

Cement Plant Paderborn

Fit for the Future with a Virtual Work Control System

At a Glance

BACKGROUND

The international company HeidelbergCement AG is one of the world's leading producers of construction materials. In the HeidelbergCement Group about 63 000 employees work at 3 000 production sites in more than 60 countries.

The company was founded in 1873 by Johann Philipp Schifferdecker. In 2015/2016 the HeidelbergCement Group generated a turnover of 13,5 billion euros. In Germany alone, the company operates 10 cement plants. Among these is the Cement Plant Paderborn which has already been taken over by HeidelbergCement AG in 2005.

CHALLENGE

The Cement Plant Paderborn was previously controlled by the process control system CEMAT V6.1 and PCS7 V 6.1 from Siemens. Both systems work with Windows XP respectively Windows Server 2003. These operating systems are not supported by Microsoft any longer and there is no hardware available on the market.

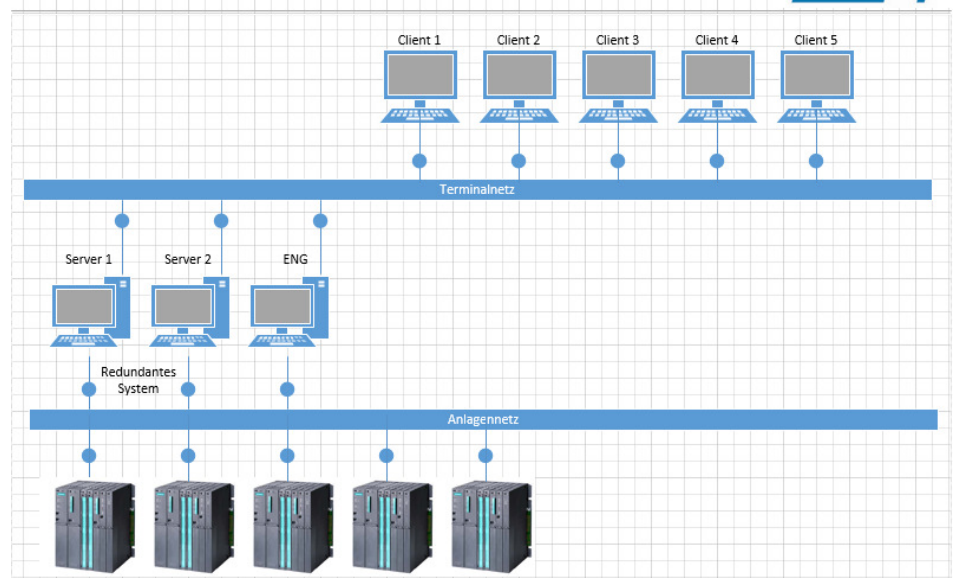
SOLUTION

The existing system shall be virtualized and mapped to 2 ESXi servers from VMware.

The Cement Plant Paderborn was founded in 1926 as Atlas Werke by architect Fritz Berchern und merchant Franz Grolla. With eight shaft furnaces and an output of 800 tons clinker per day, the Atlas Werke were in 1929 the biggest cement plant in the region. In 1936 the Atlas Werke were transferred to Anneliese AG. Since 2005 the plant is part of the HeidelbergCement AG.

Economic, ecological, and social targets are parts of HeidelbergCement Group's corporate mission and business strategy. To achieve all these targets, it is necessary to implement efficient production processes with a long term perspective. Since the process control system „CEMAT V6“ from Siemens, which is depending on Windows XP and Windows Server 2003, was still in operation in Paderborn, it became necessary to find a sustainable alternative. The support for both operating systems was significantly reduced by Microsoft and then totally discontinued in April 2014. Matching hardware is no longer available on the market.

Network Structure before Virtualization



Several computers are integrated in the process control system.

After extended testing HeidelbergCement decided in favor of a "virtualization of the process control system". Die PSA – Gesellschaft für Automatisierungs- und Integrationstechnik mbH mapped the system to 2 ESXi servers from VMware. All physical hosts from server 1 to the clients were virtually emulated on each of the two ESXi servers. The virtual control system now included 4 servers, two engineering stations and 10 clients. After installation of the virtual world, the physical servers 1 and 2 were taken off the network. The virtual servers now took over all tasks. The physical hosts of the clients and now serve as Thin Clients.

ADVANTAGES

- existing process control system can be retained
- efficient engineering
- independent from new hardware
- rapid commissioning
- short conversion time
- future-proof
- reduction of the total cost of ownership (TCO)

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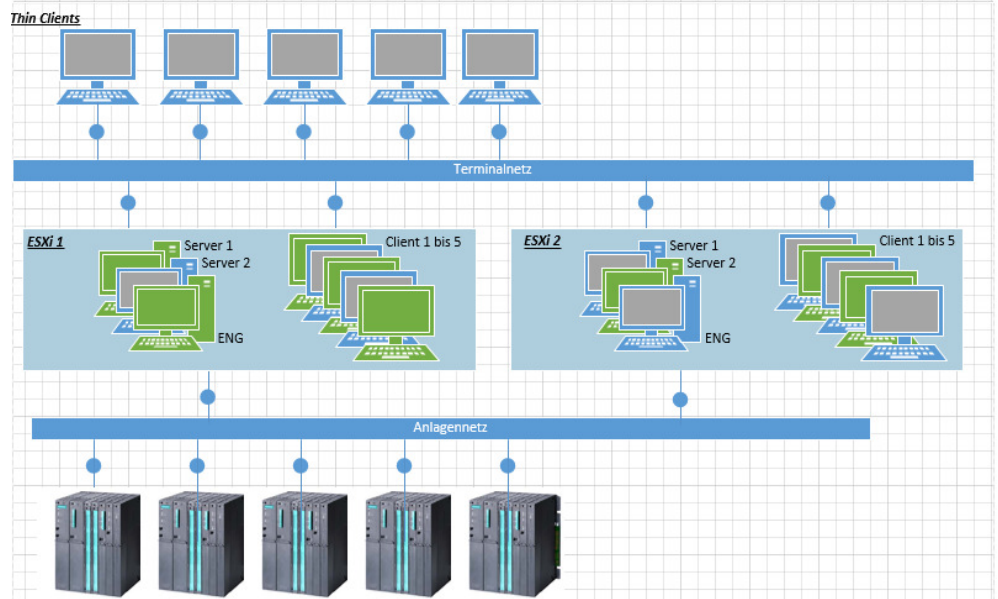
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Via RDP (Remote Desktop Protocol) these thin clients turn into virtual clients. The conversion from the physical world to the virtual world lasted 4 minutes!

Network Structure after Virtualization



Via RDP (Remote Desktop Protocol) these Thin Clients turn into virtual clients. The conversion from the physical world to the virtual world lasted 4 minutes!

The previously redundant system is now mapped twice to 2 ESXi servers.

Active on ESXi server 1

- Server 1, ENG, client 1, client 3 and client 5

Active on ESXi server 2

- Server 2, client 2 and client 4

Protect your Production Reliability by the Virtualization of your Infrastructure!

The development of new hardware or operating systems gets faster and faster. On an almost daily basis we hear from newly launched systems. Outdated hardware and older operating systems disappear from product portfolios. The reliability of many plants is endangered by this development.

Most companies have some older applications that still run on a Windows 2003 server – such as time recording, stock control or material flow! But what, if this computer crashes?

We successfully implement the virtualization of complete process control systems in various industries.

Some examples are:

- brewery (PCS7 V7 Braumat)
- cement mill (PCS7 V5 CEMAT V5)
- cement mill (PCS7 V6.1 CEMAT V6.1)
- gravel mill (WinCC V6)
- and others

The virtualization of process control systems is a modern alternative to an upgrade. This is an economically interesting and future-proof solution – also for the cement industry.