

Network computing: A LAN based parallel computing platform at the University of Indonesia

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Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=91377&lokasi=lokal>

Abstrak

This paper explains the development of a parallel computing platform using the available LAN at the Inter University Center for Computer Science of Indonesia. A software toll like parallel virtual machine enables the networked stations to be harnessed as a huge computing resource, combining various type of computing nodes to run parallel computing tasks. The research was aimed at first: to develop a number of parralel high complexity algorithms such as modelling air pollution distribution based on Gaussian Air Pollution Dispersion Formula which simulates dispersion of pollutant emiotted from industrial exhaust and also from vehicle exhaust ont the road. Secondly these algorithms were used to test the platform to obtain networkd behaviour in supporting the implementation of parallel algorithms. From the experiments conducted there are strong indications that the network based computing facility could be used as a suitable platform for running parallel programs with some restrictions. Optimum performance with near linear speed up could be obtained by carefully partitioning the problems, limiting message passing activities and balancing the load of the participating processors.