PaaSword – Data Privacy and Security for the Cloud

Although enterprises recognize the compelling economic and operational benefits of running applications and services in the Cloud, security and data privacy concerns are the main barriers in Cloud adoption. The EU research & innovation project PaaSword is addressing these challenges since January 1st 2015.

The project PaaSword - A Holistic Data Privacy and Security by Design Platform-as-a Service Framework Introducing Distributed Encrypted Persistence in Cloud-based Applications – is funded by the European Commission in the Horizon 2020 research and innovation programme. With a budget of 4.4 Million Euro over three years, the project brings together Europe's leading companies and research institutes in the areas of Cloud computing, Cloud security, information technology security, data encryption and system integration.

PaaSword aims at fortifying the trust of individuals and corporate customers in Cloud-enabled services and applications. The focus is on secure storage of both corporate and personal sensitive data on Cloud infrastructures. Because valuable business benefits cannot be unlocked without addressing new data security challenges posed by Cloud Computing.

Current Cloud applications and storage volumes often leave information at risk to theft, unauthorized exposure or malicious manipulation. The most critical part of a modern Cloud application and services is the data persistency layer and the database itself. To remedy this problem, PaaSword will introduce a holistic data privacy and security by design framework based on distributed and encrypted data persistence and sophisticated context-aware access control mechanisms in Cloud-based services and applications. An innovative approach for key management will maximize customers' control over the use of their data in Cloud services.

PaaSword intends to extend the Cloud Security Alliance's Cloud security principles, by capitalizing on recent innovations in virtual database middleware technologies that introduce a scalable secure Cloud database abstraction layer with sophisticated data distribution and encryption methods. Furthermore, the implementation of enterprise security governance in Cloud environments will be supported by a novel approach towards context-aware access control mechanisms that incorporate dynamically changing contextual information into access control policies and context-dependent access rights to data stored in the Cloud. Finally, PaaSword will support developers of Cloud applications through code annotation techniques that allow specifying an appropriate level of protection for the application's data.

The consortium with ten partners from seven European countries is led by CAS Software AG (Karlsruhe, Germany) as administrative coordinator, and SICS Swedish ICT AB (Stockholm, Sweden) as Scientific Coordinator. Further partners include the Karlsruhe Institute of Technology (Germany), the

Institute of Communications and Computer Systems (Greece), INTRASOFT INTERNATIONAL SA (Luxembourg), South East European Research Centre (Greece), SixSq Sàrl (Switzerland), UBITECH (Greece), SIEMENS SRL (Romania) and SingularLogic Cyprus Ltd (Cyprus). Furthermore, PaaSword has initiated a growing Cloud Security Industrial Focus Group of Cloud services and platforms providers, Cloud-enabled application developers, end-user organizations and (Cloud) security experts.