

# Earthquakes and Media:

Learning from the Experience of the  
Great East Japan Earthquake



**The MIC-ITU SYMPOSIUM ON  
DISASTER COMMUNICATIONS**

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# Outline

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- 24-hour period following the earthquake
- 3-month period following the earthquake
- Looking back on the last year

# I . 24-hour period following the earthquake

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- Earthquake, Tsunami and Media
- Fixed, Mobile and Pay phone
- Social Media
- What else

# Degree of Recognition of the Tsunami Warning (NABJ: 2011)

Did you hear tsunami warning after main quake on 3/11 ?			How did you hear the tsunami warning ?									
%	Yes	No	Radio	TV	Web site	E-mail	SNS, BBS	Twitter	Community wireless systems	Public announcement	Word of mouth	Other
<b>○ Residents of temporary housing</b>												
All (500)	57.0	43.0	21.4	9.1	1.8	1.4	0.0	1.1	49.5	13.7	15.1	0.4
Sendai (125)	40.8	59.2	43.1	9.8	2.0	3.9	0.0	0.0	15.7	23.5	15.7	2.0
Natori (125)	48.0	52.0	35.0	21.7	5.0	3.3	0.0	1.7	3.3	16.7	33.3	0.0
Kesennuma (125)	71.2	28.8	9.0	6.7	1.1	0.0	0.0	2.2	80.9	4.5	4.5	0.0
Rikuzentakata (125)	68.0	32.0	11.8	2.4	0.0	0.0	0.0	0.0	69.4	15.3	12.9	0.0
<b>○ Internet users</b>												
All (2266)	39.8	60.2	40.0	38.9	5.1	2.5	0.2	0.7	27.8	12.5	7.6	0.7
Iwate(170)	71.8	28.2	27.0	15.6	4.1	1.6	0.0	0.8	71.3	17.2	4.1	0.0
Miyagi (1628)	35.4	64.6	47.2	33.7	5.0	2.8	0.3	0.9	25.7	14.1	9.2	1.0
Fukushima (468)	43.6	56.4	27.5	67.6	5.9	2.5	0.0	0.0	7.8	5.4	5.4	0.0

# Main Radio and TV channels of communication (NABJ: 2011)

## Research to internet users

How could you get information on tsunami at the time of evacuation from tsunami?  
(Only internet users who evacuated from tsunami on 3/11)

%	Radio	TV	Car navigation system	Mobile phone call	Fixed phone call	E-mail	Twitter	SNS, BBS	Web site	Video site	Community wireless systems	Public announcement	Family, Neighbor, Friend	Others	couldn't get any information
All(1677)	<b>47.6</b>	<b>40.4</b>	2.2	2.7	0.1	1.9	1.6	0.4	3.2	0.2	8.6	6.6	11.4	1.7	12.8
Iwate(143)	<b>45.5</b>	<b>25.9</b>	4.2	3.5	0.0	1.4	0.7	0.0	3.5	0.0	28.7	11.9	13.3	0.7	15.4
Miyagi(1159)	<b>52.1</b>	<b>34.3</b>	2.2	2.4	0.0	1.5	2.1	0.6	2.4	0.3	7.9	6.6	12.9	2.0	14.2
Fukushima(375)	<b>34.7</b>	<b>64.5</b>	1.6	3.5	0.3	3.5	0.5	0.0	5.6	0.0	3.2	4.5	6.1	1.1	7.2

# Useful information Sources at the Evacuation from Tsunami (NABJ: 2011)

Were following media or information sources useful at the time of evacuation from tsunami?

("useful" means sum of top 3 categories on 7-point scale)

%	Temporary house		Internet users	
	useful	no contact	useful	no contact
Radio	<b>29.2</b>	59.4	<b>69.3</b>	23.1
TV	<b>12.4</b>	69.6	<b>46.9</b>	25.1
Mobile phone call	<b>3.4</b>	64.6	<b>10.8</b>	21.5
Fixed phone call	<b>1.0</b>	81.6	<b>3.2</b>	42.3
E-mail	<b>3.6</b>	72.6	<b>22.3</b>	24.0
Twitter	<b>0.2</b>	95.4	<b>3.4</b>	72.5
SNS, BBS	<b>0.0</b>	95.8	<b>4.6</b>	71.7
Web site related to news or disaster informations	<b>0.8</b>	93.2	<b>8.7</b>	60.4
Video site (Youtube, U-stream, etc.)	<b>0.4</b>	95.4	<b>2.1</b>	72.2
Community wireless systems	<b>21.6</b>	60.6	<b>17.1</b>	51.3
Public announcement	<b>21.4</b>	67.4	<b>23.6</b>	42.5
Family, Neighbor, Friend	<b>43.6</b>	41.8	<b>53.3</b>	19.2
Own experience and knowledge	<b>24.8</b>	***	<b>24.5</b>	***

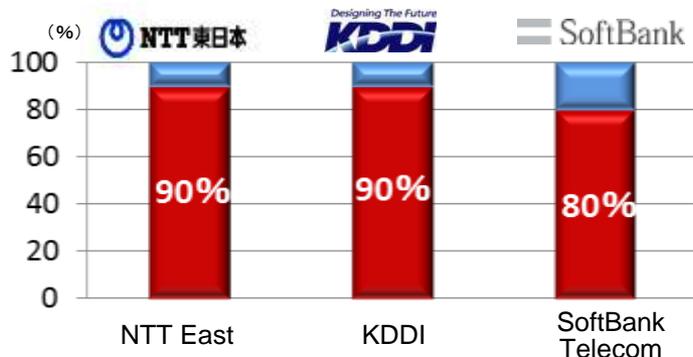
# State of Communication Damage and Congestion Caused by the Great East Japan Earthquake

## Fixed-line Communications

### State of Congestion

- Carriers restricted fixed-line phone traffic by as much as 80 to 90 percent.

#### Max. outgoing traffic restrictions



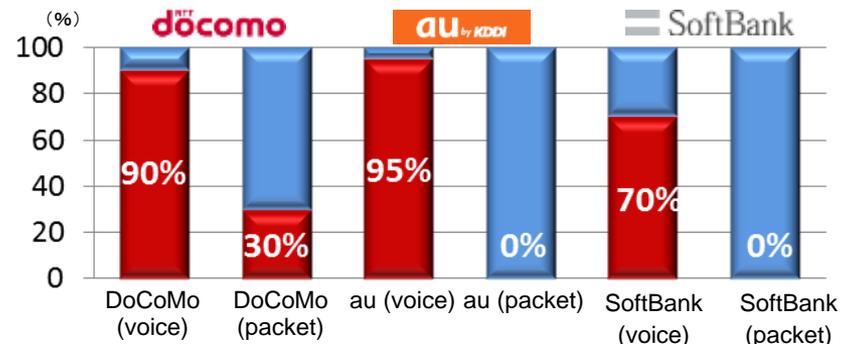
## Mobile Communications

### State of Congestion

- Carriers restricted voice traffic by as much as 70 to 95 percent.\*
- Packet traffic, however, was either not restricted or restricted at a lower rate than voice traffic.

\*eMobile did not restrict voice or packet traffic.

#### Max. outgoing traffic restrictions

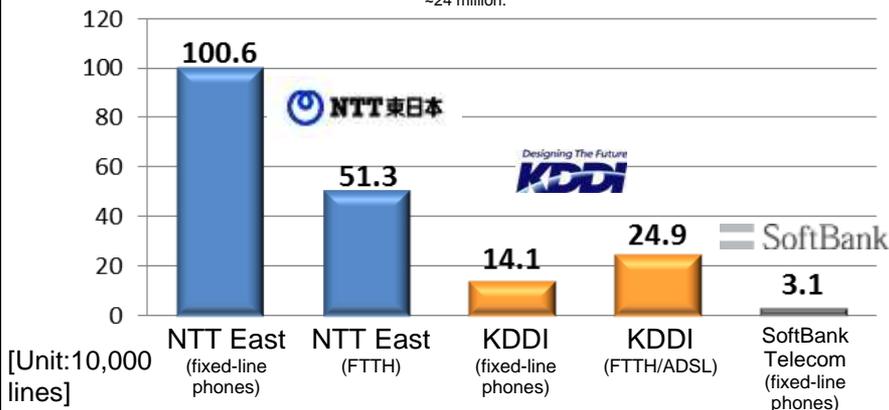


### State of Damage

- A total of approx. 1.9 million communication lines\* were damaged. More than 99 percent have been restored.
- NTT, KDDI, and SoftBank Telecom have completed restorations in all but a few areas.

\*Most of the damaged lines were in the Tohoku region. The total number of line subscriptions in the Tohoku and Kanto regions is ~24 million.

#### Max. no. of damaged lines

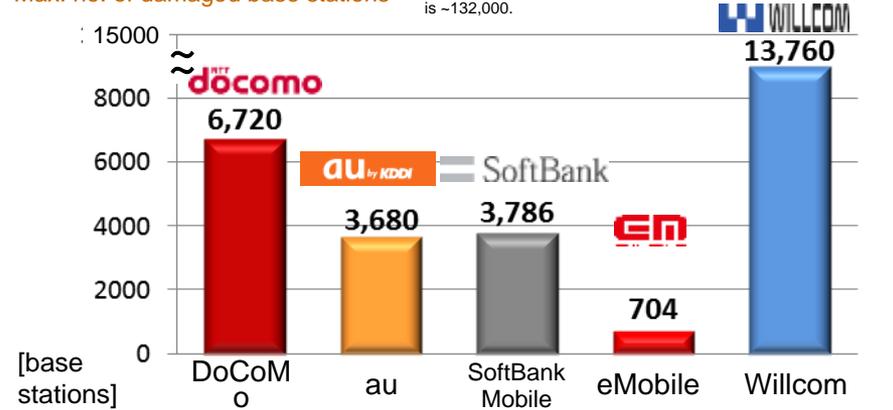


### State of Damage

- A total of about 29,000 base stations\* were damaged. More than 95 percent have been restored.
- eMobile has completed restorations, and NTT, KDDI, SoftBank Mobile, and Willcom have completed restorations in all but a few areas.

\*Most of the damaged base stations were in the Tohoku region. The total number of base stations in the Tohoku and Kanto region is ~132,000.

#### Max. no. of damaged base stations

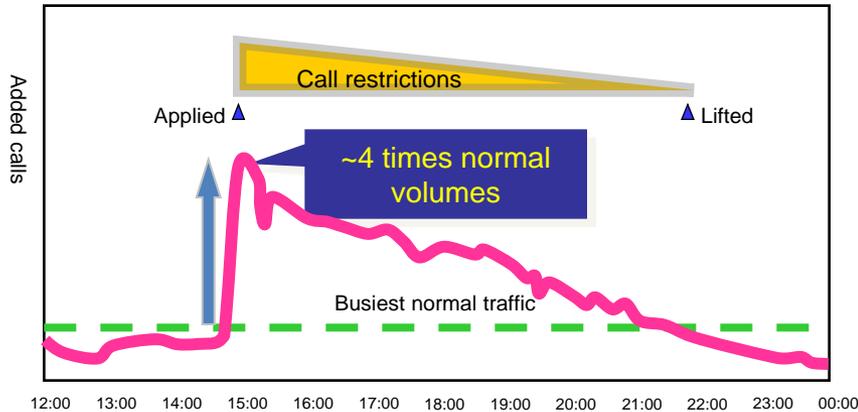


# Examples of Traffic Congestion (NTT East Japan)

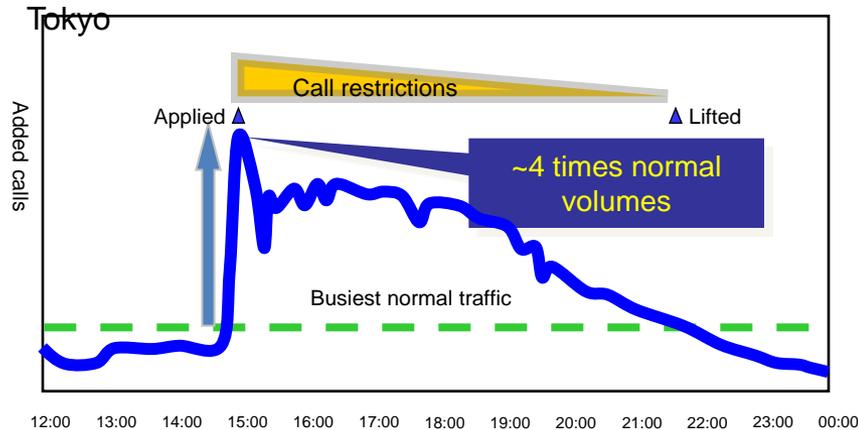
- Call restrictions were put in place immediately after the earthquake. Restrictions were applied on a per-prefecture basis, especially on calls to the Tohoku region, where the disaster occurred.
- Controls were applied to traffic to other areas based on the traffic volume; controls were lifted on a per-prefecture basis as traffic volumes declined.

## Metro Tokyo

Telephone traffic from all locations in Japan

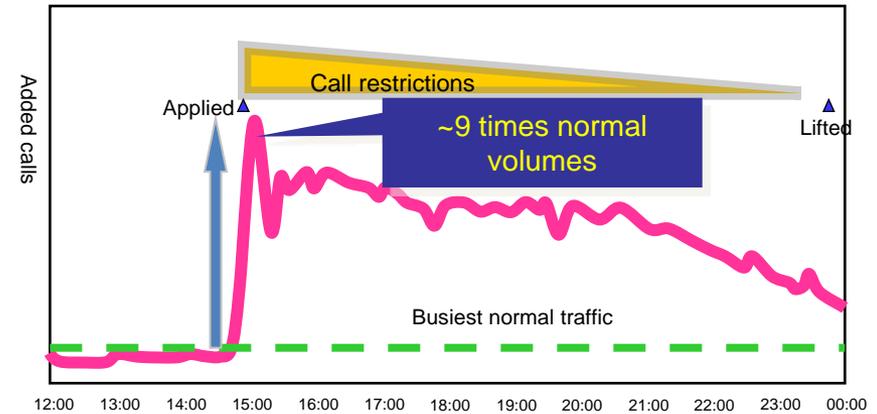


Telephone traffic within Metro Tokyo

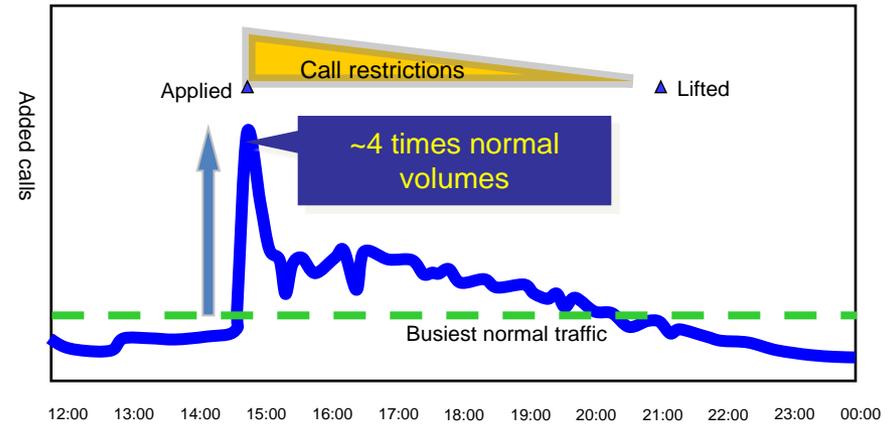


## Miyagi Prefecture

Telephone traffic from all locations in Japan



Telephone traffic within the prefecture



## Status of Permanently-Installed Public Telephone Usage Before and After the Great East Japan Earthquake (Source: MIC (2012))

	Number of Communication Occurrences	
	3/11/2011 Versus Previous Day	3/2011 Versus 3/2010
Entire East Japan area	Increased by approx. 10 times (500,000→5,000,000)	Increased by approx. 1.3 times (16,500,000→22,000,000)
Tokyo metropolitan district	Increased by approx. 15 times (270,000→4,000,000)	Increased by approx. 1.4 times (10,000,000→14,000,000)
Iwate/Miyagi/ Fukushima	Increased by approx. 6 times (50,000→300,000)	Increased by approx. 1.5 times (1,600,000→ 2,500,000)

Note: All communication occurrences excluding international calls

## Initiatives by NTT East to Make Permanently-Installed Public Telephones Free During the Time of the Great East Japan Earthquake (Source: MIC (2012))

Name of Prefecture	Period During Which Public Phones Were Made Free
(1) Iwate/Miyagi/Fukushima	3/11 ●————→ 4/14
(2) Aomori/Akita/Yamagata/Ibaraki	3/11 ●————→ 3/25
(3) Hokkaido/Tochigi/Gunma/Chiba/Saitama/Tokyo/Kanagawa/Niigata/Nagano/Yamanashi	3/11 ●————→ 3/18

# Social Media

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- Twitter
  - Rescue updates
  
- Google
  - Person Finder
  
- Ustream

# What else

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- Gas
- Road map
- Submarine Cable

# II . 3-month period following the earthquake

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1. Local New Papers
2. Community FM Stations
3. Cable TV

# 1. Local Newspaper

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- Tokai Shimpou in Iwate (17,500)  
9,000 just after the earthquake  
14,000 (Oct. 10<sup>th</sup>, 2011)
- The return of readers in the above fashion is likely a testament to Tokai Shimpou having fulfilled its role as a local newspaper

## 2. Community FM

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- ❑ Distribution of radio receivers in disaster-stricken areas
- ❑ Efforts in the direct aftermath of the earthquake consisted only of relaying the well-being of persons, shelter locations, and the evacuee ledger over the air
- ❑ After things following the earthquake eventually calmed down, a series of talk shows and other programming also commenced that featured film stars and other high-profile guests visiting disaster-stricken areas from Tokyo to encourage residents there and speak on the local situation

# 3. Cable TV

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- Around 1 month following the earthquake, terrestrial TV viewing needs intensified alongside the restoration of electric power
- On April 23, Sanriku Broadnet (SBN) resumed its community channel, which it subsequently used to relay information, such as that concerning local traffic and where and when food would be rationed
- Live broadcasts of city assembly meetings also resumed in May
- Supplying of information via Facebook

# III. Looking back on the last year

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- Word of Mouth (WOM)
- Diversity of Media
- Emergency Education

# Word of Mouth (WOM)

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- Upon the occurrence of the tsunami and the situations that ensued, WOM also proved to be a valuable information source for evacuation purposes
- Misinformation was also rampant on the Internet in the midst of the confusion following the earthquake
- Within communal life, information that is largely imagined takes on an air of reality as it is communicated verbally from one person to another

# Diversity of Media

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- ❑ The more diverse that media serving to relay information is, the higher the possibility that essential information will be communicated
- ❑ At the same time, more ideas are needed with regards to the nature of the information relayed through that media as well as the manner in which it is relayed
- ❑ There is no singular media or network that represents the most appropriate means of relaying information in disaster-stricken areas; such media should be diverse in nature

# Emergency Education

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- ❑ In this digital age, the need for senders of information to have literacy education is being emphasized in addition to the media literacy that recipients of information must possess
- ❑ On top of that, more ideas are needed with regard to what kind of information should be relayed through media in times of disaster, as well as how that information should be provided and how the information itself should be used
- ❑ Moreover, ideas are also needed with regard to what kind of evacuation behavior one should engage in based on information obtained from media

# Thank you very much



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