Arbeitsgemeinschaft Dresdner Studentennetz

Modern switches and Shortest Path Bridging provide a foundation for the high-performance campus network.

"By using SPB, we can provide each student with their own Layer 2 domain – regardless of whether they are at home or visiting friends at the other end of the campus."

Marcel Beyer, Chairman, AG DSN

The Dresden Student Network Working Group (AG DSN) operates a campus network that connects all the students' union residence halls with each other, with the Technical University Dresden network and with the internet. From planning, configuration and software development to financial management, all the work is done on a voluntary basis by approximately 50 active AG DSN members.

CHALLENGES

AG DSN's campus network provides approximately 4,000 students living in Dresden's halls of residence, with connectivity to the university network and the internet. The existing network could no longer meet current requirements. In order to provide each student with their own Layer 2 domain, both on the wired connection and on the wireless LAN, a new network technology was needed, as the switches in use only supported classic Ethernet and the Spanning Tree Protocol (STP).

AG DSN decided to update the data transmission layer (Layer 2) of the network, based on modern switches that are more efficient and support Shortest Path Bridging (SPB). Unlike STP, SPB ensures a loop-free topology using the shortest paths between Layer 2 devices, as well as parallel path use. Even large networks can be easily configured, efficiently operated and flexibly scaled without issues.

ACTION

To realise the project, AG DSN relied on tried and tested products including switches and software from Alcatel-Lucent Enterprise, and the expertise of ALE trusted Partner WBS IT-Service GmbH in Leipzig. In 2019, WBS IT-Service was commissioned to supply the components and to provide support and services. Subsequently, AG DSN took over the implementation on its own. They set up the network for approximately 4,000 users, which connects all user networks on the campus and ensures data transport between the users and to the internet. The network is now based on SPBM that creates the shortest path between the connected devices through their MAC addresses.

PRODUCTS AND SERVICES

Alcatel-Lucent OmniSwitch® 6900 Core and Data Centre Network Switches
Alcatel-Lucent OmniSwitch® 6860 (E and N) Stackable LAN Switch

RESULTS

Technical benefits

- Modern, more efficient switches
- Shortest Path Bridging (SPB) makes the interconnection of the entire campus network possible with more than 4096 L2 domains
- Cross-building Layer 2 network
- Easy data transport of L2 domains across many devices
- Provision of transparent bidirectional L2 circuits using SPB and the Intermediate System to Intermediate System (IS-IS) protocol
- Unlike with STP, redundancies can now be used in operation
- Alcatel-Lucent Operating System (AOS) provides uniform software platform for all network components

Financial benefits

- Flexibly scalable infrastructure
- Future-proof, as potential future requirements are covered
- Investment protection with service guarantee up to five years after end of life

User experience benefits

- IT administration: Less effort due to easier handling of configuration and network management
- Users: Stable network, less downtime

WANT TO TALK WITH SOMEBODY?
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Customer Story

MARKET: EDUCATION
DEAL IMPLEMENTED: 2019

COUNTRY: GERMANY
NUMBER OF USERS: 4,000

ORGANISATION:
Arbeitsgemeinschaft Dresdner Studentennetz

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