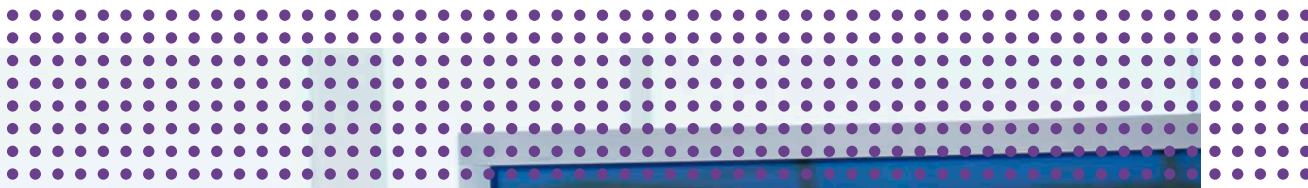




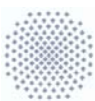
Case study • Education



## STUTTGART UNIVERSITY STEPS INTO THE FUTURE WITH HYBRID IP TELEPHONY SYSTEM



Technical university deploys future-proof communication platform with Alcatel-Lucent



Universität Stuttgart

The University of Stuttgart's numerous departments were connected by a mixed telephony system that was unwieldy, ineffective and could no longer be maintained. The university decided to install a complete hybrid IP system that would also provide an open platform to deploy new solutions in the future.



## CHALLENGES

- Mixed telephony system covering 160 buildings
- Expensive to expand
- Difficult for IT staff to manage and maintain

## SOLUTION

- 6,000 IP and 5,000 analog Alcatel-Lucent telephones
- Alcatel-Lucent **OmniPCX** Enterprise communication server
- Alcatel-Lucent **OmniTouch** Unified Communication suite for 4,000 users
- Alcatel-Lucent **OmniVista** Network Management system

## BENEFITS

- Enhanced communication between staff
- Reduced maintenance and operating costs
- Centralized technology system with potential for future evolutions in services to staff and students
- High functionality, low purchasing costs and limited TCO

## TECHNICAL UNIVERSITY AIMS FOR THE FUTURE

The University of Stuttgart is located in the southwest corner of Germany. It was established in 1829, at the beginning of the industrial revolution in Europe. Specializing in technical engineering and natural sciences, the university provides students with a general education combined with expert technical knowledge. The university's strong focus on innovation is reflected in its motto, which is 'Innovation is our tradition'.

The university employs around 5,000 people, most of them scientists. They are spread between the 140 institutes that make up the university, in more than 160 separate buildings. In all, around 20,000 students attend the University of Stuttgart.

## EXTREME SYSTEM MAKEOVER

The telephony system that was in place at Stuttgart University was difficult to manage and maintain. It had been built up in phases to meet rising demand for communications as the university kept growing. When a new building was erected, a telephony system would be built into it, as part of the facility. Telecom was seen as part of facility management, rather than IT, which prevented the development of one common telecom approach across the university.

As a result, the university was faced with a mix of systems from different suppliers, of different ages and based on different technologies. Staff sharing office space had to share phone lines. The various systems were often unable to work together. The cables and lines were old, and were susceptible to numerous failures. Finally, the system had become too cumbersome to support, and virtually impossible to maintain.

The university's administration decided a complete overhaul of the system was necessary. "We had a singular occasion to really re-do it completely, and that's what we decided finally," says Walter Wehinger, Graduate Engineer at the University of Stuttgart Stuttgart and Head of the Project Team. "The university decided to do a big step, to go far into the future, and leave out all the intermediate steps."

## EUROPE-WIDE SEARCH FOR THE BEST SOLUTION

As a public institution, the University of Stuttgart works closely with its partners in the government of the German state of Baden-Württemberg. The university first had to convince these partners that a converged telephony system was required. Together, they decided to launch a Europe-wide public procurement process for the project. The decision criteria were straightforward: high functionality, at a limited cost and low total operating costs over five years.



The university had several ambitious requirements for the project: the new system had to use IP wherever feasible, each staff member had to have an individual telephone, the system had to be able to support future developments, and the system had to be maintained by the university's own IT staff, in the same way the IT staff maintained the IT and the network infrastructures.

The university was not under time pressure to complete the project, so the focus was on getting the most functional, advanced and economic solution. Based on these criteria the Alcatel-Lucent solution, to be implemented by Alcatel-Lucent Business Partner NextiraOne, was selected. "We chose Alcatel-Lucent because it was the most economic solution," says Walter Wehinger. In addition, Alcatel-Lucent was preparing to introduce a new system software release at the time. "It satisfied a substantial part of the requirements we had," he continues. This underlines how forward-thinking the university is. The step into the future was taken together with Alcatel-Lucent.

### GRADUAL DEPLOYMENT, RAPID SWITCH

Once Alcatel-Lucent won the public tender, installation and rollout took about six months, and included prototyping, proof of concept installations and installation in new buildings as they were being built. At the heart of the installation was the Alcatel-Lucent **OmniPCX** Enterprise communication server. This IP PBX manages IP phones and traditional requirements, such as fax and analog lines.

On top of this open architecture, the Alcatel-Lucent **OmniTouch** Unified Communication suite for 4,000 users was deployed, including Alcatel-Lucent's My Teamwork for easy collaboration

"The TCO of the system over five years was less than the competition."

**Walter Wehinger,**  
Director and Project Manager at Stuttgart University

between departments and employees; the My Phone computer telephony tool, innovatively combining phone and PC functions; and My Messaging, which collects all incoming communication including voicemail, e-mail, and fax, in a single screen on the PC or on the phone display. The entire system is centrally managed by the Alcatel-Lucent **OmniVista** network management system, which ensures rapid feedback and low maintenance and reduced costs for the university.

The existing analog phones were left as back-up systems until the new system was fully functional. In some cases, especially for security in places such as elevators etc., it was necessary to keep analog phone technology as a back-up. In all, 6,000 Alcatel-Lucent IP phones and 5,000 Alcatel-Lucent analog phones were built into the system.

The final switch was made in April 2006 and took less than two days. "The university was inaccessible for less than half an hour, which is a really good figure," says Walter Wehinger. The analog phones were up and running within two days after the final switch. The University's IT department was not only in charge of the entire project, but together with Facility Management also runs the day-to-day operation.



Thanks to Alcatel-Lucent, the University of Stuttgart can take full advantage of the benefits of IP communications.

### SECURITY IN A UNIVERSITY ENVIRONMENT

Oliver Göbel, Stuttgart University's Chief Information Security Officer, says: "In running an organization in Stuttgart University, IT has become a critical infrastructure for the day-to-day operation."

Stuttgart University's network is the basis for most of the work conducted by its students, professors and researchers, and the demands on the university's IT team are many. Oliver Göbel continues: "Since they are doing a broad variety of research works and activities, possibilities of how one can restrict and secure the use of the internet on the university's network are minimal. Therefore we need a very strong incident response team that is handling the security incidents and we also need very flexible mechanisms to defend our network."

Oliver Göbel is very satisfied with the cooperation with Alcatel-Lucent during the implementation of the system. He concludes: "Our decision to cooperate with Alcatel-Lucent has been a

very good one. Cooperation is vital and there are still important things scheduled for this project."

### BENEFITS FOR STAFF AND STUDENTS

The new IP system has brought numerous benefits to the university. The university set up a laboratory in parallel to the IP installation, for research on communications technologies, trends and ideas.

According to Oliver Göbel, one of the biggest advantages of the Alcatel-Lucent solution is the very responsive development division of Alcatel-Lucent. "They are very open to suggestions and we are discussing a lot of ideas that we do have when implementing security in the VoIP solution," he says.

### ROOM FOR FUTURE GROWTH

Now fully installed, the Alcatel-Lucent IP system presents both the university and the state of Baden-Württemberg with many possibilities for the future. "We hope to, together with our students, do new student services," says Walter Wehinger. The involvement of all users is currently in progress, so as to let them explore and discover the features and benefits of the Alcatel-Lucent solution. As the system is completely new, including state-of-the-art technology, it is also seen as a prototype for the state of Baden-Württemberg itself.



THE COMMUNICATIONS EXPERTS

### BUSINESS PARTNER INFO

NextiraOne designed, installed, maintains and supports all of the university's communication needs, ranging from voice, data, security and applications. Together with the responsible people of the university, NextiraOne designed the best solution, commercially as well as technologically.

"For this type of installation, you need a good integrator. Alcatel-Lucent and NextiraOne worked closely together to model the solution."

**Walter Wehinger,**  
Director and Project Manager at Stuttgart University

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