

TITRE: Information management with multiple mobile agents  
EQUIPE/THEME: CombiAlgo / Algorithmique Distribuee  
DIRECTEURS: Adrian Kosowski  
COURRIELS: kosowski@labri.fr  
MOTS-CLES: multi-agent version of the rotor-router, multi-agent problems in dynamic graphs  
DIRECTEURS HABILITES: Ralf Klasing  
DESCRIPTION du SUJET:

The generic term of \*information management\* in a network is used to refer to any activities which involve the collection of information from one or more sources, its intelligent processing, and finally its dissemination to one or more destinations. Due to the large scale and dynamic evolution of webs of a global nature, a vast majority of information management processes need to be run continually and in a distributed way, i.e., without any distinguished point in the network controlling all its activities.

Decentralized information management is usually performed by \*mobile agents\*, which constantly traverse or crawl the web, collecting, updating and disseminating information, and maintaining network integrity.

The key challenge in agent-based information management lies in efficiently controlling the interaction and collaboration between different agents working on the same task. The project is intended to develop the theory of information management by means of local collaborative agents. Specific tasks to be studied include multi-agent deterministic analogues of the random walk (in the so-called rotor-router model), and studies of systems with multiple mobile agents adapting to a dynamically changing network.