Dhar, Subhankar, and Upkar Varshney. "Challenges and Business Models for Mobile Location-based Services and Advertising." *Communications of the ACM* 54.5 (2011): 121-129. *Academic Search Premier*. EBSCO. Web. 12 Sept. 2011.

<http://search.ebscohost.com.ezproxy.lib.ipfw.edu/login.aspx?direct=true&db=aph&AN=60863986&site=ehost-live&scope=site>

Context-aware services have been attracting considerable attention of advertisers. Surveys have predicted over a billion dollars in revenue from mobile advertisements. This article describes technical and business related challenges in the area of location-based advertising. Spatial and temporal data of users can be determined from positional information collected by mobile devices. Quality of Service can be composed of the following attributes: accuracy required, response time, and reliability of operation. Open Mobile Alliance (OMA) and Open Geospatial Consortium (OGC) are organizations that develop standards for Location-Based Services (LBS).

The OMA originated Mobile Location Protocol (MLP) which interfaces with wireless networks and positioning methods. The OGC is responsible for producing the OpenLS Services which address geospatial interoperability issues. The services included in OpenLS are coordinate transformation, web mapping, geography markup language, geoprocessing, and web integration. This platform interfaces to LBS tasks such as route determination, directory, location utility for address lookups, presentation on a map, and gateway positioning. OGC cooperates with other organizations such as OMA, IETF, W3C, OASIS, ISO, and Parlay.

Parlay develops open APIs on Open Systems Architecture (OSA) which provides functionality for authentication, authorization, and access to network services. This framework also complements the GeoMobility server which provides subscriptions to location content and services.

