

# SOFTWARE ARCHITECTURE AND DEVELOPMENT METHODOLOGY

Professional Software on Professional Foundations

Standard software is, in short, software with a clearly defined area of application that can be purchased as a fully finished product. The development of standard software requires comprehensive expertise in the areas of development methodology, product management and update processes in a data center. This document describes the BrandMaker system architecture and internal development processes to illustrate the process of producing the BrandMaker solutions.

## Professional Standard Software

BrandMaker places high requirements on its own standard software, which can be summarized as follows:

### Professional

- BrandMaker solutions are designed and developed by marketing technology experts. This ensures a high level of understanding of the specific marketing needs and requirements placed on the software. Experience has shown that "agency solutions" resulting from customer projects or methods from payroll accounting that have been applied to marketing processes do not provide a suitable basis for sustained successful marketing technology.
- Structured processes throughout an established software development model, professional version management and internal documentation safeguard the quality of BrandMaker marketing technology.
- The technological basis for the BrandMaker solutions is Java, which provides the optimum prerequisites for stable enterprise applications in the data center.

### Standard Instead of Individual Solutions

- The development and functionality of standard software is based on general market requirements and long-term vision, and not on the ideas and concepts of whoever is our most recent customer.
- This allows us to cover a high number of typical application scenarios

without just "perfecting an individual detailed feature" for a major customer with no consideration of other scenarios.

- Documented standard interfaces let us extend and connect the standard software to other systems.
- Standard software requires ongoing long-term and structured development based on clear visions, strategic orientation and a motivated team (product management, development, infrastructure).

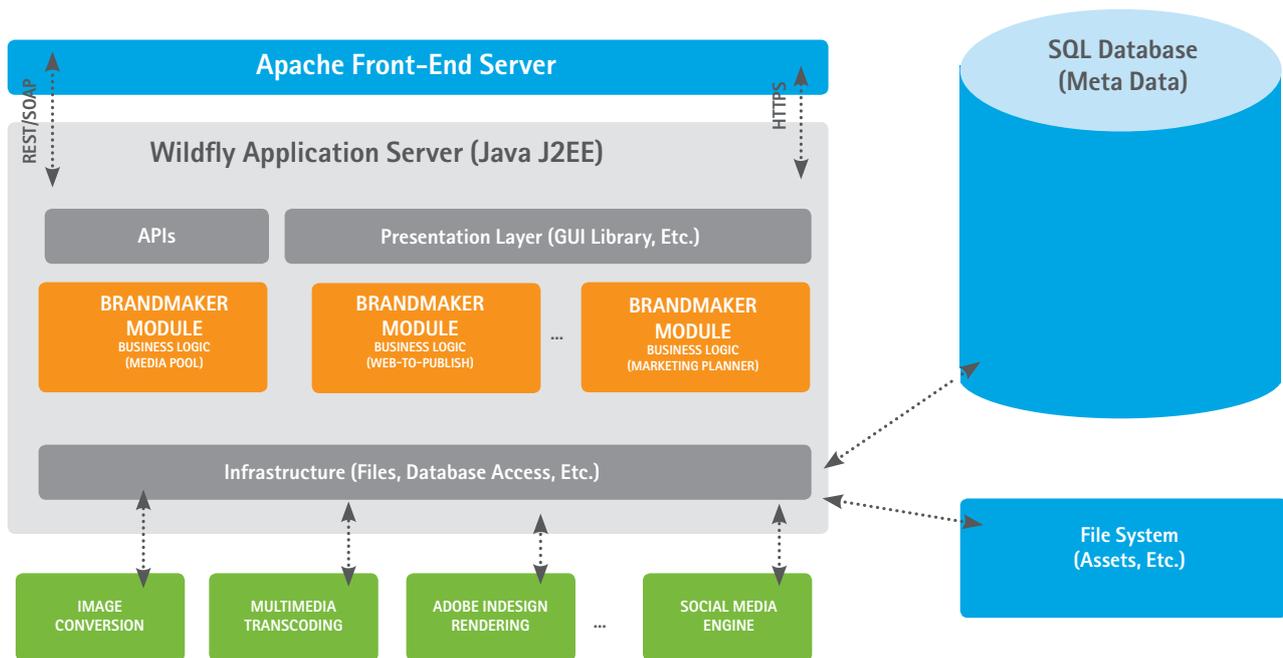
## FURTHER READING:

### White Paper "More Marketing Efficiency – In an Instant"

- SaaS Hosting
- Advantages and Benefits
- Data Center

### White Paper "Field-tested Interfaces for System Integration"

- Description of the Standard APIs
- Options for System Integration
- Sample Customers and Application Scenarios



Legend: Infrastructure, BrandMaker, Services/Engines

## The System Architecture

The heart of the system architecture is the mapping of business logic, implemented in Java Enterprise Edition and divided into the individual specialist BrandMaker modules. Its conception as a pure web application allows it to be operated via a web browser without installing it locally. For system connection, BrandMaker has documented web interfaces through which the various systems can communicate with each other.

The metadata and business objects are structured internally in an SQL database and stored with transaction security. Files such as Adobe InDesign documents, images and videos are kept in a high-performance file system.

Special functions such as image conversion, video transcoding, Adobe InDesign DTP rendering, and so on, are provided in separate services that are available in scalable form in corresponding server farms. BrandMaker is divided into a number of different specialist modules that can also be operated as standalone solutions. For instance, you can use only the module for Digital Asset Management or the one for Marketing Planning. When several modules are in use, the individual modules automatically interact and seamlessly integrate with each other, as is the case, for example, when implementing a typical Web-to-Publish scenario in which assets from Digital Asset Management (the Media Pool) are provided for use in the production of advertising material through structured workflows (Job Manager). This method produces solutions that "develop according to requirements" and that do not have to start with an all-encompassing "Big Bang."

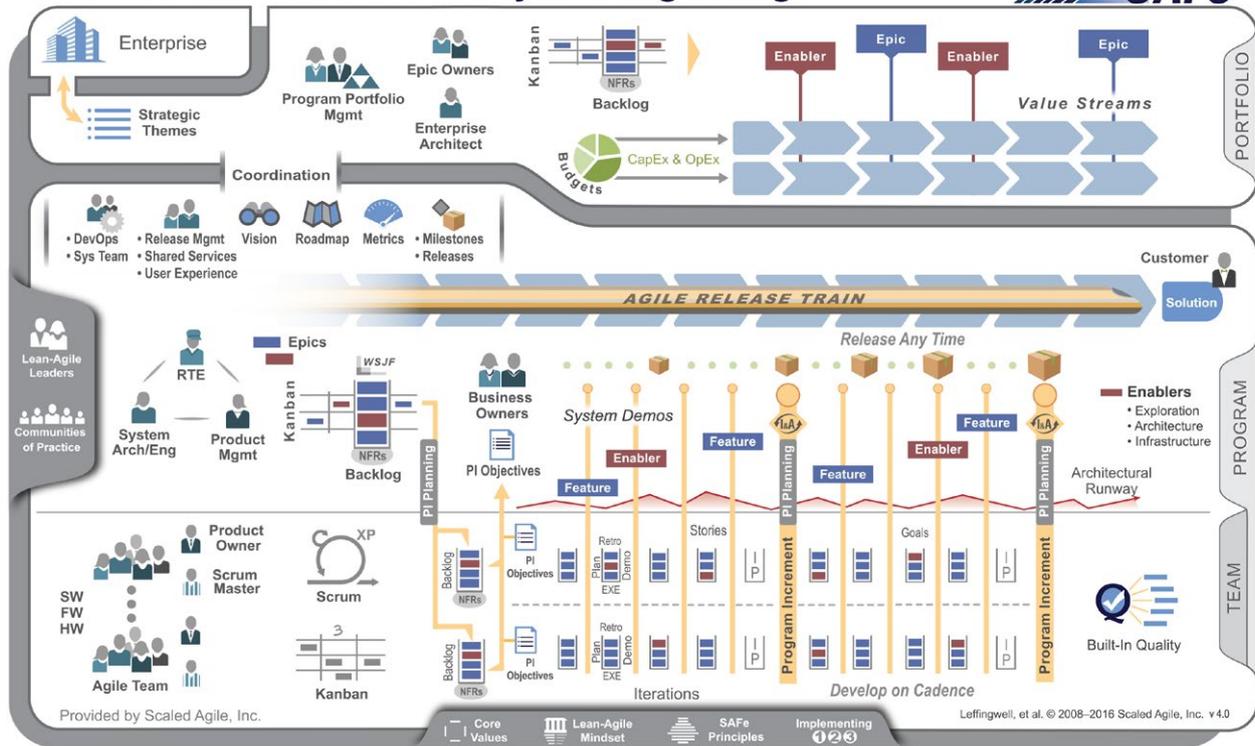
## Standardized Product Management

The orchestrated interaction of multiple divisions is needed to ensure that the standard software keeps its focus with regard to functionality and a long-term product vision. Product development at BrandMaker is described below.

Product Management designs the product roadmap on the basis of market analyses and strategic requirements and is responsible for planning new modules and solution concepts, including the Digital Marketing Center, Media Pool Mobile and Customer Engagement Automation, for example. In addition, ideas and suggestions from existing customers are compiled, rated and, where applicable, considered for upcoming releases as part of a feature-intake process.

Technical Product Management is responsible for defining and implementing specific functions from the "abstract" roadmap for the next release. Development takes place in agile sprints (for more information, see the section **The Development Process**). As well as new issues, they include software maintenance, for instance, support for new web browser versions and incremental improvements (such as updating infrastructure during the launch of Smart Search with BrandMaker version 5.7, for example).

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Development at BrandMaker is based on a "scalable agile framework" (<http://www.scaledagileframework.com>)

## The Development Process

### Releases and Content

In simple terms, agile releases involve the developers basing their work on an inventory of "abstract" topics that are prepared by Product Management and broken down into specific workable development tasks. All of the relevant information, ranging from "epics," through individual development topics and on to sprint content, are recorded and documented in corresponding systems such as Atlassian Jira with agile dashboards. The source code is maintained in a modern revision control system (SVN), which ensures that each change is documented and traceable.

BrandMaker publishes two releases per year that are created in several development stages with a precisely defined schedule (the sprints). The progress of development is monitored constantly. This allows BrandMaker to either modify the time line or the features planned for the release in the event of changes.

The corresponding documentation for each release (German and English) is also updated for end users, administrators and API developers. Release notes also provide an overview of significant new features.

### Quality Assurance and Troubleshooting

The quality of software is reflected in a number of different aspects, including the absence of critical errors, performance, usability, security, and so on. Software quality is not a subsequent achievement; instead, it starts before the actual development commences by, for instance, rating the planned features and aligning them with the strategic roadmap. Automatic tests during the development phase ensure that the results of the sprints meet the fundamental requirements and that problems are detected and resolved quickly.

Before an official release, the software version is subjected to intensive testing by experts and assessed against typical customer scenarios using an updated test case database. In addition, suitable tools from specialist third-party providers are used to perform independent penetration tests to cover all aspects of IT security. All BrandMaker staff are also trained in the German data privacy and the security issues faced by an IT company with sensitive customer data. Corresponding clauses form a fixed part of their employment contracts. Development takes place on a separate system that is independent of and separate from the customer data and BrandMaker SaaS hosting.

Quality is also important after the release and errors that occur are resolved using a transparent and stringent process, ranging from a support ticket to a development issue, and the solution is installed in the affected customer systems as part of maintenance.

### Deployment

The standard software is developed completely independently of specific customer systems and data. Naturally, however, its full benefits can only be achieved when it is deployed for specific customers.



## The Data Center

The infrastructure in the data center is referred to internally with the acronym KISS (Keep It Simple and Smart). A higher level of automation in comparison to manual solutions allows new customer systems to be established for the most part automatically and existing instances to be updated efficiently. The virtualized infrastructure also ensures a high level of availability and easy scalability. Since each customer uses their own virtual machine for the application logic (application server) and has their own database instance and storage slice, the maximum level of separation of customer data and processes from each other is assured. Customer systems can be deployed and updated fully independently of each other.

Hosting in a professional German data center in compliance with the strict German data privacy provisions distinguishes the BrandMaker SaaS range from Cloud solutions in the lower price segment, which are simply passed through product ranges from international service providers. For US customers, we are leveraging a data center managed by Dimension Data in Virginia. Dimension Data maintains a SSAE-16 Type 2 certification.

Furthermore, BrandMaker SaaS hosting includes an independent test system for each customer, which can, for instance, be loaded with a clone of the live system before an update at low cost and effort. That makes it very easy to test a new release with the customer's own data. Existing data is updated automatically during an update and can still be used without restriction afterwards.

## CONCLUSION

**The professional release strategy, development processes, SaaS infrastructure and clear focus on relevant market trends such as the digital transformation ensure that customers receive a sustainable, efficient and future-proof solution for their marketing processes and application scenarios.**

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