CASE STUDY: KAISERSLAUTERN, GERMANY

# Kaiserslautern installs Security Cameras for FIFA World Cup 2006

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With a population of 100,000 Kaiserslautern is the smallest of the 12 German cities hosting the FIFA World Cup 2006. Now this small town is facing its biggest challenge yet – providing logistics and security for players, fans and citizens alike.

## The Challenge

When the 12 venues for the World Cup 2006 were chosen security was one of the most important factors for the selection committee. In addition to the whole stadium including parking spaces, exterior facilities and the connecting walkways and streets, the city center and several sites chosen for public viewing had to be monitored as well. A surveillance operation on this scale required careful planning by the local police who had to distribute their personnel evenly between the different areas. The most pressing question was "How do we ensure maximum security at all sites while distributing our forces efficiently and cost effectively?"

## The Solution

Deploying personnel at all sites simultaneously would require far too many officers and the resulting cost would be too high. For this reason the city decided to install stationary cameras at all sites that required special attention (see illustration). The feeds from these cameras were to be sent to the police headquarter "Polizeipräsidium Westpfalz" on Logenstraße 5.

## The Problems

To collect the video feeds from 40 cameras positioned in an area of about 1 square kilometer several dedicated lines were needed for the duration of the World Cup. This would have been an enormous fincancial burden for the planners.

Since a cable-based approach was too expensive the organizers starting looking into different wireless solutions. After several tests they ruled out the classic WLAN system operating at 2.4 GHz as this technology could not deliver the bandwidth necessary for the video feeds. To keep costs low a solution had to be found that uses licence-free frequency bands. This left the 5.4 GHz band as the only possible way to go. Following a convincing presentation and a successful field test the organizers decided on the Canopy technology.

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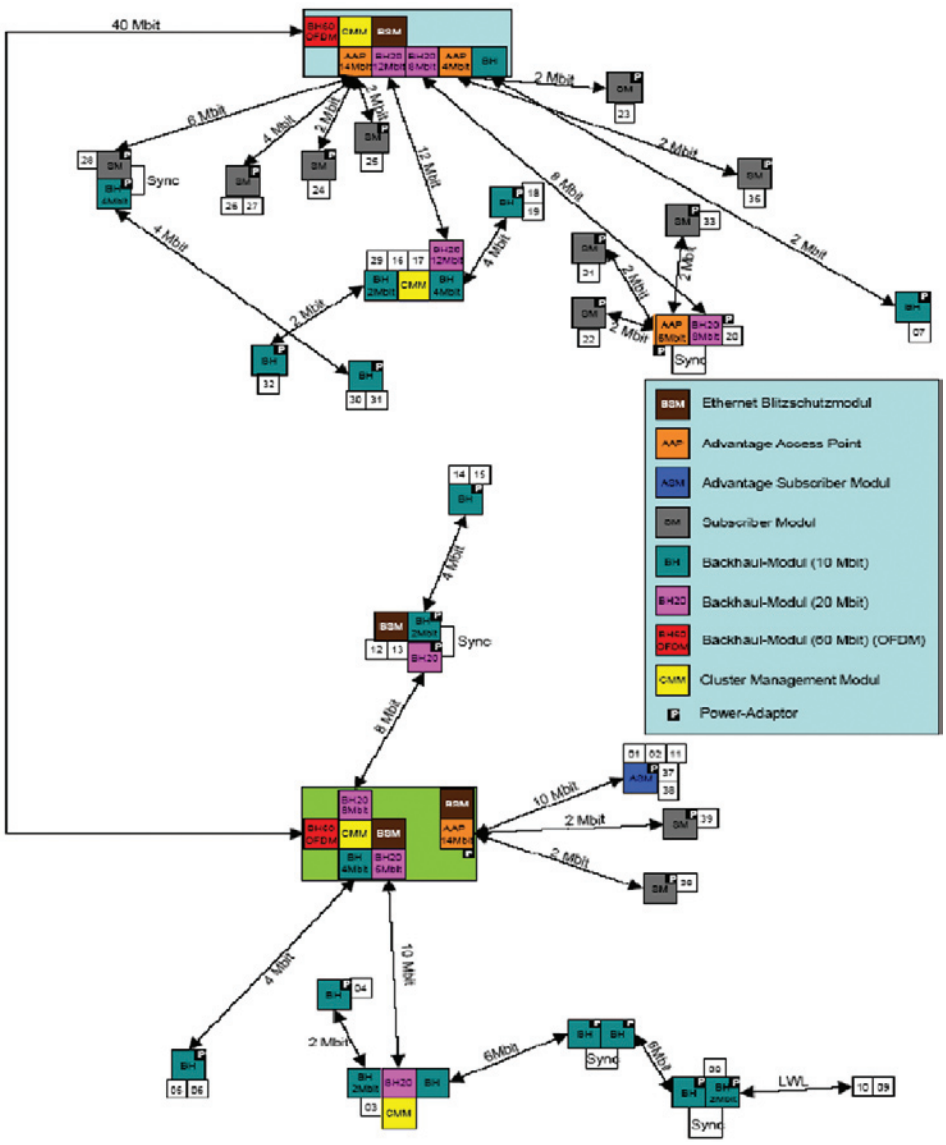


The main contractor for the project was Securitas Systems GmbH. Securitas was responsible for planning the whole project as well as acquiring and installing all the necessary hardware. Together with Ntplus they developed a network structure and a frequency allocation plan. All Canopy modules were programmed in house at NTplus.

The whole system had to be developed to accommodate a bandwidth of 2 Mbit per camera. This meant that about 80 Mbit of video data would have to be sent to the police headquarter every second. Even at this data volume there had to be sufficient bandwidth to transmit the operating instructions for the cameras so they could be swiveled around 360°.

### Utilized Canopy Technology

- 1 OFDM backhaul link, 150 Mbit
- 4 Advantage Access Points
- 8 backhaul modules, 20 Mbit
- 19 backhaul modules, 10 Mbit
- 11 subscriber modules
- 1 Advantage Subscriber Module
- 4 cluster management modules (micro)
- Several modules for lightning protection

### Additional Technology

- 40 high speed dome cameras with vandalism-proof casing
- Network video server
- Several operating consoles featuring the latest in net control technology at the police headquarters
- Storage facilities for images and video streams using ring buffer technology

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