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A DISTRIBUTED OLYMPICS?

THE 2012 GAMES ORGANISERS SHOULD ADOPT A DISTRIBUTED MODEL FOR THEIR DATA AS WELL AS FOR THE EVENTS THEMSELVES, SAYS JAMES CUTLER.

The 2012 London Olympics has become somewhat of a focal point for a variety of location related tools and technologies. As the countdown continues, and indeed accelerates under recent government initiatives to pump prime the economy, there is a need for solutions that meet real and present needs and provide the framework for operational and citizen-centric services during the Games and in the re-purposing, utilisation and management following the closing ceremony. That is a big ask, especially given the global audience, long-standing (if not always accurate) perceptions about infrastructure capacity and fragility and wider environmental concerns, not to mention the all-encompassing security and safety context.

Information technology in all its many guises will be both pervasive and to an extent invisible during the games, unless and until there is a fundamental need for action; imagine the timing mechanisms breaking as Usain Bolt takes his 10th stride – worldwide derision would ensue and the same goes for a myriad of other system and service pinch-points: construction and operational supply chains, traffic and transport, security, ticketing, communications....

Even as one of the smaller countries to host the games the events themselves will take place across 28 venues from Hampden Park in Glasgow to Hadleigh Farm, Weymouth to the Olympic Stadium itself – a distributed solution! And therein lies perhaps one answer to the challenge of providing a coherent model by which bespoke location intelligence information services for the widest possible user community can be crafted from the disparate array of location specific content that is being collected now and will continue to be compiled long after the torch moves on.

There is an easy to understand temptation to seek to build some form of “global” (i.e. everything to do with this event) resource where information is held centrally and can be accessed by anyone anywhere subject to access control rights. Sure the technology exists by which project and venue data resources, held themselves in a welter of different forms, could be fed into a single central hub for mashing up, re-distribution, analysis, customisation and so on. The reality is sadly more prosaic and it is that reality to which solutions need to be found. Like it or not there are degrees of inertia in “the system” (made up as it is of a rich diversity of consultants, contractors, advisers, bureaucrats and technocrats) that almost by definition precludes formal centralisation.

As others are discovering, there are approaches to overcoming this sort of adversity. Examples include the Electronic Transfer of Notices (EToN 4/5) adoption of a web services-based distributed model, the construction industry’s code of practice in a closely related area, BS1192:2007 (“Collaborative production of architectural, engineering and construction information. Code of practice”)¹, and the search by the National Underground Assets Group (NUAG) for a records exchange mechanism to facilitate information asset sharing. Critical to this is a stakeholder commitment illustrated by (a)



recognition that the creation of the environment and framework to enable this to happen is daunting, (b) acceptance that it is arguably too late to centralise already and, (c) understanding that solutions already exist that meet the objectives without “real” centralisation.

Rather, the search has been (at NUAG at least) for a mechanism by which the same ends can be achieved by consensus and through what could be termed virtual centralisation. The adoption of protocols for data exchange and the establishment of a timeframe for implementation allow the parties involved to conform to the wider needs of government, security services, citizen, Olympic Development Authority (ODA), IOC, competitor and viewer whilst retaining responsibility for the quality, integrity, accuracy etc of the location information in their domain locally.

As the authors of BS1192 and its associated AVANTI approach recognise, the successful adoption of these approaches depends on people and processes and not on the underpinning tools and technologies. Indeed it is rather assumed that the latter will solve the challenge if the malleable factors (people, processes) are in place.

Data harvesting can detract from and can be perceived to

undermine the value and role of the responsible stakeholders and can provide barriers to effective service delivery downstream; a distributed data model can stimulate a contrasting response. Data exchange is the fundamental requirement, but the rationale behind the exchange and the content of the exchange communications are wildly different.

Data management solutions do not need to be about data centralisation; rather they need to be about enabling users to gain the unified view of the data relevant to them, where and when they want it. Use cases are one formal mechanism to build scenarios for the likely data interrogation and presentation requirements of different groups.

However, the likely reality is that there will only be a small number of "elite" teams who need real time access to, interrogation of and visualisation of n-dimensional multi-source spatio-temporal databases for decision support, planning, response, scenario modelling and so on. These users will be anticipating that the necessary data will appear in their application whether explicitly as a graphical display or implicitly as a component of some aspect of back end analysis.

It is clear from the recent AGI Conference and elsewhere that sentiment is finally moving us out of the silo and gradually into common business intelligence currency. And so should our

solutions seek to be this grown up; GIS is after all not the end game for location content and tools, it is one (small) part of the end game and we have to get used to it and respond to real world drivers. In which for example a "view" does not necessarily mean a map!

There will of course in the run up to and during the Olympics be consumer demand for information services and these will depend on the data collected and collated nationwide during the planning, development, construction and testing of the Olympic infrastructure and supporting services. But this dependence will not be the same as the elite teams and can broadly be expected to be a subset, generalised for easy and swift communication (in myriad forms) and mashed up with diverse data sets from external sources by formal and "third sector" providers. For these users, issues of scalability, ease of access to the data, use of standards etc do become critical.

In both the professional "elite" and consumer contexts it is plausible to envisage an infrastructure or repository through which on the one hand subsets of such core data are made available without recourse to the fully distributed base data whilst on the other domain specialists can drill down as far into the detail as they require.

Because fully distributed the data should remain – with access control and rights management providing the filters by which different interest groups gain the requisite

level of usage. The elite teams may remain unaware but underpinning their 'unified' view will be a set of standards, codes of practice, schemas and protocols that allow seamless retrieval of relevant information according to their request as it will for VE and GE users. Underlying databases will where necessary publish their geospatial data to a "community schema" from their internal data structures – that is, have the ability to map an internal data model to an externally defined one. This approach underpins interoperability and openness and supports, via web services in general and OGC standards in particular, the mashup process by which specialists and non-specialists alike can achieve their goals.

So, we should not heed calls for centralisation and data harvesting. Instead we should expect the architects of the 30th Olympiad to align their information infrastructure with that of their events – secure, distributed, standards based and inter-operable.

1 BS1192 establishes the methodology for managing the production, distribution and quality of construction information, including that generated by CAD systems, using a disciplined process for collaboration and a specified naming policy. BS1192 is applicable to all parties involved in the preparation and use of information for design, construction, operation and deconstruction throughout the project lifecycle and the supply chain.



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