

Automated certification of cloud services and applications

In the EU project 'EMERALD', Fraunhofer AISEC is working with partners to develop an automated certification process for cloud services and applications for cloud providers and auditors, thereby strengthening acceptance of and trust in cloud services.

The more digital our world becomes, the more cloud services are used. Cloud providers and auditors are faced with the challenge of meeting and verifying a wide range of security, data protection and regulatory requirements. Standards such as the European Cybersecurity Certification Scheme for Cloud Services (EUCCS) and the Cloud Computing Compliance Criteria Catalogue (C5) of the German Federal Office for Information Security (BSI) require considerable resources to implement. 'Cloud providers need secure and efficient certification processes that provide automated evidence, are interoperable and can be flexibly adapted to different requirements,' says Christian Banse, Head of Service Application Security at Fraunhofer AISEC.

Certification with 'EMERALD' as a service

The EU project 'EMERALD' (Evidence Management for Continuous Certification as a Service in the Cloud) aims to pave the way for efficient 'Certification-as-a-Service' (CaaS), which reliably verifies compliance with the security requirements of cloud services and applications and flexibly takes new regulatory requirements into account. To this end, the Technology Readiness Level (TRL) of the technologies developed in the predecessor project 'MEDINA' is to be raised from TR5 (validation in a relevant environment) to TR7 (prototype in an operational environment).

EMERALD develops processes for cloud service providers that prepare, manage and monitor certifications and enable streamlined recertification. Auditors benefit from processes that support audits and a new concept for user interaction that standardises and simplifies the audit process. EMERALD also develops innovative

strategies and methods for cybersecurity and standardisation authorities to create cybersecurity requirements and metrics that can respond flexibly to changes and are interoperable so that they can be transferred to other systems.

Further development of security tools 'Clouditor' and 'Codyze'

Fraunhofer AISEC is contributing its existing security tools Clouditor and Codyze to the project. Clouditor is a tool for automated security and compliance analysis of cloud infrastructures. It scans cloud resources, identifies potential security risks and compliance violations, and provides recommendations for resolving these issues. As part of EMERALD, Clouditor is being further developed to analyse the entire system of cloud services and applications. Codyze is used for static code analysis and automatically checks for security gaps and vulnerabilities in software – for example, the correct implementation of encryption or authentication. The previous project, MEDINA, already automated the process of determining the information required for certification. EMERALD now aims to link these findings in order to obtain information about the overall system of cloud services and applications.



Security tools for automated monitoring of cloud services and software



Project 'EMERALD'



Website 'Clouditor'



Website 'Codyze'



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