



Business Challenge

To prepare students for an increasingly digitalized workplace, the SAP University Competence Center (UCC) at TUM wanted to include the SAP S/4HANA suite in its education-as-a-service cloud offering.

Transformation

The SAP UCC at TUM constantly seeks new ways to help thousands of students succeed in the new digital world of work. UCC deployed IBM Power Systems to support its cutting-edge SAP S/4HANA and SAP Business Suite solutions offered as cloud services, to enable hands-on learning.



Helmut Krcmar, Professor of Information Systems at TUM and Academic Director of the UCC

Business benefits:

Minutes

to deploy virtualized SAP S/4HANA software

99.99%

availability enables TUM to meet global, round-the-clock demand

Mobile

access makes learning more accessible

SAP University Competence Center at TU München

Sharpening students' SAP skills for digital transformation

Technische Universität München (TUM) is one of the world's leading technical universities, combining top-class facilities for cutting-edge research with unique learning opportunities for more than 39,000 students. TUM has 165 degree courses to choose from, encompassing medicine, engineering, natural and life sciences, business studies, and education. As part of its campus, TUM offers the SAP University Competence Center, a facility used by 227 educational institutions, worldwide.

“Through our SAP S/4HANA Cloud using a SAP HANA TDI infrastructure based on IBM Power Systems, we are able to equip students with the latest tools and skills to drive the Internet of Things and digital transformation in the business world.”

Helmut Krcmar, Professor of Information Systems at TUM and Academic Director of the UCC

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Challenge in detail

To better equip students with the skills they need to succeed in an increasingly digital workplace, the SAP University Competence Center (UCC) at Technische Universität München (TUM) intended to expand its SAP education-as-a-service cloud offering to include the innovative SAP S/4HANA suite – and needed a reliable, high-performance infrastructure solution to flexibly support the demands of worldwide users.

Solution delivery

The university chose to deploy an integrated stack of IBM solutions, including latest-generation IBM® POWER8® servers and IBM XIV® Storage System devices, to support its new SAP S/4HANA Cloud. With PowerVC, SAP UCC at TUM can prepare and deploy virtualized SAP S/4HANA software environments in just minutes, enabling the SAP UCC to meet round-the-clock demand from more than 1,750 lecturers and 52,000 students for ground-breaking SAP education services.

Digital transformation

TUM's Department of Informatics – ranked number one in Germany – serves more than 4,200 students, with a strong focus on links to industry to always cover the latest trends and technological advancements. Through the SAP University Competence Center (UCC) located at the university's Garching campus, TUM provides educational services both to its own students and to more than 227 other higher education institutions around the world.

As a hosting partner of the SAP University Alliances program, the UCC location at TUM offers a full range of education-as-a-service offerings, including cloud services and tailored training sessions. Members of the SAP University Alliances program have the opportunity to acquire and strengthen SAP competence, attend training, and learn how to apply their knowledge to their classes as part of a community of academics using SAP software in teaching and research.

The SAP UCC at TUM provides a sample company based on real-world corporations, including a complete set of business data and processes. This model company helps professors and students understand the concepts behind SAP software, and supports learning by doing. The team has been using this demonstration company for years, and has now migrated it to the new SAP S/4HANA suite. As a result, SAP UCC at TUM can show the digital transformation enabled by the SAP S/4HANA suite, step-by-step with a comprehensive example, showcasing the benefits of modern technology and how it can change real business processes.

Dr. Harald Kienegger, Post-Doctoral Researcher at the Chair for Information Systems at TUM, elaborates: “We offer ‘education-as-a-service’ around SAP applications through the UCC. We provide cloud services for solutions such as the SAP HANA platform, SAP ERP applications, SAP Business Warehouse, the SAP S/4HANA suite and many more. We also develop and offer learning materials, as well as comprehensive educational and technical support. We are committed to helping lecturers and students from around the world develop in-depth SAP software skills and expertise with the latest tools and technologies.”

In an increasingly digital world, however, more than just the traditional SAP skills are required, as Vassilena Banova, PhD candidate at TUM, explains: “More and more companies are re-thinking their approach to IT and undergoing digital transformation programs to improve their operational excellence and support new business models. Not only did we want to give students insight into how the business world and business processes are changing in times of the Internet of Things, we wanted to equip students with the skills and hands-on experience they need to succeed in today's new digital world of work.”

Helmut Krcmar, Professor of Information Systems at TUM and Academic Director of the UCC adds: “The Internet of Things will impact business models and industries significantly. IBM and SAP enable us to support this process by helping us to educate people to acquire the relevant skills and competencies – especially students in the fields of computer science, information systems, engineering and business administration, to name just

“The IBM Power Systems platform enables us to offer these ground-breaking SAP education services and remain leaders in our field.”

Dr. Harald Kienegger

Post-Doctoral Researcher
Chair for Information Systems
Technische Universität München

a few. The ability to work with others across individual fields and disciplines is essential to be successful in this digital transformation, and it is our job to equip students with the relevant skills.”

Dr. Harald Kienegger adds: “Today, there is more demand to learn about companies' underlying SAP business applications than ever before. New technologies such as cloud, mobile computing, Internet of Things, embedded analytics and social media integration drive digitization across all industries and closer integration between processes, stakeholders and the supply chain. Traditional ERP systems no longer provide the speed and flexibility needed today – and companies are under great pressure to streamline and accelerate their mission-critical workflows.”



Excellent performance with
around 60 percent less
POWER8 processor allocation

To better equip students for the future, SAP UCC at TUM decided to develop a new cloud offering based on SAP S/4HANA, the next-generation ERP business suite. To make this possible, the UCC team looked for the enabling infrastructure to support services for more than 1,750 lecturers and 52,000 students.

Powerful platform

To meet the highest levels of reliability, scalability and performance without the need to maintain an additional infrastructure platform, the SAP UCC team at TUM decided to deploy SAP HANA using tailored datacenter integration (TDI) methodologies, based on the latest IBM Power System E870 servers with IBM POWER8 processors in combination with IBM XIV storage systems as the foundation for its new SAP S/4HANA Cloud offering.

“We have been partners with IBM for many years and have had great success with previous generations of IBM Power Systems solutions,” says Dr. Harald Kienegger. “We knew from prior experience that IBM Power Systems is an incredibly stable platform that we can rely on, and we also know that we can rely on IBM for top-notch support – we have a great relationship with the team and they are always ready and willing to help. Selecting POWER8 was based on a platform that we know delivers the capabilities we need.”

SAP UCC at TUM chose IBM XIV storage systems to keep the storage administration workload at a minimum without compromising performance or availability. IBM XIV technology is based on a grid architecture that ensures reliability and provides redundancy out of the box. This combination allows SAP UCC at TUM to operate its SAP environment without manual storage management as the IBM XIV systems constantly optimize the location of data on its physical disks, providing maximum performance and redundancy fully autonomously, without the need for manual intervention.

Additionally, compared to the previous storage system, the new IBM XIV solution (generation 3) offers greatly improved read performance, by up to 500 percent, and provided enhanced write performance of up to 600 percent. Together with a reduction in storage latency of up to 75 percent, overall the systems provide significantly better performance levels for the applications using the storage infrastructure.

Maximilian Barnert, PhD candidate at TUM, elaborates: “To say that the migration went well would be an understatement. Working closely with IBM, we were able to migrate to the new POWER8 servers and XIV Storage System with downtime measured in minutes. Users were none the wiser and unaffected by a change to the entire landscape that supports our hosting operations. As well as migrating data from our older Power Systems solutions, all our SAP HANA solutions now run on IBM POWER8. Our new, homogenous SAP HANA environment using tailored datacenter integration is much easier to manage.

“For TUM, virtualization is the key to meeting ‘on demand’ requests from lecturers and students. With that in mind, the university implemented IBM PowerVM to virtualize processors, memory, storage and I/O resources. With the addition of IBM PowerVC – Virtualization Center to provide simplified virtualization management, TUM is able to provision new SAP S/4HANA software from a standard template in just minutes, offering staff and students – essentially, our customers – the best possible service.”

The advanced virtualization features not only enable flexible scalability, they also ensure that SAP UCC at TUM can use its resources as efficiently as possible to provide the new SAP S/4HANA Cloud cost effectively. Taking advantage of the POWER8 servers’ ability to host different operating systems, such as IBM AIX and SUSE Linux Enterprise Server, in logical partitions, dynamically adjusting their capacities as needed, SAP UCC at TUM is able to achieve optimal infrastructure agility and efficiency while sustaining superior performance for all its applications.

Benefits in detail

- Minutes to automatically deploy virtualized SAP S/4HANA Cloud, boosting customer service
- 99.99% availability enables the UCC at TUM to meet round-the-clock demand from educational institutions worldwide
- Mobile access to innovative SAP S/4HANA suite makes learning more accessible for students

Key components

Applications: SAP® Business Suite 7, SAP Business Suite powered by SAP HANA®, S/4HANA with SAP Fiori UX, SAP Business Warehouse, SAP Solution Manager

Software: IBM® PowerVM®, IBM PowerVC, IBM Spectrum Protect™, IBM Tivoli Monitoring, SUSE Linux Enterprise Server

Hardware: IBM Power System E870, IBM Power System S822, IBM XIV® Storage System

UCC has also seen technical gains as a result of upgrading to IBM POWER8. Maximilian Barnert comments: “The IBM solution offers excellent performance, and we are able to support a complete SAP ERP environment for 20 customers with around 60 percent less POWER8 processor allocation compared to previous CPU generations. Thanks to the IBM POWER8 upgrade, we now need fewer processors to run a greater number of environments – helping us to reduce costs and energy usage.”

In addition to the performance gains, UCC calculates that it achieves better than 99.99 percent system availability. The systems are being continuously monitored using IBM Tivoli Monitoring and SAP Solution Manager software, and UCC data is backed up to the Leibniz Supercomputing Centre via IBM Spectrum Protect™, enabling rapid recovery should disaster strike.

Leading the way

With the new IBM Power Systems platform in place, TUM is able to deliver cutting-edge SAP S/4HANA education services – a pioneer in the area.

The move to S/4HANA was completed by TUM largely using their own resources, and the familiarity with the Power Systems platform enabled the transition based on existing know-how. Additionally, the virtualized environment enables TUM to run both operational and analytics processing on the same infrastructure, resulting in a reduced data footprint and leaner operations.

“TUM is a clear frontrunner when it comes to SAP education services, which is something we are very proud of,” says Dr. Harald Kienegger. “We were the first institution in the SAP University Alliances program to go live with SAP S/4HANA, and ran the community’s very first SAP

S/4HANA course. This was made possible thanks to the rock-solid, high-performance POWER8 servers supporting the application. The IBM Power Systems platform enables us to offer these groundbreaking SAP education services cost efficiently and remain leaders in our field.”

TUM continues to innovate, recently introducing SAP S/4HANA on mobile devices with SAP Fiori user experience. Teachers and students can now access SAP S/4HANA from their tablet or smartphones, offering a crucial lesson in digital transformation.

Vassilena Banova remarks: “As digital technology advances, mobile computing is a reality of today’s business world and students need to learn how to work with it. With SAP Fiori and IBM Power Systems, we can provide customers with SAP S/4HANA and a modern, user-friendly experience. Feedback from users has been very positive.

“In the past, students would often struggle with getting to grips with SAP systems. Without any technical or business background, SAP ERP is a complex system to get your head around. Nowadays with SAP S/4HANA and SAP Fiori, learning is much more accessible and also more fun. Access to real-time data means that users have all the information at their fingertips to make better-informed decisions – an important message for students about how modern business works.”

Prof. Helmut Krcmar concludes: “With our powerful new IBM platform in place, we have been able to widen the scope of our SAP education services considerably. Through our SAP S/4HANA Cloud using a SAP HANA TDI infrastructure based on IBM Power Systems, we are able to equip students with the latest tools and skills to drive the Internet of Things and digital transformation in the business world.”

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