



UNIVERSITÀ DI PISA

Computer Engineering
Performance Evaluation Computer Systems and
Networks

Multi-Programmed Server

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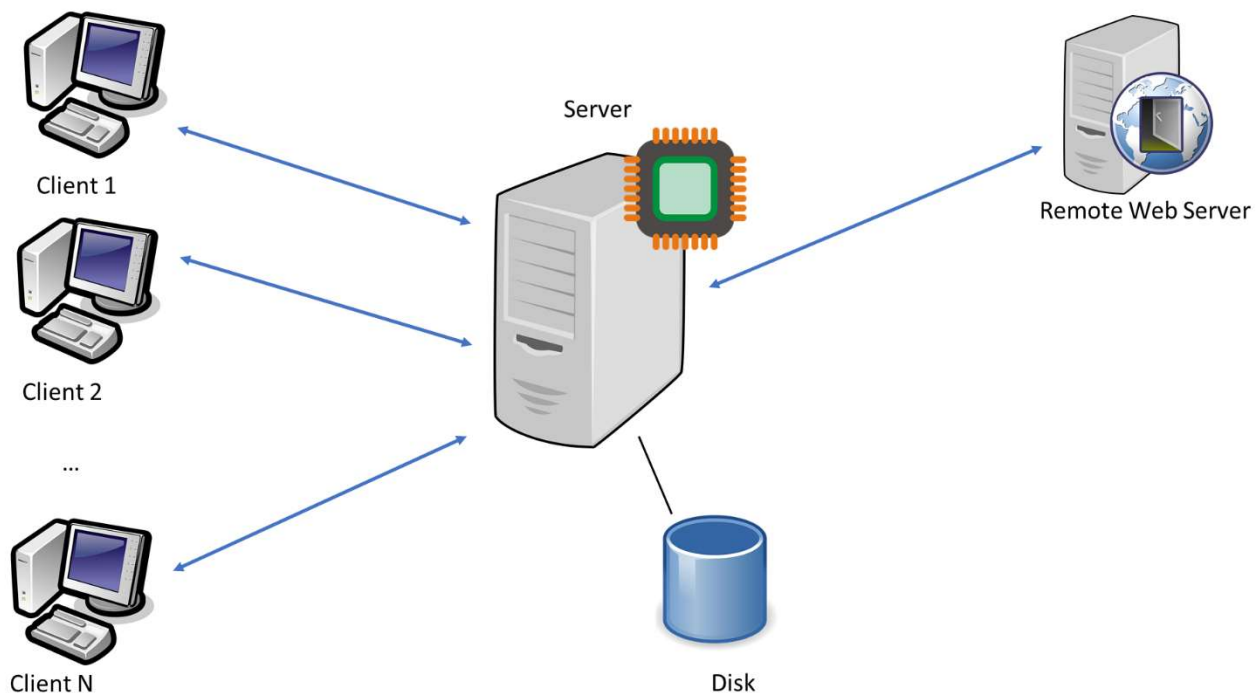
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Overview

A multi-programmed server provides service to different concurrent clients. The server has access to a disk and can communicate with a remote web server. Clients send requests to the server and each request is processed one at a time by the server following a FIFO order. After an initial pre-processing phase, each request can be handled in the following ways:

- With probability p_1 , the request has finished processing and a response is sent to the client.
- With probability p_2 , the request requires a disk access and then a new processing is required.
- With probability $1-p_1-p_2$, the request is sent to a remote web server and after its response a new processing is required.

Even disk and the remote web server handle one request at a time in a FIFO order. Processing on the server, disk access and remote query service demands are exponential IID RVs, and they are different from one request to another, even for the same request. A client that receives a reply immediately issues another request.



The aim of this study is to evaluate the performance of the system described above with particular emphasis on throughput.

Objectives and Performance Indexes