Information Technology Business Continuity and Disaster Preparedness Planning Patterns Case Study Oil and Gas Company In Indonesia

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Abstract: Information technology (IT) are vital elements in most business processes. Contingency planning supports this requirement by establishing through plans and procedures and technical measures that can enable a system to be recovered immediately and effectively following a service interruptions or disaster. Actions taken prior to an incident to ensure an effective response and recovery. The complexity of modern information systems and the rapid pace at which technology change makes it very difficult to ensure that appropriate steps are taken. The model offered in this paper attempts to deal the design and business development continuity for rapid fire disaster recovery in Oil and Gas Company. This paper provides guidance on IT disaster recovery planning. The following section describes the manner in which the data were collected and analyzed.

Keywords: Information Technology, Disaster Recovery, Business Continuity, Oil and Gas Company

Introduction

Resurgent of data processing technologies, globalization of trade, and high-speed communication and travel provide business today with an has never happened before set of opportunities for growth. Paradigm of business operations, also equipped with a set of different and expanded vulnerability to disaster and crises. And the increasing interconnectedness of commercial companies with all aspects of society makes business continuity planning a cornerstone of community resilience. business preparation reduces interference to employees, productivity, and profitability—and enables an organization to play a stabilizing role in the community.

IT disaster recovery planning is not an easy assignmennt. The complexity of modern information systems and the rapid pace at which technology change makes it very difficult to ensure that the proper steps are being taken (Retelle, 2008). Mainframes sustainably process thousands of transactions. Internal applications are always being developed, modified, integrated, and retired are always being developed, modified, integrated, and retired.

From a global perspective, IT disaster recovery planning is described as the set of actions which organizations follow in order to improve their ability to resume IT services following disaster (see Figure 1). Kadlec and Shropshire (2009) seven categories of actions.

Figure 1. IT Disaster Recovery Plan Elements

In order to meet these objectives, a study will be conducted in the Oil and Gas Company Indonesia. The data collected from approach executed is based on the interpretive paradigm and is used to interpret the results of the research methodology and research method.

Latterly, many research works encompass in the crisis management and disaster recovery support theory. However, most of a goal at a critical moment information sharing among emergency services such as hospitals units. While others focus on a variety of information and collaboration along with administration agencies.

Another study provide an important presents time critical services implemented for the Toward Building an IT Disaster Recovery Site for Saudi National Oil Company (Saudi Aramco). By presenting the Exploration and Petroleum Engineering computer center, this show that careful considerations on the location of disaster recovery facilities, proper capacity planning, careful selection of data center tier type and recovery timelines considerations are all crucial elements when assesing the feasibility and practicality of establishing the disaster recovery site (7th International

Conference on Computational Intelligence, Communication Systems and Networks -CICSyN).

BCP is simply just a document containing the response plan to disasters. However, the process of preparation of these documents is not easy and requires knowledge depth about the various risks faced by the company / organization. The scope of the BCP can be made widened including infrastructure, personnel and procedures. This paper emphasized on BCP related to rescue the information technology infrastructure from disaster threat.

It Business Continuity Plan and Disaster Preparedness Theoretical

Business Continuity based on required activities to keep organization running during a period of displacement or interruption of normal operation. Even though Disaster Recovery is the process of rebuilding your operation or infrastructure after the disaster has passed. Pursuant to Business Continuity Institute's Glossary2: "Business continuity plan is A collection of procedures and information which is developed, compiled and maintained in readiness for use in the event of an emergency or disaster.

Disaster might occur anytime, so we must be prepared. Depend on the size and nature of the business, we design a plan to minimize the disruption of disaster and keep our business remain competitive. Due to the advancement of Information Technology (IT), business nowadays depends heavily on IT. With the emergence of e-business, many businesses can't even survive without operating 24 hours per day and 7 days a week. A single downtime might means disaster to their business. Therefore the traditional Disaster Recovery Plan (DRP), which focuses on restoring the centralized data center, might not be sufficient. A more comprehensive and rigorous Business Continuity Plan (BCP) is needed to achieve a state of business continuity where critical systems and networks are continuously available.

Social scientists, emergency managers, and public policy makers generally organize both research and guidance around four phases of disaster loss reduction: mitigation, preparedness, response, and recovery. According to a newly-released report by the National Research Council (NRC 2006), the core topics of hazards and disaster research include: hazards research, which focuses on pre-disaster hazard vulnerability analysis and mitigation; and

disaster research, which focuses on post-disaster emergency response and recovery.

Oil and Gas Industry in Indonesia and Treat

In Indonesia, oil and gas energy is still the mainstay of the economy Indonesia, both as a foreign exchange earner and supplier of energy needs domestic. Development of infrastructure and industry is in full swing carried out in Indonesia, making the growth of the average energy consumption reached 7% in the last 10 years. Increased very high, exceeding Average global energy needs, requires Indonesia to immediately discover new oil and gas reserves, both in Indonesia and overseas expansion country.

Resource potential of oil and gas Indonesia is still quite large to be developed, especially in remote areas, deep water, the old well and East Indonesia relatively has not been explored intensive. Sources of oil and gas with the level of difficulty.

According to SKK Migas decrease in the amount of oil per day due to the decline in production from existing fields more quickly than estimates. About 90 percent of Indonesia's total oil production resulting from field whose age more than 30 years, so we need investment big enough to restrain the rate of natural decline. Efforts to curb declining production at aging fields, which reached 12 percent per year, failed to take place. While efforts to sustain production through field production of new, highly dependent on the performance of contractors cooperation (PSC).

In some areas in Indonesia, including the operational area oil and gas, prone to natural disasters, such as floods, lightning, hurricanes, earthquakes, tsunamis, volcanic eruptions, fires and others. Indonesian archipelago is one of the areas in the world that has many active volcanoes activity because of its location at the meeting between the three major lithospheric plates.

This led Indonesia is prone to seismic activity is significant that could cause an earthquake, tsunami or a tidal wave. Time to time there have been natural disasters that result in death, affect or cause the displacement of people and damage to infrastructure events in the past and is likely to occur in the future, may disrupt the Company's operations, and cause damage to equipment and negative impact on the financial performance and profitability

The Main Engineering

IT Infrastructure multinational oil and gas companies in Indonesia is integrated with headquarters in Europe or America. Authors take one example companies PT. ZXY separated physically consists of the island of Sumatra, Java and Kalimantan but integrated with the main office in America.

PT. ZXY using a network wide area network (WAN) to provide data and information exchange between the central office to the branch office that is reliable, fast and economical. Wide Area Network (WAN) is a networking concept that is not limited by geographic considerations. This network connects multiple networks Local Area Network (LAN) that includes metropolitan area, regional or international. WAN network to connect the three operational areas of Java, Sumatra and Kalimantan, in general the network is described in the following.
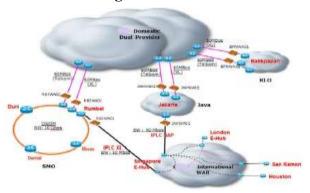

Figure 2. PT ZXY WAN Diagram (Source :Ardent Religian Putra and partner Performansi Layanan Video Conference Pada Jaringan Wide Area Network (WAN) Di Chevron Indonesia Company)

Recovery Point In the event of an incident the IT Disaster Recovery in Java and Kalimantan Operations, the author design primary location for IT Infrastructures system backup in Rumbai Pekanbaru Riau due it as main office of PT. ZXY. The other supporting factors are Rumbai City is so far of mountains and sea. So the impact of natural disasters, earthquakes and tsunamis can minimalized.

In order to recover the applications supporting the business, it is first necessary to recover the infrastructure:

1. The physical data center
2. The network
3. System software
4. Storage

The IT Disaster Recovery Team is sorted in the order of succession for the IT Disaster Recovery role (example)

NA	DESIGNATIO	TELEPHO	EMAIL
Cevin	IT Manager	0541 55 47	cevin@zxy.com
Rayh	IT Team	0541 55 47	rayhan@zxy.co
Rafk	IT Team	0541 55 47	rafka@zxy.com
NiSS	IT Technician	0541 55 47	nissa@zxy.com

Table 1. Recovery Team

Plan and response design:

1. Incident Occurs
    o   Notified of possible disaster preparedness incident.
    o   Initial assessment and classification of disaster is done by disaster team
    o   IT Disaster Recovery Team Leader invokes and communicates the incident to the IT Disaster Recovery

2. Assemble
    o   PT.ZXY DR Team informs different departments of incident.
    o   Team of IT Disaster Recovery assembles predefined assembly points.
    o   In event of PT.ZXY building being damaged and not accessible at predefined secondary assembly point.

3. Assessment
    o   IT Disaster Recovery Team does IT damage assessment testing to ensure the impact of the event on the IT Department and the services reliant on it
    o   Determine recovery location based on damage assessment

4. Responds
    o   IT Disaster Recovery team began the process of full or partial recovery on a variety of systems affected
    o   Test systems post recovery
    o   Provide access to systems.

5. Communicate
    o   IT Disaster Recovery Team reports PT.ZXY on status and completion of DRP via IT Disaster Recovery Team Leader.

Communications Plan is covers the communication between PT.ZXY Balikpapan and the IT department along witch the internal departmental communication in the event of an incident. Whole communications during

the event should be treated as confidential and only the IT Disaster Recovery Leader should communicate with the organization with regards to the status and progress of the ICT Department and ICTs People, Technology, Premises, Information (Systems) and Suppliers (Equipment, Services, Systems).

The Backup Service provides backups for all the servers at PT. ZXY for backup and disaster recovery purposes. The service provides LAN-based backups with the additional redundancy of a mirror copy of the Data Server data stored offsite at a DR site. This provides access to easy DR procedure testing without disrupting the operational environment and negates the need for tape.

The Backup Service is a service that stores backups for all the servers in the company. The backup service is a disaster recovery tool that allows the company to have daily backups of the servers to assist in the event of data loss. The service also provides offsite backups in the event of disaster on the server that the application resides on.

Conclusion

Business Continuity Planning is not only suitable for business organizations that offer Oil and Gas Company using IT and which handles a lot of data. It is also important for IT service providers. Their development centers and support units has a wealth of knowledge and all the experience of the past in the form of sources and documents on the servers and tape libraries.

They have a dual responsibility for planning for their own continuity, as well as that of their customers. Planning for continuity is about safety — safety from the consequences of events that one hopes will never happen and the truth is — it is always better to be safe than sorry.[]

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