A Framework for Communication Infrastructure against Disasters

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Abstract
The Great East Japan Earthquake, which occurred on March 11th 2011, caused significant damage around Tohoku region in Japan. Some means of communication on Internet, telephone and mobile phone have been used as reliable communication methods, but they were not available due to the earthquake. This fact requires a system capable of minimum communication in disasters. This paper proposes a framework for communication infrastructure against disasters.

Concept
1. Automatically starting the system
2. Operator free backup system
3. Keeping security of the system
4. Keeping Service and Data Backup at several nodes for each others

How much cost?
Public Cloud system

Proposed Framework

Effects by Earthquake

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This idea is based on some lessons for disasters:
- Hardware trouble by rolling black out
- Unavailability of telephones, mobile phones, E-mail and Web
- Manpower necessary for system operation

Service Level
1. Web Service
2. Mail Service
3. DNS Service
The proposed framework supports basic communication.

The ‘BOX’ for Disaster Response

In the case of emergency (in disasters)
A. How to select nodes for backup systems
B. How to exchange data among nodes
C. Security
D. Maintenance of ‘BOX’
E. How to deal with recovery of primary servers
F. How to use the servers on backup systems