Asia-Pacific
Economic Cooperation

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Agenda Item: 9.10

Korea Safe-Net Based on ICT

Purpose: Information
Submitted by: Korea

APEC PERU 2016

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Korea Safe-Net based on ICT

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Video file of Korea Safe-net demonstration (June 3, 2016)

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I. Overview

Concept of Korea Safe-Net

Nationwide unified network will be utilized by activities such as usual duties and prevention services as well as Integrated command, control and assistance among all agencies in disaster.

- **Nationwide Unified Network**
  - ✓ Usage for 333 agencies
  - ✓ in 8 departments
- **Technology : PS-LTE(Standard Rel.13)**
  - ✓ 37 Functional Items such as :
    - direct mode,
    - stand alone base station etc.,

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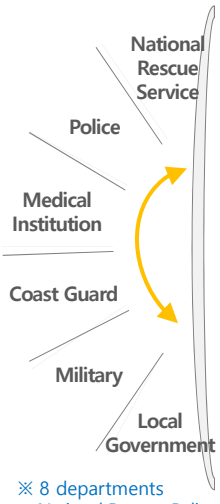
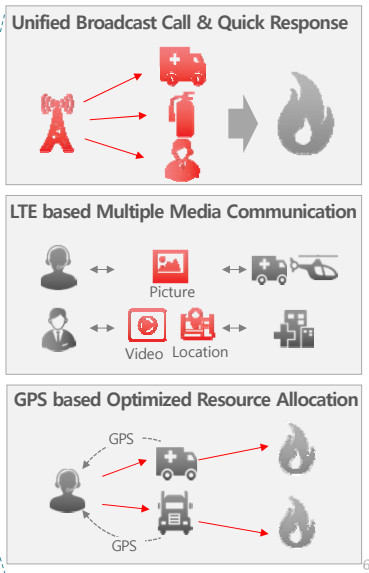
Structure of Korea Safe-Net



※ 8 departments
National Rescue, Police, Coast Guard, Military, Local Gov., Medical, Electric, Gas]

Nationwide Unified LTE Network

Integrated Command & Control



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Usage : Usual and Emergency

Usual	
Fire/Rescue	Facilities information, Routing
Police	Security screening, CCTV
Coast Guard	Ship information inquiry
Integrated Defense	Joint military service
Safety management	Inspection record & registration
Medical	Remote diagnosis, patient record
Electric/Gas	Remote monitoring

Emergency

- **Rapid situation assessment**
  Video of site, GPS information, Simultaneous propagation of situation
- **Simultaneous command**
  Management of communication group
- **Integrated control**
  Group call, Emergency call
- **Cooperation between agencies**
  Video conference, Resource request

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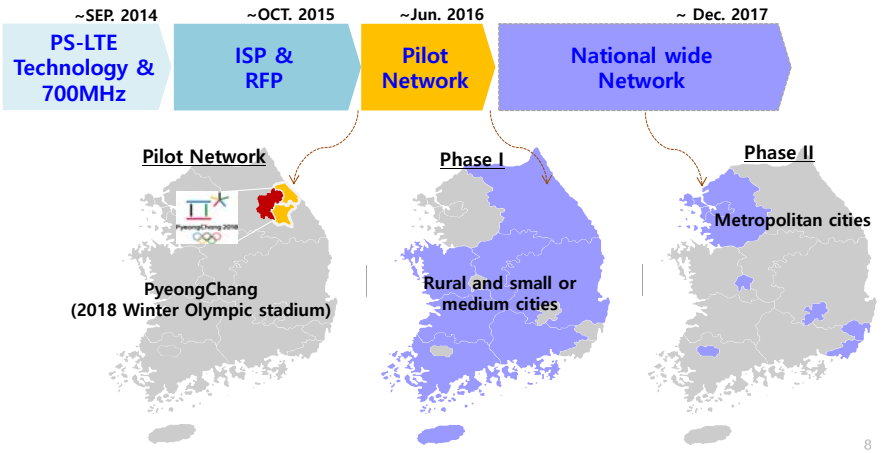
Milestone

- **Pilot : Verifying and testing the effectiveness of PS-LTE technologies**
- **Phase I&II : Rel. 13 Implementation, SW Application, Interoperability**



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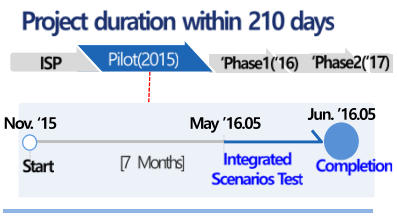
II. Pilot Project Status

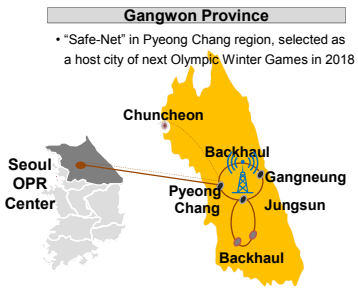
Safe-Net Pilot Deployment

- **Period: Nov.2015 - Jun. 2016**
  - **2 Sub-Projects In parallel : (1)PyeongChang Area+Operating Center, (2)GangNeung & JungSun Area**
- **Budget :** 43.6Bil.KRW (37Mil.US$)
- **Working Scope**

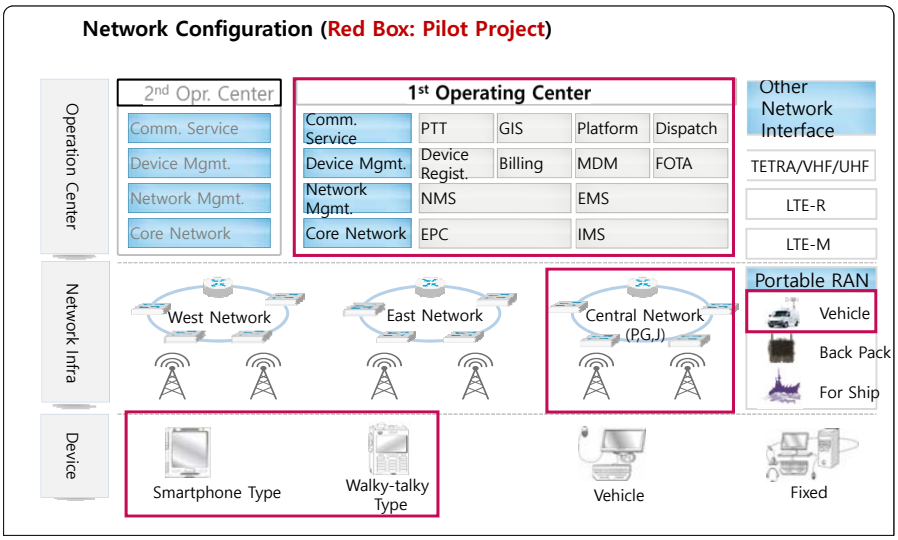
Operation Center(1), Fixed Base Station(220), Mobile Base station(1), Wireless Phone(2,496)

- Trial Network Deployment
- Trial Operation and Maintenance
- Interoperability Test and Security Verification
- Performance (Out/In-Door Coverage, 37 Features)
- Interworking Solution for Commercial Network, Tetra and UHF/VHF
- Interference Test with LTE-R(Railway)/LTE-M(Maritime)





Safe-Net Pilot Network Configuration



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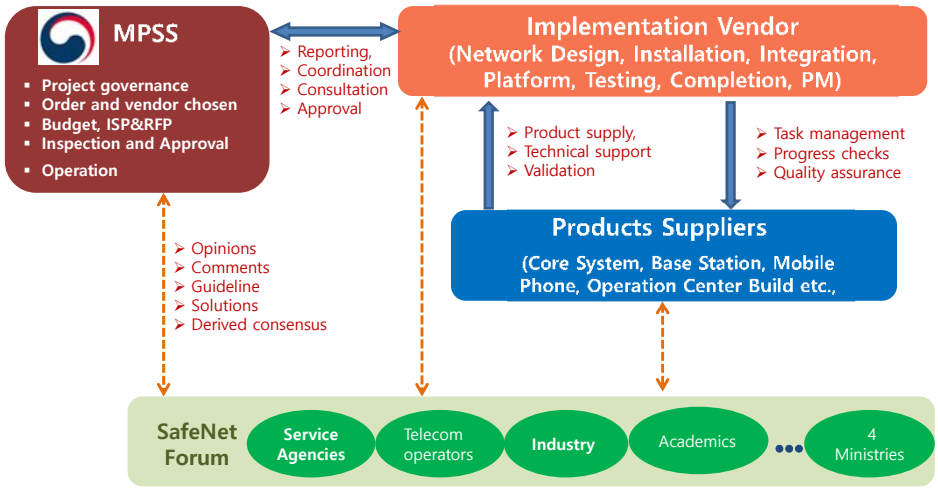
Public Private Cooperation



Fairness and transparency opinions & guide of policies ,
Technical Consulting & comments of experts, industries, agencies and academics
Discussing issues and solutions suggested

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III. Future Plan

Safe-Net Deployment Scenario

Pilot ('15 ~'16)	Phase 1 ('16 ~'17)	Phase 2('17)
Gangwon Province (PyeongChang, GangNeung, JungSun) (Deploy 220BS, 2,500UE)	9 Provinces (Deploy 7,300BS, 100K UE)	Seoul, GyeongGi & 6 Metropolitan Cities (Deploy 4,200BS, 100K UE)
- Local Government, Police, Fire Station, Coast Guard	- Local Government, Police, Fire Station, Coast Guard (176 Organizations)	- Local Government, Police, Fire Station, Coast Guard (330 Organizations)
- LTE-R(Railway) Interworking Test	- LTE-M(Maritime) Co-deployment	- LTE-R/LTE-M Interworking adaption
- Smart Phone, Walkie-Talkie	- Smart Phone, Walkie-Talkie, Vehicle, Fixed	- Smart Phone, Walkie-Talkie, Vehicle, Fixed

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Safe-Net Future Evolution Scenario

Public Safety Network Completion	Interworking (Rail, Marine, IoT, etc)	Expansion (Mobile Government)
- Terrestrial Coverage - Coastal ~ 20km	- LTE-R/LTE-M Interworking - Coastal ~ 100km	- Expansion to Aeronautic Area
- LBS Device Remote Control	- IoT u-Health, Drone/UAV	- m-Workspace, Robotics, Wearable devices

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IV. Suggestions

key Factors for Successful Safe-Net Evolution

Economic and efficient network deployment

- It has to be built cost-effectively due to limited users and emergency's wide scope.
- Pilot deployment suggests the combinations of fixed and mobile base stations.

Timely Change (Regacy network unavailable)

- TRS/VHF/UHF systems pass the time of change and the demand of multi-media in disaster management is higher and higher.
- Timely establishment of national PS-LTE systems needs close communication and cooperation with stakeholders

International cooperation in PS-LTE

- PS-LTE standardization and ICT convergence networks (IoT, Big Data, positioning, etc.) develop the technologies for disaster and safety.
- Various experiences of the adaptation of new technologies should be shared internationally.

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Thank you!!!

Q & A

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