

Introducing KDDI Operation Divisions

Operation Division, Technology Sector
Operation Division, Global Technologies

February 19, 2019



The Operation Divisions That Support the Integrated Telecom Company

In Japan



Abroad



Protecting all telecom services 24/7

Role of Operation Divisions

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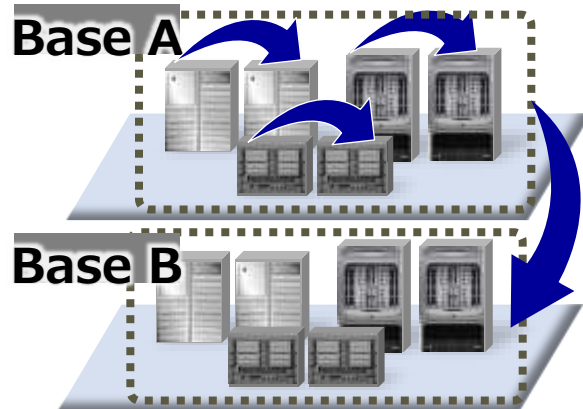


Support "integration of telecommunications and life design"

To Protect Communications (Systems)

Telecommunications facilities

Facility redundancy



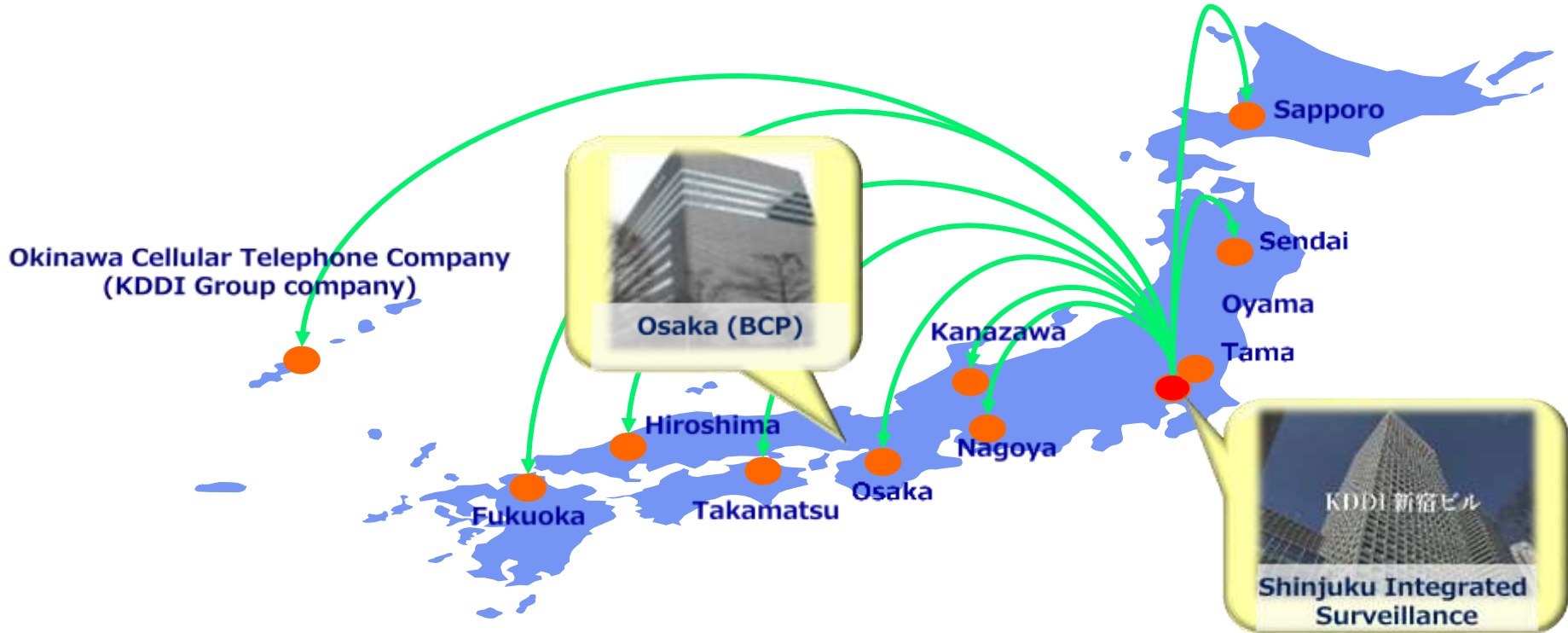
Power facilities

In-house power generators



Operation & Maintenance Framework (All National Bases)

Coordinating with 11 network centers nationwide, KDDI recovers services in case of a system failure.

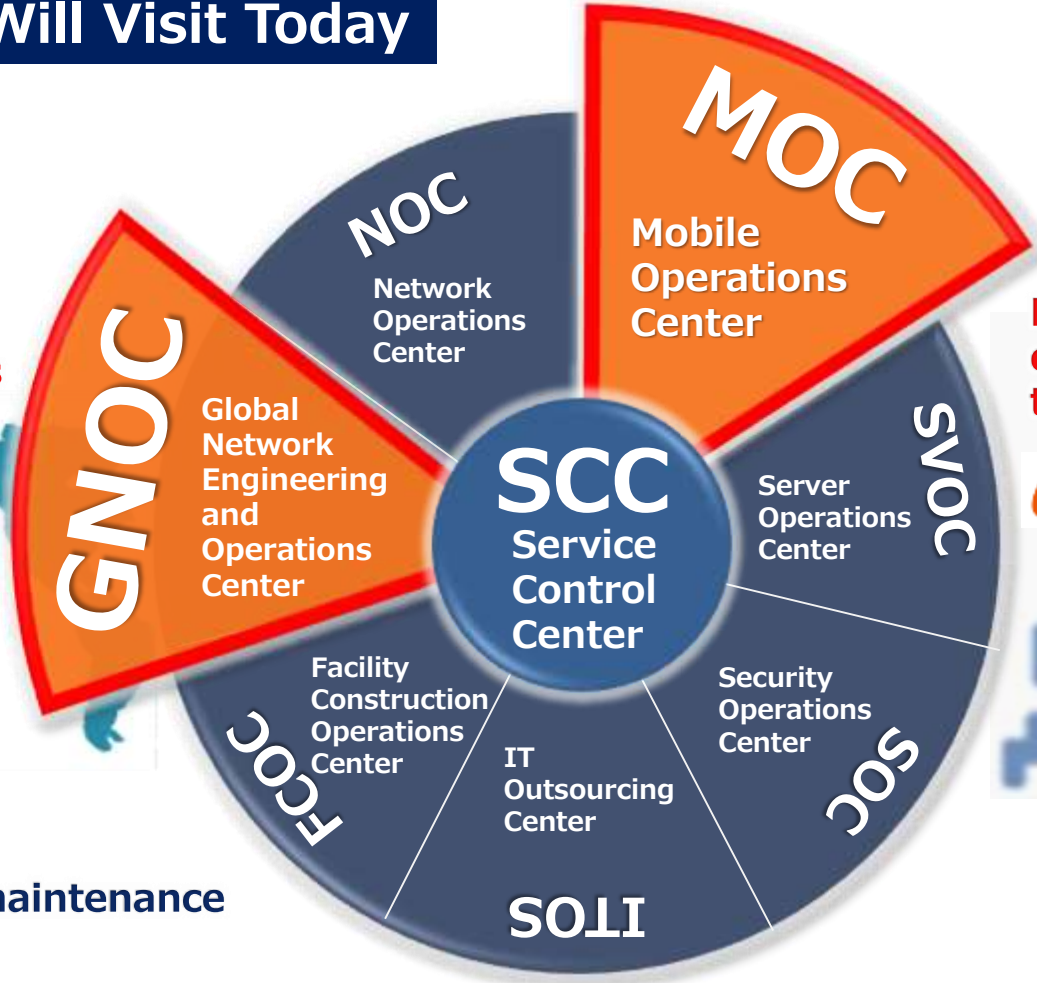


Shinjuku/London: Surveillance/Management on shifts
Ho Chi Minh: Circuit inspection



**Providing at 47 data centers
in 23 cities worldwide**

Centers You Will Visit Today



For the surveillance of global telecommunications



Submarine cable maintenance

For the surveillance of au mobile telecommunications

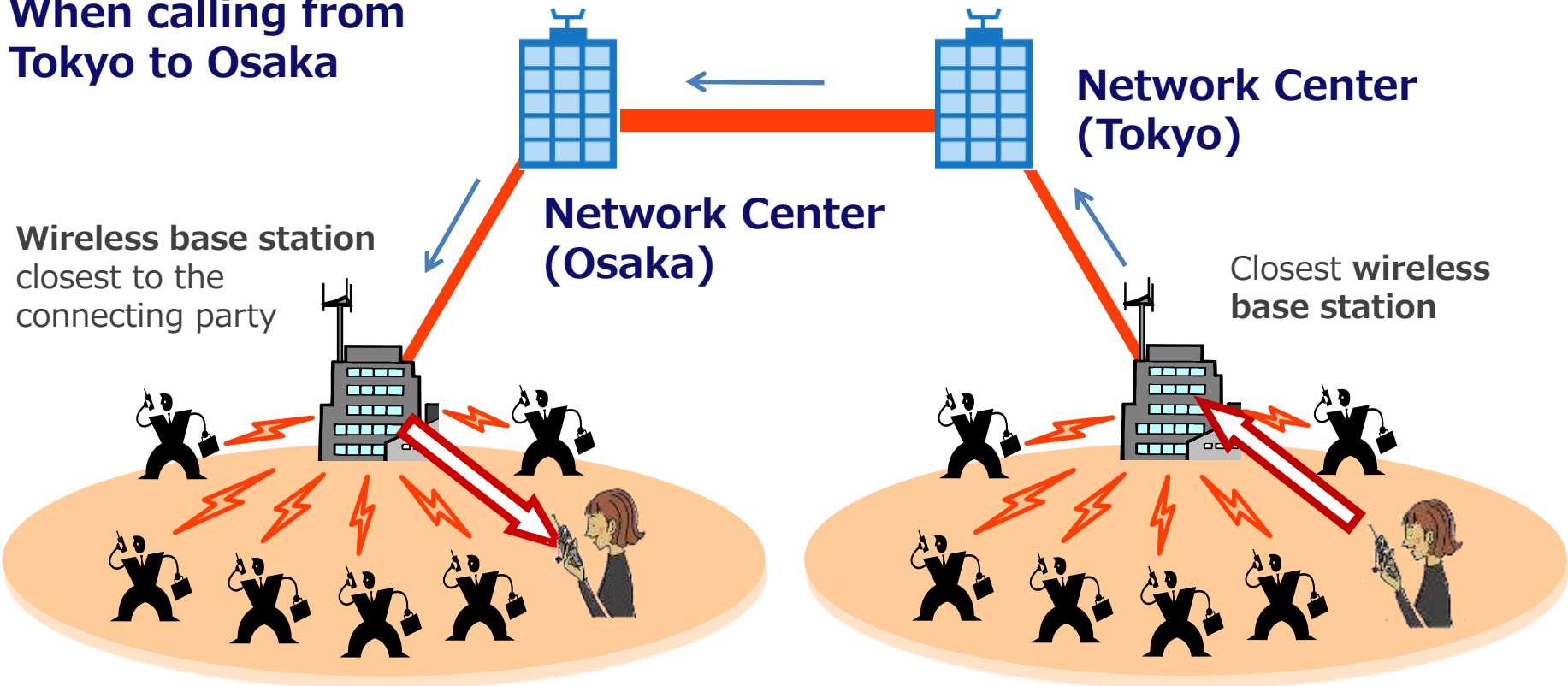


KDDI's Disaster Initiatives

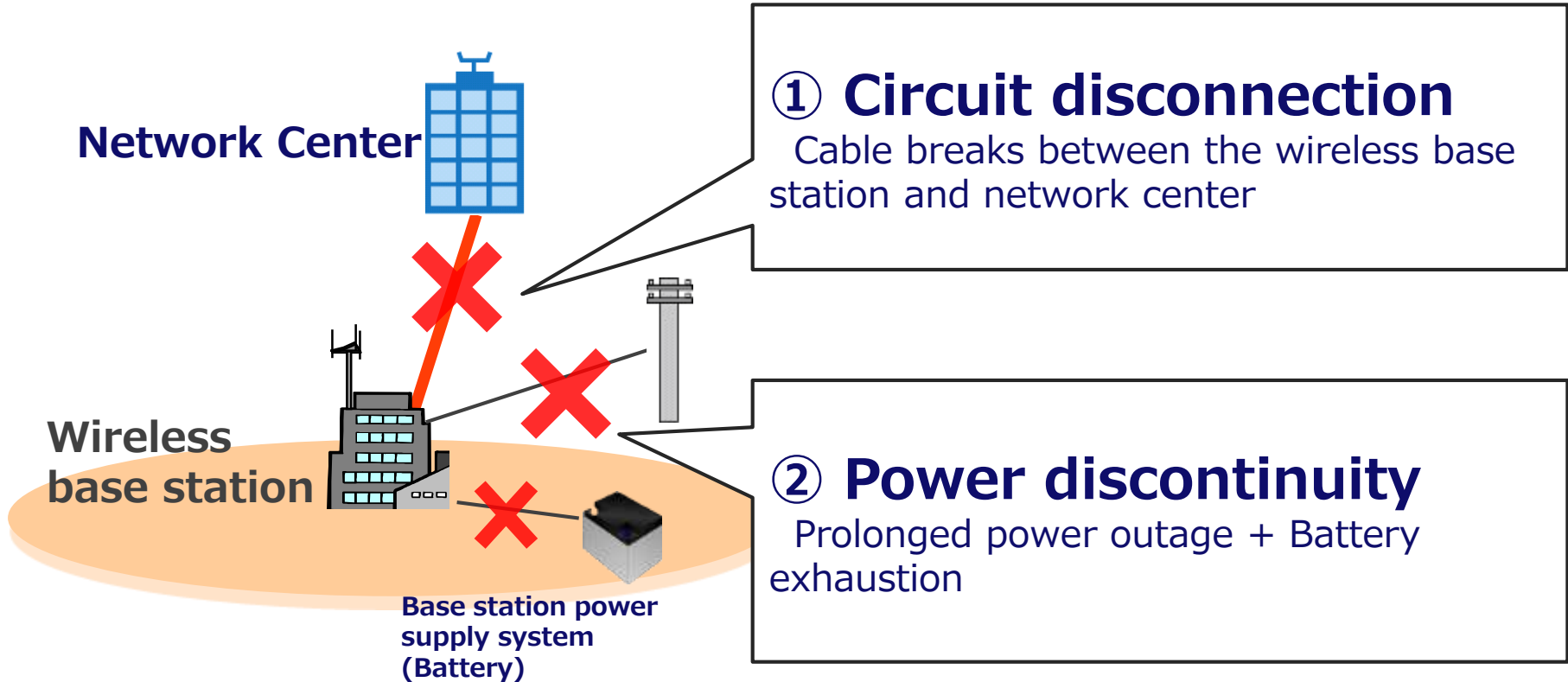
How mobile phones connect

Wireless and Wired Connections Are Combined for Connectivity

When calling from
Tokyo to Osaka

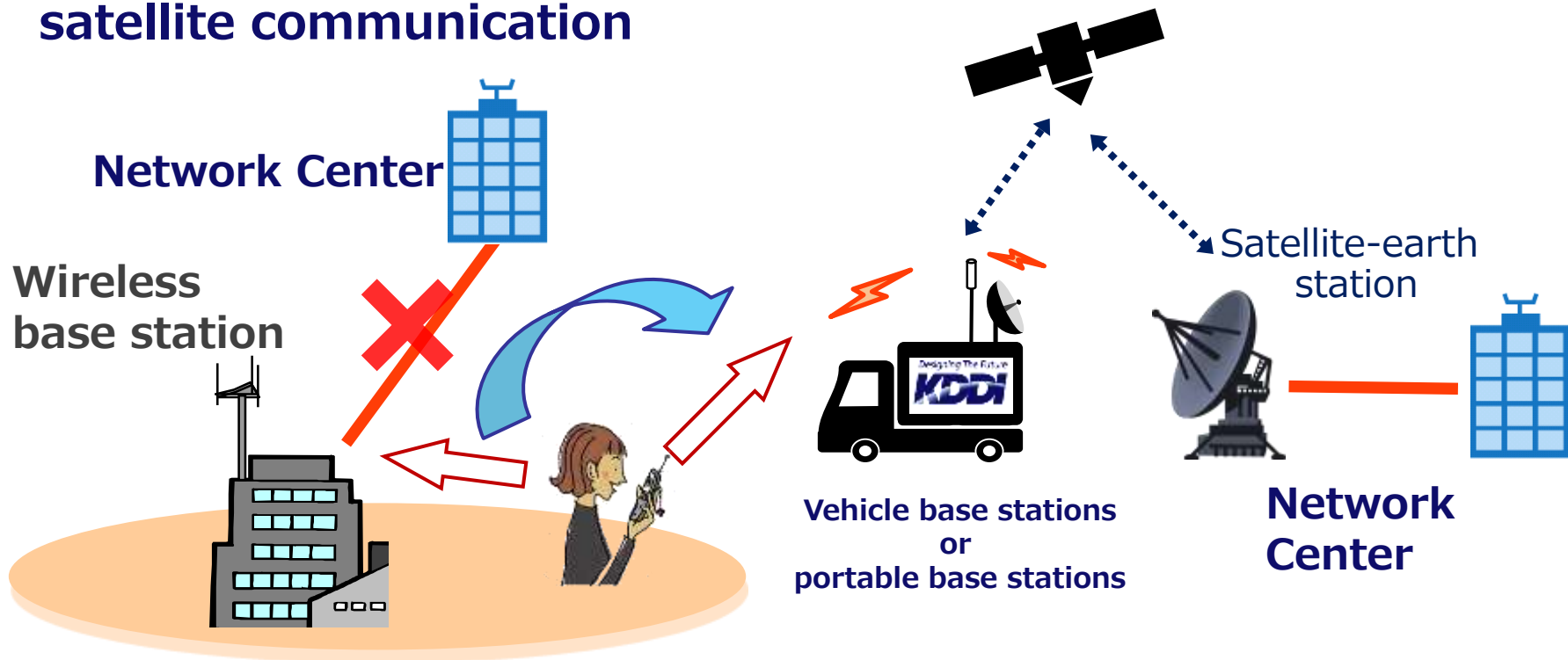


When Natural Disaster Occurs...



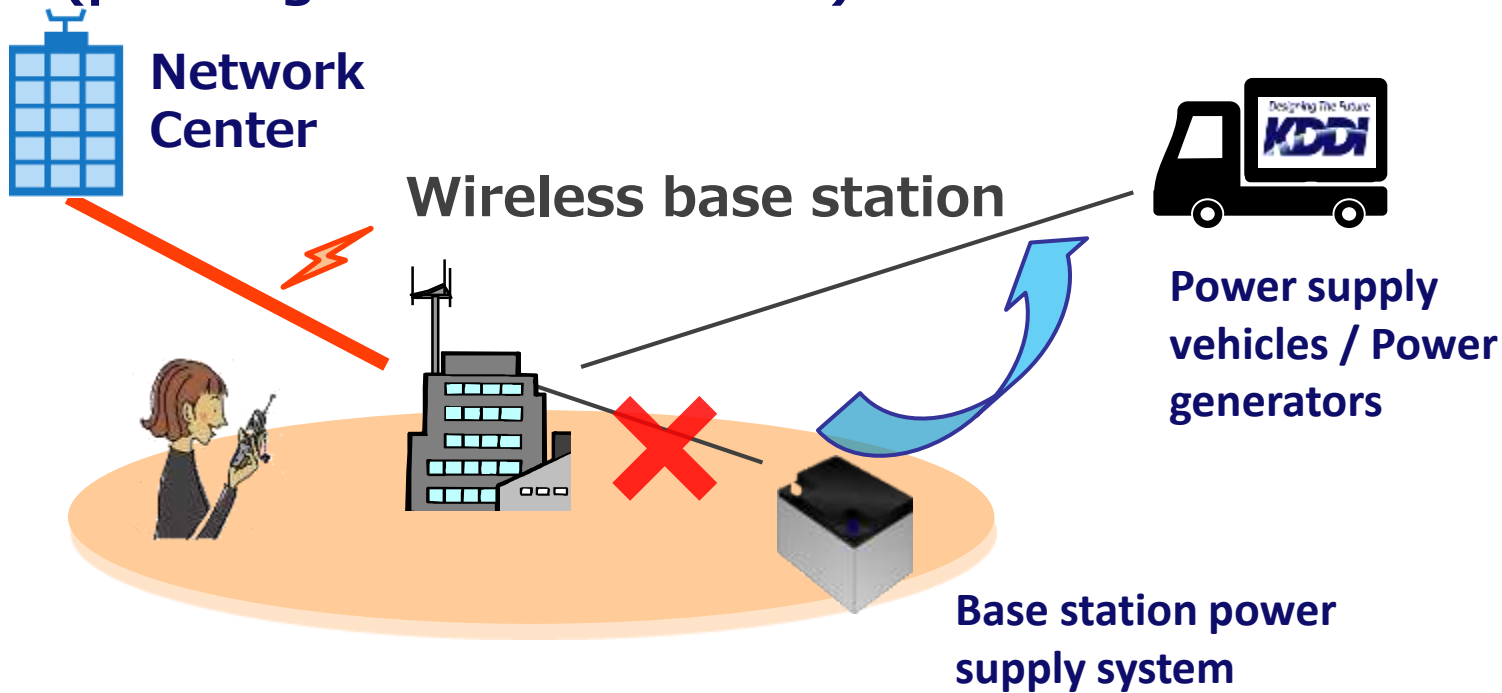
① Responding to Circuit Disconnection

Recover the coverage area using satellite communication



② Responding to Power Discontinuity

Recover communication by supplying power to the base station from portable power generators or power supply vehicles (power generator on board)



Damage to Communications Facilities

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[Torrential rain in July 2018]
Network Center was flooded



[Torrential rain in July 2018]
Optical cable disconnection



[Hokkaido Eastern Iburi earthquake]
Base station facilities were isolated



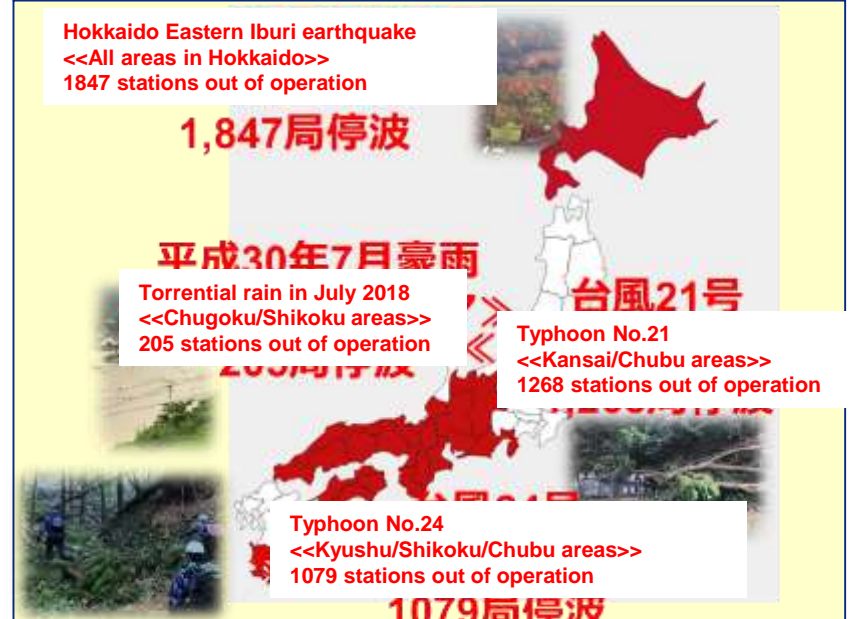
Trends in Recent Natural Disasters

In addition to localized disasters such as the Kumamoto Earthquake and Northern Kyushu torrential rain, recently natural disasters are affecting wider areas and have a prolonged impact such as during the torrential rain in July 2018 and the Hokkaido Eastern Iburi earthquake

Localized disaster



Wider-area, prolonged damage



Added sea and sky as new recovery measures

Land



Sea



Sky



✂ During the trial

Vessel Base Stations

After the Hokkaido Eastern Iburi earthquake, KDDI Ocean Link set sail to start **the first vessel base station operation in Japan** (Radio wave transmission started at 19:43 on Sept. 8)

Route and schedule

Sept. 11, 16:00
Arrived at
Tomakomai Port

Sept. 8, 14:00
Stopped off the
coast of Hidaka

Sept. 8, 19:43
**Radio wave
transmission
started**

Sept. 11, 8:30
**Transmission
stopped**

Sept. 6, 18:00
Departed Yokohama
Depot



Radio wave transmission coverage



KDDIオーシャンリンク

Wireless base station



Satellite antenna



Support for disaster relief efforts



Loading relief aid

Unloading relief aid



Drone Base Stations

4K image transmission using 5G drones

First in
Japan



Network-connected drones
deliver clear images

Usable for building and
bridge inspection as well as
for **disaster rescue**

Training for Emergencies

Conducted joint training based on disaster agreements with different organizations (Ministry of Defense, Japan Ground Self-Defense Force, Japan Coast Guard, local governments, private-sector companies, etc.)

