BYE Reconsideration

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Problem

- Just as many users can simultaneously join a session, they can simultaneously leave
- Based on current algorithm, result is a flood of BYE packets
- Forward Reconsideration was used as a fix for join problem.
- Leave problem is different:
  - Applications usually terminate after user's leave a session
  - BYE packets are important in small to medium sized conferences

Solution

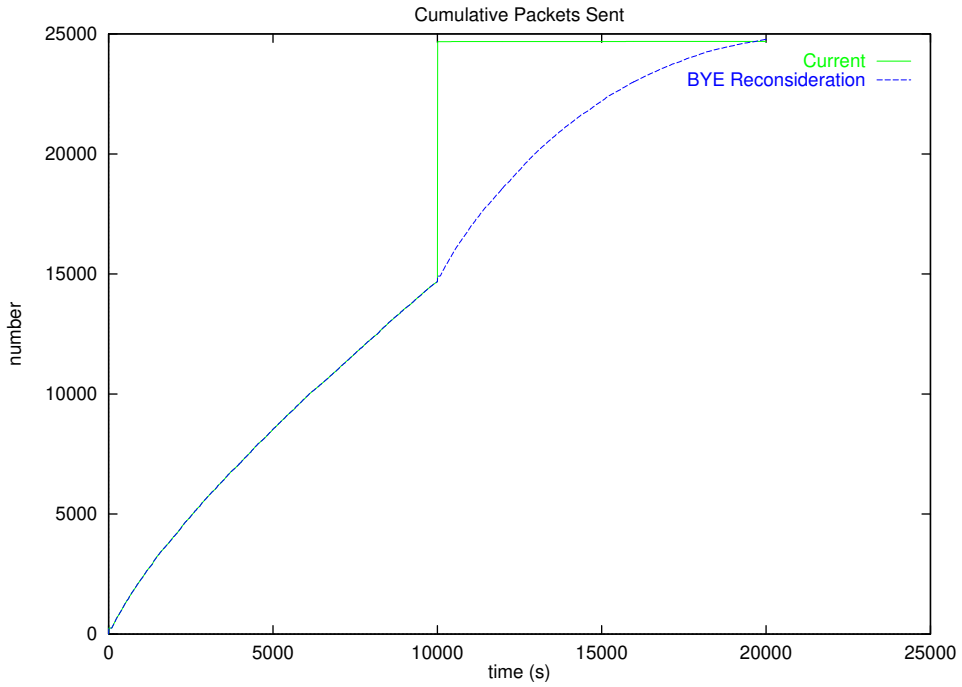
- BYE Reconsideration
- Operation
  - Some user decides to leave session at time t_l.
  - If group size at this time is below some threshold (50?), send the BYE and leave the session
  - If group size is more than the threshold, initialize counter n_l to 1. Set a timer to expire at time t:

$$t = t_l + R\left(\frac{1}{2}\right)\max\left(T_{\min}, Cn_l\right)$$

- As BYE messages from users in the group are received, increment n_l.
- When the timer expires, recompute t (including the random factor). If the new value is more than the old, set the timer to expire at the new time. Otherwise, send a BYE packet.
- If the application wishes to terminate before a BYE is sent, it may do so silently without sending the BYE.

Performance

- 10,005 users join a session at t=0
- 10,000 users leave session at t=10,000
- C=711ms
- Graph shows cumulative packets sent



Conclusion

- Algorithm properties
  - Simple
  - Allows for rapid transmission of BYE's when groups are small
  - Controls BYE floods very effectively