**Table of Contents**

[1. Introduction 3](#_Toc67584308)

[2. Concept (How the Disaster Recovery Plan Works) 4](#_Toc67584309)

[3. Metrics for Measuring a Disaster Recovery 5](#_Toc67584310)

[4. Disaster Recovery Plan Diagram 6](#_Toc67584311)

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# Introduction

The main goal of a DR (Disaster Recovery) plan is to insure continues service of a system, even when faced with a natural or man-made disaster event, and to protect its data.

This document will describe the high-level approach of a DR plan and explain how it will work.

# Concept (How the Disaster Recovery Plan Works)

The basis of the DR plan is that all the IT information that the business generates in its primary site is backed-up and stored in an off-site facility. This facility should be located within 100 Km’s from the primary site to ensure low latency on hand but far enough away so that any natural disaster won’t affect it on the other hand, and ideally underground to protect it from natural disasters.

The off-site facility is connected via a network (either private or public) to the primary site, and backs-up the data from the primary site while using this network. The time required for the back-up is affected by the physical distance of the facilities, the speed of the network and its latency, etc.

Most DR plans dictate that only the delta IT information from the last back-up will be sent to the off-site location, but it’s possible to back-up all the IT information each time.

There are 2 types of off-site facilities –

1. **Cold site:** This facility is a data center with sleeping servers (either virtual or physical), which are updated with the data from the primary site every agreed upon time period. The time period can either minutes or hours. These types of facilities are usually updated every 6 hours, but this can be altered to comply with the needs of the business. Once a disaster occurs, the servers are awakened (either remotely or on-site) and the business systems continue to function while connected to these servers
2. **Warm site:** This facility is a data center with servers similar to the ones they are duplicating in the primary site, which are updated with the data from the primary site every agreed upon time period. The time period is less than the one set in a cold site and is usually measured in seconds. Since the servers are always active, the cost of these types of sites are much more than the cold ones (due to need for active licenses for the servers and on-line synchronization tools)

# Metrics for Measuring a Disaster Recovery

The 2 most popular metrics (or SLA’s) used in DR planning are –

1. **RTO** (Recovery Time Objective): This metric measures how much time will pass from the moment the disaster occurs until the systems are back up and running. To put it simply: how much time will pass between the time of the disaster and the time that the users can work with the systems again
2. **RPO** (Recovery Point Objective): This metric measures the ability to recover files saved on the primary sites’ servers, by specifying a specific point in time to restore the back-up copy on the DR sites’ servers. To put it simply: it specifies how far back in time do the back-up servers save the info from the primary sites’ servers

The following metrics can also be specified in the DR plan document –

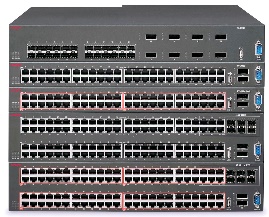
1. **Connection speed:** specifies which kind of network connection will exist between the primary and DR sites. Usually measured in Mbps per second
2. **Acceptable latency:** specifies the maximal latency between the primary and DR sites
3. **Frequency of DR drills:** specifies how many times a year the company will conduct a DR drill, and its success factors
4. **Recovery time:** specifies how much time will pass between the disaster occurring to the time the primary sites’ data center will be back to functioning on its own. This can vary

# Disaster Recovery Plan Diagram

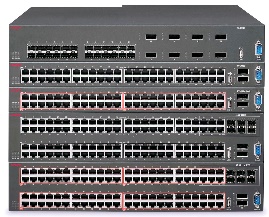
**DR Server**

**Primary Server**





**Users**



**Storage**

**Switch**

**Switch**