Empirical study

Platform as a Service
Future of the German software industry?

Dr. Carlo Velten, Steve Janata, Max Hille
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Executive Summary

- In 2014 German software companies (ISVs) are in the midst of the cloud transformation.

- The cloud transformation divides the German software industry into leaders and laggards. While 24 per cent are already posting substantial cloud sales, 16 per cent have so far ignored the topic.

- The users’ demand for modern and flexible software is one of the main motives for the software providers’ cloud transformation – whether they are classical ISVs, start-ups or developers of customised software.

- For the German software companies, the cloud is a central growth driver. Consequently more than half the ISVs expect cloud software to account for 60 per cent of new business in the coming years.

- By using Platform as a Service, the ISVs are principally aiming to expedite and professionalise their development and business services.

- Currently state-of-the-art PaaS environments are an integral part of the development and test processes for 16 per cent of the ISVs. However, the subject is highly topical in 2014. For instance, at present 33 per cent of German ISVs are engaged in the evaluation and decision phase for PaaS.

- Public cloud platforms do not offer a suitable operating platform for German software companies. Most of these (68 per cent) prefer PaaS in a hosting operating model.

- When ISVs choose cloud development and operating platforms, they set great store in a local data centre with ISO certification and flexible, usage-dependent payment models.
Platform-as-a-Service – Software development in the cloud era

In 1999 – the year when Salesforce.com was founded – it was not yet foreseeable that the provision of corporate software over the internet could become a success story. With a turnover of over three billion US dollars in 2013, Salesforce proved that Software as a Service can be a business model with great growth potential for software companies.

Under the term “cloud computing” a number of structural trends have taken place in recent years which have a decisive effect on the development, provision and marketing of software.

**Trend #1 Digital transformation**

In the context of the “digital transformation”, the business processes and models in almost all sectors are being put to the test. Many companies are asking how they can map and optimise their own corporate processes with respect to the software. This offers a wide range of opportunities for software companies with state-of-the-art, flexible solutions (SaaS) – for established providers of traditional software solutions, the digital transformation poses a real threat. Be it in the hotel business, catering trade or service sector – Software as a Service is gaining in importance.

**Trend #2 Mobile internet**

What was still a special feature for a few selected users two years ago is now standard – mobile use of corporate applications on tablets, smartphones and other mobile devices. Since recently, software companies have had to be able to develop their solutions and services in such a manner that they can run without error on a large number of terminals, browsers and operating systems. This presents genuine
challenges for the software companies, not only with respect to development and testing, but also to operating the applications.

**Trend #3 Flexibility and user experience**

The requirement for ISVs to shorten their release cycles and provide updates with innovative features quicker than before is frequently described under the keyword “time to market”. For local software companies in particular the pressure is growing here on account of the speed of innovation of the global providers such as Salesforce, Google, etc. In the meantime the “user experience” also plays a major role. Because only if the users accept new solutions (simple operation, attractive design, high performance) and like using them can profitable turnover be achieved on a sustainable basis. In the SaaS era it quickly becomes clear whether software is a success or a failure. In this sense the cloud is merciless. Bad software is soon rejected.

**Trend #4 Provision & availability**

The change from classical on-premise and licence business to the cloud model is not just a question of development and architecture (keyword: multi-client capability), but above all of how the software is operated. Whilst in the past software companies only had to focus to a limited extent on how their solution was operated (responsibility lay mostly with the customer or partner), in the SaaS model this becomes a decisive factor. Because the operating concept and the underlying infrastructure play a major role in the performance – and consequently in customer satisfactions. The technical complexity can increase almost exponentially here if the software companies want to provide various solutions not just locally, but also globally.

These structural trends have wide-ranging effects on the software companies, but it is the case for all that concentrating on the “cloud” topic is a strategic matter which cannot be put off any longer. Furthermore, the cloud decision entails high investments which must be carefully considered.
In addition, many software companies are looking into the question of how their own development and business processes can be redesigned to comply with the requirements of the cloud era.

In this context the Platform as a Service (PaaS) environments play an important role. These enable ISVs to professionalise many of their development and operating processes and to make them more flexible. For example, the PaaS platforms offer options for automating and expediting many of the application lifecycles.

PaaS platforms have already existed for some time (Heroku 2007, Google AppEngine 2008, Microsoft Azure Pack 2009). However, as these have so far only been available as purely public cloud services from US data centres, they were only used very tentatively by German software companies. After a substantial maturation process on the technological side in the last 24 months and the option of also using PaaS technologies (e.g. OpenShift, Azure, CloudFoundry) in flexible, local operating concepts (e.g. hosting in the case of a local provider or on-premise in a company’s own data centre), these are now becoming interesting for German ISVs, too.

“The German software industry is about to undergo an unprecedented upheaval. To be able to participate in the digital economy, a well-structured cloud transformation strategy is essential. “

The German software companies are very much involved in the cloud transformation. But preparation and implementation are drifting far apart. The cloud is currently like a centrifugal force which will make for winners and losers in the German software environment.

For German ISVs in particular, the pending change from a traditional software company to a cloud provider brings with it not only opportunities, but also a number of decisions regarding investments, technology and organisation.
In order to understand the motives of the ISVs and their specific challenges and to draw a representative picture of the cloud transformation in German software companies, Crisp Research conducted the following study on behalf of Pironet NDH. This delivers, for the first time, empirical results regarding the specific application scenarios and planning for PaaS by the software companies and provides insights into how they are actually implementing their cloud transformation.
Methodology & sample

This study is focused on an empirical examination of the current plans of German ISVs and software companies with respect to the topic Platform as a Service. On behalf of Pironet NDH, Crisp Research questioned 83 German software companies in the period from February to April 2014 about this topic. The interviews were conducted in the form of a standardised online survey as well as expert meetings.

Surveyed decision-makers and target groups of the ISVs

The focus of this empirical survey is on the decision-makers at strategic and technological level. Thus 46 per cent of those questioned were Managing Directors or Board Members of the software companies. The remaining 44 per cent were Chief Technology Officers (CTOs) or Heads of the Development or Strategy Department.

Positions of the contact persons in the sample

To obtain as representative an impression as possible of the current status quo and plans of the German software companies with respect to the topic Platform as a Service, companies of different sizes were included in the survey. Two thirds of the German software companies questioned employ fewer than 50 members of staff.
The median company size for this survey is 43.5 employees. Only three per cent of the companies questioned have over 100 permanent employees.

The market development of the German software companies questioned clearly focuses on medium-sized companies. For example, nearly 50 per cent of the providers have tailored their portfolio to the requirements of medium-sized companies. A quarter of all companies questioned concentrate primarily on the requirements of freelancers and small companies. Just about every
fifth software provider (21 per cent) develops and markets software solutions for large companies.

**Industry focus**

Those surveyed focus their development and marketing effort mainly on German industry (37 per cent). This is closely followed by the wholesale and retail trades, for which almost every third software company (30 per cent) specifically develops solutions.

Measured in terms of the added value in the various sectors as part of the national accounts, banks, insurances and the public sector are very much underrepresented. Every fourth software company stated in the survey that they develop software without focusing on a specific sector.
Cloud transformation of german software companies

Cloud computing has now been around for over seven years. Small start-ups such as Salesforce, which were initially derided, have now become billion-dollar corporations, and in some cases have a higher market capitalisation than that of global industrial groups. Large, established software companies such as SAP have for years been struggling with their own transformation, and only by investing an enormous amount of effort have they managed to make parts of their business fit for the future.

The majority of German software companies have so far neglected to adapt their own strategy to the coming cloud era. There are many reasons for this, some of which are understandable. For example, redeveloping existing software and adjusting it to the market conditions calls for an enormous investment effort from a medium-sized software company and entails the concomitant risks. Nevertheless, under the given market conditions it seems essential to adapt to the reality of the situation.

Service portfolio

It can be seen from the distribution of the sales that there is a great dependence on sales of replicable software and SaaS. On average these sales account for up to 46 per cent of the business success. Consequently this remains the backbone of the software vendors’ business. As cloud computing and SaaS models spread further, this trend will tend to increase further since cloud-based software leaves less leeway for customising and consequently less turnover can be achieved in this field. It therefore seems unavoidable that investments must be made in this area.

On average 26 per cent of turnover is earned through developing customised software in projects.
In some cases this also involves customised adjustments of existing standard software within the customer base. The integration and consulting sector also plays an important part in the sales mix of German software companies: after all, it does account for more than every fifth euro earned. This demonstrates the necessity to also invest in the relevant skills and staff training in the cloud computing and SaaS sectors, because it is evident that the future SaaS-based solutions will generate an extremely high demand for integration and consulting in the customer base.

**Between evaluation and implementation**

The results of the survey show what great tectonic disturbances have in the meantime been caused in the software landscape by cloud computing. While almost a quarter (24 per cent) of all the software companies surveyed already have existing cloud business and consequently also have turnover in this sector, 16 per cent have not yet even looked into the topic.
More than every fourth software company (28 per cent) is currently analysing and evaluating potential technologies and platforms. This means that there is still a great deal of movement in the market with respect to the predominance of individual technologies and platforms. It is by no means the case that particular technology providers could already regard themselves today as winners or losers. Almost every third German software house is already one step further forward, in other words they are involved in the strategic planning for the business case or in the testing and prototyping phase, whether with or without pilot customers.

The study shows that most software companies have clearly recognised the relevance of the topic and are playing an active part in shaping the change.

**Cloud computing is a strategic paradigm for ISVs**

The cloud transformation of the software companies is also supported by their own customers. Around 60 per cent of the companies surveyed perceive an increased demand for cloud-based software services on the customer side. This is also illustrated by the fact that digitisation of the business processes in the companies is increasingly being speeded up.
However, almost two thirds (66 per cent) of the companies surveyed also regard Software as a Service as a growth opportunity which will enable new business models to be established. Many of the software vendors questioned (28 per cent) also see cloud-based software solutions as a great opportunity to obtain access to new markets, both in geographical terms and within new customer groups. Almost every fifth company assesses its own situation relatively pragmatically and justifies its own transformation with technical requirements which can simply no longer be covered with the old software architecture.

But German software companies experience little pressure from their own partners. Only around 14 per cent specified this as the reason for their transformation efforts.
The cloud as the central driver for new business

How important a successful transformation actually is for the German software companies can be seen from the planned new business in this sector. Almost every fifth company (18 per cent) is planning in the next three years to achieve over 50 per cent of their turnover in new business using cloud-based models. Almost every fourth company (23 per cent) is planning to achieve between 21 and 50 per cent of its new business by means of cloud computing. This once again illustrates the potential growth opportunities resulting from this model, but also the extremely high pressure to succeed on the software companies. 37 per cent of the software companies surveyed see the chance of achieving a small part of their turnover (10 to 20 per cent) by means of SaaS-based offerings.

The trick will lie in establishing cloud computing and the necessary resources step by step parallel to the existing offering so that, in the long-term, they can ensure the coexistence of on-premise software, classical support services and their own cloud department.
Almost all workloads are cloud-compatible

It is clear that the software companies see only a few limitations for implementing specific product categories in the SaaS model. The study shows that almost all the categories surveyed will in future be offered more frequently in the cloud model than is currently the case. E-commerce software in the SaaS model stands symbolically for the upcoming transformation. Today some 15 per cent of the e-commerce software is provided in the SaaS model. In the future this will change dramatically. According to the planning of the software companies surveyed, more than 80 per cent of the e-commerce

applications will be supplied from the cloud. These will also include totally new offerings which the software companies will first integrate into their portfolios. Other product categories, such as the cloud forerunners mobile applications and collaboration solutions, are often offered today anyway as pure cloud services as part of the new development. In the context of such solutions, a billing model based on users per month and rapid on-boarding within the user administration enable the SaaS model to take full advantage of its strengths.

The software vendors are also planning to significantly extend the SaaS-based offering for software solutions which are today only very rarely offered in the SaaS model, e.g. ERP.
But it is also apparent in this study that not all areas or workloads are suitable for the cloud computing model or are demanded by the customer. The Accounting / Finance sector is a typical example of this. Here the companies surveyed are clearly planning to cut back on the cloud-based range of solutions in future.

**Variety in the price models**

Numerous billing and price models, which are frequently part of the chain of reasoning for using such services, have become established in the cloud computing and SaaS sectors. For example, through the use of cloud-based solutions and technologies, the users expect granular and usage-based billing and as a result a reduction in their costs or a discontinuation of investments in favour of running costs.
It is, for instance, customary with SAP systems and also in the storage sector to base billing on transactions or volume (SAPS or GB/month). In the context of SaaS solutions, the model of billing according to users per month has become established on the market and is favoured by most providers (and users).

According to which business and price models are you primarily planning to offer your cloud-based software?

- Licence-based: 2.6%
- Transaction- or volume-based (e.g. SAPS or GB/month): 5.2%
- Users per month (SaaS model): 26.0%
- Project business: 13.0%
- Financed by advertising: 51.9%
- Free use: 1.3%

Source: Crisp Research for PIRONET NDH, 2014

It is all the more astonishing that 26 per cent of the software vendors surveyed stated that they would continue to offer their future cloud-based solutions in models based on licences. It is only possible to speculate on the reasons for this. It is, however, to be assumed that they relate to sales commission calculation and/or cash flow, as converting the price model causes the greatest disruptions in these areas.

However, almost two thirds of the companies surveyed (65 per cent) are planning to offer their cloud-based software according to the customary models on the market, in other words on the basis of transactions/volume or users per month.

Only a minority use models such as financing by advertising or free use, as known from the consumer environment, to market their cloud services.
PaaS: Opportunities vs. Risk

Companies in the IT sector are constantly confronted with new trends and technologies. The challenge is to distinguish trends from really disruptive changes. This applies in particular for software vendors, because in most cases a change of technology, platform or architecture here means a massive investment and a concomitant high risk.

In the meantime, however, it is clear to everyone in the IT industry that cloud computing and SaaS are not a short-term trend but a paradigm shift. So far so good. Nevertheless, to date the majority of German software companies have struggled with the transformation to a cloud or SaaS model. There are manifold reasons for this.

„At first glance the outlay and investments required for the use of cloud computing appear extremely high. Nevertheless, the cloud is the appropriate answer to the wish for development processes to be accelerated and made more flexible.”

Obstacles to transformation

Where the cloud is concerned, German software companies and ISVs have the greatest misgivings with respect to operating a SaaS or cloud application. Most software providers do not have their own data centre capacities, nor do they possess the necessary operating know-how. For 62 per cent of those surveyed, the expense connected with this forms one of the largest obstacles to implementing the strategy.

This is closely followed by investments which are required for a new development (59 per cent). The capital base of a medium-sized software provider is traditionally limited, and consequently it is difficult for many companies to cope with the necessary financing.
In Germany the topics of data protection and data security are the first items on the agenda for CIOs and heads of IT. It is consequently not surprising that the software vendors justify their hesitant course towards cloud computing with the concerns of the users. Just as in the reality of the discussion, in the context of this survey no evident distinction is made between data privacy and data security; both values are ranked at a similar level (39 per cent and 37 per cent respectively).

What concerns do you have about replacing the existing software model with a SaaS or cloud model?

- Operating a SaaS / cloud application requires too much effort: 62.2%
- Investments in the new developments are too high: 59.5%
- Insufficient acceptance by the users owing to concerns regarding data security: 39.2%
- Insufficient acceptance by the users owing to concerns regarding data protection: 36.5%
- Our customers have no need for SaaS-/cloud-based solutions: 20.3%
- It is too expensive to set up and operate a support model (365/24/7): 18.9%
- It is too difficult to ensure the availability and scalability: 18.9%
- Integration with existing independent applications is too complex: 13.5%
- We are not sure whether we can map the functional scope of the legacy application to a SaaS application: 10.8%
- Little experience in drawing up appropriate contracts, SLAs and General Terms and Conditions: 10.8%
- Switching to a subscription model is too risky for us (slump in cash flow / liquidity): 5.4%

n=74, multiple answers

Source: Crisp Research for PIRONET NDH, 2014
It is striking that every fifth company surveyed (20 per cent) justifies its reluctant attitude with a lack of demand on the customer side. The real situation on the market shows that this can change very quickly – and has in many cases already changed.

In summary it must be stated that two topics above all give the software providers a headache: The operation of cloud and SaaS solutions and the investments in new developments.

**On the way to the cloud transformation**

PaaS offerings are today frequently a permanent feature in state-of-the-art software development, testing and operating procedures. However, in the Anglo-American world these offerings are primarily used by developers who are only rarely active in the corporate environment. The reason for this was the limited availability until recently of alternatives to the large public cloud offerings. It is therefore also not surprising that these platforms are only used regularly for testing and development by around 16 per cent of the German software providers.
However, almost a third of all those surveyed (33 per cent) are currently evaluating PaaS platforms. A further 32 per cent use such offerings only occasionally and to a limited extent. This above all means one thing: The market is still very much in a state of flux as around two thirds of the ISVs have not yet made a final decision on this topic. The struggle for this important target group has consequently just begun, and it is still unclear who will be the winners. However, this study provides clear indications of where this journey could lead as most software providers have clear ideas about deployment variants and other requirements.

The level of maturity of the market and the technology of Platform as a Service is constantly increasing. So-called application Platform as a Service (aPaaS) environments, for example, provide an interface on which corporate applications can be developed and operated. These have a graphical web interface and various preconfigured interfaces for programming (APIs). Thanks to their graphical interface and a library with preconfigured applications, aPaaS environments can accelerate the development and provision of business applications.

**Platform as a Service: Pros and cons**

Software companies and ISVs which are already using a PaaS see the speeding up of business processes (57 per cent) as the decisive factor. The demand to go live quickly, for shorter innovation cycles and for flexible development methods such as Scrum continuously increase the pressure on the software industry to expedite its processes. The use of PaaS appears to provide an effective solution here.

This is also reflected in the statement or expectation of 43 per cent of those surveyed that they will increase the degree of standardisation and automation of their testing and development processes.
This is one of the central prerequisites for expediting processes. Expectations are also high with respect to testing. 43 per cent of the ISVs anticipate greater speed and flexibility through the use of PaaS. Astonishingly their own image as an innovative company plays an extremely important role for many software providers, in some cases a greater role than technological or financial aspects. For some 31 per cent this is a decisive reason for using PaaS.

Every fourth company surveyed (26 per cent) hopes that Platform as a Service will reduce their development and R&D budgets. That 23 per cent of those surveyed expect to reduce the error quotas fits well into the overall picture because this will result in a reduction of costs.
The expectations are thus high, and the possible positive effects are also not disputed by those who do not currently use such a platform.

For the overwhelming majority of the ISVs questioned (76 per cent), not using PaaS is solely the result of lack of experience and not having the know-how available. The services offered are extremely complex and varied, and not all software vendors have enough young talents who can deal with such platforms intuitively.

58 per cent see the restrictions caused by the programming model and APIs as another important reason. Because of the novelty of the topic, the software vendors are evidently afraid that they could make mistakes and suffer detriments resulting from a loss of time and unsatisfactory quality. Very few are concerned about a vendor lock-in since the distributed offering structure is evidently known.

For around a fifth (24 per cent), the inability to calculate costs is a reason for not using PaaS offerings.

The study also shows that in future a market for “Managed PaaS” will emerge, but 22 per cent of ISVs assume that the use in the context of a self-service model is not practicable.
Finally, it can be stated that many of the negative reasons can be overcome. This is in particular the case for the topics of experience and know-how, and also for the ability to forecast costs.
Technological environment and development scenarios

The question of whether the use of state-of-the-art PaaS platforms is worthwhile for ISVs depends principally on what type of applications are to be programmed using which programming languages and development environments. The selection of the PaaS platform or PaaS technologies is also affected by this since in some cases these offer very different integration methods for the various programming languages.

**Programming languages and development environments used**

Java (65 per cent) is still the programming language used most frequently by the German software vendors surveyed, followed by C# (62 per cent), C++ (61 per cent) and Visual Basic (55 per cent), whereas the use of ASP/.NET (30 per cent) is low. As the majority of the ISVs surveyed concentrate on developing corporate software, this pattern seems understandable.
The trend to web-based applications has led to widespread use of PHP (49 per cent) in recent years. Python is now also used by one fifth (21 per cent) of German software companies. Here above all the wide range of uses in object-orientated and functional programming and the straightforward syntax play a role. However, Python is currently used mainly as a script language for web applications. With their usage of 10%, Perl and Ruby, on the other hand, are still regarded as exotic (although they are already very widespread around the world). This is also the case for Node.js (8 per cent), Scala (4 per cent) and Clojure (3 percent).

The picture with respect to the development environments currently used is similar. At 69 per cent, Visual Studio is used somewhat more frequently than the open-source solution Eclipse (61 per cent). Both are currently operated primarily on local instances. However, 18 per cent of the software companies surveyed also plan to use cloud-based development environments such as Cloud9, Koding, Codeanywhere and Eclipse Orion.

**Experience with and use of public PaaS platforms**

Although the first PaaS platforms have been available since 2007 (Heroku) and 2008 (Google AppEngine), so far German software companies have gathered little experience with the platforms currently available on the market. This is due, on the one hand, to the delayed effects of cloud computing on the German software market (SaaS currently accounts for less than 10 per cent of sales in
Germany). On the other hand, the available PaaS platforms for a long time focused on developing web applications and the requirements of start-ups and freelance developers. This situation has, however, changed significantly in recent years, and the PaaS platforms now also offer support for developing and operating company-critical applications and corresponding professional application lifecycle processes. Despite this, only a few German software companies have in-depth experience with a wide range of platforms. Further reasons for this reluctance are certainly to be found in the fact that the platforms have so far only been offered in "public cloud" mode from US data centres. In addition to this, German software companies are still “driving with the handbrake on” with respect to the cloud transformation.

“Microsoft Azure and Amazon AWS are currently the most popular public PaaS offerings amongst German ISVs. But they are now also interested in alternatives.”

To date, little time and few resources have been invested in the playful and creative use of the new PaaS platforms in the context of long-term innovation and product management. Consequently only five PaaS providers achieve a usage level of more than 5 per cent of the German software companies.

Microsoft currently clearly tops the list for German ISVs. 18 per cent of the software companies surveyed use the Azure platform in productive operation, and 10 per cent for development and testing. AWS ranks second, used by 16 per cent in productive operation and by 12 per cent for development and testing.

It is evident that the platforms of the traditional enterprise technology providers (IBM, HP, Oracle and SAP) tend to be used by the ISVs for productive operation, and the platforms of the classical
cloud companies (Google, Salesforce) more for development and testing.

An important insight into the German software companies' future decisions regarding investment and technology is provided by the question as to which PaaS platforms are currently being evaluated. And it seems that Microsoft Azure and Amazon AWS will soon face serious competition. Currently 14 per cent of the ISVs surveyed are checking out the Google Cloud Platform/Google AppEngine. This is followed by Microsoft Azure (13 per cent), HP Cloud Application Platform (11 per cent), Amazon AWS (11 per cent), IBM SmartCloud/IBM BlueMix (10 per cent) and Salesforce 1/Heroku (9 per cent). The relevance of SAP for German software companies is also apparent in the decisions regarding PaaS.

What PaaS platforms are currently being evaluated by German ISVs?

- Google Cloud Platform (Google App Engine): 44.3%
- Microsoft Windows Azure: 40.8%
- HP Cloud (HP Cloud Application Platform): 34.8%
- Amazon Web Services (Elastic Beanstalk etc.): 34.2%
- IBM SmartCloud (IBM BlueMix): 31.0%
- Salesforce1 (Heroku): 28.2%
- SAP Netweaver Cloud Platform: 24.6%
- Cloud9 IDE: 18.6%
- Oracle Cloud Platform: 18.6%
- Engine Yard: 17.4%
- cloudControl: 13.2%
- Others: 9.9%

Source: Crisp Research for PIRONET NDH, 2014

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8 per cent of the software houses surveyed are evaluating the relatively new SAP Netweaver Cloud Platform. This is certainly the result of the increasing integration of the widest variety of software solutions and SaaS services with the SAP systems which still form the backbone of many corporate processes in large and medium-sized German companies. This applies above all for the CRM, SCM and Talent Management sectors.
PaaS in practical application

German software companies have very specific requirements when it comes to the use of PaaS in the context of their development, testing and operating processes.

The conditions of the operating concept and the operating concept itself, i.e. whether the PaaS services are operated according to the public or private model or as part of a hosting model, are particularly relevant. And a lot has been done here in the last 12 months.

For example, until mid-2013 none of the leading PaaS platforms were available as a technology stack for a company’s own or hosting operation. Until then the public cloud was the only operating model available. VMware (today at Pivotal) began with the release of the CloudFoundry technology under an open-source licence. PaaS technologies can now also be obtained as a software package from Microsoft (Microsoft Azure Pack), Red Hat (OpenShift) and VMware (vFabric) and operated individually. This offers companies, software developers and hosting partners completely new opportunities to offer PaaS services on a customised basis and to optimise them with respect to specific application scenarios.

Which of the technologies will establish themselves in the medium and long terms is currently difficult to predict as most ISVs, hosting providers and corporate users have not made a final decision. While IBM has selected CloudFoundry in the context of its BlueMix PaaS platform, a number of hosting providers offer their customers a choice of multiple platforms.

However, at present only a handful of hosting providers who offer PaaS in a hosting model exist on the German-speaking market. There are various reasons for this. Some players, for instance, do not view the market opportunities as promising. Others simply lack the resources and skills to establish and operate the technically demanding and complex platforms. Hosting providers must also
build up a greater understanding and more expertise with respect to the processes and special requirements of the ISVs, start-ups, and freelance and corporate developers, because their needs differ significantly from the requirements for classical hosting or infrastructure outsourcing. The number of experienced architects, developers and project managers in the PaaS sector in Germany is still extremely modest.

**Preferred operating concepts and models**

The statements of the software companies questioned in the course of this study paint a very unambiguous picture. Asked about the favoured operating concept for using PaaS services in development processes, “only” 21 per cent declared they preferred the existing public cloud model, while 12 per cent would choose internal operation in a “private PaaS platform”. The majority of well over 60 per cent would prefer to obtain PaaS services for development and testing through a hosting model.
According to which operating concept would you prefer to use PaaS services for operation?

- Public PaaS: 11.1%
- Hosted PaaS: 21.0%
- Hosted Private PaaS: 38.3%
- Private PaaS: 29.6%

n=73  Source: Crisp Research for PIRONET NDH, 2014

The software companies surveyed are even a little more demanding with respect to application operation. Here a mere 11 per cent of the companies asked would advocate operating on a public cloud environment. The majority (38 per cent) regard hosted PaaS as their preferred operating model for operating applications in the cloud. A further 30 percent state that the dedicated variant (Hosted Private PaaS) is their favoured model. Over a fifth of the surveyed software companies would only operate their applications in a private PaaS environment.
Demands on the PaaS providers

When the statements regarding the central demands on the providers of PaaS services are examined, it becomes evident why the previous public cloud models were never considered by many professional software developers. For around 80 per cent of the German software companies surveyed, the topics of security standards, ISO certification and a German...
data centre location were right at the top of the agenda, followed by a flexible payment model (60 per cent). Interestingly, the individual adaptation of the PaaS platform is just as important as the scalability of the platform – an argument which has been given top priority in many debates in recent years. It has apparently been recognised here that the scaling capacity of the technology platform only need match the growth on the customer or user side.

It also seems surprising that “only” 20 per cent of the ISVs wish for local and technical support “on site”. In the survey only every tenth ISV stated that they require no support in drawing up the licence models and SLAs. This is perhaps also due to the fact that so far only a few ISVs have gained in-depth experience with the topic – and consequently they tend to view the future a little too optimistically.

**Operation of software on PaaS platforms – Make or buy**

When German software companies also plan to operate their new software solutions on a cloud or PaaS platform, not only the infrastructure services are required from the provider (server, storage and virtualisation). Rather, around half of the ISVs and start-ups now also wish for managed services for managing the database, OS and network.
A third of the software companies surveyed can also imagine making use of external support from the provider for application operation and application management – two core disciplines for software companies.
The future of the German software market

Is it the famous whistling in the dark or merely a sober, pragmatic view of the situation? In any case, the German software industry is marching optimistically into the future and only fears global powers such as Google to a limited degree. Only around six per cent of the software providers surveyed in this study believe that software will in future be standardised and be available off the shelf. If that were so, just a few large companies would share the market amongst themselves in future.

A large majority of those questioned in this study (61 per cent) are convinced that the future will be dominated by hybrid operating concepts. In keeping with this, the effort for integrating such solutions will remain high, which indicates great potential on the consulting and services side.

On the other hand, a third of the companies surveyed believe that despite all trends and the disturbances caused by cloud computing,
software will continue to be provided mainly on the basis of the on-premise model. This is presumably due to the many demands relating to the topic of security and customisation which the customers make on the software providers in their everyday dealings with each other.

The study proves that the majority of software providers in Germany have a clear picture of a hybrid future. Whoever copes with these general conditions best, in other words is able to connect both worlds for the customers, will have a good chance of surviving on the market.

A prerequisite here is, however, that the German ISVs take advantage of the existing opportunities for state-of-the-art software development and also that young, innovative start-ups find the necessary conditions in Germany. It has been a long time since a software-based start-up from Germany has made its way to become a leading global player.
Prospects

The German software industry is currently undergoing a profound change. This study has demonstrated that a majority of software vendors are planning to complement their software portfolios with SaaS models or to replace them completely. In the course of this, the testing and development processes will also change. The topic of PaaS, which has not played a significant role in Germany in recent years, will gain new impetus from this. This also applies for the software portfolios. It is to be expected that a large variety of deployment models and management approaches will be available on the market. A similar development to that in the IaaS sector will therefore take place, and the offering will adapt to the wide range of requirements of the ISVs.

For the German software industry this means a major step towards industrialisation. And a major opportunity, because the PaaS platforms and their ecosystems are ideal vehicles for opening up new customer groups and segments.

It will also be exciting to see how the race between open-source technologies, such as Cloud Foundry and OpenShift, and proprietary commercial environments (which both satisfy all requirements with regard to professionalising development) will unfold.

The times could therefore not be more exciting in the software industry. Now it is important to actively shape the upcoming change and to make the most of the resulting opportunities.

„The combination of on-premise and cloud is the blue ribbon discipline for the German software industry. Those who manage to establish an optimum coexistence of both models will have the edge on the market.“
About Crisp Research

Crisp Research is an independent IT research and consulting firm. With its team of experienced analysts, consultants and software developers, Crisp Research assesses current and upcoming technologies and market trends. Crisp Research supports IT providers with respect to strategy, content marketing and sales.

Cloud computing and digital business transformation are the focus topics of Crisp Research. In our Crisp Labs, we test new cloud services and products with our own developer team under real-life conditions.
About PIRONET NDH

Pironet NDH is one of the leading German providers of cloud computing. The company, which is listed on the stock exchange, has its headquarters in Cologne and was founded in 1995. As of 2014 Pironet NDH is part of the affiliated group CANCOM SE in Munich. Its focus ranges from providing corporate software over the internet right through to complete desktop solutions and business-critical applications from SAP and Microsoft.

With its Hosted Business Cloud®, Pironet NDH provides virtual IT resources and standard business applications as turnkey cloud services with flexible costs (Software as a Service) from its highly secure German data centres. The Business Cloud® is based on the AHP Private Cloud Platform developed and tested by CANCOM, as well as service components and network and infrastructure services.

The service offering, the IT infrastructure and also the internal organisation are all certified according to strict, internationally recognised guidelines, including, among others, DIN ISO/IEC 27001. For customers this certification ensures the operative excellence of Pironet NDH in all processes, as well as compliance with stringent standards with respect to both technical and security aspects. More information is available at: http://www.pironet-ndh.com/CloudEnabling.
About the authors

Steve Janata

Steve Janata is Managing Director of the IT research and consulting company Crisp Research. As an IT analyst, Mr Janata has provided consulting services relating to strategy, portfolio and channel management for renowned technology companies for over 15 years. His specialities are the cloud market and competition, cloud security and cloud ecosystems. Prior to this, together with Carlo Velten, he was head of the Experton Group “Cloud Computing & Innovation Practice” for over 8 years and also an initiator of the “Cloud Vendor Benchmark”. Mr Janata is politically involved on the managing board of the foundation Friedrich Ebert Stiftung, focusing on the topic of digital economy and society.

Dr. Carlo Velten

Dr. Carlo Velten is Managing Director of the IT research and consulting company Crisp Research. As an IT analyst, Dr. Velten has provided consulting services relating to strategy, portfolio and channel management for renowned technology companies for over 15 years. His specialities are cloud strategy and economics, data centre innovation and digital business transformation. Prior to this, together with Steve Janata, he was head of the Experton Group “Cloud Computing & Innovation Practice” for 8 years and also an initiator of the “Cloud Vendor Benchmark”. Previously he had occupied the post of Senior Analyst at TechConsult, where he was responsible for the topics open source and web computing. Dr. Velten is a member of the jury for the “Best in Cloud Awards” and is involved in the industry association BITKOM. As a Business Angel he supports young start-ups, and he is politically active as chairman of the board of management of the foundation Friedrich Ebert Stiftung.
Max Hille

Max Hille is an analyst at the IT research and consulting company Crisp Research. Prior to this he was research manager of “Cloud Computing & Innovation Practice” at the Experton Group. As a project member in the business unit “Innovation & Technology of the Future”, Mr Hille coordinates some of the research and also individual customer projects. He specialises in social collaboration, cloud computing, social media, smart technologies and mobile innovations. Mr Hille is studying economic sciences, with a particular focus on marketing and business informatics, at Kassel University.
Contact

Weißenburgstraße 10
D-34117 Kassel
Tel +49-561-2207 4080
Fax +49-561-2207 4081
info@crisp-research.com
http://www.crisp-research.com/
https://twitter.com/crisp_research

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