



**Delivering Location  
Intelligence  
for a networked mobile world**  
*Review - 5 May 2006*



Anthony LaMarca, an associate director of Intel Research Seattle, was the guest speaker at an event organised by EI on the 5<sup>th</sup> May 2006 that took a look at the future roadmap for technologies and business models that would shape the world of location intelligence. Anthony presented activities of his research group in Seattle – and expressed an optimistic view on potential for location intelligence – location as a key enabler of future technologies, from map routing, asset tracking to enhanced web content that provide greater contextualisation and social mobile applications. In fact the view currently held is that all the pieces have come together in the location paradigm – devices with sufficient display capability, an infrastructure with global coverage and greater bandwidth, and a society that is increasingly comfortable with the mobile device as their main interaction tool.

Further to this, as Thierry Bouffieux from Greenwich Consulting reiterated later in the day, is the increasing acceptance by mobile operators that voice revenues have largely peaked and they are now looking to data revenues for increases in ARPU.

Some critical success factors from LaMarca - must run on commodity devices, must be privacy observant, accessible to everyone, and can be used everywhere. This market is not going unnoticed by the incumbent internet companies. Google, MSN, and Yahoo are amongst those having expressed interests through acquisitions and organic investment in to location related vehicles. Mapping and navigation apps are widespread, regulatory demands such as E911 / E112 are increasingly making an impact. Though this could rapidly be developed around services offered within a campus belonging to a corporate, university or hospital, venues where there are large concentrations of people who make regular visits and would take value from having more relevant information delivered to their devices when they want it.

Location enhanced corporate portals could enable booking of the closest conference room, provide customised mapping, provide bus schedules etc. Asset tracking provides a tangible application of location based services where the asset's usage can be monitored and inventory can be tracked throughout a site.

Even IT management could be impacted upon. Location could be used as a valuable tool in detecting virus breakouts, while wireless access could be denied beyond 20 metres of a building perimeter.

The audience was reminded by Richard Bryce of Mapflow that location was not the end-game. Indeed while many of the applications have still to be developed, the vision Bryce painted was one where a new eco-system would exist where presence and Location Based Services (LBS) acted as enablers to a new content model. Implication of this would be that the services would be componentised, where best in class would rise to prominence and quality would be the currency of content. As a backdrop to this Bryce presented the current state of play where "full stack" solutions were made available through companies offering the user experience, application logic and content all through the one portal.

However the experience is often not compelling because of the subjectivity of many of the services and information that make up the website. Some make better use of their location "knowledge", however the increasing acceptance amongst society is that location is becoming commoditised and expectations are that consumers should be able to do some thing with this location information. The prospect of Web2.0 brings forward the possibility of integrating different components, including mapping, into websites. The move to Web2.0 offers dramatic possibilities for smaller companies to "snap" together the different components to deliver a full service for their customers. The choice will be truly "best in class".

Amongst the speakers were the research community within Ireland who have a particular interest in this emerging sector. The Systems Research Group (SRG) within UCD presented its significant capabilities within this area. Paddy Nixon of the SRG presented the view that LBS need intelligence and reasoning to deliver on their potential, employing the by-phrase "we need context to turn location into place". Nixon reminded us that there are many location systems but it is still difficult to build robust location based services. So the problem isn't solvable using purely location technology, rather it is at least equally important to leverage all you know about the use and their activities. So information could be made richer by associating the location with a functional space (office), or a time (10am) or a relative expression (with the boss).

The SRG have been collaborating with Intel, in particular in relation to the PlaceLab project, which LaMarca presented in his talk. The PlaceLab project offers a unique way of combining a widely deployed infrastructure, wireless LANs, with the GSM global access network, and the GPS satellite network to provide a solution for tracking location which ALM argues is an “always best” location. Indeed the research project was able to show how individuals were tracked through an urban area in Seattle using all three location technologies, where the PlaceLab system was shown to be more accurate and capable of operating within buildings as well as outside, a capability that GPS severely lacks.

Indeed the notion of tracking individuals raises the issue of privacy, and Aaron Quigley of UCD covered this in his delivery of an application developed with his support in Australia. “Proximation” is their contribution to the technology lexicon - derived from proximity – estimation as an approach to location-awareness. Their development team were motivated to take a hybrid approach, use commodity computing, scalable to urban environments, and be privacy centric. So the system utilised existing (mapped) bluetooth “beacons” for location sniffing, with the permission of the mobile phone owner. The GSM network was also used for an approximate location. What they found from their studies were that the notion of proximation (knowing where a displayed beacon is) was quite natural to end-users, while their solution offered telecom providers and “yellow pages” operators new marketing methods that could be based on a users location and their personal profile.

Padraig Kenny of Celtrak was able to outline how his company have employed the GPS coverage, in conjunction with the GSM public network and telecoms infrastructure to provide a mobile asset management system for fleet vehicles in urban and rural environments. Users include distribution companies as well as insurance companies where its use monitors drivers’ behaviours thus enabling insurance cover at a cost that reflects the risk closer. Kenny provided a picture of future IP based networks, which would allow access to data from multiple points within a vehicle and ensure a high degree of integrity. The importance of this in the supply chain is not to be underestimated as this level of insight will allow real-time decision making. Examples include the pharmaceutical consignment that has to be monitored throughout its journey from supplier to the distributor – the increasingly availability of this technology will mean that the industry will expect greater information on the history and audit trail of the consignment, delivering greater value in the logistics element of the chain.

Bouffieux of Greenwich Consulting, a Benelux based consulting firm, have performed some research in to this whole sector and presented an interesting overview of where operators are with their location offerings. Most would appear to have developed LBS platforms, in many cases with outside partners. But the success of LBS will depend very much on the choice of the positioning technology best suited to the application. So entertainment services are well served by cellular network and triangulation, whereas asset tracking / navigation demand greater accuracy that GPS or A-GPS can provide. It is the view of Greenwich that the European LBS market is just starting to develop as improved quality and affordability of services enables providers to appropriately address the existing demand. In 2004, the total revenues from wireless services in the EU and the rest of western Europe, plus Russia and Turkey amounted to € 164 billion. In this same period, non-voice revenues reached a total of € 23 billion, out of which over € 100 million were generated on the LBS market. Not a whole lot on first impression, but when one looks at the market trends in Europe where operators are increasingly developing and promoting non-voice services, and the infrastructures, connectivity and device functionality are in place, it is their view that this revenue figure should grow substantially. Predictions are for €2bn revenues by 2009. Finally, once the European LBS market takes off, they believe the key market segments will be navigation, tracking and location-enhanced instant messaging which will retain more then 90% of the total revenue. (Greenwich Consulting, 2006).

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