

(54) Title of the invention : A NOVEL PROPOSED AUTONOMICARCHITECTURE TO ENFORCE AND ASSURE SECURITY IN CLOUD ENVIRONMENTS

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(57) Abstract :

This work presents the architecture making it possible to interpret, project, and ensure a policy defined in the language of expression of the security needs. It describes the various components of the architecture as well as their interactions in order to maintain consistent and effective policy enforcement. The proposed architecture follows the principles of autonomous computing, which allows it to adapt to its environment. The different algorithms used to provide the functionalities of the architecture have been detailed in this work. The architecture is able to compile the language of expression of security needs and to project it on the available mechanisms. This projection, therefore, adapts to the state of the systems considered and to the mechanisms present on them. The application of the properties is also configurable thanks to the three selection modes (Default, Best Effort, and Maximum) which make it possible to adapt the selection of mechanisms according to the choices of the safety expert (for example, the Best Effort mode offers better performance, and Maximum mode enhanced protection) In addition, the architecture manages the entire language, which makes it possible to apply the policy and set up an assurance system for its component properties. Therefore, the architecture is able to detect any errors during the life of the systems. The architecture is based on the use of existing security mechanisms. This allows the architecture to address many security needs, including systems, networks, or applications.

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