

# **China's National Early Warning Releasing System (NEWRS)**

**ROME, ITALY ,SEPTEMBER 2017**

**Cao Zhiyu**

# Contents

## 1. Background

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## 2. Construction and system functions

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## 3. Application and access

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# Frequent disasters

## Natural disasters



Typhoon NO.13 "Hato" of 2017.

## Accidental disasters



Explosion in Tianjin Binhai New Area in August 2015.

## Public health events



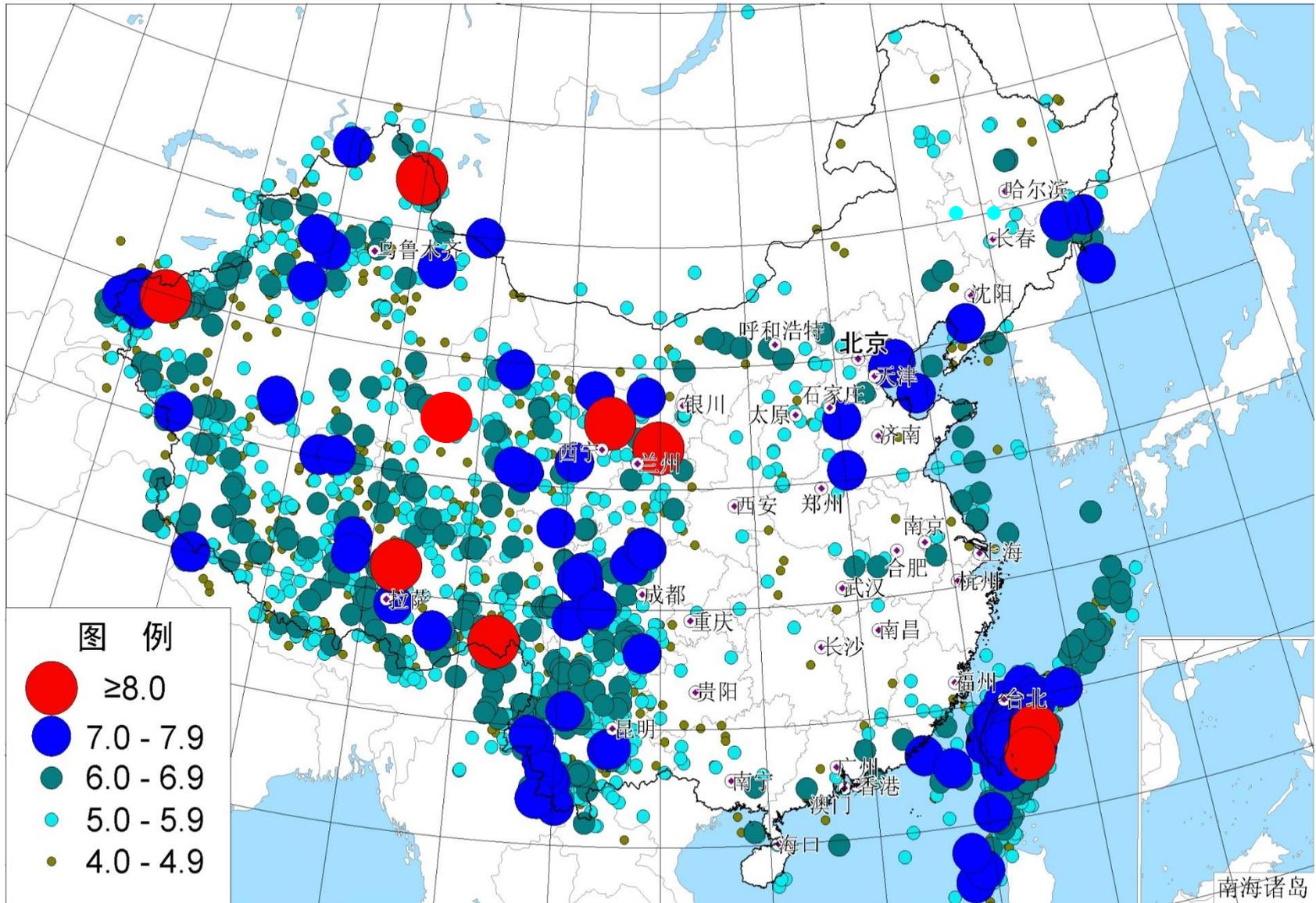
SARS spread all over the world in 2003.

## Social security incidents



Social security incidents of Shanghai in Dec. 31<sup>st</sup> 2014.

# Distribution of Epicenter during 1900-2003



20<sup>th</sup> Century in China: earthquakes 7 times  $\geq 8$  degree; 65 times 7—7.9 degree; 382 times 6-6.9 degree

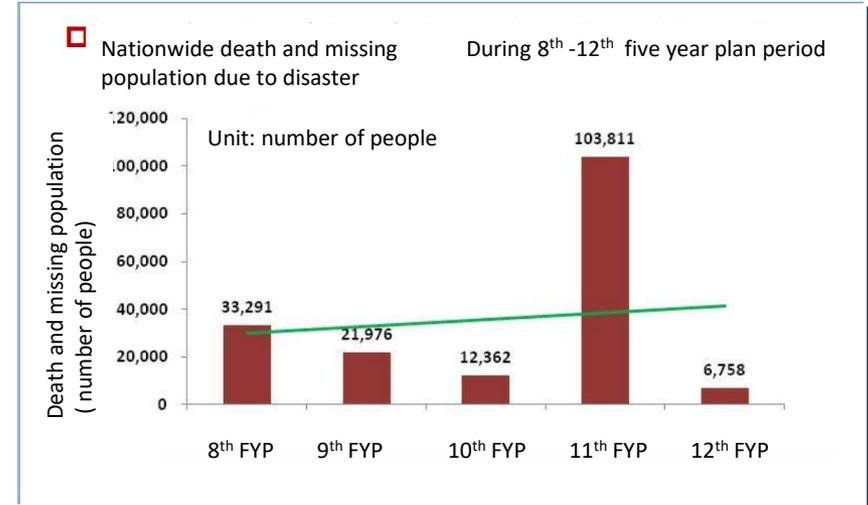
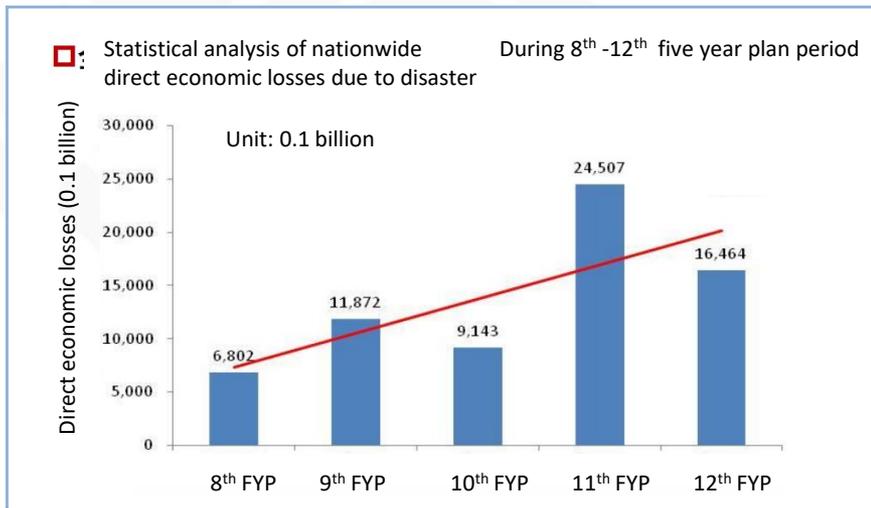
# Background

## Grave Losses of natural disasters

Every year : More than **10,000** death

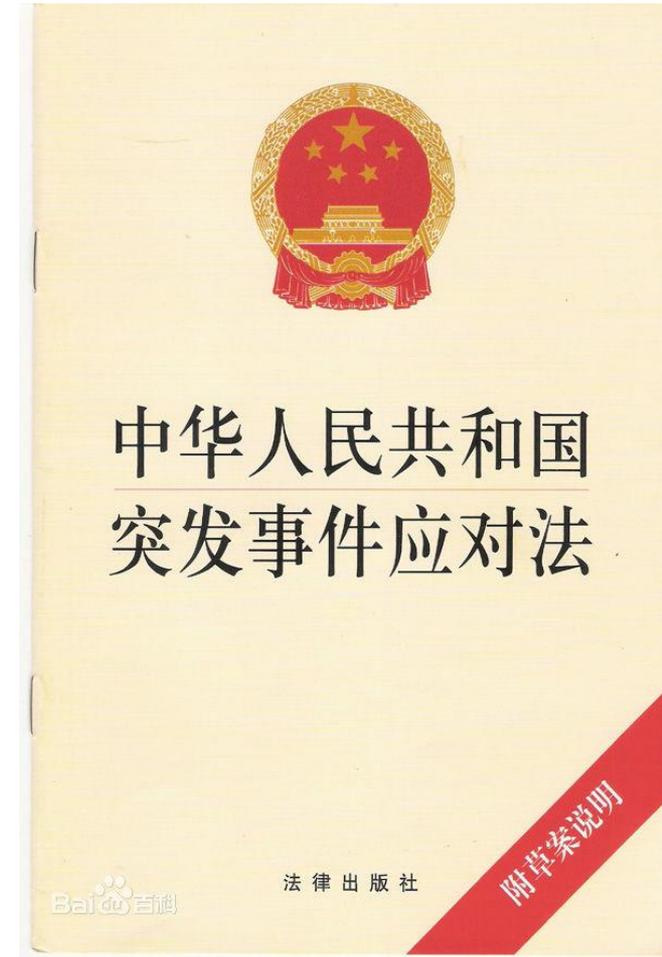
More than **400 million** persons affected by disasters,

Economic loss more than **RMB 260 billion**



# Background

- The state council should establish a nationwide unified early warning release system
- The country should establish and perfect the system of emergency monitoring
- The country should establish and perfect the **system of emergency early warning release**



《The Law on Response to Emergencies》  
Implement since November 1,2007

# Contents

## 1. Background

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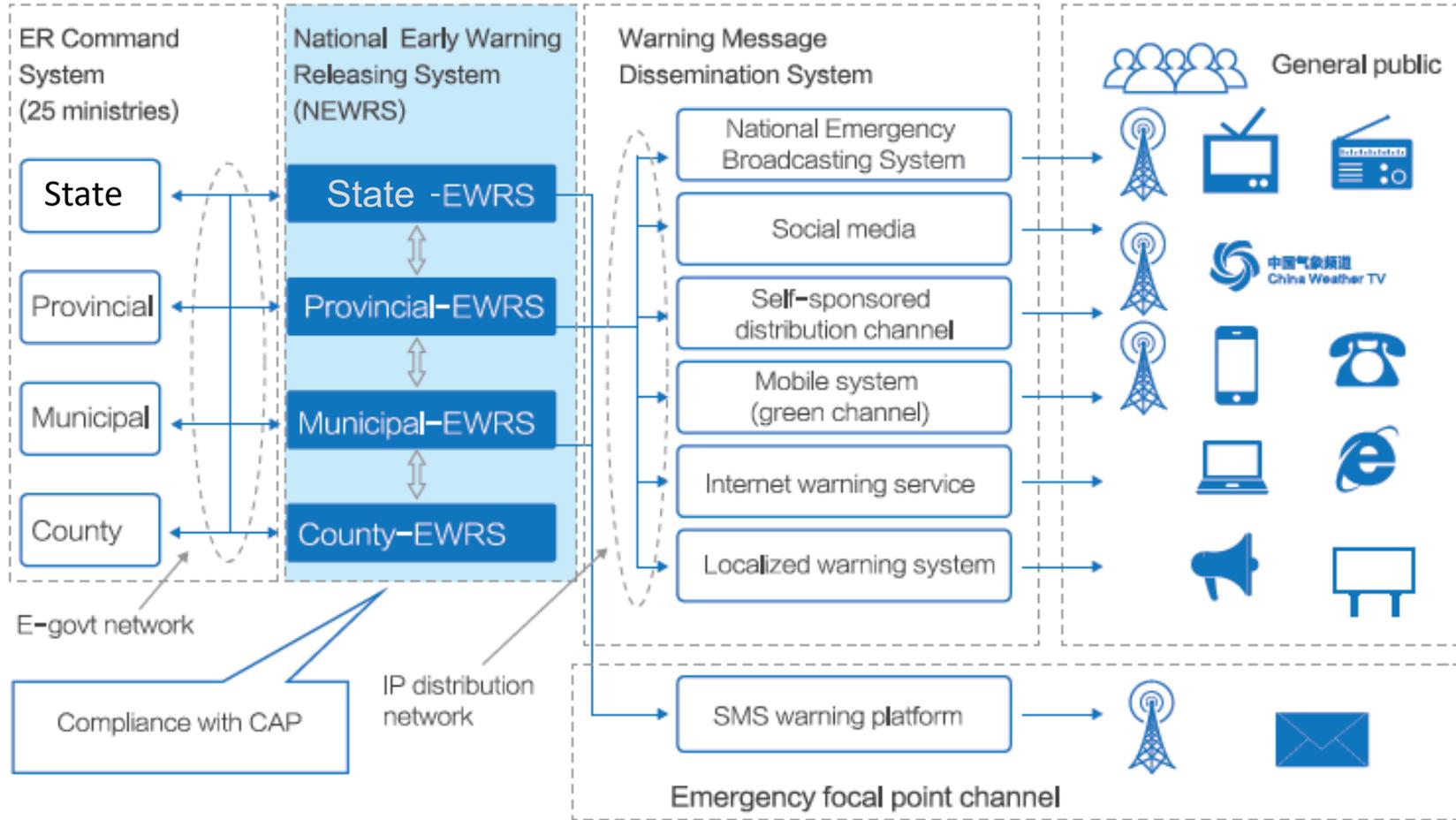
## 2. Construction and system functions

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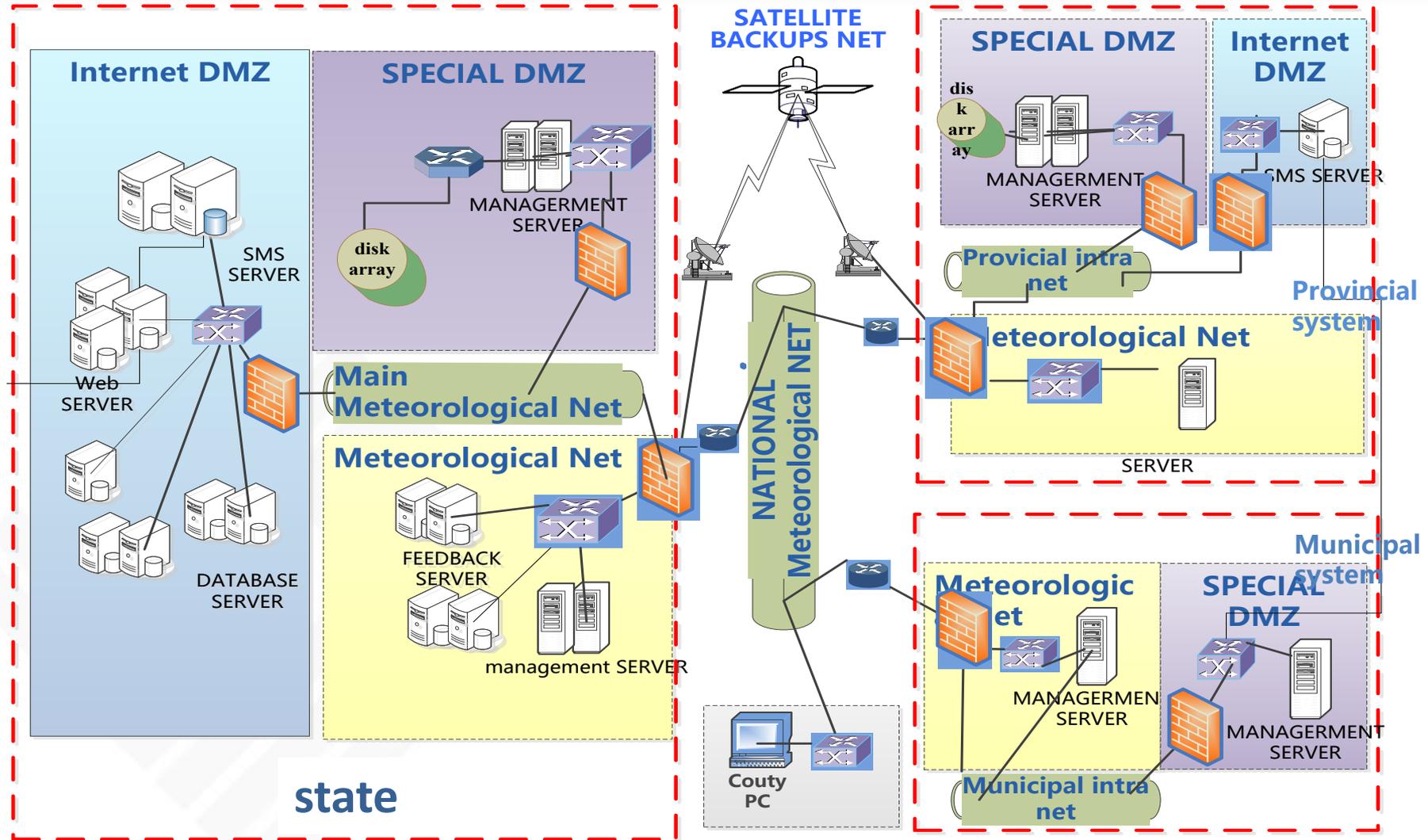
## 3. Application and access

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# NEWRS relationship and structure



# NEWRS's framework



state

Municipal system

Provincial system

Longitudinal and horizontal inter-connected, deployment of three levels and four levels application platform, the message transmission base on the meteorological broadband network

# Alert horizontal transmission

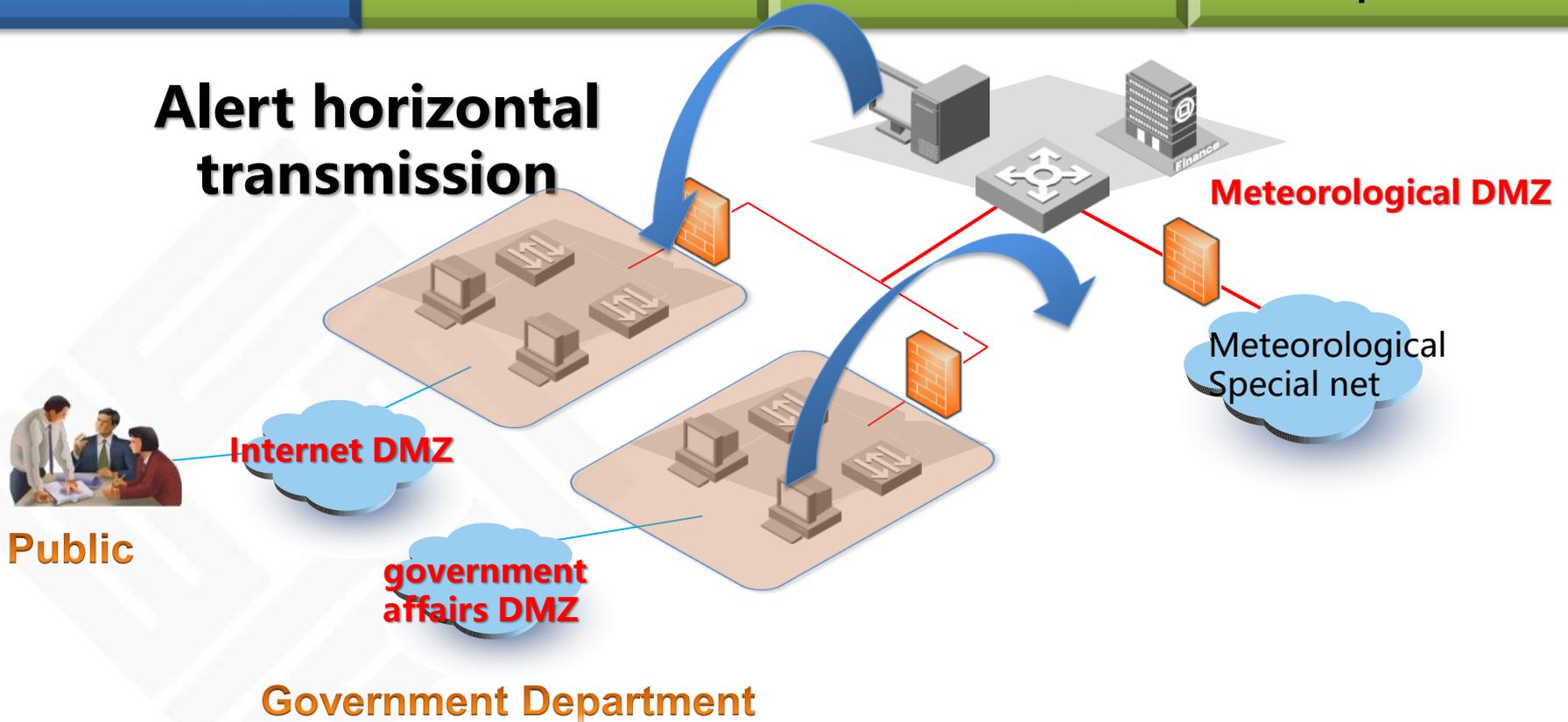
Transfer safe

Trail Record

Unified standard

Multiple method

## Alert horizontal transmission



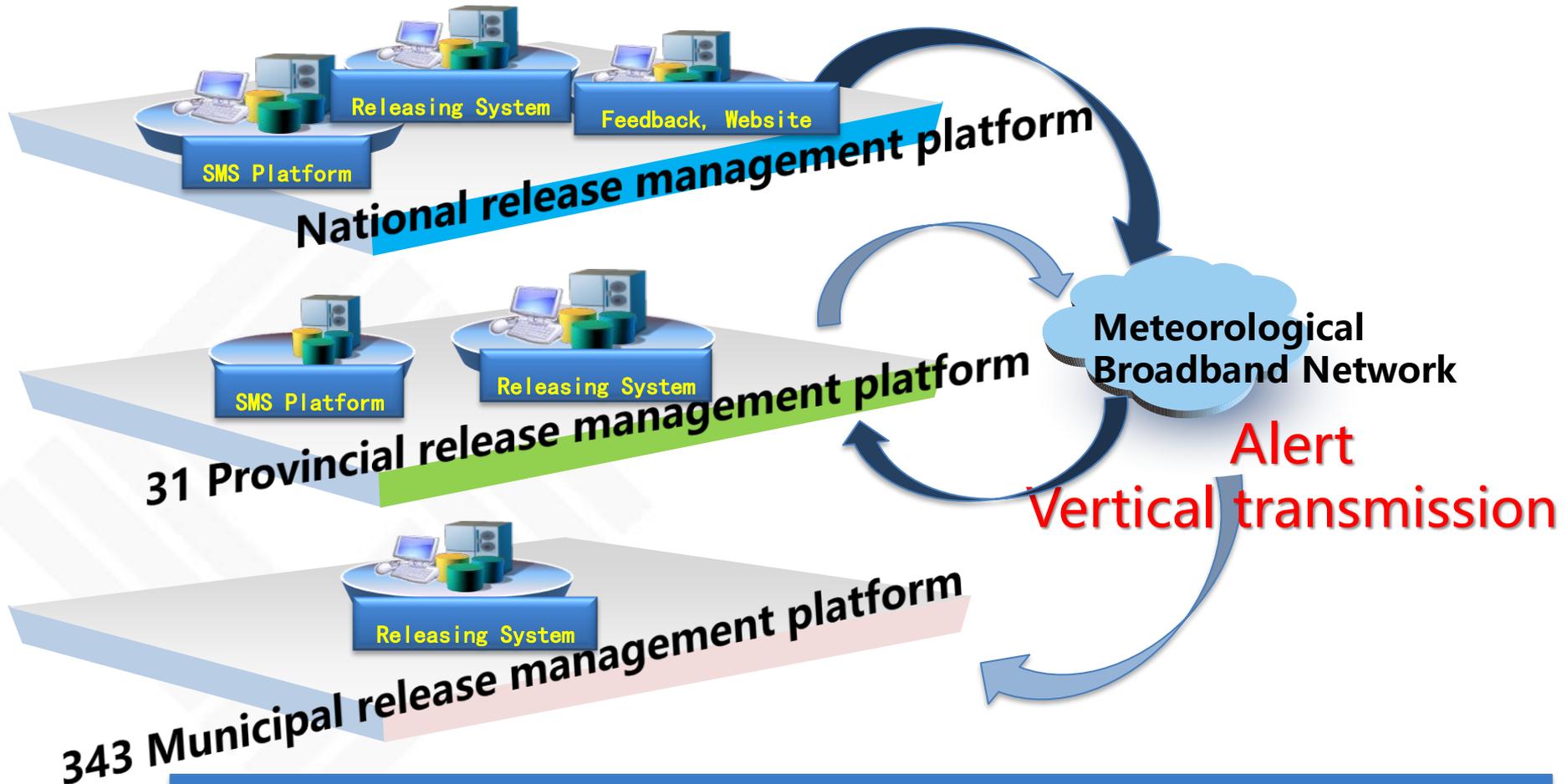
# Vertical transmission between the three-level platform

Reliable transmission of information

Trackable life cycle

Unified standard, flexible configuration

Release channel flexible configuration

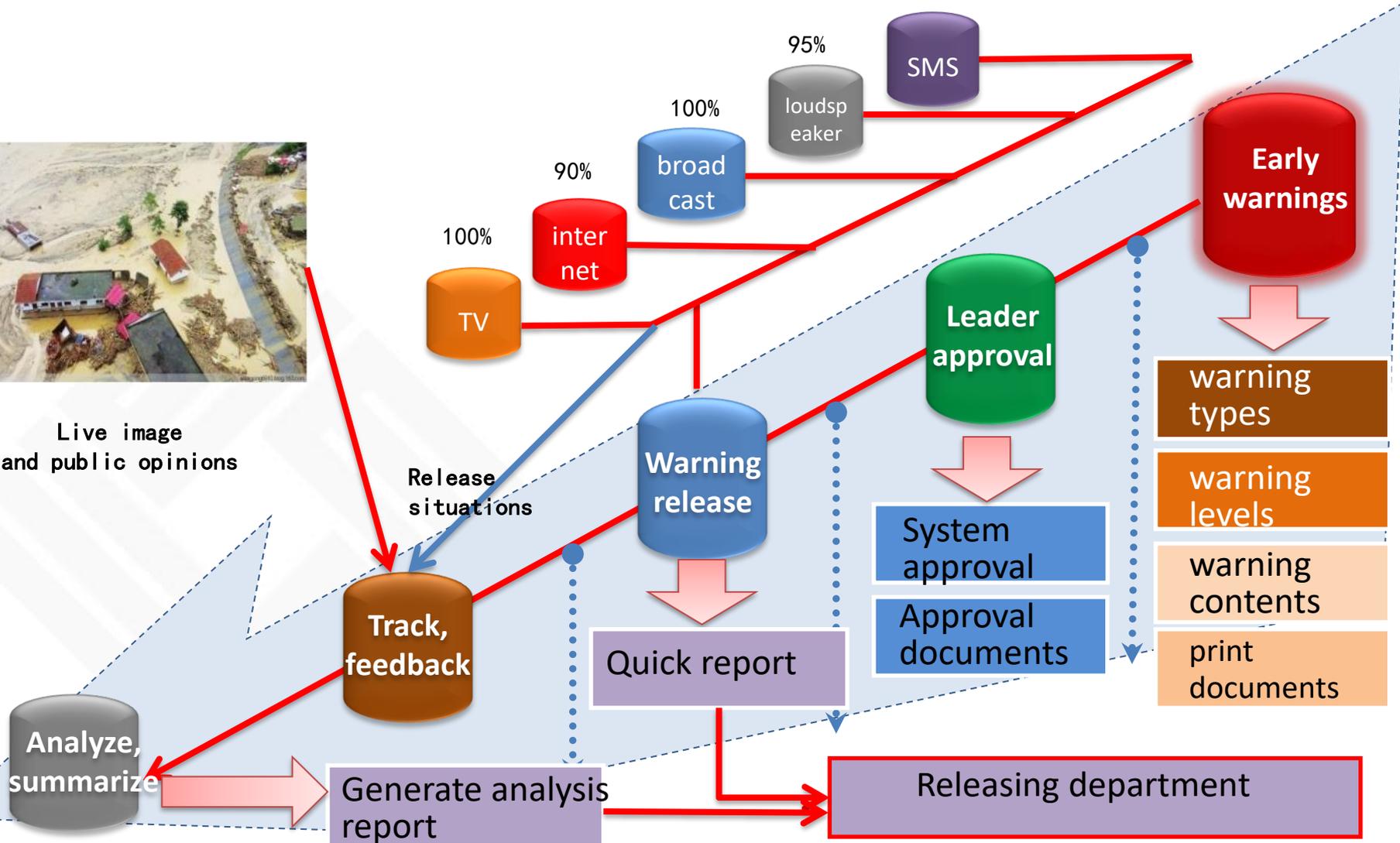


Three-tier security measures to achieve cross-regional, provincial and municipal point-to-point secure transmission

# Overall process



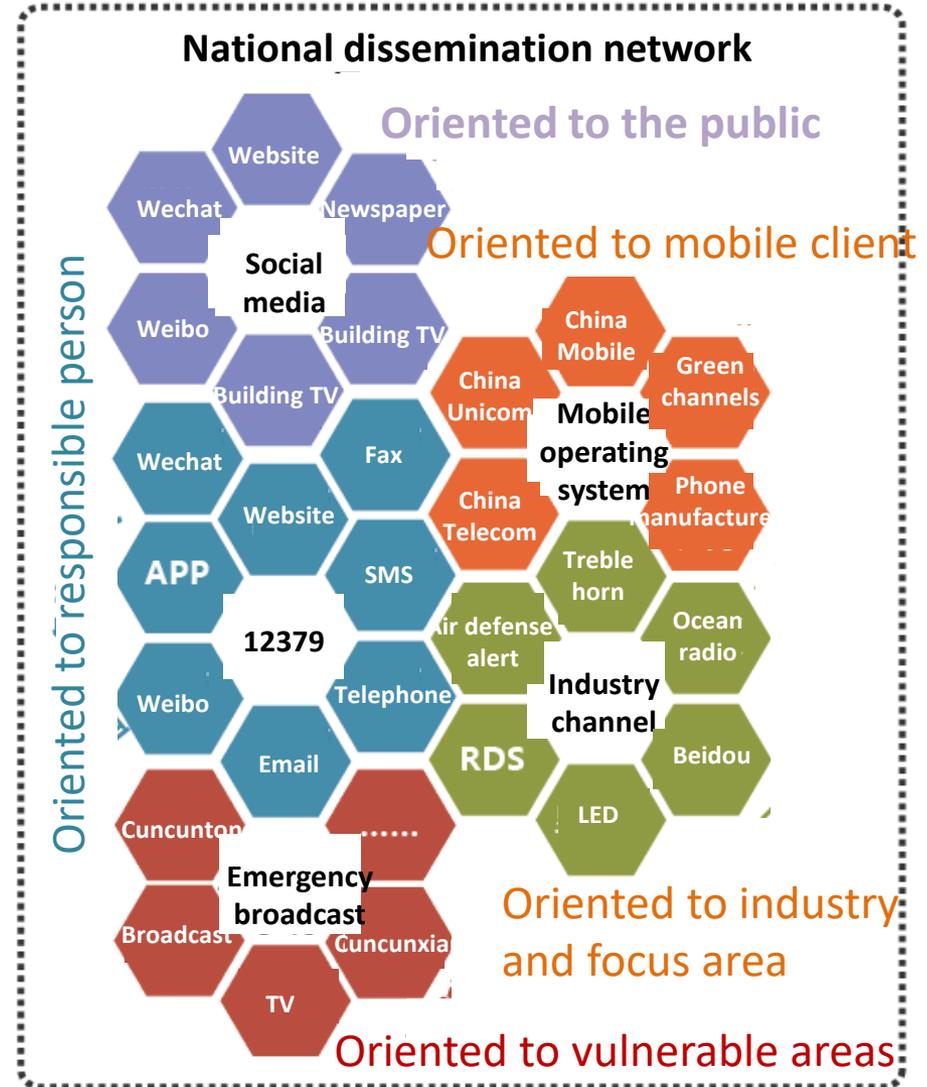
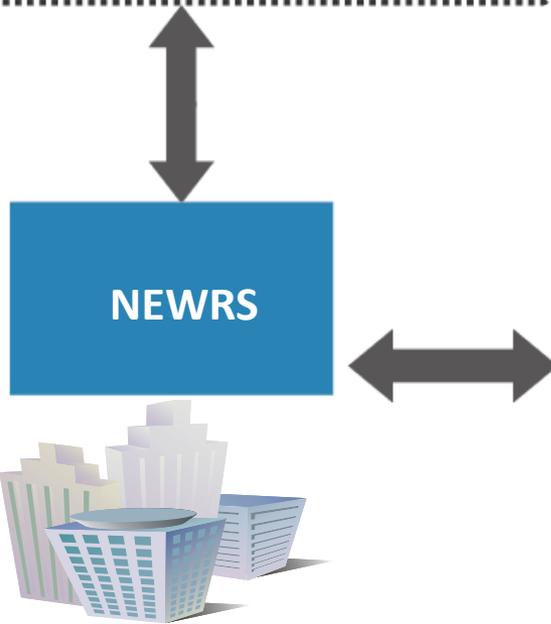
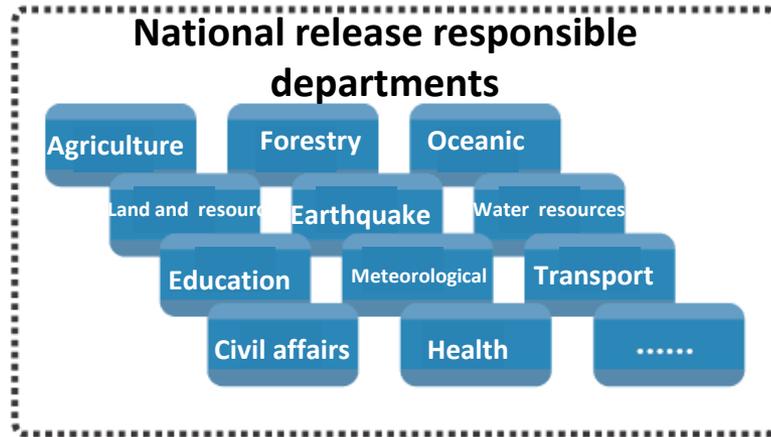
Live image and public opinions



# Provide overall solutions and quality service

- 1 omnimedia release of early warning
- 2 rapid release of the designated area via entire network
- 3 barrier-free sharing of early warning across departments
- 4 dedicated channel for local messengers
- 5 real-time feedback of release effect
- 6 warning release security assurance

# 1. omnimedia release of early warning



# Wide coverage of early warning dissemination network



## Broadcast and TV

- Television instant inter-cut of **30 provinces**, radio instant inter-cut of **31 provinces**
- **Emergency network** : Implement the docking with emergency network comprehensive emergency, demonstration of **2 provinces**



## National social media

- **Tencent**: Cover **600 million** WeChat users and **400 million** QQ users with popup
- **Ali**: Covering **400 million** Alipay users
- **Baidu**: Cover **83%** internet users with Baidu search and map
- **Sina**: Cover **300 million** microblog users



## Business & Operating Support System

- **Green channel**: **31** provinces SMS to effect area
- **Mobile phone producers**: discuss with lenovo, Huawei on **mandatory app installation standard**

# Wide coverage of early warning dissemination network



## Distribution Channels of different industries

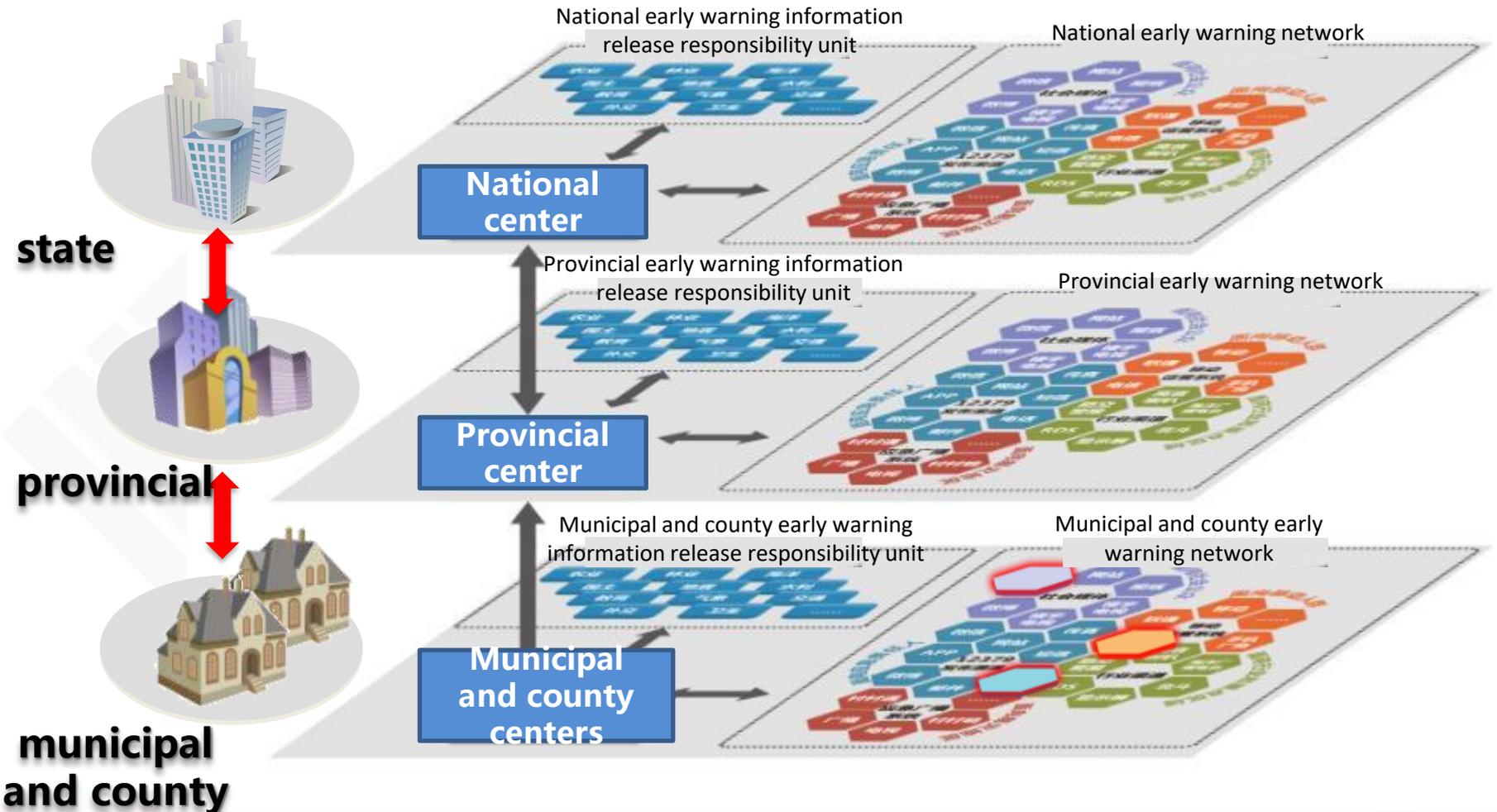
- Docking with **145,000** meteorological LED screens, **329,000** meteorological early warning loudspeakers
- **78,000** rural information service stations, covering **95.6%** villages and towns
- **8** marine broadcasting radios



## 12379 release channels

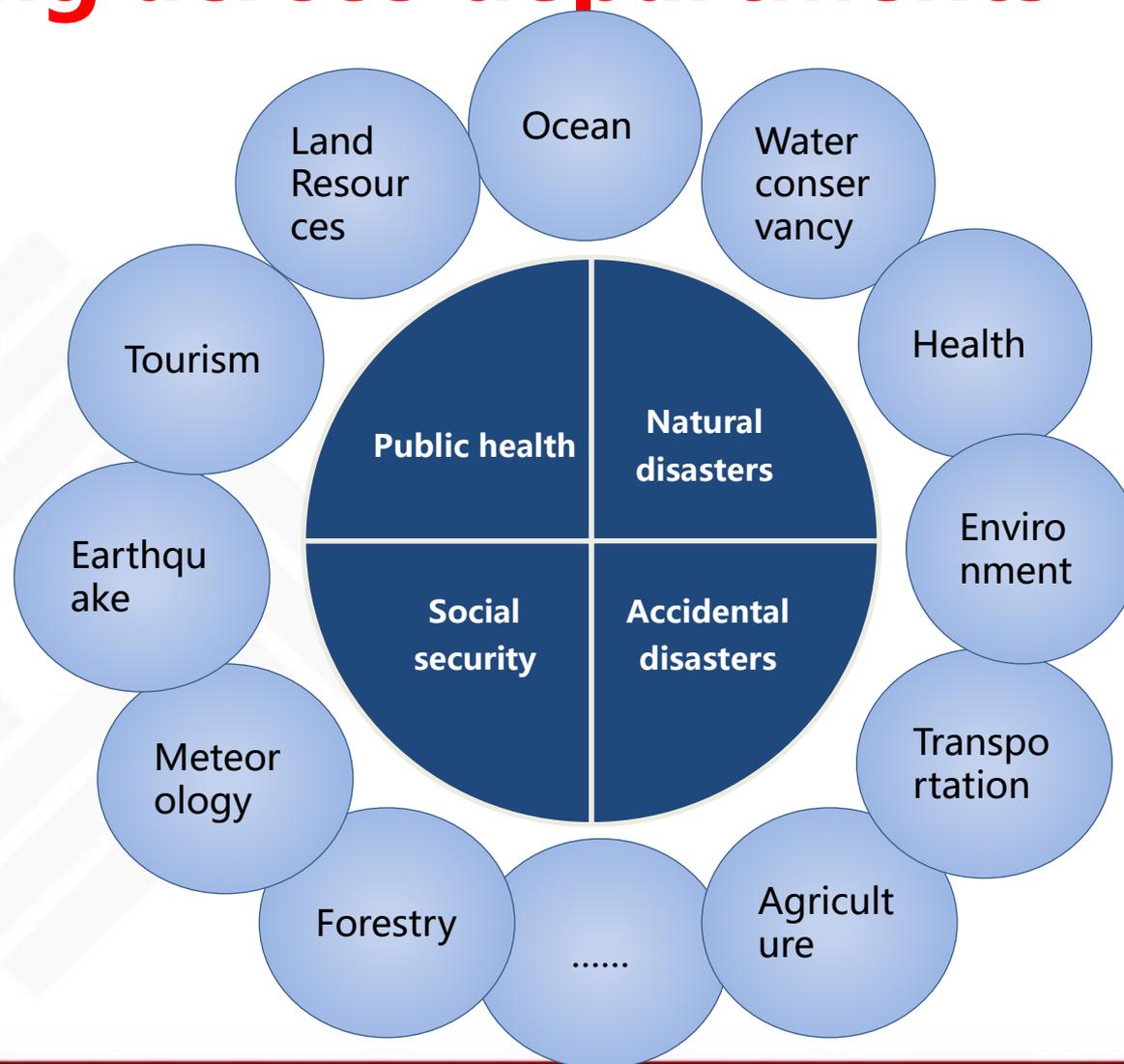
- **SMS:** **23 provinces** established **entire network release mechanism**, covering early warning information officer at the local level
- **Internet:** Cover **170 million** internet users and **50 million** mobile users
- **Emergency Channel:** In **31 provinces** of **314 cities**, covering **92 million** digital subscribers

# 2. rapid release of the designated area via entire network



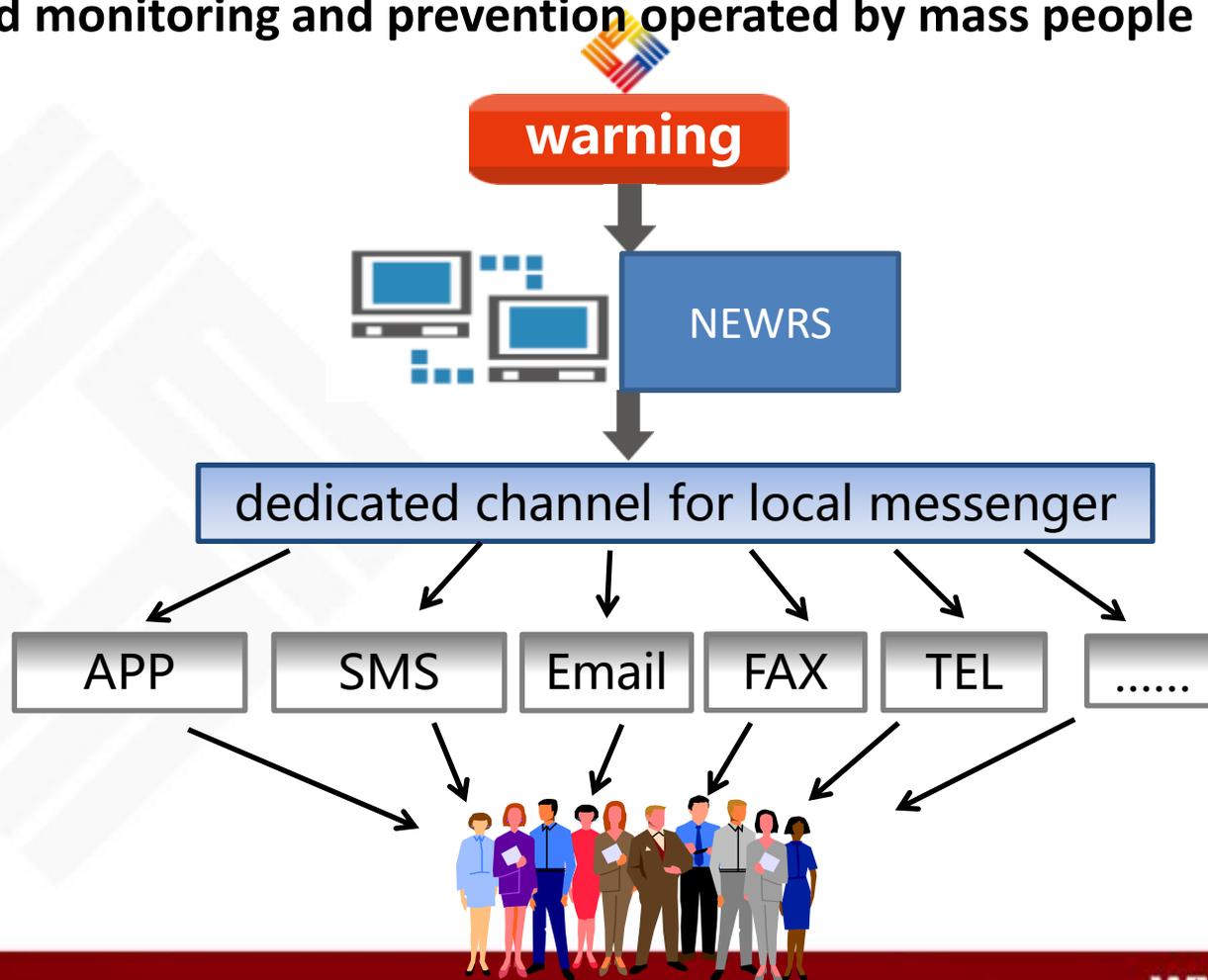


# 3. barrier-free sharing of early warning across departments

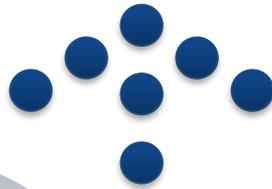


# 4. dedicated channel for local messenger

Fast and accurate warning release for Departments' emergency duty staff, emergency linkage department, local messenger early warning information, to realize hazard monitoring and prevention operated by mass people



# 5. Real-time feedback of release effect



## Real-time feedback

For early warning release trace of incidents before, occur, peer-to-peer feedback assessment report service for various departments

## Specific support

Collect distribution channel types, local messengers reception, the public and geographical coverage, the effective number of terminal equipment of each early warning

# 5. Real-time feedback of release effect



The real-time monitoring platform for the release of emergency warning messages in China watches the operation of NEWRS, the releasing processes, the releasing pattern for a specific periodic event, the varied and multi-channeled applications of messages, and the real-time disaster monitoring data and so on to be informed of the population reached in a timely and adequate manner so that the operation is made visible and visual.

# 6、 warning release security assurance

- 24-hour assurance for the secure and stable operation of the system
- Round-the-clock warning re-check for release
- Early warning access and dissemination technical support service at any time
- Disasters prevention publicity and popularization, and training

# Contents

- 1. Background**

---
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---
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---

# NEWRS built for 4 years since project approval

2011

- The national development and reform commission issued investment, and the **project construction started**

2012

- **Completed preliminary system** platform construction

2013

- Completed the in deployment , installation and **test** of provincial and municipal platform

2014

- System put into **trial operation**

2015

- System put into formal operation
- **System operation management method was issued**

# National Early Warning Center



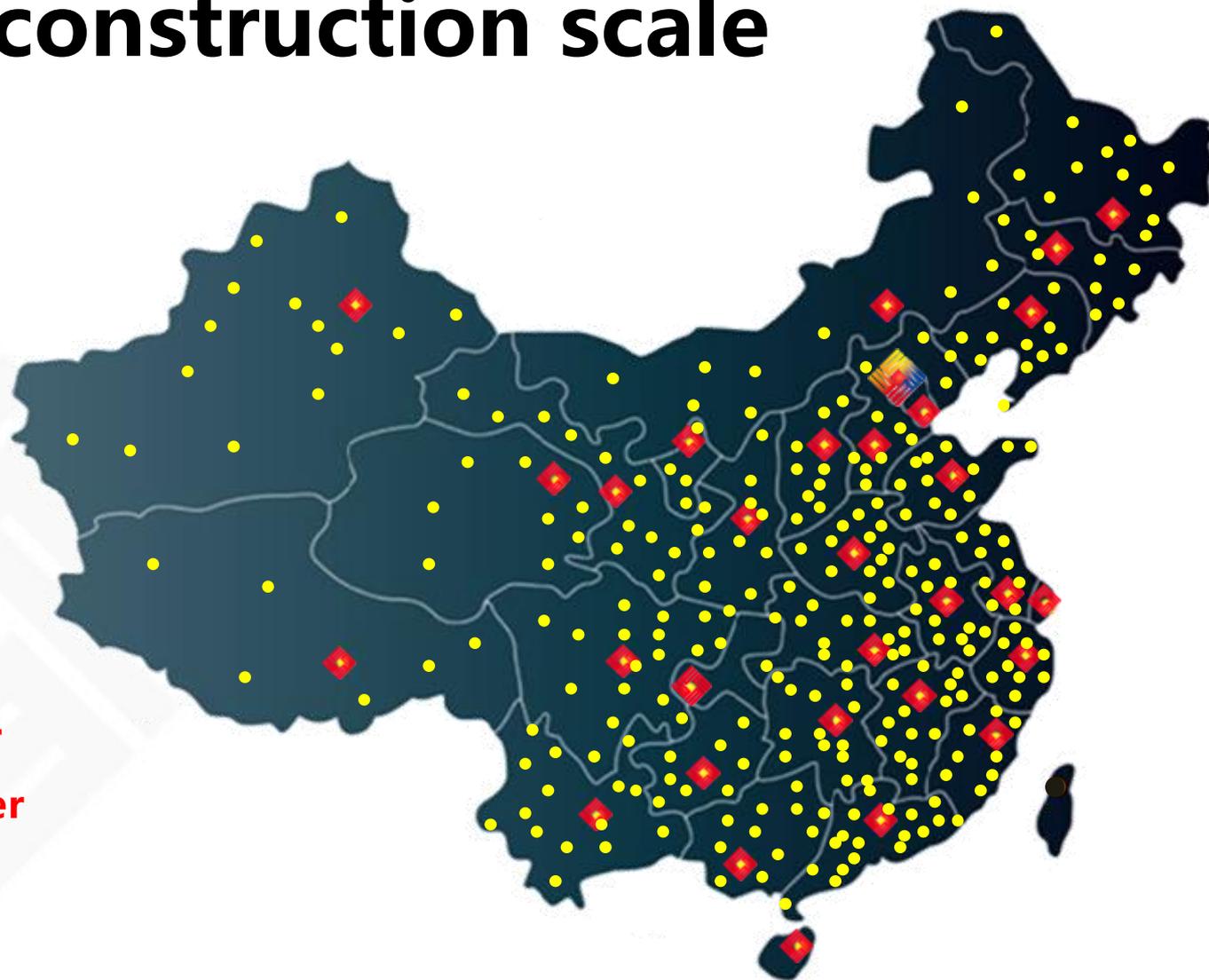
National Early Warning Center (Feb. 26, 2015) is mainly responsible for the construction, operation and maintenance of national early warning system, and offers an overall release channel for relevant departments, studies and formulates relevant policies and technical standards. As well as carries out early warning information to publicity and popularization.

# National Early Warning Center





# National early warning release system construction scale



- 1 national center
- 31 provincial center
- 343 municipal center
- 2015 county center
- 9026 specialty staff

# Guangdong Early Warning Center

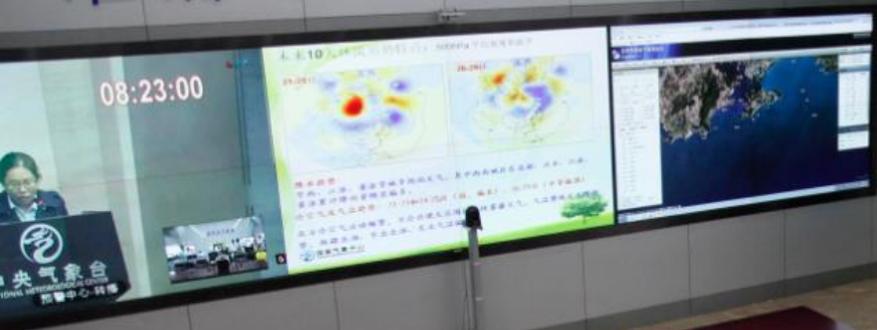


# Shanghai Early Warning Center



# Shenzhen Early Warning Center

准确 及时 创新 奉献



中央气象台

深圳早期预警中心

# Guanling (county) Early Warning Center



关岭  
苗族  
自治县  
预警信息  
发布中心

ZHENNING NATIONAL METEOROLOGICAL OBSERVING STATION

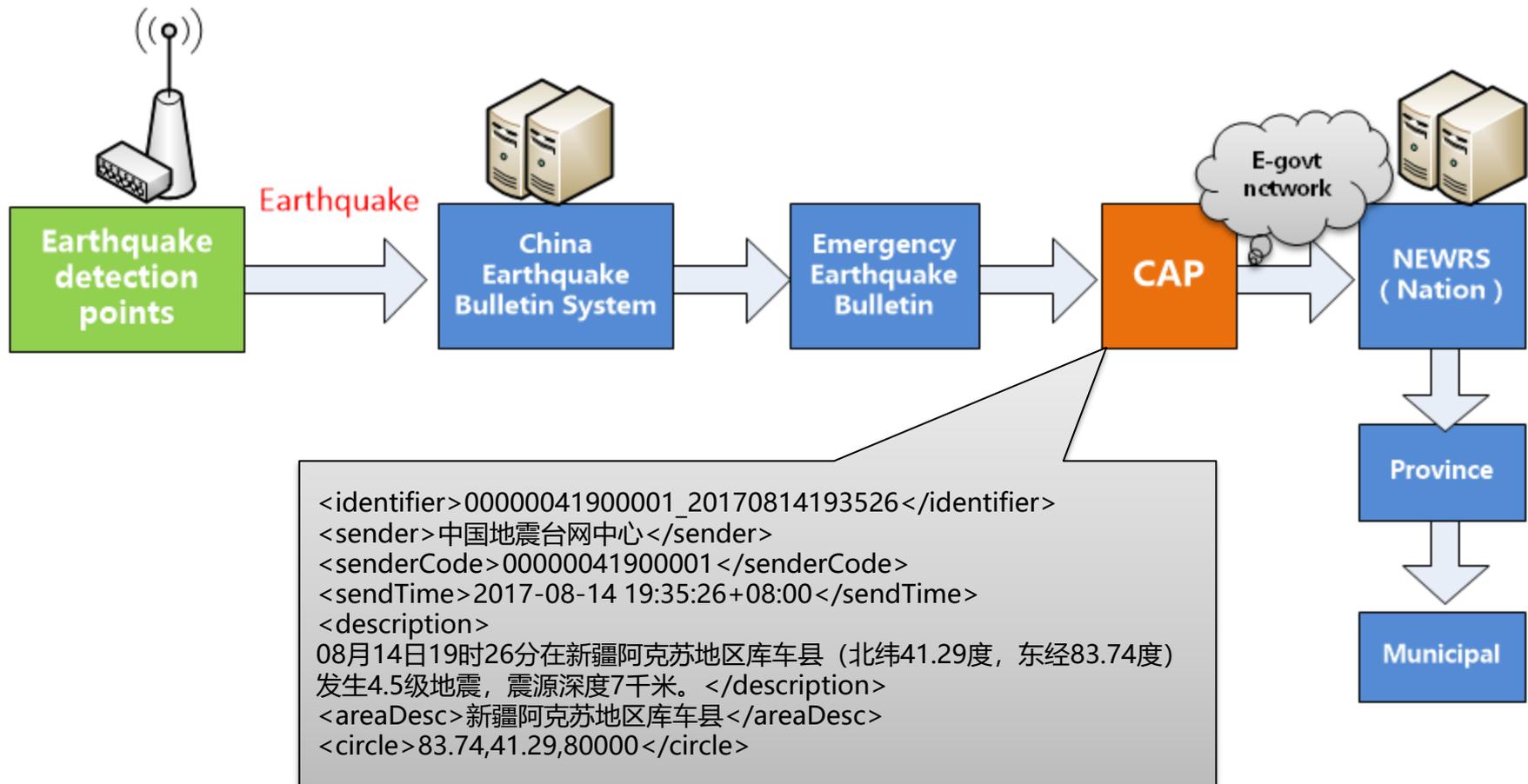
镇宁  
苗族  
自治县  
预警信息  
发布中心

镇宁  
苗族  
自治县  
气象科  
普教育

镇宁  
苗族  
自治县  
农村综  
合经济

# NEWRS docking with China Earthquake Bulletin System

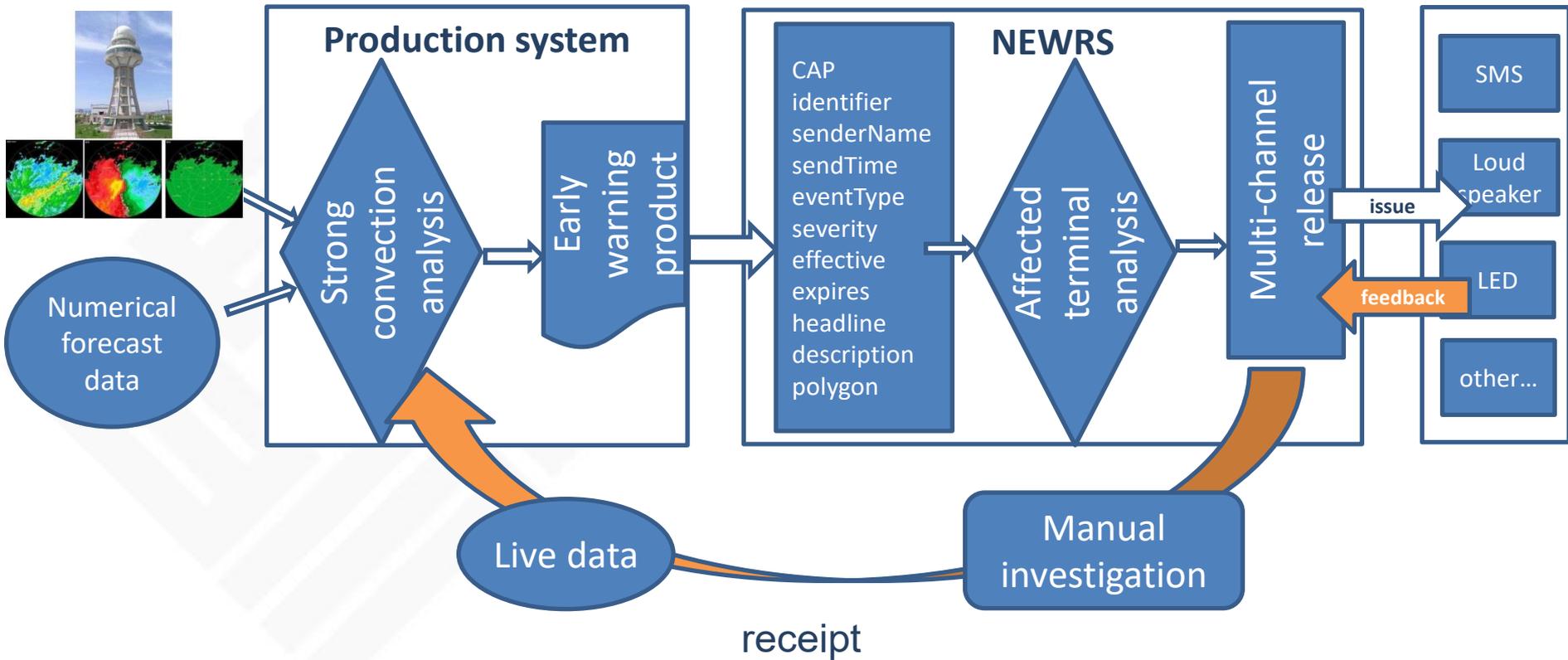
**Note: based on CAP, convert earthquake bulletin into CAP format that NEWRS can identify.**

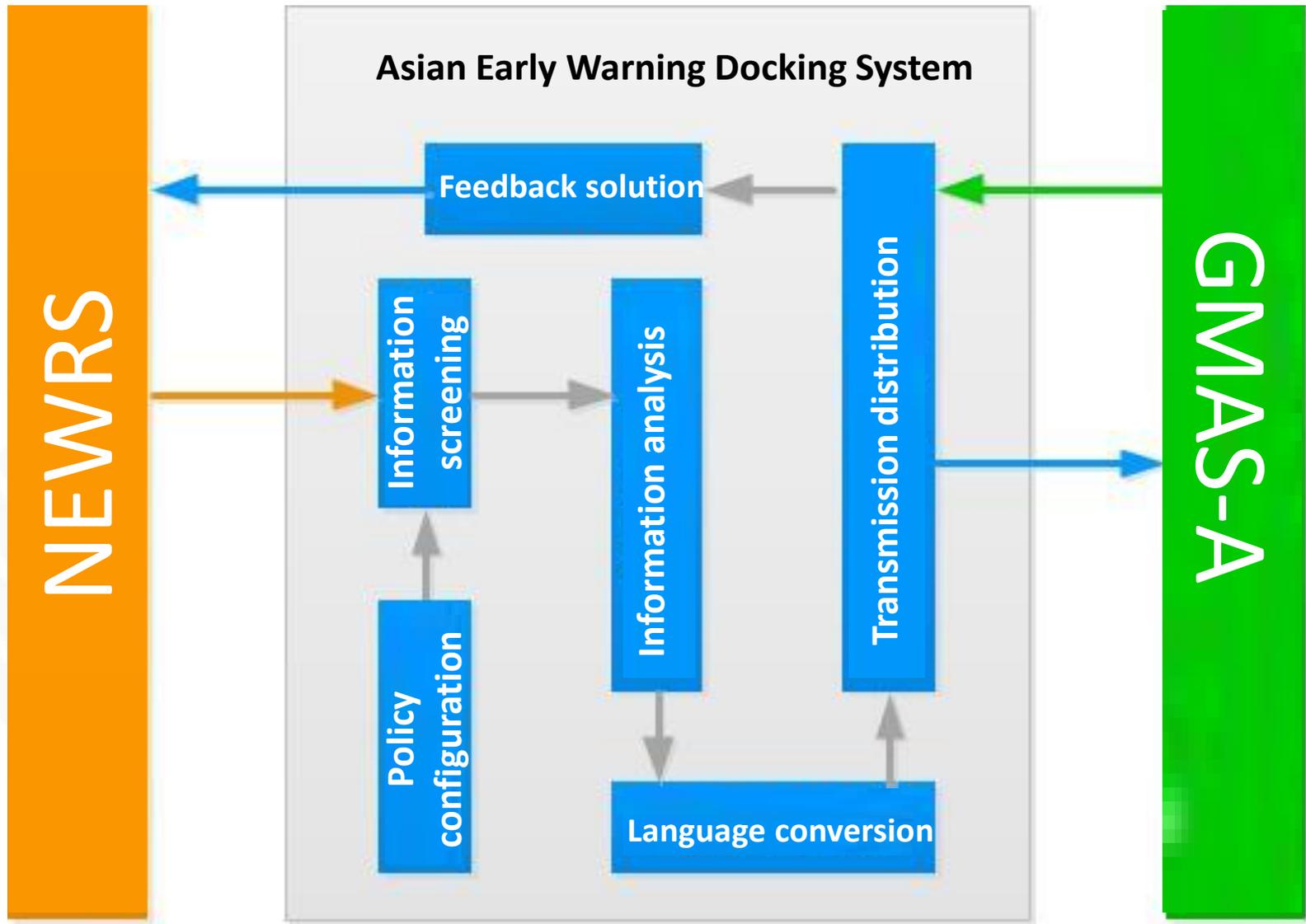




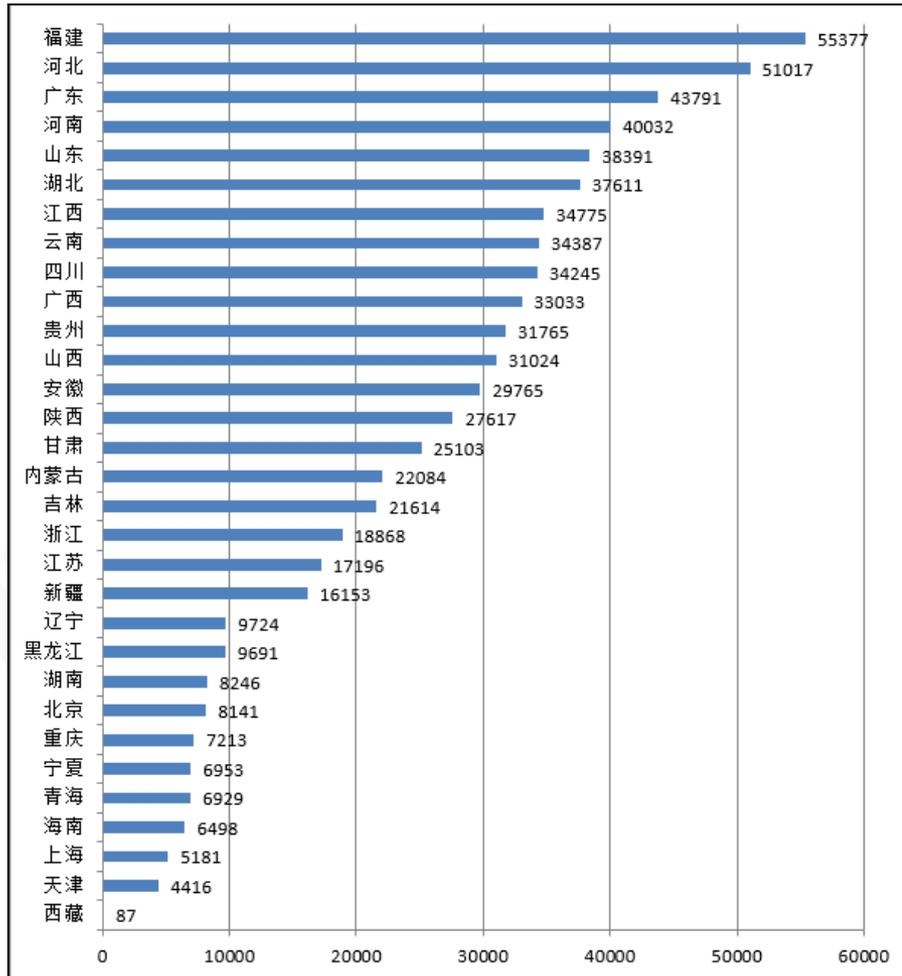
# strong convection in Anhui province

Strong convective weather early warning precision distribution means management system

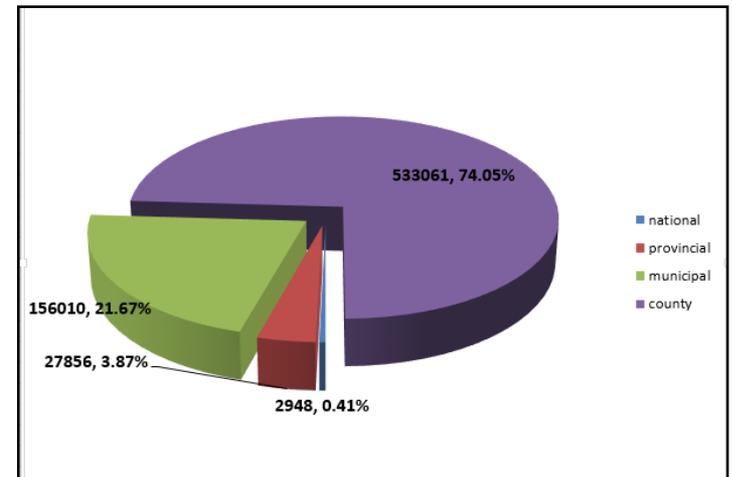
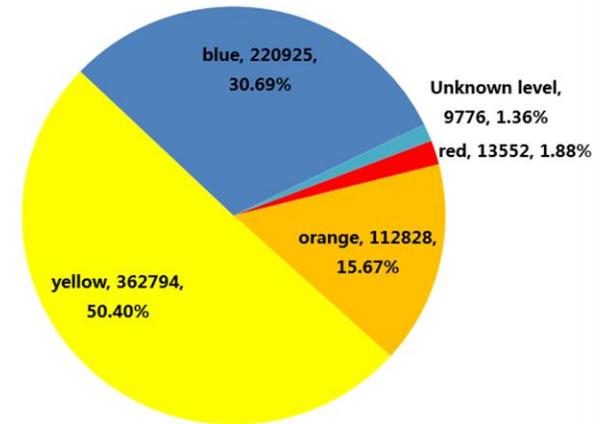




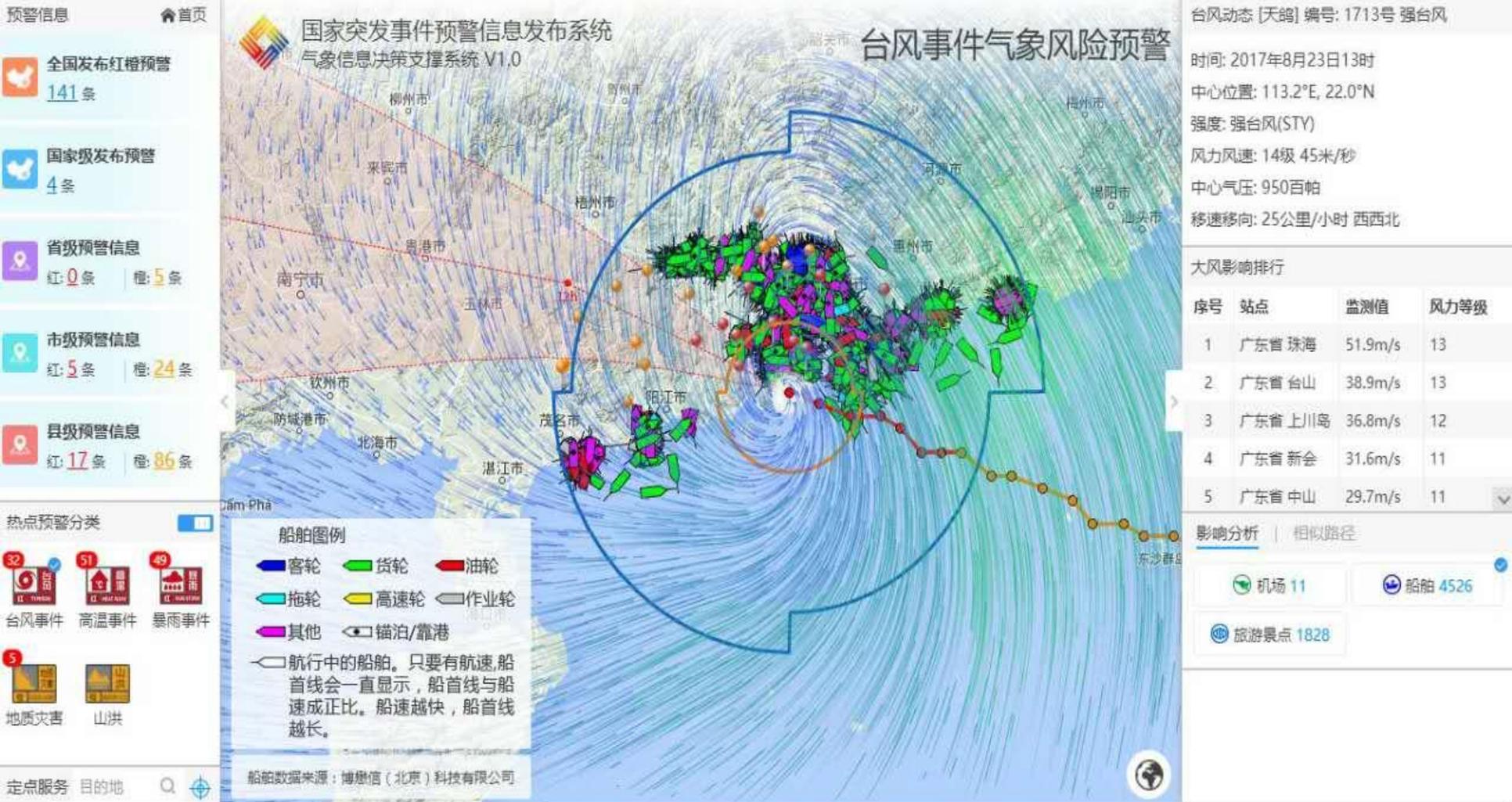
# Since year 2015, NEWRS issued a total of 719,875 informations



National early warning release situation since 2015

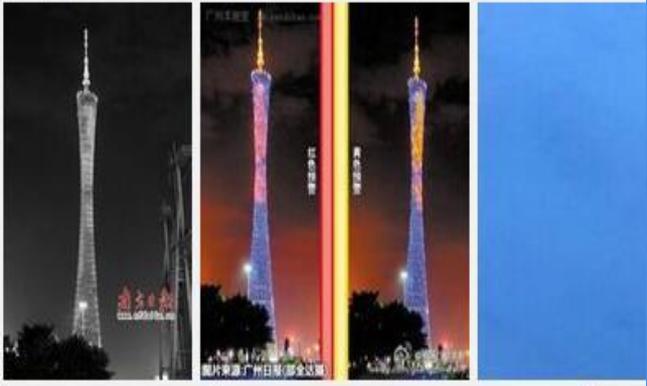
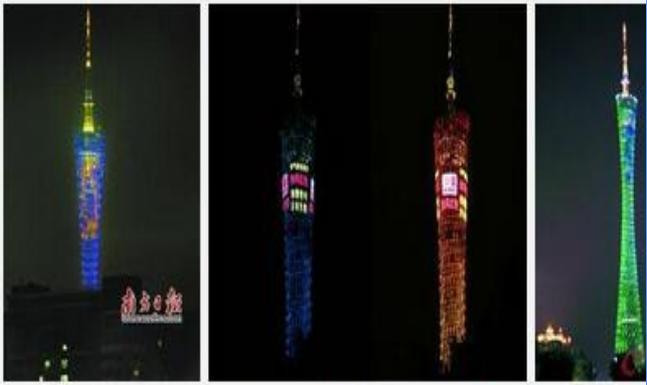


# Typical Case

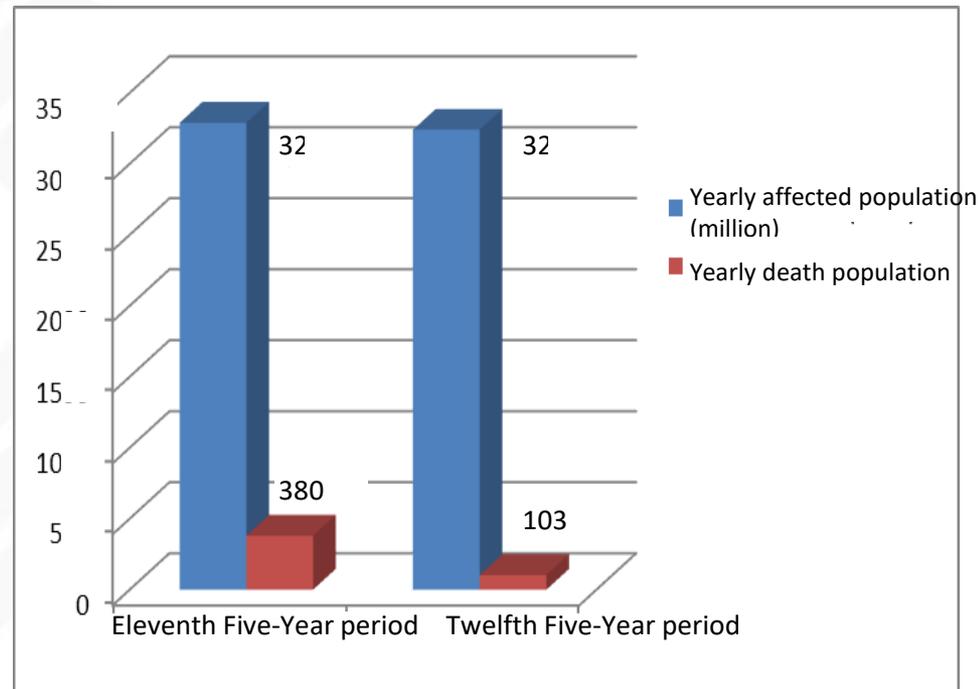


On August 23, 2017, Typhoon "Hato", No. 13 this year, landing in Zhuhai City Guangdong Province in strong typhoon intensity, with 741 million people affected, and direct economic losses of 12.18 billion yuan.

# Typical Case



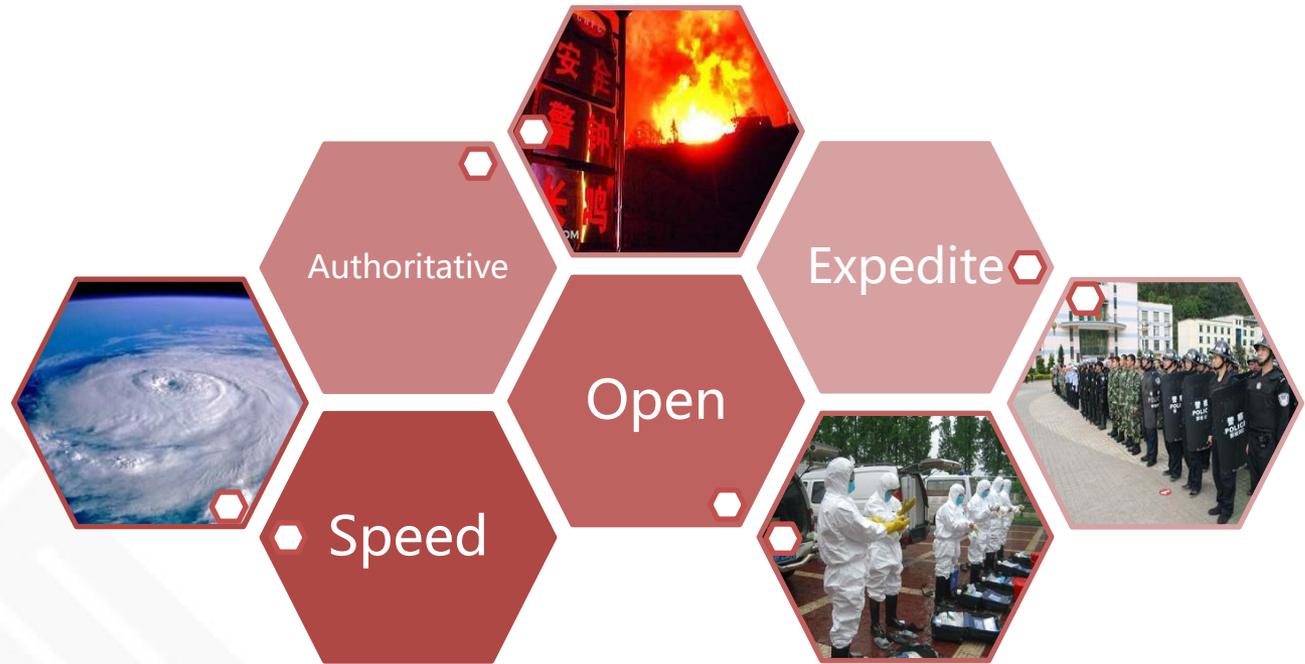
**In the process of typhoon disaster defense in recent years, related departments issued early warning and guide sea vessels back to shelter timely, organized the transfer of millions of people, disaster reduction effect is obvious.**



# Typical Case

On Jul. 17<sup>th</sup>,2016, two towns in Guzhang county, Hunan province, was under the heavy rain. Flood control, Land and other relevant departments in Guzhang issued early warning information timely. At the same time, local government organized and transferred the masses quickly. No casualties caused in the landslides disaster. Emergency management structure with Chinese characteristics





Early warning makes life more secure!

**THANKS!**