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**Information Technology - Backup Storage -
Requirements of Data Backup Technology Application**

信息技术 备份存储

备份技术应用要求

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Table of Contents

Foreword.....	3
1 Scope.....	4
2 Normative References	4
3 Terms, Definitions and Abbreviations	4
4 Backup Technology	6
5 Data Backup Application Requirements.....	8
Appendix A (Informative) Data Backup Deployment	12

Information Technology - Backup Storage - Requirements of Data Backup Technology Application

1 Scope

This Standard specifies the application requirements of data backup and recovery in information processing equipment.

This Standard is applicable to data protection measures that are adopted to cope with data loss and data destruction in the information technology field.

NOTE: this Standard does not involve the continuity of business and its content.

2 Normative References

The following documents are indispensable to the application of this Standard. In terms of references with a specified date, only versions with a specified date are applicable to this Standard. The latest version (including all the modifications) of references without a specified date is applicable to this Standard.

GB/T 20988-2007 Information Security Technology - Disaster Recovery Specifications for Information Systems

3 Terms, Definitions and Abbreviations

3.1 Terms and Definitions

The following terms and definitions, and what is defined in GB/T 20988-2007 are applicable to this document.

3.1.1 Data backup

Data backup refers to the process of replicating all data or partial data collection from application host to other storage mediums or systems to prevent data loss caused by operational error or system failure.

3.1.2 Backup recovery

Backup recovery refers to the process of restoring backup data collection to application host or system through technical means.

However, through the application of virtualization technology and the form of software analog of tape reading and writing, the management of virtual tape library is consistent with the management of a physical-tape library.

3.1.11 CD-ROM tower/jukebox

CD-ROM tower/jukebox refers to an equipment, which links up multiple CD-ROMs. The disk is previously placed in a CD-ROM driver. Thus, data reading and writing can be simultaneously implemented on multiple disks. CD-ROM tower is a disk network sharing equipment, which is constituted of the series of CD-ROM driver of multiple SCSI interfaces. CD-ROM jukebox is a disk network sharing equipment, which is equipped with automatic disk-changing mechanism (mechanical arms).

3.1.12 Backup window

Backup window refers to the time interval that enables backup of business data in the business system, or the time frame for data backup under the circumstance that users' normal usage of the business system shall not be affected.

3.1.13 Synthetic backup

Synthetic backup refers to the re-constitution of a full backup with a full backup and some incremental backup or differential backup.

3.1.14 Virtual recovery

After recovery is activated, on the production system end, instant access to the recovered time point data can be implemented (in the mode of point redirection). Actual data can be re-continuously transmitted backstage.

3.2 Abbreviations

The following abbreviations are applicable to this document.

FCP: Fabre Channel Protocol

IP: Internet Protocol

NDMP: Network Data Management Protocol

SCSI: Small Computer System Interface

4 Backup Technology

4.1 Overview

Backup is a protection measure, which prevents data collection from natural disasters or human errors. It replicates the object of backup to another independent storage

- a) Data backup shall support backup to locality, local system, nonlocal system and non-locality. It shall maintain backup of one or more data copies. When there are multiple backup data copies, data consistency of multiple backup data copies shall be maintained;
- b) When the backup process is completed, under the circumstance of production system failure, power failure and breakdown, backup data copies shall be accessed under the support of software or system;
- c) Other than the initialization phase, in the backup process and after backup is completed, data copies that are stored on the backup object end shall be data of the backup object at a certain historical moment;
- d) Software or system can manage the backup process in accordance with log or other technology. When the backup process is accidentally interrupted, data re-synchronization shall be implemented;
- e) The synchronization mode of the backup data copy and backup object shall support real-time synchronization or asynchronous synchronization;
- f) In the application of system which parallelly executes multiple backup tasks, if the writing of multiple backup objects is correlated, the consistency of writing sequence of the backup data copies with the backup object shall be guaranteed in the backup process;
- g) The backup and recovery of software or system's own backup data log database shall be supported.

5.4 Recoverability of Backup Data Copy

Recoverability of backup data shall satisfy the following requirements:

- a) Backup data copy shall enable local or nonlocal recovery; recovered data shall be consistent with backup object;
- b) After the backup process is completed, backup destination end shall include an independent data, which reflects full data of the production system at a certain historical moment and the recovery of system status to that time point without depending on data of the production system.

5.5 Security of Backup Data Copy

Security of backup data copy shall satisfy the following requirements:

- a) Backup media shall be stored in a safe and reliable place; it shall not be destroyed or modified, and it shall not lead to information leakage as a result of accidental or malicious causes.

Appendix A

(Informative)

Data Backup Deployment

In the specific deployment of backup application, in accordance with the demands in different aspects, such as cost and data security, there are different deployment forms (please refer to Table A.1 for various deployment forms) as follows:

- a) Type-1 deployment form: merely one backup is established in the local system in the locality to cope with man-made data destruction or single storage medium failure; it can implement quick recovery;
- b) Type-2 deployment form: merely one backup is established in the non-local system in the locality; it can cope with system-level software or hardware failure; it can implement relatively quick recovery;
- c) Type-3 deployment form: merely one backup is established in the non-local system; it can cope with site-level or regional failure, such as power failure and flood, etc.;
- d) Type-4 deployment form: one backup is established respectively in two local systems; it can implement quick recovery and cope with system-level software or hardware failure;
- e) Type-5 deployment form: one backup is established respectively in the local system and non-local system; it can implement quick recovery and cope with site-level or regional failure;
- f) Type-6 deployment form: one backup is established in the locality and one backup is established respectively in two non-local data centers; it can implement quick recovery and cope with site-level or regional failure.