Jacek Karaśkiewicz

„Language Support for Lightweight Transactions" – Tim Harris, Keir Fraser

<u>Outline</u>

1. Introduction
    a. Standard approach to concurrency in object-oriented languages
        i. Short description
        ii. Advantages/disadvantages
    b. Conditional Critical Regions (CCR)
        i. Differences between CCR and standard approach
        ii. Implementation details
        iii. Performance tests
        iv. Possible development
2. Standard approach
    a. Multiple threads with mutex locks
    b. Conditional variables
3. CCR
    a. Easy syntax
    b. Non-blocking commit
    c. Allows many dynamically non-conflicting operations to execute concurrently
    d. Uses STM (Software Transactional Memory) in implementation
4. STM
    a. Simple interface
    b. Works in most hardware architectures
5. Java/JVM implementation
    a. Heap structure
    b. Memory management
    c. Modifications in JVM
6. Performance tests and results
    a. Conclusions
7. Possible future development
    a. Hardware Transactional Memory
    b. Extended language interface