



Overview of EMTEL networks and services in Romania

Dr. Sorin VASILCA

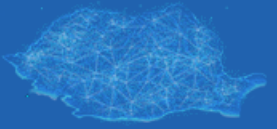
First Deputy Director

Special Telecommunications Service



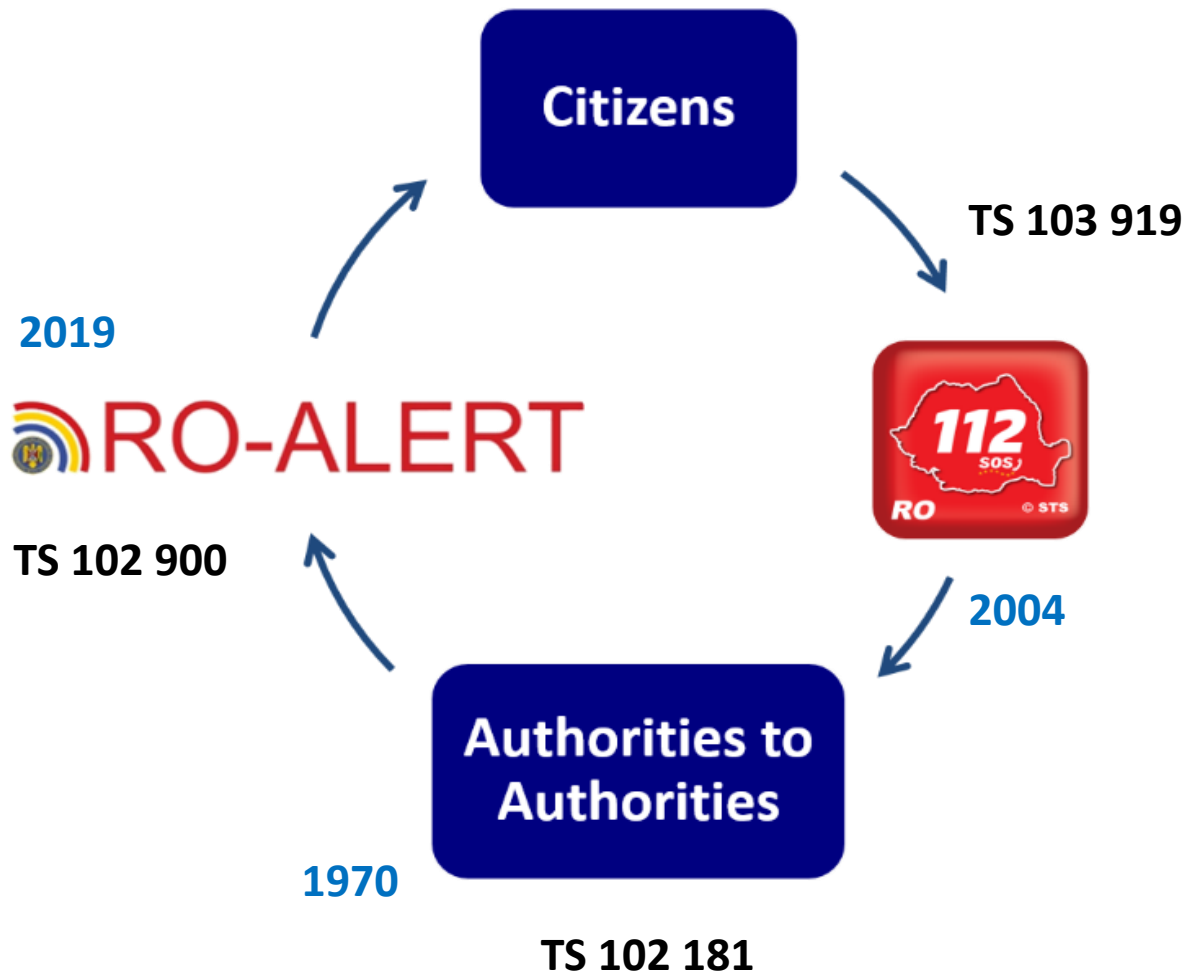


Content



- Who we are
- Citizens to Authorities (112) / Authorities to authorities systems (TETRA)
- Authorities to citizens CB system (RO-Alert)
- Digital Transformation benefits for EMTEL
- Final remarks

Who we are (1/2)



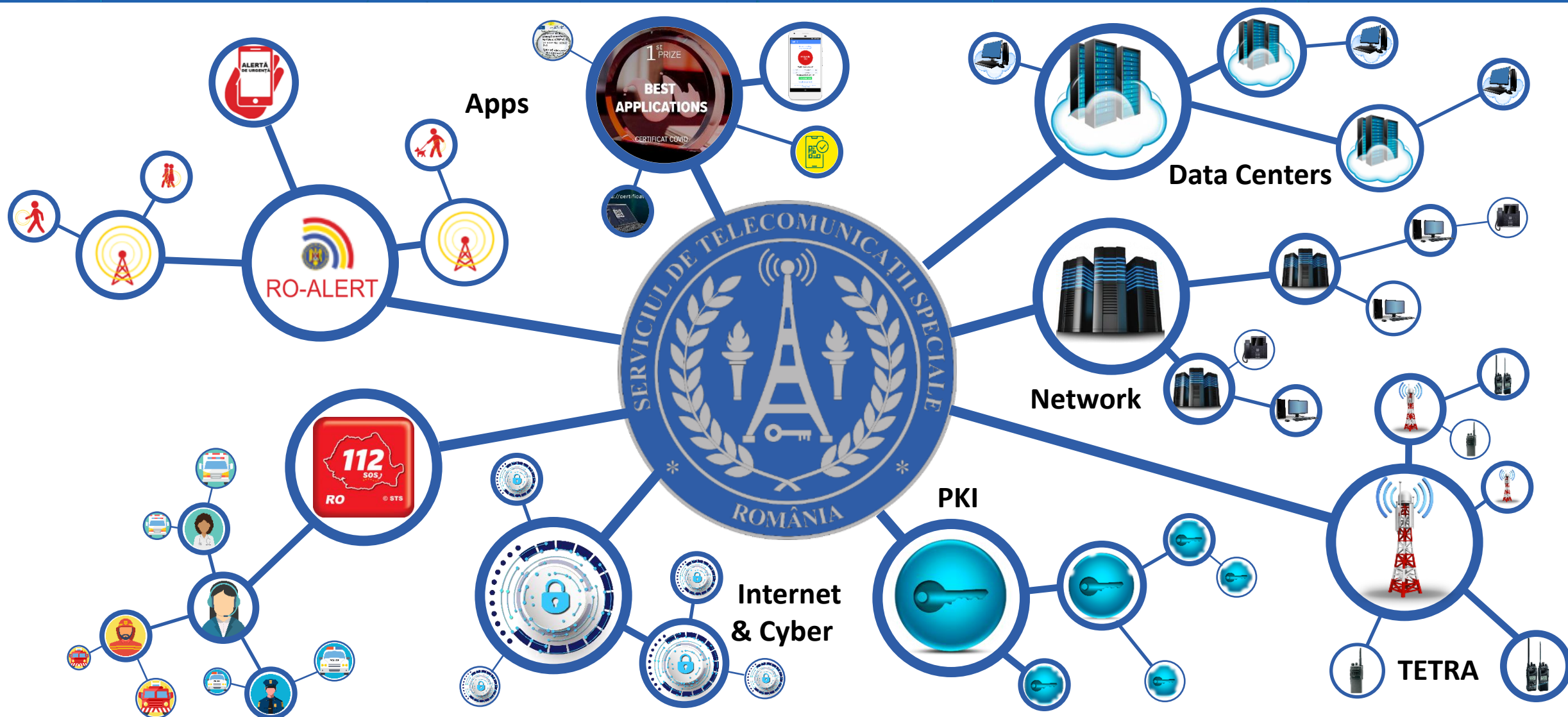
✚ Law 92/1996 (STS law)

- ✚ Military organization
- ✚ National budget financed
- ✚ Controlled by Romanian Parliament
- ✚ Directed by Supreme Council of National Defense

✚ Government Emergency Act EGO 34/2008 appointed as 112 administrator

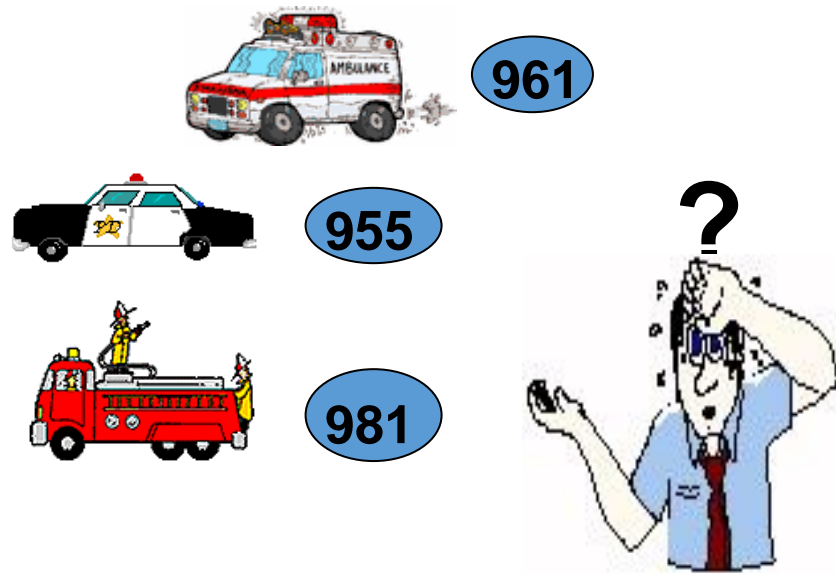
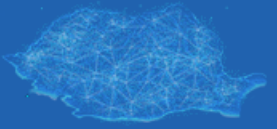
✚ Government Emergency Act EGO 72/2017 appointed as Ro-Alert administrator

Who we are (2/2)

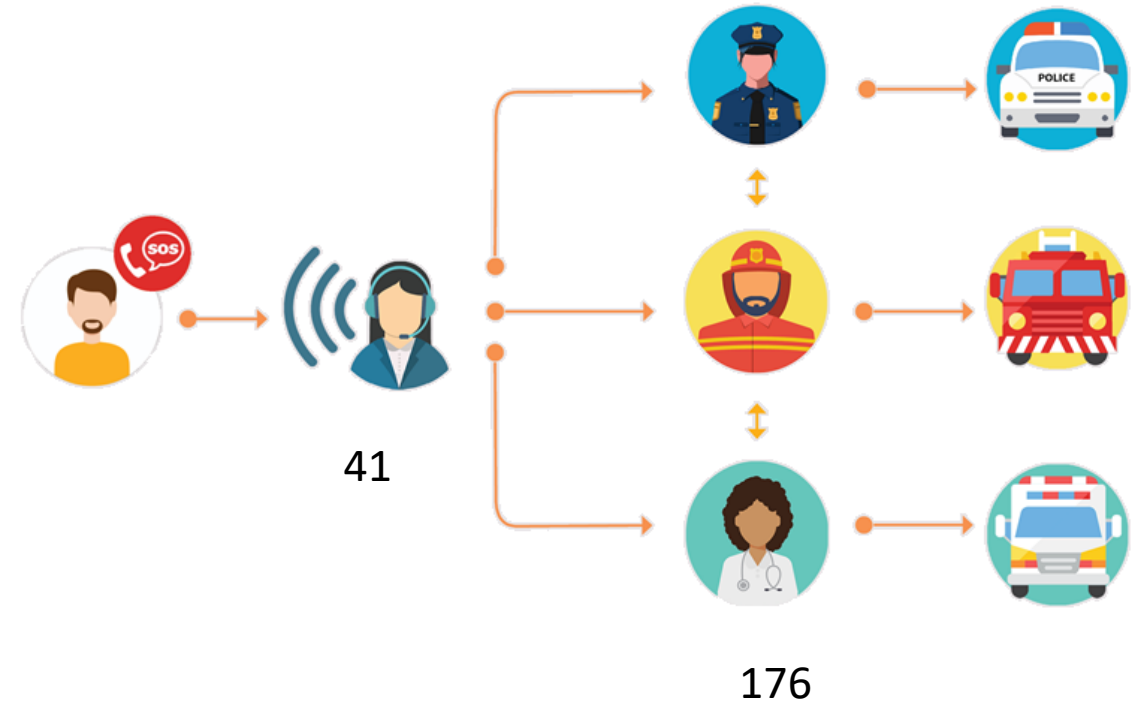




Citizens to Authorities System (1/2)

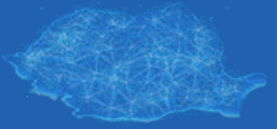


Before 2004



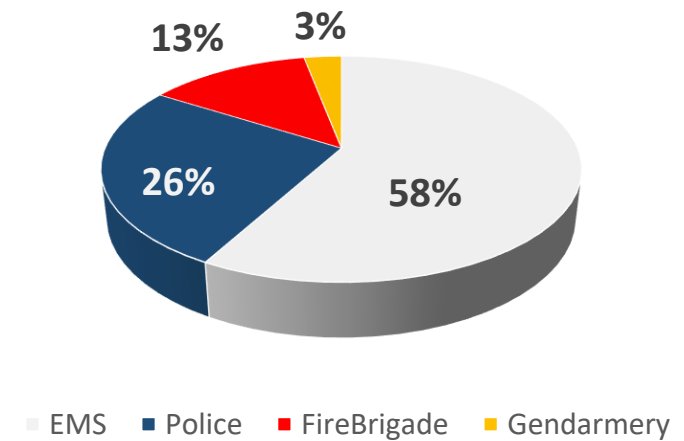
After 2004

Citizens to Authorities System (2/2)

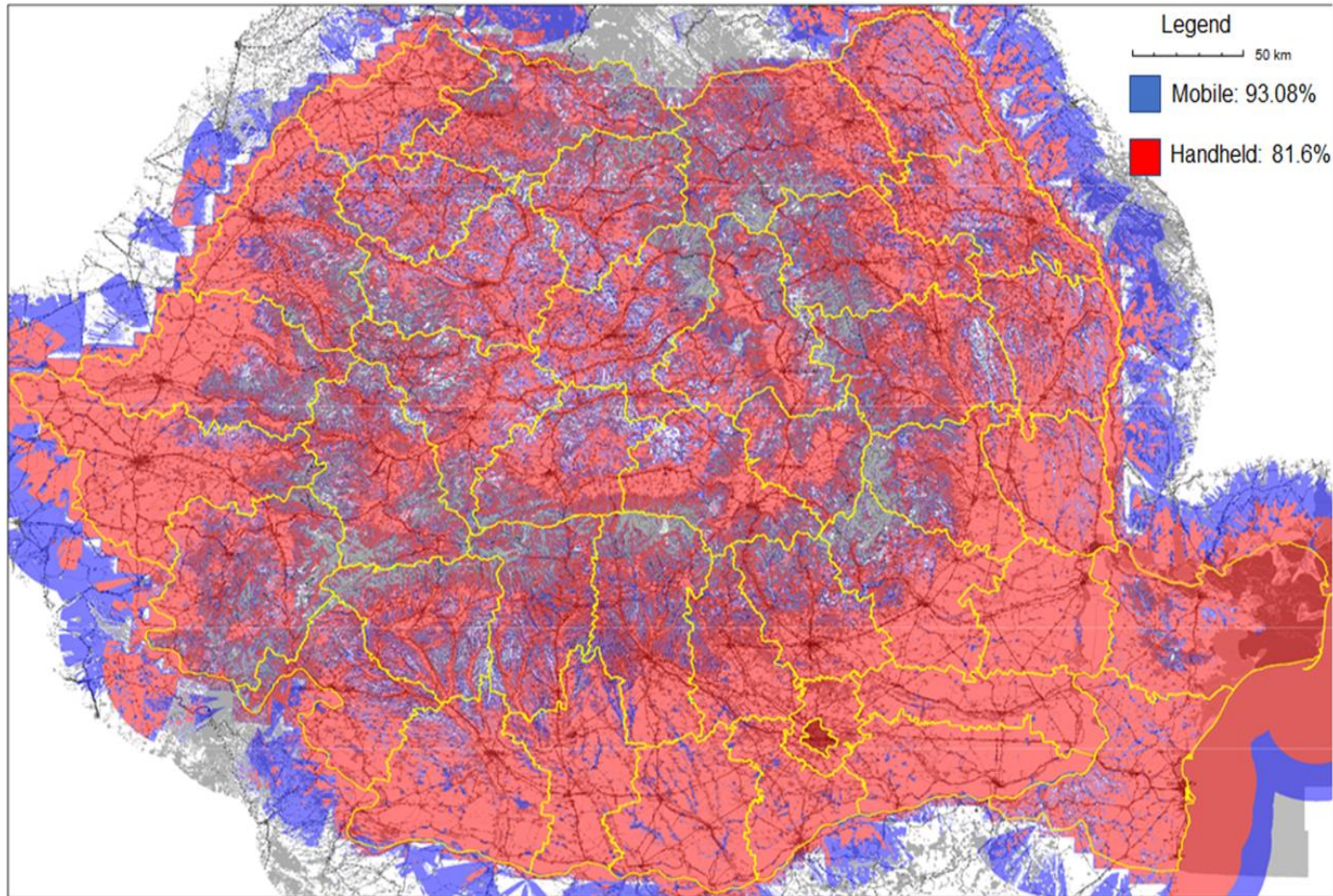
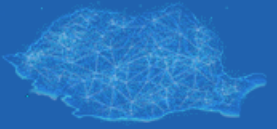


10 mil calls/year

Distribution per First Responders



Authorities to Authorities System (1/2)

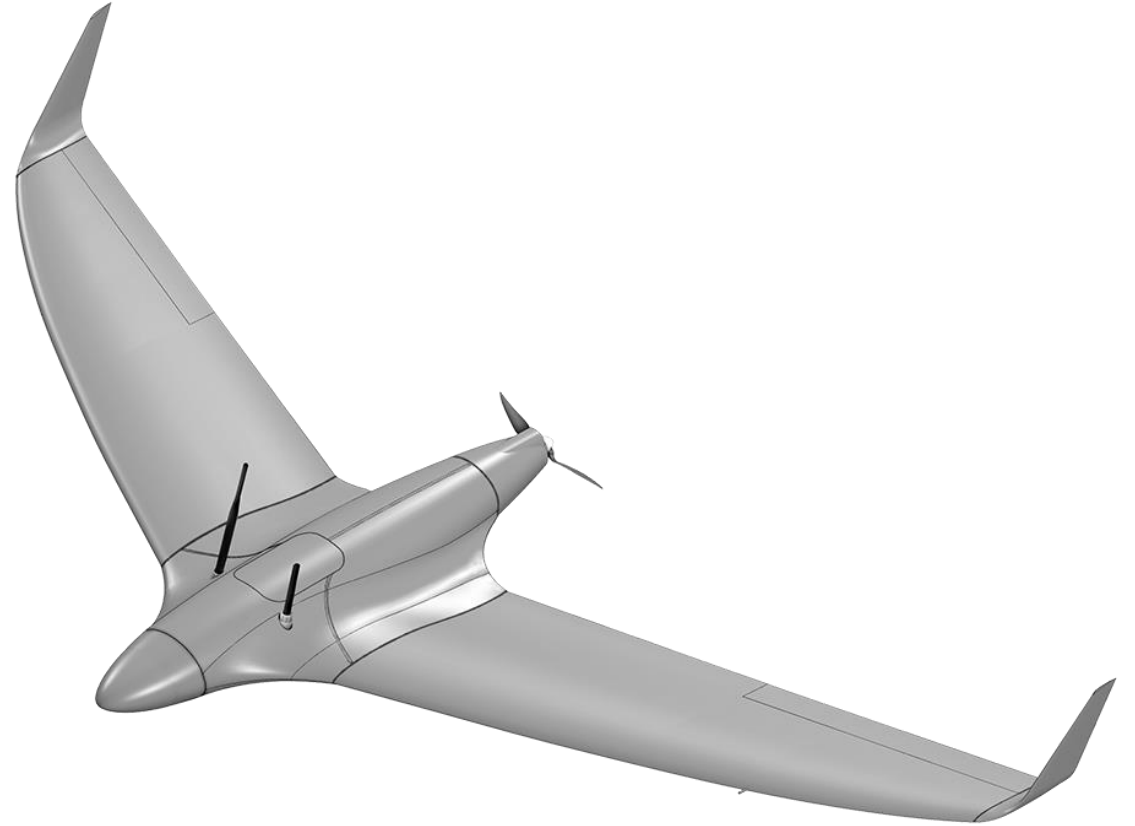
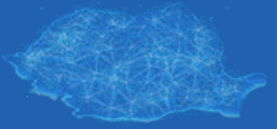


TETRA Dimetra 9.0

- ❑ **150K** radios, 5K TG, 100 Dispatchers
- ❑ **Certified** radios: 50 HH, 20 Mobile, 12 Modems/Routers, 5 Apps
- ❑ Voice: **Group**/Selective/PBX/Emergency Call
- ❑ Data - **ARL** (16,984 resources), DataBase Inquiry (98,564 terminals)



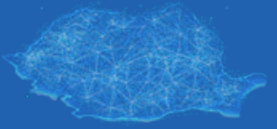
Authorities to Authorities System (2/2)





Authorities to citizens CB system

RO-ALERT



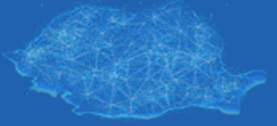
17th September 2017 tragedy – 8 deaths, 145 injured persons, many cars and houses destroyed





Authorities to citizens CB system

RO-ALERT



Premierul Mihai Tudose a scris vineri pe Facebook ca se bucura ca proiectul "RO-ALERT" a devenit concret prin aprobarea în Guvern a unei ordonante de urgență privind implementarea sistemului de alertare prin sms a populației în situații de urgență. Astfel, scrie seful guvernului, toți cei aflați într-o zonă de pericol pot fi anunțați în timp real prin mesaje. Tudose își exprimă, în același timp, încrederea că Raed Arafat va face din sistem un succes.



Mihai Tudose
Foto: Captura Digi 24

"Fenomenele meteo extreme din ultima perioadă au arătat căta nevoie avem de un sistem modern de avertizare a populației în caz de pericol. Ma bucur că această idee a devenit de ieri un proiect care se poate concretiza, după ce am dat undă verde în Guvern înființării sistemului #RoAlert. Practic, toți cei aflați într-o zonă de pericol, indiferent de tipul amenințării, vor fi anunțați în timp real prin mesaje pe telefonul mobil astfel încât să aibă timp să ia măsuri. Este un proiect la care și-au adus contribuția instituții importante ale statului - STS, IGSU sau ANCOM, și va beneficia de sprijinul tuturor operatorilor de telefonie mobilă. Am încredere că domnul Raed Arafat, care a fost desemnat să coordoneze acest proiect, va face din sistemul #RoAlert un succes așa cum a demonstrat și în cazul SMURD", a scris premierul României, Mihai Tudose, pe pagina sa de facebook.

18th of September PM Decision to setup the WG:

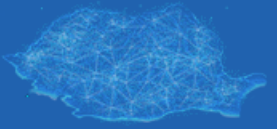
ANCOM – NRA

4 x MNO – to activate CB

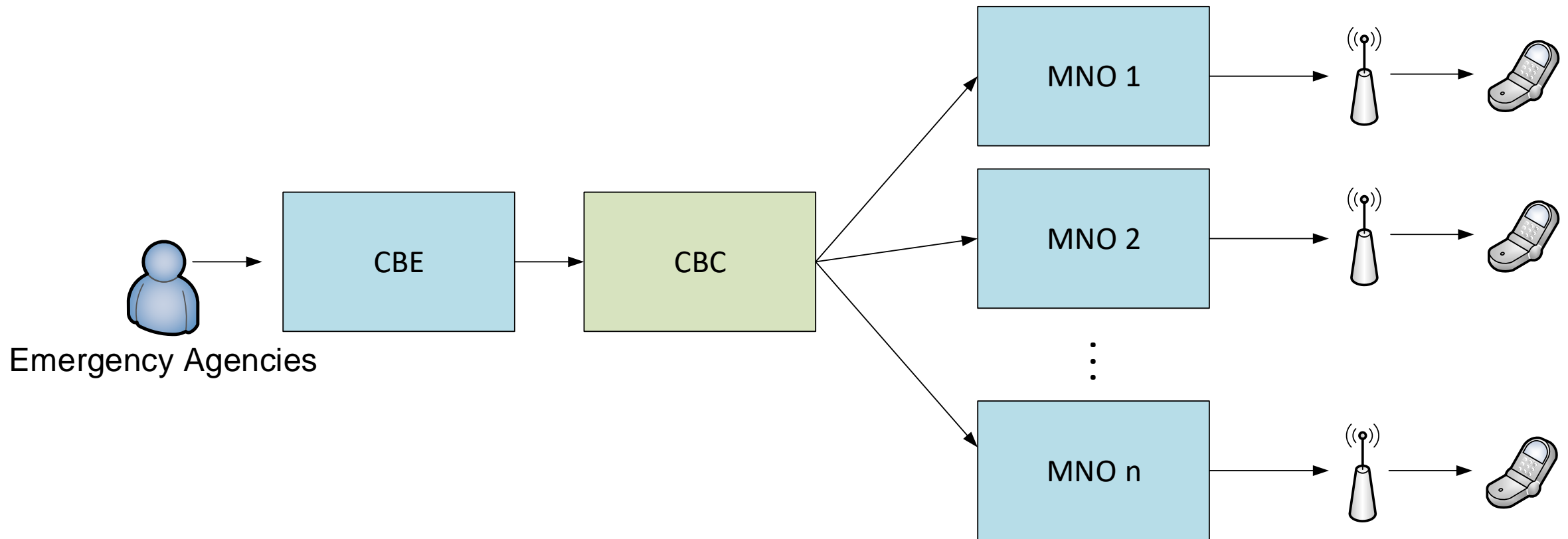
Mol GIES – to operate Ro–Alert

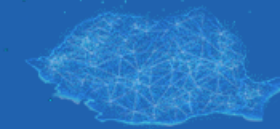
STS – to implement Ro-Alert

EGO 72/2017



Block Diagram





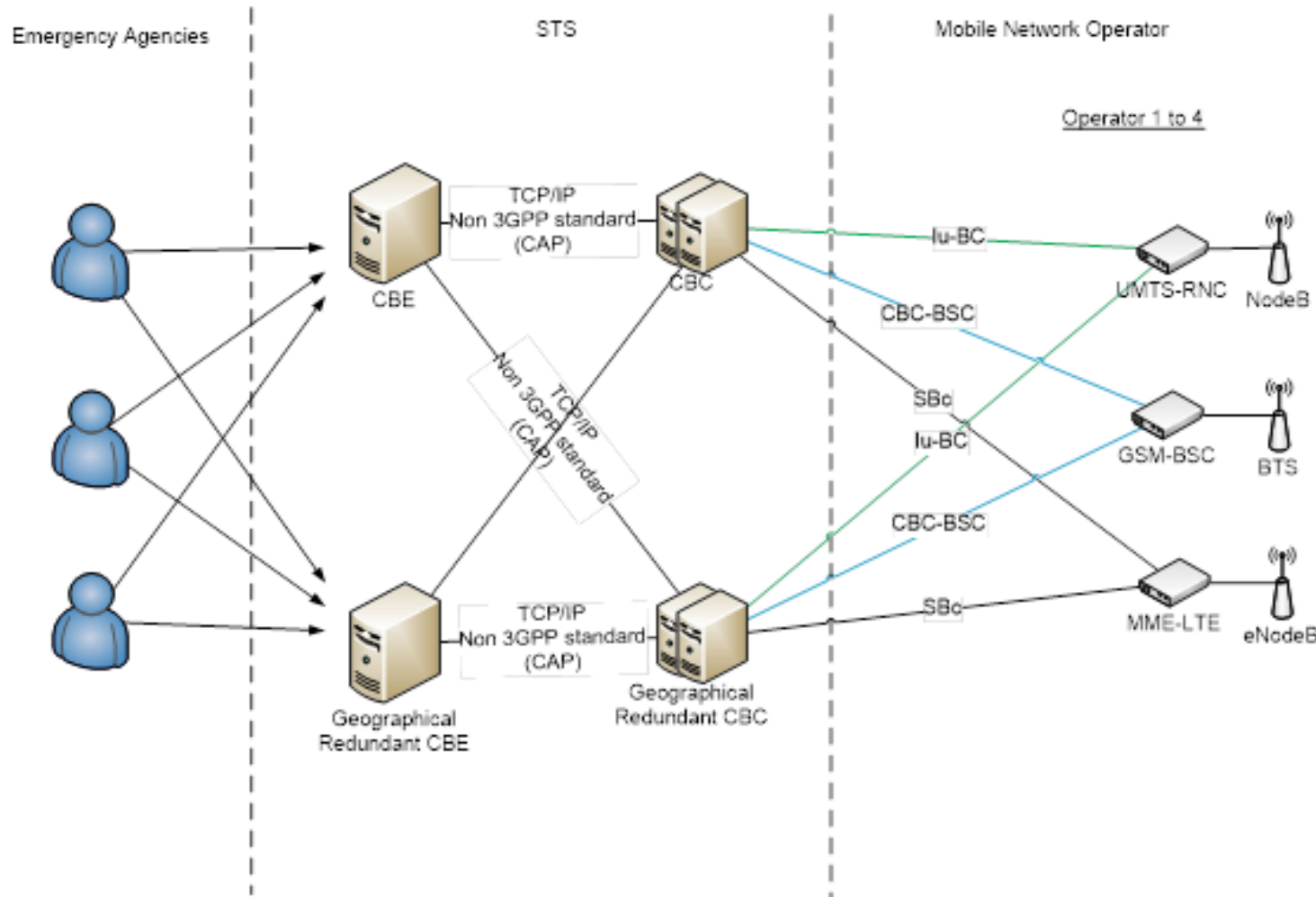
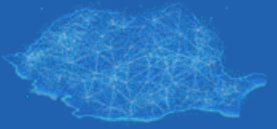
Standards Inventory

- **TS 102 900 – European Public Warning system (EU-ALERT) using the cell broadcast service**
- **TS 22.268 - Public Warning System (PWS) requirements**
- TS 23.038 - Alphabets and language-specific information
- **TS 23.041 - Technical realization of Cell Broadcast Service (CBS)**
- TS 25.419 - UTRAN Iu-BC interface Service Area Broadcast Protocol (SABP)
- TS 29.168 - Cell Broadcast Centre interfaces with the Evolved Packet Core
- TS 36.413 - Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 Application Protocol (S1AP)
- TS 48.049 - Cell Broadcast Centre (BSC-CBC) interface specification; Cell Broadcast Service Protocol (CBSP)



Authorities to citizens CB system

RO-ALERT



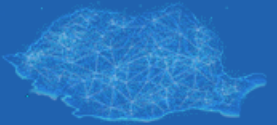
HA Architecture

Sizing:

4 x MNO x 2G/3G/4G
= connectivity with
about 300.000
Network Elements

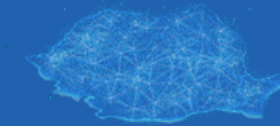


Authorities to citizens CB system



The screenshot displays the RO-ALERT web interface for creating a new alert. The interface includes a top navigation bar with various menu items like 'CRUCARE ALERTA', 'CRUCARE SABLON', 'ALERTE', 'SABLONURI', 'GESTIUNE UTILIZATORI', 'CONFIGURARE', 'RAPORTARE', 'MONITORIZARE', and 'IMBIA'. Below the navigation bar, there are tabs for 'ALERTE', 'SENT', and 'MOD SIMPLU'. The main content area is divided into several sections: 'Date generale' (General data) with fields for 'Nume' (Name) and 'Risc' (Risk); 'Descriere' (Description) with a text area and a 'SEVERITATE' (Severity) dropdown; 'EXPIRA' (Expiration) with a date and time picker; 'NR. REPETITII' (Number of repetitions) and 'INTERVAL (SECUNDE)' (Interval in seconds) fields; and a 'Număr poligoane' (Number of polygons) section with a grid of polygon icons labeled 1 through 6. On the right side, there is a map showing the geographical area of the alert, with various locations marked and a green shaded region indicating the alert area.

- CBC receives all the required parameters for sending alerts, including:
 - repetition interval
 - numbers of repetitions
- CAP payload is send from CBE to CBC over an HTTP connection and contain:
 - one or more polygons
 - a list of cells
- CBC API retrieve cells position, the status of the alert and the list of cells that could not broadcast the message



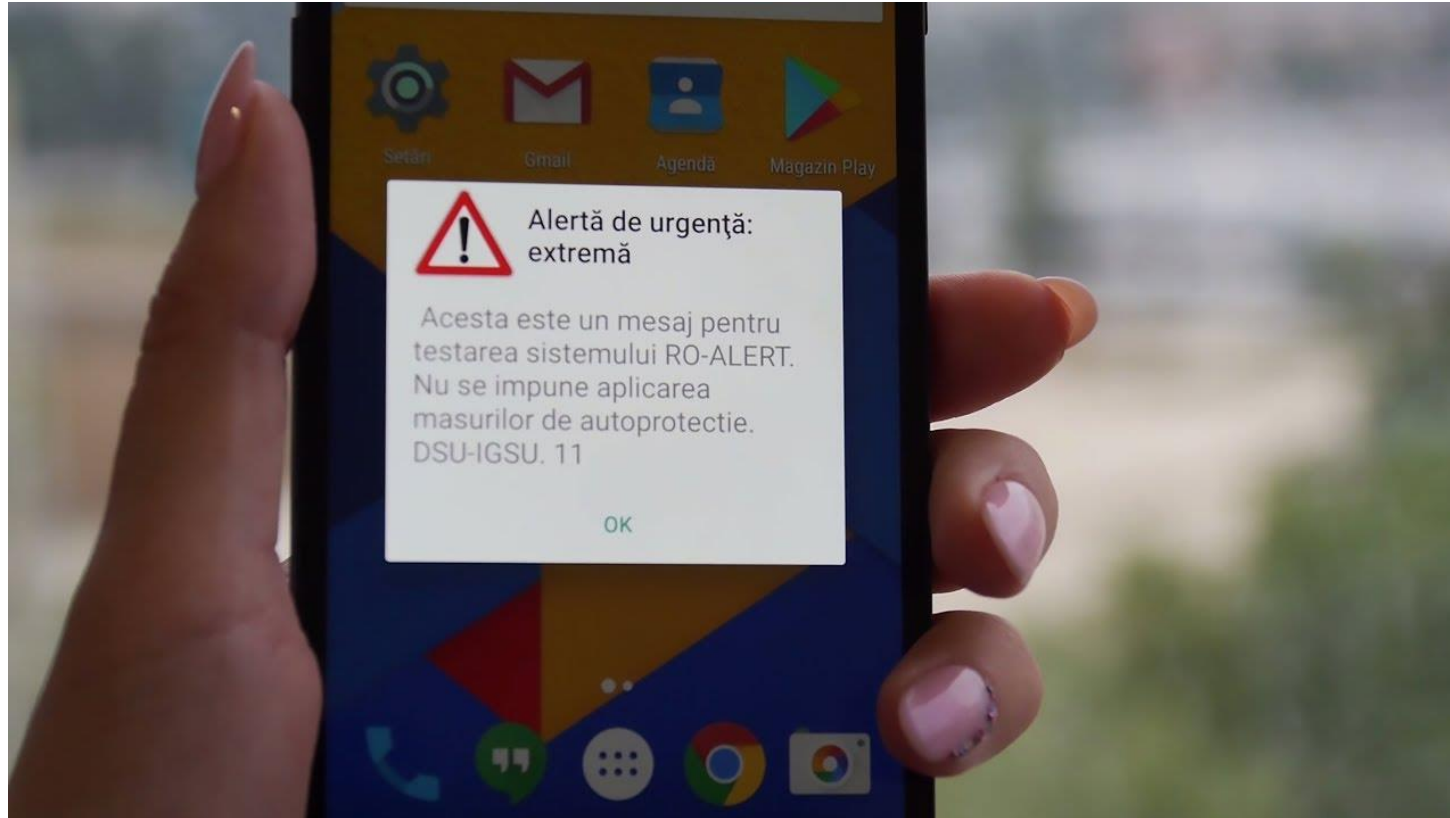
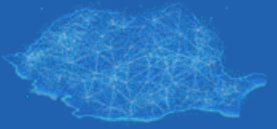
Security Mechanisms:

- No connection to Internet
- VPNs between Ro-Alert sub-systems
- Firewalls between GIES – CBE, CBC - MNOs
- PKI tokens and credentials for authentications and non-repudiation
- Logging of all activities and error messages
- 24/7 NOC & SOC monitoring



Authorities to citizens CB system

RO-ALERT



Access Terminal Requirements:

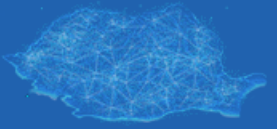
EGO 46/2019

Art. 18. –

Obligation of operators and terminal dealers to present information about capabilities of terminals and how to activate the CB

Art. 19. -

No terminal entry into the Romanian market if CB can not be activated

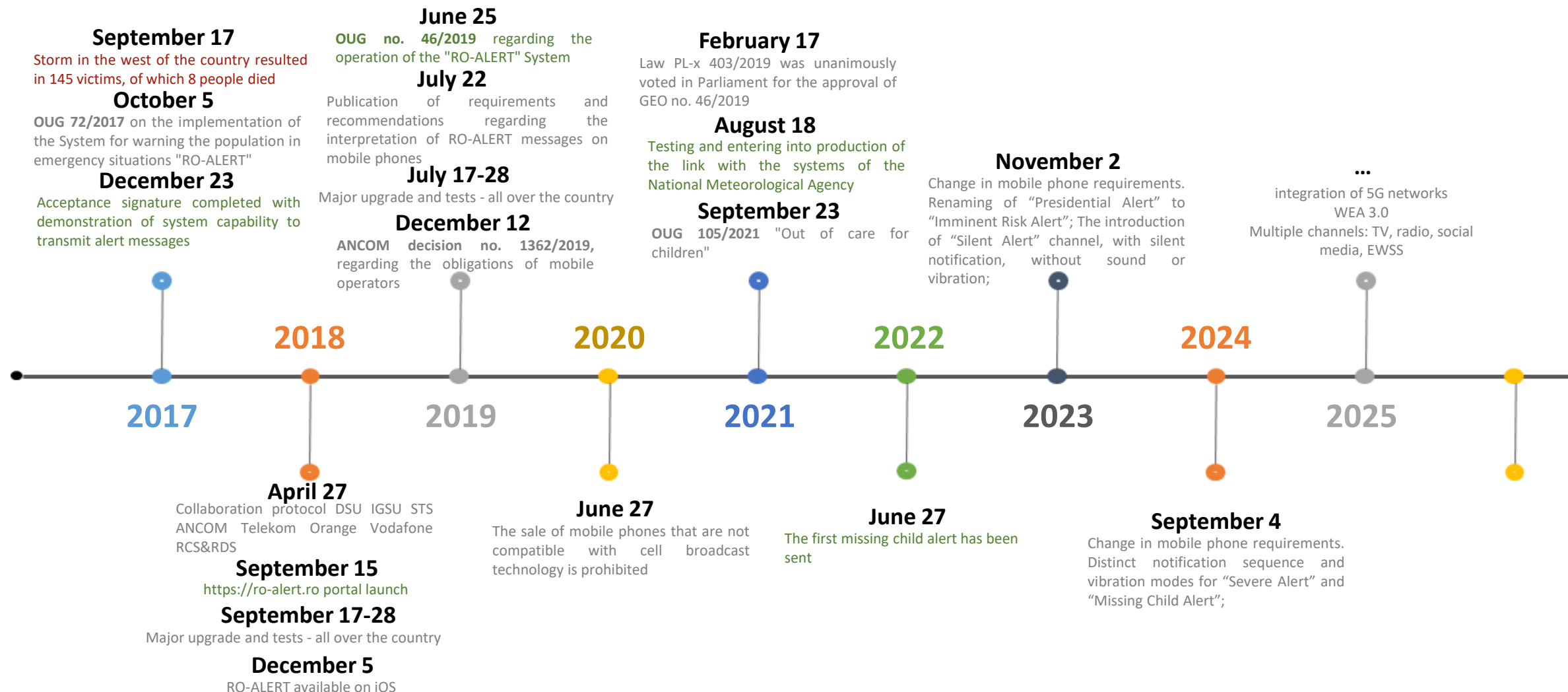


Timelines

Date	Sep-17	Apr-18	Jun-19	Jun-20	Feb-21	TOTAL
Technical Side	Acquisition, implementation, tests and acceptance					3 months
Operational Side		Memorandum STS - MOs, publishing information on MO sites and STS ro-alert.ro portal				8 months
Regulatory Side	Ordinance 72 on implementation		Ordinance 46 on operation, ANCOM decision on MO obligations	Interdiction of mobiles not compatible with CB	Parliament Law Approval	About 3 years



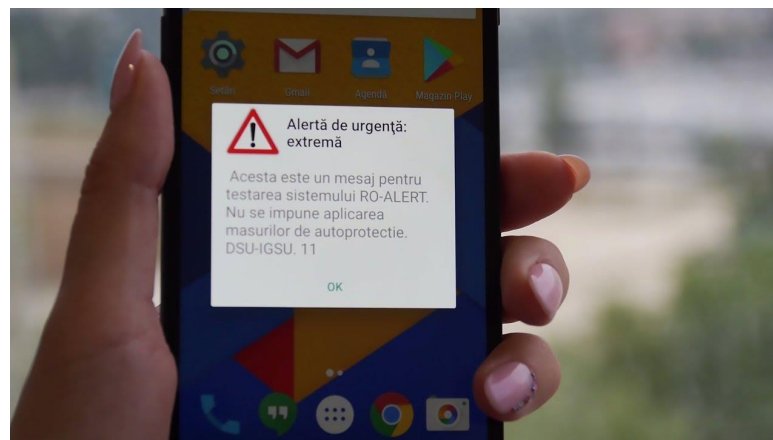
Authorities to citizens CB system





Authorities to citizens CB system

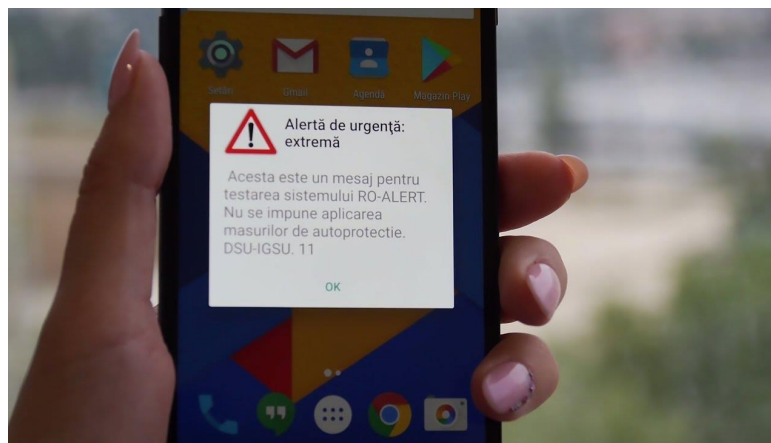
RO-ALERT





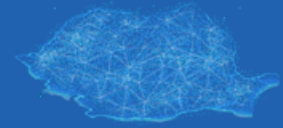
Authorities to citizens CB system

RO-ALERT

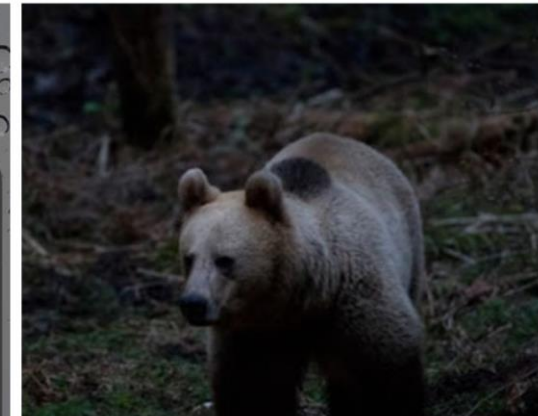


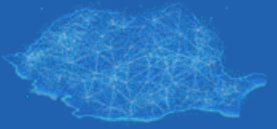
FOTOAGERPRES





Wild animals presence/aggression





! ALERTE DE URGENȚĂ

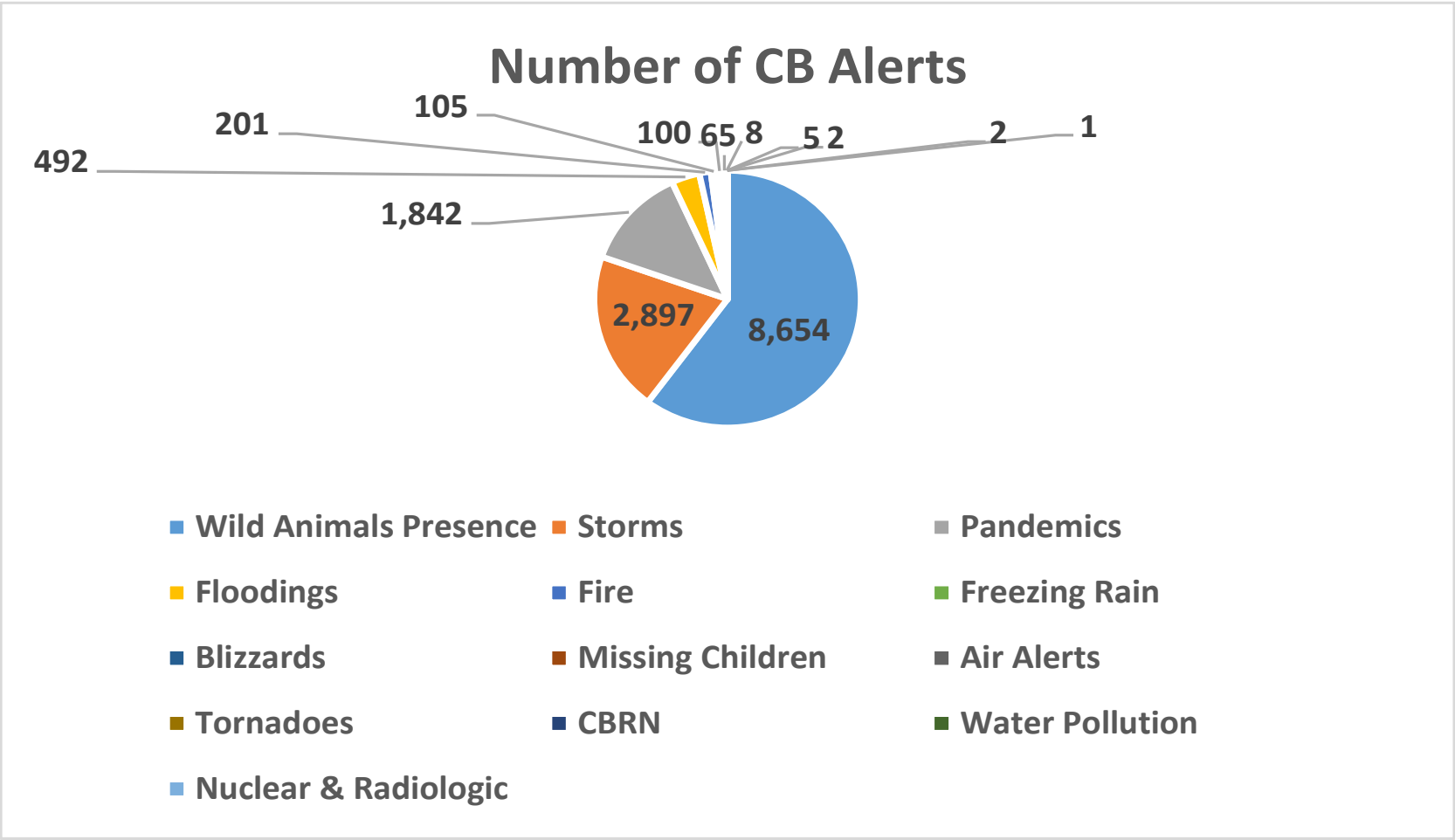
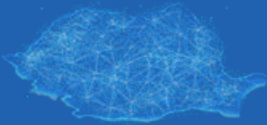
Alertă Extremă

Atenție! În municipiul București, nivelul de răspândire a noului coronavirus (COVID-19) este ridicat - peste 3 la mia de locuitori. MASCA este obligatorie în spațiile deschise și în cele închise! ȘCOLILE își vor desfășura cursurile online. Activitatea ÎN INTERIOR a restaurantelor, cafenelelor, cinematografele, sălilor de spectacole și sălilor de jocuri de noroc este interzisă. Aceste decizii sunt valabile pentru următoarele 14 zile. RESPECTAȚI măsurile sanitare pentru a nu pune în pericol viața dvs. sau a celor din jur. DSU-IGSU

Pandemic



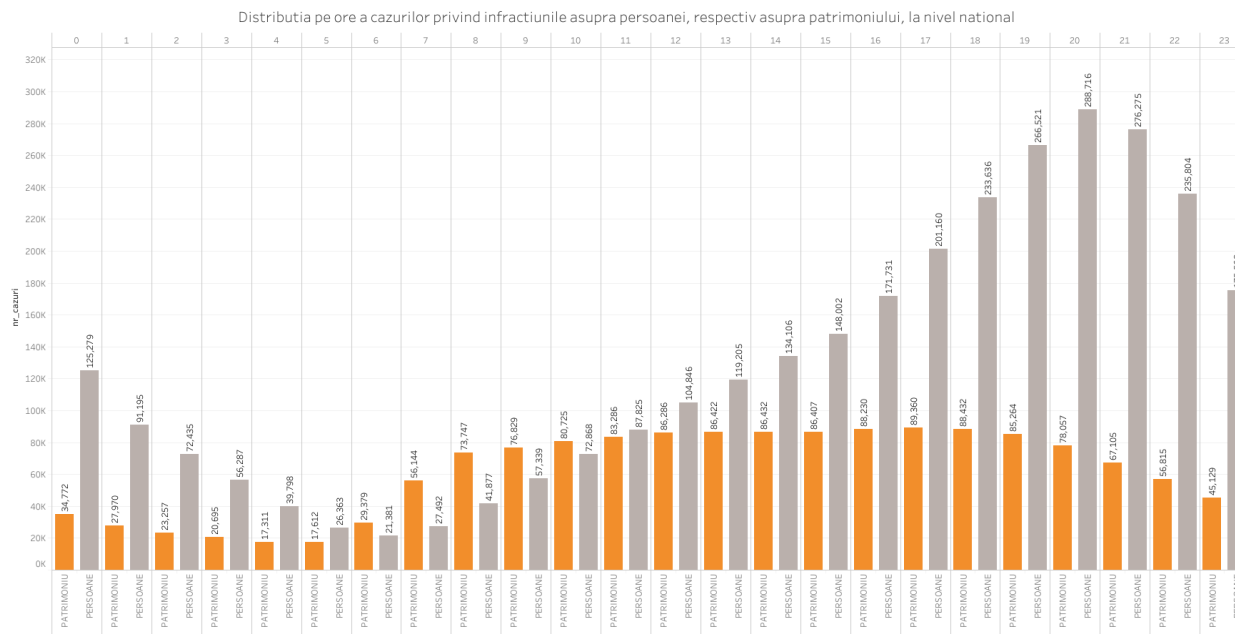
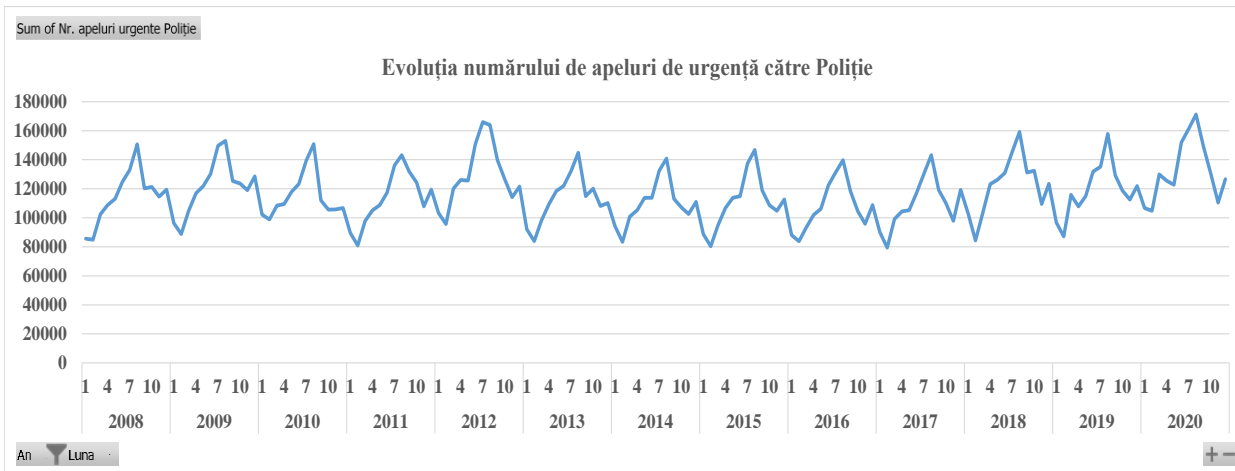
Authorities to citizens CB system



Risks Announcements	Number
Wild Animals Presence	8,654
Storms	2,897
Pandemics	1,842
Floodings	492
Fire	201
Freezing Rain	105
Blizzards	100
Missing Children	65
Air Alerts	8
Tornadoes	5
CBRN	2
Water Pollution	2
Nuclear & Radiologic	1

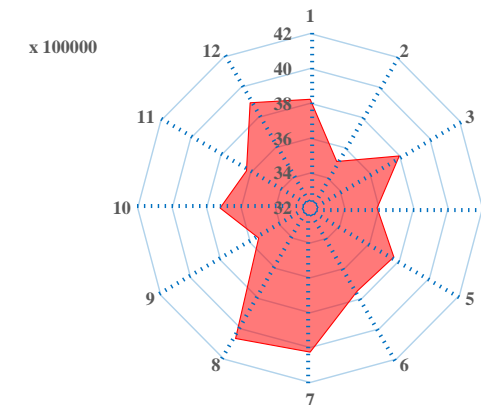


Digital Transformation benefits for EMTEL



Sum of Nr. apeluri urgente Ambulanță

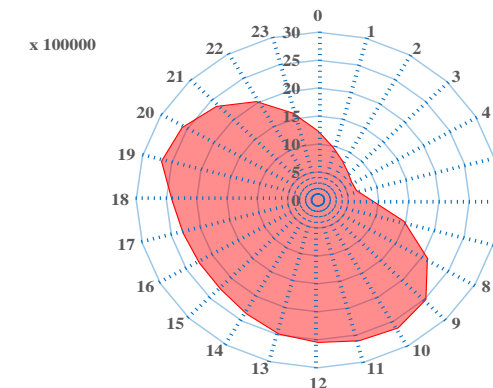
Distribuția pe luni a apelurilor de urgență către Serviciul Ambulanță



Luna

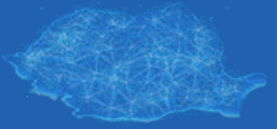
Sum of Nr. apeluri urgente Ambulanță

Distribuția pe ore a apelurilor de urgență către Serviciul Ambulanță



Ora

Digital Transformation benefits for EMTEL



Native Interoperability:

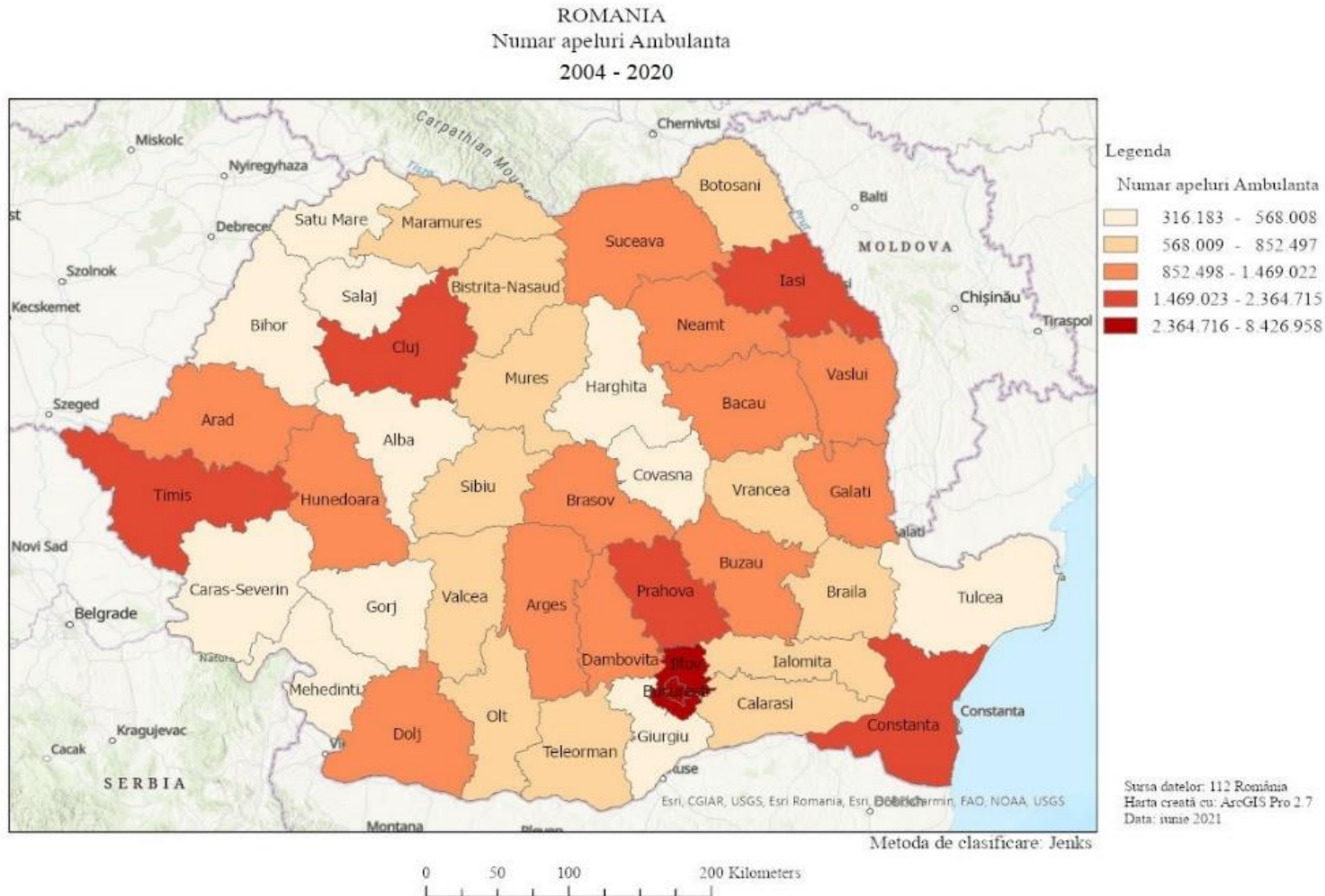
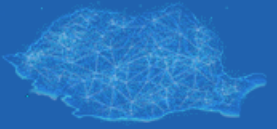
112 Dispatch to TETRA



CB avoids 112 calls flooding



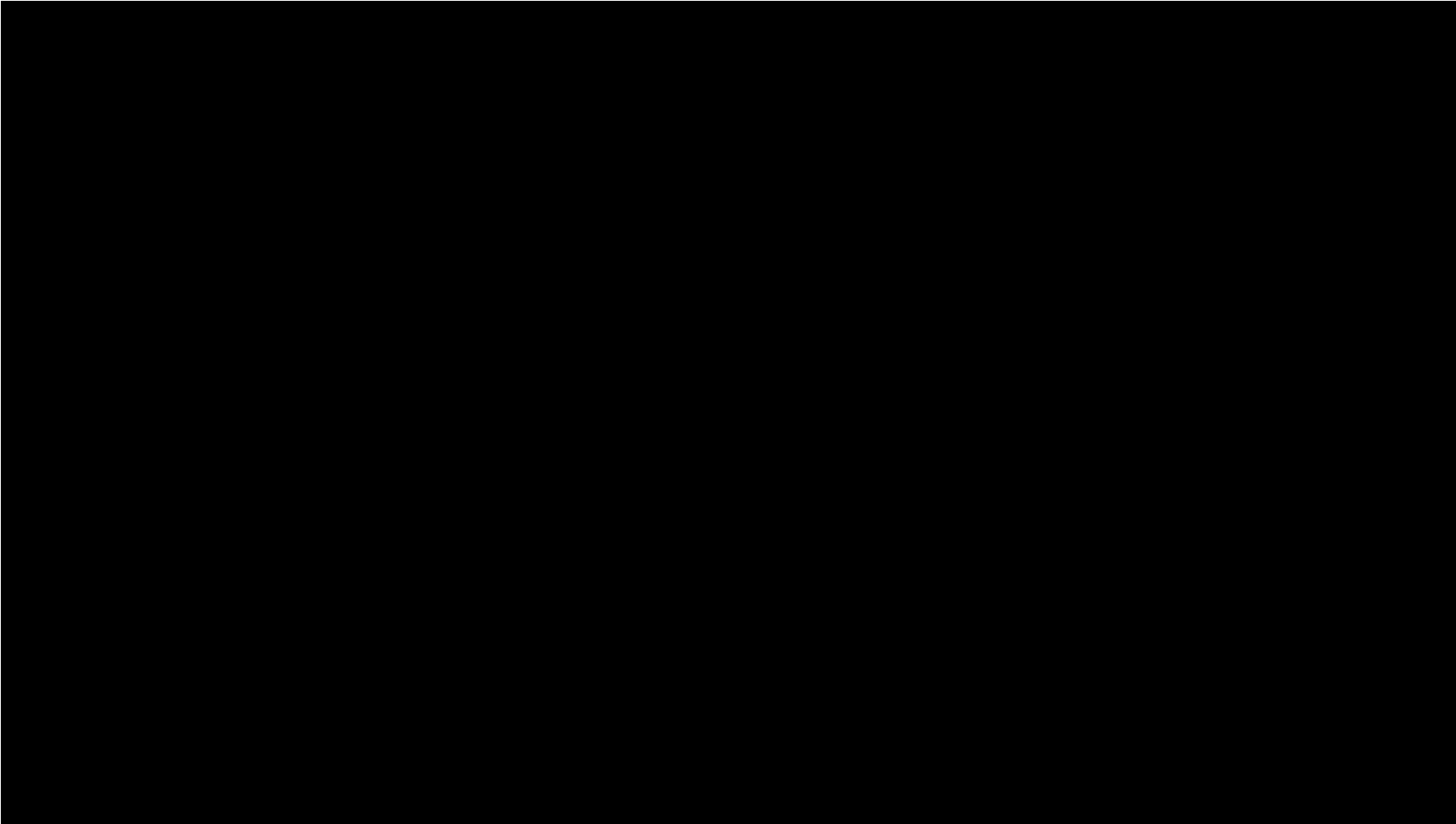
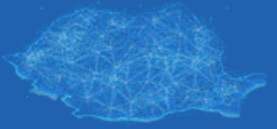
Digital Transformation benefits for EMTEL



SLA Optimisations



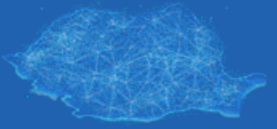
Digital Transformation benefits for EMTEL



Hirrus UAV payloads:

- ☐ TETRA repeater/GW
- ☐ GSM cell
- ☐ Emergency Situation Monitoring

Digital Transformation benefits for EMTEL

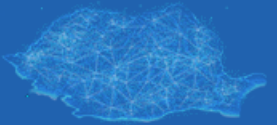


- ❑ CERT since 2008
- ❑ Proactive & Reactive Service
- ❑ Certified Personnel & SoC

<https://coris.stsisp.ro/map/>



Final Remarks



- Digital Transformation ensure resilience for EMTEL
- NG All IP standardization reduces CAPEX/IMPEX/OPEX
- CB is the most effective PWS:

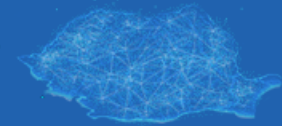
ETSI TS 102 182

be able to reach citizens in their own dwelling = compliant
be able to reach citizens at their place of work = compliant
be able to reach citizens in public venues = compliant
be able to reach a citizen citizens on foot = compliant
be able to reach a citizen citizens in a vehicle = compliant

<https://docs.oasis-open.org/emergency/mapcn/v1.0/mapcn-v1.0.pdf>



Q & A



Thank you for your attention!



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