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Title: Simulation Results: The EPRCA+ Scheme

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Abstract:

Simulation results comparing EPRCA and EPRCA+ are presented. In particular, EPRCA+ has fast transient performance, offers congestion avoidance, has few parameters, and is parameter insensitive.

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EPRCA+ is the simplified version of the OSU scheme [1] presented in the September meeting. In particular, we have changed from dual rate specification to a single rate. The RM cell contains only the current cell rate. This is similar to EPRCA [2]. Secondly, we have removed the Reduction-Factor field and replaced it with ``Explicit Rate.''

Since both EPRCA+ and EPRCA are derivatives of the MIT scheme [3], they follow the same basic steps. The major difference is that EPRCA+ is time-based in the sense that RM cells are sent \$T\$ microseconds apart rather than after Nrm-th cell. This give a fast response time to EPRCA+. The rate reaches the final steady state valule with \$T\$ microseconds in case of EPRCA+ while it takes several milliseconds for EPRCA. Since most of the networks operate in the transient state most of the time this is an important consideration.

EPRCA+ has most of advantages of the OSU scheme including being parameter insensitive, uses measured overload, the oscillations are bounded.

[1] Raj Jain, Shiv Kalyanaraman, Ram Viswanathan, ``The OSU Scheme for Congestion Avoidance Using Explicit Rate Indication,'' AF-TM 94-0883, September 1993.

[2] L. Roberts, et al, ``Enhanced Proportional Rate Control Algorithm,'' AF-TM 94-0735, September 1993.

[3] Anna Charney, Dave Clark, Raj Jain, ``Congestion Control with Explicit Rate Indication,'' AF-TM 94-0692, July 1994.