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

Behavior Analysis of Internet Traffic via Bipartite Graphs and One-Mode Projections

Abstract:

As Internet traffic continues to grow in size and complexity, it has become an increasingly challenging task to understand behavior patterns of end-hosts and network applications. This paper presents a novel approach based on behavioral graph analysis to study the behavior similarity of Internet end-hosts. Specifically, we use bipartite graphs to model host communications from network traffic and build one-mode projections of bipartite graphs for discovering social-behavior similarity of end-hosts. By applying simple and efficient clustering algorithms on the similarity matrices and clustering coefficient of one-mode projection graphs, we perform network-aware clustering of end-hosts in the same networkprefixes into different end-host behavior clusters and discover inherent clustered groups of Internet applications. Our experiment results based on real datasets show that end-host and application behavior clusters exhibit distinct traffic characteristics that provide improved interpretations on Internet traffic. Finally, we demonstrate the practical benefits of exploring behavior similarity in profiling networkbehaviors, discovering emerging network applications, and detecting anomalous traffic patterns.