Chapter

Performance Evaluation for Network Services, Systems and Protocols

pp 113-152

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Internet Traffic Profiling

- Stênio Fernandes

Abstract

This chapter takes you on a journey on Internet traffic, from understanding its profile (i.e., by modeling and analysis) to generating packets or flows (either real or synthetic), in diverse environments. Usual decision network engineers and researchers find when designing performance evaluation experimental plans that are concerned with traffic generation. Suppose that you have measured and collected sufficient Internet traffic in your core network to derive a statistical model of the aggregate traffic. Now you want to use such analytical model for traffic prediction or capacity planning purposes in another *what-if* *sensitivity*) analysis scenarios [14], via Systems Operational Dependency Analysis A), for example [13]. If your further analysis will be conducted in a simulation nment, you either need to use the available models or to bring your traffic model into vironment as accurate as possible. If your sensitivity analysis will be done in a *test* ou have to assess the adequacy of your hardware- or software-based traffic generator. Sections 4.1 and 4.2 provide an overview of traffic analysis by looking at recent advances in traffic identification and classification and then discussing techniques and tools to effectively profile network traffic in a scalable fashion. Section 4.3 provides some examples of models that can be used to generate traffic. It is worth emphasizing that both traffic analysis and traffic modeling are very broad fields of investigation. Section 4.3 also deals with workload generation. There is a particular interest in methods that effectively and efficiently mimic network traffic in a certain layer of the Internet protocol stack. La t not the least, Sect. 4.4 discusses the wo network protocols and services. There is at makes it impossible to condense them i lots of references, so the interested read

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