**CHAPTER 1**

* 1. **BACKGROUND**

The problems commonly faced by enterprises, educational institutions, industrial companies, and government agencies are network performance issues, such as low throughput and inefficient bandwidth utilization (Wairisal and Surantha, 2018; Syafalni et al., 2016). If the problem is not properly addressed, it will lead to wastage of cost as bandwidth is kept increasing/upgrading without considering the efficiency of usage. Therefore, an effective approach and concept is needed to improve the efficiency of usage and network performance. To solve the problem, network administrators face some difficulties in monitoring network resources in an organization.

Another problem faced by network administrators is the speed of fault detection in network devices such as routers, switches, cables, and others (Namee et al., 2020). This can affect the performance of the network as the identification of damaged/malfunctioning devices is slow. The computer network monitoring system using the SNMP approach makes it easy for network administrators to centrally manage the network (Khurniawan, Irfan, and Widiartha, 2016). Real time monitoring of computer networks is required to ensure that a network is always secure, stable, and users on demand (Miftah, 2019).

To solve these problems, this study proposes the concept of a Simple Network Management Protocol (SNMP). The concept is used for Internet bandwidth management and network infrastructure monitoring to ensure availability and security of the network.

SNMP is a concept developed by the Internet Engineering Task Force (IETF) in 1987, which is used to monitor the integrated computer network infrastructure by the server (Miftah, 2019; Li, 2019). Its main function is to control device management. To do its job, SNMP uses a Network Management Station (NMS) or manager and an SNMP agent (Halsall and Fred, 2001; Espinel-Villalobos et al., 2022). The NMS has the function of an information-processing machine that processes data from the monitored network devices. While the function of the SNMP agent is to register devices such as routers, switches, servers, and other network instruments so that they can be easily controlled (Nugroho, Affandi, and Rahardjo, 2014; Diana, 2016).

* 1. **PROBLEM STATEMENT**
  2. **GENERAL OBJECTIVE**

**T**o implement a network management system using a simple network management system to enable network administrators to be able to view the network performance at a glance as and be notified in real time.

* 1. **SPECIFIC OBJECTIVES**
  2. **JUSTIFICATION**
  3. **SCOPE**