



CALGARY SCIENCE SCHOOL

CHALLENGE

Insufficient bandwidth to support the increased number of devices on the network following a 1:1 iPad for students scheme

Inability to perform software updates during school hours

SOLUTION

1 x **CACHEBOX230**

Pre-caching to improve network performance during peak traffic

BENEFIT

More effective use of video to enhance learning

Improved user experience and eliminated user complaints about network performance

CACHEBOX improves learning experience in Canadian school

About Calgary Science School

The Calgary Science School (CSS) is a Canadian public charter school in Calgary, Alberta, which teaches grades four through to nine. The school's network supports the IT and web requirements of over 600 students and teachers.

Improve internet performance to handle a 1:1 scheme

CSS maintains a 1:1 student to computer ratio; all students are given their own laptop computers to use as a learning tool both in class and at home. More recently, since receiving a governmental 'Emerging Technologies' grant, CSS has been issuing new students with Apple iPads.

The school's network uses a 20Mbps internet connection to serve 600+ devices. Bandwidth usage ranges from light general browsing, email and document sharing to downloading video and other large object files such as software updates.

The problem was that browsing speeds during lessons were becoming very slow, impacting the productivity of students and teachers.

According to Jon van der Raadt, Office Solutions Senior Education Technical Advisor to the Calgary Science School "YouTube videos are the focal point of many group-based lessons; a full class of students simultaneously attempting to access the same content was causing strain on bandwidth and seriously impacting network performance."

As the number of devices has increased following the 1:1 scheme, IOS app store downloads and other software updates now make up a large proportion of the school's traffic. "With such limited bandwidth and poor network performance we couldn't do any core software upgrades during school hours: this caused an unnecessary headache and saw us having to work outside normal school hours."

Meeting the school's requirements

Office Solutions Inc. of Calgary, Alberta, the on-site consulting firm contracted by CSS to look after the school's network, researched possible solutions that would alleviate the bandwidth strain by effectively caching the content that was creating the most problems.

Having looked online at numerous solutions, the school decided to purchase a **CACHEBOX230**. **CACHEBOX**'s ability to handle video content and software updates was particularly attractive. "We went with **CACHEBOX** for a number of reasons: the people at Appliansys understand the needs of those working in education, the solution offers high performance for a reasonable price and is backed by quality service," explains Jon.

In the past, CSS struggled with software updates. **CACHEBOX**'s inbuilt pre-caching functionality allows these updates to be fetched overnight when traffic is low. This means that updates no-longer slow down internet access for other users during peak traffic times.

ApplianSys Support Engineer Nick Fennell explains: "By setting the **CACHEBOX** to visit software download pages and cache the content it finds there, updates will be available locally whenever users need them."

Calgary Science School will also benefit from **CACHEBOX**'s ability to effectively handle large content such as video. "Video sharing sites like YouTube deliver flash videos over HTTP. This service consumes large quantities of bandwidth, and slows things down for users. Although caching is the obvious solution, many 'unintelligent caches' run into problems. Video sharing websites store the same content at multiple URLs. This confuses many caching solutions into treating each URL as unique content. In addition, websites like YouTube often change the rules for presenting their content so that caching no longer works. At Appliansys we constantly monitor these changes and supply automatic updates to the device to cope with them."

“With such limited bandwidth and poor network performance we couldn't do any core software upgrades during school hours”



CACHEBOX has delivered average daily bandwidth savings of around 42% and generated a speed increase of up to 66% at peak times.



"Teachers can also use the **CACHEBOX**'s inbuilt scheduled 'Pre-fetch' facility to get all the online video and content they need for a lesson into the cache overnight, while the connection is unused. This eases that demand peak at the start of lessons, freeing up bandwidth for other users, and guaranteeing that the planned lesson won't be competing with other users in the school to grab their share of the connection." comments Nick.

A caching solution that really performs

Since deploying **CACHEBOX**, CSS has benefited from significant performance improvements and bandwidth savings.

CACHEBOX has enabled the school to use internet based content during lessons, delivering a better learning experience for students. In particular, teachers are now able to use video content from various websites without worrying about classroom delays.

"Even un-cacheable content can be accessed faster due to the bandwidth saved by serving part of our traffic from **CACHEBOX**," reports Jon. "Every aspect of our web-based traffic has improved significantly. The end-user experience is now much better than before and there are fewer support calls related to internet performance."

CACHEBOX has delivered average daily bandwidth savings of around 42% and generated a speed increase of up to 66% at peak times. There have also been dramatic improvements in bandwidth savings associated with updating software for all active devices throughout the school. Updates from software vendors such as Apple and Microsoft are now only downloaded the first time they are requested. They can then be served from cache for subsequent requests.

CSS is pleased with the solution it has in place, and on top of this, Jon is confident he can rely on ApplianSys for support in future "It is reassuring to know that the support team are there; they were very responsive to my questions during deployment. Since then they have been in touch to see how things are going. It's good to know that they be called upon to help me solve future problems.