

BC/DR Supply Chain Activities of NEC

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Abstract

IT provides the foundation for the supply chain that provides customers with merchandise and services. NEC has established a business continuity plan (BCP) by placing the primary emphasis in the supply chain field. In order to prevent IT from causing a bottleneck in business continuity when an unexpected event occurs, NEC is promoting activities including the establishment of BC/DR objectives that are consistent with business targets and strategies. These include priorities in dealing with failings, and assumed risks, countermeasures against them and the methods of managing funds to deal with them. This paper introduces NEC's ideas with regard to these activities and the conclusions that have been drawn from them.

Keywords

Business Continuity (BC), disaster restoration, Business Continuity Plan (BCP), Disaster Recovery (DR), large-scale disaster countermeasures, risk management

1. Introduction

Growth in the real-time properties of management and the mutual dependency between businesses in the supply chain has increased. Under such conditions, the business continuity (BC) and disaster recovery (DR) are considered to be issues that are as important as the foundations for a confidential relationship with shareholders. At the global level, a study for international standardization of business continuity plans (BCPs) was begun in May 2006 by the TC223 Committee of the ISO (International Organization for Standardization). At NEC, we also wish to be involved deeply in customer businesses and contribute to them as vendors of business infrastructures such as information systems and networks. As a leading IT/network vendor, we will also take the leadership in the field of BC/DR aiming at providing our customers with the results and expertise obtained through these efforts.

This paper introduces the BC/DR efforts being made by NEC by focusing on IT, namely on; 1) the setting of BC/DR objectives and the establishment of an action plan that is consistent with our business objectives/strategy; 2) BC/DR promotion policy and the ideas and achievements in the raising of funds for promoting BC/DR measures.

2. IT Governance and Projects

2.1 IT Governance of NEC

NEC is a federation-type organization composed of multiple business units (BUs), and adopts an IT governance promotion system to match this system. The IT department of each BU builds and manages a system that can contribute to the business competitiveness of each BU. The Corporate IT Division of NEC's Corporate Staff with the job supervision departments of the entire company to support BUs by providing a corporate backbone system that supports key departments (sales, accounting, etc.) and IT infrastructures (intranet, E-mail, authentication directory, etc.).

2.2 Project Scope

In March 2004, the BC/DR project for in-house systems was begun. The details of the project are as below (**Fig. 1**).

(1) Objectives/Goals

Having taken the opportunity to upgrade the corporate backbone system from a mainframe system to an open system, the current DR will be reviewed from the viewpoint of BC and new measures will be promoted based on management level commitment.

(2) Scope

1) To clarify the BC/DR objectives for the IT system which

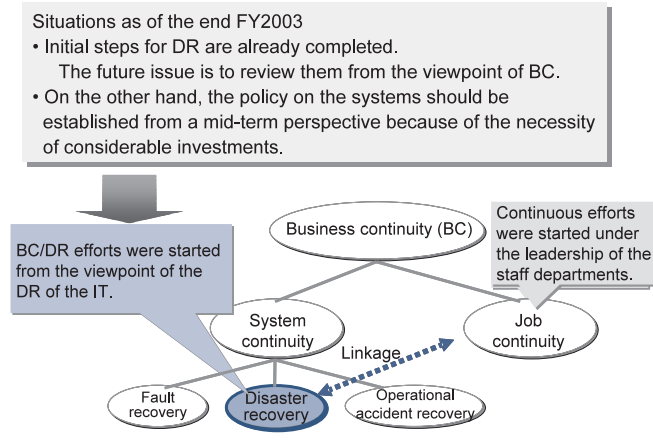


Fig. 1 BC/DR efforts at NEC.

is the central nervous system of the business management and to share related information.
 2) To establish an action plan that is consistent across the IT infrastructures and corporate backbone systems and to enforce it by obtaining the management commitment.
 3) To execute a management policy cycle that aims at the continual improvement of IT bottlenecks.

(3) Promotion System

The BC/DR measures of each BU have been established under the leadership of the BC/DR promotion staff, selected from the IT department of each BU and involving the persons concerned in the BU business. The Corporate IT Division studies the measures related to the IT infrastructures and the corporate backbone systems that transcend the BUs. At the same time the division supports the promotion staff of each BU.

3. The Setting of BC/DR Objectives Consistent with the Business Objectives and Strategy and the Establishment of an Action Plan

It is required to clarify the BC/DR objectives from the viewpoint of BC, by considering the dependency of the IT on the business and the situations of corporate systems including their linkages. To ensure the consistency with the business objective and strategy, it is indispensable that all persons concerned discuss sufficiently in order to reach an agreement. The following sections describe the processes of the study and the expected results.

3.1 Study Process

The flow of the study process* was; 1) business impact analysis (BIA) was conducted to set the recovery time objective (RTO) and the recovery point objective (RPO, which means the time point of the final backup); 2) the gaps between the actual RTO/RPO and their objectives were analyzed to establish an action plan by clarifying these issues.

3.2 BIA and BC/DR Objective Setting

At NEC, we considered the following points in setting the BC/DR objectives for IT that are consistent with the business objectives and strategy (Fig. 2).

- (1) The risks against BC may be caused by an infinite number of disasters, but it is not realistic to enumerate all of the countermeasures against each of them. Also, a common countermeasure can often be applied to disasters of various causes. Therefore, we studied the measures for minimizing losses by assuming “the worst cases regardless of the causal system” so that the countermeasures against each case can be best organized by combining such measures.
- (2) The BC/DR objectives are set in terms of the limit time

* NEC has now been providing BC/DR services for a long time. In order to enhance them further, in February 2004 NEC tied up with the SunGard Availability Services, which is a leading U.S. service provider that is also a leader in the BC business. After introducing SunGard's approved methodology, NEC assimilated it based on the results and expertise obtained through application of the in-house system to the BC/DR project, which is described in this paper. It was thus able to eventually prepare a unique NEC methodology that accorded to the Japanese environment.

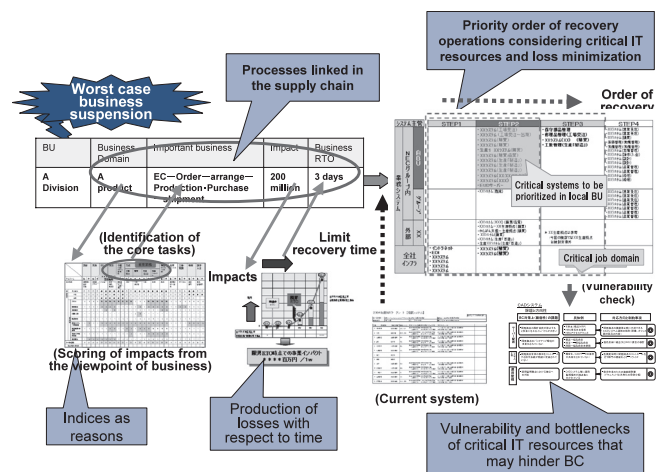


Fig. 2 BIA.

before an insupportable loss of business occurs. Whether or not these objectives can be agreed upon by the persons concerned is dependent on the reasons for the loss. It is therefore important to draw up a comprehensive list of these reasons before undertaking an analysis. The relevant indices can roughly be classified into the quantitative ones and qualitative ones. The quantitative indices represent the impacts on sales and profits due to cancellations of received orders, losses of opportunities and mid-term drop in share, and the qualitative indices represent the reliance and confidential relationships with customers.

(3) Effective BC/DR measures need consistency so as not to create vulnerability in the linked job processes. It is important that the persons concerned in the business take a broad view over the job processes, and study and set the priority order according to the importance of the resources that they depend on.

(4) To minimize losses, it is effective to identify the characteristics of the process from the occurrence of a disaster to the production of intolerable losses for the business. For a manufacturing industry enterprise like NEC, a suspension of business leads immediately to the production of certain losses. However, a suspension longer than a certain period often leads to the production of huge losses. We therefore considered that the relationship between the elapsed time and production of losses in the time domain, and studied the specific point at which losses suddenly increases. As a result, we succeeded in obtaining hints for an effective minimization of losses, e.g., the “critical resources that become the bottleneck that increased the losses,” and “what should be continued at which point to reduce the losses to a tolerable level”.

3.3 Disaster Scenarios, Establishment of Action Plan

A Study of BC/DR measures requires an assumption of the scenarios of potential disasters, which is a precondition. Based on assumed disaster scenarios, we were able to clarify the gaps in the current situations and the BC/DR action plan to be established (Fig. 3).

1) In assuming disaster scenarios, it is essential to objectively and urgently understand the particular geographical peculiarities of Japan and of the locations of NEC’s important business sites. In consideration of such knowledge, the proposed disaster scenarios and their impacts and requirements should be selected and accepted by the persons concerned. We have referred to the results of the study by the Central Disaster Prevention Conference as the source of information on the disasters that can meet the above requirements, and

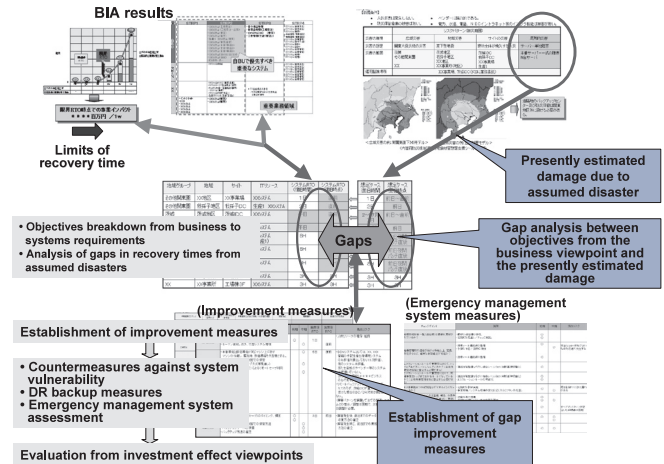


Fig. 3 Gap analysis and establishment of measures.

have selected a “Tokyo metropolitan epicentral earthquake” as a suitable disaster scenario.

2) To identify the specific issues for BC/DR, it is effective to recognize the gaps between the desirable objectives and current situations. Based on the selected disaster scenario, we have clarified the gaps by simulating; 1) a self-check of the command and control procedures in the event of an emergency, and; 2) the time taken to recover.

3) In establishing a policy for filling the gaps, we thoroughly considered all possible contingencies, including emergency measures such as the command system and preparation of backup in advance. At the same time, with regard to the measures that need investments, we established a plan for preparing them in a mid-term perspective by assuring consistency with associated measures.

4. BC/DR Promotion Policy, Ideas for Fund Preparation

The following sections describe the issues and purpose of the activities of each BU, from the viewpoint of the Corporate IT Division of the Corporate Staff.

- Promotion of corporate IT governance
- Ideas for the preparation of funds
- Promotion of continuous improvement

4.1 Promotion of Corporate IT Governance

With regard to the promotion of corporate IT governance, we first presented the objectives of corporate-level recovery and

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To minimize the damage to business brought about by system suspensions; assume the suspension of critical IT systems due to a Tokyo metropolitan epicentral earthquake and complete consistent BC/DR measures for the IT infrastructures, apply common systems across BUs and important information systems of each BU by the end of FY2007.

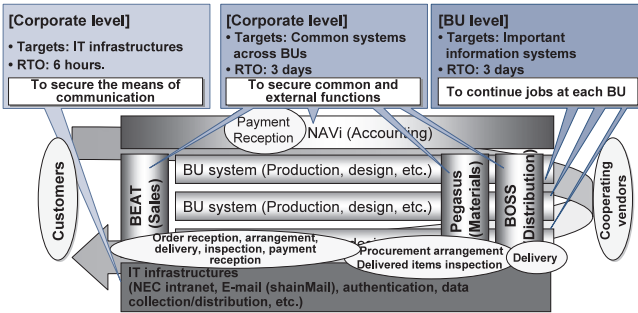


Fig. 4 Basic promotion policy.

the time frame for taking measures as the basic promotion policy (Fig. 4). The basic promotion policy specifies the objective levels of the IT infrastructures and corporate backbone systems and attempts to apply consistent measures according to such levels. Based on this policy, we are advancing the centralization of the data center, reinforcement of communications infrastructures and enhancement of common services for BC/DR.

We then presented the guidelines of the BC/DR objectives items (Fig. 5). These items can roughly be classified into; 1) minimum DR measures, and; 2) recovery objectives (RTO/RPO). 1) includes the advance measures for avoiding fatal damage in disasters (disaster reduction measures) and counter-measure items for enabling recovery after disaster (disaster-

preventing data storage), and 2) includes enforcement of the minimum required DR measures and achievement of the time and purpose objectives for BC. Achievement of both 1) and 2) are requested for the critical IT infrastructures identified by this study.

4.2 Ideas for the Preparation of Funds

The greatest barrier to the establishment of the BC/DR plan is how to prepare the funds. At NEC, we prepared the capital for BC/DR installation by concentrating hardware into more cost-efficient models, standardizing them and concentrating the system management functions including middleware at the timing of system/service renewals.

The possibility of achieving BC/DR at the same time as reducing TCO based on this idea was actually verified in the renewals of NEC's domestic sales systems (BEAT, etc.).

4.3 Promotion of Continual Improvements

In considering the importance of reinforcing the BC/DR against vulnerabilities that might cause a bottleneck in disaster recovery, it is required to advance the PDCA (Plan-Do-Check-Act) management cycle continuously. For this purpose, it is effective to periodically share information on the critical IT infrastructures, dependencies, bottlenecks and vulnerabilities, efforts applied and the progress situation among the persons concerned. As a first step toward this, we are attempting to define the efforts made each year by the associated departments and to promote information sharing among the persons concerned (Fig. 6).

5. Issues and Efforts of the Future

We have reconsidered the importance of establishing the BC program in advance with regard to the time domain.

It is necessary to maintain well-balanced consistency between the "BC/DR from the business aspect" and "BC/DR from the IT aspect". We will promote better linkages between the management core retention plan developed by the staff department and the measures developed by each individual BU including the risk measures. These will include; the establishment of an emergency liaison network/system covering managers, review of responsibilities, confirmation of safety of employees and the collection of information during disasters, etc.

We consider that the achievement of BC is one of the critical issues for management and from the viewpoints of CSR and

[1] Minimum DR measures	
Item	DR measures
① Damage reduction	Hardware maintenance agreements Installation of server in an IDC equipped with disaster measures (*1) Redundancy (Clusters/standby machines)
② Backup storage	Data backup Backup of programs, system configuration information and operation documents Disaster prevention storage (Fire-prevention storage)
③ Command system arrangement	Emergency liaison network Escalation rule
④ Recovery planning	Clarification of recovery details, systems and procedures
⑤ Disaster training	Rehearsals for recovery

[2] Recovery objectives (RTO/RPO)	
Item	DR measures
① Backup	Remote storage
② Recovery plan/environment	BC center (Construct system in the BC center.) Recovery manual

(* RTO: Recovery Time Objective)
(* RPO: Recovery Point Objective)

*1: If server equipment is installed at production sites, take thorough anti-quake, anti-fire, anti-flood and security measures.

Fig. 5 Measure establishment guidelines.

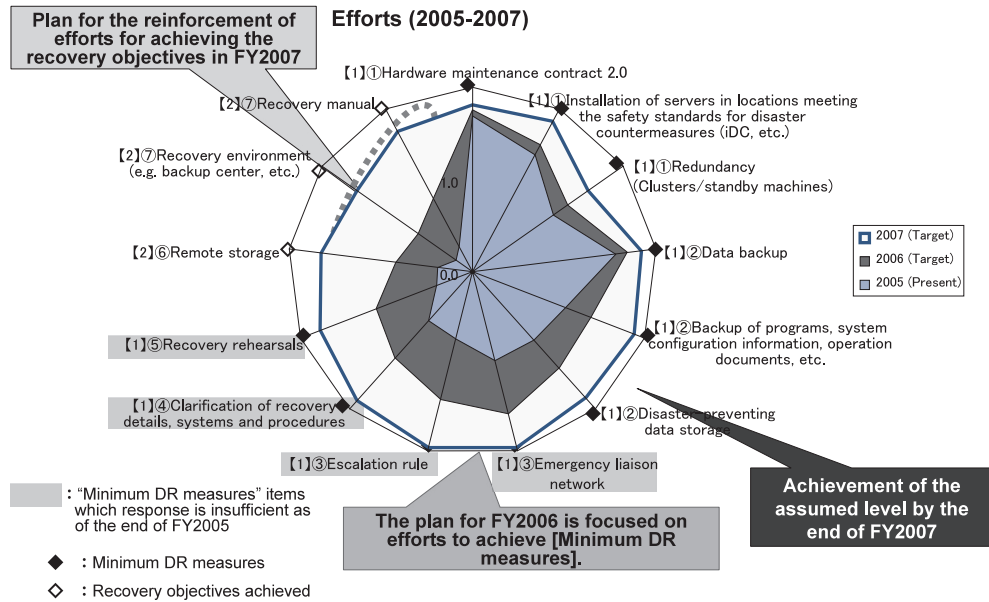


Fig. 6 Definition of efforts.

risk management efforts to support its smooth implementation at the corporate level should be made continuously.

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