

NETWORKING

D-LINK PROVIDES WIRELESS COMMUNICATIONS FOR CITY OF JOHANNESBURG

Case summary:

The City of Johannesburg (CoJ) is deploying a high-speed internal wireless network to cater for its communication and data transfer needs between users within its buildings. Currently the largest installation is located in a single building at Tuso House, connecting over 500 users. Phase 2 will see this increased to 800 users in the same building. The building is connected with broadband wireless.

D-Link was chosen as the preferred product for this internal network, which is the largest wireless installation for a single client in South Africa. It also makes the CoJ the biggest D-Link wireless user in the country. D-Link ensured that not only was the equipment used of sufficient capacity and reliability, but also provided and installed it as cost-effectively as possible. In addition, they were always prepared to roll up their sleeves to solve initial teething problems with the rollout and D-Link's high level of client support is giving the CoJ great of peace of mind.

Tobie van Schalkwyk, Country Manager for D-Link in South Africa, says that the D-Link team was highly motivated. "D-Link felt privileged to be selected to work on a project of this importance with the City of Johannesburg. We were determined to leave nothing to chance in a concerted effort to provide the best solution and service possible," he explains.

The CoJ has already experienced a number of benefits of having the new network, with cost-savings, better internal communication, increased productivity and empowerment, and ease of use and deployment being primary amongst these.

Client Background: South Africa's largest metropolis

The City of Johannesburg (CoJ) covers an area of roughly 1,644 square kilometres and is South Africa's largest metropolis with a population of some 3.2 million people. It is the most economically active location in Africa and is the provincial capital of Gauteng Province, the wealthiest province in South Africa.

The South African scenario provides a perfect opportunity to solve technological problems with wireless connectivity, given its vast area and the demands placed on its technical infrastructure by a burgeoning population that needs to be technologically serviced in order for the country's economy to flourish at the necessary rate.



Tobie van Schalkwyk
D-Link Country Manager South Africa

As the largest municipality in South Africa, and one of the largest in Africa, the CoJ has a massive responsibility towards the communities it serves. In a phase of South Africa's development where there is increasing pressure on infrastructure, a municipality that can function efficiently and effectively is a crucial requirement. The CoJ is thus in a position where it needs to utilise the most efficient logistical mechanisms available, and to continually optimise them. Users also need to feel empowered by the technology and need to be confident that it will streamline their work activities.

COJ has over 300 buildings and 5000 computer users to cater for, and needs to ensure that internal communication between users is fast, seamless and cost-effective. The aim is to have all locations and users wirelessly networked in the near future.

The situation: Network costs and user mobility

The CoJ was facing the ever-increasing costs of maintaining and expanding its internal networks, as the need for more data transfer and to connect and communicate with more and more people increased. Access to better network connectivity was becoming a necessity.

Van Schalkwyk elaborates: "In a wired network, more users mean more network points to be installed and maintained. Having to constantly add and administer these can contribute significantly to an organisation's monthly overhead costs."

Herklaas du Plessis, Deputy Director IT (Communication Technology) for the City of Johannesburg, sums the situation up succinctly: "Cabled networks have extremely high costs associated with them and we also have to cope with the constant movement of users within the building. We also needed to save costs on switching equipment and cabling."

This translated into a need to source and install systems which are not only robust, reliable and cheap, but which can also cope with expansion in a way that is not going to create additional expenses down the line.

As du Plessis points out, mobility of users within the building was a big concern. With so many users in one building, many of them constantly moving around, the CoJ needed to find a way of ensuring that users are never stranded without network connectivity, no matter where they are in the building. Users need to be able to constantly communicate with each other to work as efficiently as possible, and this means that they need to be connected to the network as constantly as can be arranged.

Du Plessis feels that wireless technology is particularly suited to CoJ and the challenges it faces, and it became clear that a wireless solution would be the optimum way to solve both the equipment cost and maintenance problem, and the need to connect users who are constantly on the move.

D-Link provides the wireless solution

D-Link was chosen as the preferred technology supplier and implementation partner. This was not only due to the equipment it could provide and its technical expertise. D-Link's commitment to the project and its levels of service were critical in ensuring that the company was chosen.

As Du Plessis explains: "D-Link was prepared to prove their equipment and when required did not hesitate to fly out engineers to solve teething problems." He says that other vendors were not prepared to come out to do on-site demonstrations of their equipment for CoJ.

D-Link's highly competitive pricing was also a pivotal consideration in obtaining the project. They were able to provide equipment that was capable of meeting all the needs of the CoJ, at a lower cost than their competitors. "The pricing of this equipment is very important to us," says du Plessis, "and the equipment provided by D-Link can do everything that the other devices can do - it is only the pricing that differs from the others."

D-Link managed the implementation from top to bottom, in conjunction with CoJ staff. So far over 1000 x DWL-G520 cards have been installed, with over 200 additional DWL-G650 cards. The problem of burgeoning physical network access points was addressed with the installation of over 200 x DWL-2100AP wireless network access points.

D-Link further proved their willingness and ability to go to great lengths to provide a seamless implementation when a new Radius server was installed. This hardware was new to everyone, but D-Link ensured that it would not turn into an obstacle. Du Plessis comments: "The Radius server was new to all of us in this environment, and they flew out engineers from Taiwan to assist and sort out issues."

The CoJ has found that this excellent level of service has been ongoing, and that D-Link is always in a position to sort out any post-installation problems, and to provide any training needs that arise. Says du Plessis, "They are a phone call away, and are there when you need assistance. They also provide training free of charge to those CoJ staff charged with resolving issues."

Challenges

With the need to service such a large user base in one location, the problem of wireless interference became relevant. "The issue was that there are around 180 users on one floor. This was an obstacle as WI-FI can only have 3 non-overlapping channels. Thus planning was essential to prevent interference," says du Plessis.



Herklaas du Plessis
Deputy Director IT: Communication Technology
City of Johannesburg

He explains how this was resolved: "If all users make use of the network at the same time, we are able to accommodate them by using one access point per 30 users sharing the band-width." This proved to be a successful approach. "After implementation no issues network related," he says.

The other issues that were discovered were hardware related. "There were desktop issues such as PC's with only 64MB RAM running Windows 2000 which proved to be not enough," du Plessis says, "but there were never any wireless LAN issues."

Cost savings already showing

As expected, the biggest benefit that has been derived from the wireless installation has been cost saving. There is no longer a need for network cabling and switching equipment, which has slashed the costs of installing and maintaining the network. Du Plessis elaborates: "Since the wireless network became secure, when switched on it actually reduced the number of switch ports that needed to be provided to the end-users. One switch port can cater for multiple users. Due to users moving around, even inside their offices, in some cases in the past we had to have more than 3 network points in a single office. This does not happen anymore and is a big cost saving."

Because the wireless deployment was budgeted for as part of the CoJ's normal IT budget, immediate cost figures are not available, but Du Plessis has been able to ascertain that the cost of the wireless access points paid itself off within the first month. This represents the costs that would have been outlaid in physical network access points over the same period, using the previous cabled network system.

Vastly improved communications and productivity

The wireless network has made a world of difference within the locations in which they have been deployed. Employees can now go about their business as usual, without having to worry about not being able to access others in the same building who may be away from their network access points, as was the case in the past. Centralised information can also now be accessed by any allowed user from anywhere in the building. These changes have made staff more efficient and have improved their ability to carry out their work no matter where they are on the premises, thus adding to their feelings of empowerment in the workplace, and enabling them to get the job done quicker. The system has shown itself to be up to this task.

Du Plessis says that although the staff was "very cautious" initially, as is the case with most new implementations in companies, none of the issues that they encountered were as a result of the new wireless network.

Cheap and quick to deploy

On of the biggest headaches that used to face the CoJ was moving personnel from an existing location to a new one. "A move of this nature would typically mean entirely recabling the new premises to 'transfer' the network connectivity that was available at the old location. Inevitably new equipment has to be acquired and all re-usable equipment and cabling physically moved to the new building," explains D-Link's van Schalkwyk. "With a wireless network, this problem simply disappears. All that needs to be moved are the wireless access points and their supporting devices," he says.

Du Plessis takes this up: "If users move from one building to a new one, it is now very economical, as it is easy and cheap to move this equipment." He says that the speed of the original deployment and the speed at which new deployments can be made is one of the unexpected benefits of the new implementation.

Du Plessis says that the implementation has been a success and that the CoJ is "going wireless crazy". The benefits have been clear and obvious, and the CoJ is investigating more ways of utilising the network to streamline other business processes and tasks. Internal Voice over Internet communication (VoIP) is being looked at, and is in the proof of concept phase. Du Plessis does not envisage any reason not to roll it out, as he says it "works fine through the wireless network as long as signal levels are good". Video conferencing is another obvious technology that the CoJ is exploring.

Given the CoJ's mammoth brief in servicing the population of Johannesburg, this is all good news. "These measures are all geared to help us become more efficient, and in so doing, improve service delivery to our constituents," he concludes.

