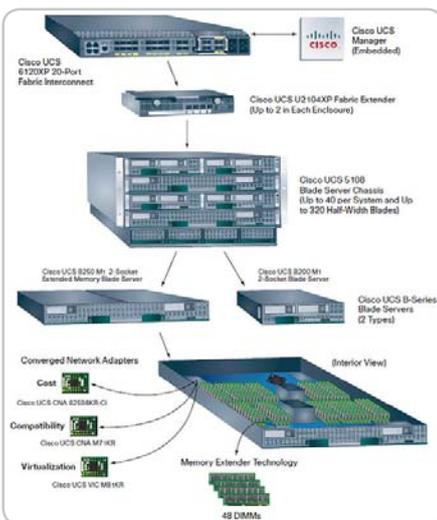# Galliker builds next-generation Cisco data center

Data Center without limits

Originally Galliker Transport AG only intended to upgrade its bandwidth to 10 gigabit per second in the core network of the data center at the company's headquarters in Altishofen, Switzerland. The most cost-efficient long-term option was to use highly scalable Cisco Nexus® 7000 Series Switches, a key component of a wider architectural approach based on the Cisco® Data Center Business Advantage framework. Interested to find out more about this innovative concept, Galliker's IT specialists decided to install the Cisco Unified Computing System™ (UCS). The solution delivers four times the performance previously provided by the entire computer room with its 11 server cabinets. It also means that the IT team can now provide virtual machines with far greater flexibility than before, with a fraction of the work that was previously involved.

Galliker truck/trailer combinations and articulated trucks are a common sight on the motorways throughout almost the entire European Union. The forwarding and logistics company in Altishofen has been a family-run business for three generations, and the impressive expansion strategy pursued by Galliker in recent years has enabled it to become a leading player in the European logistics sector. In addition to the headquarters in the canton of Lucerne, Switzerland, it has 17 subsidiaries in six European countries. The company used horse-drawn vehicles when it started up over 90 years ago; its fleet now comprises about 810 trucks, 1300 trailers, and 90 delivery vans. Galliker's largely automated logistics centers occupy a total area of over 320,000 square meters, and the company currently has about 2100 employees across Europe.

However, the secret of Galliker's success cannot just be expressed in figures; far more important is the uncompromising quality of all the storage and transportation services that it offers. Quite apart from the relevant International Organization for Standardization (ISO) certificates, this quality is reflected primarily in the reactions of its customers. A recent example is the "European Carrier Award" received by Galliker in 2009 from the car manufacturer Daimler in the car transportation sector. The name of the Swiss company is also seen as a quality brand in the frozen foods sector, where Galliker guarantees an uninterrupted cold chain through different ranges of temperature across all transport and delivery stages.

Individual components of the Cisco UCS
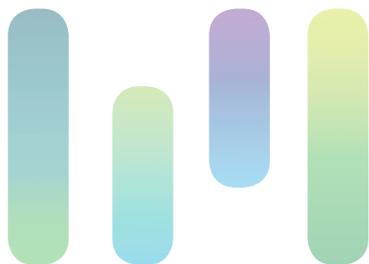
Markus Michalek from Cisco partner Netcloud is familiar with the requirements in the Galliker data center

Background

Founded in 1918, Galliker Transport AG is based in Altishofen, in the Swiss canton of Lucerne, and operates 17 subsidiaries in six European countries. The fast-growing logistics company has about 2100 employees. One of the company's guiding principles is combining quality and economic aspects with the concept of ecological sustainability.

Challenge

The former data center network had definitely reached its bandwidth limits. A technological evaluation of suitable network components prompted the question of an overall architecture that could help ensure the future value for Galliker's data center

Solution

Two Cisco Nexus 7000 Series Switches form the core of the new network, integrating two Cisco UCS systems. The two sets of two Nexus switches and UCS systems create a double data center, one of which serves as a back-up.

Benefits

- Highly-flexible provision of virtual servers
- Less work, reduced space requirements
- Simplified scaling
- Future-proof system and high investment protection

Network reached limits of performance

Galliker operates the software for its various warehouse and logistics systems in a mainframe environment, which, like everything else, runs in the company's own data center at the headquarters in Altishofen. That activity includes, for example, office automation, email communication, and file services. "The demands made on our data center are rapidly increasing," says André Dousse, IT expert in Galliker's data center. "And data traffic is also growing at the same fast rate. Our previous network just couldn't cope any more; by early 2010, it had definitely reached its bandwidth limits."

The idea of using powerful Cisco Nexus 7000 Series Switches in the core of the network was suggested to Galliker by Netcloud AG. Based in Winterthur with subsidiaries in both Berne and Basle, this highly specialized systems company is one of the most competent Cisco partner in Switzerland; in 2009, in addition to gaining the "Cisco Gold Partner of the Year" award, the company also won the title "Cisco Data Center Partner of the Year." "Quite apart from its various virtualization functions, Nexus 7000 was the most cost-efficient long-term option for scaling the network up to a speed of 10 gigabit," says Markus Michalek, UCS and data center product specialist for Netcloud at its Basle site. He went on to say: "Initially, blade servers were not even mentioned in our discussions; the main subject was the Nexus 7000. However, as this is not just a high-performance switch, but also a core component in the Cisco Data Center architecture, the discussions soon became more general. And then at some point, the question arose as to what direction Galliker's data center should develop in as a whole." And that was how the Cisco Unified Computing System (UCS) came to be mentioned.

Inspiring architectural concept

"UCS goes far beyond all the other blade systems available on the market," Michalek to says. "The solution combines high-performance blade servers, VMware virtualization, and SAN/LAN connections in one single complete system, which is uniformly administered. I know of no other data center technology that was developed so systematically with the focus on standardizing virtualization of different IT worlds. And it is precisely here, in the standardization of virtual servers, storage, and network, that the enormous cost benefits of Cisco UCS can be found."

A technology session, which also involved the manufacturer Cisco, was arranged so that the UCS philosophy could be explained in greater detail to Galliker's IT team. Dousse clearly remembers how sceptical he was before attending this workshop: "After a day and a half of intensive discussions, I was then absolutely won over by the network-focused approach on which UCS is based," says Dousse. "We have, of course, already had server virtualization. But an architectural model that is so universal, where the software is so far abstracted from the hardware, and at all infrastructure levels: I was just so enthusiastic." And anyone who is himself enthusiastic about something can convince others, for example, the people holding the purse strings in one's own company. So it was only a matter of a few weeks from the UCS workshop until the systems were on order.

Toward Unified Fabric

Cisco UCS turns the concept of what is called Unified Fabric into reality. What this actually means is that "normal" IP data and block-orientated storage data of all kinds flow along the same cable. This applies to Network Attached Storage (NAS) as well as storage protocols such as Small Computer System Interface over IP (iSCSI) and Fibre Channel. All these protocols are transmitted via a modified form of Ethernet, also referred to as data center bridging (DCB). With Fibre Channel, it is then called Fibre Channel over Ethernet (FCoE). The Nexus switching platform is incidentally also based on the Unified Fabric concept.

The Cisco Nexus 5000 Series Switch was the first Ethernet switch on the market to be able to handle FCoE. In the near future, this capability will also apply to the Cisco Nexus 7000 Series Switch core models, via a straightforward firmware upgrade. But what does this all mean in practical terms for the inner workings of a data center? "Firstly, Unified Fabric nearly always means a radical input/output consolidation on the server rack," says Dousse. "Where we previously needed 80 cables, we now only need eight: a reduction by the factor of ten. This not only cuts down the investment required, it also simplifies scalability. Installation and maintenance work are also substantially reduced."

The UCS chassis: small, compact, space-saving

Even interface cards are now becoming virtual

And what about the standardized virtualization of different infrastructure levels mentioned with Cisco UCS? Again, Dousse uses a practical example to illustrate this: "In the UCS, server and network virtualization are no longer separate. Our UCS B-Series blade system, for example, has what is called a converged network adapter, which can handle up to 56 virtual network cards. To connect a server with a network, we used to have to unscrew the chassis and manually insert a physical hardware card, if we were lucky and there was a slot free. This time-consuming process is now no longer necessary, and what is more, we can also manage with a smaller chassis. Quite simply, because we no longer need the space for slots and physical interface cards." The keyword "space" also gives Dousse the opportunity to make the following comparison: "Two UCS systems now deliver four times the performance previously provided by the entire computer room with its eleven server racks," says Dousse. At Galliker, 60 virtual machines are already running on Cisco UCS, with 20 more due to follow shortly. Dousse and his team take a relaxed view of the growing demands, which will undoubtedly be placed on Galliker's data center, because UCS simplifies scalability for them considerably. Configuration, including network and storage connection, is now carried out via so-called service profiles, which can be reused like templates. Dousse says: "When we fit a new blade, all we have to do is install the respective template, and the whole thing can be done while the system is still running, without requiring any interruption to the service." So the UCS profiles not only simplify scalability, they also minimise downtime, thereby improving availability, which is a benefit that has an impact on staff productivity throughout the company.

The UCS Fabric Interconnect links up not only the individual UCS system components, but also the UCS with the network and storage core systems in the data center

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