Hovering Information

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1 Introduction

Hoovering Information is a geo-localized information dissemination service, proposed in [1], able to work without a centralized infrastructure. The service is aimed to mobile users capable of peer-to-peer communication and geo-localization.

Since the service must work in an dynamic infrastructure-free environment with a self-organizing behaviour, a MAS approach may offer a sound paradigm for both hovering information implementation and simulation.

2 Theoretical background

2.1 Hoovering Information System

The hovering information system is composed by two main components: mobile nodes and pieces of hovering information.

Mobile nodes are components moving into the environment with a limited communication range, capable of communicate to peers, discover neighbors, access and store (into a limited buffer) pieces of hovering information. A mobile node is assumed able to determinate its geographic position, speed and direction.

Pieces of hovering information are data that have to *survive* inside a circular area centered at a location called *anchor location* and having a radius called *anchor radius*. The survivability goal of a piece of hovering information is achieved moving or replicating the piece itself through the mobile

nodes. A piece of hovering information may have some policies controlling the movement between nodes.

In an hovering information system, three main requirements may be defined for each piece of hovering information [1]:

Survivability: a piece of hovering information is alive at some time t, if there is at leas one node hosting a replica of this information.
$survivability = \frac{alive\_time}{total\_time}$

Availability: a piece of hovering information is available at some time t, if there is at least one node in its anchor area hosting a replica of this information.
$avaiability = \frac{avaiable\_time}{total\_time}$

Accessibility: a piece of hovering information is accessible by a node at some time t, if the node is able to get this information; therefore, a replica exists in the node communication range.
$accessibility = \frac{replica\_covered\_area}{anchor\_area}$

References

[1] Alfredo A. Villalba Castro, Giovanna Di Marzo Serugendo, and Dimitri Konstantas. Hovering information - infrastructure-free self-organising location-aware information dissemination service. In *2nd ERCIM Workshop on eMobility*, 2008.