

RESILICOMM: A Framework for Resilient Communication System

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Talk includes

- Motivation: Overview of Disaster aftermath
- Proposed Framework (RESILICOMM)
- Effects of Disaster on Telecommunications lifeline utility
- Importance and Role of Telecommunications lifeline utility
- Design Challenges and Implementation aspects
- Conclusion

Motivation– Disaster aftermath

➤ Disaster – A catastrophic event, cause destruction/human suffering

Can strike **anywhere** at **anytime**

➤ Affects – Lives

Infrastructure

Health

Food

Communications and many more

**DISASTER
STRIKES**

Two recent events ...



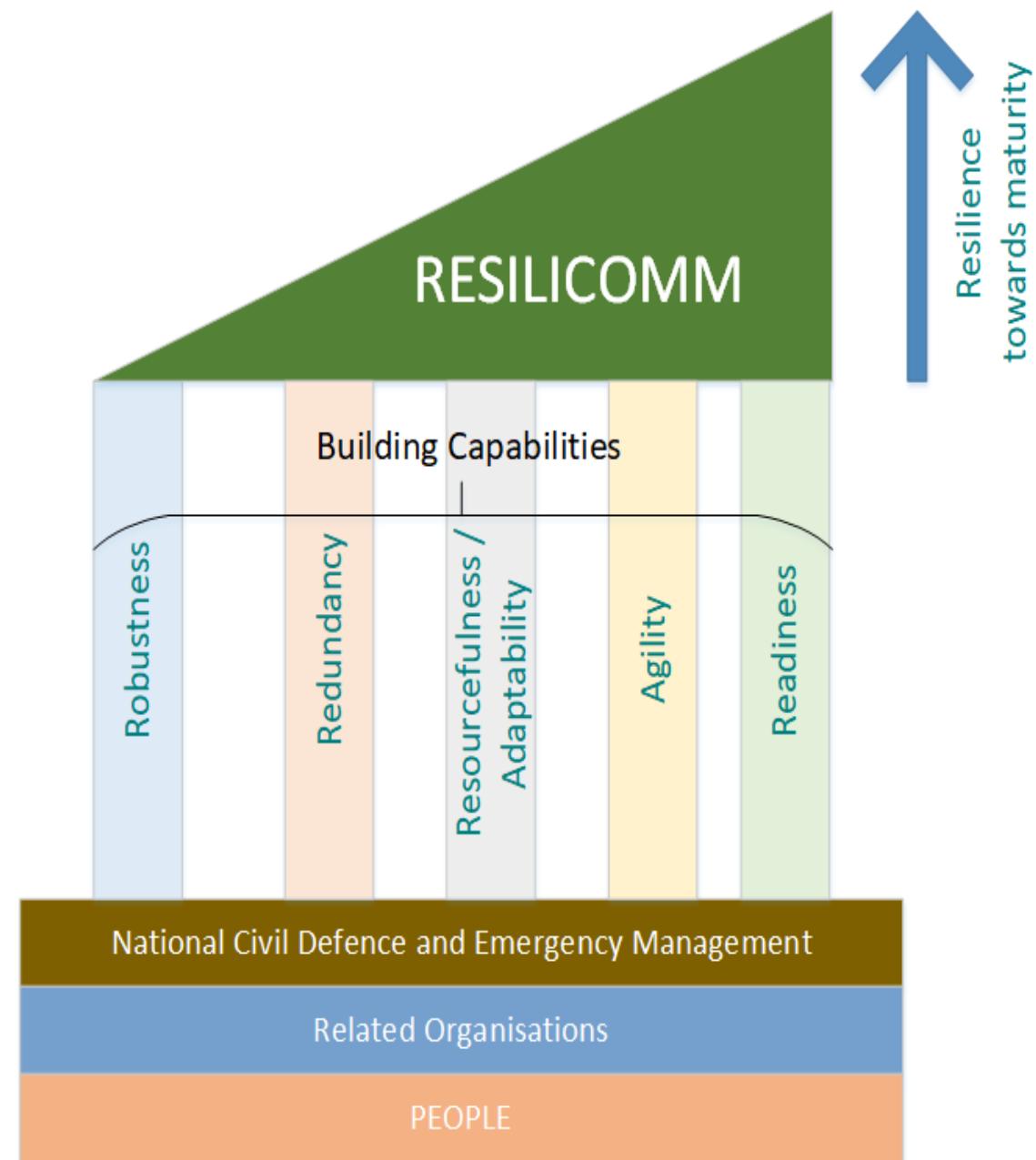
Cyclone Gita, NZ Feb 2018



Typhoon Yutu, Philippines Nov. 2018

Source: www.theguardian.com

RESILient COMMunications



Telecommunications

Importance of Telecommunications Lifeline Utility

- Lifeline utilities – Water



Electricity

Transport

Telecommunications

- Telecommunications – *Vital Lifeline utility*

Needed for control equipment

Needed for Emergency response activities

“When disaster strikes, Telecommunications save lives” – ITU-T



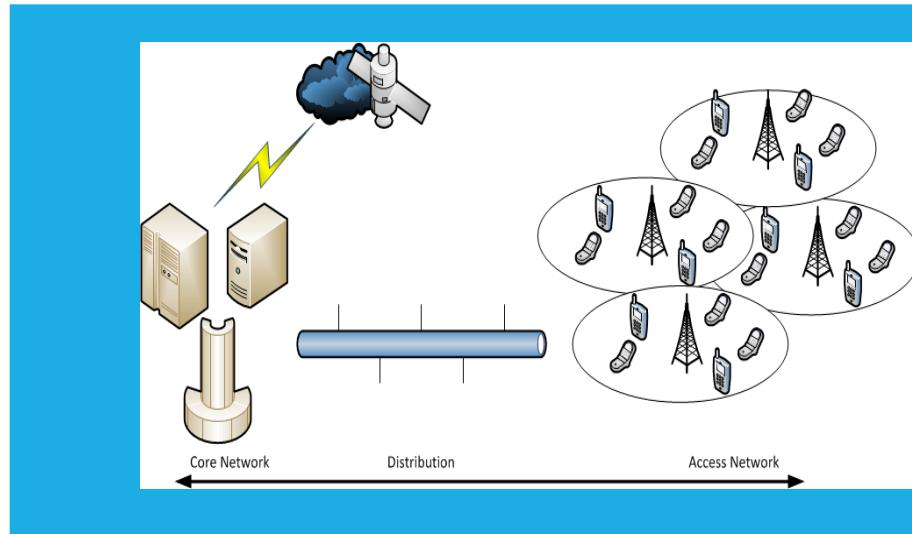
Source: www.civildefence.govt.nz

Effects of Disaster on Telecommunications Lifeline Utility

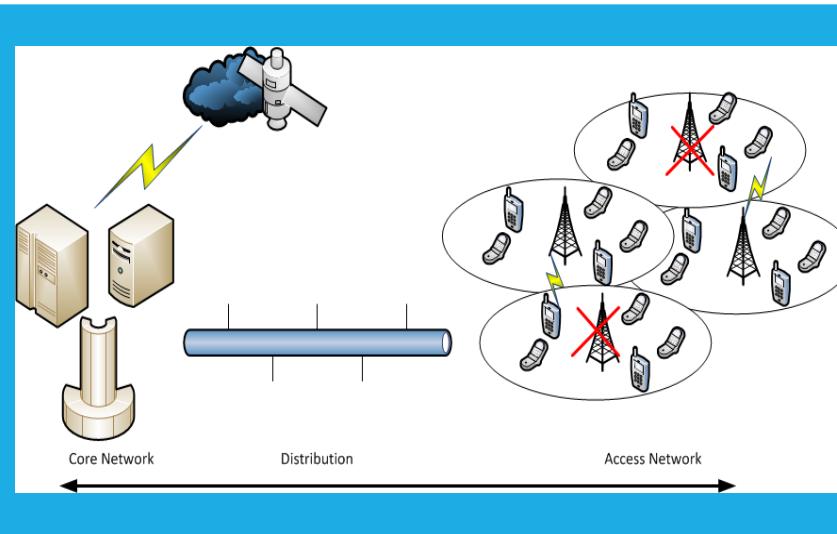
- Physical damage to network components
- Disruption in other supporting networks
- N



A Typical Operating and a Post-disaster Communication Infrastructure



(a) A communication network scenario
(normal operation)



(b) A post-disaster communication network scenario

Design Challenges and Implementation

- What can be done to detect the disaster incidents instantly and automatically?
- How smart phones and other internet-enabled handheld devices can be used for disaster response and recovery?
- How victim's mobile phones can form ad-hoc networks for emergency communication in the absence of an infrastructure?



Summary

- Need to prepare for disasters
- Telecommunications – vital lifeline utility
- Needs to find practical solution to various challenges
- Working towards *Resilience Maturity*

Q & A

THANK YOU

