A Non-stationary Service Curve Model for Estimation of Cellular Sleep Scheduling

ABSTRACT

- Fundamental limitations of existing measurement methods are explained by the non-convexity of the transient service to be due to the super additivity of network service processes.

- A novel two-phase probing technique is devised that first determines the shape of a minimal probe and subsequently obtains an accurate estimate of the unknown service.

- In a comprehensive measurement campaign, the method is used to evaluate the service of cellular networks with sleep scheduling, revealing considerable transient backlog.

EXISTING SYSTEM

- While steady-state solutions of backlog and delay have been derived for wireless systems, the analysis of transient phases still poses significant challenges.

- Considering the majority of short-lived and interactive flows, transient start up effects, as caused by sleep scheduling in cellular networks, have, however, a substantial impact on the performance.

- To facilitate reasoning about the transient behavior of systems, this paper contributes a notion of non-stationary service curves. Models of systems with sleep scheduling are derived and transient backlogs.

PROPOSED SYSTEM

- First a minimal probe is estimated that is adapted to the network.

- In a second step, the minimal probe is used to obtain a service curve estimate with a defined accuracy.

- Taking advantage of the estimation method, we reported results from a comprehensive measurement study of cellular networks with sleep scheduling, including EDGE, HSPA, and LTE.

- The service curve estimates showed characteristic features of the cellular data service that explained the observation of significant transient overshoots and long relaxation times.

HARDWARE REQUIREMENTS

- Processor   -   Intel core i3
- RAM   -   2B
- Hard Disk   -   20 GB

SOFTWARE REQUIREMENTS

- Operating System : LINUX
- Tool : Network Simulator-2
- Front End : OTCL (Object Oriented Tool Command Language)

REFERENCE

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