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Title: New Source Rules and Satellite links

Abstract:
The effect of new CIF and ICR formulae on satellite networks is studied. Source rule 5 (TOF decrease) seems to have mostly negative effect on performance. Rescheduling, on the other hand, has positive effect.

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In this contribution, we intend to present the effect of the following three rules on satellite links:

1. CIF and RTT are used to determine XRM and ICR. This change was introduced in the August meeting. We have studied the effect of this change and noticed that this sometimes causes problems that

we did not anticipate.

2. Source Rule 5 has been found to not achieve its intended effect. It causes oscillations in long delay links such as in satellite networks. The reason of oscillation is that the low rate of the source results in timeouts even if the source keeps requiring to increase in rate. Rule 5 bring the rate down shortly after the source rate get increased, so the oscillation occurs.

3. Rescheduling was accepted as an option [1] and introduced as a minor change to pseudocode in section I.1, pg. 87. We have studied the effect of rescheduling and found that it allows fast response and throughput improvements (as opposed to ACR increase) for sources whose rates are set to low values, and in many cases avoids unnecessary triggering of conditions like Tof, Trm and Xrm, due to inactivity. It speeds up slow reverse traffic and improves the inter BRM cell time, and hence the transient response is speeded up. We substantiate these points with simulation results in an accompanying contribution.

Rescheduling also helps protect unnecessary triggering of Rule 5. Without rescheduling, we found that in some cases, the rule 5 is triggered resulting in oscillations in source rate. With rescheduling, Rule 5 is not triggered so that the network is stable and the throughput is improved. This happens because the reverse traffic is speeded up so that the interval between BRM is shorter and more even and the source may receive the feedback faster, avoiding the trigger of Tof, Trm and Xrm to bring the source rate down and avoiding oscillation.

Note: All our contributions and slides are available through our web site: <http://www.cse.wustl.edu/~jain/atmforum.htm>