

"Managing a Smart Space" Theme

One of the difficulties of managing a general smart space is that it will typically be put to different uses by different people at different times. The demands which applications place on the infrastructure vary considerably depending on the exact user population and their on-going tasks. Furthermore it is well known that there is no canonical way in which to view a set of spaces optimally - different sets of applications will have a different view of the same resources. These characteristics mitigate against static management. - M-Zones proposal

The M-Zones approach of overlaying a particular set of smart spaces is highly dynamic, mandating highly flexible and adaptive architectures and technology solutions.

Taking this into consideration, a survey was undertaken analysing the applicability of current network management architectures and major surveys were undertaken into software infrastructure solutions that provide for service flexibility at runtime, including:

- (i) Context Management. A key enabler of service flexibility is the management of context information. This involves the gathering, interpretation, storage and dissemination of context information dynamically and in real-time.
- (ii) Service Composition. Service composition addresses techniques for rapidly integrating existing services into richer, composite services.
- (iii) Middleware. Technologies surveyed include those emerging from the IT domain (e.g. Jini, Intelligent Agents etc.) and from the telecoms domain (e.g. Parlay)

In addition, two particular areas of research were surveyed in order to investigate the applicability of existing approaches that provide adaptation at runtime:

- (iv) Adaptive Hypermedia. These techniques surveyed have implications for personalisation in many facets of Smart Space design
- (v) Policy Techniques. By enabling decisions to be made closer to where events are detected within Smart Spaces, policy techniques potentially allow a less centralized and more flexible management architecture.