COMMSCOPE®

RUCKUS®

One city—one network
Scalable, secure WLAN for ground-breaking Smart City concepts in the Wolfsburg area

WOBCOM

CUSTOMER

WOBCOM GmbH

COUNTRY

Germany

ADVANTAGES

- A highly scalable solution enables ongoing WLAN network expansion by the provider

- Future-ready telecommunications design leverages a combination of 5G and Wi-Fi® 6 technologies

- Powerful hardware ensures fail-safe performance of all network infrastructure

- Low-maintenance system reduces operating costs

- Secure connectivity infrastructure makes it possible for corporate clients to access *freeWolfsburg* Smart City services

- Widely-available, high-speed open Wi-Fi makes Wolfsburg more attractive to residents, visitors and commerce

OVERVIEW

WOBCOM GmbH, a wholly owned subsidiary of Stadtwerke Wolfsburg AG, has been supplying the city of Wolfsburg and the surrounding region with telecommunication services for 25 years. About 100 employees provide a powerful network infrastructure for clients in Wolfsburg and also in parts of Gifhorn and Helmstedt. This includes fixed-line data connections, landline telephone connections, internet services, managed service solutions, mobile communications and broadband TV. Every year, several kilometers of fiber-optic cable are laid in the city of Wolfsburg in order to create a future-ready network.

REQUIREMENTS

- Establishing and developing a city-wide, high-performance Wi-Fi solution

- Providing infrastructure services as part of *freeWolfsburg*, the Smart City project in Wolfsburg and surrounding areas

- Taking over the existing Wireless Wolfsburg networking platform and developing it into a secure and scalable managed services platform

- Setting up digital services for both private and commercial clients

- Collaborating with business clients in order to expand the city-wide connectivity infrastructure with a flexible platform for enterprise services

- Provide a straightforward login process for users of the open hotspot network in Wolfsburg

SOLUTION

- Installing approx. 160 R320 and R650 indoor access points (APs) and 45 T310 and T610 outdoor APs plus two virtual SmartZone™ controllers with redundant data plane

- Setting up the *freeWolfsburg* expandable network solution with about 30 hotspots that will grow along with future requirements

All over the world, creative Smart City ideas are being implemented to increase the quality of life in cities. From intelligently controlled power grids and smart mobility concepts to digital management, the vision of a digitally networked city is no longer just a dream for the future.

A highly available and reliable wireless infrastructure is the foundation for the city of tomorrow. Public hotspots for residents and visitors are only the beginning; cities and communities that invest in digitalization strategies and internet of things (IoT) applications will also tend to attract corporate investment, for example, because they are ideally prepared for the future requirements of urban life.

Requirements

Wolfsburg is not only the "Autostadt" (automobile city,) but also a pioneer when it comes to the Smart City concept. The first public city-wide Wi-Fi network in Germany, Wireless Wolfsburg, was established there in 2010. Even then, the aim was not to set up isolated hotspots, but to lay the foundation for an extensive wireless infrastructure to realize the full vision and potential of a true Smart City.

Marius Kaluza
(System Network and Security Engineer and Project leader *freeWolfsburg*)

However, increasing demand for bandwidth and speed meant that regular upgrading of the network infrastructure was necessary to guarantee performance levels. In 2016, WOBCOM GmbH finally decided to establish extensive connectivity coverage in the city as well as Wolfsburg and its surrounding region. Several kilometers of fiber-optic cables were laid in the city as the foundation for the Smart City project.

> "We are users of our own products and also rely on the open WLAN network for our day-to-day work. No matter where I am, with *freeWolfsburg* I have super connectivity. That means that the whole city is my office."
>
> **Giovanni Coppa**
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> **Head of Data Center and Cloud Innovation, WOBCOM GmbH**

One of the aims of the project was to construct a future-ready WLAN infrastructure that offered added value over the long term for citizens and visitors, as well as the city itself and the companies based there. Not only should private clients have hotspot internet access, but business clients should also be able to securely communicate and work via the public network.

Solution

The project started with RUCKUS® T300 APs, which were installed in the Porschestraße, in the middle of the pedestrian zone of Wolfsburg. However, this free Wi-Fi solution was only set up at certain locations and was not available across the city. Therefore, additional points of interest with high visitor frequency were also identified. Little by little, they were integrated into the *freeWolfsburg* open Wi-Fi network. Nowadays, among other things, the network covers museums, the main railway station, the Congresspark events center, the Planetarium and almost the entire 1.5-kilometer route from the main railway station to the Volkswagen Arena.

In addition to supplying free Wi-Fi to city residents and visitors, the Smart City project is also tailored to meet the needs of business clients. WOBCOM GmbH itself already uses *freeWolfsburg* instead of its own WLAN network. Thanks to what has now become an extensive WLAN infrastructure,

(from left): Felix Gleische (System Engineer), Giovanni Coppa (Head of Data Center and Cloud Innovation), Michael Cichosz (Datacenter Operations Engineer)

excellent network quality is available to its employees everywhere, so they are able to work from virtually anyplace in the city.

"The whole of Wolfsburg is our office," confirms Giovanni Coppa, head of data center and cloud innovation at WOBCOM GmbH.

This possibility is also open to other companies in the city. WOBCOM GmbH plans to develop this business concept further and make participation in and use of *freeWolfsburg* possible for business clients. In this way, open network "clusters" are emerging, thereby creating new *freeWolfsburg* areas within the greater Wolfsburg region. Following this, WOBCOM GmbH wants to link these clusters with the existing points of interest to create broad-scale availability of the public network. One example of this is the SPLACE housing project implemented by Volkswagen Immobilien in November 2020. This residential complex has been equipped with various smart applications via *freeWolfsburg*.

"Connectivity is our business, but a comprehensive 5G network will not be a realistic concept for some years to come. We are, however, confident that a combination of Wi-Fi 6 and 5G technologies will be both possible and future-proof. Therefore, we considered it important that all indoor and outdoor equipment for the relevant hotspots in Wolfsburg and the surrounding area should have Wi-Fi 6 capability. We were one of the first users of the new Wi-Fi 6 APs from the CommScope® RUCKUS portfolio so that we could guarantee technological flexibility," explains Coppa.

When it came to project implementation, WOBCOM GmbH called on the support of BMAnetworks GmbH. The experts from Hamburg brought a flexible, solution-oriented attitude, but also deep expertise.

"BMAnetworks GmbH has some excellent technical experts who support and assist us with complex projects and their conception and also during the installation phase—providing a second pair of eyes," explains Coppa regarding the choice of BMAnetworks GmbH.

WOBCOM GmbH has succeeded in implementing *freeWolfsburg* to the extent that citizens increasingly prefer the public network over their private ones. The streaming quality is often better than with a domestic WLAN.

"In the warmer months, lots of young people sit around the main railway station and use the highly available internet for updates, for listening to music, or for streaming films," confirms Coppa.

"It is not always the case that you find so much innovation in one place. As a system integrator, we at BMAnetworks provide support for WOBCOM GmbH—making seamless operation possible."

Nils Newe
Sales Manager, BMAnetworks GmbH

Meanwhile *freeWolfsburg* has a total of 29,000 registered users and more than 3,000 active users each day. In all, about 200 APs from the RUCKUS portfolio have been installed for this at various locations in the city since 2016. In addition, a RUCKUS virtual SmartZone cluster with redundant data plane has been assembled to simplify management and enable rapid detection of new APs for immediate attention. Thanks to the patented BeamFlex® antennas of the CommScope's RUCKUS solutions, the new network is expected to adapt well to new users, devices and applications. The software is characterized by its robustness and dependability, which reduces dependence on IT.

"With the CommScope RUCKUS solution, we can achieve a high degree of success with fewer resources," states Coppa.

With the platform's high-stability, high-performance back-end structure, it would be theoretically possible for all residents of the city of Wolfsburg (about 125,000 people) to access the internet simultaneously without degrading network performance. This has already been tested with the new Wi-Fi 6 APs. As the APs are directly connected to the computer center, the infrastructure is set up like a city-wide LAN.

"The digital revolution and the restructuring of the Smart City initiative in Wolfsburg is outstanding," says Nils Newe, sales manager at BMAnetworks GmbH.

The next project is to provide uninterrupted free Wi-Fi, which should be available to visitors to the international trade fair (the IZB) held by Volkswagen every two years—with access from the main railway station to the Volkswagen Arena and then on to the exhibition site.

"Around 50,000 trade visitors and around 800 exhibitors are expected at the IZB. It is an enormous responsibility," says Newe. This means WOBCOM GmbH makes a certain volume of available to each user.

"It is not always the case that you find so much innovation in one place. As a system integrator, we at BMAnetworks provide support for WOBCOM GmbH—making seamless operation possible. In the final analysis, this is not just a matter of setting up APs; the aim is to create trouble-free connectivity with adequate bandwidth and a smart solution for the widest variety of Smart City applications in a smart city. The prerequisite for this is a network infrastructure that is of a technically high level and high quality and also one that remains scalable," comments Newe.

FreeWolfsburg already reaches the area of the Nordkopf and Hugo-Bork-Platz, along the complete Porschestraße to the Planetarium Wolfsburg. In addition, *freeWolfsburg* is available at the CongressPark Wolfsburg, the Wolfsburg Art Museum, the City-Galerie Wolfsburg, the eMobility Station (VW), Wolfsburg Castle and the EisArena Wolfsburg (https://www.grizzlys.de/news_1146.html, https://twitter.com/wobcom/status/1165995687202496517) at the Allerpark Wolfsburg (https://fb.watch/4puyRHG7Cs).

In the future, WOBCOM GmbH would like to continue the collaboration with BMAnetworks GmbH and extend the use of the RUCKUS solutions from CommScope. Right across the city, the number of APs should double in 2021, thereby creating yet more connectivity. This means Wolfsburg will continue to be a pioneer in the German Smart City landscape and an example for forward-looking digitalization initiatives.

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