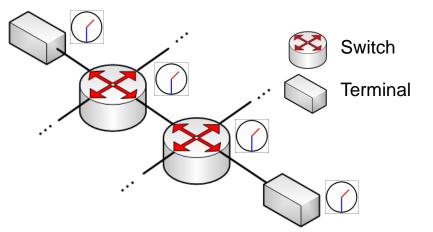
Introduction

- Topic
 - Network time synchronization
- Team member
 - Team member: C.K Seong and J.S Lim
- Sponsor
 - Electronics Telecommunication Research Institute
- ✤ Goal
 - High-precision time sharing between network nodes

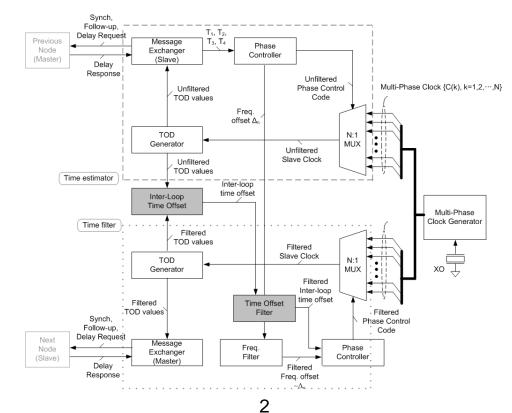


- Applications
 - Ranging
 - QoS improvement
 - Manufacturing automation

Research explanation

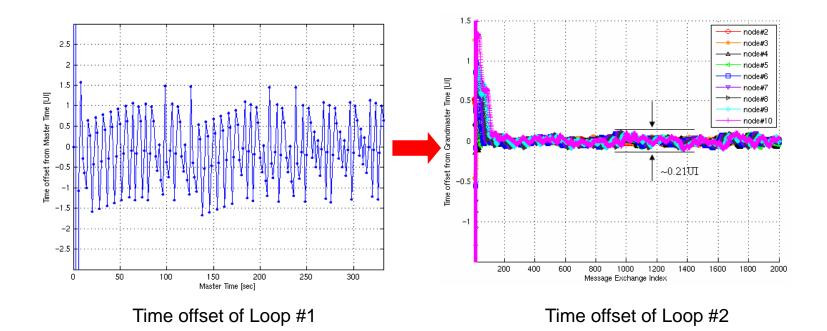
Hardware structure

- Placed in slave nodes tracking the master node's time
- Time offset and rate adjustment using phase shift method
- Replica loop to filter out time offset dithering



Simulation and Experimental Results

- Behavioral simulation with Matlab model
 - Dithering of time offset in Loop #1 of ~3UI
 - Dithering in Loop #2 reduced to ~0.21UI



Publication

Conference

 Chang-Kyung Seong, Seung-Woo Lee, and Woo-Young Choi, "Precise Network Synchronization Technique Using Phase Adjustment and External Filtering," International Conference on Electronics, Information, and Communication, Tashkent, Uzbekistan, 24-26 June, 2008

Patents (Pending)

 이승우, 성창경, 최우영, 이범철, 이정희, 박대근, 황현용, 박영호, "클럭 동기화 장치 및 방법," 출원인: 연세대학교 산학협력단, 한국전자통신연구원, 특허 출원번호: 10-2007-0130346, 출원일: 2007.12.13

■ 이승우, 성창경, 최우영, 이범철, 이정희, 박대근, 황현용, 박영호, "클럭 동기화 장치 및 방법," 출원인: 연세대학교 산학협력단, 한국전자통신연구원, 특허 출원번호: 10-2007-0135950, 출원일: 2007.12.22