The spread of wireless devices inspired the creation of a DEECo component model suitable for designing applications with immanent mobility and dynamic composition where the system architecture emerges at runtime. A great challenge in implementation of such a system is the underlying communication mechanism based on gossip protocol in order to achieve resilience and suitability for MANET networks. In this thesis we propose an optimization of the protocol exploiting infrastructure networks, but still preserving the gossip-like communication without a centralized element. The improvement is based on forming communication groups introduced at the design level. The experiments show a substantial decrease in the number of sent messages and a decrease in time of data delivery. The timing aspect of data delivery is further elaborated for MANET networks by implementing a pulling mechanism with significant improvement of the latency. Part of this thesis is dedicated to a formal specification of the system semantic to provide a precise rationale about its properties and laying the ground for further extensions and research.