DYMOUM: A DYMO implementation for Linux and ns-2

Main features and preliminay simulation results

Pedro M. Ruiz <pedrom@dif.um.es>

Francisco J. Ros<fjrm@dif.um.es>

August 4th, 2005

Paris, France

63rd IETF

Features

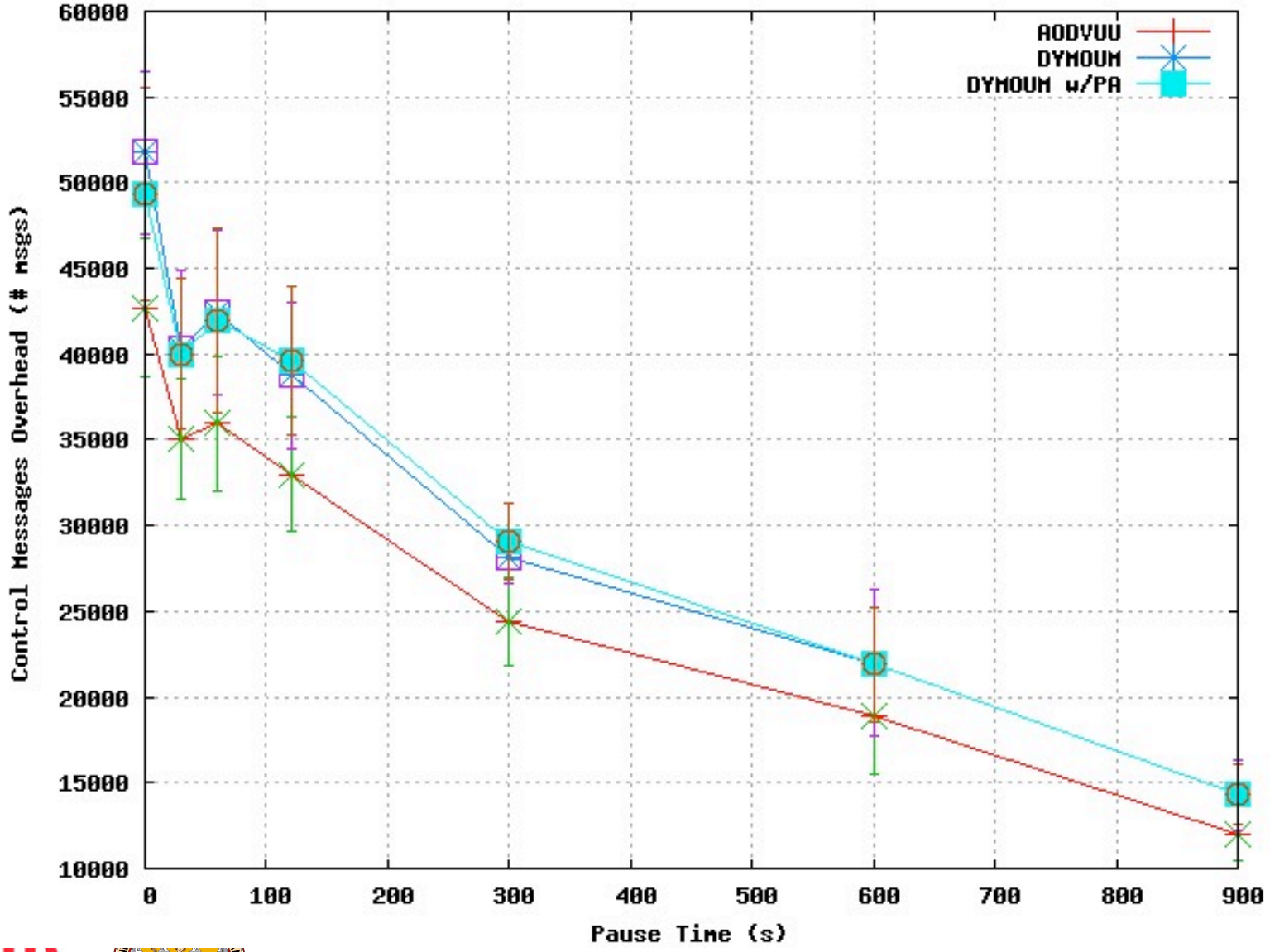
- Highly compliant with draft-ietf-manet-dymo-02
- Very much the same code for real life and simulation
- It will be released soon under the terms of the GPL
- *Linux* version
  - IPv4 support
  - Both kernels 2.4 and 2.6
- *ns2* version
  - ns2.27 and ns2.28 support
- ToDo
  - HELLO messages
  - Multiple DYMO messages on a DYMO packet
  - Prefix announcement and Gateway support

Departamento de Ingeniería de la Información y las Comunicaciones

Simulation Setup

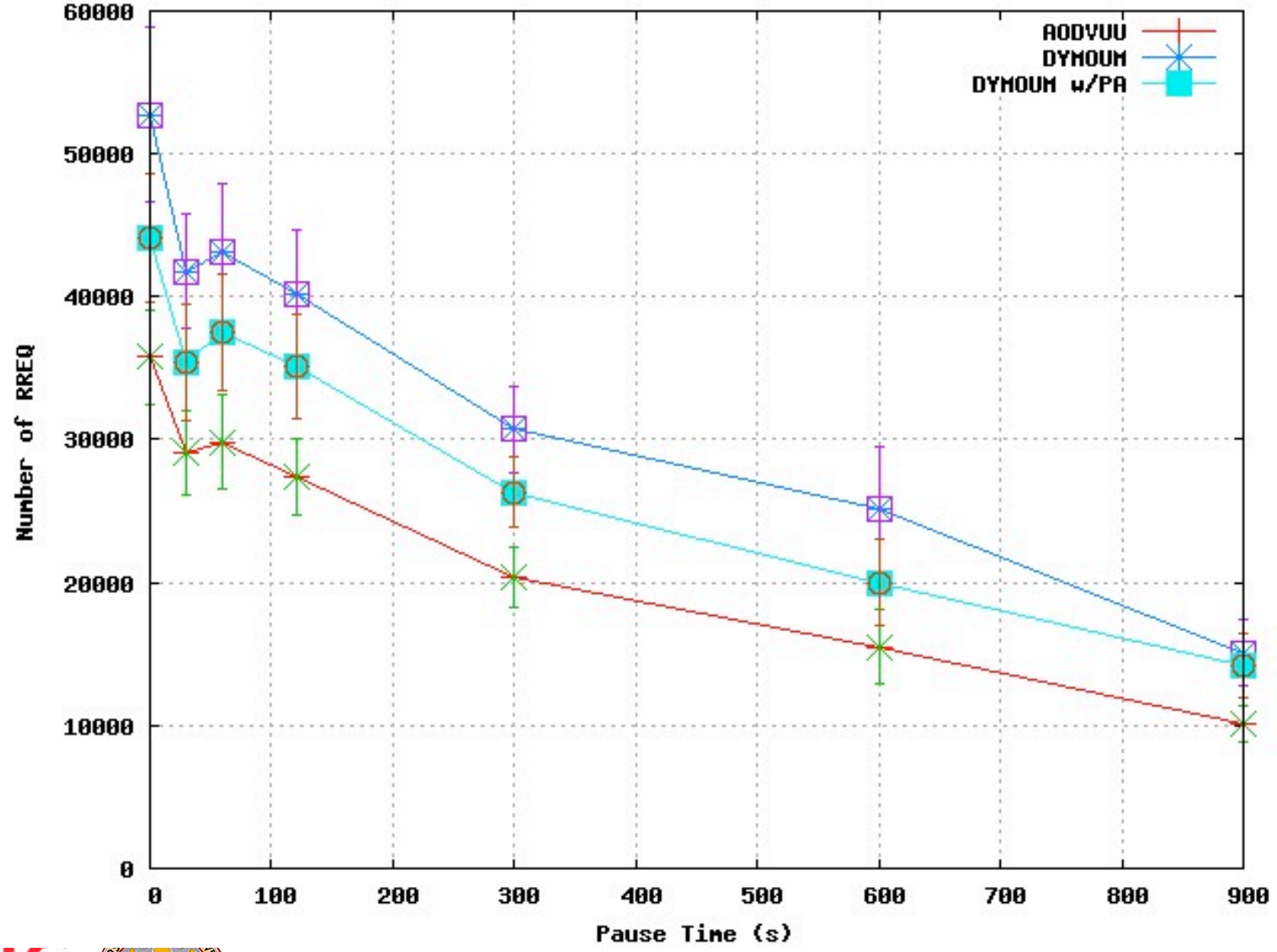
- AODVUU and DYMOUM implementations
  - *ns2.28*
  - 50 nodes around an area of 1500x300 m^2
  - MAC layer
    - 802.11, 2 Mb/s, 250 m transmission range
  - Mobility pattern
    - Random Waypoint model, max speed = 20 m/s, 900 s of simulation
    - *BonnMotion* mobility pattern generator
    - Pause times = (0, 30, 60, 120, 300, 600, 900) s
  - Traffic pattern
    - (10, 15, 20, 25) CBR/UDP sources, 5 pkts/s, 64 bytes/pkt
  - Transient period = 65 s, 10 runs, confidence interval of 95%

Total Control Mesg vs Pause Time



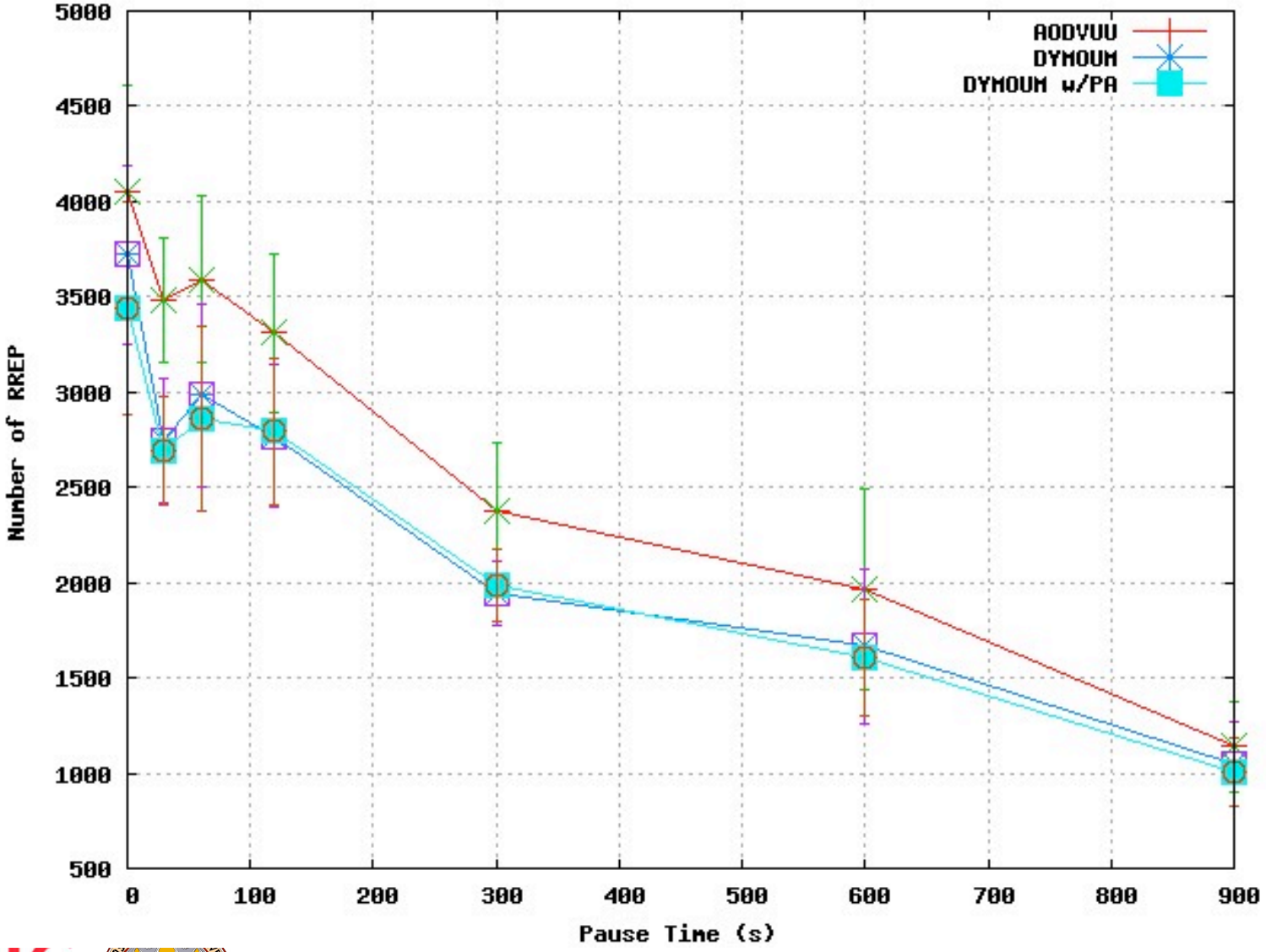
15 sources

RREQ Messages vs Pause Time



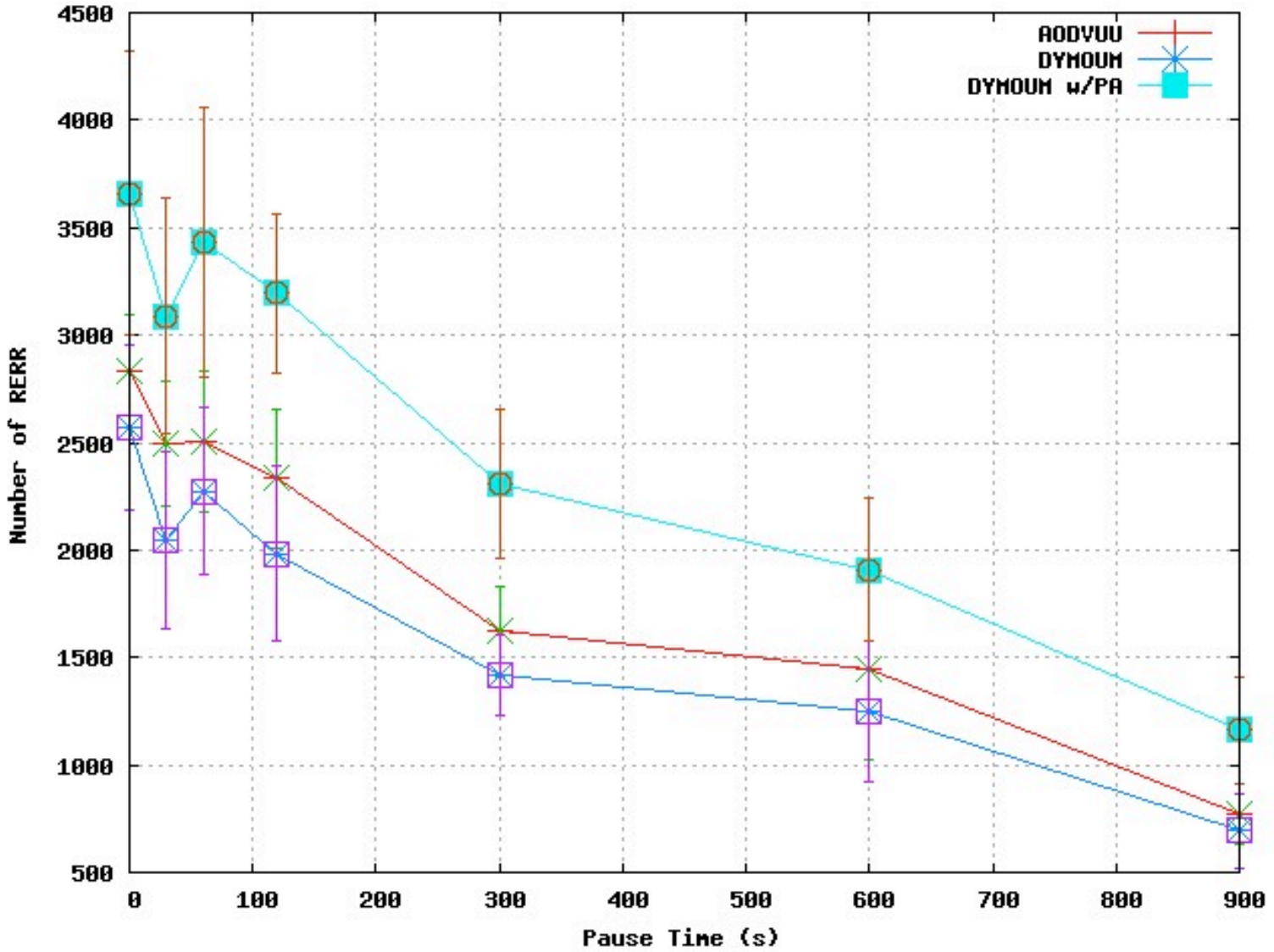
15 sources

RREP Messages vs Pause Time



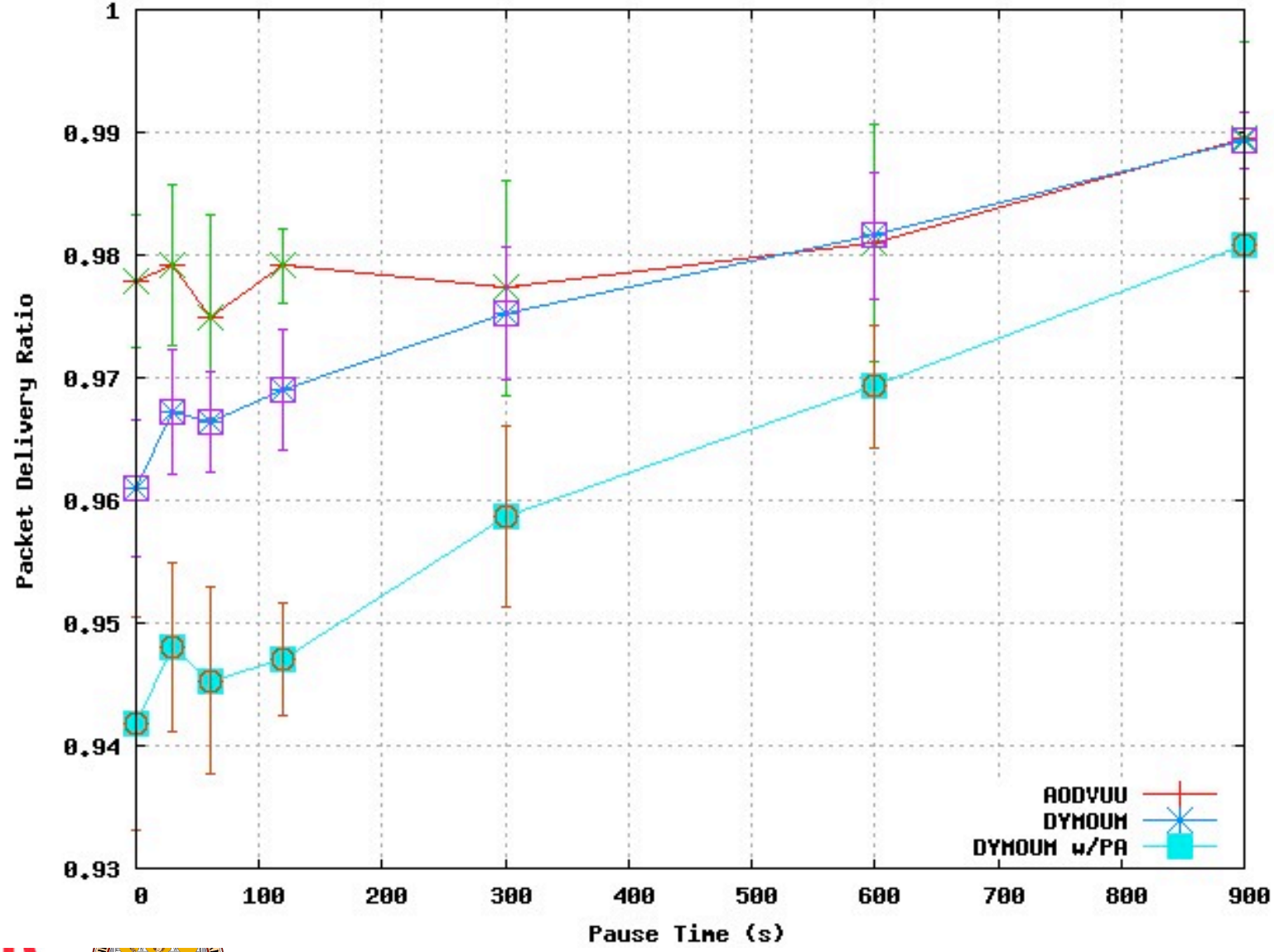
15 sources

RERR Messages vs Pause Time



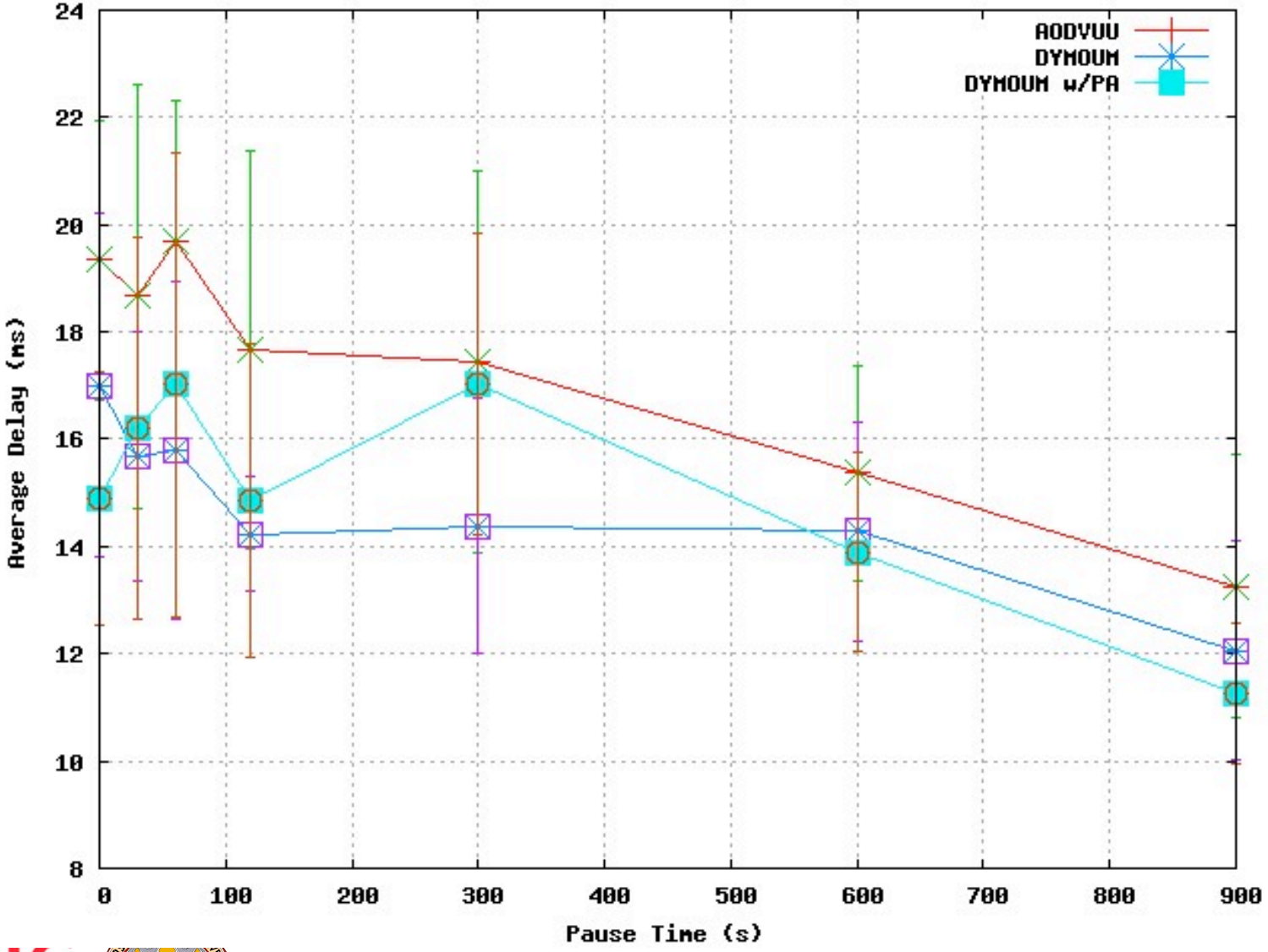
15 sources

PDR vs Pause Time



15 sources

Delay vs. Pause time



15 sources

Departamento de Ingeniería de la Información y las Comunicaciones

Lessons learnt

- Path Accumulation
  - Manages to reduce number of RREQs, but may produce lots of RERRs
  - Need to carefully look at tradeoffs on when to use it
- Not really big performance differences
  - Very similar PDR and delays
  - A little bit more control overhead (mainly RERRs) and link layer contention
- Still need to do a more detailed performance analysis to provide deeper and stronger conclusions.

DIIC
Departamento de Ingeniería de la Información y las Comunicaciones

DYMOUM: A DYMO implementation for Linux and ns-2

Main features and preliminay simulation results

Pedro M. Ruiz <pedrom@dif.um.es>

Francisco J. Ros<fjrm@dif.um.es>

August 4th, 2005

Paris, France

63rd IETF