Machine Learning Agents in the Cloud to support Smart Business Process Management

Samia Gamoura¹, Laurent Buzon², Ridha Derrouiche³

¹ Agenor-I, 1, Place Colonel Fabien, 69700 Givors, France  
samia.gamoura@gmail.com
² ESCE – International Business School, 6 cours Albert Thomas BP 8242 - 69355 Lyon Cedex 08, France  
laurent.buzon@esce.fr
³ EVS-UMR5600, 51-52 cours Favreil, BP 29, 42009 Saint Etienne, France  
ridha.derrouiche@esv-saint-etienne.fr

Abstract. In Virtual Enterprise, Business Processes Management is regarded as one of the most concerns of managers and academic researchers. Managing flows complexity and actors requirements in terms of high quality in less time, make this management more and more complex and push specialists to explore new promising ways. Like these researchers, we present in this paper, a modelling and simulating software toolkit called BP-EMC² based on a generic framework baptized H-BPM. We propose a solution based on machine learning agents operating in an AGR (Agent-Group-Role) organization within the Cloud. Furthermore, this paper includes a real case study of Adecco® business process deployed into its Cloud solution.

Keywords: Business Process, Multi Agent System, Virtual Enterprise, modelling, simulation, Cloud Computing, Machine Learning.

1 Introduction

Since the beginning of the 90’s, inter-enterprises collaboration stills growing and generates new organizations patterns. Today’s enterprise believes that competition unit is no more limited in the internal organization but exceeds to be extended in the whole enterprises network. This new kind of relationships created what is called Virtual Enterprises (VE) focused on sharing Business Processes (BP). Here we situate our purpose to address an important issue in Business Processes Management (BPM): ‘Collaboration’. The main topic considered in this paper is according to the collaboration strategies and how these strategies could be deployed overall BPM within Virtual Enterprise Network (VEN).

One from the huge number of methods and techniques used as a support for collaboration in VEN is Multi Agents Systems (MAS). As in many other business areas, such as medical, image processing, astronomy, etc. this paradigm of Distributed Artificial Intelligence (DAI) provided an efficient way to propose solutions of complex issues. Furthermore, we explain a new advanced kind of agents called
Evolutie Management by Collaborative agents in the Cloud), tries to provide a complete platform for BPM partners to face new IT challenges. We believe that, our work may be an efficient tool to reduce complexity and provides the flexibility required for any BPM in Virtual Enterprise.

References