Network Resilience and Performance During the Recent Earthquake in Thailand
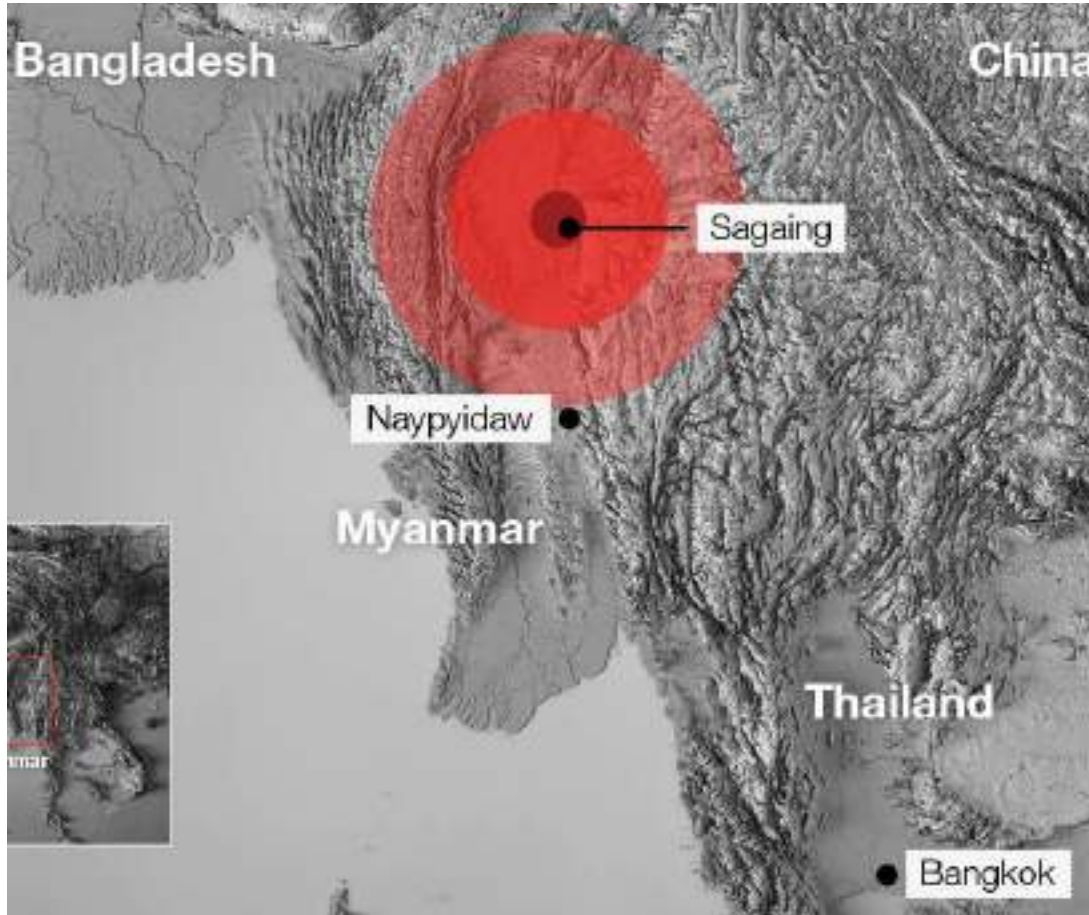
May 2025

BETTER ∞ TOGETHER

Agenda

- Brief overview of the recent earthquake event.
- Network Performance during the earthquake.
- Network Traffic Snapshot During the Earthquake.
- Mobile usage behavior during emergencies
- Core Infrastructure Resilience.
- Cell Broadcast Service (CBS).
- Q&A

Earthquake Overview

The 7.7-magnitude earthquake that struck near Mandalay, Myanmar, on March 28, 2025, had significant effects in Thailand, particularly in the northern and central regions.

- **Bangkok**: Approximately 1,000 kilometers from the epicenter, Bangkok experienced noticeable shaking. A 30-story building under construction collapsed, resulting in casualties and prompting evacuations.

- **Chiang Mai**: Located in northern Thailand, residents reported feeling the tremors, leading to precautionary evacuations in some buildings.

Sensitivity: Internal
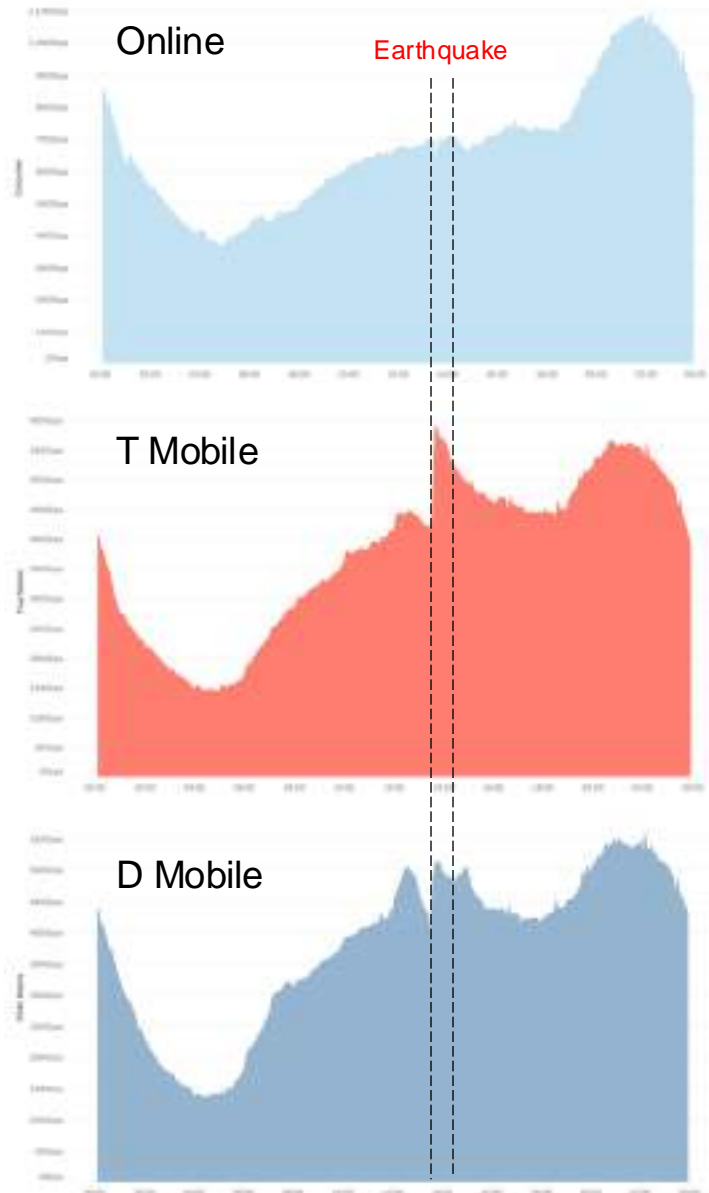
Network Performance During the Earthquake

Network Performance

- TRUE's network remained unaffected by the earthquake.
- There was no network outage or major disruption observed.
- It was observed that the overall network traffic volume significantly decreased during the initial phase of the earthquake event.
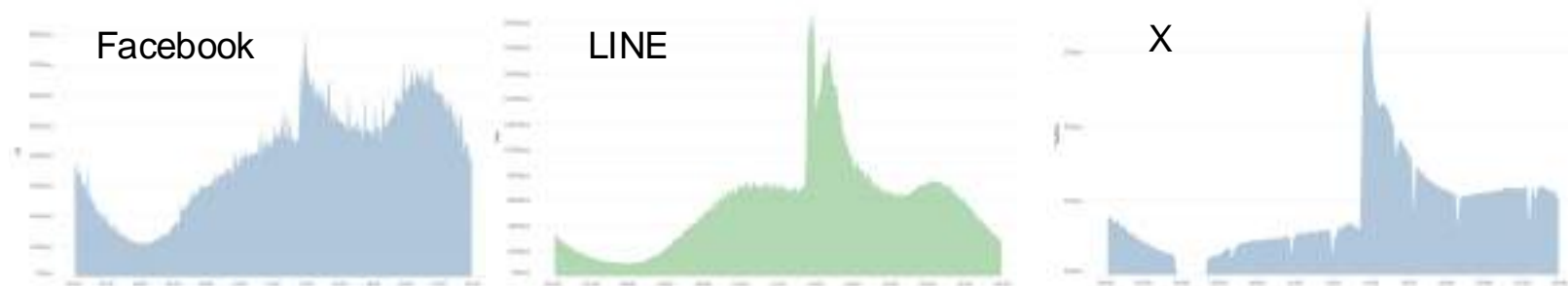

Earthquake
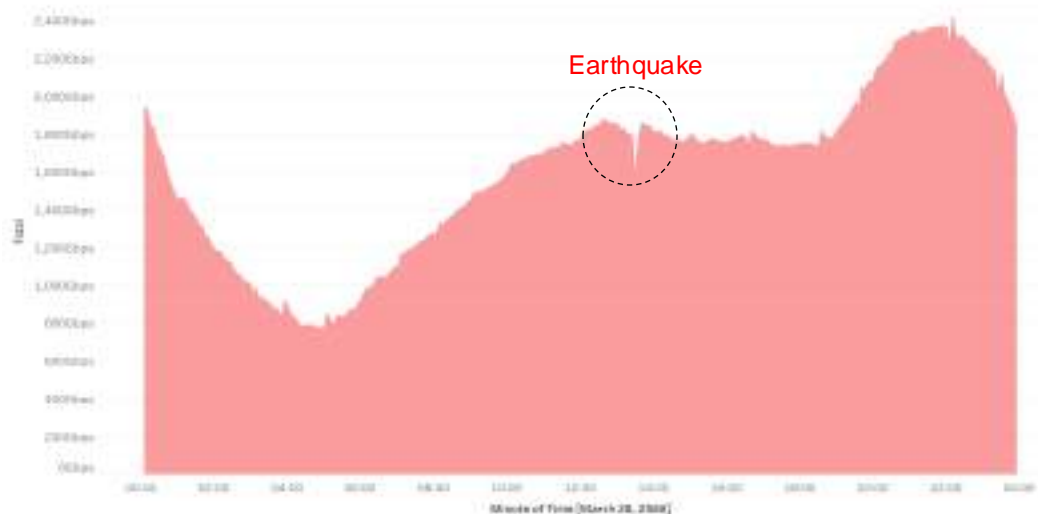
˅ Overall KPI					
Backhaul Capacity		**Singapore Capacity**		**Malaysia Capacity**	
3.20 Tb/s		2.50 Tb/s		700 Gb/s	
SG latency	MY latency	HK latency	SG %Loss	MY %Loss	HK %Loss
25.8 ms	18.6 ms	56.7 ms	0%	0%	0%
IIG: Singapore :: Active Band...		IIG: Singapore :: Degrade Ba...		IIG: Singapore :: % Utilization	
2.50 Tb/s		0		57.5%	
IIG: Malaysia :: Active Bandw...		IIG: Malaysia :: Degrade Ban...		IIG: Malaysia :: % Utilization	
700 Gb/s		0		61.3%	
IIG: HK :: Active Bandwidth		IIG: HK :: Degrade Bandwidth		IIG: HK :: % Utilization	
20 Gb/s		0		42.2%	
IIG: EQUINIX-Global Switch :...		IIG: EQUINIX-Global Switch :...		IIG: EQ-GS :: % Utilization	
1 Tb/s		0		28.0%	
IIG: TRUE 2 - MTG :: Active B...		IIG: TRUE 2 - MTG :: Degrade...		IIG: TRUE2 - MTG :: % Utilizat...	
1 Tb/s		0		50.3%	
IIG: TRUE 2 - TLH :: Active Ba...		IIG: TRUE 2 - TLH :: Degrade ...		IIG: TRUE2 - TLH :: % Utilizati...	
700 Gb/s		0		41.5%	
IIG: MTG - TLH :: Active Ban...		IIG: MTG - TLH :: Degrade Ba...		IIG: MTG - TLH :: % Utilization	
600 Gb/s		0		41.0%	
TRUE-IX :: TRUE 2 - MTG :: A...		TRUE-IX :: TRUE 2 - MTG :: D...		TRUE-IX: TRUE2 - MTG :: % U...	
800 Gb/s		0		25.4%	
TRUE-IX :: Infra to CAT :: Acti...		TRUE-IX :: Infra to CAT :: Deg...		TRUE-IX: Infra to CAT :: % Uti...	
400 Gb/s		0		34.6%	
TRUE-IX :: Infra to TCCT :: Ac...		TRUE-IX :: Infra to TCCT :: De...		TRUE-IX: Infra to TCCT :: % U...	
600 Gb/s		0		53.7%	
TRUE-IX :: Infra to TLH :: Acti...		TRUE-IX :: Infra to TLH :: Deg...		TRUE-IX: Infra to TLH :: % Uti...	
300 Gb/s		0		17.4%	
TRUE-IX :: Infra to TTw :: Acti...		TRUE-IX :: Infra to TTW :: De...		TRUE-IX: Infra to TTW :: % Ut...	
60 Gb/s		0		4.78%	

Sensitivity: Internal

Network Traffic Snapshot During the Earthquake

Online

Earthquake

T Mobile

D Mobile

Traffic Patterns

- Mobile Network Traffic Surge
- Consumer traffic decreased during the earthquake but later returned to normal.
- Increase in Social Media Usage.

Facebook

LINE

X

Mobile Usage Behavior During Emergenies

The data from True and dtac networks during the earthquake provides a clear picture of user behavior in emergency situations. This can be categorized into two main aspects:

Voice Usage

- Peak period: Between 1:30 – 1:45 PM, voice call volume on both True and dtac networks reached its highest levels.

True Network:

- Outgoing call volume surged by 465% compared to the same period on March 27, 2025 (from 1.57 million calls to 8.89 million calls).
- The peak occurred at 1:33 PM, with an increase of 299,000 calls, or 672% above the normal rate.

dtac Network:

- Outgoing call volume increased by 545% compared to the same period on March 27, 2025 (from 2.67 million calls to 17.23 million calls).
- The highest spike was at 1:32 PM, with an increase of 300,000 calls, or 1,061% above the normal rate.
- Calls within the same network increased by 65%, while cross-network calls surged by 121%.
- While call volume spiked sharply in the first hour, it gradually declined but remained above normal levels until midnight.

Outgoing Call Volume by Region During Peak Calling Period

True Network – Peak time: 1:33 PM.

- Bangkok: +1,171%
- Western Region: +618%
- Southern Region: +455%
- Eastern Region: +426%
- Central Region: +285%
- Northern Region: +112%
- Upper Northeastern Region: +82%

dtac Network – Peak time: 1:33 PM.

- Bangkok: +1,983%
- Western Region: +1,054%
- Central Region: +822%
- Northern Region: +541%
- Eastern Region: +269%
- Southern Region: +229%
- Upper Northeastern Region: +103%

Key Takeaway

The data suggests that in emergency situations, users tend to rely on voice calls as the primary communication channel. The significant surge in outgoing calls highlights the crucial role of voice communication in confirming personal safety and ensuring immediate contact between individuals.

Sensitivity: Internal

Mobile Data Usage

- Noticeable changes in data usage were observed between 1:15 – 2:15 PM. During 1:15 – 1:30 PM, data usage on both True and dtac networks dropped, reflecting a temporary disruption due to the unexpected event.

- From 2:00 – 7:00 PM, data usage rose above normal levels and remained high.
  - True data usage: +917 TB (9%)
  - dtac data usage: +653 TB (13%)

Usage of 7 Popular Apps During the Earthquake

Analyzing the top 7 apps (Facebook, Messenger, Instagram, TikTok, YouTube, LINE, X) during 1:15 – 2:15 PM shows a common trend across True and dtac:

True Network

- Total increase: 469,118 MB (+16%) and peak app usage: 4:33 PM
  - X: +199%
  - LINE: +74%
  - Messenger: +41%
  - Facebook: +35%
  - YouTube: -7.8%
  - TikTok: -0.9%

dtac Network

- Total increase: 290,063 MB (+17%) and peak app usage: 1:25 PM (immediately after the earthquake was felt.)X: +199%
  - X: +162%
  - LINE: +90%
  - Messenger: +77%
  - Facebook: +33%
  - YouTube: -6%
  - TikTok: +0.6%

Key Takeaway

During emergencies, users shift towards communication-focused apps rather than consuming video content. Data usage becomes purpose-driven, enabling people to confirm safety, access real-time news, and stay connected during critical moments.

Core Infrastructure Resilience

Multiple PoPs

Thailand: True Tower 2 and MTG
Singapore: Equinix and Global Switch
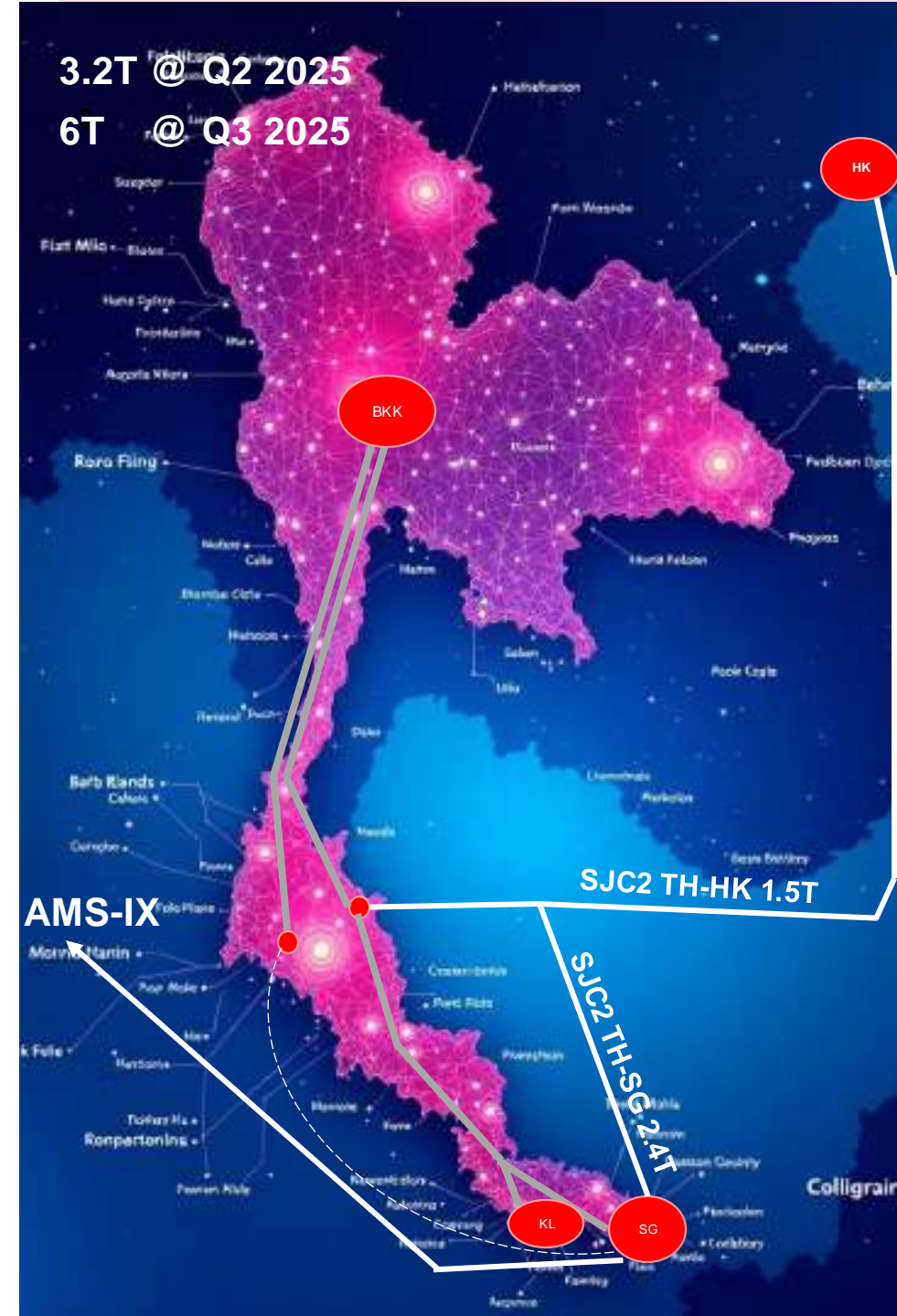Hong Kong: Mega-I
Malaysia: AIMS KL

Submarine Cable (SJC2)

TRUE's strategic submarine cable investments connect Thailand to the world, enabling faster and more secure data transfer.

Terrestrial Cable

Extensive terrestrial cable networks extend across Thailand, ensuring seamless connectivity and coverage.

TRUE's terrestrial cables provide a robust and reliable backbone for its mobile and broadband services.

Sensitivity: Internal

3.2T @ Q2 2025
6T @ Q3 2025

HK

BKK

AMS-IX

SJC2 TH-HK 1.5T

SJC2 TH-SG 2.4T

KL   SG

Colligrain

Cell Broadcast Service [CBS]

Emergency Alerts

Cell Broadcast Service (CBS)

ระบบเตือนภัยบนมือถือ

Cell Broadcast Service (CBS) is a system that enables the simultaneous transmission of messages from multiple mobile base stations within a specific coverage area. This one-time broadcast approach allows for the rapid dissemination of urgent information across a wide area, while also allowing for precise targeting to specific geographic locations.
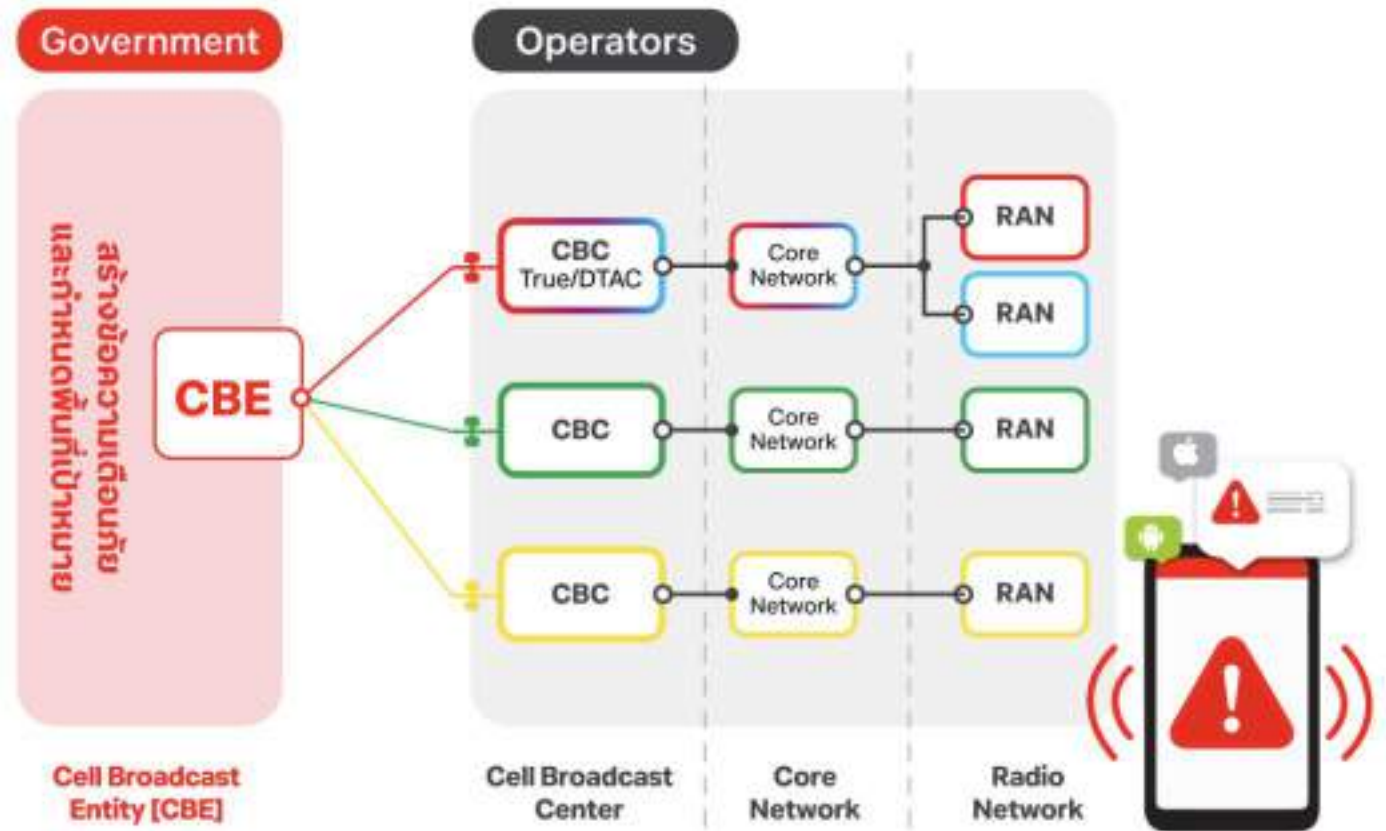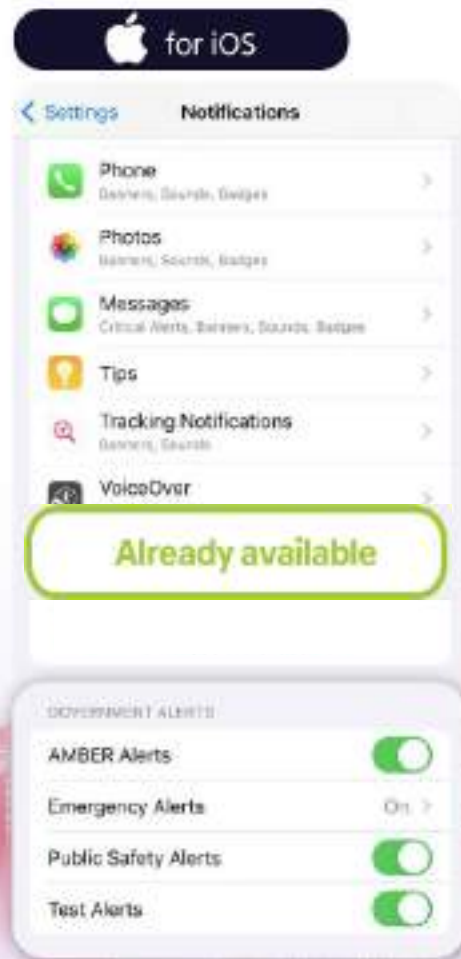
Cell Broadcast Service

Government: Government agencies create alert messages and define the target area using a **Cell Broadcast Entity (CBE)**. These messages are then transmitted to the Cell Broadcast Center (CBC) of the mobile network operators.

Operator: The Cell Broadcast Center (CBC) processes the message, identifies the relevant cell towers, and forwards the message to the connected networks such as 4G and 5G. The designated cell towers then broadcast the alert message to all mobile devices within the specified area.

Sensitivity: Internal

Mobile Device Readiness

for iOS

Settings — Notifications

- Phone — Banners, Sounds, Badges
- Photos — Banners, Sounds, Badges
- Messages — Critical Alerts, Banners, Sounds, Badges
- Tips
- Tracking Notifications — Banners, Sounds
- VoiceOver

Already available

GOVERNMENT ALERTS
- AMBER Alerts — On
- Emergency Alerts — On
- Public Safety Alerts — On
- Test Alerts — On

⚠ Alert Type/Event Category

- **Presidential Level Alerts**
- **Extreme Alerts**
- **Severe Alerts**
- **Amber Alerts (Child Abduction)**
- **Required Monthly Test (RMT)**
- **Public Safety Alerts**

for android

Wireless emergency alerts

Already available

Alerts
- Extreme threats — Extreme threats to life and property
- Severe threats — Severe threats to life and property
- AMBER alerts — Child abduction emergency bulletins

Test alerts — Receive carrier tests and events by texts from the safety alert system

Emergency alert history

Alert preferences
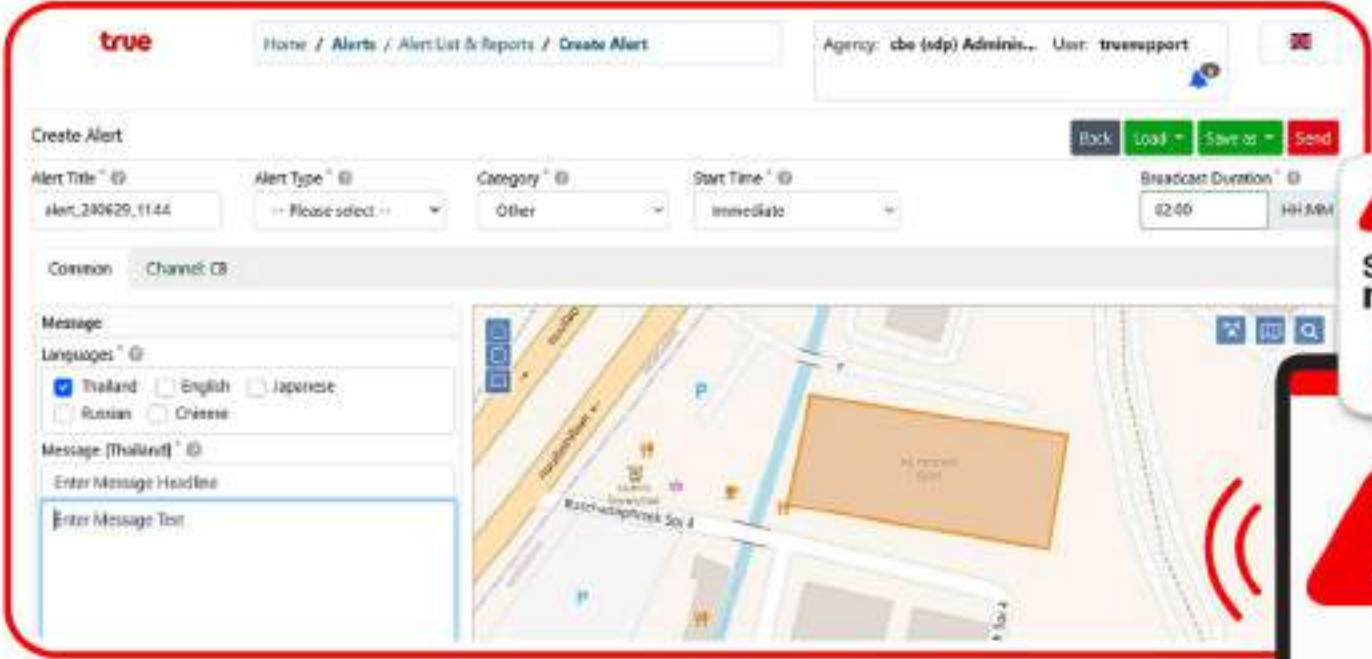- Vibration
- Alert reminder — Never

Android 11 and above: Fully supports CBS, _standardized by Google_ across all manufacturers.

Before Android 11: CBS support varies by manufacturer; functionality and alert levels are not guaranteed.

Sample Alert Message on Mar 28 2025

True Corporation completed laboratory testing on January 15, 2024, conducting tests with multiple CBC providers. The testing included connections to True's network and cell sites for all vendors, as well as various mobile devices running Android and iOS operating systems.

Sensitivity: Internal

Q&A

Backup

Terrestial Cable

TRUE's terrestrial cables provide a robust and reliable backbone for its mobile and broadband services.

- Dark fiber along Low voltage power system – BLUE LINE
- Dark fiber along Low voltage power system – YELLOW LINE
- Dark fiber optic network along the national railway – RED LINE

Bangkok

Petchburi

Chumporn

Suratthani

Hatyai

Malaysia
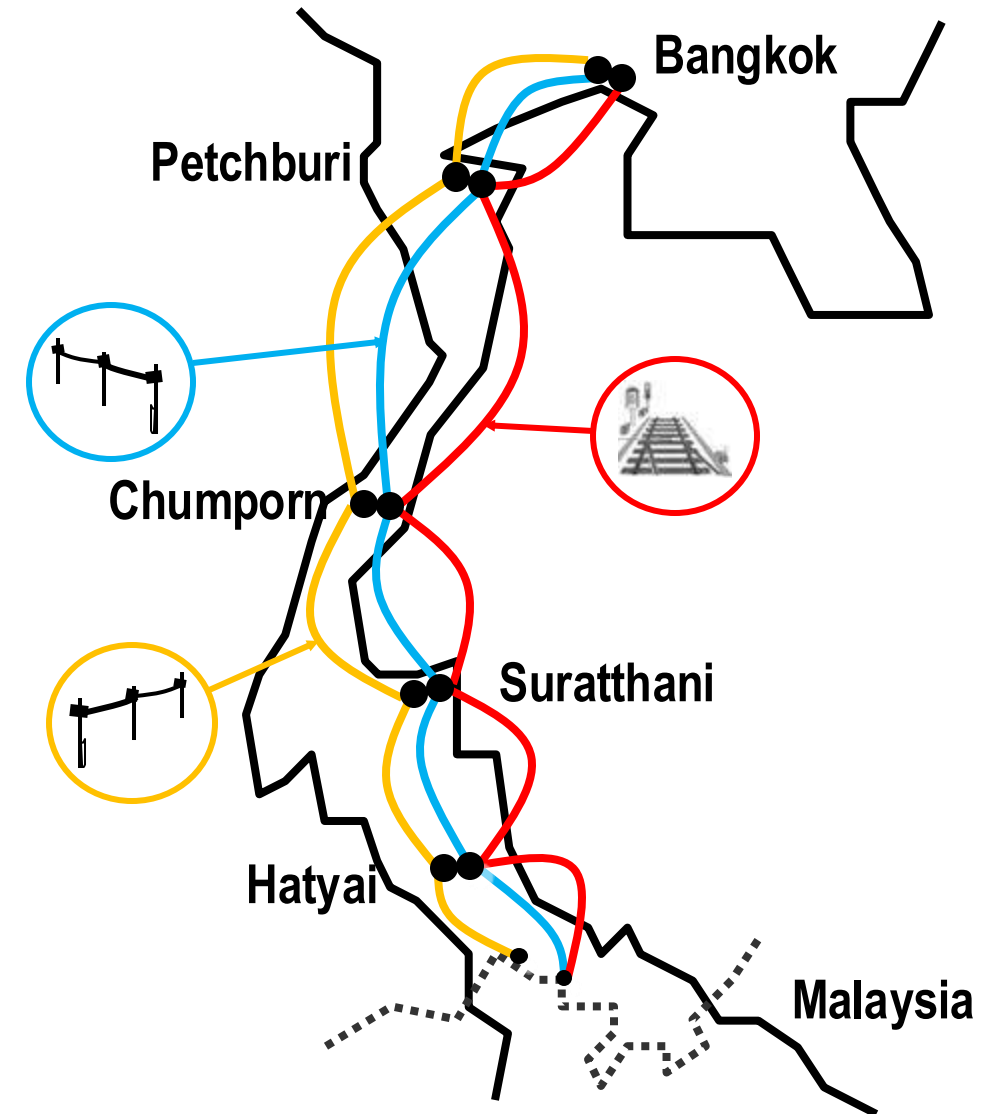
SJC2

Southeast Asia – Japan 2 Submarine Cable

JAPAN

KOREA

CHINA

TAIWAN

HONG KONG

VIETNAM

THAILAND

SINGAPORE

Submarine Cable – SJC2

- **11,0000 km with 10 cable landing stations**
- **Thailand branch installation : 100%**
- **Thailand landing readiness : 100%**
- **Expect ready for service : July 2025**

11,000
KILOMETERS

10
LANDING

8
COUNTRIES

SJC2 Consortium Parties:
China Mobile, Chungwa Telecom, Donghwa Telecom, KDDI,
Singtel, SK Broadband, Telin, True, VNPT, Meta (Facebook)