Part 1: Risk Assessment

Based on the evaluation of the network provided in part 1, the company is prone to various risks resulting from the network layout and the applications used. The first link based on the virtual configurations is the deployment of different types of servers’ .i.e. Windows Server, and the Linux-based server. In this case, the primary issue is the security risk resulting from communications between different servers that use different protocols. Additionally, these different servers that use different operating systems require "*enabling guest access to a share*." It is important to note that this is a risky approach as shares that don't require authentication can be a security risk. Another risk that can be pointed out is based on the physical layout of the network, which does not make provisions of security aspects such as the use of firewalls, DMZ, etc. About the quantitative risk assessment, with the loss of $86,000 daily, this poses a high risk in the long run, as the company may end up investing a lot of money in trying to prevent the losses and mitigate this risk.

**Part 2: Identification of Single Points of Failure (SPOF)**

The assessment of SPOF in a network infrastructure involves identifying the critical components of a complex system that is capable of provoking total system failure in the event of malfunctioning. In the network layout for the organization presented, lack of redundancy mechanism especially in the server architecture provided is the major root cause that can lead to SPOF. Both Windows Server 2008 and Red Hat Enterprise do not show any option available to ensure that in case of their failure, there is availability of the resources provided by these servers. One of the possible solution is by introducing a load balancing server on a source basis, to ensure there is a possibility of distributing the load between the root nodes in the setup provided. Additionally, the requirements for addressing the root node failure include the redundancy mechanism as well as the fast convergence when selecting the new root. In terms of the cost of implementation of a single load balancing server can be estimated to be the same cost of deploying the live server. In this case, the cost will involve sum of physical cost of all the servers deployed. -$14,785.00 + -$9423.00 + -$49,000.00=$73,208. The cost for implementing the load balancing server is as indicated above; however, the cost may vary. As from the research published, load balancer server may cost $300 per month; hence, $3,600 annually.