A Sample Switch Algorithm

Raj Jain, Shiv Kalyanaraman, Ram Viswanathan, Rohit Goyal

Raj Jain is now at
Washington University in Saint Louis
Jain@cse.wustl.edu
http://www.cse.wustl.edu/~jain/
Overview

- Switch Algorithm
- Pseudocode
- Simulation Results
- Future Improvements
ERICA = EPRCA++

- ERICA = Explicit Rate Indication for Congestion Avoidance
- The same as EPRCA++ presented in the November meeting.
- ERICA is the switch algorithm part of EPRCA++
- Source/Switch/destination behavior exactly as agreed in the November meeting. No changes in source/switch/destination behavior required.
- Fully compatible with current RM Cell format. No new bits, no new fields.
Switch Algorithm

- Monitor:
  Overload = Input rate/Target Utilization
  Fair Share = Available rate/# of active VCs
- This VC’s Share = CCR/Overload
- ER = Max(Fair Share, This VC’s Share)
  ER in Cell = Min(ER in Cell, ER)
- ER in Cell = Min{ER in Cell, Max(Available rate/# of active VCs, CCR/Overload)}
- Use BECN option when appropriate
Innovation 1: Most Recent Info

- Use the latest CCR from the forward direction (more recent information) and not that in the reverse RM cell.

![Diagram showing source, switch, and destination nodes with RM cell arrows.]
Innovation 2: Same Feedback in one Interval

- No new feedback if no new measurement
- Same feedback in all RM cells of a VC in one averaging interval
Features

- Congestion Avoidance
  - High throughput, Low delay
  - Small queues
- Fast response
- Parameters: Few, insensitive, easy
Motion

It is proposed that the following text from AF-TM 95-0178 be added to the TM document appendix:

“Appendix: A Sample Switch Algorithm
The traffic management ... ”