

Assignment 3

Clock Synchronization Protocols

Consider a distributed system consisting of a number of computational nodes. All nodes are connected to a common communication bus, i.e. there can be a broadcast mechanism available. Assuming that the local clock of each node may drift from an idealistic global time, and different nodes may have different drifts, each node has to adjust its clock accordingly so that all nodes in the system have the same notion of global time.

Read about clock synchronization methods, starting with the Berkeley and Christian algorithms. Read about FlexRay's time synchronization method and write a concise description of the FlexRay's time synchronization method.

Implement a clock synchronization mechanism using the local time of the PC as clock source and maintaining another logical clock as the global time. In order to simulate clock drifts you may introduce a small random offset in the value read from the local clock. The software (written in Java/C/C++/C#) should run on one or more PCs in order to illustrate the required behavior. There is no specific requirement on the algorithm to use (ex. Berkeley or Christian algorithms or any other derivations).