

# Swisscom Data Center Bern-Wankdorf: Award Winner

Winner of the Watt d'Or, Swisscom's new data center in Bern-Wankdorf is the first data center in Switzerland with Tier IV certification and one of the most exemplary in Europe.

The entire copper cabling is from R&M.



To date the district of Wankdorf in Bern has been famous for its exclusive fairs at the Bernexpo or popular soccer games in the Stade de Suisse. But since September 2014, the district can boast another highlight of international acclaim: Swisscom's new data center. It is one of the most modern data centers in Europe and is exemplary in terms of safety, reliability and efficiency.

A new cooling concept has resulted in a top PUE\* value of 1.2. In other words, 84 % of the energy used flows back into the IT power. The European average, at a PUE of 1.95, is just over 50 %. Cooling and ventilation require just 8 % of the power consumption – almost five times less than the European average.

The entire planning complied with the basic ecological philosophy of Swisscom. The data center does not operate any chillers. The building is cooled using recirculated air, supplemented in summer by the evaporation of collected rainwater. The waste heat heats the houses in the neighboring residential area. The non-interruptible power supply does not run on batteries, the manufacture and disposal of which are a burden on the environment, but on generators with centrifugal mass, called "no-break systems". Swisscom uses electricity from renewable sources.

### First Tier IV data center in Switzerland

Rudolf Anker, Head of Data Center Management and project lead at Swisscom, and his team are proud of this recognition: "We were the first data center in Switzerland to receive not only Tier IV certification from the Uptime Institute for maximum failure safety,

but also the Watt d'Or in the category renewable energies." The Swiss Federal Office of Energy awarded this accolade to Swisscom AG as owner and RZIntegral AG as planner of the data center in January 2015.

The new data center currently houses around 5000 servers which are running around 10000 customer systems. The connection to the data center in

Zollikofen, where the data and processes are mirrored, provides additional security.

Swisscom combines high demands of operational reliability with the necessary flexibility. Thomas Gygax, Data Center Hardware Services at Swisscom (Switzerland) AG in Bern, says: "We have to be able to install all kinds of different server types of the current

and next generation at all times and at every location. So we cannot afford to be limited by the network structure."

### Well-thought-out network structure

The structure of the new HDB (Hybrid Delivery Bus) is effectively a full mesh topology in the core layer and a tree topology in the access layer. The access switches are in a central wire center.

This means every rack can be connected centrally and every network made available everywhere. This central solution requires "a lot of copper" as Thomas Gygax puts it. And indeed R&M provided both the equipment to create 11 500 links with 23 000 Cat. 6<sub>A</sub> modules and the accompanying 280 kilometers of Cat. 7<sub>A</sub> AWG 22 copper data cable for the Swisscom data center. Rolled out, this could pave the road from Geneva to Bern and on to Zurich. The customer opted for the R&M High Density solution because it is quite simply unsurpassed. But it was not only the 48-port HD Panel that won R&M the contract. Standard compliance, quality and the experience from other projects were all factors Swisscom considered important. R&M also quickly developed individual numbering for the module holders.

The project was of major significance to the installers, too. According to Roland Probst, Divisional Head for the region of Bern at swisspro NW AG, the high-density infrastructure was "a challenge and certainly not standard in the industry." And the result is impressive: "The error rate is virtually zero," explains Roland Probst.

Thomas Gygax is also satisfied with the measurement results in the short range and with the reserves over longer distances: "Due to the central connection, it can happen that a server rack is eight to ten meters from the wire center. Over these distances, we naturally also need absolutely perfect signal transmission." ■

f. l. t. r.: Jürg Gerber, R&M Switzerland; Roland Probst, Divisional Head for the region of Bern at swisspro NW AG; Thomas Gygax, Data Center Hardware Services Swisscom (Switzerland) AG; Rudolf Anker, Head of Data Center Management Swisscom (Switzerland) AG



### SWISSCOM DATA CENTER BERN-WANKDORF

- Owner: Swisscom Immobilien AG
- Planning: RZIntegral AG
- Installation: swisspro NW AG
- Building volume: 54 000 m<sup>3</sup>
- IT usable space: 4000 m<sup>2</sup>
- Effectiveness: 84 %, PUE\* = 1.2
- Non-interruptible power supply with no-break systems (centrifugal mass operation)
- Commissioned: September 2014
- Infrastructure: Four modules each with 600 kW power output, can be extended to seven modules. Around 10 000 customer systems are currently running on around 5000 servers.
- Cooling: Air circulation, use of waste heat, rainwater evaporation

\* PUE, Power Usage Effectiveness = result of the total facility energy divided by the power needed for IT equipment



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