Activities Relating to Safety Confirmation Services at NEC

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Abstract

Confirming safety is a critical step that needs to be undertaken in order to cope with disasters, not only for the purpose of securing the safety of employees but also from the perspective of business continuity as well. This paper introduces the status confirmation solution being developed by NEC and companies of the NEC Group, along with four case examples that differ in terms of the systems used and their features.

Keywords

safety confirmation, 3rdWATCH, emergency call, personnel gathering

1. Introduction

The confirmation of personnel safety at the time a disaster occurs is considered necessary for securing the safety of personnel, which is necessary to continue business operations or as a premise for such operations. "Guidelines for Business Continuity," issued by the Cabinet Office, also point out the importance of a safety confirmation system, indicating that "it is necessary to quickly confirm the safety of executive officers and employees immediately following the occurrence of a disaster"* and one of the steps that must be taken for continuing business operations. Safety information provided by the press, as well as through the use of voice message accumulation devices provided by communication carriers (disaster message boards) are available as a means for verifying safety at the time a disaster occurs. This paper, however, covers safety confirmation systems that are used when individual corporations implement their own mechanisms for verifying the safety of their employees, including case examples at NEC and companies of the NEC Group.

2. Application of Safety Confirmation System

2.1 Purposes for Implementing Safety Confirmation Systems

The details and reasons for safety confirmation systems vary, depending on the capacity of the person who wishes confirmation and the persons about whom such confirmations should be made. As private individuals it would be likely for us to want confirmation of the status regarding our family members, friends, acquaintances and those persons with whom we have personal relationships (whether or not they are safe). As for corporations, confirming the safety of subordinates and colleagues (or superiors), as well as securing the personnel necessary to continue the operations of business carried on by such corporations or securing the personnel necessary to fulfill social responsibilities** borne by such corporations, may also be considered reasons.

Assuming that use of the usual methods for transmitting information will not be available under special disaster circumstances, it is necessary to consider a means for gathering the information necessary to confirm the safety of personnel in advance. It is, furthermore, necessary to have not only one but multiple methods. Implementation of a safety confirmation system can be considered a valuable method for securing one of the multiple means for gathering information.

2.2 Positioning of Safety Confirmation Systems for Business Continuity and Implementation of Disaster Strategies

A business continuity plan can be formulated with three major stages that occur in a chronological order (**Fig. 1**).

* Refer to Section 2.2.6.1 Securing Safety and Confirming Safety for the Lives of Individuals in the First Edition of the "Guidelines for Business Continuity" published by the Disaster Prevention Officer of the Cabinet Office on August 1, 2005.

** Confirmation of safety regarding customers and employees, family members and members of the local community, as well as the rescue activities (refer to Chapter 3 on Social Responsibility in the "Outline of Strategies for Earthquakes Occurring Directly Under Metropolitan Tokyo" published by the Central Disaster Prevention Council in September 2005).

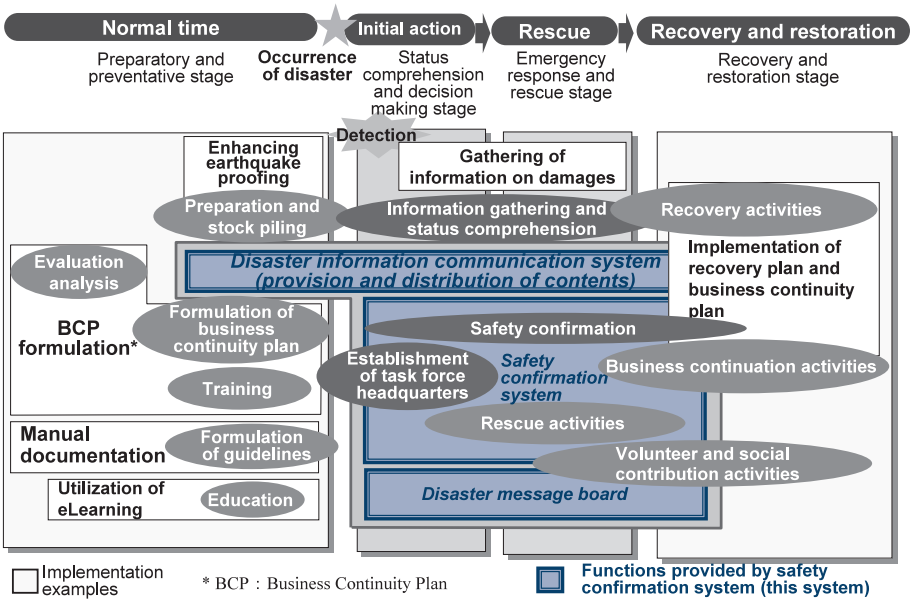

Fig. 1 Positioning of safety confirmation system for business continuity.

These individual stages can be described as "The Preparatory and Preventative Stage," during which advance preparations are conducted, "The Initial Action and Rescue Stage," occurring immediately following the occurrence of a disaster and "The Recovery and Restoration Stage," during which actual recovery work is carried out. The safety confirmation system would be used for "The Initial Action and Rescue Stage," which occurs immediately following the occurrence of a disaster and "The Recovery and Restoration Stage."

It is conceivable that persons subject to a safety confirmation system and the details differ between "The Initial Action and Rescue Stage" and "The Recovery and Restoration Stage," however. During "The Initial Action and Rescue Stage," activities are mainly concerned with the verification of safety regarding individual persons, while the latter half of "The Initial Action and Rescue Stage" to the first half of "The Recovery and Restoration Stage" the focus shifts mainly to the verification of securing the personnel necessary to conduct rescue operations and the recovery operations. Mechanisms for responding to these different needs, therefore, are required.

2.3 Process of Safety Confirmation

A safety confirmation system can flow in roughly the following manner:

- Gather information to determine whether a safety confirmation system is necessary.
- Determine the status of an incident and start the safety confirmation system based on advanced planning.
- Instruct the safety confirmation system (the active registration of safety information by persons subject to confirmation may not be required in some cases).
- Gather and tabulate the safety information.

The safety information changes constantly at all times. This means that a subject may be safe today, but the situation may be uncertain tomorrow, or support for recovery operations may have been available but suddenly became impossible and vice versa. It is, therefore, necessary to gather and tabulate safety information within appropriate timing.

The safety confirmation system provides functions necessary in order to execute such processes. Immediately following a disaster occurrence, however, a large amount of confusion is anticipated and it is also conceivable that some damage or restrictions will occur to the communication networks used to transmit information. It would be difficult to confirm the safety of persons subject to confirmation immediately following the occurrence of a disaster under such circumstances. When formulating plans for disaster strategies it may, therefore, be necessary to formulate them with the understanding that the information gathering progresses further as the initial confusion settles down and communication networks begin to recover.

3. Summary of Provided Functions

3.1 Gathering and Providing Information

When a disaster occurs it is necessary to gather information to find out the nature of the disaster and use it as the basis for deciding whether the disaster warrants action based on the disaster recovery plan that has been planned in advance. Such information includes weather, earthquake, as well as traffic information and the system provides functions for reporting such information.

3.2 Safety Confirmation

The reporting of safety information can be classified into two separate divisions, depending on who is making the decisions on whether or not "safety information should be confirmed." Some assigned persons, such as personnel in a corporation, follow emergency reporting procedures to report safety information (registering it on the system) or some individuals make decisions based on the status or response rules that have been determined in advance to voluntarily report or register the safety information. When a disaster occurs, it is considered that there will be no absolute securable means for all circumstances and thus the safety confirmation system is equipped with functions that enable it to function using either one of the aforementioned scenarios.

3.3 Gathering and Displaying Safety Information

Support is provided for the effective use of safety information that has been reported or registered with features for verifying the individual response status, performing overall tabulations and narrowing down data based on the specified conditions, although the usefulness of such features depend on the purposes of use for such information.

4. Case Examples

4.1 Case Examples at NEC Soft, Ltd. and NEC Software Tohoku, Ltd.

Case examples of the safety confirmation service (3rdWATCH), implemented at NEC Soft as well as the safety confirmation system developed and supplied by NEC Software Tohoku, are introduced in this section.

(1) History behind 3rdWATCH Use

In 2002 NEC Soft started their business collaboration with Rescuenow Dot Net (currently known as Rescuenow, Inc.), a business specializing in disaster reporting. The utilization of the safety confirmation service, 3rdWATCH, provided by Rescuenow as an ASP-type service, started in November 2003.

Safety must be secured before contact can be made to work sites (companies) in order to confirm safety according to the activity standard stipulated at NEC Soft. This service is considered a means to supplement such contacting methods. The service was launched sequentially starting with the top level corporate executive officers and is currently available for all employees.

(2) Summary of Service

Features of the service include a mechanism that selects the range of persons considered to be most likely affected when a major earthquake occurs, based on the earthquake information available to the system and it automatically distributes safety confirmation emails to those persons. Furthermore, it is also possible for the system to distribute information based on the conditions set by the user, such as weather (weather forecasts, precautionary warnings and typhoon information), earthquake and railroad information, when an incident occurs. This feature also contributes toward raising awareness of crisis management information and verifying the validity of email addresses (**Fig. 2**).

(3) Safety Confirmation Performed with Niigata-Chuetsu Earthquake

When the Niigata-Chuetsu Earthquake struck on October 23, 2004, a safety confirmation email was distributed to 455 persons, who were primarily located at the Niigata Branch Office of NEC Soft. When the disaster prevention officer checked the status at 8 a.m. the following morning, responses had already been sent by 240 persons, which was about 53% of all persons, while the rest sent their responses as time went by. The disaster prevention officer sent instructions and distributed tasks to contact the employees with whom contact had not been made, based on the response status list generated by 3rdWATCH. No major damage had occurred as the relevant locations in Niigata City were far from the epicenter. In parallel with the safety confirmation of employees, customers were also contacted to verify their operating status and to provide responsive action based on their status.

(4) Service Provided by NEC Soft

The use of 3rdWATCH was introduced during the disaster strategy seminar held at the Shizuoka Branch Office of NEC Soft. Triggered by this opportunity, service is currently being provided to customers who indicated their interest in

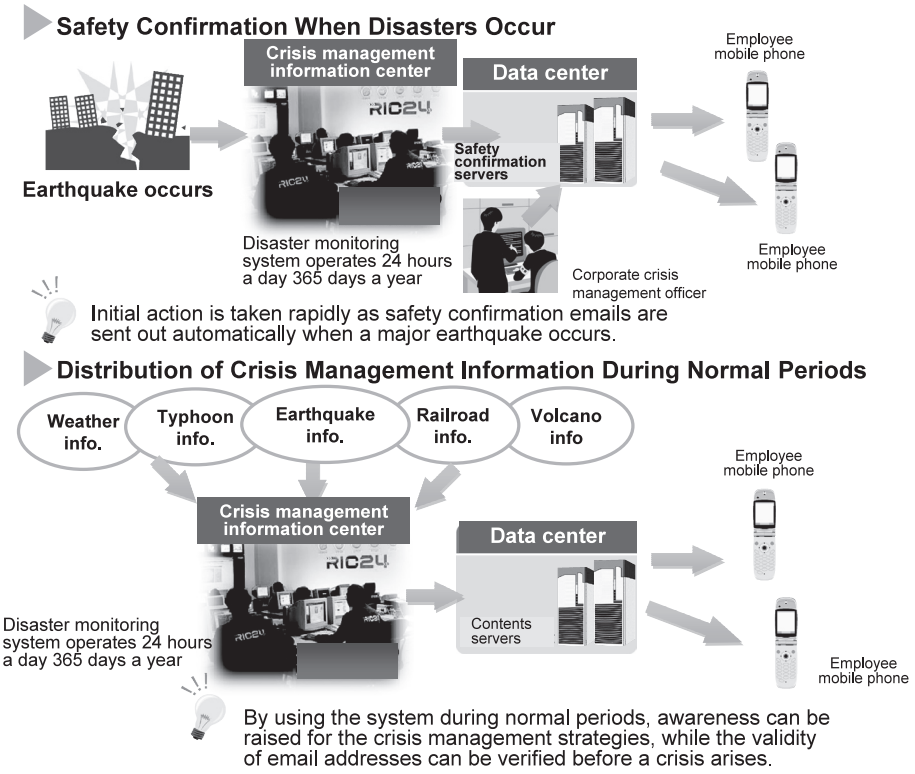

Fig. 2 Service summary of 3rdWATCH.

implementing the system. Training for managers and users, which offer support for the early completion of user registrations, are provided as incidental services when the service is implemented at a customer's location. Since social responsibility is demanded of corporations, the system is being utilized not only as a disaster strategy but it is recently also drawing attention as a potential tool for providing information rapidly when a complaint or a product recall arises.

(5) Safety Confirmation System Integrates Emails with CTI

NEC Software Tohoku offers an emergency communication and safety confirmation system that integrates emails with CTI. The system is capable of communicating with emails, voice messages and faxes, making it possible to provide a sure means to transmit information by combining these features. Furthermore, it is possible to manipulate communications and verify the results from personal computers as well as mobile phones, thereby supplementing efforts for rapid responses when an emergency arises.

The current configuration of the system used by NEC Software Tohoku is that of a single system configuration with servers located at the headquarters (Sendai City). Enhancement is under way to convert the system into a redundant configuration by establishing a remote installation at the Aomori Branch Office, out of concern for large-scale disasters.

4.2 Case Example of In-House System at NEC

A summary of the safety confirmation system, currently being implemented at our sales and SE organizations as well as at the IT Strategy Division in charge of disaster strategies for information and communication systems, is provided in this section.

(1) System Summary

The mechanism for the safety confirmation system (hereinafter referred to as the "system") that we have made available, utilizes 3rdWATCH provided by Rescuenow, described previously in this paper, for the purpose of gathering and distributing information when any emergency, such as a disaster, arises and is used in combination with the Emergency Call (hereinafter referred to as the "EMC"), a package software available from Imagecity Corporation, Ltd., which has been

adopted for implementing safety confirmation systems.
3rdWATCH is used to collect emergency information, including information relating to disasters. A detailed description of 3rdWATCH is omitted here since it is introduced in Section 4.4. A site accessed to distribute emergency information, such as disaster information with 3rdWATCH, has been customized to make it accessible for the safety confirmation system prepared for the system (**Fig. 3**).
The EMC is used for the portion of the system that performs the safety confirmation. Aside from the message transmission and safety status registration features the EMC incorporates other features, such as emergency communications to persons selected based on the safety status and a safety status search that uses various keys. Other than these features, the fact that it is possible to register persons subject to communications in a manner that responds to the hierarchical organizational structure is an aspect that supported the selection of this software. This is because in order to perform the maintenance of information in the safety confirmation system in an efficient manner, it is necessary to incorporate a feature for updating the work place assignment information of persons subject to safety confirmation in a systematic manner.

(2) Configuration of System

Notifications from the EMC are performed through emails (including those on mobile phones) and voice messages. Further, communications in the reverse direction for accessing the EMC are possible not only by using web browsers on mobile phones but also through the use of voice mail as well. In order to take advantage of this feature, relevant servers have been installed in an environment that is separate from the intranet at NEC.
As mentioned in (1), the efficiency of maintenance for registered information is an issue to be considered when operating a safety confirmation system. Information relating to persons subject to the safety confirmation system is registered on the EMC. If a large number of such persons are registered and if organizational changes or personnel reassignments occur frequently, a lot of effort would be needed to maintain the system, which becomes a factor that increases operating costs. The EMC was slightly customized in order to resolve this problem. A mechanism that hands over updated data from a system that holds information relating to organizational changes and personnel reassignments (for this instance a directory system for authentication applications at NEC) on a daily basis to the EMC, was built in order to update information on persons registered on the EMC who are subject to the safety confirmation system at all times (refer to **Fig. 4**).

(3) Utilization of System

In March 2006 a test was conducted for the system with a "reporting to registration" configuration involving approximately 150 persons, primarily from planning organizations in sales and SE organizations. As a result of the test, 67% of

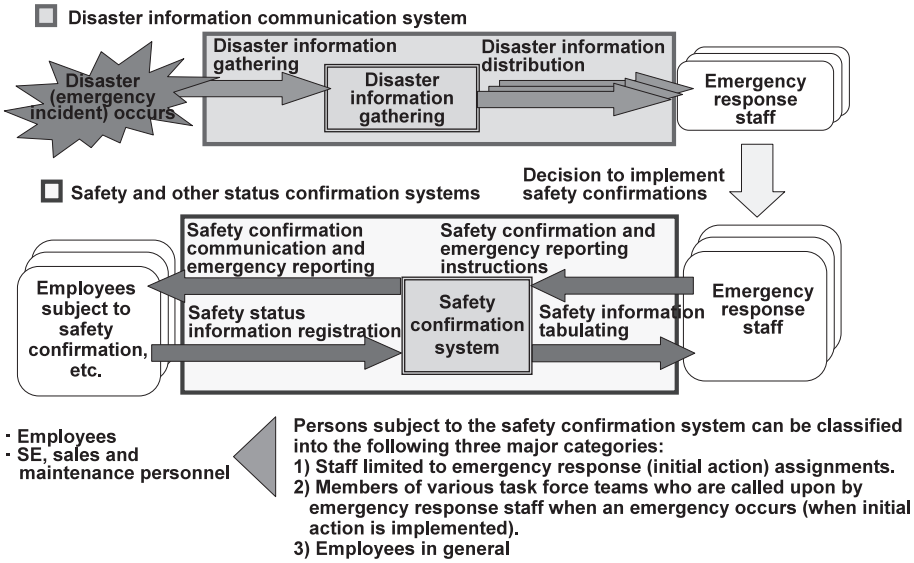

Fig. 3 Situations for utilization and applicable systems.

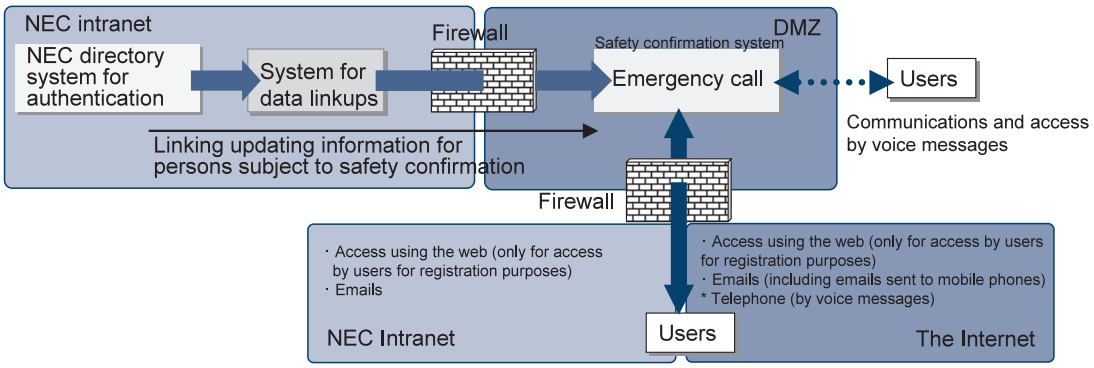

Fig. 4 Image of data flow and access.

persons subject to the test registered their information within one hour following the distribution of a message and registration of 90% of these people was completed within ten hours. No operating delays occurred within the system and the test was completed without any problems with the system. Furthermore, it should also be added that most of the registrations were performed from web browsers during the test and no registration of safety information was made using voice messages.

4.3 Case Example of Disaster Prevention and Traffic Network Solutions Division

This section introduces primarily a case example of the system used as a safety confirmation and personnel gathering system, offered by the Disaster Prevention and Traffic Network Solutions Division.

(1) Case Example of Email Distribution Service for Disaster Prevention Information at Minato Ward

This is a case example that provides a disaster prevention information email distributing service, which was built based on the concept formulated by Minato Ward for the purpose of limiting damage in anticipation of disasters, by conveying accurate information to ward residents as quickly as possible.

This service is the first system in the 23 wards of the Tokyo Metropolitan District that automatically distributes emails (to mobile phones and personal computers) relating to disaster information about earthquakes, heavy rainfall, floods, etc., to Minato Ward residents and ward workers by linking the system with observation instrumentation (for earthquake information, water level information and rain precipitation information) (**Fig. 5**).

Main features include:

1) Linkup Function with Observation Instrumentation

- Information is rapidly transmitted by the automatic distribution of emails when the observation data satisfies the preset conditions.

2) Adoption of High-Speed Large-Capacity Email Distribution Engine

- An email transmission engine capable of transmitting emails to more than 10,000 addresses per minute per server has been adopted as a basic function unit.

3) Enhancement of Personal Information Protection

- Since the system operates with all email addresses in an encrypted form, it is able to prevent the leak of personal information relating to ward residents and workers.

5. Conclusion

We introduced three individual systems as our case examples of the safety confirmation system. These have individually unique features and these systems should be selected according to the needs of the customers relating to safety confirmation. Furthermore, although this paper did not cover the subject, developments are currently under way to create mechanisms for safety confirmation within business locations, as well as mechanisms for gathering and integrating information gained from such multiple individual safety confirmation systems. We would like to provide our introductions on these issues when an opportunity arises.

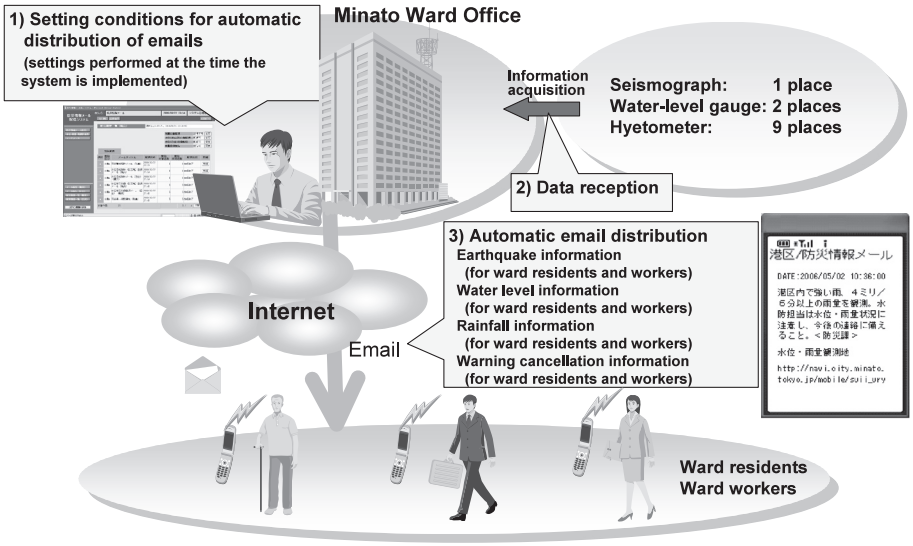

Fig. 5 Operating image.

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