# DIN SPEC 91337

## Platform-as-a-Service

# Maximizing interoperability of PaaS-Solutions

## Background

The joint research project PaaSport aims to enable European Cloud vendors (in particular SMEs) to roll out semantically interoperable PaaS offers, to deploy business applications on the best-matching Cloud PaaS and to seamlessly migrate these applications on demand. PaaSport is working on overcoming the vendor lock-in problem and lowering switching costs for vendors. For this purpose, the consortium set up a PaaSport Marketplace. "We soon realized that the interfaces and criteria developed for the PaaSport Marketplace could be of use for the whole PaaS-industry and that their standardization had the potential to improve compatibility, interoperability, security and quality of PaaS offers worldwide", explains Spiros Alexakis, Director Innovation & Business Design at CAS Software AG. "We quickly agreed that the DIN SPEC would be the right way to go for us".

## The DIN SPEC

The DIN SPEC 91337 aims to create a global standard for managing and controlling the life cycle of an application that is executed in a Platform-as-a-Service (PaaS) cloud provider. The term PaaS provider is in line with the definition that is provided by NIST ) according to which a PaaS provider is a cloud provider that offers the "capability to the consumer to deploy onto the cloud infrastructure consumer-created or acquired applications created using programming languages and tools supported by the provider. The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, or storage, but has control over the deployed applications and possibly application hosting environment configurations".

The term "life cycle" denotes all steps and administration functions that are required in order to manage an application starting from the submission of an application to the PaaS provider to the de-provision of an application. Indicatively, these administrative functions include:

→ preparing the proper execution environment for the application;
→ managing services that are required for the execution of an application (e.g. databases);
→ transferring of the application to the provider;
→ managing the application's execution state (i.e. starting, stopping, pausing);
→ monitoring the application during execution;
→ managing domains that are associated with an application;
→ managing cryptographic keys that are associated with the PaaS provider customer.

The steps above represent core services that have previously been offered to service users by Platform-as-a-Service providers as non-standardized, heterogeneous programming interfaces. The DIN SPEC is intended to provide a definition of these programming interfaces, thus maximizing the interoperability between Platform-as-a-Service solutions on the one hand and third party add on services on the other. Ultimately, the DIN SPEC will thus form the basis for an open, provider independent Platform-as-a-Service ecosystem. Indicative examples of add on services include cloud brokers, and automatic monitoring systems for contractually assured quality of service features. The basis for the DIN SPEC is formed by the "Unified Cloud Platforms Interface Model and API" interface specification developed by a team of experts in the European PaaSport

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research project (http://paasport-project.eu). The sole initiative with practical relevance in this field is "Cloud Application Management for Platforms" (CAMP) ) by the OASIS standardization consortium, which currently, however, neither represents an officially adopted standard nor offers definition of all of the above-mentioned steps and administration functions.

### The Value

The definitions and methods described in DIN SPEC 91337 have the potential to maximize interoperability of Platform-as-a-Service-Solutions on the one hand and services and tools from third party vendors on the other hand. If adopted by the industry, the DIN SPEC could be the basis of a new, open and independent Platform-as-a-Service ecosystem.

### The Process

The kick-off meeting took place on March 17, 2016 in Berlin. At this meeting, the workshop for developing the DIN SPEC was constituted and further organizational issues and the subject of the work were agreed on. Representatives of three software companies and two universities took part in the project. During one further project meeting and one web conference the content of the DIN SPEC was presented, discussed and adopted. The content of the DIN SPEC was drawn up by individual workshop members and also in working groups. The DIN SPEC 91337 was finalized in December 2016.

### About DIN SPEC

The success of a good idea often depends on how long it takes to reach the market. A DIN SPEC is the fastest way to turn research into a marketable product. No obligation to reach a consensus, and smaller, more agile working groups make it possible to develop a DIN SPEC within only a few months. DIN's job is to ensure that a DIN SPEC does not conflict with any existing standards. With its international contacts, Beuth Verlag sees that DIN SPECs are published and sold to a wide circle of customers. And any DIN SPEC can be used as a basis for a full standard.

### Five reasons to choose DIN SPEC

→ Networking: The DIN SPEC process requires an exchange of experience with important market participants. This involves networking with key players. As a result, the needs of manufacturer and customer alike are covered by a common specification.

→ Worldwide acceptance: The DIN ‚brand' stands for success throughout the world and creates trust. This makes your innovation accepted by users and investors alike.

→ Plug & Play: The DIN SPEC process makes sure innovations are up-to-date with the latest technology. Users thus have no trouble working with your innovation.

→ Easy: DIN organizes the entire DIN SPEC process from beginning to end. This saves you time, letting you concentrate on content and networking with your partners.

→ Fast: DIN SPECs can be developed and published within only a few months.