

## ABSTRACT

Various facilities and excess network based Internet Protocol (IP), create an IP network, are projected to be a network platform in the future. In addition to its simplicity to be developed, the IP network is also easy to implement and can be used for various types of data on communications, both voice data, images, and conventional data.

A growing trend towards IP telecommunications Based Telecommunication, became one of the background of the emergence of IP Multimedia Subsystem (IMS). IP Multimedia Subsystem (IMS) serves as the standard platform for multimedia services over IP / SIP protocol which allows operators to use a single platform for multiple multimedia services. IMS is part of the standard architecture of Next Generation Network (NGN). Some networks (call it fixed network, mobile network or wireless network), can be operated services over the IMS platform, of course, with IP-based services and protocols supported by SIP. IMS-based network expected to accommodate a variety of telecommunications services, both voice communications, images, and data.

Telecommunications voice and image would be an important point that must be considered, given the need for real-time communication, prone to delay, and require large bandwidth allocation. The availability of bandwidth and efficiency of its use in a service tetentu expected to provide good service kualitas, especially real-time services like voice communication, as well as services that require greater bandwidth such as video communication. Reservation Protocol (RSVP) to be one way of guaranteeing the availability of bandwidth required for real-time service, in addition to multicast communication that can be used to obtain the desired efficiency of bandwidth usage

.Implementation of RSVP and IP Multicast provides stable on QoS parameters, a decrease of delay at the video service by 43.81%, the stability of the throughput with an average of 1.1064 Mb, impairment of delay on VoIP services by 12%, throughput increased by 1 lestablean , 23-fold, and the efficient use of bandwidth on the network at 0.37%.

Keywords: RSVP (*Reservation Protocol*), IP Multicast, VoIP, IMS (*IP Multimedia Subsystem*)