**SYNOPSIS**

**1.** **Basic Information**

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| Name of Student | Harshit Jasty |
| Roll Number | AP22110010224 |
| Branch | BTech CSE |
| Name of Internship station/ Company | Twenty-two by 7 Solutions Pvt. Ltd. |
| Location | Bangalore |
| Date of Joining | 3rd June |
| Address of the Company | 35/1, 24th Main Rd, Achappa Layout, Silver Oak Layout, JP Nagar 7th Phase, J. P. Nagar, Bengaluru, Karnataka 560078 |
| Project Title | Disaster Recovery Using SD-Wan |

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| Project Purpose (One sentence only - about 10/12 words, describing the anticipated change. What is the immediate outcome or direct benefit the project will achieve resulting from the activities and outputs). It should not contain project details which can be described elsewhere on the form. |
| Enhance network resilience and ensure business continuity through SD-WAN-based disaster recovery. |

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| *What is the situation/status in the company before the project was given to you?)* | Indicators of success *(evidence: how we will know the purpose (above) has been achieved?)* | What is the progress till date? |
| Before the project was assigned, the company had no prior experience with SD-WAN-based disaster recovery solutions as they primarily focused on other areas. This project was given as an academic internship topic for exploration and development. | Indicators of success for the SD-WAN-based disaster recovery project include:   1. Reduced network downtime. 2. Seamless failover with minimal disruption. 3. Consistent data integrity. 4. Efficient load balancing and optimized bandwidth utilization. 5. Successful test scenarios with acceptable performance metrics. 6. Positive feedback from network administrators and users. 7. Comprehensive documentation of setup and testing. | Progress till date includes:   1. Designed the network topology. 2. Specified hardware and software requirements. 3. Planned the environment setup. 4. Configured SD-WAN controllers and edge devices. 5. Set up VPN for remote access. 6. Implemented failover mechanisms and load balancing. |

**Outputs:** Please list here all of the outputs (specific deliverables) you expect the project activities to deliver.

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| Outputs *(The results of project activities.*  *These should be sufficient to achieve the project purpose.)* | 1. A comprehensive network topology designed for SD-WAN disaster recovery. 2. Detailed specifications for hardware and software requirements. 3. Configured SD-WAN controllers and edge devices. 4. Implemented failover mechanisms and load-balancing policies. 5. Set up a VPN for remote access. 6. Collected and analysed data on previous failover scenarios. 7. Documented configuration details and testing results. 8. Validation and insights from SD-WAN experts. |
| Main Activities *(List the tasks to be done to deliver the outputs.)* | 1. Designing the network topology for SD-WAN disaster recovery. 2. Specifying hardware and software requirements. 3. Setting up the environment for SD-WAN deployment. 4. Configuring SD-WAN controllers and edge devices. 5. Implementing failover mechanisms and load balancing policies. 6. Setting up a VPN for secure remote access. 7. Collecting data on previous failover scenarios from the company. 8. Analysing the collected data. 9. Consulting with SD-WAN experts for validation and insights. 10. Documenting the configuration details, testing results, and final report. |

**Brief Background of the Project**(**500 words max**. Please include the rationale, the context and relevant/expected work to be conducted in this area)

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| This project seeks to create an SD-WAN solution for disaster recovery, network resilience, and business continuity. To maintain seamless corporate operations and safeguard data integrity in the modern era of technology, businesses must maintain constant network connectivity, even during emergencies. By improving network performance, simplifying management, and enabling reliable failover, SD-WAN technology provides a modern solution.  Logic  Maintaining high availability and reliability in network services is becoming increasingly important, which makes this project necessary. Network outages may have serious financial consequences, cause activities to be disrupted, and erode client confidence. When businesses use SD-WAN for disaster recovery, they may achieve better load balancing, seamless failover, and efficient data synchronization between primary and backup data centres. This lessens idle time and guarantees that essential programs can be used even when the network is down.  Context  This project began as an academic internship to address the unique requirements of a corporation trying to increase its disaster recovery capabilities. Although the organization normally does not engage in development projects, this programme provides an opportunity to test SD-WAN technologies in a practical setting. The project is intended to comply with the company's requirements and current infrastructure, and the suggested solution will be validated using data from previous failover scenarios and input from SD-WAN specialists.  Expected Tasks  The project consists of many core activities:  Designing the Network Topology: Establishing a network topology that comprises primary and secondary data centres, branch offices, and distant users. This architecture will ensure that all important components are linked for efficient catastrophe recovery.  Providing detailed requirements: listing all of the specific hardware and software needs, including those for WAN connectivity, virtual machines, SD-WAN edge devices, and physical servers. This is a thorough breakdown of the steps involved in installation and setup.  Disaster Recovery Policies: Set up and execute load balancing and failover procedures to manage traffic flow and maximise bandwidth utilisation in the event of a network outage.  Setting up the Environment: Creating an SD-WAN deployment environment by installing and configuring SD-WAN controllers and edge devices in various locations.  Disaster Recovery Policies: Create and implement failover and load balancing policies to provide seamless traffic rerouting and efficient bandwidth utilization during network disruptions.  Monitoring and reporting involve using tools to track network performance, latency, bandwidth utilization, and failover events. Configuring alerts and notifications for crucial occurrences, as well as creating analytical reports.  Testing and validation involve running multiple test scenarios, such as data centre outages and WAN link failures, to determine failover timeframes and performance consequences. To optimize the system, configurations are adjusted based on test results.  Documentation: Documenting the setup procedures, configuration details, and testing results to provide a comprehensive project report. |



**Signature of Student**

(I confirm that all relevant project-related information has been shared and I agree that I shall work towards the goals set in this form)