

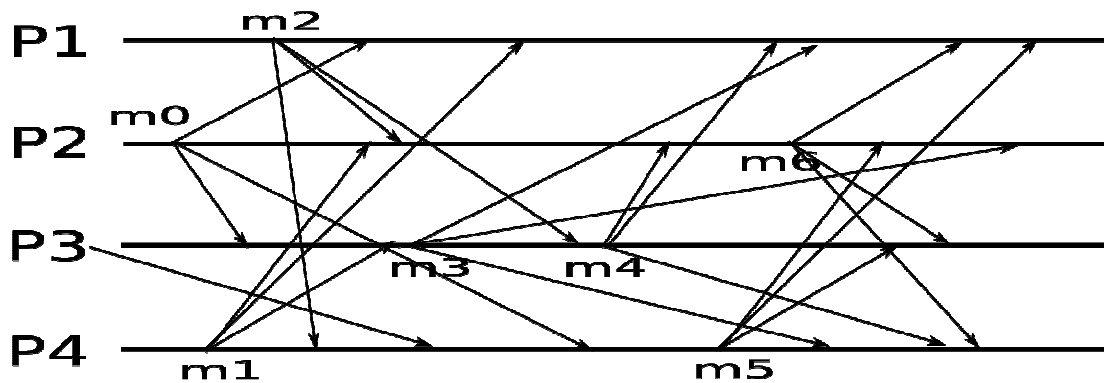


Politecnico di Milano
090950 – Distributed Systems
Prof. G. Cugola – February 19th, 2014

Rules:

- You are not allowed to use books, notes, or other material.
 - You can answer in Italian or English.
 - Total time for the test: 2 hours.
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1. Describe the Service Oriented Architecture in general and the Web Service technology as an example of its implementation.
2. Describe the stream-oriented communication model and the various approaches to address the QoS issues involved in such model.
3. Write the vector clock values for the situation in figure. At the end of the execution, by only looking at its own vector clock, what can P4 say about the messages it sent (i.e., who received them)?



4. Describe the various alternatives for reliable group communication when processes are reliable but links are not.
5. Consider the following schedule over 2 variables (both initialized at zero):

P0 W(x)1 W(y)1 R(x)2 R(y)1
P1 R(y)0 R(y)1 W(y)2 R(x)1
P2 R(x)1 W(y)3 R(x)2 R(x)3
P3 W(x)2 R(y)3 W(x)3 R(x)3

Is it FIFO/causal/sequential consistent? If not, can you remove just one operation and make it consistent?

6. Describe the evolution of p2p systems and algorithms, especially in the four basic operations: join, publish, search and fetch.