The effect of fine grain in layer granularity on PLM performance

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Abstrak

PLM (packet Pair receiver-driven cumulative Layered Multicast) which is one of the multi rate multicast congestion control assumes a fair scheduler network and use P P (Packet Pair) to infer the available bandwidth as its mechanism.
Different layering scheme used in PLM can affect the PL performance. This thesis will analyze the effect of fine grain in layer granularity on LM performance through simulation. The layering schemes u.red are doubling scheme, multiplicative scheme, and equal sehemes.
The simulation shows that fine grain in layen granularity could make PLM has higher probabilities to gain the available bandwidth as closest as possible to their fair share, higher robabililies to achieve better fairness (including intra 12 protocol fairness, inter protocol Jaimes, and TOP friendliness) and better bandwiath utilization. Fine grain in layer granularity has indirect effect to layer subscription oscillation that happens where there are only PLM sessions on the network. Fine grain in layer granuluri could reduce the ratio of packet loss (PLR) caused by layer subscription oscillation. Fine grain in layer granularity did not have effect on PLM responsiveness.
Fine grain equal scheme has inter protocol fairness of 0.964, TCP friendliness of 0.999975 where equal scheme only has inter protocol fairness of 0.818, TCP friendliness of 0.945844, and intra protocol fairness of 0.9997. due to the layer configuration and the available bandwidth, doubling scheme has inter protocol fairness of 0.999 and intra protocol fairness of 0.999964 while multiplicative scheme only has inter protocol fairness of 0.987 and intra protocol fairness od 0.939482. fine grain equal scheme has PLR (cause by layer subscription oscillation) of 0.0131% which is lower than equal scheme that has PLR of 0.0395%. doubling scheme did not suffer from layer subription oscillation and so thus did not suffer from packet loss (PLR of 0%), while multiplicative suffer from PLR of 0.0078%.