



The Hybrid

The debate regarding the best Cloud model can probably never be resolved – organisations' business structures and activity sequences are too heterogeneous. To that extent, the best model is a Hybrid Cloud, adapting itself to the needs dynamically, transparently, securely and efficiently. We discussed this with Peter Prahl of Amazon Web Services (AWS), Frank Schwittay of Trend Micro, Michael Jores of Suse Linux and Chris Kohlsdorf of Realtech.

Cloud Computing in the SAP community is a topic for everyone. It is a subject that no-one can get around, even those who today are still operating a large on-premise computer centre. There are several reasons for this: Cloud Computing introduces a demonstrable IT innovation. If ERP software acquires Cloud capability, it becomes more flexible and more transparent. Cloud Computing need not come from a distant cloud. Cloud technology can also be rolled out within one's own computer centre. Ultimately, in an SAP environment, Cloud Computing appears as part of an evolutionary path: consolidate, harmonise, virtualise – Cloud Computing. And Cloud Computing boosts flexibility right from the outset. Realtech offers a Cloud Service with the SAP SolMan (Solution Manager): it is lean and efficient because the SAP installed base can use it to outsource whole tasks. A Hana test scenario can be implemented very quickly in the Amazon Cloud – without complex hardware supply, installation and customising. If this solution is received positively, the AWS Hana Cloud can grow; if it is not, it can be ended again every bit as quickly. A uniform operating system such as Suse Linux makes operating easier because it is available on-premise and on-demand. When someone leaves their own computer centre, Trend Micro is likewise at the ready, on-premise and on-demand. What is the most prominent factor not favouring the Cloud? Possibly its complexity at the first attempt to use it: the preferred model of a Hybrid Cloud moves fluently between the on-premise and on-demand worlds: this demands reliable partners and a high level of competence. Taking that step in favour of the Hybrid Cloud requires an opening-up to new partners. For this reason, AWS, Suse Linux, Realtech and Trend Micro have joined forces to give the SAP installed base a stable, tried-and-tested, coordinated and efficient product offer-

ring. Through this strong alliance, the SAP installed base is in safe hands.

Cloud vs. Virtualisation

According to Experton's market researchers, the Cloud market is being driven forward by trends such as big data, mobility, social business and an increasing degree of industrial networking. This scenario becomes possible because of mature Cloud technologies with regard to network optimisation or traffic optimisation respectively (CDN), automation, administering of commissions, scaling, and independence from a given location or device. Experton's opinion is that Cloud Computing also makes possible the exchange of knowledge and information across individual companies' boundaries, and that in addition it brings about innovation. According to the Experton Group's current forecasts, in 2014 German firms' expenditure on Cloud technologies, Cloud services and corresponding consultancy and integration services will amount to around 6.6 billion Euro – including network services. Bitkom (Germany's Federal Association for Information Technology, Telecommunications and New Media) sees the information and communications technology (ICT) sector as the front runner in the use of Cloud Computing. Almost two thirds (64 per cent) of ICT companies in Germany make use of Cloud Computing, according to Bitkom. This places the providers of information and telecommunications technology substantially above the (40 per cent) average usage rate within the overall German economy. This information was produced by the Cloud Monitor 2014. For this study, Bitkom Research undertook a representative survey among 403 companies on behalf of KPMG. The study states that the financial services industry occupies second place in the cross-sector comparison, with a 56 per cent score. The next category is trans-

port and logistics, at 49 per cent. "Lots of IT companies develop Cloud solutions for their clients and also use the technology on a large scale themselves", noted Bitkom President Prof. Dieter Kempf. At the same time, the use of Cloud Computing is increasingly establishing itself successfully in other business sectors. Thus, in vehicle construction 48 per cent of the companies surveyed use Cloud Computing, as do 46 per cent in the chemical and pharmaceutical industry combined. 43 per cent respectively use this technology in the mechanical engineering and plant engineering sectors on the one hand, and in retail/distribution on the other. Yet in other business sectors the average is only 35 per cent. The Experton analysts point out that part of the background to this growth is the sustained trend towards the digitalisation of all business processes and business models, encompassing almost all business sectors and segments. In this context, private-sector companies and the public sector are transforming themselves in a similar way with regard to e-government, in order to use a common dialogue to reduce any breakdown in data-management media. Processes and specific workloads are ever more frequently outsourced in Cloud environments. "Or is it rather, in many cases, only virtualised servers with intelligent management tools?", the analysts ask.

Hybrid: HEC & LVM

In any event, one thing is sure: "Cloud Scale is frequently clashing with the Enterprise requirements", as Heiko Henkes, Manager Advisor at Experton Group observes. As before, the path into the Cloud remains a difficult one – particularly in the case of Enterprise architectures. More and more players are now entering the Cloud Services sector, drawn by the market's attractiveness and also by the standardisation process. On the other

Cloud



Left to right: Peter Prah of Amazon Web Services (AWS), Frank Schwittay of Trend Micro, Michael Jores of Suse Linux and Chris Kohlsdorf of Realtech.

hand, established providers of consultation and integration services are wringing their hands seeking differentiation opportunities, e.g. with regard to the OpenStack framework, which currently ties up a lot of resources and hence costs increased time and money. Yet it is not just new entries to the market that are evident; the market is also exhibiting the first signs of consolidation. Platform as a Service (PaaS) is developing further; in many cases it is becoming the pivotal point, whether for making use of IaaS services, for offering completed applications via Cloud market places, or respectively for making SaaS product offerings available. More specifically, in the PaaS segment, Enterprise variants or hosted variants respectively are gaining momentum. According to Experton, PaaS is developing – as a medium-level Cloud Layer with options for users to manage it themselves but simultaneously with enough automation elements – into the most interesting Cloud Layer and also

the most complex one. Service providers mastering this middle part of the stack will rapidly make this their base for being able to participate in the customer processes that create value and establish points of competitive differentiation. For instance, to effect specific Hana Enterprise Hybrid Cloud scenarios rapidly, valuable services are provided by the wide-ranging body of instruments and the automation tool that is SAP Landscape Virtualization Management. Combined with a superimposed service-oriented architecture, SAP Landscape Virtualization Management (LVM) enables users to press ahead with scenarios involving the Hybrid Cloud.

OpenStack & Linux

In simplified terms, infrastructure software for the Cloud makes available, on the many computers comprising a Cloud, the functions that the operating system provides on one single server – i.e. the

operation and the optimum allocation of calculating capacity, as well as storage and a network for the individual applications. As Michael Jores of Suse Linux remarks: “Because open standards are so important, particularly in the Cloud, there is currently a lot of activity in the open-source community; among the many projects, OpenStack has now emerged as the one bringing together underneath its wings the largest global community of developers and companies, with approx. 17,000 active participants from 140 countries at present. OpenStack is quite obviously developing into the Cloud’s Linux.” The components developed from the OpenStack project are made into a package by Suse, undergo a quality-assurance process, and have certain important automatic processes added to them, e.g. with regard to the Bare Metal Installation; then, with the necessary manufacturer support, the components are made available to the Cloud provider in the form of the prod-



uct Suse Cloud - the world's first Open-Stack-based Enterprise product. Michael Jores specifies: "Frequently these Cloud providers are computer centre operators wanting to use Suse Cloud to build up and operate a reliable Private Cloud." In operating Suse Cloud as an infrastructure addition on Suse-Linux-based servers, all of Linux's advantages, such as certifications of hardware and software, are also available in the Cloud. Suse Cloud then supplies the interfaces itself, on which models for charging (such as pay-per-use) can be implemented, because at any moment the OpenStack product knows which application is using which resources. The Private Cloud sourced from the service provider can become the application-user's Hybrid Cloud. The boundaries can be fluid rather than rigid. Yet the future model for success is surely - like this cover story - the Hybrid Cloud, because what companies want is to be able to use Cloud Computing's advantages as effectively and quickly as possible. In this context, a Hybrid Cloud is the first choice. Above all, this enables IT's flexibility and reaction speed to be increased in dealing with changing business requirements. In making the reorientation towards the Hybrid Cloud, the Cloud principles are typically implemented step-by-step. As always, for this it is important to have good planning, identification and prioritisation of company-specific IT processes.

Hana: PaaS, IaaS & SaaS

In the discussion on which type or principles of Cloud Computing the focus is on, it is significant to note which layers of the IT stacks are being dealt with; putting it differently, which layers are being "hidden" in the Cloud - applications or hardware resources? Middleware or a database? Is it solely applications or other layer elements? SAP is making possible a particularly simple and effective start with its Hana Enterprise Cloud offering (HEC). Customers rapidly benefit from the advantages of using Cloud Computing and Hana. For instance, the SAP installed base can start with a PoC in the Project Cloud and continue or respectively start to use solution scenarios or cases of use in the Productive Cloud. In this context, there are suitable selection possibilities regarding the use of the Cloud. The choice is between IaaS, PaaS and SaaS - or a combination of IaaS and PaaS, or of PaaS and SaaS: the list goes on... Based on the SAP Cloud Appliance Library, an on-premise SAP solution including infrastructure resources lends itself to being used as de-facto the user's own system, within a mere half-hour. This can be done to test a new SAP solution in connection with Hana, for example, or to familiarise oneself with it. Within this, SAP is working with Cloud Service Providers who are making IaaS (infrastructure-as-a-service) resources available. In effect, it is inherent to the Cloud that layers or elements trans-

ferred into the Cloud exhibit a high degree of standardisation and that the services used run through their processes in an automated way. The Hana Enterprise Cloud takes both these aspects into account in an exemplary way; this also applies in a very similar way to customers' on-premise environments. In one's own computer centre, as elsewhere, the challenge is to set up a service-oriented architecture, by means of establishing technical uniformity and, in the ideal case, by automation processes that span across technologies - also known as orchestration. With LVM, SAP is offering a sophisticated package of instruments with which a Cloud can be implemented "on-premise".

Cloud Appliance Library

All of five years ago, SAP created the technical prerequisites, together with the providers established in the market, for the installed base to also benefit from the Cloud in the use of on-premise products. At the same time, the SAP tradition of giving support to open environments (key word: Linux) was successfully continued: the primary goal of this was to give cost-conscious customers opportunities to select options in open environments. Building on this, at Sapphire 2012 the SAP Cloud Appliance Library (CAL) was announced. After introduction in 2012, in the first phase CAL proved itself by providing trial systems and tailor-made systems; its strength was the simplicity with which it made a system available. At SAP it is taken to be the case that, in the next phase of CAL adoption, to an increasing degree the SAP installed base and partners are using these product offerings to start new projects in the Cloud. Of course, when combining public Cloud and private Cloud with on-premise technology, one must also know whether and how (for instance) applications and business processes are running, or governance requirements and service levels are being complied with, or the use of the application is exhibiting data consistency, strong performance, and availability. Yet it is neither advantageous nor purposeful to address these requirements by using either a variety of monitoring platforms or tools, or respectively several platforms or tools. What happens in the Cloud and what takes place in one's own computer centre environment/system environment must be monitored and controlled by a central management control system and use a management software system. And: as a central integrated life-cycle management platform, it must fulfil assignments covering an application's complete life cycle, while simultaneously providing a high level of quality with regard to the business's operation - from the implementation and via tests, from the deployment or roll-out/going-live, through to operation, and also when an application is taken out of service. As mentioned at the outset, at SAP there is also SolMan, likewise offered

by RealTech via the WAS Cloud. In this context, SolMan serves the SAP installed base as a central monitoring instrument; it means that a comprehensive monitoring process can be implemented for a complete Hybrid Cloud environment, both from the technical perspective and from that of running the business, and consistent with end-to-end management; this includes life-cycle management and IT Service Management functionality (ITSM) in accordance with ITIL. Here, acting as a kind of integrating multi-function solution and as a "single source of truth", SolMan monitors not only an on-premise application landscape but also SAP Cloud solutions. This includes both Hana Enterprise Cloud (HEC) with, for instance, BW-on-Hana or selected ERP-on-Hana applications, with advantageous analysis functionality, and also the SAP Public Cloud with Ariba, SuccessFactors and Hybris Cloud solutions respectively. Why? In a Hybrid Cloud environment, it is an elementary must-have to offer the opportunity both of replicating existing SAP systems based on a free choice, while maintaining internal consistency, and also of networking with existing systems. Of course, SolMan and LVM - the latter primarily orchestrating the services in the SAP landscape in a Private Cloud environment - can be used to also involve those systems operated in the Hana Enterprise Cloud. That way, LVM becomes a beneficial tool in the Hybrid Cloud.

Private & Public

The Cloud operating model will establish itself everywhere that people aim to use IT resources more flexibly and also to book and charge the costs and resource expenditure involved in this, in a way that matches requirements and the relevant use. Michael Jores of Suse Linux explains: "Thus it is in fact suitable as a future operating model for all computer centres, whether as a Private Cloud on one's own premises or at the service provider's resources, or as a Public Cloud, i.e. based at a provider such as Amazon, or as a Hybrid Cloud, one in which components run in the Private Cloud, in other words behind one's firewall, while other components run in the Public Cloud." The market for Cloud providers is also divided vertically, into infrastructure as a service (i.e. provision of computer resources, storage resources and network resources), platform as a service (i.e. the provision of an application interface), through to software as a service (i.e. the provision of applications). However, they all require the operating software that underpins them, and as is made available by Suse Cloud. All the offerings named exist both at national level, guaranteeing that particular national characteristics are accounted for, and also at international level; even in the "national" version, they come from providers set up on a national and on an international basis respectively. The latter provide nation-

al-specific product offerings and service levels in national local computer centres.

Deep Security

Accordingly, “Cloud Computing” does not always mean exactly the same thing. Depending on the desired service model, the users of these services are faced with various kinds of security-related responsibility. In an SaaS model, the physical security of the infrastructure and the security of the applications and data are indeed the responsibility of the provider. The latter makes the application available via the Internet – security is thus in the latter’s hand. As Trend Micro is one of the leading solution-providers for the security of computer centres, many SaaS providers use Trend Micro solutions for the purpose of protecting the server and the applications. Frank Schwittay of Trend Micro describes it as follows: “This happens underneath the car bonnet and is invisible from the customer viewpoint, as the solutions – just like data-storage capacity or network components – are part of the infrastructure.” This is also the case in the SaaS environment and Cloud environment of SAP applications. In the background, the Trend Micro partners and customers use the SAP integration possibilities and protection possibilities of “Deep Security” so as to protect all aspects of such SaaS applications, including the SAP applications and databases, the operating system and the network.

Amazon Web Services

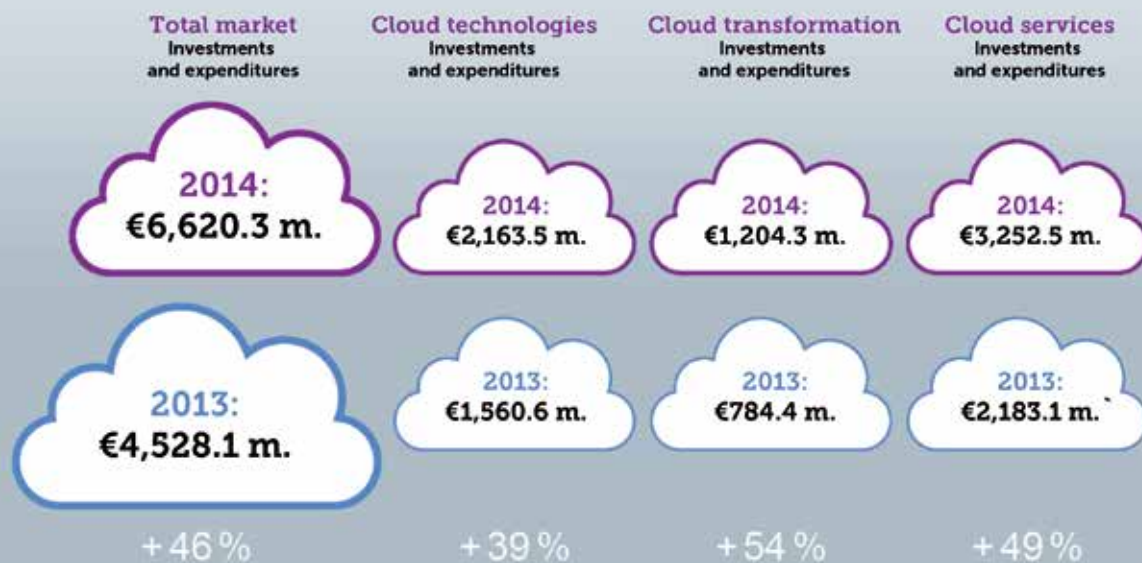
In turn, in the IaaS environment the provider’s responsibility often ends at the point at which there is physical security of the instance that is above the hypervisor. Usually, the customer is then responsible for protecting applications, data and the operating system and for patching instances. However, the customer is often unaware of this division of labour; until the relevant instance becomes the victim of a denial-of-service attack (DoS), for instance, they do not know that it needs to be protected. Frank Schwittay: “This is where Trend Micro enters the picture: to customers and service providers who are implementing and operating customer solutions on IaaS products, it offers a solution that also takes into account the particular features of such a new, dynamic world: apart from the fact that instances need to be protected individually, the issue at hand is primarily also security management. Security must not be allowed to limit the Cloud’s agility.” That is why Trend Micro has developed its solutions especially for Cloud service providers and Cloud environments. Trend Micro customers can protect an SAP instance in the Amazon Web Services Cloud at the press of a button, using Deep Security; if several instances are being started in the context of an auto-scaling, the solution recognises this automatically, rolling out the same security rules that apply in one’s own

computer centre for the SAP instances, without the administrator’s manual intervention. “The Cloud’s agility and flexibility are maintained – a perfect symbiosis”, as Frank Schwittay of Trend Micro relates from his personal experience.

Conclusion: Transformation

The SAP community finds itself in a process of transformation: the use of the Private Cloud is indeed still the predominant use to this day, and for several more years it will remain relevant. Compliance with regulatory stipulations, as are required by the finance industry or by publicly-funded institutions, for instance, can make it necessary to operate the Cloud under one’s own responsibility. Michael Jores emphasises: “Suse supports all models referred to, with operating software and administration software, delivering the customary stability and providing the certifications needed. Building on this, together with strong partners, the solutions are made available for users to run their operations. Thus our current commitment to SAP Hana goes far beyond the pure operating-system certification and optimisation; it goes through to securing all scenarios necessary for use of Hana in an operating mode that is secure against breakdown, high-performance and reliable, in the Cloud as elsewhere.” (pmf)

Cloud Market Germany 2013/2014



The Experton Group analysts: an overview of the most important B2B market figures for 2013 and 2014.



E-3 short interview with Ralph Dehner, B1 Systems, a Suse partner

OpenStack pros



Ralph Dehner is CEO of B1 Systems.

B1 Systems, from Rockolding near Ingolstadt, has for many years been a Suse partner and an open-source specialist, with a distinctive body of Linux development expertise in projects and support in the Enterprise environment. B1 Systems CEO Ralph Dehner was asked in the following E-3 short interview about OpenStack and Suse Cloud.

B1 Systems and by Suse. To reduce the workload involved here, we reached agreement on a uniform repository, a factor that underscores the close nature of the partnership. Suse makes avail of our specialists, also on Suse Cloud projects or on training activities, or respectively we actually run such activities.

E-3: In which way does B1 Systems support customers in their Suse Cloud implementation? As you see it, to what extent do customers benefit from Suse Cloud, the Cloud IaaS solution?

E-3: B1 Systems took part in the OpenStack Cloud project from an early stage. What was the motivation at that point in time?

Ralph Dehner: A little more than three years ago, we started to pursue an interest in OpenStack. The demand for a Cloud solution of that kind was expressed in customer projects, time and time again. In 2011, it was us that programmed the first patch. Since then, we are actively participating in the OpenStack development.

E-3: More and more of the IT heavyweights are jumping onto the OpenStack bandwagon. What do you say to that?

Dehner: It seems as though there is hardly anyone left who dares not to sup-

port OpenStack. To be frank: I would not have thought that, at some point in time, an OpenStack boom like this would develop. It would be desirable that the producers do not use (exploit) the community in order to drive the end-users into a certain dependency, and that IT heavyweights remain as close as they can to the OpenStack standard.

E-3: B1 and Suse are linked by many years of partnership. How does this manifest itself in the Suse OpenStack Cloud?

Dehner: As is also the case in other areas, e.g. SAP operating on Linux, we have been collaborating with Suse for over ten years, closely and successfully. In the past, OpenStack packets for SLES/openSuse were cultivated in parallel by

Dehner: Like for other open-source topics in which we have specialised, with our more than 60 staff, in the case of Suse Cloud or respectively in that of OpenStack, we offer consulting, training, development and support. Many enquiries come from customers who are already using OpenStack and lacking a particular function or who are perhaps also affected by a bug. We are then assigned with putting in place a solution or with programming a patch. What we observe is that more and more companies are aiming to transfer their IT operation into a Private Cloud environment. For Private Cloud use, what is needed is solutions such as Suse Cloud, which we then implement in customer projects.

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SAP system in less than one hour

With the Cloud Appliance Library (CAL), an on-premise SAP solution, including the infrastructure resources, can function as de facto a customer's own system after only around a half-hour of set-up work. This can be done to test a new SAP solution in connection with Hana, for example, or to familiarise oneself with it. Within this, SAP works hand-in-hand with Cloud Service providers who make available IaaS (infrastructure-as-a-service) resources. The user applies for an account at <http://cal.sap.com> and saves data that are needed on a one-off basis. Via this account, infrastructure resources can be allocated on the basis of Amazon Web Services, for instance. Immediately af-

ter this, products or SAP solutions from the Cloud Appliance Library are selected and activated. Subsequently, via (installation) wizards, the desired systems are configured; these operate in the user's own account. All ready! Another factor is that an integrated support system is available through SAP's certification of AWS as an SAP platform. Thus, compared to a traditional approach (in-situ installation and set-up of infrastructure, including delivery time), major time savings can be attained for customers' projects. NB: with the provision of an SAP solution via CAL, what the customer has is a complete system in a fully certified environment, as is the case with an on-premise installation.

Suse infrastructure elements ready for the Hybrid Cloud era

Supporting pillars for Cloud use

Suse Linux Enterprise Server for SAP Applications is the leading and the established Linux-operating-system platform used in mission-critical SAP operations. Both for classic system environments and also for Hana. Suse SLES with its function packages and Suse Cloud, the OpenStack-based solution for administration and orchestration, act as perfect supporting pillars for deriving real benefits from SAP Cloud use. For over a decade, Suse and SAP have shown commitment to expanding their partnership.



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It works as if it is very simple, and it could be argued that it is: this is how the provision of infrastructure-as-a-service (IaaS) resources for SAP use should function today. Yet an observer may only have a vague notion of what remarkable feats of high-performance software engineering have gone into delivering this functionality: with just a few mouse-clicks, a new VM (virtual machine) is set-up, and if the user requires it so is a second one. For instance, this may apply if there is a need to make extra server resources available from an IaaS Cloud environment, for special consolidation-related activity sequences that, under certain circumstances, may be performed only once per quarter. Or if a functional-specialist department requests an extra SAP test system from the company IT department. Or if a service provider for one or several SAP customers, within the framework of the agreed services, provides new or additional in-

rastructure resources as a service: the list can go on and on. How many VMs are running, and which individual VMs they are, can of course also be included. In addition, one VM or several can in effect be put out of operation in next to no time and deleted, or transferred over to somewhere else. And everything is documented and available for inspection, either in an overview or in very fine detail; all the information about VMs' status, all information about the facts associated with this, and the activities performed. This, and a number of other elements of functionality, is offered by Suse Cloud, the comprehensive OpenStack-based platform for administration and orchestration, named Suse OpenStack Cloud for SAP. The SAP Cloud with the Hana Enterprise Cloud (HEC), in addition to Hybrid Cloud-SAP operating models (with Private Cloud and Public Cloud environments), and using Suse solutions, are constantly being further advanced

SLES for SAP

- Optimised arrangement of the Suse Linux Enterprise Server for all NetWeaver-based solutions and Hana
- HA Linux Cluster solution as a certified Suse HA extension and part of the "SLES for SAP Application Priority" package, including SAP NetWeaver High Availability Cluster 730 certification
- Now also HA for Hana system replication, based on HA Cluster 730 certification
- Security Hardening for Hana
- Page Cache Limit maintains the SAP application performance in a stable balance
- Life-cycle support prolonged to 36 months
- Package set based around the Linux kernel, for mission-critical server option according to requirements, with minimum resource commitment for installation and administration
- The Installation Wizard provided secures a high level of automation
- Deployment: SAP applications & Linux infrastructure (+ third-party applications)
- Ongoing further development
- Covering all central functions relating to monitoring, messaging and cluster-resource management
- Administration by means of SAP Solution Manager



Jens-Gero Boehm – Director, Suse Partner Sales Central Europe: Linux is the ideal operating system for Cloud Computing.

both by SAP and also by Suse. This is on the basis of what has been jointly accomplished over more than a decade: at Linux, at Hana and also in Cloud Computing using Suse SLES specifically, with its numerous function packages and Suse OpenStack Cloud for SAP.

SLES: Linux platform used in mission-critical SAP

Today Suse carries significant weight in the SAP market as a provider of infrastructure benefits. With Suse Linux Enterprise Server (SLES) for SAP Applications, Suse has succeeded in advancing to the position of leading provider in what continues to be a growing use of SAP-Linux, including migration from Unix to Linux. Around 70 per cent of all SAP-Linux installations worldwide are based on SLES for SAP. In Germany the proportion is probably even higher - above all, in the SAP Linux Lab. When this lab was founded 15 years ago, Suse was a founding member. Closely-interlocked developments, the shared desire to change, and also a certain necessary commitment of resources made available: these factors have crucially contributed to SLES for SAP proving able to mature into today's standard for SAP installations. At the same time, Suse is cultivating a distinctive portfolio of partners; this involves numerous SAP-related partners, e.g. Realtech, Trend Micro or also Amazon Web Services, as well as VMware or HDS.

Development platform for SAP and Hana

Due to the fact that SLES for SAP Applications was selected as the development platform for SAP Hana, SAP and Suse have opened up a further chapter of collaboration. By now, far more than 3,000 companies of various sizes, and from practically all business sectors globally, are using Hana in-memory appliances from a variety of hardware sup-

pliers – and thus also using Suse Linux Enterprise Server for SAP Applications. Indeed, the Walldorf software group itself does so, as a Hana application user. Use of Hana spans the following range of advantages: from accelerated transaction-based applications, and use of what - in part - are wholly new applications with combined OLTP and OLAP functionality; improved opportunities for analysis (including for Big Data); new optimised planning procedures or forecast procedures; right through to hitherto-unknown trend forecasts – all this is alongside the great potential to use Hana for an opportunity to implement important IT-consolidation or innovation-related initiatives. Examples include Geberit, a European market leader, which has converted its ERP system to Hana, and for which HCM serves as the first ERP-ECC component; in a series of further steps, the entire use of SAP is being migrated over to Hana. In this, the expertise built up in connection with the use of Suse SLES for SAP Applications is of great value (see also the feature “Geberit – forward-looking”). Combining software from SAP, Intel-based hardware and Suse SLES for SAP Applications offers major benefits when operating Hana. As an open-source operating-system platform deployed thousands of times throughout the SAP market, in the context of Hana (as well as in other contexts) Suse SLES stands for cost efficiency, a high level of availability, and also as a guarantor of optimum system performance. Using Hana, SAP customers benefit from Suse's fast pace in generating innovations that have real substance.

Suse's kGraft Technology

Originally, kGraft was a research project at Suse Labs. Yet it soon transpired that, for instance, it enables the business-critical deployment of SAP to be optimised to a significant degree. As a result, a live patching of the Linux kernel can be performed. In ongoing operation, it makes critical patches possible for system security or other operationally-relevant issues. This is done without a new start of the system or a need to take into account a planned down-time period.

Hana Security Hardening for Hana

Security Hardening for Hana includes instruction on actions to take, as a kind of guide, and also includes specific software functionality. On the one hand, this enables the operating-system platform involved in using Hana to be tuned, so as to establish certain security levels according to priorities, or to put in place different safety-relevant settings. On the other hand, a Suse Firewall for Hana can also be used, counteracting the local network attacks or counteracting the

opening of certain ports from an external resource, thus more effectively protecting a Hana databank against threats. Security Hardening for Hana can also use mechanisms indicating which operating-system packages necessarily ought to be available, and which can be done without if so decided. The optimisation in this is: de facto, fewer packages give threats a smaller target area to attack.

Hana System Management: Suse Manager

The package offers distinctive Hana System Management functionality, such as updates of Hana servers with regard to scale-out (multi-box) scenarios. Suse Manager includes methods, procedures and software functionality for administering and controlling Linux systems efficiently. Three key points of focus are integration, system monitoring, and also the provision of information.

HA for SAP Hana

In future, Suse Linux includes features that sustainably and effectively address the topic of Hana HA. They build on tried and tested elements, and represent a logical extension of what already exists in the area of Linux HA Clustering. The core of this is to effectively secure and protect applications and Hana databases (and also database instances) against a possible disruption of operation. What serves as the basis for this “Fail-Safe Operation of SAP Hana” is Suse's Linux Enterprise Server 11 HA Extension for SAP Applications; this fulfils SAP's clustering reference architecture (SAP Netweaver High Availability Cluster 730 Certification). SAP Hana's fail-safe operation, made available by Suse, also provides sophisticated Hana HA System replication mechanisms - replicating or cloning guarantee a high level of security against system failure. As part of this, Hana scale-up scenarios (in the form of single-box replication) are supported, as are Hana scale-out scenarios (multi-box replication).

Linux – ideal for Cloud Computing?

In the Cloud Computing context – independently of whether a Private Cloud, Public Cloud or Hybrid Cloud is used – it is hugely important to be able to use the decoupling of the SAP application logic from the operating system (more broadly), or from the OS as standard functionality. With Linux, this decoupling is built-in from the outset. Staying in step and keeping up the pace, in accordance with changed requirements for Cloud use, was and is a relatively easy challenge when using Linux. This also relates to the implementation – notably with regard to the following issues: initially putting that functionality

in place, maintaining the flexibility, or minimising the amount of patching involved. In this context, SAP LVM is a key element of SAP Cloud Computing. This solution is the hub, so to speak, around which the SAP Cloud use is called into being; it flexibly provides SAP services (with the virtualisation of applications) or shifts them elsewhere, according to business requirements.

Suse Cloud on OpenStack

So as to be able to set up a Private SAP Cloud, and to make it operational and to control it efficiently, special procedures, methods and software functionality are required. This is where Suse Cloud, the OpenStack-based Cloud platform, comes into play. This provides the opportunity for automated implementation, administration and control of high-availability, mission-critical IaaS Private Clouds. As a point of principle, Suse Cloud offers the opportunity to use Hana or NetWeaver. OpenStack is an open-source project in which a total of more than 260 companies have got involved. By now, OpenStack counts as the standard platform for Cloud Computing. The Suse OpenStack Cloud 3 enables companies to bring together their existing and new technologies in the OpenStack Cloud. This solution is based on the OpenStack release "Havana" and supports companies in implementing their mission-critical Cloud requirement. For instance, this is done so that SAP applications can be run within the framework of operating an IaaS Private Cloud, or to support SAP application-users with scalable IaaS Cloud Services. This is done, for example, by FIS-ASP, a service provider for SAP applications (Page 66). In addition, Suse OpenStack Cloud is an element that supports the SAP Hana Enterprise Cloud – together with SLES for SAP and the Suse Manager. Here, all three Suse packages are combined or they collaborate, taking over important tasks in the context of a use of HEC. This can be in the application, the managing or the monitoring of Hana or Hana services, taking into account important HA features and SLA's.

Conclusion

Suse makes available several important components – well-proven supporting columns, so to speak – for SAP Cloud Computing. This provides support to customers in converting selected SAP operating models into reality, based on reliable interoperable Linux-based and Cloud-based infrastructure solutions. Consistent with this, this support is provided to optimise the monitoring and the flexibility in the mission-critical deployment of IT, according to requirements.

www.suse.com

Why Linux was chosen as the operating-system platform for Hana

Hana and Linux: closely allied



Friedrich Krey, Head of SAP Alliances and Partners EMEA Central, at Suse Linux.

Hana is not the first SAP solution provided exclusively together with the operation-system platform Linux. The Hana-Linux integrated offering has proven its worth.

With its BI Accelerator, SAP made its mark: as regards this type of BI-Turbo or BW-Turbo with in-memory-technology, conceived as an appliance, it was Linux – exclusively – that prevailed. And the combination proved itself. SAP thereby gained valuable experience - for further projects, for SAP Hana. Through the very close cooperation with Intel and the possibility to use adaptations for the latest architectures, today SAP is in a position to make available even the latest developments, going beyond the standard-server area. And this is alongside the technical possibilities that Linux offer. The close collaboration with the Linux distributors also secures the Enterprise Support which all those involved have come to expect.

Linux Lab is also on board for the use of Hana

SAP, as the market leader for ERP software, helps companies of all sizes and from all industries to optimise their business. So what is a more obvious step than for SAP to use this technology itself? Practically all SAP employees have had occasion to gain positive first-hand experience of working with Hana, whether this is for a travel-cost calculation, keeping track of working hours, or in the area of Sales and Financials. The main reasons for in-

troducing Hana at SAP itself were: on the one hand, optimisation of the activity sequences or processes; on the other, to also show customers the potential that Hana can offer them. On the operational side alone, the database optimisation centred around Hana brought about a saving of 70 per cent. The running times (both on the batch side and on the dialogue side) were able to be improved. In the migration process there were situations, as in any project, in which IT experts were involved to make the system analysis. This was where it became clear just how good a set-up the SAP Linux Lab has with its partners. Because the support organisations are closely interlocked, and the communication paths in the SAP Linux Lab are short, all teams (SAP, HW partner, Suse) worked together on an optimum basis; all problems that emerged were dealt with promptly. The replacement of the old system by Hana on Suse Linux took only five months.

Plans are in place for continuing the collaboration of Hana and Linux. Alongside the current topics, such as HA/DR and Hana, in the future there will be more adaptations from the HPC area. Through the open interfaces and source-code availability, further projects with Linux are quickly adapted and tested. As a development platform, Hana and Linux have absolutely proven their worth.



One support – several advantages

Lever for Hana innovations

Without start-to-finish support, Cloud Computing stands on shaky foundations. The programme called SAP One Support is a secure foundation; an optimum support system for SAP, one that simplifies Cloud Computing and simultaneously presses ahead with Hana-based innovations.



»» *By further extending the support offering by means of One Support, we can reduce complexity and offer the flexibility and simplicity of the SAP Cloud, tailored to our customers' individual wishes.* ««

SAP Executive Board Member
Gerd Oswald.

As we know, whether IT innovations vindicate the resource commitment involved depends on many factors. It depends on innovative software solutions and their interaction with an internally coordinated IT infrastructure; on individual components used in this; on support-tools deployed, or on many other factors – but certainly it depends on customer-focused high-calibre support. Yet a result of hybrid Cloud use or the combination of on-premise solutions and Cloud so-

lutions or services is that support needs to cover what is not fundamentally new and yet has somewhat different content or additional content. In this context, against the background of increasing “adoption of the Cloud”, including changed operating models, the challenge is to engage effectively with what, in most instances, is indeed an increased level of complexity; so ultimately it is a case both of simplifying access to support services and also of harmonising such services.

Simpler and more flexible

With One Support, SAP has its finger on the pulse of our time, with optimised and harmonised support. “By further expanding our SAP Support offering by means of One Support, we can reduce complexity and offer the flexibility and simplicity of the SAP Cloud, tailored to our customers' individual wishes”, notes Gerd Oswald, SAP Executive Board Member responsible for the Scale, Quality & Support Board area, adding the following: “For our customers, it is now even easier to combine applications and services in the Public Cloud with managed services in the Private Cloud and with on-premise technology, in a way that matches requirements, so as to attain better and faster results. SAP Cloud powered by SAP Hana opens up lots of new opportunities for customers.”

One of the numerous advantages of SAP One Support: independently of the technology chosen, the method of making that technology available, or the SAP solution, this approach offers a central access point. Another advantage: seamless support is made possible across all business-process scenarios – including support for business-critical processes. Moreover: based on a uniform path of communication for the entire landscape of solutions, customers' interaction with SAP is simplified very significantly; the company also guarantees that it

presents itself to customers in a uniform way via a variety of channels, including joint innovations with customers. This has one objective: to optimise and extend support through new and innovative models of cooperation. It should also be noted that this also includes the general free-of-charge telephone number CALL-1-SAP.

Not a new support offering

Important: in itself, SAP One Support does not represent a new stand-alone support offering. Neither are there any additional costs involved, but rather the elements are made available via the existing offering for SAP Enterprise Support. Put another way: SAP One Support adds to the advantages of SAP Enterprise Support from which customers already benefit today. For the SAP companies SuccessFactors and Ariba, as well as their Cloud solutions, a comparable Support Level is already made available.

In this context, SAP directs customers' attention to the opportunity to add to the basic offering, by using the Premium Support offerings, namely SAP ActiveEmbedded and SAP MaxAttention. According to SAP information, a comprehensive support is added for all solutions via the SAP Enterprise Support and an optional uniform cooperation model with SAP ActiveEmbedded and SAP MaxAttention - independently of the operating model. For instance, it is no problem for SAP ActiveEmbedded and SAP MaxAttention to have Premium support offerings for Cloud solutions added to them as on-premise solutions, sourced from Success Factors or from Ariba.

Since April, the extensions to the SAP portfolio of support offerings, associated with SAP One Support, are being made available in several steps in accordance with SAP's planning for 2014.

www.sapsupport.info/onesupport

New orientation for Hana and also IT infrastructure migration involving Unix, Suse, Linux and SAP



Forward-looking

Geberit is a sanitation technology company; in its current Hana-based SAP reorientation process, it is benefiting from its previous switch of SAP-IT infrastructure from Unix to Suse Linux Enterprise Server for SAP Applications – with very specific advantages, primarily with regard to Application Life Cycle Management.

In keeping with the guiding principle “Fit for the Future”, around two and a half years ago the Geberit group of companies migrated its existing SAP landscape from Unix to the Suse Linux Enterprise Server for SAP Applications platform, achieving valuable advantages as a result: not just cost savings but also greater flexibility across the whole spectrum of its SAP use, as well as simplified IT operation and improved performance. The switchover from Unix to Linux also gave impetus to the use of virtualisation techniques based on VMware.

Hana from the strategic viewpoint

Last year, a further optimisation project began, set to take three years - the conversion to Hana, likewise a strategic reorientation in terms of SAP use. As Manfred Bantle, Head of SAP Services at Geberit explains, “when the vote favoured Hana, what was at the front of our minds was that we can use to our advantage new Hana-based SAP application solutions, ones that other databases either do not support at all or support differently. The aim in this is to attain both further competitive advantages in managing our resources and also a higher degree of IT efficiency.” In Geberit’s view, these include opportunities provided by Hana for integrating applications logic into the database or, in operative SAP use, for using analysis functionality in transactional data-processing. Since March, after a problem-free conversion, Geberit has been running SAP NetWeaver Business Warehouse on Hana, and



Suse Linux Technical Director SAP Alliance Peter Schinagl: Suse Linux makes the SAP landscape fit for the future.

also SAP ERP ECC 6.0 with the HCM (Human Capital Management) solution, also based on Suse Linux. Geberit Group is the European market leader for sanitation technology, a company with global operations. Since being founded in 1874, the firm has ranked among the industry’s pioneers, establishing new trends time and time again with comprehensive system solutions. Geberit operates representations in 41 countries and maintains 16 production sites in seven countries. In 2013 the Geberit Group (with more than 6,000 employees globally) generated a turnover of 2.3 billion Swiss francs and is listed on the Swiss Stock Exchange.

Suse-Linux: a body of experience gained

For Geberit, when using Hana it paid dividends to have acquired Suse-Linux know-how, in terms of specific competence and experience built up through the migration from Unix to Linux; this know-how is also of strategic significance for the firm and is constantly expanded in everyday operations. “We most definitely benefited from it, or rather once again benefited more from it, especially as regards Application Life Cycle Management”, the Head of Geberit SAP Services, Manfred Bantle, elaborates. In the experience gained so far regarding the Hana-Suse Linux combination, a factor that carries weight in the decision-making is that operating processes do not need to be implemented anew, but rather one can build directly on what is already in place. This ultimately led to savings in terms of time and costs. “Specifically with regard to changes of (product) release, for instance, on Patching activities or, more generally, when using Hana to monitor operations”, Geberit point out. Geberit is maintaining the impetus of its step-by-step switch from Oracle Database to Hana, according to a fixed migration plan, predominantly one that is being managed internally. In this context, Hana and Suse Linux form a single unit at all times. In the international alliance of Geberit companies, around 3,500 application users make avail of the various SAP solutions in their daily tasks.

www.suse.de
www.geberit.de



Infrastructure as a Service Cloud Computing

FIS-ASP opts for Suse Cloud



Matthias Braun, Head of SAP Delivery department at FIS-ASP.

Based on an optimised Cloud platform, FIS-ASP is expanding an IaaS computer offering for SAP customers. In the future, a core element in this is the Enterprise distribution of Suse Cloud, based on the latest OpenStack release, called Havana. It makes possible the cost-efficient and simple build-up of IaaS Private Clouds, and also their reliable operation and control: consequently, it also does the same thing for used Hybrid Cloud concepts. Matthias Braun, Head of the SAP Delivery department at FIS-ASP, noted the following on the Suse-Cloud vote: "For over two years now, we have been involved in the OpenStack project and its development, and also in the possibility for using OpenStack in the Enterprise environment. After an evaluation and also implementation of a PoC, we have concluded that the OpenStack distribution provided by Suse best matches the requirements that we, as a service provider and system integrator, have in opting for IaaS Cloud Computing. This applies both in the SAP and the non-SAP environment respectively. We also view as an advantage the use of Suse Cloud and OpenStack, for instance, together with VMWare solutions and other Hypervisor environments."

The SAP service providers regard it as a particularly big advantage that the Suse Cloud 3 solutions make new high-availability features available, with these indeed being further extended in Suse Cloud 4. "It's clear that beneficial Suse Cloud features like these are welcome to us, as a provider of hosting services and Cloud services, and are important. Both we and our customers gain from this, of course", Matthias Braun notes.

www.fis-asp.de

Suse Linux and Hitachi Data Systems extend their partnership based on SAP Hana

HW & SW

In the context of a cooperation project, Hitachi Data Systems (HDS) and Suse Linux are collaborating more closely, based around use of SAP Hana. Hana customers gain from this deepened collaboration with regard to infrastructure, services, support, and use of licenses.

Since Hitachi made SAP Hana available to the market, the HDS-Suse activities have continuously been intensified. For instance, Suse has been and remains involved in SAP certifications of the various HDS-Hana appliances. Both companies' respective support processes have already been more tightly interlocked with one another. Even if the challenge is to fulfil special requirements regarding the use of Hana, or in the process of migration over to Hana, SAP's installed base can benefit from a concentrated body of expertise and competence. A goal the two firms share is to extend the Hana client basis constantly, within the framework of the further cooperation. This shared goal is giving impetus to the joint sales activities. SAP users such as Spar, Adidas or the Diesel Jeans manufacturing operations rank among the HDS-Suse client base.

UCP for Hana

The Hitachi Unified Compute Platform (UCP) for Hana makes available a complete high-performance hardware system, including services, for the most diverse range of uses of Hana. Beyond this, Hitachi sees itself in the role of "Trusted Advisor" for Hana use, through the company's decades of technology leadership in the Enterprise Storage and Enterprise Compute area. Hitachi's end-to-end scale-out architecture for Hana, using the term Unified Compute Platform Select, includes clustered nodes and data storage at Enterprise level, while maintaining data persistence, and delivers high availability and data security. The platform gives companies greater performance, as well as increased scalability and data persistence for the analysis of large volumes of data in distributed environments. It combines the Hitachi Compute Blade with the Enterprise storage device of HDS, thus currently supporting up to 16 nodes; this quantity is being extended at present. In-memory computing serves as the foundation for the real-time business-intelligence



Hitachi manager Matthias Czwikla not only has good connections to the SAP installed base, but also has a link-up to the Cloud.

capabilities that Hana provides, yet this requires high-performance processors, storage capacity and network competences for high speeds and large volumes. According to the company's own information, Hitachi UCP Select for SAP Hana enables companies to process dynamic workloads, both in physical and in virtual environments. The solution draws together SAP's next-generation in-memory computing with an integrated hardware platform, consisting of Hitachi Blade Server technology, Enterprise data-storage systems and industry network components.

HDS protective installations

Hitachi UCP Select for Hana guarantees data availability by means of corresponding protective installations; this is in order to avoid unplanned downtime due to hardware errors, disruptions to system operation, or a lack of Hana platform back-up mechanisms. To guarantee Hana's high level of availability, the Hitachi system architecture protects against unplanned system disruptions, such as server down-time or storage-facility down-time. It ensures

in the Cloud



When SAP Hana is what is needed, Hitachi Data Systems (HDS) is the first choice, both on-premise (see E-3 cover story, June 2014) and on-demand.

that business processes are kept in operation on a lasting basis, by means of a reserve node or a system takeover of the Hana enquiries. Hitachi UCP Select offers a high level of availability by means of Hitachi Blade Servers and also through mirroring of the storage devices, enabling companies to rely on their operation-critical environments without unwanted gaps in operations. Storage devices with long operational life play a key role in protecting the Hana data. Therefore a disaster-tolerance solution needs to support the Hana storage-device copies: these correspond to the Enterprise-class requirements (with RPO-related and RTO-related stipulations) and are set up to deal with long-term 24/7 operation of business-critical environments. The advantage that Hitachi's disaster tolerance has is in the use of the Hitachi Virtual Storage Platform (VSP) as a long-term storage device for Hana. The VSP works with the Hitachi TrueCopy Synchronous Storage Replication Software, in order to attain the necessary disaster tolerance for Hana.

Use of the Cloud

With regard to use of Hana (more specifically: use of Hana Big Data) – HDS and Suse are cooperating at their SAP Competence Centers in Walldorf, so as to advance further innovations in the area of hardware virtualisation. Hana and Suse

SLES are paired here with a technology that is new in the context of Hana operating concepts: the use of virtualisation on a hardware basis with LPAR. The Logical Partitions technology – this kind of physical hardware-virtualisation – originates from the mainframe environment. HDS has transferred this onto the Intel-x86 architecture – with all security features familiar from the mainframe environment. LPAR can be used in the Hitachi Hana Blades in combination with software virtualisation solutions, such as that of VMware, and/or vice versa. Depending on the Serverblade model, Hitachi currently provides up to 60 LPARs of this kind. The guest OS, namely Suse SLES for SAP Applications, is superimposed on the host OS (Hitachi firmware). Apart from this, the partitions can be shifted across Blade boundaries and can be mirrored, a factor relevant to Cloud use.

HDS Competency Center for SAP

In ensuring prompt and smooth commissioning of the Hitachi solutions introduced for the SAP installed base, the Hitachi Global Competency Center for SAP is also making its contribution. For around two years now, the Center has been making an even closer cooperation possible between HDS and SAP. HDS is developing and certifying further new solutions there, based on

SAP environments. In an area exceeding 300 square metres, the Center includes a laboratory and also several meeting rooms; in these, scenarios can be developed and jointly worked through for the use of HDS technologies with SAP's Hana platform. Accordingly, interested parties gain far-reaching insights via direct access to the data calculated. On the basis of these, they can more quickly reach well-founded decisions, relevant for their business model. Beyond this, SAP and HDS wish to advance the development of new technology jointly, for instance in the Cloud environment or in the case of mobile real-time solutions. Hitachi and numerous subsidiary companies, including Hitachi Data Systems, have been cultivating a strategic partnership with SAP since as long ago as 1994. The collaboration encompasses the area of Sales and also Integration and Implementation of SAP solutions. SAP and Hitachi jointly certify integrated product offerings that provide users with a leading level of availability, scalability and performance for success-critical company information. The scale-out capabilities of Hitachi UCP Select for Hana represent the most recent milestone in the worldwide technology partnership with SAP, which also includes the integration of HDS technologies with SAP software.

www.hds.de



Amazon Web Services (AWS) as a foundation for IaaS used in the Hybrid Cloud

Right in the heart of the reorientation

By now, IaaS Cloud services by Amazon Web Services are used not solely on SAP test systems and development systems, but also increasingly on SAP productive systems. The various AWS Infrastructure-as-a-Service product offerings for SAP have been certified by the Walldorf software group for a long time now – including Business Suite or Hana. Amazon Web Services is advancing even further ahead of other Cloud Service Providers.

The Talanx insurance group does it, as do Kärcher – the manufacturer of machines and cleaning equipment – and also the Axel Springer Verlag publishing house. All these firms in Germany, alongside many hundreds of thousands of other enterprises and public authorities across 190 countries worldwide, use IaaS Cloud product offerings from Amazon Web Services; they use virtual AWS infrastructure capacities or resources made available via the Web, in addition to other services, for a huge diversity of productive applications. In this way, they combine Private Cloud with Public Cloud, thereby contributing to the

advance of Hybrid Cloud Computing. And in the SAP environment, in particular, increasingly companies are also opting for IaaS services provided by Amazon Web Services. For instance, Hoya, a manufacturer and provider of optical systems, with 80 subsidiary facilities worldwide, has transferred its SAP applications environment to a virtual AWS Cloud infrastructure, thereby releasing its own on-premise SAP IT infrastructure into “retirement”. It is judged to be the case that, in future, more and more SAP customers will use AWS-IaaS services, going beyond test systems/development systems and QA systems.

Several advantages are attainable

There is not only one reason or prompting factor explaining why AWS infrastructure services are coming into ever more widespread use; usually there are several. Corporate entities – no matter whether they are large companies, public authorities, or start-ups – are either not prepared or respectively are no longer prepared to commit larger initial-investment sums to IT infrastructure. For on-premise environments, what must be assumed is that the requirements of the business need to be covered by the calculated maximum sizes of infrastructure capacity. This includes peaks that, in some circumstances, only arise once or twice a year, for instance when producing consolidated accounts. This means that more resources must be made available than are in fact necessary for annual average requirements, with the corresponding costs involved. At the same time, it must be taken into account that, in certain cycles, a type of hardware refresh takes place, perhaps once every two or three years. This in turn entails extension costs or simply generates costs in a broader sense. In other words: today companies are far more critically monitoring the overall costs of IT infrastructure; above all, they do not wish to make funds available for infrastructure use other than for what is indeed used. And this applies not just to today but tomorrow too; they also want such control in a flexible way, with elasticity of scaling upwards and downwards, as is provided by AWS. And: there is no willingness to wait until IT infrastructures can be used. As we know, from when the hardware arrives until it is actually used, usually several weeks can go by – maybe even longer. Yet the actual use of an AWS-based virtual instance, for instance, lasts a maximum of 30 to 35 minutes, perhaps less.

Applications	Description
Test system and development system	The user should start with non-critical processes (demos, sandbox, projects), so as to develop confidence and a sense of security in working with the installation and with operating SAP solutions using AWS.
Productive system	As soon as customers have developed trust in the system, they can migrate the whole productive system landscape over to AWS- DEV, QAS & PRD.
Disaster recovery	AWS can be used as the place for a disaster recovery after an emergency. In this context, production operates on an on-premise basis. A shadow database is set up at AWS.
Hardware renewal	Migrating the whole SAP system landscape onto AWS prevents incurrence of additional cost for the hardware renewal.
OS/DB migration	Through the OS migration of Univ (Solaris, AIX, HP-UX) to Suse Linux for SAP applications, the advantages of the AWS Cloud can be used when deploying SAP.

AWS applications frequently used when working with SAP; various scenarios of use.

Innovations are given a jump-start

A further substantial reason for companies to opt for AWS is that they can press ahead with innovations, without major risks and with the AWS infrastructure services that are available. Easy, fast and reliable use also boosts the motivation to move forward with innovations. This also applies to the SAP environment. The opportunity is there to make use of SAP Hana, for instance, at a competitive cost and test it without Hana hardware and software of one's own. Time and time again. For instance, with SAP's Cloud Appliance Library (SAP CAL) in conjunction with AWS, in about one hour it is possible to install a complete SAP system with hardware capacities and SAP software (for example, for test, development or training purposes) – without needing to buy an SAP software package (in this regard see also the box on Page 60 about the "SAP Cloud Appliance Library"). Another aspect is valued especially highly by AWS customers: it is the possibility for the IT use, the IT workloads, or respectively other workloads (images/instances) to be shifted or transferred globally; for instance, this can be done in order to get disaster recovery or HA operations up and running in a quick uncomplicated way. And in effect all this is done by pressing buttons. While discussing global use of resources by Amazon Web Services: for reasons of security against disruption to operations, AWS maintains computer-centre networks in ten regions around the world, with each region in turn consisting of an alliance of computer-centres (zones and locations). The corresponding region for Europe is located in Ireland. Customers can choose the region in which they wish to have their data (workloads, images, instances) stored. By the way: AWS has set itself the task of deploying servers that it has designed/built itself (based on standard components). The quantity of servers deployed reaches into the millions.

From an early innovator to a key player

Last but not least, the constant strong growth recorded by AWS IaaS Cloud services certainly has something to do with the in-house development undertaken by and at Amazon Web Services. So it is easy to take AWS's word for it that the company provides very reliable, highly scalable and thoroughly cost-efficient web infrastructure services. And presumably the word has also got around that AWS is surging ahead in comparison to other Cloud Service providers, as Gartner's market watchers indicate (Familiar Magic Quadrant for Cloud IaaS, 2012 and 2013). The AWS services are based on the sophisticated and innovative IT infrastructure that Amazon itself uses or has in service – a back-end IT infrastructure

with what is acknowledged worldwide to be a high reputation: in practical terms, this is permanently being optimised, backed by a strong willingness to invest in innovation, and also taking customer requirements into account. On top of this, Amazon Web Services has set itself the goal of reacting quickly and flexibly at all times, both to customer requirements and to market requirements.

Among the things reflecting this credo is the current far-reaching IaaS platform offering, with numerous certifications or acquired certificates that AWS can provide. When AWS started up in 2006, as a subsidiary of the Amazon Group, the service named Amazon S3 provided only virtual storage-capacity resources. Thus Amazon S3 was the first service offering. Currently (status: May 2014) the AWS platform includes no fewer than 34 different IaaS services, all of them being offered globally.

For instance, these include Amazon EC2 (Elastic Cloud Computing) for the provision of virtual server resources/capacities, in addition to Amazon S3 or Amazon VPC for networking resources. All the services of the AWS Cloud form part of the group in the three topic fields/services fields: Deployment and Management, Application Services and Foundation Services.

Established Cloud Service Provider for SAP

The use of SAP solutions based on AWS Web Services is par for the course for numerous companies. So far, for the majority of SAP customers, this has been in connection with test systems and development systems, yet increasingly it involves productive systems. In this regard, broadly speaking, the chain of activities is as follows: once customers have begun trying AWS out or testing it, sooner or later they find that they are making use of it time and time again and that they consider it as more or less completely normal to use SAP applications jointly with the AWS Cloud Platform. Not least because use of AWS is simple: the first actual use of SAP-AWS lasts around 30 minutes and proceeds on a self-service basis. An account is opened and resource parameters/capacity parameters are selected, such as server resources with required instances, quantity of cores or necessary IOPS. In addition, users are set up. Then you're ready; the instance is ready to be operational – and off you go. When the user wishes to stop using SAP-AWS, it is necessary to shut down the instance or instances. The commercial charging of the services rendered is done on the basis of the used units of time and of other resource capacity. For instance, a seven-hour session of Hana use (including the Hana license) costs around 20 US dollars. Or an ECC produc-



Alexander Picker, Partner/Alliances Development Manager at AWS: Through AWS Infrastructure Services, it is possible to test innovations such as Hana without taking on a big risk.

tive system with a virtual EC2 instance, including Suse Linux, four cores/15 TB RAM, 200 GB primary storage and also 200 GB secondary storage (for back-up), network and I/O (data transfer) amounts to around 200 US dollars per month, with system use from 8 a.m. to 8 p.m.

All in all, the price advantages/cost advantages attained through AWS IaaS Cloud use are significant in relation to an on-premise environment, as analysed by IDC in a total-cost-of-ownership paper (available from AWS).

According to the Hybrid Cloud concept, AWS is integrated into or connected up into a company's computer centre or a Private Cloud. Within this, the connection is either via a secure VPN/Internet or via a direct connection made available on a secure basis. One of the favoured scenarios is as follows: the productive system is operated in the company computer centre, whereas the test system/development system and perhaps also a QA system are operated in the AWS Cloud, in addition to a back-up via S3. Another scenario, as sketched out at the outset with regard to Hoya: SAP is operated completely in the AWS IaaS Cloud, with the DEV, QA system and PROD systems respectively, and is linked up with the company LAN by means of a secure connection.



Close cooperation: AWS is an SAP Global Technology Partner

The cooperation between SAP and AWS has already been in progress for years now, with both companies constantly having driven forward their accomplishments and vigorously continuing to do so. For years, Amazon Web Services has had SAP Global Technology Partner status. The AWS Cloud/AWS Instances are "SAP certified" for numerous SAP solutions, with approval for SAP productive operation; the same is true of various relevant "SAP databases" and operating-system platforms, such as Suse Linux Enterprise Server (SLES). The SAP solutions include the following: the SAP Business Suite (with ERP, CRM, SCM, PLM and SRM), SAP NetWeaver (with BW, PI, Portal, PO, BPC and CE), SAP All-in-One and Business One, the Business Objects BI Solutions, SAP Afaria, the Hana platform (up to 1.2 TB memory) or SAP LVM.

Some SAP partners and SAP system integrators also make use of AWS as a Cloud Service Provider and are AWS partners. This applies to Realtech AG, for example, as a certified AWS partner, or to the security specialist Trend Micro. They offer services, in effect additionally to the AWS services. These include consultancy services, migration services and security services but also - and increasingly - complete Cloud solutions, for which AWS serves as the infrastructure base - likewise managed services, performance management services, services for accounting and much more besides (see box).

Shared Responsibility to be taken into account

So what core points does AWS use depend on? What are the main differences, for instance in relation to SAP hosting, in the sense that the latter also relates to external services?

Of course, there are many SAP customers or SAP users who, up to now, have had little or nothing to do with the possibilities offered by virtual IaaS solutions in the professional IT sector - for whatever reasons. However, now the firm's top management is either "encouraging" the relevant people to examine Cloud Computing more intensively than before, or indeed is directly instructing them to introduce it; the background to this is the commercial value of its advantages. Not everything is different when using Web or Cloud Services, but there are certainly distinctive aspects and also certain principles that staff need to familiarise themselves with, or respectively aspects that need to be internalised and trained. This is so that, as a logical consequence of this, planned optimisation projects involving use of a Hybrid Cloud come to a successful conclusion. An important principle in

this is "Shared Responsibility". Consistent with this term, there is always a certain element of areas of responsibility being shared. Amazon Web Services make available the AWS platform and also selected IaaS resources and IaaS capacities (or optional services), based on 99.9 per cent availability; this is done on a self-service basis (with Web dashboards, menu-driven websites and other aspects). Viewed in infrastructural terms this goes up beyond the hypervisor level.

SAP customers and also SAP partners of Amazon Web Services are given support in being able to use SAP Workloads in the AWS Cloud. The emphasis in this is on those using Hana but support also goes to those not using Hana. What AWS makes available is best-practice methodologies, White Papers or also a certain kind of "cookery book", underpinning the process of migrating to the AWS Cloud in a way consistent with actual daily practice.

AWS or SAP Basis Services take over customers and partners

On the other hand, in the context of what has previously been sketched out, customers are required to take on responsibilities beyond the Web Services made available by AWS. For instance, when administering the accounting aspects of using AWS services, for which a cost-monitoring tool is made available by Amazon Web Services; this also applies with regard to compliance with SAP SLAs that have been set up, Performance Monitoring, SAP Base assignments, and the security of applications and networks, among other things. However, responsibilities can also be transferred to AWS partners who, as stated and additionally to the AWS Cloud, offer services and solutions in the capacity of a service provider, a system integrator or a technical service

provider. Perhaps it can be put like this: formal competence or respectively responsibility lie with AWS, both for making a tool package available and for its functioning, taking into account agreed availability arrangements, in addition to the support services. Customers or also partners are responsible for what goes beyond that, for everything relating to the pure SAP-based running of the enterprise.

This Shared Responsibility, acting as a kind of Cloud system immanence, substantially differs from SAP hosting or respectively SAP outsourcing. AWS can be seen as cost-efficiently delivering the "electricity" (so to speak), like a utilities company, securely and with innovative, qualitatively high-calibre service; if more "electricity" or indeed IT resources are needed, AWS provides this; if less is needed, the customer simply cuts back on use accordingly; what is paid for is solely those services or resources/capacities which are indeed used. The customer's competence officially includes the matter of how much is consumed and how the "electricity" or respectively the IT resources are used for the company's own reliable and well-functioning deployment of SAP. On the bottom line, the following holds true: particularly in the SAP environment, there is a continual increase in the workloads that are running in the AWS IaaS Cloud. There has been a very substantial rise, especially in the last two years. More and more SAP customers clearly see the advantages that AWS offers to their business. At the same time, the Amazon Web Services Partner Community is growing continuously. In this process, AWS Partners are extending their SAP business models on the basis of AWS or are making wholly new ones available, thus providing support to companies in their Hybrid Cloud Computing activities.

www.aws.amazon.com/de/sap

Amazon Web Services Partners provide far-reaching services

Over time, a distinctive network of AWS Partners has developed. For instance, if it is a matter of using SAP systems in the Amazon Web Services Cloud, SAP users can obtain the most diverse range of services from certified AWS Partners, also including AWS-based solutions. This usually involves Consulting Services, Managed Services with various Managed Services options (right through to MCaaS) or Security Services.

Drawing on a strong foundation of know-how and experience, they competently cover topics relating both to AWS IaaS Services and also to SAP, both generally and specifically. For instance, they produce POCs for the use of SAP-AWS, providing a migration service that includes the project plans; they render support in integrating AWS in the Data Centre; they draw up architecture concepts; this goes right through to HA solutions, setting up the implementation of Cloud organisations jointly with customers, in addition to Accounting Management and much else. The AWS Partner Network is developing very dynamically, as was shown in Berlin in May, as part of the AWS Summit 2014 event.

www.aws.amazon.com/de/campaigns/summit2014

New Opportunities for Business and IT

"Safe Passage into the Cloud"

The involvement of Cloud Services actually constitutes a new evolutionary stage for IT architectures. Putting aside all marketing promises, companies must assess on an individual basis what the step into the Cloud means for them and how they approach the topic in the most suitable way. Realtech provides support for the switch towards a hybrid architecture, using a standardised approach – the "Safe Passage into the Cloud". Business and IT can exploit the potential for new opportunities by involving Cloud Services – for instance Amazon Web Services.

The truth is: in the future a major portion of the IT services used in a company will be made available through Cloud Computing. It is no longer a question of whether the combination of a private computer centre and a Public Cloud establishes itself as an IT operating model, but solely a matter of when. The provision of attractive, secure and reliable IaaS (Infrastructure as a Service) product offerings, such as Amazon Web Services (AWS), means that it is now (and will remain) easier and faster than ever before to obtain hardware resources for using SAP application systems and to gain benefits from using them – and to do all of this in the context of a self-service transaction, in a practically unlimited way.

There is no coincidence about companies making avail of Cloud Services to an increasing extent. Driving forces of this process come from the demands of running a business, with two fundamental requirements: firstly, what in some instances are significant cost-optimisation benefits can be achieved by switching the operating model into the Cloud. Accordingly, from the business management perspective, operating costs are preferable to investment costs; in addition, the customers pay solely for what is actually consumed. This ultimately expresses itself in lower overall costs.

Yet the second, significantly more interesting aspect is that the use of Cloud Services enables companies to react very quickly and flexibly to changed business requirements. For instance, more or less within minutes the IT infrastructure resources can be made available for a certain application (example:



Erwin Maier, Senior Architect: Realtech's "Safe Passage into the Cloud" concept enables SAP customers to introduce Hybrid Cloud Computing safely and efficiently.

an SAP- ERP-ECC company template) to be used by a given subsidiary company. Conversely, if necessary, infrastructure resources or capacity can be reduced again in accordance with principles of elasticity.

A Proof of Concepts for the use of additional scenarios can be implemented rapidly. If these prove themselves to be suitable for the company, they are either taken over directly as a solution, from the Cloud, or transferred into the internal computer centre. If the outcome is negative, the entire scenario is deleted without any consequential costs or prior investment in new infrastructure – the "fail quickly at low cost" principle.

Along with the two points just made, it is also a factor that hardware-refresh cycles are becoming more or less obsolete and maintenance-intensive infrastructure activities for IT departments are very much on the decline. Resources saved in this way can then be deployed for other necessary tasks – such as pressing ahead with innovations in the company.

IT continues to be in the driving seat

Which core criteria are IT teams dependent on in successfully using Cloud Services, which activities have to be on the agenda here? What specifically must be done for that step towards hybrid architecture to be taken successfully, adding value for one's own company? Or: what changes must a company engage with, as being well-founded changes in IT terms and suitable to the objective – after all, Cloud Computing signifies a switch-over or a reorientation that involves mastering what are, in part, previously unfamiliar situations.

As we know, there is certainly a lot to bear in mind if a company is to be able to operate according to established SLAs, systems or applications that function well, deliver high performance, and are secure and cost-efficient as well as yielding benefits - both from the technical viewpoint and from that of running the business. In this, IT has always found itself in a controlling function. This was true in the host era and in the mainframe era, and this remains valid in the Cloud Computing era - albeit with new or additional items of content, tasks and fields of activity.



Christian Schmitz, Alliance Manager at Realtech: IaaS Cloud Services give IT the opportunity to profile itself as an enabler.

Putting it differently, this means that IT must retain responsibility for the use of IT services. IT is responsible for the framework conditions. The following must be ensured: that requirements from management are issued; and that the processes of running the business, and with this the complete integration of all Cloud scenarios, are functioning. This is because, like before, it is only the IT decision-makers responsible who can assess both which risks are entailed by the integration of Cloud components into the existing IT landscape, and which measures must be taken. Any build-up of a so-called shadow IT by the various functional departments, using Cloud Services directly, must be stopped. To this end, a company-wide Cloud strategy and road-map need to be coordinated with company management.

Analysing, structuring, organising, managing

In order to implement a hybrid architecture using Cloud Services, and to take over a controlling role in this as the IT

team, a number of obligatory points must be taken into account. Realtech has acquired valuable experience from its own years of intensive use of AWS-IaaS services; it has already been making these available for some time now with "Safe Passage into the Cloud" services; this is so as to provide comprehensive support to CIOs and other IT-decision-makers, in the event of a planned switch of direction towards a hybrid architecture (see the box "From SAP customers' everyday practice").

After the focus in recent years has been on building up the internal virtualised landscape, it is now only a matter of consistency for the step into the Cloud to be made as an additional layer of virtualisation. The following are important core points to be borne in mind: certain particular features have light shed on them or respectively they are presented; from Realtech's perspective the focus is on these features in the context of setting-up, implementing and operating a hybrid environment. In this context, analysis, structuring, organisation/processes and management tasks build upon one another and are summarised in a Cloud strategy coordinated with the company's management.

First and foremost it is a matter of coordinating the Cloud strategy

First of all, the IT management must coordinate the fundamental use of Cloud Services in the company, together with the company management, and taking up any issues of clarification that arise. A central strategic project can be derived from this and a first rough road map can be determined, to be coordinated with the company management. One of the road-map's first steps should always be to set up a dedicated team within IT for dealing with services from the Cloud.

A lot depends on this: for instance, whether the desired cost savings can indeed be achieved by the use of Cloud Services. The costs involved in external sourcing of IaaS, for example, can relatively quickly get out of hand if monitoring mechanisms are absent or inappropriate. Thus, under certain cir-

cumstances, cost advantages expected – and built into calculations – can be pushed off far into the distance. The way in which the Cloud Service can be integrated into an existing IT organisation, in purely organisational terms, naturally depends on the respective individual factors. In all instances, the new elements in the operating concept should have central task areas anchored in them, such as the network concept, issuing of authorisations, monitoring or security. And, very important: accounting or respectively business monitoring, with a well-functioning monitoring of costs.

Roadmap for defined Cloud Services

It is not before a corresponding Cloud Team has been built up in the organisation that the strategic topics should be worked through in accordance with the defined roadmap. In this context, for example, it should be assessed which systems and applications can or cannot be included in the "cloud-able" category.

It is also advisable to formulate, or to get formulated, the business-management fundamentals in the form of a business case for the systems and applications that are to be considered; this is in order to set up a genuinely beneficial use of Cloud Services (for instance IaaS), on the basis of facts and specific demand-situations. If the assessment is positive, what should emerge from these deliberations is that a project plan is defined on how to proceed from that stage.

This project plan should take into account both the organisation of the structure, the processes and the technologies, as well as specific milestones establishing deadlines and resources to be used. Yet for the project's success it is essential to let people have an involvement in the project, from admin to company management or, expressed differently, to place particular emphasis on stakeholder management.

In this way, the implementation, through to the go-live stage, proceeds according to known guidelines/data and decisions, established and properly acknowledged; this avoids cases of lack of coordination, resulting in non-calculated expenditure of time and other resources.

Choose your alliances carefully – a choice of partner must be made

Anyone specifically planning to use Cloud Services and thus to introduce a hybrid architecture, will implement various IT activities or activity steps with specialised companies or external

From SAP customers' everyday practice

The "Safe Passage into the Cloud" concept, developed by Realtech, is founded on the company's body of experience gained from many years of intensive Cloud Service use. It offers a set of Consulting Services, including procedures proven in practice and carefully-refined methods. This puts SAP customers in the position to implement Hybrid Cloud Computing quickly, safely and efficiently, using IaaS services. It does so taking into account both an existing individual SAP infrastructure and also the desired optimisation by means of using a selected Cloud solution. Likewise, Realtech has specific Cloud Service offerings in its portfolio; an example of these is the "Realtech Cloud Service SAP Solution Manager".

providers of services. For most SAP customers, the use of IaaS is to some extent new terrain and involves learning and acquiring experience; thus, of course, it is advantageous to work together with partners who have already been able to gain far-reaching relevant experience, and who command a broad base of expertise in the specific subject matter or respectively concerning the use of Cloud Services. Accordingly, Realtech is one of the few consultancy companies in the SAP environment that can migrate SAP systems to Amazon Web Services and can operate them there. For this purpose, an AWS Consulting Partner must prove its SAP competence in order to be registered with a globally-operating Cloud Service Provider such as AWS (with SAP certifications).

Changes can be mastered successfully

In summary: The use of IaaS Cloud Services, for example, is not only an effective means of securing further competitive advantages through cost minimisation, while at the same time achieving increased agility/flexibility; it also offers great opportunities for IT to profile itself as an “enabler”.

There is also no way around Cloud Solutions and thus hybrid architectures. In Germany, by now it is not solely SAP development systems and training systems that operate on IaaS Cloud Services; the first plans are also being implemented for running the productive environment. Viewed globally, this is already a proven model because there are already numerous SAP AWS customers who have done precisely this. Nevertheless, as an SAP customer with specific Cloud Service intentions, it is very advisable to implement Cloud projects on a robustly-founded, structured basis, making use of a high level of specific subject competence. This includes learning with the build-up of competence, and this also includes: establishing a necessary Cloud Organisation within the framework of the IT organisation, explicitly stating one’s policy position from the strategic viewpoint, and a Cloud road-map.

Of course, the reorientation from a private environment over to the hybrid architecture also entails changes and innovations, which in fact can all be mastered or respectively can all be solved in consistency with requirements; this may involve hunting down specific previously-unrecognised cost factors, or the use of topic-specific monitoring tools, or IT being required to devote itself increasingly to new challenges, in a cost-management capacity.

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New requirements, demanding different solutions:

New Security strategy for the Cloud

Classic IT security structures and mechanisms either do not satisfy the need in the context of SAP Hybrid Cloud Computing or satisfy it only to a limited degree. Security Management changes are an absolutely obligatory requirement. The Japanese security specialist Trend Micro has intensively examined security aspects regarding Cloud Computing; the company provides support to SAP customers by means of all-embracing protective solutions.

Whichever way you look at it: with no ifs or buts, virtualisation and the Cloud mean new or adapted Security Management, requiring a corresponding Cloud Security strategy. Of course, this also includes solutions that help to protect systems and data in the new IT world as effectively and comprehensively as possible, and in the way that is tailored to demand as well as is possible. Security solutions in the on-premise world with physical servers usually do not take into account the extended requirements generated by Cloud-IaaS or Cloud-SaaS use in connection with virtual hardware resources.

Here it is advisable to concern oneself early on with the topic of security, when setting out on the path into the Cloud era. Doing so should not be a kind of add-on task at the end, dealt with after the Cloud operations have gone live or after the use of virtual environments begins. In particular, this is because calculated advantages expected from using the new kind of computing can evaporate, so to speak, amid security problem zones that can emerge. Likewise, desired flexibility gains can implode because it becomes evident, in the hard reality of Hybrid Cloud operation, that solutions carried over 1-to-1 from the old world into the new one give rise to difficulties and do not take into account new requirements or do not do so sufficiently.

Four Years’ Development of Cloud-Based Solutions

As an acknowledged globally-leading provider of server, Cloud and virtuali-

sation safety (with an annual turnover of around 1.2 billion US dollars), Trend Micro has set itself the task of providing all-embracing support to companies and private users in the processing and the exchange of digital data, using innovative security solutions. Especially in the development of solutions for the Cloud and from it, the company - with its headquarters in Tokyo and with subsidiaries throughout the world (the regional head office for Germany, Austria and Switzerland is in Hallbergmoos near Munich) - has invested 400 million US dollars worldwide over the last four years. As many as around 500 engineers (of 5,000 employees in all) were involved in this. This entailed casting light on all aspects of virtual and Hybrid-Cloud environments and analysing them in detail. By using the security platform Deep Security and SecureCloud (hosted solution for automated data-encryption and key administration), solutions took as their orientation point the “new world”, referred to as the virtual Cloud and the Hybrid Cloud. Another part of this is to also involve classic physical on-premise infrastructure. As an aside: the company cultivates numerous partnerships and/or cooperations: with Amazon Web Services (AWS) and also with SAP, Suse, the migration specialist Realtech, or VMware.

Additional security questions

So which additional and urgent security questions are on the agenda regarding virtual systems (VMs) and hybrid Cloud environments? Where are the differences compared to classic system land-



scapes or respectively a classic computer-centre-based security management? Of course, the new world also requires IT security to be fundamentally committed to the protection of sensitive corporate data. For a company and its chief executive, violations can have what in some instances are dramatic consequences – right through to personal liability. Ideally, all-embracing security solutions, such as Deep Security from Trend Micro, cover several core topics: fending off intruders, firewall functionality, anti-malware protection, Web reputation, monitoring of data integrity, encryption, and checking of protocols. These allow multi-layer security to be built up to protect the assets.

Further security aspects in this new world relate to infrastructure and components used in that process. Above all, there is a need to keep the VMs front-of-mind in relation to security aspects. As part of this, individual VMs must be protected, as must also the virtual systems as a whole, in addition to their networking among one another. For instance, if a VM is infected by malware, it is usually correct to assume that harmful software is spreading itself across a whole VM landscape.

As is known, today it is relatively easy and quick to produce new VMs and to operate them. But what if an existing VM comes onto the Net, one that has been unused for a longer period and that has new life breathed into it, so to speak, but does not correspond to the current Patch Level? Unclosed security gaps can then be used by attackers. Often hosts contain several VMs of different kinds. Some fall into the “mission critical” category, others less so or indeed not at all. Yet do the same rules apply for all VMs? Is it known whether some of them are well-protected and others less-well? Is there an element of over-covering or of insufficiently covering VM protection needs?

The greater the usable degree of flexibility, the greater the complexity. But how is this to be managed in a way that matches needs? Let us suppose that a user is operating its own VMs. Additionally, use is made of VMs from an external Cloud Service Provider. Is this modelled Hybrid Cloud Computing sufficiently covered against threats? Could it be that the various VMs are characterised by different patch-levels and thus by a different level of protection? Skilfully-produced safety solutions fight off threats, yet also provide detailed information about possible VM safety status and thereby Cloud safety status, as well as about gaps in such safety and degrees of threat. But that is not all. They also have to work efficiently and not affect productive operations negatively (example: a virus scanner exerting a



Alexander Blösch, Business Development Manager at Trend Micro: The security platform Deep Security provides ideal support for running IT operations in hybrid Cloud environments.

braking effect on a host's performance). They also have to demonstrate that, in the event of being taken out of service, a VM sourced via a Cloud Service Provider will be removed from the system's own 360-degree security-radar.

On the other hand, of course, smart solutions should always provide information (possibilities for tracking) on which VM is currently running – is it in the Private Cloud or is it one sourced from the Public Cloud? There is also a need to ensure both that a classic physical server environment can also be integrated into the security-management arrangement and that the security requirements there are also taken into consideration.

For good reasons: all-embracing security platform

Deep Security from Trend Micro is an extensive and multi-layered security platform with which corporate IT can effectively meet its security-management obligations within the framework of heterogeneous landscapes. It provides automated protection to operating systems, applications and data on physical, virtualised and Cloud-based servers, as well as (for example) integration in Amazon Web Services. Another part of this is integration into SAP NetWeaver, for protection of SAP servers (securing the host) including SAP applications (malware protection) – independently of whether the servers are operated physically, virtually or in the Cloud.

As already stated, Deep Security includes a firewall that prevents denial-of-service attacks and recognises reconnaissance

searches. This effectively reduces the surface area that is liable to face threats. Virus protection recognises and blocks malware, such as Internet threats, viruses, worms or Trojans. It simultaneously protects Web Reputation application users against access to malignant URLs, by checking the integrity of websites. The monitoring of integrity tracks down malignant and unauthorised changes in directories, files, and registration keys, while protocol-checking optimises the recognition of important, safety-relevant events concealed in protocol entries. Lastly, the intrusion-prevention/intrusion-detection system (IPS/IDS) recognises and blocks known attacks and zero-day attacks on weak points.

Within the framework of company-wide security management, Trend Micro prefers a central monitoring system – for good reason. This is the only way that an overall landscape (physical, virtual or Cloud), but also individual sub-elements (right through to individual VMs), can be monitored from one central point (console). It is not only that all relevant information can be brought together – one can centrally determine specific safety rules, including compliance stipulations, security functions, and virtual patching; these elements can then then be rolled out automatically, practically at the press of a button - independently of whether or not an agent is involved (on virtual systems, with the same protection policies).

AWS IaaS Cloud integration and SAP integration

It is obvious: SAP's announcement of its wish to further force the pace with

Cloud Computing in a big way, and to advance to the status of the leading Cloud provider, draws security-relevant aspects more clearly into focus. The challenge of increasing complexity of hybrid SAP Cloud structures also needs to be faced from the perspective of security management. As explained, Trend Micro's Deep Security offers an integrated solution for the protection of servers. SAP applications are also included – independently of whether the server is operated physically, virtually or in the Cloud. The same applies to the use of Hana hardware. For this, there is the so-called “Integration with SAP NetWeaver”, a Deep Security integration already certified by SAP back in July 2013. This also enables SAP customers to make avail of a completely integrated solution for server protection, including SAP applications. On the one hand, in this context the issue is the securing of the SAP-IT infrastructure, with Host protection, on which NetWeaver itself or supporting functions is/are running (e.g. databases).

On the other, the focus is on application protection for the NetWeaver platform: using the appropriate configuration, the interfaces made available by SAP (NW-VSI-2.0) can automatically be used by ABAP applications/Java applications superimposed on them, in so far as a scan adapter is known in the SAP system – as is the case for Deep Security from Trend Micro. SAP itself extended its virus-scan interface for

NetWeaver in December 2012, with its Version 2.0, so as to prevent so-called cross-site-scripting (XSS), for example. XSS constitutes a main point at which attacks and threats are launched in the SAP environment, making use of security gaps in Web applications. In the SAP environment, as we know, Amazon Web Services (AWS) has already developed into a very significant Cloud Service Provider; Trend Micro is also linked with AWS by a close partnership. Specifically, the company offers Cloud security solutions for the use of various AWS IaaS Cloud services. In this, according to the Shared Security Responsibility model, providers and customers bear joint responsibility for (inter alia) the security of data and applications (in this regard, see also the contribution on Amazon Web Services – “Right in the heart of the reorientation”, starting on Page 66). The key point here is to secure, in the best possible way, the virtual servers of AWS EC2 and virtual Private Cloud instances in the interplay of customer and AWS. Trend Micro has coordinated its security platform Deep Security and SecureCloud specifically to deal with these requirements.

The most rigorous statutory requirements

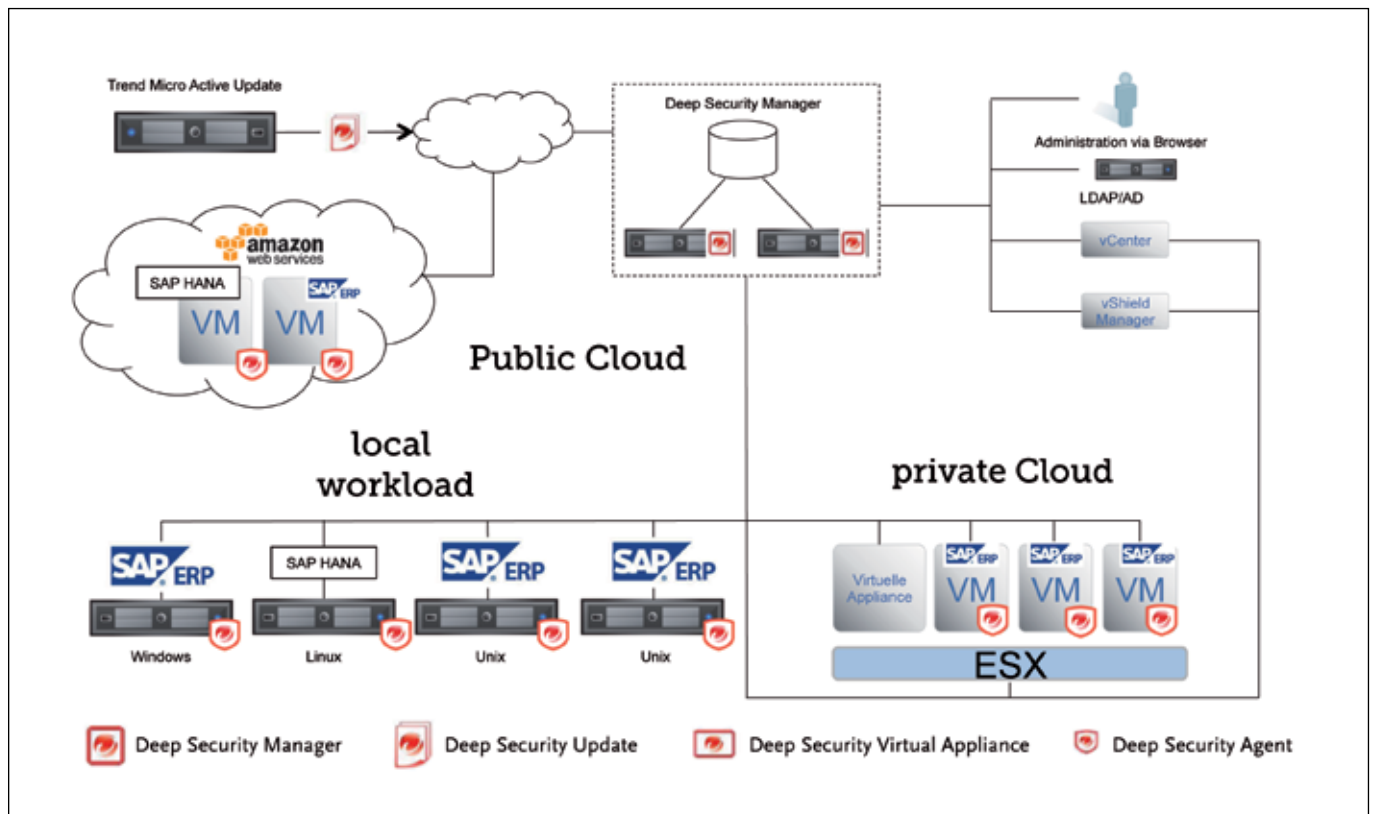
In this way, companies can protect their solution simply and quickly, encrypt data and comply with the statutory requirements (including FIPS 140-2 and Common Criteria EAL 4+). Another plus

is the seamless integration in tools for Cloud administration – such as AWS Cloud Formation, Right Scale, Chef and Puppet – for automated safety administration. The following can be named as central functions: an all-round protection of the AWS instances, using Deep Security, a data encryption by means of SecureCloud, and a weak-point scanner for Web applications. All these solutions are available on the AWS platform for a 30-day test, free of charge.

Conclusion

The assertion is frequently made that sensitive corporate data should not be stored in the Cloud; the reasons given are that those who do this are responsible for the security of those corporate data in the Cloud and that they also cannot make avail of the same high level of security measures as is the case with a classic Data Centre: this assertion is not sustainable (any more). Distinctive, innovative security platforms, constantly being further developed, such as those of Trend Micro, equip SAP customers with an instrument. That instrument enables them to ensure that their security management obtains proper support that provides planning security for the journey into the Cloud world, and not only during the implementation; it also does this in an ideal way for the IT operation of physical, virtual and hybrid Cloud environments – today and tomorrow.

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Server security for SAP systems: secured SAP servers (with components) in a hybrid Cloud environment.