

# 一個應用於封包交換網路的

## 簡易時鐘同步演算法

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### 摘 要

在許多的應用如多媒體與網路數據中，需要使得分散在封包交換網路上的時鐘達到同步。為了要達成同步，必須要知道時鐘的偏移量，亦即是需要達成同步的兩個時鐘之間在頻率上的差距。在這篇論文中，我們提出了一個簡易的時鐘同步演算法，稱為反覆線性最小平方差演算法。它可以準確估測出時鐘的偏移並使用於線上或是離線情況。我們利用執行電腦模擬評估來評估所提的 ILLS 演算法的效能。而實驗結果顯示，我們所提出的 ILLS 演算法與現有的線性規劃演算法相比，在估測精確度上有著明顯的進步，並有較快的執行速度。

# **A Simple Clock Synchronization Algorithm over Packet-Switched Networks**

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## **ABSTRACT**

There are applications which require distributed clock synchronization over packet-switched networks such as multimedia and networked measurements. To achieve synchronization, it is necessary to know the clock skew, i.e., how much the difference is between the frequencies of the two clocks to be synchronized. In this paper, we propose a simple clock synchronization algorithm, called iterative linear least squares (ILLS) which can estimate the clock skew accurately and can be used both offline and online. Computer simulations are conducted to evaluate the performance of the proposed ILLS algorithm. Results show that our proposed ILLS algorithm has an obviously improvement in accuracy and a shorter execution time compared with the linear programming-based algorithm.

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