

Distributed Systems – TD9 : JXTA - The Contest

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These are the subjects of the **M1 : Mid-term examen - Distributed System** by **Eddy Caron**.

The goal is the same for each question, that is to optimize your algorithms both in number of messages and message size (a way to have the knowledge of all the platform in a data structure is irrelevant).

For each question, the one which obtains the best working version of the algorithm (implemented using JXTA) will be awarded extra points.

1 From same ID to unique ID

1.1 Everybody is different in the tree

Considering a distributed system with a tree structure where each node has the same ID (the identity of the node like a number). Write two algorithms to ensure that each node has a unique ID.

- with one initiator
- with n initiators ($1 < n \leq N$ where N is the number of nodes)

1.2 Everybody is different anywhere

Considering a distributed system with a general graph structure where each node has the same ID. Write two algorithms to ensure that each node has a unique ID.

- with one initiator
- with n initiators ($1 < n \leq N$ where N is the number of nodes)

2 From random ID to unique ID

Consider a distributed system with a general graph structure where each node has a random ID (probably a few nodes can have the same ID, but not all). Write an algorithm to ensure that each node has a unique ID even with many initiators.