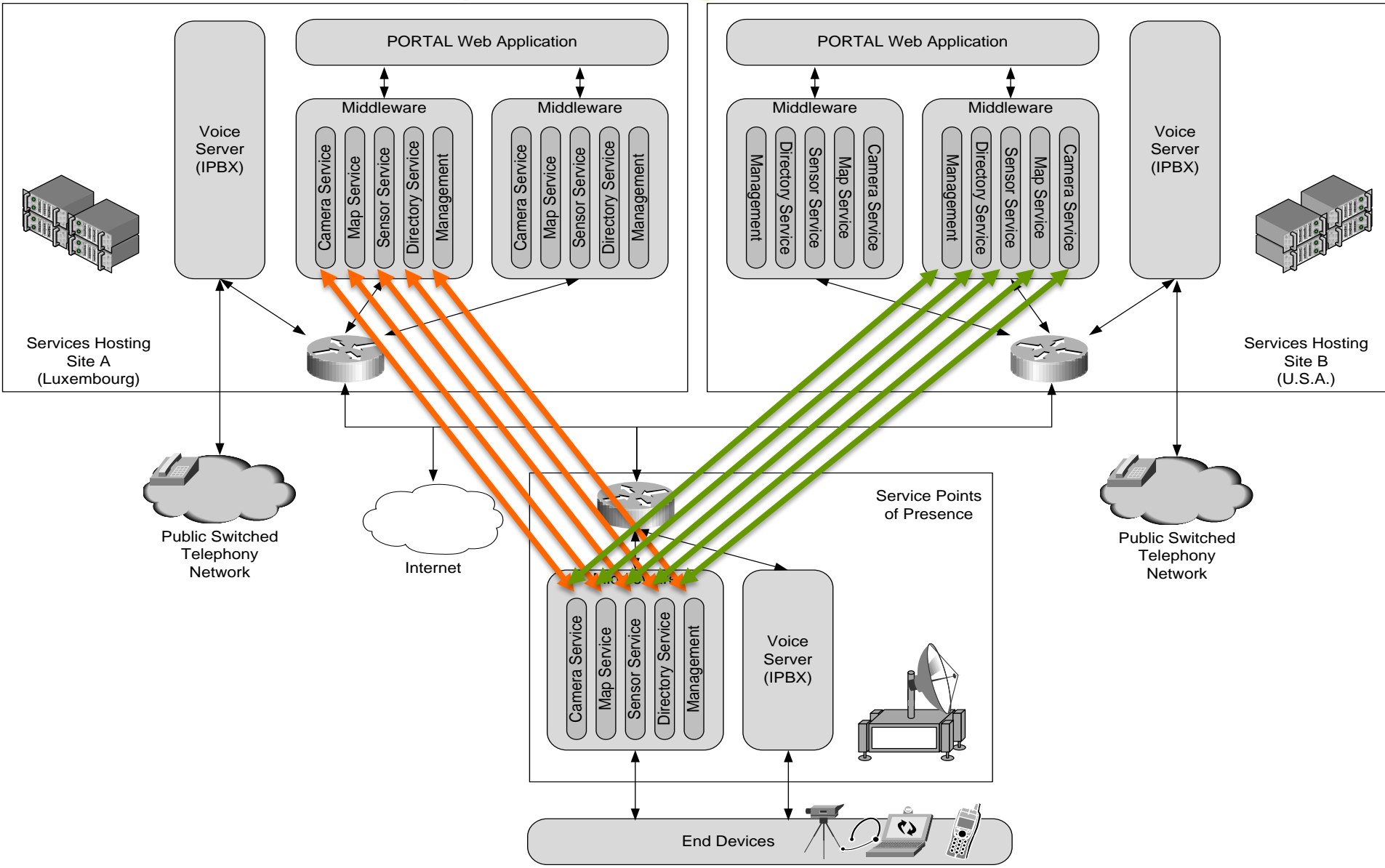- **Layer 1: Satellite communication technologies**
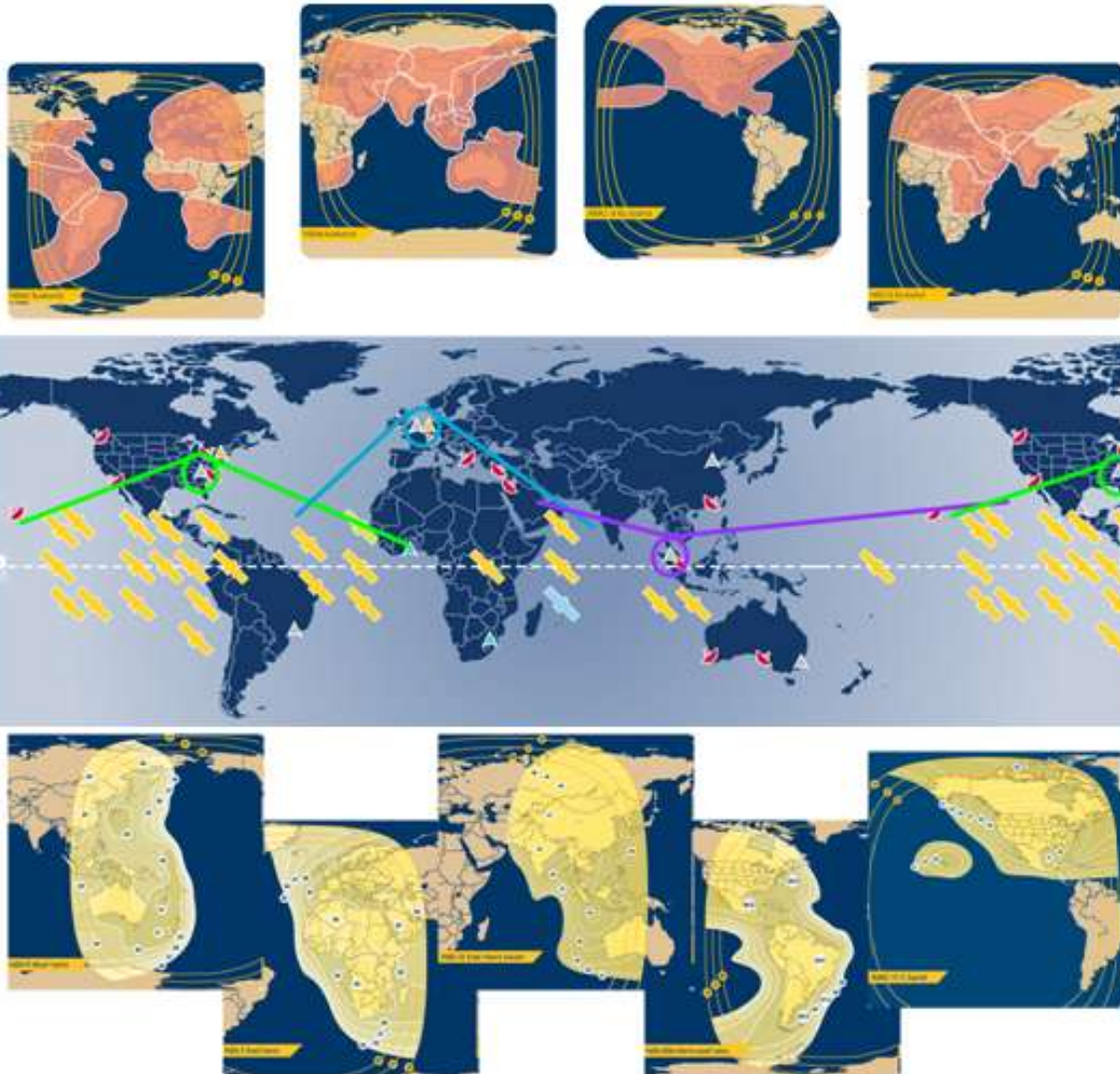
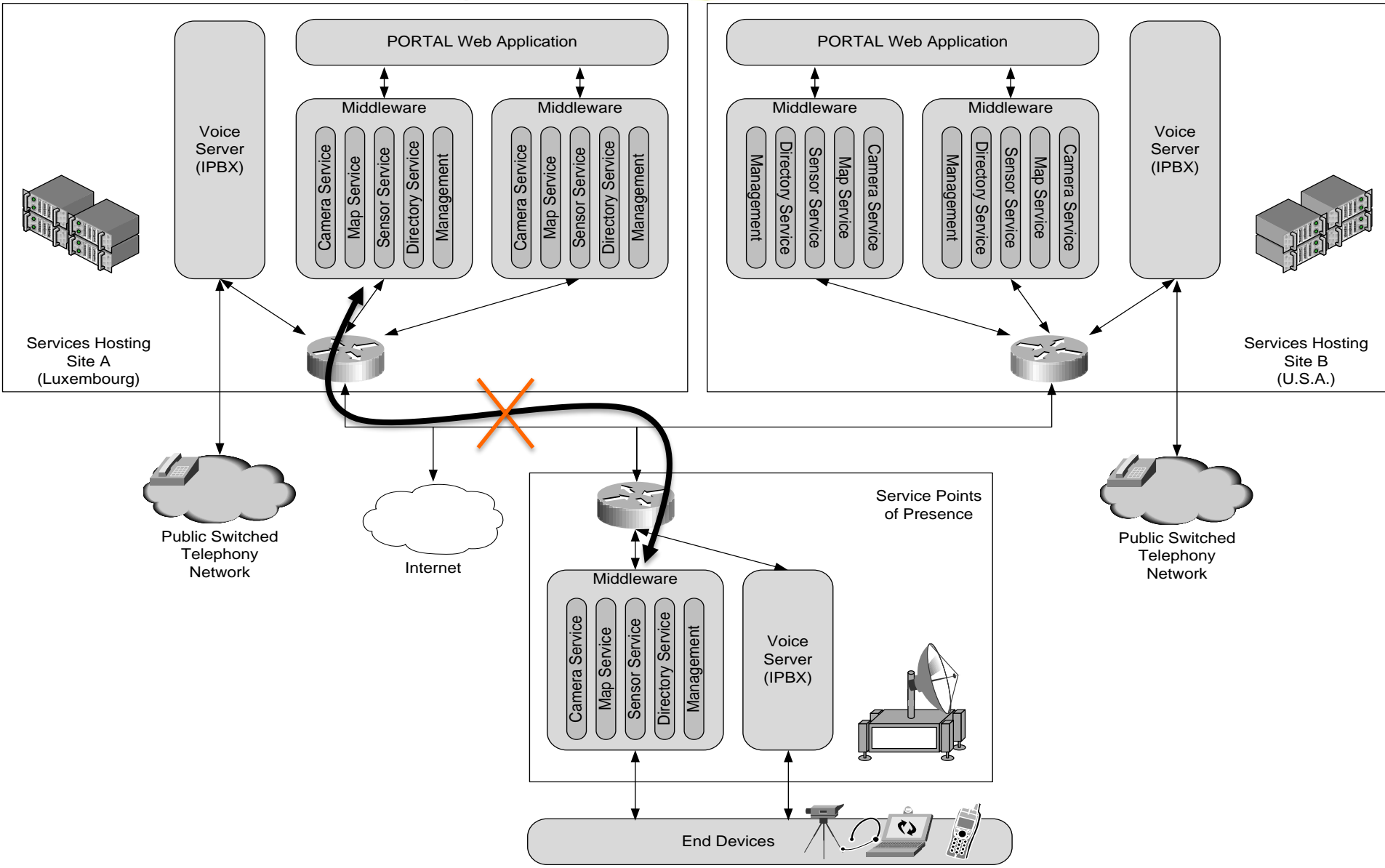# Technical solution and architecture (3/4)

- **Layer 2: Middleware and service implementation**
  - Layer 2 relies on a middleware implementation that is ensuring:
    - Service resilience
    - Service security and accessibility

- **Layer 3: End devices and services access**
  - The NoSaCo terminals includes all the required end-devices:
    - Wireless Sensors,
    - Wireless Video Cameras (providing video and pictures),
    - Ruggedized laptops,
    - Wireless Voice over IP phones.
  - User friendly and efficient access to services:
    - **For the users in the field**: touch screen devices

Technical solution and architecture (4/4)

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    - Wireless Sensors,
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    - Ruggedized laptops,
    - Wireless Voice over IP phones.
  - User friendly and efficient access to services:
    - **For the users in the field**: touch screen devices
    - **For decision making and analysis at headquarters** : Web 2.0 portal

Deployment and Conclusions (1/2)

- **In addition to the technical solutions, Emergency.lu includes:**
  - Transportation:
    - Luxembourg Air Ambulance provides **air-transport capacity with 24/7** on-duty technical and expert staff,
    - Ready to leave **within two hours**.
  - Staff of experts:
    - **Pre-emptive maintenance** on all technical equipments,
    - **Frequent trainings and drills** to ensure the required level of know-how and expertise, involving volunteers and professionals,
    - Luxembourg Air Ambulance pilots are trained to maintain and to provide the basic support on the NoSaCo terminals for any team in the field.

- **Conclusion and key topics:**
  - Emergency.lu is :
    - providing **services** to improve the communication and the flow of information between teams in the field and headquarters,
    - facilitating on-site **coordination during the first hours after a crisis.**

  - Emergency.lu is an end-to-end solution with**:**
    - **Satellite broadband connectivity with global coverage,**
    - **Middleware and service implementation,**
    - **End Devices** to:
      - Provide information (Cameras, Sensors),
      - Access to information (Laptops and Voice over IP phones).
    - **On-duty transportation capacity,**
    - **Integration with existing U.N. and European instruments.**

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THANK YOU FOR YOUR ATTENTION

QUESTIONS?