Parklands College Leads the Way in Providing Best-Practice Wireless Network Access to South African Students

Summary

Company:
Parklands College and Christopher Robin Pre-Primary

Industry:
Education

Challenges:

- Develop a best-practice ICT infrastructure that enables delivery of outstanding learning programmes across an expanding campus and for a growing number of students
- Deliver secure, high-speed network connectivity for every student over multiple devices
- Create a highly reliable infrastructure for both students and other college applications

Selection Criteria:
Parklands evaluated best practices in educational networks around the world before entering a competitive tender process to select the most reliable, scalable, manageable, and cost-effective network that could support its requirements.

Network Solution:

- EX4200 Ethernet Switches
- EX4500 Ethernet Switches
- WLC800 Wireless LAN Controller
- WLA522 and WLA532 Wireless LAN Access Points

Results:

- Increased network reliability to successfully deliver 1:1 learning programme
- Provided support for multiple services on a single network at a lower cost point
- Delivered comprehensive control and management
- Deployed a scalable platform for future expansion

Parklands College and Christopher Robin Pre-Primary was established to provide excellence in education for students from South Africa. Initially established in 1980 as a Pre-Primary school, it has since expanded to provide the highest standards of education for students up to Grade 12 level. Parklands now has approximately 1,200 students spread over three campuses.

Integrating technology into its learning programmes was always a part of Parklands' ethos right from its inception. Today, it aims to provide state-of-the-art Information and Communications Technology (ICT) resources that differentiate it, even at an international level, from other schools and colleges.

The integration of ICT is a fundamental part of the teaching and learning process at Parklands. Students rely on it to develop their skills across disciplines ranging from animation and film projects to learning Mandarin, as well as more conventional subjects. To underpin this approach, Parklands College has been operating an Apple "1:1 programme" since 2010, a first for Africa, which allows students to bring their own Apple devices to school. Many students use multiple devices—such as cell phones, iPads, and MacBooks—each of which must be supported by the school's ICT infrastructure.

Challenge

Parklands initially deployed an ad hoc series of wireless access points, but as more and more students connected to the network, it began to suffer from content crashes, dropped connections, and even entire failures. It became clear to the Parklands ICT team that its 1:1 learning programme would need a new solution to keep pace with student demands.

In addition, in 2010, Parklands started work on a new campus as the school prepared to expand further.

"If we started the project over again, we'd do exactly the same thing. It's perfect. It works and it runs with little maintenance required beyond monitoring. Now we have ubiquitous, stable, transparent connectivity that has made our 1:1 learning programme really successful."

Richard Knaggs, Director of IT, Parklands College

The new network needed to support access for both the increased numbers of students and devices, as well as provide a reliable and secure platform to run additional IP-based services including VoIP telephony, CCTV, and biometric systems to track student attendance and physical access. All of these services would be IP-based, and all needed a robust network that could support them using their own separate VLANs.

The Parklands ICT team studied best-practice use of ICT in education at leading establishments all around the world. It concluded that a high throughput network capable of supporting students' multimedia demands and their multiple devices was needed, as well as a platform that would be scalable for the school's network services for the foreseeable future.

Selection Criteria

Parklands based its initial requirements and tender documents on the capabilities of its incumbent network provider, in expectation that it would provide the best solution available. In particular, they were looking for a network that:

- Was extremely stable and robust
- Delivered seamless connectivity as users moved between access points
- Offered secure support for guest access
- Could scale in terms of capacity and numbers of access points
- Could be centrally managed with high levels of control and reporting

Solution

Parklands evaluated responses from several organizations and it was particularly impressed by the capabilities offered by the Juniper Networks solution, proposed by local integrator CCI. Although it was able to offer equipment from Parklands' incumbent provider, after considering the school's requirements, CCI recommended an end-to-end Juniper solution for both wireless access and switching. This gave Parklands equivalent connectivity, but with greater control and manageability at a lower cost point.

The solution included Juniper Networks® EX4500 and EX4200 Ethernet Switches, in both Power over Ethernet (PoE) and non-PoE mode. The wireless connectivity was provided by Juniper Networks WLA Series Wireless LAN Access Points and controlled by WLC800 Wireless LAN Controllers. RingMaster provided the wireless management suite and SmartPass software enabled guest access.

The network provided Parklands with a 10GbE backbone interconnecting two wiring closets in each wing of the campus using Juniper Networks Virtual Chassis technology in a fully redundant configuration. Virtual Chassis technology enables multiple interconnected EX Series switches to be managed as a single device, even when they are deployed in different wiring closets, on different floors in a building, or even in different buildings, dramatically simplifying management and reducing operational expenses.

A number of separate VLANs were also used to separate voice, CCTV, data, and access control services.

CCI, the local Juniper partner, installed the equipment as well as a single-mode fibre ring and copper cabling to 800 network points as part of a full turnkey solution. Juniper directly supported the project with its Juniper Care service, and CCI provides ongoing maintenance.

"CCI and Juniper have been there to help advise, support, and train us and to help us scale," says Richard Knaggs, Parklands College IT Director. "We felt we didn't have access to that sort of support from our previous networking vendor."

Results

Parklands' students now have access to a network with increased speed, greater device support, and improved reliability.

"Students' demands on the network are huge, using social media, data sharing, and lots of video, both for learning and recreation," says Michael Swart, enterprise architect at Parklands College. "Outstanding wireless connectivity is critical to our learning programme, and that's exactly what Juniper has provided."

Parklands now hosts regular visits from other schools that are looking to increase the effectiveness of their learning programmes by implementing best-practice ICT systems. It is seen as a leader in the integration of technology into teaching and learning across the country and recently hosted the first Google in Education Summit in Africa.

Next Steps and Lessons Learned

The school already plans to extend the network and nearly double its current size as it expands its campus to support more students. It also plans to replace the remainder of its legacy networking equipment with Juniper Networks technology to overcome scaling limitations.

"If we started the project over again, we'd do exactly the same thing," Knaggs says. "It's perfect. It works and it runs with little maintenance required beyond monitoring. Now we have ubiquitous, stable, transparent connectivity that has made our 1:1 learning programme really successful."

For More Information

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