– E-3.de | E-3.at | E-3.ch

Information and education by and for the SAP® community

JUNE 2014

Mobile &

Cloud

Computing **Perfectly Combined** Andreas Kranabitl (l.) is the IT head at the international commercial group at Spar and together with Horst Heftberger (r.), Managing Director at Hitachi Data System in Austria, they are putting together the plans for the world's largest SAP retail system based on the in-memory database SAP HANA. Andreas Kranabitl's ambitious objective: real-time retail. E-3 cover story the.



At Spar, "real-time retail" is realised on the basis of SAP HANA and Hitachi Server and Storage in its Unified Compute Platform for SAP HANA.

Perfectly Combined

Spar is not only one of the most successful companies in its industry but also places great value on maximum customer satisfaction and quality. In Spar IT, Andreas Kranabitl is developing a visionary SAP HANA concept together with Hitachi Data Systems (HDS) and Imtech as the trusted advisor.

par Austria has its own IT company for the national shops as well as the neighbouring foreign subsidiaries. Spar Austria Information and Communication Services (ICS) is directed by CEO Andreas Kranabitl. ICS provides IT and communication services for Austria, Italy, Slovenia, Hungary, the Czech Republic and Croatia. This year, Spar looks back at 60 successful years as an Austrian specialist retail. At the same time, the company is facing especially forward-thinking challenges, which it expects at the IT level particularly in the form of big data. More than ever, the retail sector faces a rapidly increasing abundance of data and at the same time is dependent on a short-term real-time analysis of the same data. Therefore, IT CEO Kranabitl places his trust in the future on the world's largest SAP HANA solution in the retail sector. Inspired by the real-time enterprise vision of SAP co-founder and supervisory board chairman Hasso Plattner, Kranabitl prepared a roadmap for real-time retail.

The infrastructure for the SAP HANA concept comes from HDS. The Unified Compute Platform is a key to success in dealing with large quantities of data. An HDS converged scale-out solution guarantees the future security of the IT architecture at Spar. At the moment, the solution deliver storage capacities up to 150 TB. Kranabitl has a precise concept for his SAP HANA infrastructure: optimum scalability, straightforward architecture, speed, flexibility and finally short-term implementation.

The decision to work with HDS was not made by chance. CEO Kranabitl already placed his trust in the expertise of Imtech ICT Austria during the complex proposal and evaluation phase. The IT service provider is a long-term partner of Spar and probably one of the leading SAP HANA specialists in Europe. Already three years ago, Imtech took the stage together with Red Bull at the Sapphire Madrid event and presented the world's first SAP Business Warehouse on the SAP HANA database. Since then, Imtech has gathered experience at numerous SAP HANA projects and is now considered the leading SAP HANA trusted advisor. Thus the selection of Hitachi Data Systems as the server and storage supplier is based on hard facts, a great deal of work and an ultimately perfect offer for Spar.

It was time for action: "Naturally the topic SAP HANA was on the strategic radar of Spar IT," said Kranabitl in an interview with E-3 editor-in-chief Peter Färbinger. "In a strategy project in February 2013, SAP HANA's potential became very clear from the point of view of the Spar business processes and solutions and therefore also the opportunity to deliver optimum solutions for upcoming projects with SAP HANA. The planned expansion of the old SAP business warehouse system was no longer an option at this stage for an innovation-driven company." Therefore, as a first step, the decision was reached to work together with Imtech to migrate the SAP business warehouse infrastructure on to Hitachi Data Systems servers and storage technology. The tailored solution was convincing along the entire line and will make sure that the abundance of data in the tradition-rich Austrian corporation Spar will be efficiently processed and used.

In this perfectly combined project plan, Imtech is the trusted advisor, but were there criteria, which clearly spoke for Hitachi Data Systems (HDS)? "Hitachi Data Systems already put a convincing, sustainable and complete solution on the table in its first offer," praised IT CEO Kranabitl. "The entire package held up during every further evaluation and ultimately won with its convincing overall impression." In close collaboration with Imtech, Hitachi Data Systems was able to convince Spar IT of the performance of the Unified Compute Platform (UCP) for SAP HANA. This converged solution fulfilled the SAP HANA performance requirements. The technical challenges do not differ greatly from the traditional SAP systems. Naturally, there must be more memory available in the servers. HDS is the only manufacturer that consistently and continuously uses external enterprise storage. Besides fulfilling traditional data processing centre scenarios, such as backups, this highend storage also guarantees the typical requirements, such as performance, availability and scalability and over several parallel operating SAP HANA systems. In one word: consolidation! Trivial or complex? SAP has provided the parameters for SAP HANA: Intel Xeon and Suse Linux. What added value can HDS bring to the table?

Horst Heftberger, General Manager at Hitachi Data Systems Austria, answers Peter Färbinger's question: "The Hitachi Unified Compute Platform architecture for SAP HANA differs fundamentally from the solutions from our competitors. What was mentioned as the additional requirement for storage also applies for servers. Further, the architecture is based on established x86 technology and still offers the characteristics of the Unix world. The keywords are hardware virtualisation and fail over. Interruptionfree firmware updates are also possible. In general, maintenance processes, such as updates and patches are done during operation without downtime."

For many years, Hitachi Data Systems has been a recognised and renowned brand in the SAP community. This perfect combination of an existing innovative SAP customer, a complete infrastructure provider and a trusted advisor is exemplary:



Andreas Kranabitl (l.), CEO of Spar Austria Information and Communication Services, with Horst Heftberger (r.), General Manager HDS Austria.

What is the role of Imtech in the Spar project? "For a SAP HANA project, several competence areas are necessary," explained Robert Pöll, Imtech managing director, and he listed the following points in the discussion with editor-inchief Färbinger: distinctive infrastructure expertise in the data centre field; in-depth SAP consulting expertise for the migration to SAP HANA; comprehensive SAP HANA experience, because in-memory database, which are possibly distributed over several servers, demand completely different design approaches for infrastructure, operation and business continuity; and last but not least, creativity to convert the multiple real-time possibilities, which this new technology opens up, into new, innovative approaches for the business and ensure a competitive advantage for it by doing so. "All of the competence areas mentioned above have been part of core competences at Imtech for years and are mirrored in the way they do business: infrastructure solutions, SAP consulting, managed services and logistics services," explained Pöll. As a strategic Spar partner in the area of managed services and SAP consulting as well as the experience from several successful SAP HANA projects, Imtech was asked by Spar to take on the following roles in this project:

Support Spar ICS in the evaluation and selection of hardware; delivery, installation in the two Spar data centres and implementation of the hardware with payment in a 48-month OPEX model (operational expenditures); migration of the existing business warehouse landscapes (one of the largest business warehouse landscapes in German-speaking Europe) to the new SAP HANA landscapes in a "SAP HANA managed by Imtech" 24/7 model with corresponding SLAs and coupling of the ticketing systems. The robust HDS enterprise solution therefore offers maximum performance, scalability and availability.

The scale-out architecture allows SAP HANA to run permanently in businesscritical surroundings. Blade server technologies and virtual storage platform (VSP) and Hitachi unified storage (HUS) enterprise storage systems ensure a high level of availability and gapless operation. Further, the use of the HDS NAS solution (HNAS) as part of the overall architecture makes possible a consolidated, high-performing global backup solution without accessing ongoing operation. Why did Spar decide to use HDS, which is not the only server and service provider in the SAP HANA community? Horst Heftberger: "Important was the mix of leading technology, competent employees, a strong partner, such as Imtech, and the servicing model as well as guaranteed compliance with the service level agreements in the area of recovery. Also critical to the decision was the completeness of the solution from the outset and the transported stability and security that went with that." And Andreas Kranabitl added to this during the discussion with E-3 magazine:

"Nothing is more expensive than an infrastructure, which does not fulfill the requirements of the business. Those who shy away from investing in a futureoriented system will run into long-term business operation problems. Naturally costs were an essential component of the evaluation, and here as well we came upon a positive business case."

Hitachi UCP for SAP HANA supports the new generation of SAP in-memory computing with an integrated, highperforming infrastructure. For this, the blade server and storage systems are combined with the network components, and Spar can access analysis results and current numbers faster than ever before.

The strategic partnership between Hitachi Data Systems and Imtech with corresponding solutions turned out to be an ideal solution for Spar's long-term realisation of its complex IT themes. "Hitachi Data Systems has done a good job of addressing the right topics with us and realising a professional solution with a suitable service team," stated Andreas Kranabitl. Imtech already implemented the SAP landscape at Spar and now offers optimum support for the company together with Hitachi Data Systems.

"The challenges and the problems, with which we were confronted at Spar, could be traced back to the complex infrastructure and the support difficulties through three different providers," explained Andreas Weigl, the Imtech project head in charge. "Together with Hitachi Data Systems and its Enterprise Converged Solution, we were able to create a future-oriented IT environment, which will meet the requirements of the SPAR trading company." Furthermore, the long-term strategic partnership between Hitachi Data Systems and Imtech ICT Austria was also an important criterion for the decision. Rapid implementation, outstanding professionalism and an optimum price-performance ratio and short decision-making paths ultimately qualified HDS and Imtech as ideal providers for the new converged solution for Spar.

"We offered the ideal solution for Spar as a trading company with Hitachi UCP for SAP HANA. With this, Spar not only introduces the innovation roadmap of SAP in the corporation but also establishes early the technology platform for the retail business of tomorrow.

In this way, Spar is best prepared for market changes and can respond efficiently," says Horst Heftberger, General Manager at Hitachi Data Systems Austria while drawing a positive balance. Spar should achieve a return on investment after 18 months at the latest with this solution.





The "New" Hitachi

itachi Data Systems (HDS) has been a very successful partner of SAP for many years. With its unique commitment in the area of SAP HANA, Hitachi has reinvented itself in the SAP community. When referencing HDS, analysts speak of a new shooting star in the SAP HANA scene. The fact is that HDS brings to the table optimum qualifications from the outset to realise one of the leading SAP HANA infrastructures among SAP existing customers.

The meticulous selection process at Spar has shown that Hitachi Data Systems has a considerable commercial, organisational and technological lead compared to all of the other competitors. E-3 editorin-chief Peter M. Färbinger spoke with Matthias Czwikla, vice president Global SAP Field Alliance at HDS about the new possibilities for SAP HANA and Hitachi Data Systems.

Peter M. Färbinger: From a commercial standpoint, SAP HANA is seen as the key to the real-time enterprise. How important do SAP "real-time" applications appear to be for you?

Matthias Czwikla: In business, the only companies that achieve a competitive advantage are those which recognise changes quickly and can act flexibly. The Hitachi vision is to drive and accelerate innovation through information.

Real time is particularly important because it has to do with making strategic and tactical decisions, for example through SAP HANA, as close to real time as possible in order to seize business opportunities. Real-time decisions are especially important for evaluating point-of-sale data when making demand forecasts. Such evaluations were previously not possible, since the processing of the data sometimes took days – too long for any useful implementation based on the information gathered. Now it takes just minutes. In this way, for example, it is possible to avoid overstock situations – in other words, a large inventory of unsold goods.

Färbinger: SAP HANA started as an inmemory database for SAP Business Warehouse. Today, SAP HANA is available for the entire SAP business suite. Does that make sense commercially?

Czwikla: The availability of the business suite on SAP HANA opens a large potential for consolidation. It is now possible to carry out certain analyses of transactional data in real time. Among other things, this opens up the potential for carrying out a landscape consolidation on SAP HANA. The complexity of an IT environment can thus be reduced considerably. The access to transactional data in real time becomes easier.

Färbinger: The in-memory database SAP HANA is a young technology. Isn't that a danger for an operational SAP enterprise?

Czwikla: There are thousands of customers worldwide that have SAP HANA in their operations; now two-years old, the solution is not really that young anymore. In a very short time, SAP has managed

to introduce a real, high-performance technology, which users are increasingly going to for new implementations. Every investment in old technology is a wasted investment. HDS reduces the level of risk in the area of operations through decades of technology leadership in the enterprise storage and enterprise computing sector.

Färbinger: Which data protection capabilities does HDS infrastructure offer SAP HANA?

Czwikla: High availability, failover over several data centres, encryption modules directly in the memory, disaster tolerance and backup – and all at the enterprise level. HDS is one of the few providers, which is certified for synchronous as well as asynchronous disaster tolerance in data centres.

Färbinger: SAP HANA is ultimately a synonym for a complex transformation of the SAP architecture. How important are providers and partners here that can offer servers, storage and licenses from a single source, like HDS?

Czwikla: Hitachi Data Systems is the only SAP partner that can offer a complete solution for SAP HANA – in other words, the servers and storage along with the necessary licenses – from a single source. In addition, the deep integration of the global solution, even including support, has its advantages – this creates an optimally coordinated package. Automobiles are sold as a complete unit and not separately as body, engine and tires. Through this, the



complexity for the user is lowered. Jointmanagement of the platform reduces operating costs and risks while reducing the workload of the IT department and securing strategic capacities.

Färbinger: From your experience and the specifications at Spar, where does the future of the suite on SAP HANA lie: on premise or on-demand via cloud?

Czwikla: The basic question is: What competitive advantages can an enterprise achieve through an on-premise or internal operation of a solution, which has become a standard. For a large enterprise with a tailored operation, the on-premise, in-house solution can be attractive; for small and medium-sized enterprises, outsourcing to cloud providers could be less expensive. However, it is ultimately always an individual-case decision, which depends on many criteria: costs, data security, legal specifications, flexibility, etc. What is interesting, however, is that users often do not even want to go into the cloud but for Opex reasons are often left without a choice. HDS can guide the step into the cloud with technology and expertise. With the tailor-made solution were on-premise and on-demand efficiently combined.

Färbinger: Finally and strategically, are HDS and SAP HANA more than "just" fast and large enough for "big data?"

Czwikla: Yes. To be precise, the advantage is not just the speed, but rather the choice of a scalable, reliable and easy to manage platform that has future-proof technology and will work in the longterm. Customers like SPAR choose the right partnership for long-term "business defined IT". The basis is the congruent HDS vision of "accelerate innovation with information."

E-3: Thank you for talking with us.

Real-Time Retail at Spar



Andreas Kranabitl heads IT at the Spar retail group and has planned the largest and most innovative SAP HANA retail system together with Hitachi Data Systems and Imtech ITC Austria.

he Spar Austria Group, as a retail enterprise with about 77,000 employees and almost 3,000 locations in Austria and abroad, is confronted with a growing amount of unstructured data every day. This data has a major relevance for the company therefore information technology is increasingly important for the business. Companies like Spar are faced with the problem of growing data sets, which play an important role in business decisions and consequently for the success of the enterprise. Such business-critical environments, where large quantities of valuable and sensitive data and their constant availability mean an essential competitive advantage, require a special infrastructure, which guarantees the necessary scalability, high availability, disaster tolerance and backup at the highest level. Reacting as fast and efficiently as possible to market changes as well

as shorter time-to-market for product introductions can be the decisive factor for the success of a retail operation. Spar Austria has evolved from an Austrian retail company into a successful European retail group. This not only means international business and developing new markets, customers and sales channels but also new challenges for the corporation's IT department.

"The strategic importance of IT for the success of the company increases. Thanks to HDS and Imtech, we were able to appropriately scale and accelerate our SAP HANA landscape. Hitachi UCP for SAP HANA is the system that perfectly fulfils those high performance requirements, which we require for our future vision, said a satisfied Andreas Kranabitl, managing director of the Spar Information and Communication Service GmbH, Spar's independent IT company.

E-3: Which specific SAP HANA knowledge has Spar acquired?

Andreas Kranabitl: We worked hard on our SAP HANA strategy, its implementation and developed a roadmap. As part of this work, we looked at new possibilities at the application level and also at the technical challenges. Today, SAP HANA is a core component in the SAP landscape, which will likely be indispensible in the retail area. Accordingly, SAP HANA is an area, where we have acquired appropriate competence and will continue to develop.

E-3: What do the SAP-basis employees at Spar think about the hardware and database change?

Kranabitl: The changes naturally trigger different responses. At the forefront of our discussions was the risk of not degrading current quality and availability, and not to add more workload to our employees. With the SAP HANA on HDS solution which we launched with an experienced implementation partner and the ease of on-going management, these concerns were minimized.

E-3: Which business and strategic objectives was Spar able to realise through the SAP HANA-HDS project and what is planned for the future?

Kranabitl: Acting as an early mover in data analysis at this high quality level is a step in the right direction for the Spar. Being ahead of the pack is important for survival in the marketplace. By 2016, all

of the applications at Spar will be migrated to the SAP HANA platform. With our CRM system on SAP HANA, the speed of the business processes has already increased.

Our next step will be moving the international data warehouse for business intelligence applications on to SAP HANA. We will tackle the central data warehouse for Austria at the end of summer 2014. Finance, controlling and HR systems will then be placed on new, robust infrastructure by 2015 and 2016. The major move – converting all business processes in the area of merchandise management – should be implemented with the availability of the new SAP retail solutions by 2017 at the latest.

E-3: Besides the "real-time" advantage, are there other plus points for SAP HANA in the Spar installation?

Kranabitl: Spar is investing in the very latest technology, which ultimately means investment protection. Spar is therefore well prepared for the future, which contains many consolidation options all the way to multi-tenancy scenarios. The SAP HANA system on Hitachi Data Systems could also support several clients on one platform and exploit the underlying technology even better. But our primary focus at Spar is the new SAP business solutions based on SAP HANA, which will be used to maximize the enterprise's bottom line.

E-3: Mr Kranabitl, thank you very much for talking to us.

Risk Assessment

Andreas Kranabitl, CEO of the Spar Austria Spar Information and Communication Services (ICS), on the question: How has Spar protected itself against the risks of an in-memory database?

"Besides the challenge of ensuring the economic feasibility of such a system, we see three concrete risks in this area.

"First, a very large increase in the amount of data could prove challenging. Many offerings in the market are not able to manage that, since they are not widely scalable. With databases, it is not just a matter of adding hard drives. However, since the HDS solution is highly scalable, we estimate this risk as low for the time being.

"Second, the complexity of the SAP HANA appliances and the degree of maturity of the products can impact availability. The classic data protection aspects were solved with traditional methods, for example high availability through a redundant array in the data processing centre. Internal problems in the system have to be safeguarded through high-quality service level agreements.

"Third, the SAP HANA appliance architecture and the decision to use SAP HANA mean a high-level and long-term dependence on the system supplier. This places great demands on sustainable, strategic partnerships."

An Inter

E-3: Beginning with the SAP HANA project at Red Bull, Imtech is considered the rising star in the SAP HANA world. How did it come about that Imtech placed its bets on the SAP HANA trend so early and how did Imtech acquire SAP HANA skills?

Robert Pöll, managing director at Imtech ICT Austria: Imtech recognised the importance of SAP HANA very early on and seeded this platform and its innovation drivers with our clients. In this way, the first SAP HANA project in the world was realised with Red Bull. A little later, the first implementation of the SAP suite on HANA took place for Neckermann.at in the data centres of Imtech in Austria. Imtech started very early with SAP HANA training and certification of its own experts in the areas of technology and infrastructure, SAP application consulting and application management, and in the SAP basis operation team, which is one of the largest teams of its kind in Austria with 23 members. This team is responsible for the operations of 20,000 SAP clients at our national and international customers including a few instances of SAP HANA. Through this breadth of necessary competence and experience, Imtech is able to look at SAP HANA in global terms, provide advice from a single source, implement efficiently and operate economically.

E-3: What does this mean within the SAP community?

Pöll: This unique positioning is also seen and acknowledged as such by SAP. SAP recently distinguished Imtech with its "Database & Technology Partner of the Year 2013" award. SAP said in its tribute: "Imtech invested early in SAP HANA and made this technology an important component of its SAP strategy. At the beginning of 2013, Imtech was able to complete the first suite on HANA. Imtech is the first partner in Austria with SAP HANA support certification and a major driver of this SAP technology platform. Imtech thus is a model for other SAP partners."

E-3: How do you assess the development of SAP HANA as a foundation for SAP Business Warehouse and suite on HANA?

view with Trusted Advisor Imtech

Pöll: Business Warehouse powered by HANA is the logical continuation of BWA and should be integrated into the entire suite as the next step to the platform. Suite on HANA is a strategic decision for our new customers – also medium-sized enterprises – and offers with its many SAP HANA-specific applications, such as all-round SAP Fiori, an important basis for new business processes. Because of our outstanding expertise, existing customers rely on Imtech to analyse the potential of using SAP HANA with their current processes.

E-3: At the beginning of May, SAP chief technology officer Vishal Sikka surprised everyone by leaving. In part, there will be a new start and adoption of the SAP HANA roadmap under his designated successor, Bernd Leukert. What does Imtech wish for the coming SAP HANA development?

Pöll: As an SAP partner, Imtech would like greater collaboration with SAP in order to drive new technology. Imtech regards the development of the SAP HANA ecosystem, in which all of the named competence areas are addressed from a single source, as essential for the success of SAP HANA in the marketplace. Imtech customers today complain about the one-sided SAP licensing approach. Further, Imtech is desirous of an ongoing partner oriented approach from SAP. There should be clear rules of play for SAP and for the partners - with which both parties would naturally comply. This should contribute to keeping as low as possible a potential reduction in competitive friction between SAP's own cloud offerings and those of its partners in a reasonable co-habitation mode for their mutual benefit. In this way, partners will invest in SAP HANA and the cloud in the future.

E-3: How stable and secure is SAP HANA? In a mission-critical environment, such as a retail, this question likely carries a great deal of weight. What have HDS and Imtech undertaken to guarantee a secure, operating SAP HANA operation at Spar?

Pöll: Imtech selected the system architecture so that all measures were taken with regard to high availability and disaster recovery to ensure smooth and



Robert Pöll, Managing Director at Imtech ICT Austria.

trouble-free operation. The experience at Imtech with SAP HANA projects and operating the SAP HANA system landscape over the past years has contributed in important ways to making the system architecture suitable for fulfilling all of the availability requirements at Spar.

E-3: Other database providers are always saying that SAP HANA lacks essential components for secure and functioning operations. No one doubts that SAP HANA is fast. How does Imtech view this criticism from other database providers? Is SAP HANA secure and stable?

Pöll: The operation of an SAP HANA system landscape demands expertise, but it is – keyword: consistency . The greatest challenge currently is that many further developments are taking place in a very short period of time. These have to first find a place in a maintenance window – including thorough testing.

E-3: Spar naturally has a disaster recovery data centre. What does the SAP HANA system architecture look like for

this? In general: How does one design an SAP HANA system with failover and disaster recovery?

Pöll: The SAP HANA system architecture leaves nothing to be desired with regard to high availability and disaster recovery solutions. Hardware-based solutions as well as – one level higher – SAP HANA software-based solutions are possible. Standby SAP HANA nodes are a proven tool – within a data centre site as well as between two sites. In a disaster recovery scenario, the non-production environment takes over the production SAP HANA environment.

E-3: The visionary Spar IT head Andreas Kranabitl spoke about "real-time retail" – in other words a retail system responding in real time. From the point of view of the technology, when will it be possible to implement this concept? What does SAP still have to deliver as far as Imtech is concerned?

Pöll: SAP has a customer in Spar, which is an ideal fit for implementing "real-time retail" within the retail strategy of SAP. Spar will take this path, and SAP has to do as much as they can to actively support the customer. The active integration of the Spar strategic service partner, in this case Imtech, is an important factor for success. The path to real-time retail has been sketched out independent of more or fewer SAP products - SAP has a suitable strategy for this in many areas. Spar sets the pace, and the demands in the marketplace tell us that Mr Kranabitl is right.

E-3: Final question: What is Imtech's assessment of the combination of HDS and SAP HANA? How should an existing SAP customer evaluate the selection process for a hardware provider? Please provide a few tips for the SAP community.

Pöll: HDS recognised the opportunity for companies around SAP HANA. Clear vision, focus, management attention on such an important project, the ad hoc availability of the right technology and the qualified specialists are the key to success.

E-3: Thank you for talking to us.

Virtualization of SAP environment

High Availability Without Integration

Many IT departments stand before the challenge of consolidating SAP environments through virtualization and partitioning solutions. The effect use of system resources counts just as much as increasing availability or flexibility when provisioning systems. Robust scalability and partition-capable IT solutions provide relief.

any systems in an SAP environment require only a fraction of the performance that current server systems offer. There are two possibilities for optimising the use of resources: Either implement several systems on one operating system instance or place several operating system instances on one server. To minimise side effects, the second option in the meantime is common practice. Suitable technologies are partitioning and virtualization.

Increasing Availability

Since all of the business processes implemented on SAP depend on the availability of the related SAP system

after an SAP introduction, availability - besides performance - is of vital importance. If the SAP system is "down," the business processes mapped there can no longer be carried out. Suitable technology approaches are called for in order to implement the requirements with regard to recovery time objective (RTO) and recovery point objective (RPO). One approach for increasing availability is the use of cluster solutions. Alternatively, shadow databases are often used to safeguard against logical errors. Such solutions usually have specific requirements for the configuration of the operating system, since the application concerned "moves" from one operating system to a second using a suitable procedure. Operating system virtualization and hardware partitioning are also alternative solutions. Should there be a hardware failure, the operating system can "move" the application to new hardware. Since an OS is "moved" here, an adjustment of the configurations between the two operating systems is not necessary, which is a valuable advantage from the administrative perspective.

Objectives and Considerations

The further planning for virtualization is therefore driven by technical as well as economic factors. The specifications for simple, easy-to-administer high-availability solutions are the primary concern

for many IT managers. Hardware failover and virtualization offer the advantage that the high-availability solution does not have to be integrated into the operating system. The application, operating system, network and storage levels are well separated. The use of virtual IP addresses, which must move from one operating system instance to another, is not necessary. In addition, in some cases restoration within four hours or less must be guaranteed at times. The failure of a data processing centre should not lead to the unplanned downtime of the productive SAP operation.

The Compute Blade infrastructures certified for SAP from Hitachi based on the x86 platform with LPAR virtualization therefore enable an N+M failover – otherwise only available for mainframes and highend Unix solutions.



A HANA architecture's layer model from the point of view of Hitachi Data Systems (HDS).

The Compute Blade technology developed for mainframe technology has been in operation in Japan for about six years and is the market leader in the company's homeland. As the largest SAP distribution partner or integrator, Hitachi is also the leader for SAP applications in the land of the rising sun.

N+M Failover

For hardware-dependent high-availability scenarios without cluster software, Hitachi Compute Blades offer integrated N+M failover. This makes it possible to define a random number of N blade servers as "cold standby" for an equal random number of productive blades; when necessary, these can be replaced by a standby blade independent of the chassis, rack or location. Besides the cluster software, users also save on hardware, which otherwise would have been necessary for a 1+1 or N+1 cluster.

Hitachi Virtualization Manager (HVM)

Beyond this, the LPAR (logical partitions) technology adopted from the mainframes with the Hitachi Virtualization Manager (HVM) also offers hardware-dependent server virtualization, which makes possible direct access to the server periphery and host bus adapter. Naturally, the original file systems from Windows and Linux are supported.

This saves users not only licence costs for the virtualization software but also it circumvents the virtualization layer with its proprietary file system. Beyond this, there are performance and security advantages for the operation of highperformance and critical applications as well as database applications. At the same time, all Compute Blades from Hitachi are certified for VMware and Hyper-V so that their use under all leading hypervisors as well as under HVM is possible at any time.

LPAR technology and dynamic-dedicated resource sharing

Another advantage of the Hitachi Compute Blades is the possibility of common use of resources, which are made available on the basis of Hitachi LPAR technology. Through this, CPUs and memory can be assigned both as dedicated for as well as dynamically to the LPARs, virtual instances or applications. Mixed operation is also possible. This not only increases the performance and security of applications and databases but also allows a much-improved use of the server hardware, which in turn further reduces investment and operating costs. Together with the energy-saving function of the Hitachi servers and the optimum performance and I/O rates tuned to the Hitachi Virtual Storage Platform (VSP), significant and lasting cost and benefits advantages result for the failsafe SAP operation.

Results and Savings

Through the use of Hitachi Compute Blades and the application of Hitachi LPAR and HVM, both small and very large SAP systems can be populated efficiently. Operation is easy and effective thanks to the clear separation of each layer. This includes the following points:

- Handling clarity
 - Excellent scalability
- High security
- Efficient use of system resources
- Small footprint
- Energy savings of 25 per cent or more
- Licence cost savings

In this way, availability can be optimised over several locations – for a simple and efficient management of SAP environments.

Ivy Bridge Chips in Hitachi Compute Blades

Innovation Requires Computing Power

Big data, cloud, BYOD – IT is the basis in the data processing centres for many trending topics. Supporting business operations is the driving concept very much in the spirit of "Business Defined IT." The underlying foundation may not be ignored, however: memory, network and computers.

irst, the computing power of ever more powerful processors made possible innovative IT concepts. Since then, Hitachi has used Intel's Ivy Bridge technology for its successful Compute Blades. For a long time, Hitachi Compute Blades were the insider's tip in Europe. So successfully has the server family dominated the Japanese market: outside this Asian powerhouse, the manufacturer restricted distribution for a long time. Since 2012, however, these times are long a thing of the past: At that time, Hitachi Data Systems introduced the Unified Compute Platform (UCP), a so-called convergent infrastructure, which combines memory, network components and the x86 server under a uniform operating interface. Since then, Hitachi Compute Blades have been used for the computing area, although the servers are also available in stand-alone versions. UCP and thus the Compute Blades are primarily found in larger data processing centres since they not only offer performance but also availability at an enterprise level. In particular, they support the application in environments, where high performance, large amounts of RAM and high failsafe security are called for – for instance for virtualisation and high-performance computing in finance or research and technology, also in the areas of business intelligence, ERP, CRM, big data, databases, and especially SAP HANA. A classic application area for the Hitachi UCP for SAP HANA is an environment with data, where its fast evaluation, such as for reports and analyses, makes possible massive time-savings and competitive advantages. The basis for computing power is Intel's Ivy Bridge series, which finds application in the Hitachi Compute Blades. >> The Hitachi Unified Compute Platform for SAP HANA stands for the next step in our global partnership with Hitachi.

The integrated IT solutions create added value for our customers and simplify their business processes.

We look forward to a more intensive collaboration with Hitachi Data Systems to offer companies sustainable solutions, which transform their business processes thanks to better data analysis handling. At the same time, we can lower implementation costs considerably. **<<**



Steve Lucas, Global General Manager, SAP Business Analytics & Technology, SAP.

Flexible Application Possibilities

The current processor generation in the Hitachi Compute Blades is the Ivy Bridge E7 8800 V2. The predecessor had been offered by Intel since April 2011; in 2013, the change to the reworked variation took place. Two to eight CPUs are used in the Hitachi servers. Storage can be expanded from 512 GB to 6 terabytes per Blade depending on the configuration level. The smallest variation also contains 24 disks each with 600 GB as well as 16 SSD log disks; the largest system scales up to 48 disks of 600 GB each and also 16 fast flash disks. All systems have in common raid levels: Raid 6 for the disks and Raid 10 for the log disks. With this, the servers offer the right option with the UCPs for every application case. So far, so good! But what happens when the defined purpose changes after procurement? Flexibility in IT is often a problem. This is in the nature of the architectures, which frequently require locked-down settings at the time of installation, and these cannot be changed anymore. In the face of this challenge, work has been on-going in this area for some time. For example, storage: Since the introduction of thinprovisioning technology, it is possible to equip LUNs with less capacity at commissioning than was actually specified.

In this way, for example, procurement costs can be distributed over the period of use and the scaling effect exploited with the disk prices.

Scalability by Growth as Well

The idea is to transfer these advantages to other IT areas - lowering CapEx costs is a relevant topic not only for storage. For this reason, HDS stressed that the Compute Blade servers are designed in a way that the environment can easily grow with the requirements and at a reasonable price. In concrete terms, this means that an increase in performance simply means installing additional blades in the available UCP without migration and without major downtime. Such a scenario is interesting precisely for companies, which are just at the beginning of their SAP HANA activity, for example, or suddenly go through a rapid growth phase. For Alvin Lim, senior vice president, Information Technology, Asia Capital Reinsurance Group, the combination of SAP HANA and Hitachi UCP delivered the necessary computer and storage performance and the highest throughput to be able to make fast and reliable business decisions:

"Because delays between processes and analyses now are far fewer, we get to look at all relevant information in close to real time." Besides scalability in and of itself, the question of expense needs to be looked at. As already mentioned, the increase in technical workload is low. On the costs side, this approach has other bonus points in the licensing costs. For this type of construct, expensive post-licencing is avoided, since the system itself is not touched. Beyond this, the danger of under-licencing is also avoided. In this area, the HDS concept is guaranteed to be spot on.

Summary

Hitachi Data Systems has succeeded in creating an architecture using the x86 blade servers and UCP, which has robust performance and is cost-efficient at the same time. Numerous users confirm the added value of the solution and the results, which it delivers when working with SAP HANA. Elena Raskita, SAP consultant BI, OCRV said: "Since the HANA platform has been in our program, . . . reporting has become five times faster. . . . We were able to reduce the amount of information saved by a factor of three. This is a very good result." This is revealed through a consistent support of business operations through IT - IT-business alignment the way it should be.

20th year SAP and Hitachi Alliance Partnership

Complete Package from a Single Source

Hitachi and SAP have worked together as partners for two decades. The current high point of this cooperation is the agreement reached in January 2014, under which Hitachi Data Systems (HDS) may offer software licences for SAP HANA itself. But the two companies together are about more than just enabling data analysis and evaluation.



ny enterprise, who has the impression today that it is just a hardware supplier, is in for a tough time – what counts are complete solutions from a single source. The potential efficiency increases are an important competitive factor. Ultimately the user and the IT team benefit from the direct, positive effects on the cost side when the solution stands in the limelight. For this reason, SAP has entered into many partnerships over the past 35 years.

In this way, the largest industry network of software providers, distribution partners, technology and service partners has been created. The list of cooperation agreements begins with consulting firms, such as Accenture, Atos, continues via smaller companies in specialist fields and then to technology partners, such as Intel, Nokia and Hitachi Data Systems. The collaboration with Hitachi has evolved from a pure technology agreement into a comprehensive partnership over the past 20 years. Companies should designate a central contact for applications and infrastructure. At the same time, the global agreement makes it possible for HDS to offer even more comprehensive data processing centre solutions.

SAP NetWeaver Business Warehouse (BW) powered by SAP HANA is centre stage. The tight integration makes it possible for users to work on a single, central platform: Besides the Hitachi Unified Compute Platform – an integrated convergent IT infrastructure consisting of Hitachi Storage, Hitachi Compute Blade servers, network components and an operating interface – HDS offers the SAP HANA software as well as managed services. UCP for SAP HANA, to use its correct name, processes more data than any other offering according to the manufacturer's information. Users thus enjoy the lasting benefit of performance advantages with transactions and analyses.

Real-Use Scenarios

This type of collaboration in fact presents a major challenge – after all, the possible application cases range from traditional SAP applications in management to demanding in-memory solutions with SAP HANA in big-data environments.

The breadth of the target group also underscores that the offer must span a great range of functionalities and different performance depths. From mediumsized enterprises to major corporations and organisations in the public sector, the offer must cover a broad range of users who can use SAP on HDS systems irrespective of the branch or industry.

Technology Check: Flash Storage and SAP

Besides traditional spinning hard drives, flash technology has gained broad acceptance as a storage medium since 2013. The reasons for this are the fast read and write rates, compact size and low energy consumption. The use of this type of storage media is particularly recommended for CPU-intensive, big-data applications with a relatively low data volume. Nevertheless, the rule is: The entire construct must be considered for the use of SAP HANA and in-memory technology. For this reason, companies, such as HDS, offer converged infrastructures – servers, storage, network and management in one unit. The smooth interaction of the components and complete automation are more important than a pure flash memory installation.

The collaboration gives SAP, Hitachi and HDS customers the possibility to establish tailor-made solutions with a view to SAP HANA, storage virtualisation, cloud computing, enterprise resource planning (ERP) and information lifecycle management (ILM). In particular, advantages result on the costs side both in procurement as well as in operations. Beyond this, availability and disaster tolerance will increase. Companies in many industries - such as insurance, consumer and retail, as well as on-line traders - can now leverage the robust infrastructure of SAP HANA on Hitachi UCP. Pre-configured software and hardware reduce implementation time when doing so.

Three-Pillar Strategy

The explicit SAP offer from HDS stands on three pillars: SAP HANA, ILM and LVM (landscape virtualisation management). Further applications, such as r/3, NetWeaver, CRM etc. are part of them or are indirectly supported via the readiness of data for client-server environments. The subsidiary of the Japanese Hitachi Group has implemented an entire series of additional features for the comprehensive management solution LVM, with which entire SAP environments can be controlled. For example, users can make clones directly and run

snapshots to quickly save a specific point in time, with the help of which data can be saved using little storage and few resources. Also, the moving of entire SAP instances can be easily carried out with LVM on the HDS solutions both from larger to smaller computers as well as the other way around. In addition, it is also possible to move instances bi-directionally between physical and virtual servers. In-system replication is also possible. SAP users, who would like to move their on-premise solutions to the cloud, also have optimum support with the integration of the HDS storage portfolios in the SAP NetWeaver landscape virtualisation management. In order to achieve all of this, tight integration between the HDS hardware products and the SAP applications is necessary. Such a complex interplay between multi-lay-ered products and solutions depends on many components:

The SAP applications, the server operating system, and the volume manager form a complex matrix. HDS supports all standard storage products in the SAP environment, including Windows, AIX or Linux as well as others. The integration of further manufacturers also offers advantages: through the integration of the UCP in Symantec's NetBackup, SAP users, for instance, can protect their SAP HANA databases against data loss, which can result from the failure of individual storage media or data corruption.

Dedicated SAP Offering: Unified Compute Platform

In a positive way, this interlocking is also very noticeable in the two pillars ILM and SAP HANA. For example, the Hitachi content platform (HCP) object memory is integrated into the SAP ILM via the WebDAV interface. Structured data can have policies assigned. This way ensures that files cannot be unintentionally deleted or that a necessary deletion at a defined time or event is not overlooked. Keywords here are compliance and legal regulations. With UCP for SAP HANA, HDS is integrated even tighter with SAP. The solution combines SAP's in-memory next-generation computing with an integrated hardware platform consisting of Hitachi blade server technology, enterprise storage systems and industry network components.

The scale-out technology currently supports up to 56 nodes, which can each be 1 terabyte large. Workloads for real-time analysis with up to 56 terabytes or up to 300 terabytes of uncompressed, normal data are supported in both physical as well as virtual environments. The selfdeveloped Hitachi accelerated flash can also be used on the system to accelerate applications even more.

SAP users, who migrated their SAP Business Suite on SAP HANA, can also run their ERP workloads on the convergent platform. HDS has optimised UCP for SAP HANA with regard to workloadspecific performance, reliability and disaster recovery support.

The system is available with one-half, one, two, four or six terabytes of DRAM. Failsafe disaster tolerance is guaranteed by True Copy storage replication.



Besides such performance values, the short installation time is important for many users: the systems can go on-line in productive operation within one to two weeks after delivery.

Global Competency Centre

The Hitachi Global Competency Center for SAP Solutions at the Walldorf SAP campus contributes to fast and smooth commissioning. The centre has facilitated an even closer collaboration between Hitachi Data Systems and SAP since 2012. Among other things, HDS develops and certifies new solutions there which are based on SAP environments. The centre has its own 300-m2 laboratory as well as several conference rooms, where scenarios for the use of HDS technologies with the SAP HANA platform can be discussed and developed.

"The opening of the new competence centre paved the way for new possibilities in the collaboration between SAP and HDS," said Horst-Udo Schulte, vice president, Global Technology Partners, SAP. "The centre demonstrates the importance of our collaboration and our efforts to fulfil enterprise requirements of any kind. It helps our common clients find new paths for applying new technologies in their businesses, including SAP HANA."

Prospective customers have far-reaching insight through immediate access to data results. Employees from different areas, such as solution development, sales and pre-sales, and alliances and support, at the participating enterprises regularly come together here. Together, they not only draw up their roadmap but also explore possibilities for product optimisation as well as pre-sales support for customers. Analyses and sizing of SAP environments also take place. Users can run analyses, do planning and POC directly on site in their own system environment – a request, which SAP and HDS also fulfil. Almost common practice after 20 years of tight partnership and joint sales.

International Organizations in Action

Oxya is one company which uses the Hitachi Unified Compute Platform for VMware vSphere with an SAP environment. The company uses it to manage critical 24/7 SAP environments for more than 230 hosted enterprise customers and 190,000 SAP users. Another HDS customer is the Asia Capital Reinsurance Group. This company was able to consolidate its business warehouse with the Hitachi UCP for SAP HANA and thus use much large data volumes more efficiently.

E-3 Short Interview with Matthias Czwikla



Matthias Czwikla is vice president Global SAP Field Alliance at HDS.

E-3: HDS presented a new consumption model in fall 2013. What is your understanding of this offer?

Matthias Czwikla: We do everything we can to make sure our SAP users can get the most out of their SAP solutions. This not only includes new technology. The new consumption model is a user-oriented offer for our European customers and, as such, is unique. With this model, users can expand the SAP environment as needed over different periods of time. It allows them to use the numerous advantages of the SAP HANA platform with predictable costs.

E-3: Can you give us an example of what it would cost?

Czwikla: For four nodes of 512 gigabyte each, the costs for a running time of 48 months would be EUR 2,499 for each node and month. These four nodes run standard compressed data of up to ten terabytes on the UCP for SAP HANA. There is an upgrade possibility for up to 56 nodes. With this, there is enough capacity available for all application cases. By the way, the technical basis is provided by our VSP enterprise storage system.

E-3: On which markets is this model available?

Czwikla: We offer our consumption model in Germany, Austria and Switzerland as well as in other European countries. This includes France, the United Kingdom, Spain, Italy, the Netherlands and Belgium plus Denmark, Finland, Norway and Sweden – in other words, the markets where Hitachi's Global Financial Services are also available.

E-3: You presented the consumption model at the SAP TechEd in Amsterdam. What is the importance of such events?

Czwikla: They play a major role. The SAP community lives from exchanges. Therefore, HDS is regularly represented at the DSAG annual meeting and the technology days. There were also joint activities at CeBIT. For example, we have also already exhibited the UCP for SAP HANA at Sapphire Now and the SAP TechEd Conference in Madrid.



Realize quick time-to-value and gain a competitive advantage with Hitachi UCP.

Hitachi Unified Compute Platform (UCP) Select[™] solutions for SAP HANA.

Our solutions help organizations with in-memory analytics work with large volumes of data and compile real-time results. This enterprise-class compute and storage solution provides high availability, disaster tolerance, and backup for 24/7, mission-critical SAP HANA environments.

>>>> INNOVATE WITH INFORMATION™

hds.com/go/sap



rademark or registered trademark of Hitachi, Ltd. Innovate ems Corporation. All other trademarks, service marks, and