

## ABSTRACT

*Bidirectional PIM (BIDIR-PIM) is a variant of PIM Sparse-Mode (PIM-SM) that builds bidirectional shared trees connecting multicast sources and receivers. In the process of distribution of multicast traffic from sources, PIM-SM contained encapsulation process or the process of sending PIM Registering Packets that require significant process, bandwidth, and delay overheads and PIM-SM uses source-specific state which requires additional protocol and memory. While BIDIR-PIM regardless of the encapsulation process and from source-specific state.*

*BIDIR-PIM will be simulated into the TCP / IP intradomain multicast network. Its performance will be analyzed and compared with PIM-SM in handling the real-time traffic.*

*The results are, for bandwidth link variation; BIDIR-PIM gives 28.2329 ms average delay, zero percent packet loss, 0.1316 Mbps average throughput. PIM-SM gives 28.1079 ms average delay, zero percent packet loss, 0.1311 Mbps average throughput. For multicast receivers number variation; BIDIR-PIM gives 28.1742 ms maximum delay, zero percent packet loss, 0.1273 Mbps average throughput. PIM-SM gives 28.1096 ms maximum delay, zero percent packet loss, 0.1272 Mbps average throughput. For video rate changes to 384 Kbps; BIDIR-PIM gives 9.054 ms average delay, zero percent packet loss, 0.3968 Mbps average throughput. PIM-SM gives 9.035 ms average delay, zero percent packet loss, 0.3965 Mbps average throughput. With the 90% TCP background traffic addition of bandwidth link and 384 Kbps video rate; BIDIR-PIM gives 9.612 ms average delay, 0.83% packet loss, 0.3805 Mbps average throughput. PIM-SM gives 9.526 ms average delay, zero percent packet loss, 0.3797 Mbps average throughput.*

*Keywords: IP-Multicast, PIM-SM, BIDIR-PIM.*