



Unil

UNIL | Université de Lausanne

University of Lausanne: 450 Centrally Managed Access Points Covering Three Sites

REQUIREMENTS

- Provide wireless networking coverage for all three sites of the University of Lausanne: Dorigny, Bugnon, Epalinges: 230 acres.
- Support network speeds and simultaneous connections in constant growth, while optimizing the number of AP installed.
- Make Wi-Fi network the standard Internet connection for UNIL students.
- Ensure quality connection at all times.

SOLUTION

- 321 access points ZoneFlex 7962.
- 121 access points ZoneFlex 7982.
- 8 wireless bridges (4 pairs) ZoneFlex 7731, deployment ready, in case of disaster.
- 2 controllers ZoneDirector 3500.

UNIVERSITY OF LAUSANNE (UNIL)

- Public university, founded in 1537.
- 13,000 students; 3,000 staff.
- Three sites: Dorigny, Bugnon, Epalinges: 230 acres in total.
- Seven Faculties (Law and Criminal Science, Biology and Medicine, Geosciences and Environment, Theology, Humanities, Social and Political Sciences, Business and Economics)

In the early 70s, the University established its primary campus encompassing 220 acres at Dorigny, on the edge of Lake Geneva, just west of the city. Two additional sites have since been added to the northeast of the city: Bugnon, where the University Hospital of the Canton of Vaud (CHUV), which is the primary site of the Faculty of Biology and Medicine, is situated; and Epalinges, where the Center for Immunology and Infection Lausanne (CIIL) and the Department of Biochemistry are located.

These three sites are interconnected with high-capacity fiber-optic links. All of the primary buildings are wired with 10 Gigabit Ethernet, while the university is connected to the Internet via a 10 Gbps link.

The deployment of a wireless network at UNIL began in 2003 using Cisco equipment. The network did not include authentication or encryption services, and only allowed limited usage within the university to exchange a few hundred megabytes of data per day. Coverage has gradually increased over the years; in 2008 the University's IT department decided to enhance its Internet access using the new 802.11n standard. A study was commissioned to evaluate the latest available network solutions. Upon the conclusion of the evaluations, Ruckus Wireless network technology was selected.

«At the time, Ruckus was still relatively new and did not have representation in Switzerland, so we contacted them directly in the United States,» said Mr. Nguyen, Telecom and Network Manager at UNIL. «Our main selection criteria were the availability of distributed data forwarding, excellent performance in radio wave and coverage, and the prospect of establishing a long-term partnership with our supplier. We do not regret our choice.»

450 access points managed by one controller

Ruckus Wireless became the sole supplier of wireless network equipment for UNIL. The 170 access points originally installed, covering 20% of the campus, were gradually increased to 450 Ruckus terminals, covering almost the entire 230 acres of the university's three sites.

The 450 access points (ZoneFlex 7962 and ZoneFlex 7982) are managed by a single controller (ZoneDirector 3500) and has a redundant second controller serving as back-up. All terminals are powered by PoE.



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Telecom and Network Manager
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PROXYMIT

The majority of Internet connections by students are made via the Wi-Fi

Today, over 60% of Internet traffic at UNIL comes from the Wi-Fi network. On average, nearly 5TB of data are carried on the network daily with most of the transfers occurring between the hours of 8:00 A.M. and 3:00 P.M., with 600 GB/hour and more than 5000 simultaneous connections at its peak. This traffic is constantly increasing. “Offering a high performance Wi-Fi network supports the University’s aspiration to encourage and facilitate better Internet access for students and teachers,” notes Alexandra Frincu, manager of the wireless infrastructure at the University of Lausanne. “A majority of student electronic devices and terminals are connected via the Wi-Fi network, and its use is becoming more widespread. In the new UNIL infrastructure, the usage of wired connections is decreasing sharply, and Wi-Fi is becoming the norm.”

With this trend in mind, UNIL has acquired a series of Wi-Fi bridges — Ruckus ZoneFlex 7731 — to be deployed between the main buildings to ensure the continuity of network service in the event of a disturbance (such as a fiber-optic link cut). During maintenance work on the wired infrastructure, office computers and terminals are redirected to the Wi-Fi network. “With the new Ruckus bridges installed, we saw speeds of 100 Mbps over distances of about a kilometer in the presence of obstacles,” notes Gael Ravot, Network Engineer at UNIL.

Six distinct SSIDs on campus

To meet all the user requirements while maintaining optimal security conditions, six distinct SSIDs were configured: three for University students and staff, and three for visitors.

There is a broad range of different types of workstations and devices connected to the network (i.e., Apple iOS, Android, Windows, Mac OS, etc.), which reflects the growing popularity of mobile devices. Over 60% of users are already accessing the network via smartphones or tablets.

Excellent reliability and stability

The Ruckus wireless network infrastructure has demonstrated excellent reliability and stability, and fully supports the continued growth of traffic; consequently, the help desk is in minimal demand. “The support provided by Ruckus Wireless for the management and development of our network is excellent, and we have a relationship of trust,” says Mr. Nguyen. “We’ve recently suggested possible improvements for some equipment, which were developed and tested, and then implemented in the new software version.”

