

# KOREAN E-DISASTER SYSTEM

June 27, 2019



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- **KOREA SAFE-NET**

- **KOREA PUBLIC WARNING SYSTEM**

- **SKT'S PLAN TO SUPPORT LAOS**

- **SK TELECOM PROFILE**

# KOREA SAFE-NET (PS-LTE)

# DIFFERENCE WITH LEGACY NETWORK

## LEGACY NETWORK



TETRA, UHF,VHF

Silo networks  
Single usage in each organization

Voice and Short message

Limited evolution

## SAFE-NET



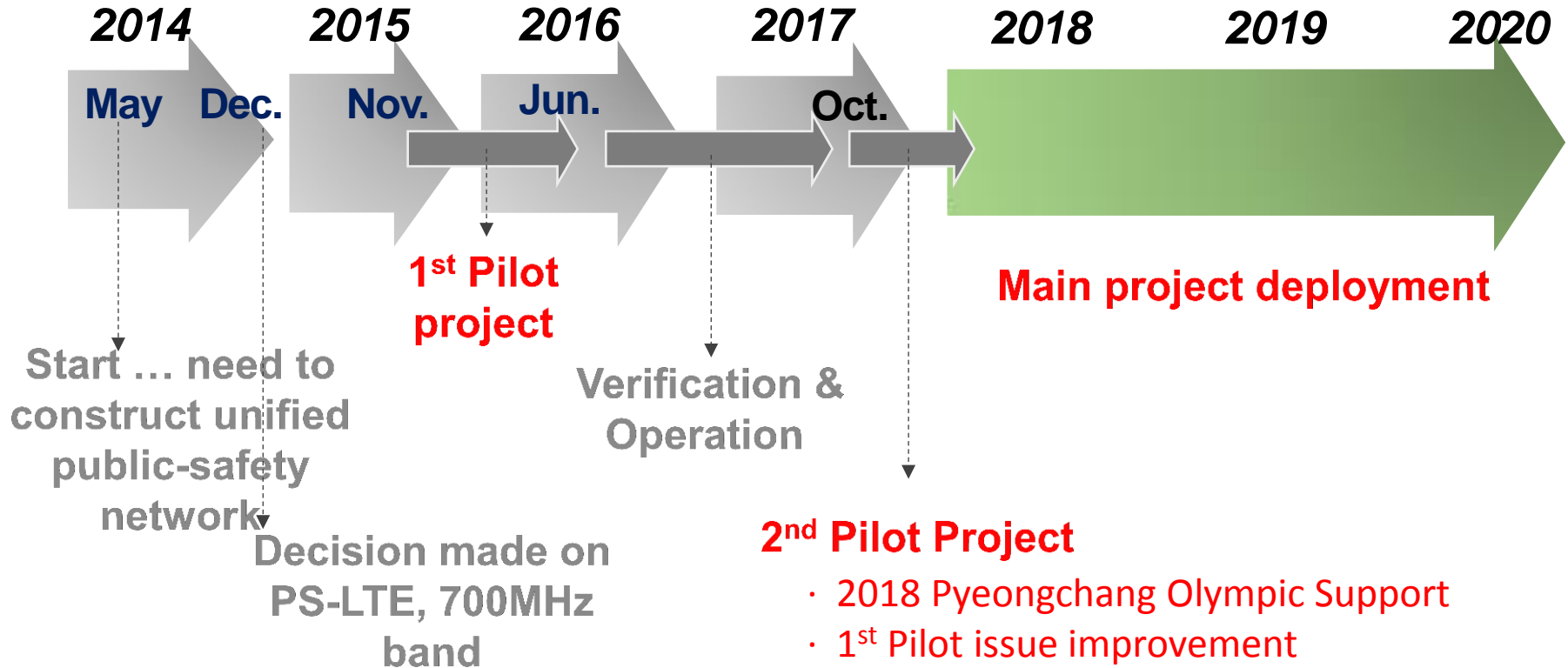
LTE

Common shared network,  
Integrated usage nation-wide

Voice and Short message  
Data, Photo, Video

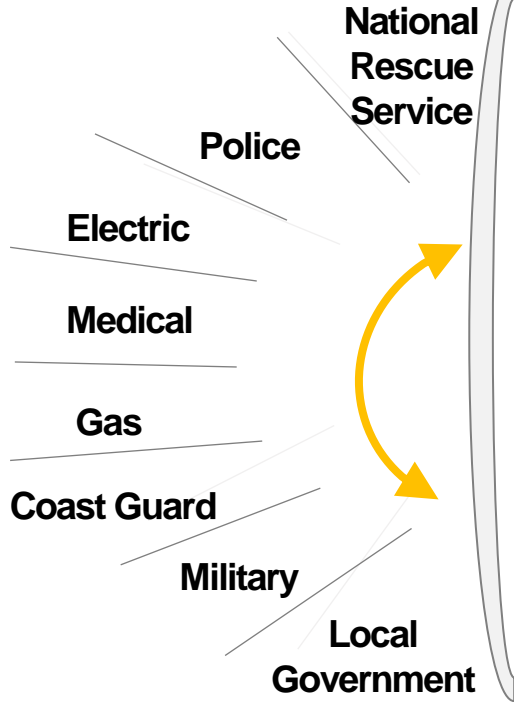
Diverse evolution with smart devices

# MILESTONE



# OVERVIEW OF KOREA SAFE-NET

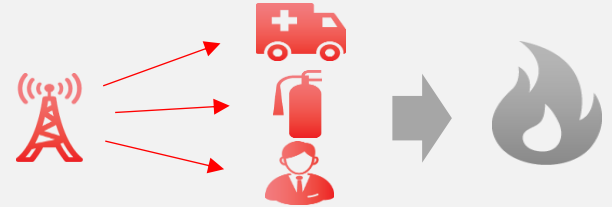
8 departments



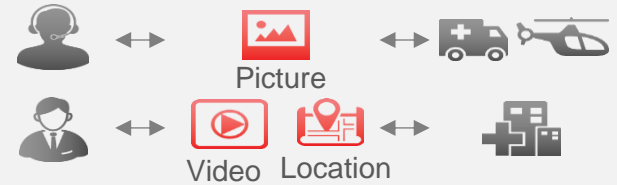
Nationwide  
Unified PS-LTE Network

Integrated  
Command & Control

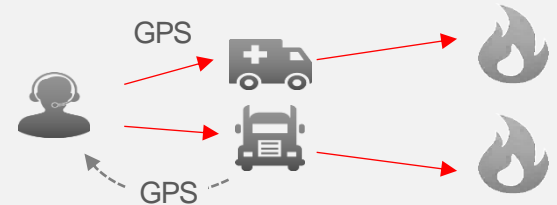
Unified Broadcast Call & Quick Response



PS-LTE based Multiple Media Communication



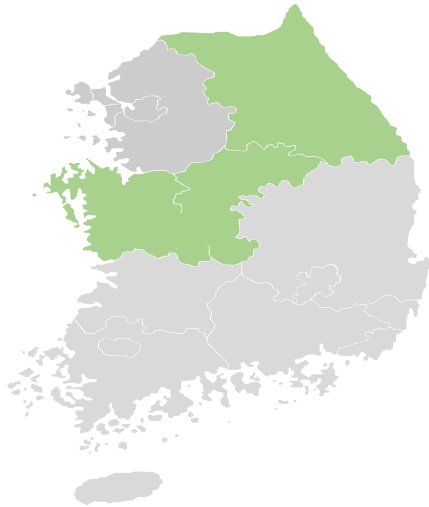
GPS based Optimized Resource Allocation



※ PS-LTE (Public Safety – Long Term Evolution)

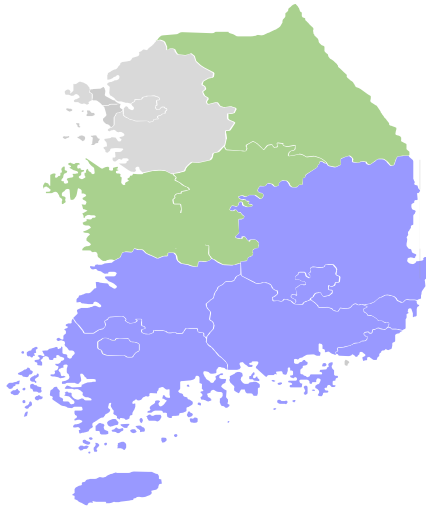
# MAIN PROJECT DEPLOYMENT

PHASE-1 (2018)



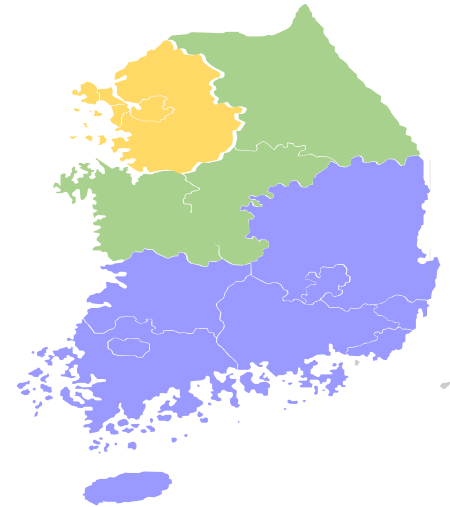
Middle Area  
(5 Provinces)

PHASE-2 (2019)



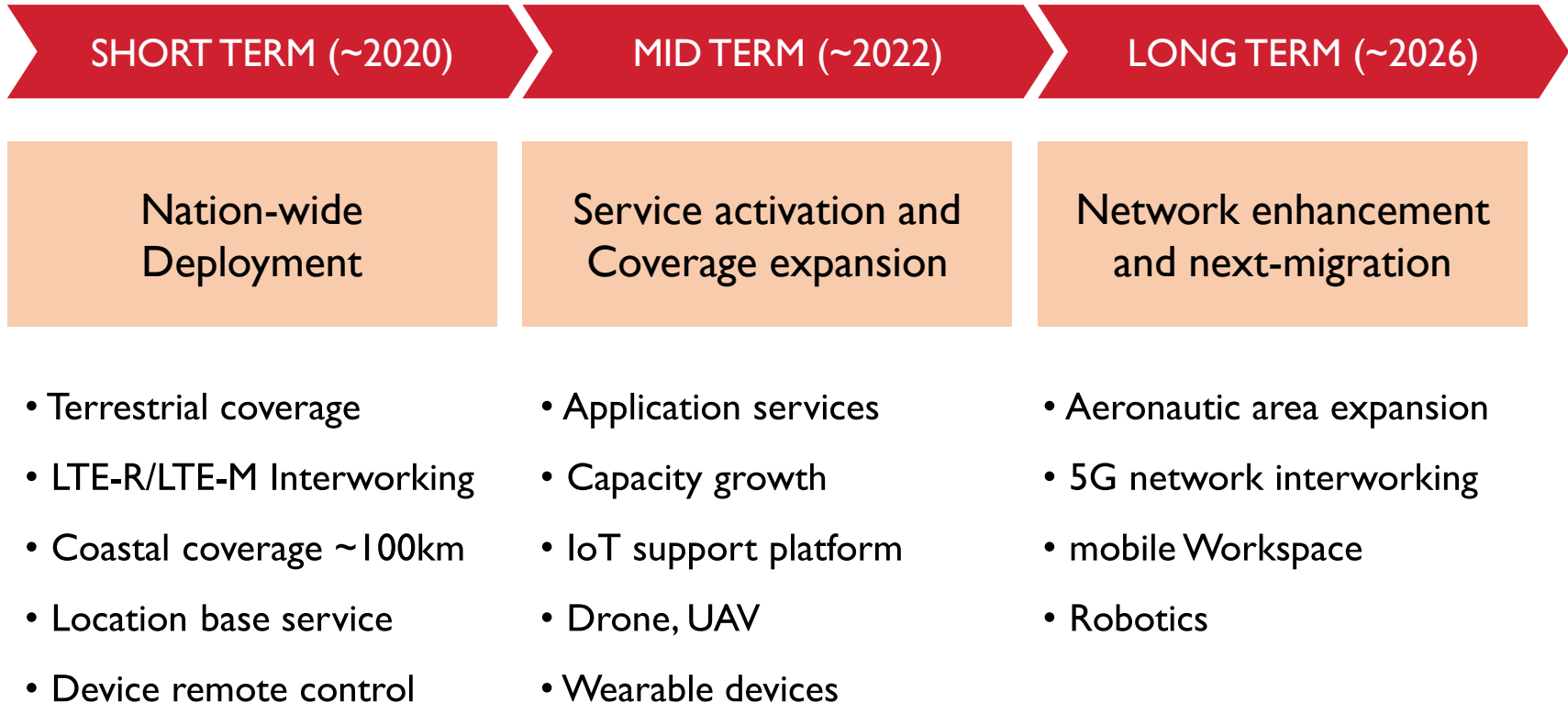
Southern Area  
(9 Provinces)

PHASE-3 (2020)

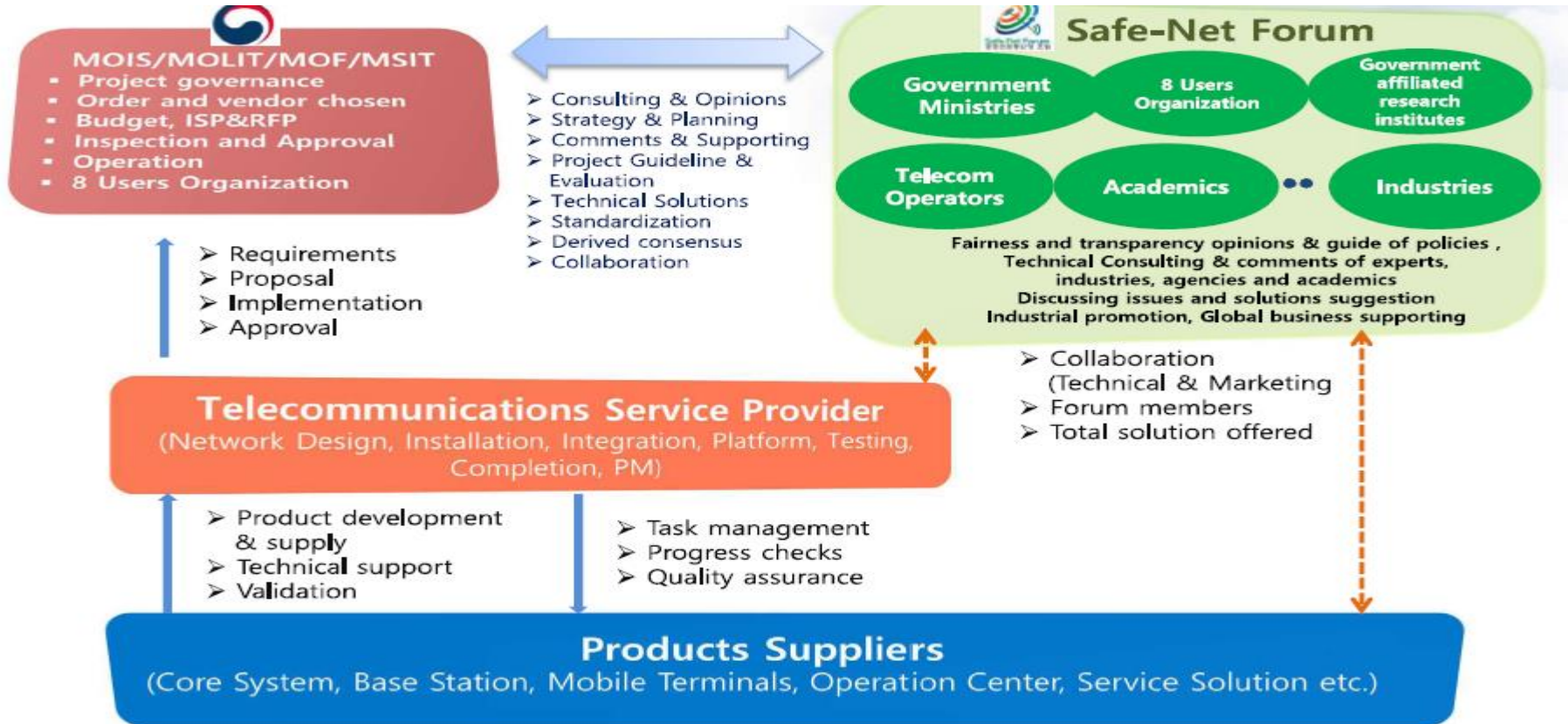


Seoul, GyeongGi &  
Incheon  
(Metropolitan cites)

# EVOLUTION



# STAKEHOLDERS



**KOREA PUBLIC WARNING SYSTEM**  
**MOBILE CELL BROADCAST**  
**EARLY WARNING SYSTEM**

# INTRODUCTION

## KPAS (KOREAN PUBLIC ALERT SYSTEM)

- Disaster Early Warning System for Public safety
- Defined by the ETSI's GSM committee and is part of the 2G, 3G, 4G LTE and 5G standards
- Using CBS (Cell Broadcast Service) technology
- Under operation since year 2013
- Utilize commercial mobile network and devices
- Send alert information with text messages with unique and dedicated ringtone

EMERGENCY  
AGENT



COMMERCIAL  
MOBILE NETWORK



MOBILE DEVICES



# WORLD WIDE INTRODUCTION

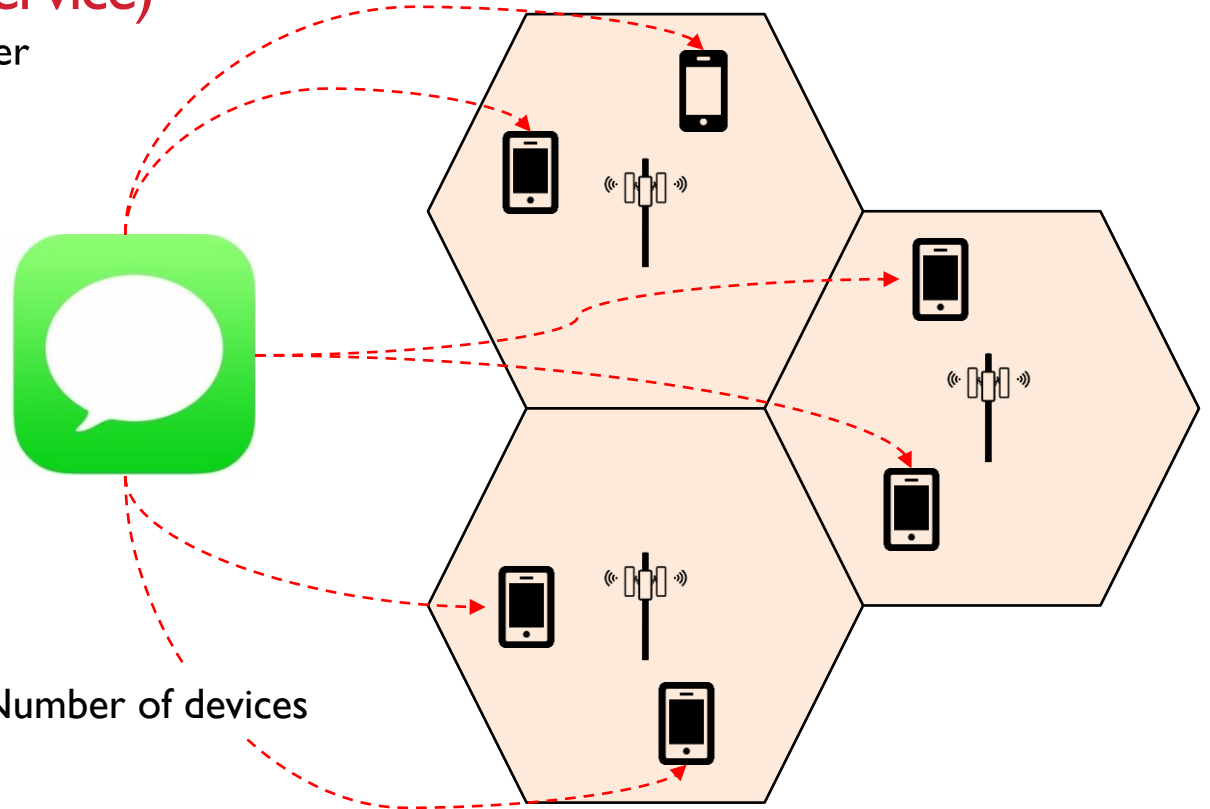


- Japan - Earthquake Early Warning
- Canada - Alert Ready
- United States - Wireless Emergency Alerts
- New Zealand - Emergency Mobile Alert
- European Union - EU-Alert
- Netherlands - NL-Alert
- Lithuania
- Romania
- Greece - GR-Alert
- Taiwan - Public Warning Cell Broadcast Service
- Sri Lanka - Disaster and Emergency Warning Network (DEWN)
- Philippines - Emergency Cell Broadcast System (ECBS)
- Chile - Sistema de Alerta de Emergencias (SAE)

# CELL BROADCAST SERVICE

## SMS (Short Message Service)

- Targeted to telephone number
- Long time to send all users
- High cost
- Default mobile service



Messages to send = Number of devices

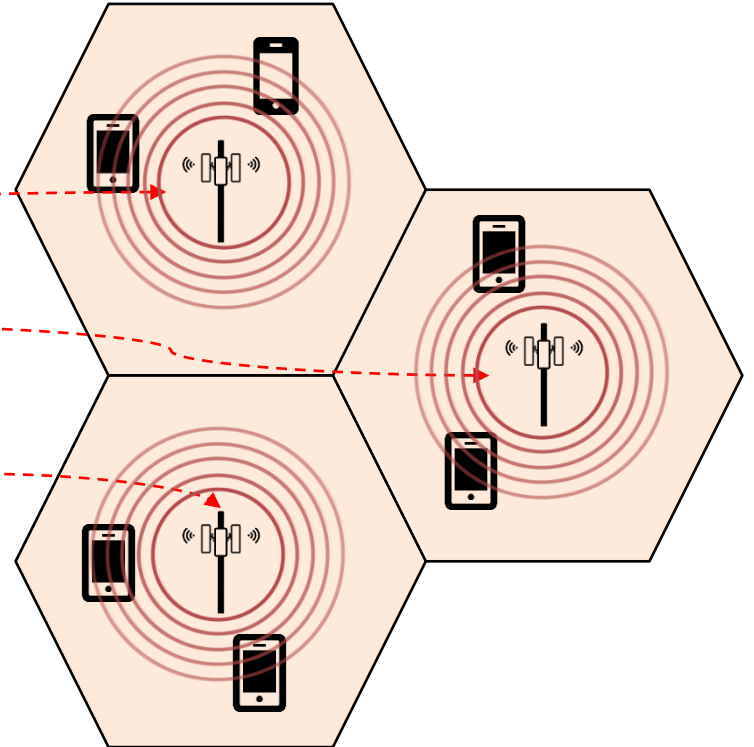
# CELL BROADCAST SERVICE

## CBS (Cell Broadcast Service)

- Targeted to mobile cells
- All devices within target cells get message
- Can send messages instantly to whole nation
- Additional service requirements and actions are needed

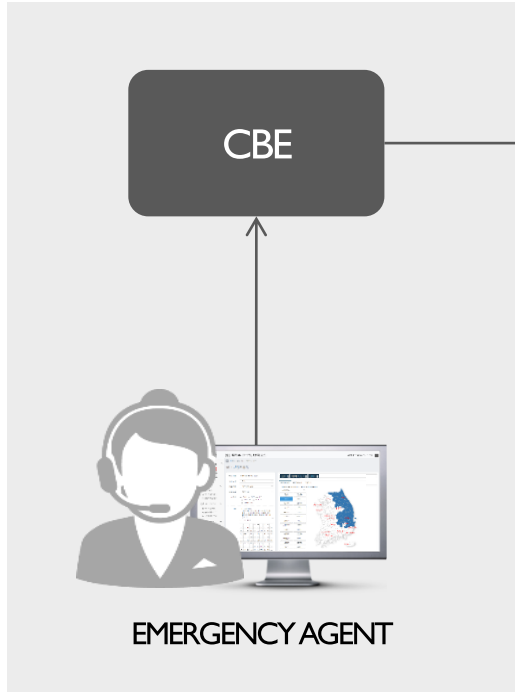


Message to send = Number of cells



# NETWORK CONFIGURATION

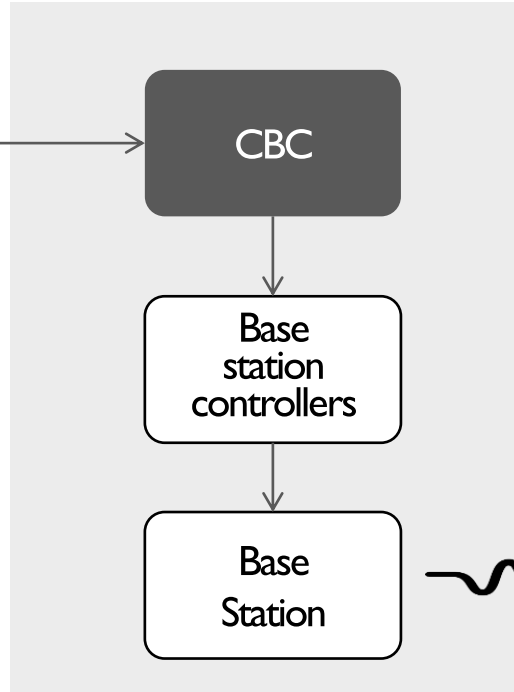
## GOVERNMENT SYSTEM



EMERGENCY AGENT

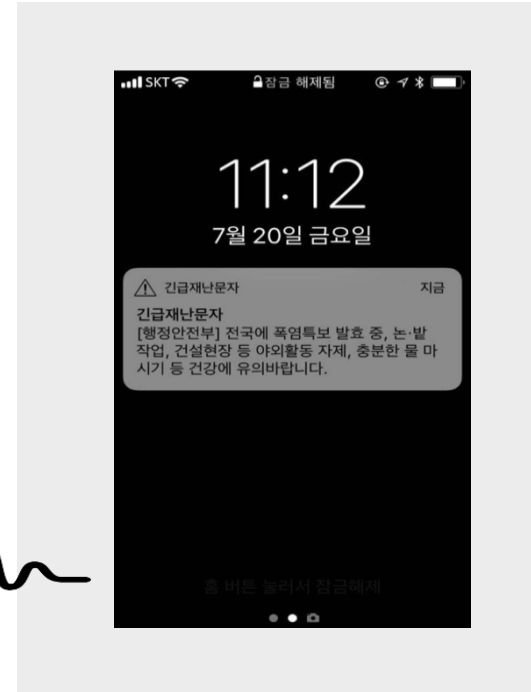
CBS Specific

## MOBILE NETWORK



Commercial Network

## MOBILE PHONE



CBE : Cell Broadcast Entity  
CBC : Cell Broadcast Center

# EMERGENCY OPERATOR CONSOLE

## Menu

- Configuration
  - Area group
  - Auto Text
  - Delivery history
  - Statistics
  - General
  - Disaster type
  - Delivery area
  - Delivery
  - Register message
  - Delivery request
  - Delivery result
  - Admin
  - management
  - Register notice
  - Admin approval
- 운영자ID
- Search

## Message composer

Home / Delivery / Register message

### Register message

Time 2017-05-18 13:14:57

Class 경보

Type 자연 재해 폭염

Auto Text 폭염경보

Mobile Operators  전제  SKT  LG U+  SKT LTE  KT LTE  LG U+ LTE

Message [국민안전처]  
안전안내. 오늘 00:00 폭염경보. 최고기온 00도. 00-00시 노약자 야외 활동 자제하고 물을 자주 마시기 바랍니다

117/120 bytes

Virtual keyboard

## Area selection

Selected areas

Area

Map List group

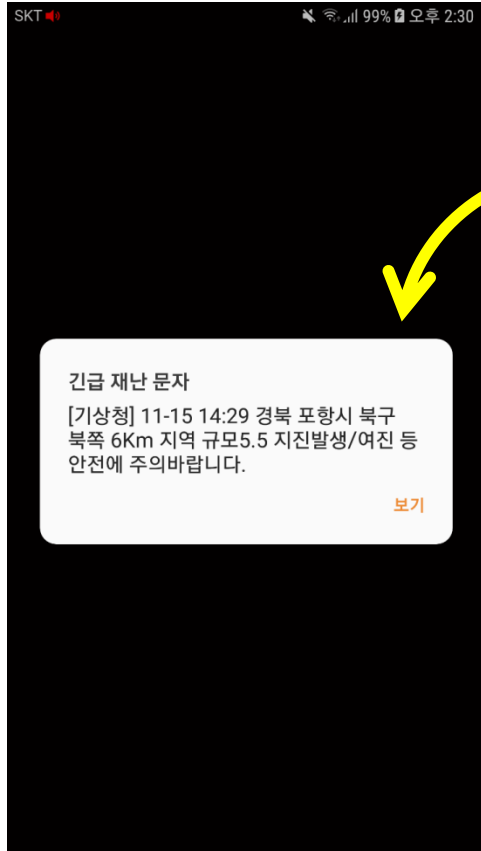
아래의 목록이나 지도에서 송할 지역을 선택해 주세요.

시도 선택

강원도	충청남도
광주광역시	인천광역시
대구광역시	서울특별시
세종특별자치시	경상북도
전라북도	충청북도
대전광역시	전라남도
경상남도	경기도
부산광역시	제주도
충청남도	

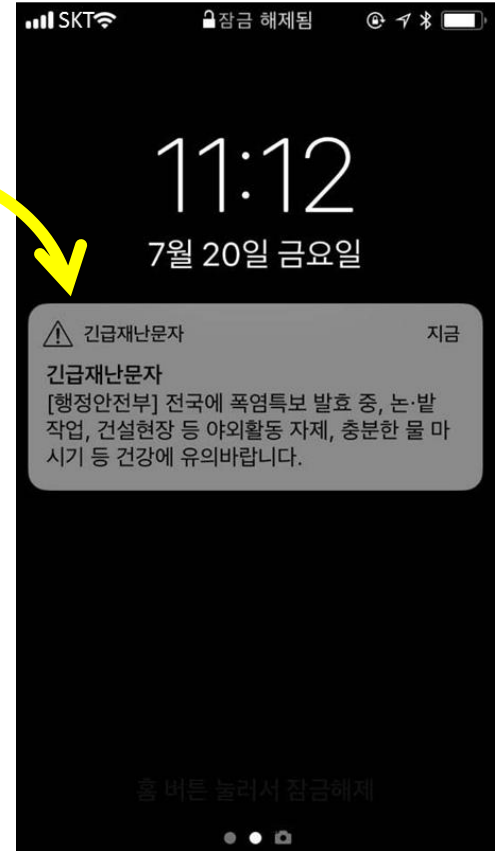
Map labels: 강원도, 충청남도, 충청북도, 인천광역시, 서울특별시, 대전광역시, 전라북도, 전라남도, 경상남도, 경상북도, 광주광역시, 부산광역시, 제주도

# USER ALERT

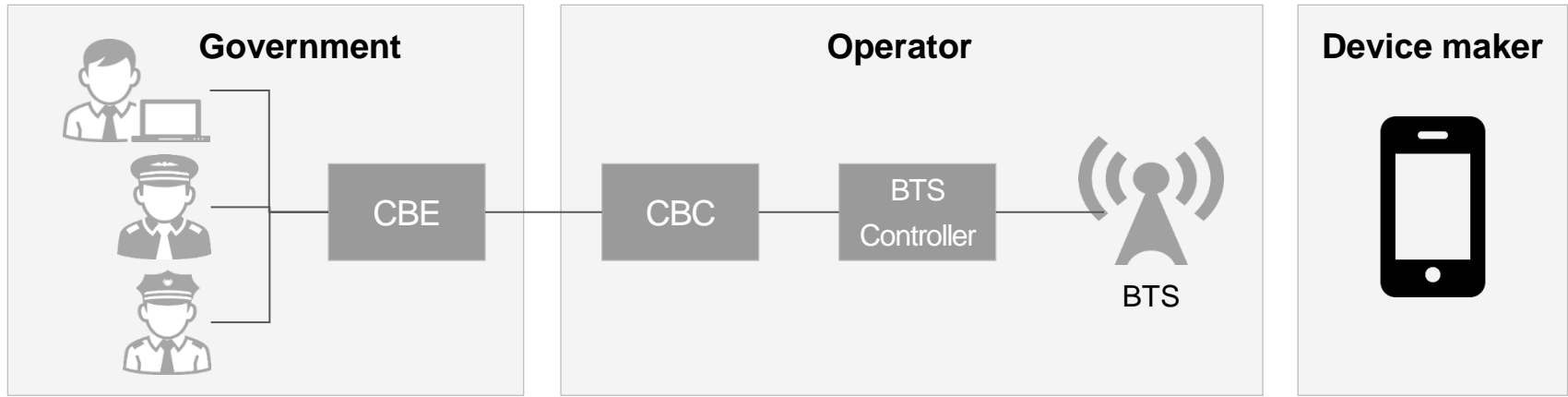


POP-UP MESSAGE

UNIQUE RINGTONE



# KEY TASKS FOR CBS EWS



## PLANNING

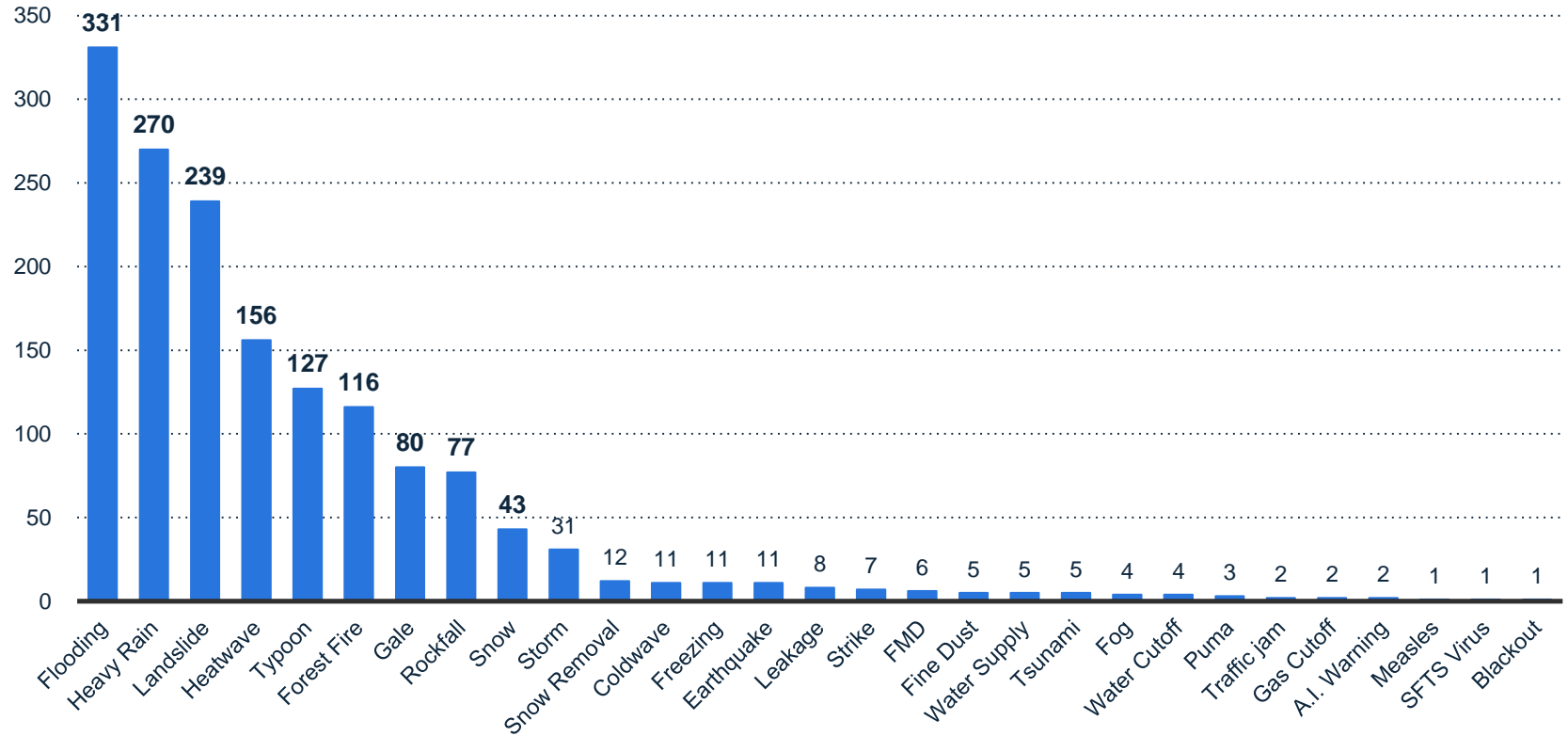
- Establish requirements for EWS
  - Class, User Interface, Language support, etc.
- Establish technical specification
- Coordinate with mobile operators and terminal manufacturers to implement EWS

## IMPLEMENTING

- Install CBE (Government)
- Install or update CBC (Operator)
- Ensure existing network support (Operator)
- Ensure Lao CBS support for terminals (Device maker)
- End to end test (All together)

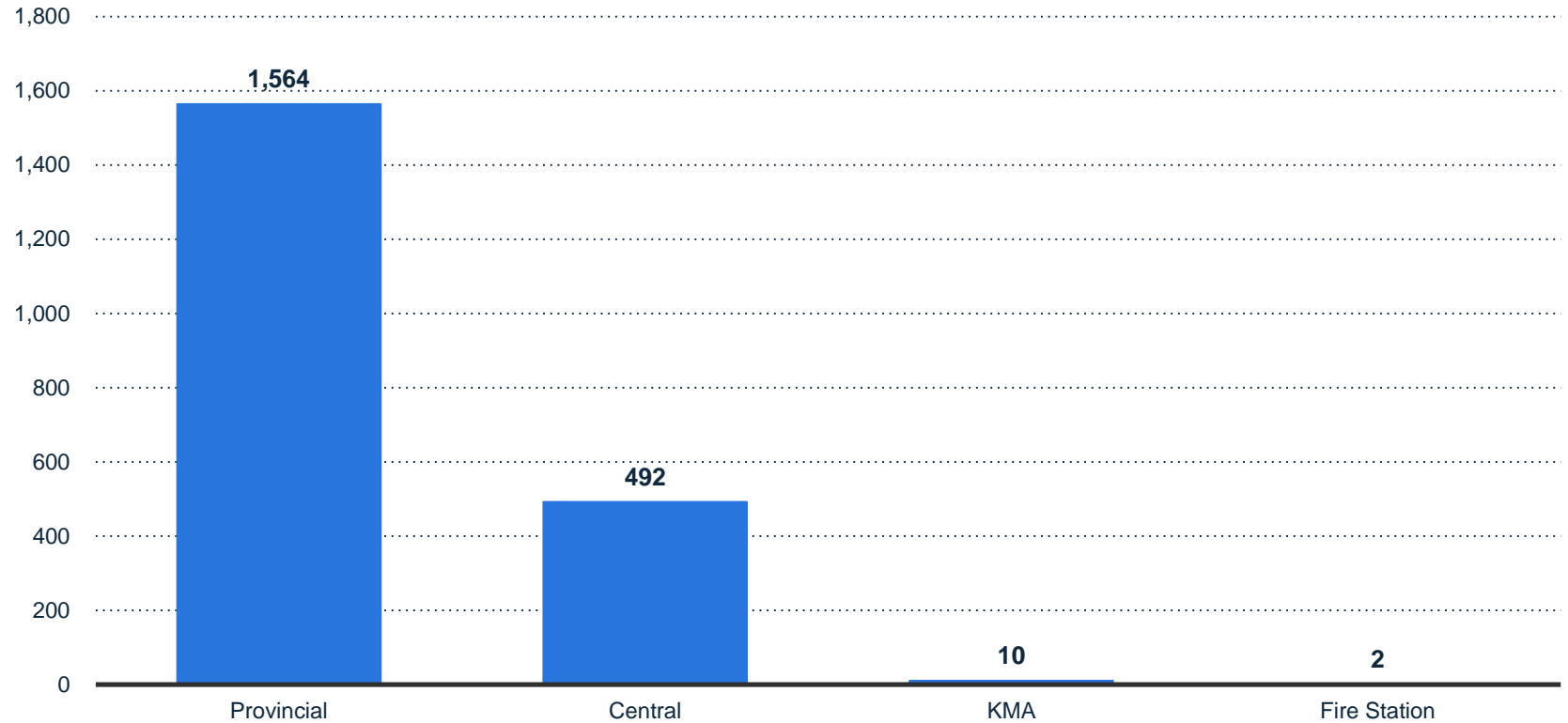
# USAGE

DISASTER TYPE



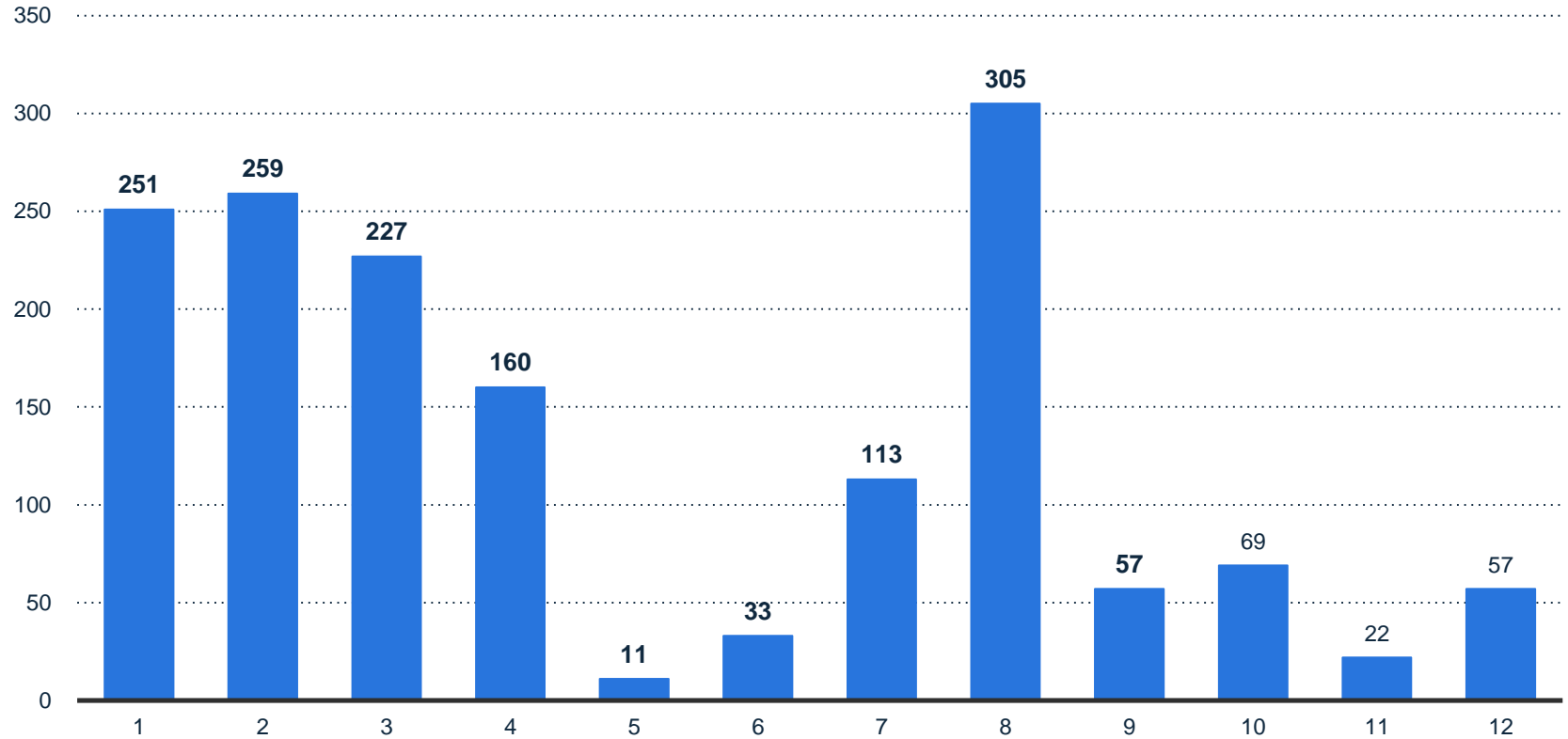
# USAGE

SENDING AGENCY



# USAGE

MONTHLY COUNT



# SKT's PLAN TO SUPPORT LAOS

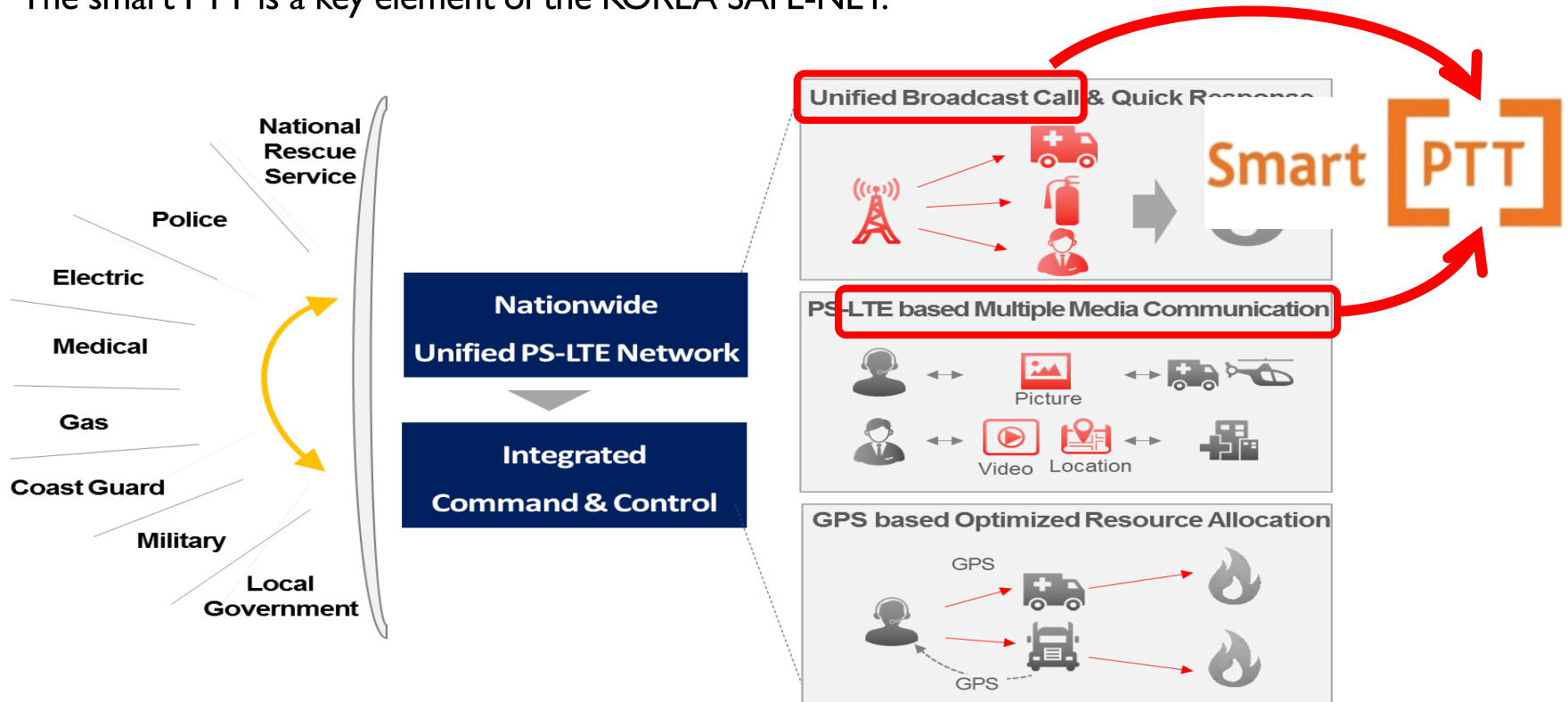
# BACKGROUND

SK Telecom proposed to donate the smart PTT solution to the disaster-affected area in 2018. It will help to enhance emergency communication capability of the area.



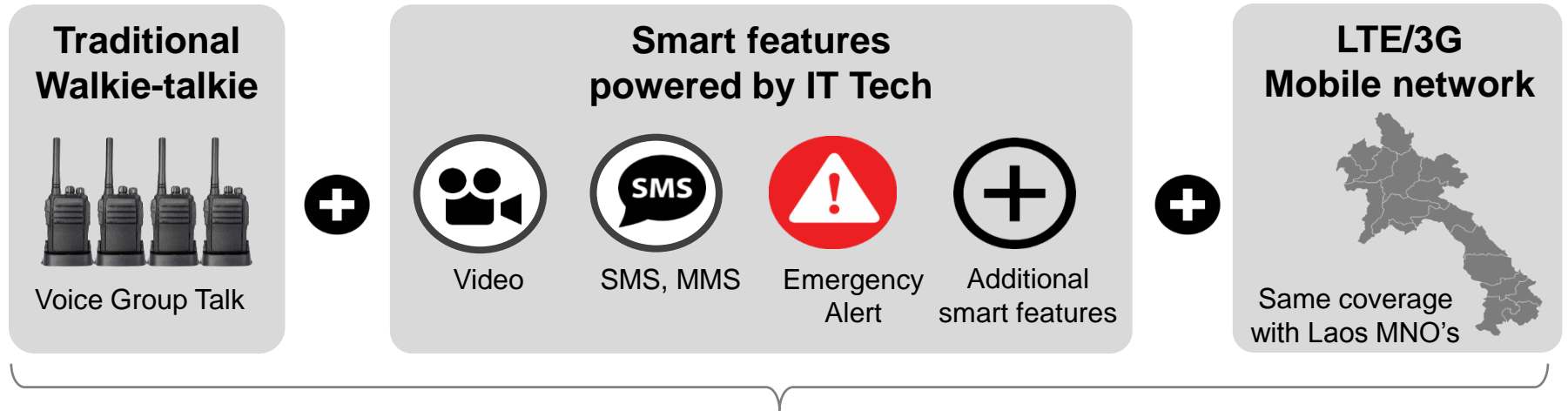
# SMART PTT

The smart PTT is a key element of the KOREA SAFE-NET.



# SMART PTT

The smart PTT will be operating over mobile network of Laos thus provides same coverage with Laos mobile network. It provides voice and video group talk, multimedia message, emergency alert and other additional smart features.



Smart [PTT]



SK telecom

# POTENTIAL APPLICATION

**EARLY WARNING BROADCAST  
TO PEOPLE**



**EARLY WARNING BROADCAST  
TO AREAS**



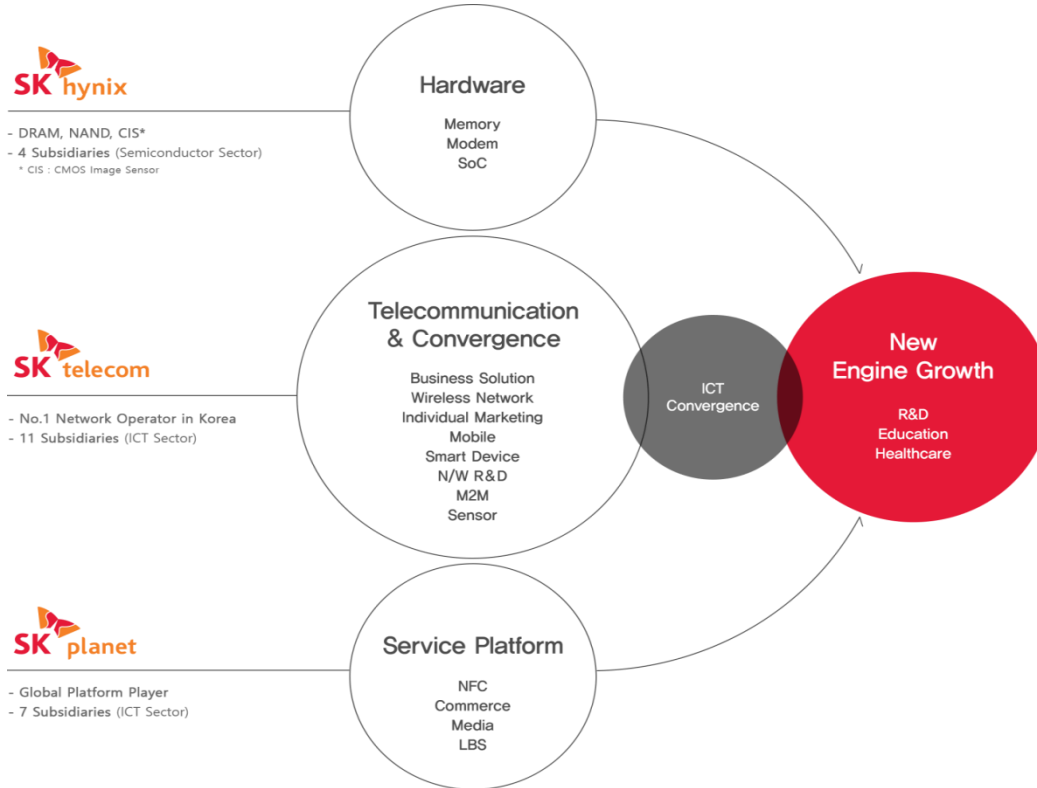
**FIRST RESPONDER  
COMMUNICATION**



# SK TELECOM PROFILE

# SK TELECOM

Established in 1984, SK Telecom is the largest mobile operator in Korea by both revenue and number of subscribers.



ຂອບໃຈ  
THANK YOU