

INF5510v16 - Distributed Objects

Mandatory Assignment 2

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Introduction

To warm up, on Planetlab, try running the **kilroy** example you find under **Code Examples** on the course website. Try to understand the code. For questions about the exercises, send email to `solverj@ifi.uio.no` and write INF5510 on the subject-field.

Exercise 1 - Break-even for call-by-visit

Call-by-visit may provide a performance improvement. However, if the parameter to an invocation is never called by the, call-by-visit is a waste of time and negatively affects performance. On the other hand, if the parameter is accessed billions of times during the call then call-by-visit has a positive influence on performance. So for a given parameter object, there is a point between zero calls and one billion calls where call-by-visit performance changes from a negative impact to a positive impact. Such a point is called a break-even point. For small objects, the break-even point is usually around one.

Write and run a program to find the break-even point for call-by-visit with objects of a given size. Find break-even for a parameter object of size:

- 100 bytes
- 500 bytes
- 1,000 bytes
- 2,000 bytes
- 10,000 bytes

Experiment and find the break-even points.

Exercise 2 - Time Collector

Write and run a program like **kilroy** that visits each active nodes and collects the local time in an array. Run on at least six different machines in at least six different countries on Planetlab.

Exercise 3 - Time Synchronization

Write a program that makes multiple agents through an object/class that will visit each active nodes and use it to collect the time on each machine. Find the median or average of all the time elements the agents collect, so you compute a time synchronized timestamp. Test your program on Planetlab with at least six machines in at least six countries

Delivery

The assignment must be submitted in devilry. The deadline is set to **Sunday April 17th, 2016 at 23:59 CET**. In addition to the source code you should deliver a `.txt` file with the output from a run of the program and a short report commenting upon your decisions and results.

Have fun!