Georges River Grammar upgrades wireless network for BYOD

Reliable, easy to manage HPE infrastructure meets Bring Your Own Device challenges

Objective
Refresh complete wireless and wired network infrastructure to support access by all students and staff

Approach
Investigated the relevant products available in the market and evaluated solutions from four vendors, including meeting HPE engineers to discuss requirements

IT Matters
- Provided reliable, seamless connectivity for users, with redundant core switches maximising availability

- Increased speed of network by a factor of 20, from 1Gbps to 20Gbps, improving student access to resources

- Reduced time to manage network and user devices through IMC software, including cutting troubleshooting time by 30 per cent as well as saving time due to fewer logon failures

- Simplified access for students with no need to install any software on their devices

Business Matters
- Enabled school to get maximum value from its investment due to the HPE lifetime warranty

- Ensured safe and compliant access of students to the internet

- Provided future-proof infrastructure with ability to scale as student numbers grow

Georges River Grammar chose Hewlett Packard Enterprise to provide a complete wired and wireless network, including switches, controllers and access points. This delivers fast, reliable access for students and staff including those using their own devices. HPE Intelligent Management Center (IMC) provides centralised management, saving time for the school's IT team.

Challenge

Refresh wired and wireless infrastructure
In schools around the world, technology is creating new opportunities for learning and new challenges for IT staff.

One school meeting these challenges is Georges River Grammar in Australia. The school has around 800 pupils covering an age range from five to 18 years as well as nearly 100 staff. Recently, it needed to upgrade its ageing wired and wireless network to support more access by students.

"The model that everyone is going to is Bring Your Own Device (BYOD) and 1:1, where kids bring their own laptops or tablets," says Matthew Gebran, network manager at Georges River Grammar School. "We needed a complete wireless infrastructure that would have an access point in every single room to provide coverage, and the backbone and switches to handle moving all that data around."

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Georges River looked at possible solutions from four different companies. As part of this activity it talked to Hewlett Packard Enterprise partner Virtunet and met HPE engineers at their office in Sydney to discuss the requirements.

Following this process, it chose a solution from HPE that includes switches, access points and wireless controllers. The new network provides access for staff, students and guests with temporary guest usernames and passwords that expire automatically.

"Our decision was influenced by our past good experience with Hewlett Packard Enterprise, the solution's attractive price and the HPE strength in education," says Gebran.

Solution

Complete network

The wireless solution is based around an HPE MSM760 access controller with 66 HPE MSM460 dual radio 802.11n access points used to provide Wi-Fi in each classroom. A further four HPE MSM466-R dual radio outdoor 802.11n access points are used to provide access in the playground for students who want to work outside.

Pupils use the system to access homework, quizzes and other resources posted by teachers and can log in to the Moodle e-learning system from home. Students have their own email address which is used by teachers to communicate with them. The school also has 20 Apple TV devices that enable children to share their screens on a classroom projector.

Two HPE E5406 PoE+ switches provide a highly available, redundant core and 18 HPE 2920 switches are used for the network edge, including providing wired network access for around 30 devices in three computer labs. The edge switches have Power over Ethernet (PoE) capability, which simplified the network roll-out.

While the school considered getting the switches and wireless components from different vendors, it chose HPE for the complete solution. Gebran comments, "It's a lot easier to manage a solution from one vendor, with a single point of contact and it also speeded up implementation."

Speedy rollout

Fast implementation was important to Georges River because it could only roll out the solution within a two-week school holiday. According to Gebran, the IT team needed to install the system in the first week and test in the second so they had to plan correctly to leave enough time for testing.

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HPE Networking provided the network design and Virtunet also visited the school in advance to help it plan its network and the structure of 11 virtual LANs (VLANs), which help to segregate the infrastructure and provide more control.

HPE engineers undertook all of the configuration work. Gebran comments: "Everything was done on time and HPE knew exactly what to do and helped us with planning – both HPE and Virtunet were great."

Benefit

Twenty times faster
Instead of its previous 1Gbps connection, the new network provides 20Gbps bandwidth which gives every student fast access to educational resources on the network. Georges River has also upgraded its internet connection to 200Mbps for both upload and download, compared to the previous 10Mbps.

The school manages access to the network and public internet for pupils who use their own devices, as Gebran explains: "We use access control lists on the HPE switches – when someone connects to the wireless they get put on a Virtual Local Area Network (VLAN) we have created for BYOD devices and this limits them to certain areas of the network."

The HPE solution does not require any software to run on the student devices, as Gebran comments: "We tested a Mobile Device Management (MDM) solution that needed software installed on devices but we had no need for it. With the HPE network the students can just connect with authentication handled through a browser, which makes it a lot easier for them."

Centralised management saves time
The school uses HPE Intelligent Management Center (IMC) software to provide single pane of glass management for the entire network. Gebran comments: "HPE IMC is great software. We can see straightaway if power goes down in one part of the school, or if someone unplugs something we get emailed immediately."

The school's IT team uses a large screen on which HPE IMC shows information on the network, how it is running and data on areas such as throughput and the number of users per access point.

"With nearly 1,000 users in a complex school it gets extremely busy at times, especially with helpdesk and the usual interruptions schools require," continues Gebran. "IMC is easy to use and has really cut down time spent searching for issues. We save about 30 per cent of troubleshooting time because we don't have to run around and figure out what's going on."

Customer at a glance

Application
Moodle e-learning platform

Hardware
- HPE MSM760 access controller
- HPE MSM460 dual radio 802.11n access point
- HPE MSM466-R dual radio outdoor 802.11n access point
- HPE E5406-44G PoE+ switch
- HPE 2920-48G PoE+ switch
- HPE 2920-24G switch

Software
- HPE Intelligent Management Center (IMC)

HPE services
- Technology Services consulting for network design and implementation

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"The central management of HPE IMC is great. If we want to make a change on a switch there are a lot of Simple Network Management Protocol (SNMP) features and we can manage multiple devices from one area," says Gebran. "We can plug in new machines or IP phones and we just log on to HPE IMC and make the necessary changes on a switch. It's a lot easier to do that than having to log into each device separately and remember IP addresses, usernames and passwords; HPE IMC does all that for us."

HPE IMC enables the school to automatically back up its entire configuration from a central point, which makes it easier to restore. According to Gebran, HPE IMC's reporting capabilities are strong. Since the software unifies device management, with the ability to fully integrate resources from over 6,000 vendors, it can provide Gebran with analysis on all the school's equipment, regardless of the manufacturer.

Reliable infrastructure
"The network has been very reliable and we run the two core switches in a redundant arrangement so if one fails the other can take over," says Gebran. "Even pushing out configurations to the wireless access points has been seamless.

"The students say the system is working well. When many people connect in one room, we don't receive as many logon failures as we used to with our old system and that has also cut management time considerably."

The HPE lifetime warranty is also important for Georges River, as Gebran explains: "Schools don't have a lot of money to update equipment every few years so the HPE lifetime guarantee is excellent. It means we can run products as long as we can afford to."

Scalable for future growth
Student numbers are increasing steadily at Georges River and it is responding by building more classrooms. It also has funding for more IT equipment and is adding another computer room with HPE PCs and printers. The HPE solution provides future-proof flexibility so the network can be scaled up as the school grows.

"Scalability of the wireless solution was an important factor for us and the HPE switches give us multiple ports where we can add extra 10G links when needed," says Gebran.

Also, the HPE wireless controller can be upgraded to the new 802.11ac standard with a firmware upgrade, which will enable the school to add 802.11ac access points with higher data rates.

"Overall, we're very happy with the HPE wireless and switch solution and it's enabled us to be ready for BYOD and 1:1," concludes Gebran. "HPE has expertise in education and when we talked to them, they knew exactly where we wanted to go."

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