

Case study

Education provider IAL switches to virtual Clients powered over Ethernet

»Fujitsu Zero Clients have truly optimized our training conditions. Our students benefit from a less noisy learning environment and a more comfortable climate in the seminar rooms – factors that certainly help improve concentration. And besides, we are able to achieve tremendous energy savings.«

Franz-Dieter Esser, CEO, IAL gGmbH



Continuing vocational training

Approximately 1,500 participants per year seize the training opportunities offered by the IAL. The IAL consists of 15 campus locations in North Rhine-Westphalia, Rhineland-Palatinate and Bavaria. The training offer comprises IT qualification programs as well as training and retraining courses in business management and in the commercial-technical area. In the IT field the institute focuses on SAP training, as the software company SAP Germany is one of the official education partners of the IAL. Another special strength lies in its comprehensive training concept for corporate customers, also known as IAL CAMPUS. As a strong partner from the very outset the Federal Employment Agency 'Agentur für Arbeit' plays a prominent role – not least in the development of training offers and the assurance of the institute's high demands on quality.

Hands-on training at the PC

"We generally provide computer-aided instruction. In practice, this involves fully integrating the required IT tools in our courses," explains Franz-Dieter Esser, CEO at the IAL. "Therefore the training participants have their individual IT workstations." All in all, the seminar rooms on the different campus locations are equipped with a total of 1,200 desks including one PC tower and monitor each, i.e. with an average of 15 to 20 units per room. "With normal PCs the room temperature increases by 4 to 10 degrees when a course is fully occupied," Franz-Dieter Esser knows. "As we approached the topic of a new client infrastructure, one of our main concerns was to implement a sustainable solution that would alleviate our administrative burden. It was, however, equally important for us to improve the training conditions by banning excess heat and noise from the seminar rooms."

Virtualized client infrastructure

Thomas Wysk, sales representative at Keppel Data-Systems, was able to witness the former conditions firsthand. He attended several SAP training courses at the IAL and finally advised the institute to switch to a virtualized client infrastructure where Fujitsu Zero Clients serve as endpoint devices on the desks that obtain the full scope of applications, data and performance straight from the data center – technically speaking, even the power supply.

The customer

Since 1991 the IAL Institut für angewandte Logistik has been operating as a non-profit limited



liability corporation under German law providing training opportunities in the field of further education. The IAL CAMPUS is aimed specifically at corporate customers. Its education partners include the Microsoft IT Academy and SAP Germany. www.ial-esc.de

The challenge

The IAL's target was to clearly reduce the administrative effort associated with the management of student and lecturer clients at their 15 Germany-based premises.

The solution

With Fujitsu Zero Clients on the desks and VMware in the data center the IAL now operates a fully virtualized IT environment. This concept radically reduces energy consumption and IT overhead.

Freed up desk space and noiseless operation with Fujitsu Zero Clients



Client performance straight from the data center

Starting with the Bonn-based premises the IAL has begun to equip all seminar rooms of the 15 institutes with Fujitsu Zero Clients. To start with the IAL ordered 20 Zero Clients that are supplied via a PRIMERGY TX300 tower server. Whereas the students only have a monitor with a keyboard and mouse in front of them, all course-relevant data and applications are stored on the server. "A Fujitsu Zero Client has no fan, no hard drive and no CPU," Thomas Wysk explains. "All it takes is an Ethernet cable to connect the endpoint device." The students can access their individual Windows environment by simply entering their user name and password. The former PC hard drive is located virtually on the server that quasi accommodates the entire previous PC hardware.

storage capacity and performance are provided according to individual needs.

Power over Ethernet

Along with data, electrical power also passes safely on Ethernet cabling. With the IAL project the IT service provider Keppel Data-Systems GmbH from Bergisch Gladbach has, for the first time, implemented a "Power over Ethernet" concept (PoE) in cooperation with Fujitsu on a large scale. The underlying technology implies that the Fujitsu Zero Clients are exclusively powered over Ethernet, which has the advantage that the endpoint device only requires a customary Ethernet cable, a trusted component the IAL is already well acquainted with.

»One of the key assets of Fujitsu Zero Clients is the improvement of the indoor climate through the reduction of heat and noise development in the classrooms. Bulky PCs and cabling have served their time – the new desk concept comprising merely a monitor, a mouse and a keyboard is comparatively slim.«

Peter Schaarwächter, Head of IT, IAL gGmbH

However, the only additional devices that come into play here are the so-called power injectors. In the server room they inject sufficient power for 10 Zero Clients each at the network's head end. "We have simply reutilized the existing network cables and switches," says Thomas Wysk. "However, this new concept has made the numerous multiple sockets in the seminar rooms redundant. They are definitely a thing of the past."

Zero maintenance

Keppel Data-Systems successfully implemented the first 20 Zero Clients including server installation and power injection in little less than a working day. One major advantage is the immediate elimination of maintenance: "Computer failures used to be a time consuming affair with downtimes of up to one week before a new and readily installed PC was back on the desk," Peter Schaarwächter, Head of IT at the IAL, remembers. "However, if a Zero Client or related functions quit, any IAL staff member can replace the device and simply plug in the network connector – without even calling on an IT specialist."

Central administration of the virtual clients

Thus the IT department of the IAL is no longer concerned with intensive involvement in situ. Via the Zero Client Manager that runs on the virtualization software (vSphere by VMWare) the administrator can manage the entire Germany-wide network no matter where he is located: "With the Zero Client Manager we can create a new course profile, that comprises, for instance, 20 user profiles for a new SAP course," Peter Schaarwächter explains. "To be more precise, we create a single course profile and the Zero Client sets up the 20 user profiles as individual virtual PCs. The students attending that specific course simply log in and have access to all data and programs that are required for their training." Through the virtual client infrastructure the

administrative overhead has been dramatically reduced for the IAL administrator. Instead of setting up each PC individually, the administrator creates one basic profile per course and shifts it to the server of the respective campus. Subsequently, duplication and availability are ensured by the Zero Client Manager. "This advancement in technology has helped us cut down on IT overhead by respectable 80 %," Peter Schaarwächter estimates.

Advantages for IT training

The course participants of the IAL now benefit from generously dimensioned 22-inch screens with integrated Fujitsu Zero Clients technology. And the virtual environment has particular advantages, too: "For training and testing purposes in IT specialist training, for instance, it is possible to quickly set up a new virtual environment where the students can solve their tasks," Peter Schaarwächter explains. "They learn how to set up a network and allocate resources under realistic conditions. When the course is over you simply click it away." The decision to go virtual has also proved worthwhile in terms of working atmosphere. Peter Schaarwächter praises the "improvement of the indoor climate through the reduction of heat and noise development in the classrooms". This highly positive effect is not least owed to power supply via Ethernet:

"Since Fujitsu Zero Clients are supplied with 39 watts via network cable, additional heat input over power supply units is now a thing of the past. This goes together with a radical cut in the system's total energy consumption – without performance shortfalls of the individual workstations. And the benefits of simplified maintenance and central manageability of the systems are twofold: We have been able to enhance our service quality hugely while reducing our TCO at the same time."



The benefit

- Extremely reduced IT overhead for Client environments
- Significant savings through radically lowered energy consumption
- More comfortable indoor climatic conditions for trainees and trainers

Products and services

- Clients: 1,500 x Fujitsu Zero Client DZ22-2
- Servers: 30 x PRIMERGY TX300
- PoE power supply: 150 x MICROSEMI PD-9512G
- Virtualization software: VMware vSphere

Double life cycle

Due to the enormous savings effects the IAL expects that its investment costs will have amortized already as of the second year: "Less electricity, less maintenance, longer life cycle – this optimal interplay has ultimately convinced us," says CEO Franz-Dieter Esser. "If we consider that a normal PC is used for a period of three years and we can expect life cycles of up to five to six years with Fujitsu Zero Clients, that is decision making made easy."

Meager yields for burglars

A positive side-effect is the risk minimization in the event of theft. Education providers hosting a great number of PCs are normally a popular target for burglars. The temptation is, however, decreased when the seminar rooms are equipped with Zero Clients. Naturally these slimmed down endpoint devices per se do not protect companies from theft, but material damage is limited. After all, it is not possible to

steal data and not necessary to carry out any reinstallations. If such a damage event occurs the situation can be easily remedied connecting a new Fujitsu Zero Client to the Ethernet cable. In addition, the replacement value is a lot less compared to a conventional PC.

Full-scale extension planned

The IAL is planning to implement a virtualized client infrastructure in its new premises in Munich and Cologne as well. All in all, that would add up to 1,500 Fujitsu Zero Clients that run on 30 PRIMERGY TX300 servers with 6-Core processors and are powered over 150 power injectors. Franz-Dieter Esser truly welcomes this landmark steps towards a fully virtualized IT future: "During a course I recently looked over the shoulders of my students – and I was amazed to see that looking into the monitor of a Zero Client does not differ from a normal PC, as the students see their familiar user interfaces. And besides, the working atmosphere is much more pleasant than before."



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