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SERVICE-ORIENTED ARCHITECTURE OF MULTI-AGENT SYSTEMS IN AEROSPACE EXPLORATION

Abstract

A single agent could only obtain limited information resource in aerospace exploration, but board Multi-agent System (MAS) that connected with several agents and types of sensors could integrate discrete resources in temporal domain and spatial domain. MAS could extend the sensing scope and understanding ability of environmental perceiving. It could also enhance the work effectiveness when facing with the complex surroundings. With the service-oriented technology rooting from Web developing, different agents and types of sensors are encapsulated to intelligent nodes with the form of standard services. By invoking these nodes directly, MAS could obtain intelligent information and shield the bottom computing and fusing, so incorporated process of intelligent information can be achieved. Based on scheduling rules including service publishing, inquiring and binding, a stack service architecture model that orients service compelling is provided. The protocol focused on service interfaces, descriptions and contents are also provided. With these foundations, the service scheduling algorithms and service cost computing methods are given. With the background on one aerospace exploration task, a cooperation instance of MAS is addressed. The feasibility and effectiveness of Service-Oriented Architecture are validated in this instance.