

Exercices du premier chapitre

1. Un système distribué se charge de trouver les nombres premiers d'un intervalle $[1, N]$. Le nombre de processus est fixe, un seul processus demande aux autres processus le calcul des nombres premiers. Décrire ce système.
2. Dans un réseau de processus, chaque processus connaît son identité et ses voisins immédiats. Illustrer avec un exemple comment ces processus peuvent échanger des informations pour calculer la topologie globale du réseau.
3. In many distributed systems, resource sharing is a major goal. Provide examples of systems, where the shared resource is (i) a disk, (ii) network bandwidth, and (iii) a processor.
4. To build a robust distributed system, you must know what kinds of failures can occur.
 - a. List three possible types of failure in a distributed system.
 - b. Specify which of the entries in your list also are applicable to a centralized system.
5. A distributed system has two sites, A and B. Consider whether site A can distinguish among the following:
 - a. B goes down.
 - b. The link between A and B goes down.
 - c. B is extremely overloaded, and its response time is 100 times longer than normal.

6. Internet search

- Do a search about “distributed systems vs distributed algorithms” and draw a conclusion.
- Comparer entre systèmes d'exploitation distribués, Système d'exploitation réseau.
- Distributed systems vs networking.
- Describe how Windows operating system uses several cores in multicore architecture?
- What are the main differences between a parallel system and a distributed system?¹
 - Is distributed $\Rightarrow$ parallel? Or
 - Parallel $\Rightarrow$ Distributed? Or
 - Distributed $\neq$ Parallel ?

¹ Référence Ajay D. Kshemkalyani, MukeshSinghal, Distributed Computing Principles Algorithms and Systems CAMBRIDGE UNIVERSITY PRESS, 2008