



INFORMATION AND EDUCATIONAL WORK BY AND FOR THE SAP® COMMUNITY



Hyperconverged Infrastructure



Hyperconverged Infrastructure and platforms were the topics under discussion for Alexander Thoma from Nutanix, Roland Goll and Jannes Driesch of Lenovo (standing, l. to r.), together with analyst Carlo Velten of Crisp Research and Bas Raayman of Nutanix (at the front, l. to r.).



Everything to the Cloud? Why SAP Customers should maintain their infrastructure and license sovereignty.

Hyperconverged Infrastructure

For years, companies have struggled to consolidate, virtualize and automate, but the days of traditional IT are coming to an end. SAP customers need flexible and highly automated IT infrastructure that allows them to ‘command their own airspace’. The answer lies in hyperconverged infrastructure from Lenovo and Nutanix.

In Stuttgart at the end of August 2016, a meeting took place to define the current status of digital transformation and to search for the best-possible IT infrastructure. Roland Goll and Jannes Driesch (both Lenovo), Alexander Thoma, Bas Raayman (both Nutanix) and Carlo Velten of Crisp Research were in attendance. With the analyst, the representatives of Lenovo and Nutanix discussed the status and options for SAP customers willing to master digital transformation and simultaneously needing to consolidate their IT budget. There was agreement on the need to react to new markets and business challenges quickly and efficiently. However, the required agility will hardly be attainable by

using old IT tools and a classic on-premise client/server architecture. Likewise, all-encompassing use of cloud computing will not and cannot deal with these challenges. Roland Goll, Manager, Solution Sales / SAP Sales Central at Lenovo, put it in a nutshell, “In all instances the SAP customers must “retain command of their own airspace”, so to speak. “

Similarly, the analyst Carlo Velten, Crisp Research CEO, emphasizes this strategy which is of crucial importance to SAP customers’ survival, “Amid all transformations you always have to retain an element of independence – with your own SAP license and via infrastructure.” What users thus need is to maintain con-

trol not only over their own IT infrastructure but also over their data- where is the data stored and who can process it? Carlo Velten emphasizes the value of the data and of its availability. Particularly in SAP applications, the retention of data and the control of IT infrastructure are more important than comprehensive mobile and cloud solutions. In this regard, during the Lenovo/Nutanix discussion the analyst points out the path taken by Amazon, Google and other web giants, companies that have fully automated their own hardware-infrastructure via software, building their own hyperconverged infrastructure in the process.” Hyperconvergence is the perfect path



The Lenovo/Nutanix discussion group in Stuttgart with E-3 editor-in-chief Peter M. Färbinger.

to automatic IT infrastructure“, as Carlo Velten defines it.

Obviously, using old IT structures will neither achieve the goals of digital transformation nor produce the necessary agility and scaling. However, the cloud is a solution only to a limited degree if customers follow the SAP roadmap and retain command of the aforementioned airspace. What seems to be the logical answer here is hyperconverged infrastructure that not only protects the user’s own data in the datacenter but can also enter into productive connections with cloud services.

Flexible, agile and bi-modal planning work

For the CIO responsible for SAP it is increasingly difficult to make forecasts regarding IT infrastructure and consequently robust budget plans. The planning work is made difficult by a bi-modal and agile IT, as well as by business processes intended to meet the digital-transformation challenge.

Now more than ever, flexibility and scalability are what people need. Alexander Thoma, Senior Solutions and Performance Engineer at Nutanix, is convinced that the classic IT infrastructure lifecycle, based on the three-stage SAP client/server model, has had its day. “Time and time again, people have made IT forecasts spanning three to five years – and only in very few cases has this worked“, Thoma explains. “Only hyperconverged infrastructure brings the necessary flexibility into the datacenter, making it possible to modernize appropriately while continuing to function.“

His colleague Bas Raayman of Nutanix adds, “Hyperconverged infrastructure keeps the user at the leading edge. New technology on an economically viable basis can be introduced at any time.“ This also has positive effects on the budget, as Thoma and Raayman both emphasize. Because new components can be introduced at any time, application user do not spend anything before new resources are really needed. On this basis, Jannes Driesch, Hyperconverged Sales Account Manager at Lenovo, also detects change taking place regarding IT budget planning.

Scalability decides

The SAP community is aware of trends leading to the cloud, and hyperconverged infrastructure is a logical option, one that can connect the user’s datacenter,



Analyst **Dr. Carlo Velten**, CEO at Crisp Research, Preparations for the economic slump.

or their managed services, with optional cloud services. In Roland Goll’s view, the advantage of this hybrid and bi-modal technology can be found in its scalability. He explains: “With Lenovo and Nutanix technology, SAP customers can build up systems that breathe.“ For upsizing and downsizing, this flexibility appears to be particularly appealing and, in light of the market dynamics, also necessary.

The participants in the discussion agreed however, that in any case an SAP customer needs to retain his control over the licenses and infrastructure. Lenovo’s Jannes Driesch emphasizes it as follows, “Making the entry into hyperconverged infrastructure is simple and highly recommended because scaling is very easy and flexibility is very high.“ You start in a small-scale way - perhaps not with the production system straightaway – then you breathe, grow, and continue scaling.

The IT paradigm

Roland Goll raised the question of whether the Lenovo/Nutanix hyperconverged infrastructure now amounts to an evolution, a new paradigm or a revolution.

Goll confirmed the observation, made at the outset, that the SAP community has done its homework - it has consolidated, harmonized, automated and virtualized. “On the other hand“, Goll points out, “ in the past, this homework involved considering storage, network and server individually. The current added-value is that CPU, memory and storage now form one unit and it is only this central

consolidated unit that must be administered.“ For all SAP application users, this consolidation, automation and simplified administration opens up cycles for further innovation. Hyperconverged infrastructure can retain the experience and the insights from the past while adding scalability and agility to them.

New aspirations

Bas Raayman of Nutanix explains why, “The services - how we consume IT performance - have undergone major changes. Let’s take Hana as an example here. I consume the data, I process it in the moment when I really need it. It was impressively demonstrated at the Hasso Plattner Institute in Potsdam that each item of information can be used again as a starting point for new calculations, in real-time. The whole database architecture has changed. Users everywhere expect to be able to react directly and to obtain information directly – so the technology had to change at its foundation.“

For the end-user, changes are perhaps not so big, because the consumer is used to real-time communication, thanks to their own smartphone. Accordingly, the challenges are found in the business processes. A new IT architecture is needed for the SAP roadmap but this should not automatically equate to a path heading straight into the cloud.

Why make changes?

Alexander Thoma can see the required changes, so in the Lenovo/Nutanix discussion he poses the rhetorical question: Why were these changes made? Why have SAP customers started to virtualize? “It’s about improving availability“, is his answer to the discussion group. Digital transformation also means 24/7 availability in global markets. This agile, dynamic and flexible 24/7 concept traditionally comes at the cost of increased IT complexity.

It is no trivial task to keep a traditional SAP client/server architecture online, around the clock and 365 days per year. The classic R/3 infrastructure, consisting of server, storage and network was not prepared to match requirements like that. Lenovo and Nutanix both confirm that many are battling against the ‘new’ complexity. Thoma says, “That is why hyperconverged infrastructure developed. For the CIO, we massively reduce the complexity on the surface and reduced complexity means less risk which is always a



good thing.“ Nutanix sees its solution, offered jointly with Lenovo, as an invisible enterprise-cloud platform.

The logical step

Considering the SAP community's success in recent years, adoption of hyperconverged infrastructure appears to be the logical next step. The simple reason is that technically, organizationally and in business-management terms, many established SAP customers have indeed always pursued the option of using their own datacenter or managed services. A lot of knowledge and experience emerged through this – which begs to be leveraged.

This may sound like evolution but analyst Carlo Velten of Crisp Research has a warning: “Against the background of digitalization, what we see in companies is a management reorientation. Even market leaders recognize the need to be faster and more agile. And then users have to recognize that their company's own business processes, own infrastructure and also their IT resources cannot keep up with the pace of that transition.“ Know-how from the past thus needs to be carefully examined in light of applicability.

Complex past

The foundations of the current SAP status quo are the paradigms of 10 to 15 years ago. The ERP/ECC-6.0 architecture is complex, multilayered, and built up using many technologies from various providers. This makes the current architecture technologically and organizationally complex. “Meeting this complexity is not in harmony with the current challenges, such as how to introduce new and agile

business processes, new digital processes and new products“, Velten explains. “What we have learned so far is that it's not enough to conduct a few workshops on design thinking. Because when things really get serious with digital transformation, what you need is data from the big back-end systems – i.e. data from the SAP systems.“

Datability & Big Data

Firstly, handling data responsibly and securely is critically important, especially if the data contains personal, organizational or political information. Additionally, the time comes when the manager responsible for SAP must justify the infrastructure that is used. In this context Carlo Velten asks, “Is this foundation structured in a way that can deal with the requirements my company faces?“. He then answers his own question: “In many cases the SAP infrastructure will not be able to react in a suitably agile and fast way, in real-time. And if, as CIO, I perhaps cannot do it personally or know how it's done, then maybe I will put SAP operations out to an external organization.“ Using managed services or cloud computing, the CIO then no longer needs to ask himself many questions regarding agility. However, it's not just the business requirements that matter, and the analyst raises the question of whether an organization's current ERP infrastructure can also meet these added requirements. Carlo Velten explains it like this: lots of chief executives take the view that they need not take an interest in IT. The answer heard in many cases is, “We need to act quickly with our business processes and the IT follows on afterwards“. The pressure on

those responsible for infrastructure is formidably high because many current SAP systems and subsequent changes constitute a huge block of costs, as Velten knows from his own research.

Orientation in infrastructure and licenses

For Roland Goll of Lenovo, the art lies in knowing where and when to begin their transformation. So where do you start with hyperconverged infrastructure? Bas Raayman of Nutanix confirms, “You can clearly see that SAP customers are looking for a sense of direction – with regard to infrastructure, licenses, etc. Perhaps not even willing to change something straightaway - but what do I need in two years, what are the challenges then? Naturally, users then turn to tried-and-tested suppliers such as Lenovo.

What will the customers' future business strategy then look like? Therefore we are already working in the present on what the state of play will be in two years' time and what the user wants to do then. Obviously, really assessing what is coming two years from now is difficult. The hyperconverged approach allows customers to adjust, learn, and grow to align with future needs.“

SAP roadmap

According to analyst Carlo Velten, the challenge to users is not only to find their own path for the next two or ten years but also to take into account what SAP is planning. “So you have to deal with two dimensions“, Velten explains. “SAP is very clear about this - cloud is the strategy.



Roland Goll, Lenovo (r.) and Peter M. Färbinger, E-3 Magazine

Nutanix' Bas Raayman (l.) and Alexander Thoma

Cloud means making things available in a scalable, flexible and fast way. This means that the SAP manager must consider what his own management wants in context of what SAP wants. Hyperconverged infrastructure and cloud computing are hence two separate concepts for managing the future demands of a digital transformation. It is interesting to note, hyperconverged infrastructure, with Lenovo and Nutanix, aligns with the tenants of SAP's cloud strategy - but delivers those outcomes in the user's own datacenter.

SAP goes Cloud

The analyst sees the future ahead like this, "SAP is taking the cloud direction. In two years, at the most, an IT manager will have to prove the same level of performance and agility is available with the company's own IT architecture as SAP offers with its cloud model. The CIO is competing with the SAP Cloud."

To summarize this means, that in the future the CIO should make SAP and other services available using a hyperconverged infrastructure, as if they were coming from the SAP cloud. Alexander Thoma and Bas Raayman confirm that ultimately the user is looking for these specific characteristics. The question of where the operation is taking place is less interesting – whether at SAP, at Amazon, or in a bi-modal arrangement. "My application must run", Raayman demands, "terming this delivery model as 'Invisible Infrastructure'."

"Invisible doesn't mean that I have no hardware", Thoma adds. "I need hardware that makes the new concepts possible, which is definitely the case with Lenovo. The structure must have certain charac-

teristics – as flexible, secure and agile as possible. I select a platform that provides these characteristics and cooperations, like that of Lenovo and Nutanix, built around a key concept like this."

Cost pressure and workloads

As Roland Goll of Lenovo sees it, what the CIO responsible for SAP must consider: What can and should be outsourced? After all, cost is usually a big factor for various cloud models. What does that mean for the current SAP infrastructure though?

Bas Raayman of Nutanix notes, "Of course, you have to have trust in the cloud technology." Bi-modal also means positioning innovative solutions outwards, to the external world, but internally it means acting relatively conservatively. What seems suitable is a combination of cloud and hyperconverged. "But make sure that you get going" is what Raayman urges in the Lenovo/Nutanix discussion. Again, Alexander Thoma specifies, "Workloads are shifted into the cloud because they can be made available quickly. The Nutanix Enterprise Cloud platform reduces the complexity and also ensures that data is provided quickly."

The Nutanix alternative offers all cloud related advantages but in the controlled environment of the user's own datacenter or as a managed service. As Thoma puts it, the Enterprise Cloud platform of Nutanix delivers the agility, scalability and simplicity of the public cloud, without sacrificing the predictability, security and control of on-premises infrastructure – this is why the concept of the platform is so important. Likewise, Roland Goll sees a current focus on IT agility and on halt-

ing the rise of IT costs. Similarly, Carlo Velten recommends using automation to reduce the complexity at the foundation because a large part of the complexity is attributable to the infrastructure.

"At the moment we're still swimming in a pool of money", the analyst remarks with a knowing wink. However, the infrastructure budgets place a burden on the CIO. "Prepare for less resources", is thus what the Crisp Research analyst recommends.

Planning the future anew

The CIO responsible for SAP needs to get ready for a future wave of cost-saving requirements. Subsequently, pressure on the SAP systems will increase. Bas Raayman notes, "Perhaps back-end complexity will never go away but in the future the complexity must be better organized and managed. Necessary planning and logic will not disappear but the aim is to make the complexity invisible."

Alexander Thoma of Nutanix sees opportunity as businesses plan resources through the paradigm of hyperconverged infrastructure. For that, Jannes Driesch emphasizes that the CIO has an outstandingly suitable partner - the team of Lenovo and Nutanix. A single contact for the combination of hyperconverged infrastructure and cloud computing.

Alexander Thoma continues, "We make it easier for users to operate their own datacenter without having a cost disadvantage in relation to outsourcers and cloud technology."

Roland Goll, "Infrastructure must function – that's the task of Nutanix and Lenovo. We make the complexity invisible." (pmf)



Jannes Driesch, Lenovo (l.) and Bas Raayman, Nutanix



Bas Raayman and Alexander Thoma, Nutanix with Analyst Carlo Velten



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Prospect of future architecture.

On The Path To SAP® S/4HANA™

SAP-IT landscapes are complex and each is different. How often have we already read this? It is still true but there is more to it than that.

by Irene Hopf, Lenovo

For decades now, we have been operating SAP® applications in ever more complex structures, starting with SAP® R/2 on the mainframe, then SAP® R/3 on client-server landscapes, and subsequently more and more SAP applications alongside the classic ERP: BW, CRM, SCM, SRM, not forgetting the SAP® Solution Manager and many others.

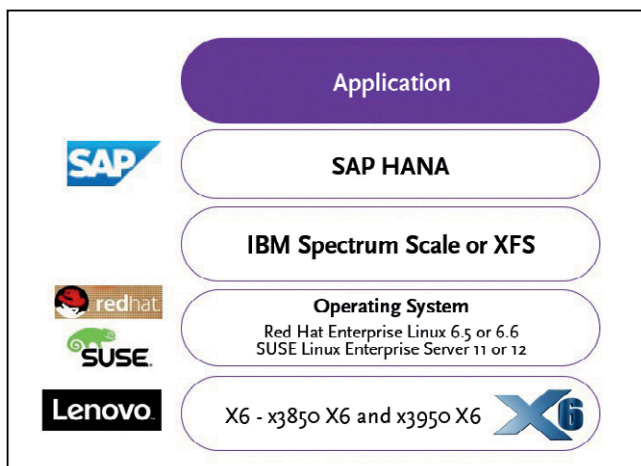
As time passed, all this was virtualized, to make optimum use of hardware capacity. In part, applications were added that are operated from a managed service provider and - to put it in street language - come 'from the cloud'. In many instances this leads to a kind of hybrid IT. Some applications and data remain in-house, particularly if the data is competition-critical and business-critical. Other services that are not continuously needed are made available from the hosting provider – if needed. After this, everything had to become

faster and priority was given to business processes being able to be changed proactively. In-memory computing is the name of the magic formula. SAP® HANA™ is the center of the digital transformation.

The next step requiring our full attention is SAP® S/4HANA™. Through the years, the specialist departments and the datacenter must collaborate constructively, in order to react flexibly to changes and to keep the costs under control. As I write this I am thinking 'we', because Lenovo is itself a large SAP customer, one that operates the largest SAP®-BW system in Asia, for instance. Simultaneously Lenovo is a reliable partner that collaborates closely with SAP® and employs specialists who know the SAP architecture in detail. They understand what SAP customers use and know how the complexity, as just described, remains controllable.

Takeover of x86 Servers

Around two years ago, Lenovo took over IBM's x86 server division. Our uppermost premise in doing this was - and is - to guarantee continuity for datacenter operators (in-house suppliers and hosting-suppliers). Paralleling this, we use our comprehensive logistic-specialist experience from the globally familiar Thinkpad product-area to offer our customers the best-possible service. It can be of interest to SAP customers to get the server infrastructure and the end-equipment from a single source. This makes it possible to provide mobile applications and also back-end support for the IT team, from start to finish. Lenovo supports the datacenter requirements for the continued availability of server components, based on Windows and on Linux, for all SAP applications – on all SAP-supported databases. For instance, many SAP customers still



Integrated Solution by Lenovo for SAP® HANA™

operate their SAP Business Warehouse on a classic DB/OS combination, using the SAP® Business Warehouse Accelerator (BWA) to accelerate the call-off of database information.

Some customers are not yet at the stage at which they migrate their whole SAP® BW onto SAP HANA, and the BWA fulfills its task perfectly. BWA is supported by SAP until 2020 and Lenovo is now the sole supplier that continually keeps the server components for BWA up-to-date. Only recently (July 2016), in certifying the Lenovo Flex System 240 M5, we made the newest Intel processor generation, Broadwell, available for our customers in pre-defined BWA configurations. Beyond that, we have certified SAP®-BWA systems (x3850 and x3950 x6) that are reusable as SAP-HANA systems in the event of a later migration.

The operating topics in the datacenter are given a high level of attention, both for classic SAP®-IT landscapes and for SAP-HANA-based applications. If the SAP applications from the datacenter are not available, all innovation comes to a halt. This means that the old familiar ITIL disciplines such as the phasing-in of new systems, monitoring, maintenance, back-up/restore, continuous availability and disaster protection, as well as security topics, are still of central importance.

This must be taken into account, especially with regard to SAP HANA, as a central component which the industry is still happy to associate with the word ‘appliance’. In the classic arrangement, SAP HANA is supplied in a firmly-defined configuration with a precisely-fixed activity sequence for the first installation. The operating issues – and the responsibility - are then in the customer’s hands, unless these activities (monitoring, administration and care) are bought-in as a service.

Recently I spoke with a customer who now operates large parts of his SAP systems on an externally-hosted basis. However, the attributed costs appear to be so high that the following question must be asked: why aren’t you operating this yourselves? It cannot be so difficult and ought to be less expensive. This question is not easy to answer and needs to be analyzed in the individual instance. Each SAP customer environment is individual to a very large degree – how many so-called TCO studies have I already seen in my career? Generalizations are not what is needed. Both forms of operating (hosting or running one’s own operation) can make sense, depending on the accompanying circumstances. Preparation for

introducing and deploying SAP S/4HANA has to begin now – to get an orientation for the future of SAP applications. It is not a matter of ‘whether’ but solely of ‘when’. When planning the hardware landscape, responsible action is what is needed. I particularly advise users to reduce the database sizes to the necessary minimum. Regular archiving of data is more important than ever. I know that this is difficult because the specialist departments have to define which business cases are completed and no longer need to be held in the primary database. However, archiving does not mean throwing away. The data is safely transferred to another medium and can be made available at any time if needed.

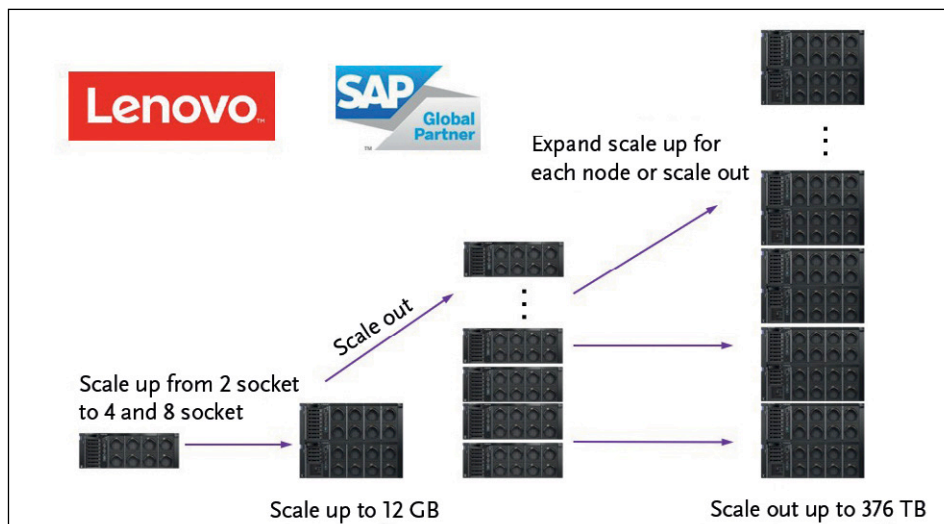


Irene Hopf is a global thought leader for SAP solutions at Lenovo.

Architecture Principles of Lenovo

At present, the configuration of transactional systems (SAP® ERP, CRM, SRM, SCM etc.) is limited to single-node configurations. We must wait and see whether general approval is given to the possibility for scale-out configurations (clusters with several HANA nodes), for business-suite applications and thereby for SAP S/4HANA-based applications.

Above all, HANA stands for real-time, for a previously unknown speed in critical business decisions, and new, innovative application scenarios. Lenovo provides ideal support to this through the architecture principles, with a modular approach and investment protection. We offer SAP-HANA systems with 2-socket, 4-socket and 8-socket configurations, from 128 GB up to 12 TB main memory. Of course, care is taken both to ensure that all configurations correspond to the SAP reference architecture and to comply with what is allowed for the various application scenarios (analytical: 4 TB nodes; or transactional: 8 TB nodes for production-purpose systems). Recently all-flash configurations (with SanDisk products) also became available; for these products the persistence layer for SAP HANA, and its security



Scalability for SAP® HANA™ infrastructure.



copies for data and log, are located on SSD disks. These save space and energy in the datacenter and – primarily for very large configurations – can be less expensive than classic configurations that have SSD and HDD combined in a RAID. For instance, one 8-TB-SAP-HANA all-flash configuration, with only 14 SSDs, fits into a server-housing with eight rack-units. This contrasts with a classic combination consisting of 39 HDDs and 8 cache SSDs.

A further possibility offered by SAP-HANA configurations was shown in a ‘proof-of-technology’ project conducted by Lenovo, Samsung and SAP. Using 128-GB memory-chips consisting of DDR4 3DS/TSV RDIMMs from Samsung, it is possible to set up 12 TB memory in a Lenovo system x 3850 x6, with only four rack-units. This configuration, with 4 Intel Xeon E7-8890 v3 ‘Haswell’ CPUs (for the test phase the latest processor generation), was subjected to a load, using an SAP-Bank-Analyzer application. For this purpose, 100 billion incoming payments were booked (OLTP) and, after this, the monthly account calculation was completed, with the corresponding reports (OLAP). For comparison, the same load was processed by an 8-socket system with 12TB from 64 GB DDR3

LRDIMMs. The measurement results tell their own story. In the simulation’s analysis phase, the CPU capacity usage was at about 80 per cent for both systems. In this, the 4-socket configuration, with the new, larger memory DIMMs was only 28 per cent slower than the 8-socket configuration, with an electricity consumption 20 per cent lower. In the transactional load-phase, the CPU capacity usage averaged 60 per cent on the 4-socket system; by contrast, the 8-socket system recorded CPU capacity usage at 35 per cent. Yet what is most interesting is, firstly, the reduced energy consumption during the test cycles and, secondly, that only half as much server capacity was used, although the reduction in transaction-speed proved to be relatively low. Expectations are also high for the next generation of processors (‘Broadwell’). This configuration is not yet approved for SAP HANA, nonetheless it provides an attractive prospect for future architectures.

So whether the need is for a hosted solution (sometimes also known as cloud-based) or one based in the user’s own datacenter – Lenovo is a hardware partner that supplies suitable IT server components that build up robust, stable, scalable and economically viable SAP landscapes.

Limitless scalability

Why Lenovo for Hana Landscapes?

Lenovo System x and SAP have been working together for years in providing innovative solutions to mutual customers. Right back when the first SAP-in-memory solution came onto the market in 2006, Lenovo began to supply in-memory systems for SAP customers.

by Roland Goll, Lenovo

Jointly with the SAP development team, right from the beginning, we have successfully implemented developments and client projects based on SAP Hana. With its experience and the X6 technology of Lenovo SAP Hana Appliances and Hana-TDI solutions, Lenovo is an important and reliable partner of SAP and its clients. This is why Lenovo currently holds one of the largest portfolios of SAP-certified solutions for Hana. Lenovo solutions for Hana are based on high-calibre Lenovo-X6 servers that were developed for particularly demanding enterprise-computing requirements - particularly a need for very large memory resources, as well as for reliability comparable to that of a mainframe.

Outstanding RAS features as well as the modular design mean that unplanned downtimes are avoided, including possibilities such as rolling firmware updates (updates that do not constrain performance.) The product-offering for Hana is rounded off by high energy-efficiency, simple implementation and system-management tools. Directed at reduction of



Roland Goll,
Manager SAP Sales
DACH-Region at Lenovo.

overall operating costs, these features are backed-up by a comprehensive ser-

vices product range and support from Lenovo. The solution’s advantage for the client is almost limitless scalability of these systems, based on the easy-to-extend building blocks. Taking the x3850/x3950 servers as their basis, they can use ‘scale-up’ to grow from 126 GB to 12 TB in a system. Using ‘scale-out’ for analytical SAP application scenarios and based on the 4 TB nodules, they can grow up to 376 TB. At Lenovo, no laborious network infrastructures and SAN infrastructures are necessary to extend the appliance solution.

You benefit from a uniform system landscape that is simple to operate. This results in reduced complexity and costs for the future Hana environment. Based on these servers, you also operate Lenovo solutions for SAP Hana Tailored Datacenter Integration (TDI). Lenovo offers a further possible option to select with the Hana Certified Enterprise-Storage solution. A combination of x3650 servers and the Suse Enterprise Storage solution, you have all the options in terms of growth, performance and availability.

Hyperconverged systems

Engine for Digitalization Strategies

Hyperconverged systems as the basis for Enterprise Clouds – this alternative to the classic datacenter infrastructure is still largely unknown in the SAP community. Patrick D. Cowden, Vice President Central Europe & Emerging Markets at Nutanix wants to change that.

Mr. Cowden, hyperconverged systems – what is behind this rather cumbersome technical term?

Patrick Cowden: Hyperconverged systems are a software platform for managing all components in a datacenter infrastructure. The emphasis is on software. In earlier times, the topic of infrastructure immediately brought to mind hardware, such as storage arrays, hard disks or physical servers. Hyperconverged systems still have hardware, of course, but the software takes on the key role. This greatly reduces the costs and the administrative commitment of resources.

Which infrastructure components does Nutanix offer in its software?

Cowden: Our software is conceived as a platform; in particular, it brings together the previously-separated areas –storage device, server and hypervisor. Memory space or RAID configuration for instance or also the question of which hypervisor a virtual machine is supposed to run on, merely remain functions within the software. They no longer require any special knowledge from the administrators. The infrastructure becomes invisible, so to speak, for the application-users in the IT department. Also, innovations - such as performance improvements, metro-availability or linking of older systems that cannot be virtualized - can simply be entered-in as a software update. This way, the value of the investments does not decline, it increases.

You put forward your solution more as an Enterprise Cloud than as a hyperconverged system. What does that mean?

Cowden: The new paradigm in IT is called cloud. This means the public cloud's public offerings, comfortably and easily usable by private application-users and corporate clients alike. As a result, enormous pressure is put on companies' internal IT organizations. Today application users expect the same degree

of simplicity, speed, linear scalability, automation and continuous innovation at their workplace as they do at home. IT departments can best accommodate these expectations if they can administer their internal infrastructure as simply as they would if they used a product offering from the public cloud. Using our software, administrators practically only concern themselves with services and applications but no longer with the infrastructure itself.

So companies have to decide between Nutanix and the public cloud?

Cowden: No, not at all. We offer the users an experience comparable to that of the cloud, but don't present them with a mutually exclusive decision. To be specific, we estimate that the proportion of workloads in companies that are regularly used and can be planned, averages at around 75 percent. Yet for the remaining quarter, fluctuations in usage-levels are so great that that it makes sense to use public-cloud resources for this. We offer standard connections to the public cloud, particularly to AWS and Microsoft Azure. Nonetheless, from our management console, Prism, users can completely administer the resulting hybrid environment.

If what you offer is so similar to the cloud, do you in fact offer any advantages compared to it?

Cowden: Two advantages must be pointed out. First, with us the companies save money. This applies not only compared to traditional infrastructures, as a comprehensive IDC study shows. By contrast, the public cloud's cost-advantages are soon diminished if there is a need to migrate complex, highly-adapted core systems, integrated with third-party solutions – the typical situation for established SAP customers. In such situations, as an administrator you are "permitted to" select between hundreds of proprietary interfaces and services in



» Hardware is still present in hyperconverged systems, the key player however is software. «

Patrick D. Cowden,
Vice President Central Europe &
Emerging Markets at Nutanix.

the public cloud and costs go through the roof quickly. You also then become dependent on these proprietary technologies and this means that you can no longer change the public-cloud provider used as simply or quickly as you could before. If you live for several years in a particular city you are probably more likely to buy a home than rent one. However, if you are only staying in a given place for a few weeks, you will probably use a holiday apartment. We are, so to speak, the owner-occupied home for the predictable workloads, the companies' core systems.



And the second advantage?

Cowden: Companies must protect their intellectual property and make sure to comply with existing data security regulation. They do this best by ensuring that the important systems and data remain within their own datacenter. A possible alternative worth considering is local hosting or managed-service partners, however, they too should use Nutanix in their own infrastructure to keep a lid on costs and complexity. This is absolutely necessary because only when companies manage to achieve IT-budget savings do they create room for future investments. And these are urgently needed to master the digital transformation.

So what does all this mean for the SAP community?

Cowden: Established SAP customers face three major challenges. They must modernize their IT in accordance with the cloud paradigm. Secondly – at least mid-

to long-term– they must follow SAP's technology strategy and cloud strategy. Thirdly, considering the first two challenges, they must formulate the digitalization strategy best suited to them and provide the required financial resources. As previously explained, our solution can make a valuable contribution in overcoming all these three challenges.

What role does the partnership with Lenovo play here?

Cowden: The short answer is a substantial one. Lenovo enjoys an outstanding reputation as a provider of infrastructure solutions for companies. This applies to all important areas of software, such as ERP, CRM or Big Data. Our software is implemented on the Lenovo Appliances of the HX series. In addition, the Nutanix Enterprise Cloud Platform is certified for SAP NetWeaver. Thus the companies can operate their SAP systems reliably on our combined product offering. Lastly, we

also have a support agreement with SAP.

You have mentioned NetWeaver but what about Hana and S/4 Hana?

Cowden: In technical and business-management terms, Nutanix and the Lenovo HX series are ideally suited for operating the S/4 application servers, both for development, test-operation and production operation. Established SAP customers already deploying Hana as their database platform can operate this on the Lenovo servers x3850 and x3950 with Enterprise X Architecture, offering many TB of space for the main memory. Our joint solution is thus wholly consistent with the goals that SAP is pursuing with its new solutions, simplicity and lower overall operating costs. It is the best starting point for companies to make investments in innovations and in the digital transformation.

Mr. Cowden, thank you for this discussion.

The cloud in your own datacenter

Cloud Cuckoo Land or Heaven on Earth?

Why and how does the cloud-based paradigm have to successfully make its entry among SAP customers? Only few SAP customers are prepared for the public cloud. It is hard to achieve mastery over costs, complexity and legal risks. So how do you achieve the balancing act between the need for a more agile IT and maintaining control in your own datacenter? The Nutanix concept of the Enterprise Cloud provides an answer.

by Bas Raayman, Nutanix

The run on the public cloud is in full swing worldwide. Without a doubt, the public cloud has set a new IT standard. The new imperatives are called scalability, automation, standardization and usage oriented towards demand. In all these aspects, the cloud is superior to traditional datacenter-based infrastructures.

Worse still, IT professionals' own colleagues expect IT to deliver the same thing as their own cloud providers do in their private usage-environment. As a result, shadow-IT grows and IT personnel's own image is tarnished among the company

management and application-users. The former recipe for success, particularly for SAP customers – systems and infrastructure components perfectly coordinated to match one another, individually-adapted core solutions for ERP, and numerous integrations to provide further corporate solutions, such as CRM – now seems to be a ball and chain clamped around IT's ankle.

In the datacenter, the digital transformation means making new services and applications available to application-users, flexibly and, above all, quickly. It also means including the end-customers in

the digital value-chain. In this dilemma, little or nothing is changed by the technical progress made in the 2000's, such as all-flash arrays in the storage area or the virtualization of the servers. Here too, the limits are still too rigid with regard to scalability, flexibility, complexity and – above all – costs. Hence the well-known big players in the cloud, such as Amazon, Facebook or Google, set out on their own paths from the start, controlling their own datacenters solely through software. This massively reduces dependency on hardware and the costs for hardware, making



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linear scalability possible and radically reducing the implementation times for new services.

Subsequently, what would be a more obvious step than to accept the offer made by established cloud providers, using their infrastructure for the user's own environment? What looks so simple at first glance proves to be far more complicated when you take a closer look. In particular, Crisp Research has discerned three obstacles: complexity, costs and compliance. Carlo Velten notes, "The complexity of corporate environments does not simply disappear in the cloud – rather it has to be purchased and administered there. In many instances, potential for automation remains unused for lack of knowledge and resources, while excessively large capacity resources are retained because actual demand is so hard to predict. All of this leads to higher costs and less agility than was hoped for." Still, legal issues emerging from different local rulings regarding data-protection or such rulings' enforceability in high courts are left unresolved. For instance, the arduously negotiated Privacy Shield could suffer the same fate as its predecessor, Safe Harbor.

Nonetheless companies need what Velten calls a "digital-infrastructure platform." The platform must provide the four already-mentioned characteristics - scalability, automation, standardization and demand-oriented use – also in the company's own datacenter. More and more frequently, modern applications are programmed for the cloud from the word go,

using current technologies such as virtualization or containers. In many cases the plan is for them to be made available to the end-client via the web. However, Nutanix's assessment is that, on average, only one quarter of all workloads in companies require so much elasticity that public cloud infrastructures are necessary for them to operate. The great majority of corporate applications can by all means still be made available in a company's own datacenter – provided that the infrastructure there follows the cloud paradigm.

Traditional architectures are becoming less and less suitable for this. Although today these make it possible to implement a virtual machine within minutes, it takes days or weeks for that machine to be provisioned properly at the storage level or network level. There are problems relating to interoperability between various storage platforms, as well as the need to keep more resources available rather than fewer, for reasons of performance. All this favors the formation of IT silos in the datacenter. These make the shared use of resources more difficult, in some cases even impossible.

Enterprise Clouds as a Solution

Nutanix and Lenovo offer a solution that makes the cloud paradigm a reality in the user's own datacenter, overcoming the barriers that separate classic infrastructures. Nutanix stands for software management of the infrastructure components and eliminates the obstacles between the private and public cloud, while Lenovo provides the suitable appliances with its HX series.

With its central management console, Nutanix makes the infrastructure almost appear invisible to the administrator, from the hardware through to the hypervisor. This way, IT has the freedom to concern itself with services and applications. As the application-user views it, this solution becomes as fast and as 'cool' as public cloud offerings, while the user retains full control and data-sovereignty. The public cloud can be drawn into this on a flexible basis, where necessary and justified to do so – a genuine Enterprise Cloud emerges. According to SAP the future of IT will be hybrid or bi-modal. For their customers, with the Enterprise Cloud of Nutanix on Lenovo Appliances, this future is already a reality.

www.nutanix.com/sap
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Lenovo-HX Systems



by Janes Driesch,
Hyperconvergence Sales
Account Manager at Lenovo.

To be able to master new projects successfully, such as the implementation and operation of Hana solutions, it is particularly important to reduce both the management work involved in existing (SAP) infrastructures and their complexity. That way, despite increasing requirements and new tasks, you can focus on new topics and on solutions that are important for your competitive advantage. The Lenovo HX systems make this orientation possible. By taking the cloud approach, management commitment reduces drastically compared to traditional infrastructure architectures. At the same time, your existing SAP landscape enjoys a higher level of performance, agility and security against outages. Lenovo's hyperconverged HX series integrates the software of Nutanix - the market leader for hyperconvergence - into Lenovo's extremely reliable and scalable servers. The flexible modules consist of fully-integrated and tested resources for compute and memory and pre-installed virtualization-management software.

The linear scalability of the Lenovo HX systems also enables users to say goodbye to time-consuming performance tunings, caused by errors in sizings or by unexpectedly increased performance requirements. This makes it possible to invest newly-released resources into new, value-enhancing solutions.



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