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DIAMOND - Distributed Multi-Agent Architecture for Monitoring and Diagnosis

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Abstract— This paper presents a new concept for building up a monitoring and diagnosis system for complex industrial application. For this purpose, a multi-agent architecture was developed that employs the FIPA-ACL (Agent Communication Language developed by the Foundation for Physical Agents) [FIPA97] together with the CORBA (Common Object Request Broker) [CORBA] middleware as the underlying platform. By using this approach, a modular and flexible component diagnosis and monitoring (CDM) system is realised that enables the integration of legacy monitoring and diagnostic tools, specific to the application area. Universal applicable mechanisms were found how to perform diagnostic processes and how to improve the quality of a diagnosis by handling different diagnostic mechanisms in parallel and by applying conflict resolution algorithms.
This software architecture for monitoring and diagnosis was developed by the University of Karlsruhe in co-operation with several industrial partners within the framework of the EU Esprit Program: \"DIAMOND: DIstributed Architecture for MONitoring and Diagnosis\" [DIAMOND]

Index Terms— Multi-Agent-System, distributed architecture, monitoring, diagnosis, conflict resolution, CORBA, FIPA-ACL, XML

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