Ph: 9585554590, 9585554599
Email: support@salemsmartreach.com
URL: www.salemsmartreach.com

Push-Based Wireless Converged Networks for Massive Multimedia Content Delivery

Abstract:

The fast growing wireless data traffics have brought a significant burden on the mobile cellular network and would soon cause severe congestion in the near future. In this paper, we contribute to the design and theoretical understanding of push-based content delivery in a converged broadcasting and cellular network to relieve the burden. Specifically, we are interested in analyzing the scheme in which the most popular contents are pushed through broadcasting to alleviate the cellular data bottleneck. This strategy not only offloads the multimedia traffics from the cellular network, but also improves the user experience by eliminating download waiting time. To evaluate the performance gains of the converged network, we first develop a mathematic framework to model the converged network, the multimedia content characteristics and the mobile user behaviors. The improvement of the network capacity is then derived and quantified theoretically. Furthermore, we obtain valuable insights on the impact of the network resource and parameters on the system performance. Numerical results are provided to confirm the accuracy of the developed analytical results and to show the significant performance advantages of the converged network over the cellular-only network in terms of the system power consumption and users' quality of service (QoS).