Group 4 Topic Presentation Abstract [Arijit, Bhaswar, Pallami, Abhishek and Saumya]
Prof. Ahmed Helmy
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BEHAVIOR AWARE MOBILE NETWORKS

Behavior Aware services and protocols can greatly improve the quality of life by personalizing healthcare, search and other assistance for mobile users. In the past, most applications of online services do not incorporate the physical aspect of users' lives. Smart mobile phones will allow us to bridge the gap between users' online and physical presence. One could detect behavioral abnormalities and even suggest improvements in lifestyle by using mobility profiles and their effects on users[1].

In order to provide higher levels of mobility, reliability and interactivity the increasingly popular field of Wireless Networks needs to incorporate behavior and mobility based modeling in order to efficiently adapt to this dynamic environment. To this end, services such as profile-cast [2] can provide the way forward. A Profile Cast service can be of two types:

a) Target Mode (Mobility Based): done by targeting a group of users who move in a particular pattern and then their similarity is established using a similarity metric.

b) Disseminating Mode (Mobility Independent): here people with certain characteristics that are independent of their mobility patterns are targeted.

However, there are *significant* issues that need to be addressed when working with Profile-Cast based networks and services. These are:

a) Delay Tolerant Networks vs Ad-Hoc Wireless Networks

b) Trust/Privacy

c) Similarity metrics/Clustering Mechanisms and finally,

d) Architectural Considerations (Use of Flooding/Epidemic Routing, Centralized knowledge of group membership, Overhead, Delivery Ratio, Delay, etc.)

In fact, we can propose that a *classification* mechanism can be created based on how the architect handles the above mentioned issues. For example, an profile cast service that needs to disseminate information quickly to users of a Library can be an ad-hoc protocol that disregards trust, uses k-means or some other lightweight clustering mechanism and has low overhead. On the other extreme, a protocol for communication between military assets such as submarines [3] (i.e lacking a return channel and requiring extremely high levels of security) needs to be Delay Tolerant, employ strong Trust verification mechanisms and intricate clustering techniques such as Support Vector Machines (SVM) with possibly high overhead, and hop count.

Therefore, each group member will give a presentation on the 4 different implementation considerations along with an introduction on profile-cast.

References

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