Big data analytics for wireless and wired network design

Currently, the world is witnessing a mounting avalanche of data due to the increasing number of mobile network subscribers, Internet websites, and online services. This trend is continuing to develop in a quick and diverse manner in the form of big data. Big data analytics can process large amounts of raw data and extract useful, smaller-sized information, which can be used by different parties to make reliable decisions. In this paper, we conduct a survey on the role that big data analytics can play in the design of data communication networks. Integrating the latest advances that employ big data analytics with the net- works' control/traffic layers might be the best way to build robust data communication networks with refined performance and intelligent features. First, the survey starts with the introduction of the big data basic concepts, framework, and characteristics. Second, we illustrate the main network design cycle employing big data analytics. This cycle represents the umbrella concept that unifies the surveyed topics. Third, there is a detailed review of the current academic and industrial effort s toward network design using big data analytics. Forth, we identify the challenges confronting the utilization of big data analytics in network design.