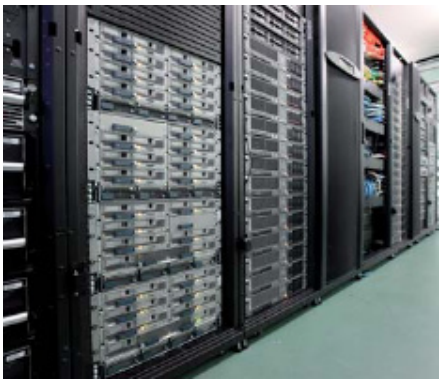
Fast, efficient, and cost-effective: With Cisco's Unified Computing System (UCS), KYBERNETIKA accelerates provision of virtual IT environments



Cisco UCS offers much greater equipment utilization

Urs Stephan Alder
CEO
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On-demand data center

KYBERNETIKA AG has installed the Cisco Unified Computing System™ (UCS) in its Datacenter On Demand in Zurich. This means that preconfigured client environments can now be switched live via a few mouse clicks and provided over the Internet. Whether they are used as test platforms or for training purposes, virtual server environments in a variety of sizes and with different facilities are available for remote access in a matter of minutes. KYBERNETIKA's use of Cisco® UCS radically simplifies IT management and also offers much greater equipment utilization. The Swiss systems company has also reduced the physical space that it needs for servers by about 70 percent, halved the number of adapters used on racks, and cleared away expensive cable harnesses. All in all, the change has brought about significant savings in terms of investments and in day-to-day operations, while turnover has in some cases doubled.

As far as KYBERNETIKA's CEO, Urs Stephan Alder, is concerned, Cisco UCS represents a giant step forward. Alder is a familiar name in the VMware community. As the owner and founder of KYBERNETIKA AG, he introduces hundreds of students to the secrets of IT virtualization each year. "Virtualization is one of the really big topics in the IT world," he says. "Initially, the focus is on greater efficiency, simplified management and sustainable cost savings. But virtualization goes further, allowing more flexibility in synchronising IT and business processes, and this flexibility enables companies to respond to new market demands with accordingly greater flexibility."

Virtualization is the key to integrating formerly isolated resources in data centers. Virtual machines are mobile and independent of physical server hardware. In a certain sense, IT is becoming dynamized: the utilization capacity of processors and storage media is increased many times over. Virtualization solutions from VMware are the most widespread around the world, used by over 130,000 firms, including all Fortune 100 and 96 percent of Fortune 1000 companies.

EXECUTIVE SUMMARY

Partner: KYBERNETIKA AG

Location: Zurich, Switzerland

Background

Founded in 1996 in Zurich, KYBERNETIKA AG provides professional consultancy, training, and implementation services in the field of VMware. Its USP is a top-class IT lab in which test environments can be rented on demand via the Internet.

Challenge

The technological upgrade of the IT infrastructure is an ongoing task for KYBERNETIKA. The provision of preconfigured VMware environments in particular needed to be simplified and accelerated.

Solution

The highly compact Cisco Unified Computing System (UCS) unifies tightly-packed blade servers and VMware virtualization with SAN and Ethernet connections in one complete system that can be uniformly administered. The UCS management tools also allow the system to be partitioned to be multi-client capable. The individual settings can be stored in reusable service profiles.

Benefits

- Preconfigured IT environments can be switched live in seconds
- Fast provision improves service quality
- I/O consolidation saves on investments
- Centralised, highly simplified management
- High scalability guarantees future viability
- Double utilization and new opportunities for turnover

"Setting up a non-standardized environment used to sometimes take a whole day. Nowadays, with the UCS service profiles, it can all be done with just a few mouse clicks."

Accessing the test environment via the Internet

Before any changes are made to critical applications in a data center, every system affected has to be thoroughly checked. Normally, an old server standing somewhere in a corner is fine for small evaluation projects of this kind. Things become more difficult, though, when larger projects are involved, and meaningful load tests are required. At this point, old machines have reached their limit. What would be needed is a complete test infrastructure set up and configured to run parallel to a productive platform. However, this approach costs money, a great deal of time, and manpower - unless one temporarily rents a remote data center as a test environment.

This is precisely the business model that KYBERNETIKA AG has successfully implemented with its Datacenter On Demand under the brand name "d-on-d." Using d-on-d, IT experts can install software and configure systems in exactly the same way as if they had the actual physical server in front of them. d-on-d is regarded as one of Switzerland's most innovative IT laboratories, equipped with everything that is required for a professional evaluation of different VMware scenarios, including Storage Area Network (SAN), management tools, and test licences free of charge.

Common platform for Ethernet and fibre channel

The latest milestone in the constant technological advance of the d-on-d platform is the use of Cisco Unified Computing System (UCS). This highly compact solution unifies tightly-packed blade servers and VMware virtualization with SAN and Ethernet connections in one complete system that can be uniformly administered.

A single UCS can accommodate up to 320 physical servers and several thousand virtual machines. Technologically, UCS benefits from the so-called Unified Fabric concept: Unified Fabric uses Fibre Channel over Ethernet (FCoE) to transport storage traffic directly to the server rack. This transport is made possible through standard extensions for 10 gigabit Ethernet, with which FC storage data is encapsulated for Ethernet transport. This breaks down the barrier between IP and FC networks, with the two worlds merging into one common fabric, resulting in a radical I/O consolidation. "We need 50 percent fewer adapters for the SAN connection to the servers. Savings on the cable front are considerably higher still. In addition to a reduced need for investment, having fewer adapters and cables facilitates scalability and drastically reduces installation and maintenance work," says Alder. The extremely high blade density in UCS is another factor; based on experience, data centers require up to 70 percent less space for servers for the same performance; this is space that no longer requires costly air-conditioning, lighting, or any other form of maintenance.

In response to the question of integrating Cisco's UCS into existing storage environments, Alder says: "UCS fits just perfectly in our virtualised landscape." Cohesive integration of such complex technologies is not easy; it is the result of years of co-operation with the manufacturers.

Safely avoiding the pitfalls of virtualization

What particularly impresses KYBERNETIKA's CEO is the uniform management made possible by Cisco UCS. "That is a crucial benefit, because inadequately integrated administration tools for servers, storage and networks are one of the most dangerous pitfalls in virtualization," says Alder. Market researchers share this view. According to Forrester, after a server virtualization, many administrators spend most of their time with policy mapping, debugging, and ironing out performance problems. If, for example, virtual machines are relocated on the hardware, all potential server hosts have to have the appropriate network configurations. One single configuration error may result in several virtual machines no longer having access to storage resources.

At the Datacenter On Demand in Zurich, about 70 percent of server space was saved.

"With Cisco's UCS, this type of occurrence is a thing of the past," Alder says. "Unified Computing means first and foremost unified management. Different types of resources, such as virtual servers, network connections, and storage allocations can, for the first time, be located together at one central point, making administering and controlling them a highly efficient process." To illustrate this, he cites the example of virtual network links (VN-Links), which are based on so-called port profiles. These profiles contain attributes such as the allocation to virtual LANs or quality of service settings. Thanks to the VN-Link, virtual network interface cards (NICs) are integrated directly into the VMware virtualization solution, which means that they can be configured concurrently with the respective virtual machine. In the past, a physical server had to be pulled out of the rack specifically for this, and a physical network interface card had to be inserted and removed again after use.

A question of economic viability

Configuration profiles are also the means of choice for partitioning the multi-client capable UCS into various domains. This partitioning enables several virtual client environments to be operated on the same UCS at the same time. Alder says: "Setting up a non-standardized environment used to sometimes take a whole day. Nowadays, with the UCS service profiles, it can all be done with just a few mouse clicks."

This means that the demonstration environment for a one-day VMware course for students can, for example, be replaced in a matter of seconds by the environment needed for the subsequent evening session. Once it has finished, the course no longer blocks the hardware simply because it cannot be reconfigured quickly enough in the meantime, as was previously the case. As a result, the utilization capacity of the hardware is doubled. It is a similar situation with the test environments for client data centers; in other words, the turnover can be doubled with the same hardware. Cisco UCS also promises KYBERNETIKA's d-on-d an overall higher turnover volume, because, from the client's point of view, the fact that a remote environment can be provided at extremely short notice represents a noticeable improvement in service quality.

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