Session 3, Wednesday

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IT services in the University of Freiburg: The Wireless Library

Abstract
As libraries are moving from a paper-only environment to electronic information delivery users need access to such electronic data. The provision of data access terminals in a few library corners turns out to no longer match the needs of users who want to keep all their data on personal storage. More and more users bring their laptops or personal digital assistants into a library and expect to get access to the electronic library resources and the Internet using their own machines, in order to work in a familiar environment. Downloading and merging new information with the existing one is becoming a standard approach in research. Therefore libraries are faced with new demands and are looking for efficient means to cope with these requests.
While laptops are autonomous systems for a period of time their batteries need to be recharged regularly. Users require access to electrical outlets and in addition need to secure their machines against theft, usually with Kensington cables. They rarely find solid hooks where they can attach these cables.
Access to the library data network and the internet can be offered via network sockets in certain areas. Powerline technology can be used to extend such networks. However, most places in a library such as open shelf space are difficult to wire. As wireless technologies are becoming common place they can be considered as an efficient and cheap alternative. Three major technologies are available:
a) WLAN or WiFi
b) Bluetooth
c) Infrared

While Infrared connections require direct sight contact, Bluetooth radio technology works in any direction but has a relatively short range of up to 10m and offers a transfer rate of less than 1 Mbit/s. Both technologies are used by personal digital assistants and other small devices and Infrared can also be found in most (even older) notebooks. WLAN covers larger distances of up to 300m (in concrete buildings typically much less) and offers data rates of up to 11 Mbit/s (IEEE 803.11b) or 54 Mbit/s. The electromagnetic energy used is less than 0.1 W whereas mobile phones sometimes use up to 2 W.
The experiences gained in Universities prove that wireless networks can securely be integrated into an existing network. Using WLAN technologies a library-wide wireless network can be separated from the administrative network without requiring any new cabling. Users can be given access to such a network in a free and uncontrolled way. Alternatively modern Hotspot technology software allows libraries to issue day accounts or weekly accounts to users “over the counter” with very little administrative overhead, if any. In a University environment it is wise to integrate the library wireless network into the University’s wireless security concept to allow for roaming and use a separate hotspot gateway for external users.
Manufacturers offer solutions to integrate the antennas of the wireless access points into any environment, from medieval to modern. There are even solutions for cafeterias with access points hidden in plastic hamburgers.

CV
Born 1955, Mathematics/Physics in Erlangen (Diploma) and Oxford (M.Sc.), PhD in Mathematics (Essen 1981), Research positions in Sydney, ETH Zürich, IBM Yorktown, Habilitation (Essen 1988), Professor for decentralized Systems and deputy director of the Computer Centre in Karlsruhe (1992), Director of GWD Göttingen (1997), Professor for

Computer Science in Göttingen (1999), Professor for Communication Systems and Director of the Computer Centre of the University of Freiburg (2002), Prorektor since Oct. 2003.

Projects include the operation of DeNIC (Karlsruhe), implementation of a citywide wireless network (Göttingen) and a university-wide user authentification (Freiburg).