Open Cloud Alliance:
Openness as an Imperative

How web hosting providers are becoming cloud service providers through open source.

A strategy paper written on behalf of Univention GmbH and IBM Deutschland GmbH

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Executive Summary

→ Driven by changing customer needs and global competition from public cloud providers, the market for hosting providers and system integrators is in a state of upheaval. Local providers, especially, are under pressure to expand and adapt their offers.

→ The transformation from classical web hosting to cloud hosting poses major technological challenges for many providers. The existing infrastructures cannot provide a full basis for the new cloud services.

→ The choice of a suitable technology platform is a critical success factor, and largely determines the provider's future success. Open platforms based on open source models are best suited to this purpose.

→ Investment security for the cloud provider and protection against excessive "vendor lock-in" (dependence on a given vendor) can only be assured by using open architectures. Integration into existing systems and architectures is one success factor here.

→ The Open Cloud Alliance, initiated by Univention and supported, among others, by IBM and Open-Xchange, presents local cloud providers with a platform on which they can develop a wide, integrated and modular cloud portfolio that satisfies the customer's demands in terms of security, integration and compliance.

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The market is facing major changes

Future enterprise customers will be accessing a mixture of proprietary on-premises IT, hosted cloud services of local providers and globally active cloud service providers. This is a major opportunity for the market and all participants involved. This is especially so for small hosters with existing infrastructures, as well as for system integrators with the appropriate know-how and existing customer relations.

In light of this, in this strategy paper Crisp Research investigates the challenges that both provider groups are facing in this situation, and deals with the most important aspects and their solutions.
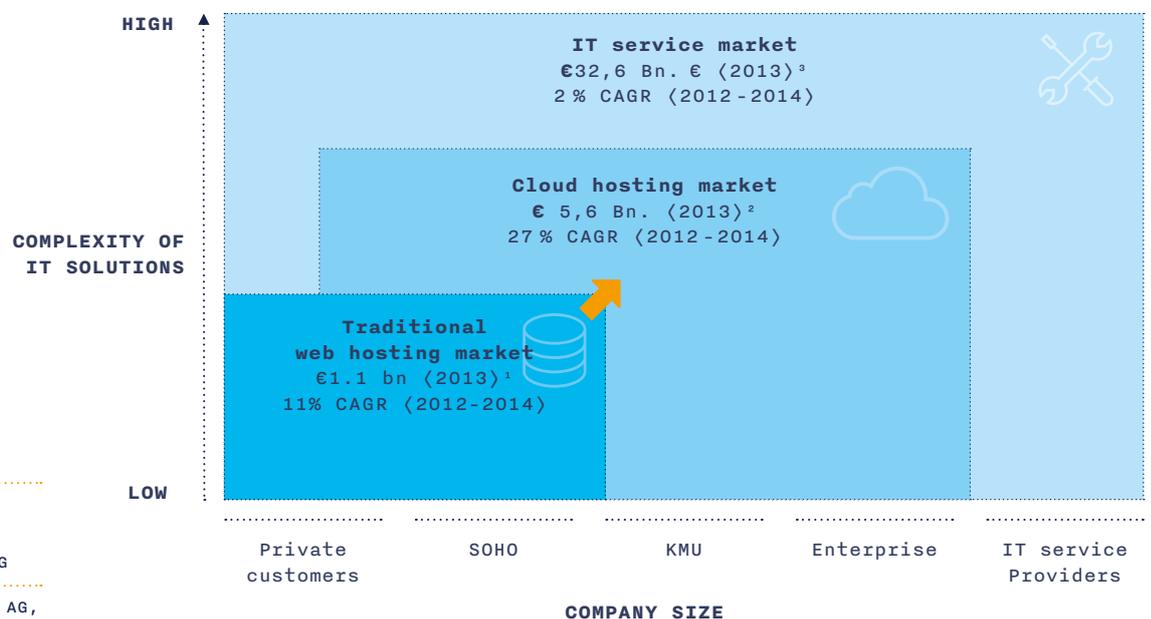
The hosting market is on the move

The hosting market in Germany is growing at double-digit rates, but is under massive pressure to change. There are many reasons for this. For many hosting providers so far, the majority of their business has come from the private customer segment.

With the triumph of Facebook & co., however, this market is declining sharply. The proprietary website has given way to the Facebook profile as the dominating internet presence of the private sector.

Hosting providers and system integrators: The market is about to change drastically.

The cloud hosting market in Germany

HIGH

IT service market
€32,6 Bn. € (2013)³
2 % CAGR (2012-2014)

Cloud hosting market
€ 5,6 Bn. (2013)²
27 % CAGR (2012-2014)

COMPLEXITY OF
IT SOLUTIONS

Traditional
web hosting market
€1.1 bn (2013)¹
11% CAGR (2012-2014)

LOW

| Private customers | SOHO | KMU | Enterprise | IT service Providers |

COMPANY SIZE

In the website hosting sector, there is furthermore strong competition from US start-ups, while the lucrative business of domain hosting is concentrated on a few large-scale providers.

System integrators with their own hosting infrastructures will also feel the effects of this change. The term "time to market" sums up the requirements of system integrators, with which they can speed up their release cycles and provide their innovative functions sooner. The change from the "on-premises model" to the cloud model, especially, has greatly influenced the development and architecture (buzzword: multi-client capability) as well as the sale of software and infrastructures. The sales concept and the necessary infrastructure are significant performance factors. The technical complexity can grow exponentially here if system integrators wish to provide their various solutions beyond their local target group and to customers worldwide.

Hosting changing to cloud hosting

NEW CUSTOMER SEGMENTS

SOURCE: Crisp Research AG, 2014

EXISTING CUSTOMER SEGMENTS

RANGE OF SERVICES

CLOUD HOSTING PRODUCTS (FUTURE)

Cloud & app monitoring	
Cloud storage	
Database-as-a-service	
IaaS	

App store	Cloud storage
Basic Security	Managed cloud
Business apps / SaaS	Managed bus. appl.
Cloud storage	Managed eCommerce
Marketing automation	Mobile CMS
Mobile websites	SaaS
Online ad services	Virtual desktop

App store	Managed cloud
Basic Security	Managed eCommerce
Business apps / SaaS	MDM Service
Cloud storage	Mobile CMS
Mobile websites	PaaS (ded. / shared)
	Virtual desktop

TRADITIONAL HOSTING PRODUCTS (NOW)

Archiving	
Dedicated server	
DNS	

Advanced E-Mail	Advanced e-mail
Domains	Archiving
Dedicated server	Dedicated server
Hosting / SEO	Domains
Storage & backup	Managed hosting
Virtual server	Storage & backup
Webshop	Hosting & SEO
	Webshop

Domains	Load balancing
E-mail	Managed business applications
Hosting & SEO	Managed hosting
Webshop & websites	Storage & backup
	Virtual server

Private customers /SOHO

Small businesses

Mid-sized businesses

Enterprises

From this, it can be seen that the real market opportunity is in the cloud hosting sector. This market is now almost six times the size of traditional web hosting. And the growth figures show how dynamic this market segment is.

Furthermore, enterprise customer demands have changed drastically. The global triumph of cloud computing has considerably increased customers' demands on standardisation, flexibility and performance. As further areas of business and life go digital, this trend will become stronger since cloud services and technologies provide the ideal basis for this digitalisation.

Customers want to use cloud services, but they have many problems using the offers of large-scale, public cloud providers. While they are scalable and of a high technical standard, they often do not satisfy the requirements of local laws (e.g. data protection requirements). Yet, far more important is the popular "do-it-yourself" principle. Enterprise clients are accustomed to calling upon local services and support. They have also long been buying many services as managed services. One upshot of this is that many companies can no longer use these platforms since they no longer offer the necessary internal skills and capacities.

In light of this, a transformation of the business model of hosting providers and system integrators seems inevitable. This pressure to change, however, also harbours a major opportunity. For the first time in many years, hosting providers and system integrators namely have a concrete opportunity to convert their offerings into truly high quality services. The demand for this certainly exists. As does the necessary technology.

Entry into cloud hosting offers numerous opportunities for hosting companies and system integrators. Two of these carry particular strategic weight:

➜ Winning new customers in the enterprise environment

➜ Conquering new market segments in the software services environment

Cloud transformation of hosting providers
Milestones and core disciplines

Hosting providers have provided companies with the basis for offering online services and web applications for many years. Yet, the change from pure domain and web server hosting to standardised provision of professional business applications poses various challenges, and creates high complexity in the cloud transformation process.

Similarly, system integrators are being pushed towards expanding their business into hosting professional cloud services. In this situation, five key aspects stand out that are indispensable for a successful metamorphosis.

Cloud skills are in short supply
The level of knowledge and continued training of employees are the key priorities when introducing new technologies and concepts.

Especially when it comes to cloud computing, it must not be underestimated what special skills are required for establishing, integrating and managing scalable and distributable infrastructures. Here, the necessary knowledge differs extremely from the former approaches for operating professional applications and services reliably and with high performance under dynamic loads.

Preconfigured software solutions and appliances can in part substitute for these knowledge gaps by providing integration mechanisms and cloud management functions in encapsulated form.

Choice of technology – The foundation for future success
The choice of the right technology is the basis for long-term successful implementation. Central to this is especially the investment security with which a web hoster can prepare his infrastructure for the future.

Special attention should be given here to interoperability with existing hardware and software components, and the issue of open or proprietary solutions discussed in relation to this key aspect. The support offered by the respective provider is just as important as the integrability of individual systems and components.

Accordingly, the existing systems of potential target customers must be kept in mind, so as to support hybrid scenarios as well.

Open architectures serve as an ideal recipe for providers to make their own adaptations and at the same time for seamlessly integrating customer applications and systems such as directory services into infrastructures and platforms. This also allows for future expansions in the form of services and web applications.

Automation and standardisation - The basic qualification

Typical hosting infrastructures consist in most cases of individualised solutions of only limited compatibility with popular interfaces and cloud management solutions. These tailored approaches isolate the infrastructure operator from current and future market trends, and result in a lack of flexibility in this respect. It also leads to an inadequate degree of standardisation and accordingly allows only limited automation.

Standardisation is indeed the core component of a cloud environment and decides how highly automated the infrastructure, and the platforms, systems and application landscapes operated on it, can be. Only through standardisation will the hosting provider be able to easily and economically provide his customers with business applications. This benefits all parties involved. It assures the hosting provider can provide a large number of customers simultaneously with the same software version and thereby lower the costs of provision and maintenance. At the same time, this degree of standardisation makes it possible to offer the customer lower-cost solutions.

Security & identity management - The duty

In the cloud era, an increasing number of applications and services are migrating to globally distributed infrastructures. Not only do hybrid scenarios require central management of identities and resources for controlling access to the locally stored assets and for guaranteeing an appropriately high level of protection. The advancing digital transformation and the continual development of new trends are also driving a dramatic change in the attack vectors. A few years ago, IT infrastructures presented potential attackers only very few opportunities for penetrating into the IT systems. In the meantime, new doors are continually opening, which must be proactively closed.

Central login and authentication services allow hosting providers to establish robust control mechanisms. These must be integrated into existing systems on the customer side.

Multifactor and single-sign-on authentication models simultaneously ensure greater security and comfort at the customer's end, and are considered the "state of the art" of modern identity and infrastructure management.

Cloud integration - The supreme discipline

IT infrastructures are traditionally organised non-homogeneously.

"Best-of-breed" approaches create heterogeneous systems and application landscapes of differing architectures that need to be integrated with each other by the best available options. This paradigm will continue to exist into the future, and will expand due to ever more distributed infrastructures in co-locations and cloud services.

Enterprise IT is becoming increasingly hybridised. That means hosting providers will also have to be able to integrate a multitude of different applications and, for example, guarantee the integration with directory services such as LDAP or Microsoft Active Directory so as to take control of domain management as well. Only that way can customers be granted efficient control over their identities and access rights.

In addition to integrating on-premises infrastructures over hybrid connections, hosting providers must also be able to integrate external services of the large and small cloud providers onto their platforms in order to offer their customers a consistent and aggregated cloud portfolio without denying them new, innovative or soon-to-be-standard solutions.
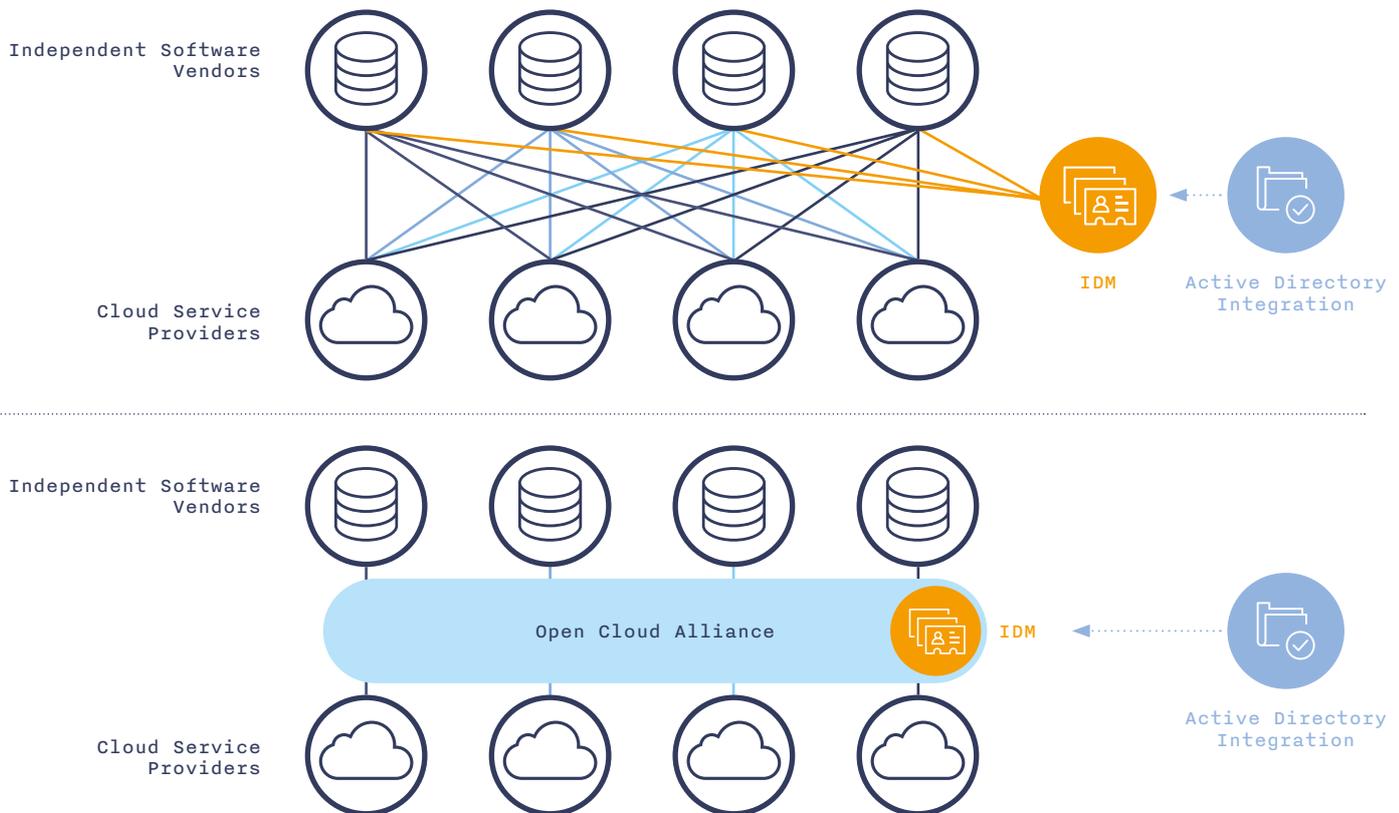
Open Cloud Alliance –
Openness as an Imperative

The majority of present cloud offerings are implemented in proprietary and highly standardised form. What presents advantages for the provider – technological knowledge, economies of scale etc. – creates headaches and frustration for the customer. Users complain of "vendor lock-in", where they are dependent on a given vendor with no freedom of choice. What customers instead expect from cloud providers are properties such as:

→ A genuinely local service

→ Use of open, non-proprietary technology

→ A clear explanation of the privacy measures, data storage location and jurisdiction

→ Central identity management

→ Vertical and hybrid integration as well as hybrid scenarios

→ Easy options for changing between different cloud providers or onto the on-premises site.

The Open Cloud Alliance has been formed as an initiative for consolidating a multitude of leading enterprise applications from different vendors into a uniform platform solution. The initiators and technology suppliers are Univention and IBM.

Centralised identity management under the Open Cloud Alliance Platform

Independent Software
Vendors

Cloud Service
Providers

IDM

Active Directory
Integration

Independent Software
Vendors

Open Cloud Alliance   IDM

Cloud Service
Providers

Active Directory
Integration

SOURCE: Crisp Research AG, 2014

Global technology – Available locally

The cloud platform combines technologies and solutions of globally active companies and integrates them into a central identity management system. The software basis for the platform is the Univention Corporate Server (UCS) together with the open source cloud management framework "OpenStack" and the Univention App Center. The platform architecture is kept open, and contains proven methods for integrating various existing infrastructures and directory services, such as Microsoft Active Directory, for instance. The same open approach (open source) should prevent lock-in and thereby promote competitiveness.

Based on this, the Open Cloud Alliance allows different forms of operating models and hybrid scenarios and provides all technologies for hosting providers and on-premises operations alike. That way, the users gain the maximum freedom of choice in the cloud.
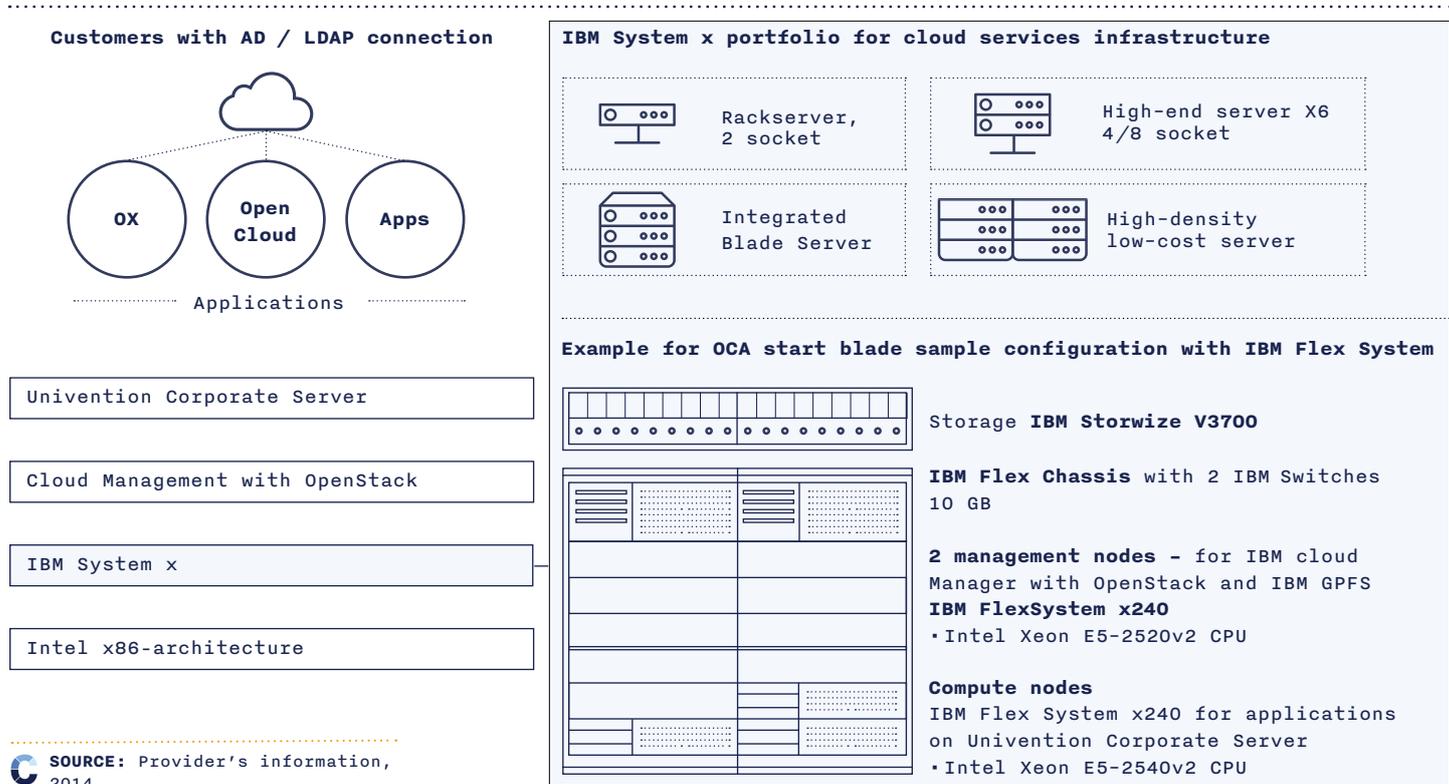
Keep it simple – Rapidly implementing cloud offers

The platform of the Open Cloud Alliance ensures an open and standardised environment in which hosters and IT service providers can offer a wide range of enterprise applications.

It is no easy task to design and construct cloud architectures and infrastructures. And it takes time. The project risk and time expenditure can, however, be minimised. The sample configuration developed by the Open Cloud Alliance, based on Intel x86 processors, gives hosting providers and IT service providers the assurance of building upon proven architecture.

Open Cloud Alliance
Architecture and sample configuration

Customers with AD / LDAP connection

OX

Open Cloud

Apps

Applications

Univention Corporate Server

Cloud Management with OpenStack

IBM System x

Intel x86-architecture

SOURCE: Provider's information, 2014

IBM System x portfolio for cloud services infrastructure

Rackserver, 2 socket

High-end server X6 4/8 socket

Integrated Blade Server

High-density low-cost server

Example for OCA start blade sample configuration with IBM Flex System

Storage **IBM Storwize V37OO**

IBM Flex Chassis with 2 IBM Switches 1O GB

2 management nodes – for IBM cloud Manager with OpenStack and IBM GPFS
IBM FlexSystem x24O
· Intel Xeon E5-252Ov2 CPU

Compute nodes
IBM Flex System x24O for applications on Univention Corporate Server
· Intel Xeon E5-254Ov2 CPU

IBM was the clear choice of technology partner for several obvious reasons. Firstly, IBM systems are unimpeachable as regards performance. Also important is the long-standing and enormous security competence of the group, since this is a key issue in the cloud environment. Furthermore, partners of IBM can depend on the definite commitment to the roadmap and advancement of the technologies involved. As seen in the past, this even applies when divisions are sold, as was the case with Lenovo, for example.

Another advantage is that hosting providers can choose from the various server families of the IBM x86 system portfolio:

→ Blade systems

→ Traditional rack-based, 2-socket x86 systems

→ High-density, low-cost hyperscale systems

→ Modular 4-/8-socket high-end systems

Hosters and IT service providers can thus fall back on systems that are already in use and are not forced into a system change.

The combination of Univention Corporate Server, OpenStack and Univention App Center provides "on top" an integrated software stack for the infrastructure management as well as a full application platform on which enterprise applications such as the Open-Xchange App Suite can be offered.

In addition to hardware, IBM software also contributes to the Open Cloud Alliance, such as the current OpenStack Community Version supported by IBM. With this pre-integrated approach, the Open Cloud Alliance offers start-up cloud service providers the ideal opportunity to set up an integrated cloud marketplace that will set them apart from existing, currently non-integrated offers.

Alongside a wide range of ready-integrated applications, the hoster benefits from the offer of central identity management for each of his customers, via which they manage and authorise their end users. Furthermore, the hoster's customers have the option of combining their infrastructure with existing on-premises customer infrastructures or other external clouds. These include:

→ Setup and configuration of the cloud infrastructure and management software.

→ Evaluation, installation and operation of the cloud service catalogue.

→ Integration of one's own cloud service portfolio.

The main complexity hurdles when setting up a cloud environment are therefore minimised.

Open source – The means against vendor lock-in

For the hoster's customers, the Open Cloud Alliance (OCA) ensures greater transparency in choosing a provider. To become an official, certified member of the OCA, a provider must commit to the following:

→ Use of open standards.

→ Diversity of services.

→ Support during migrations.

→ Compatibility with other cloud offers.

→ Assurance of flexibility, competitiveness and interoperability.

The matters of migration, flexibility and interoperability, especially, force the hoster into greater transparency and openness regarding the use of architectures and interfaces. They promote competitiveness, which ought to sustainably improve the quality of service in the cloud market. At the same time, they help prevent vendor lock-in.

Cloud-hosting excellence – Opportunity for service providers

Besides the reduction of complexity and support on establishing a robust, competitive cloud environment, the Open Cloud Alliance supports the hoster's visibility in the market and development into a cloud service provider.

The opportunity, especially, of setting up a competitive cloud service portfolio in the shortest of times with relative ease and without needing extensive knowledge of cloud design or infrastructure management is an important advantage for all classically set-up hosting providers.

The standardised platform of the Open Cloud Alliance reduces the overall risk and leads to a shorter time to market. Given existing cloud management software and horizontal and vertical integration, only a low level of knowledge is required for initiating the change.

Pros and cons of various cloud platform technologies

	Do-It-Yourself	Cloud Appliances	Open Cloud Alliance
Necessary skills	High	Medium	Low
Openness	High	Low	High
Time To Market (ROI)	Long	Short	Short
Integration effort	High	Medium	Low

QUELLE: Crisp Research AG, 2014

Outlook

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Alongside domain and web hosting services, providers can thus provide their existing and potential new customers with value added service from a cloud infrastructure.

The market for cloud hosting and system integration will change drastically in the next few years. Aside from the established large, and in some cases globally active players, local providers will successively develop their portfolios towards cloud computing and software as a service (SaaS) and thus become a fixed component of the market structure.

The fundamental technological decisions on this will be made in the coming months and years. For most hosting providers and system integrators, only open source based technologies come into question, which, firstly, offer a cost advantage and, secondly, lead to the necessary flexibility.

Preconfigured, modular services will help many providers reduce the degree of complexity in cloud computing and find a quick entry into this business model. With the establishment of such services from local providers, cloud computing will become more diverse and feature-rich for users. The adaption rate will accordingly rise sharply in future, and cloud computing will become a day-to-day business reality even in the mid-tier.

About Open Cloud Alliance

About IBM

IBM is a globally integrated technology and consulting company with headquarters in Armonk, New York, USA. With operations in more than 170 countries, IBM is the technology and transformation partner for developing IT solutions and providing an edge for businesses, governments and non-profit organisations.

Innovation is at the core of IBM's strategy. The company offers a broad range of consulting, cloud and IT services, the corresponding intelligent software and hardware infrastructures, and financing services.

Since its foundation in 1911, IBM has repeatedly redefined itself and, with groundbreaking innovations and revenue beyond $99.8 billion in 2013, has risen to become one of the strongest brands in the world.

IBM is currently focussing on the following growth initiatives: Business analytics, cloud computing, mobile enterprise, social computing, security, geographic growth markets and the Smarter Planet strategy.

About Univention

Univention is a leading supplier of Open Source products for the operation and management of IT infrastructures.

The core product is Univention Corporate Server (UCS), a flexible, cost-efficient and successful alternative to server solutions from Microsoft. UCS includes comprehensive Active Directory functions and an App Center to integrate and operate enterprise applications. UCS allows web-based IT management and is well-suited for organisations of any size, either as a classic server solution, in the cloud or in hybrid IT environments. UCS is designed to operate as part of existing Microsoft infrastructures and supports the easy replacement of Microsoft Windows domains.

Univention has a worldwide partner network and subsidiaries in Europe and North America.

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René Büst is the author of numerous professional cloud computing and technology articles, and is a speaker and participant in expert rounds. On CloudUser.de, he writes about topics from the fields of cloud computing, IT infrastructures, technologies, management and strategies. He holds a diploma in computer engineering from Hochschule Bremen University of Applied Sciences (Dipl.-Informatiker (FH)) as well as a M.Sc. in IT management and information systems from FHDW Paderborn.

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Steve Janata is the author of numerous studies and technological articles. As an expert on the subjects of cloud, channel and digital economy, he is a popular speaker and moderator at conferences and events. Furthermore, Steve Janata is a board member for the Rhine/Main manager's group of the Friedrich Ebert Foundation.

About Crisp Research AG

Crisp Research is a European IT research and consultancy firm. With a team of experienced analysts, consultants and software developers, Crisp Research evaluates current and up-coming technology and market trends. Crisp Research supports IT providers on matters of strategy, content marketing and sales. Cloud computing and digital business transformation are the core themes at Crisp Research. We have an internal software developer team in our Crisp Labs, where we test current cloud services and products under live conditions.

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