

# **Anchor Points for Mobile IP Devices**

## **A Submission for PAMPAS Workshop**

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### **Background**

Mobile Devices using IP will need semi-permanent identities for accessing, and being accessed by, other IP hosts or services. These mobile devices will have transitory IP connections to the available service providers. These providers are offering both different end point connectivity technologies and tarrifing schemes. The end point connections will have different characteristics, such as throughput, latency and security/ The tarrifing scheme may be by byte, or second, or even a possibly at no charge.

All of the above needs to be dealt with transparently for the benefit of both the users of the mobile device and any IP service the user is accessing.

### **Current Developments**

The IEFT working group on Mobile IP (see <http://www.ietf.org/html.charters/mobileip-charter.html>) has, and still is, developing a range of standards to address these requirements. The published documents provide methods for Anchoring Mobile Devices using Home and Foreign Agent functions.

### **Proposed Works**

Investigation is required of the technical authentication methods best suited to this application and the interworking between link-level circuit and IP network connections. These approaches need to be deployable with the minimum possible infrastructure dependencies and yet scalable to the point where every mobile device will make use of these methods.

The consumer should to be able to influence the operation of these connection authentications, because they will have an effect on their billing, and yet these functions need to be carried out with the minimum possible impact upon the consumers experience.

It would be possible that the link-level connections and IP network service are provided on different terms, and possibly by different providers.

## **Proposed Deliverables**

Currently much of the link-level technology is either in use, or at least available. The IP network service could be provided by an approach based on the IETF Mobile IP groups output. The author believes the co-located foreign agent method provides the basis on which to undertake further work. Consideration would need to be given, at the very least, to issues of authentication, privacy and power consumption for the mobile device.

The methods used to authenticate and provide security for access and information flows for Mobile Devices needs further work and this proposal is that a technology demonstrator should be built which exercises these functions effectively. The demonstrator will take into consideration all parties involved in this service – namely the link-level providers, the IP service providers and the consumer.

## **What is an Anchor Point**

Mobile IP has the concept of a “Home Agent” which is a device providing a constant presence with a static IP address for a mobile IP client device. This “Home Agent” communicates with a “Foreign Agent” which is located on a Foreign network. A number of protocols are specified to enable a Mobile IP device in a Foreign network to find a “Foreign Agent” and to authenticate to both this device and to the “Home Agent”. The “co-located Foreign Agent” model allows the “Home Agent” to communicate, and sustain a connection with the Mobile IP device directly. For this to operate there needs to be a trust relationship between the Mobile Client and the “Home Agent” – ie the “Anchor Point”. It is therefore not necessary for the intermediate infrastructure to be trusted, at an IP level, by either device. The “Anchor Point” may in fact be providing access to services offered within a trusted space, in this way the “Anchor Point” is also operating as a boundary device between the Infrastructure of the Mobile Device and another, separate, infrastructure which is connected to the “Anchor Point”. The trusted space could be either a corporate network or a service providers provisioning point for value added services. The relationship between the Mobile device and the “Anchor Point” is independent of the link-level relationship between mobile device and its primary connection infrastructures.

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