

Case Study: New South Wales State Department of Education Adopts Gmail for 1.2 Million Students

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Australia's New South Wales (NSW) Department of Education and Training teaches 1.2 million K-12 and vocational education and training students statewide. Its experience and approach in successfully transitioning from an existing locally hosted Microsoft Web mail service to Gmail will be of interest to other large organizations, both public and private.

Key Findings

- Students found the Gmail system so easy to use that no training was required.
- With careful planning and execution, institutional Gmail solutions can scale to a very large size while still being rapidly implemented.

Recommendations

- Although Google offers Gmail for free to educational institutions, be sure to consider the costs of complementary non-Google services required to create a complete end-to-end service.
- Give thorough and early consideration to the potentially different e-mail requirements of students and staff. This can lead to key architectural decisions.

WHAT YOU NEED TO KNOW

This Case Study reports on one of the largest education sector Gmail implementations in the world, with 1.2 million student users. Careful planning and project execution created a trouble-free transition to the new system, despite the decision to offer students no formal training on how to use the new system.

CASE STUDY

Introduction

Australia's NSW Department of Education and Training (DET) is one of the largest organizations in Australia, with 700,000 K-12 school students and 50,000 teachers in 2,200 schools. The department also serves an additional 500,000 technical and further education students and 10,000 teachers in 130 campuses.

The Challenge

DET had been using a hosted Microsoft Web mail solution for students and teachers. That contract had run for five years and then was renewed twice for one-year extensions. A sunset clause in the Web mail contract meant that a new system would have to be in place by the end of 2008.

The replacement system would have to be reliable and user-friendly — one that students would feel comfortable with and that would minimize problems and support costs for such a large number of student users.

The e-mail market had changed significantly since the Web mail system was originally set up, and DET wanted to take advantage of new opportunities (see "E-Mail and the Cloud").

Due to concerns about "duty of care" regarding the large number of young student users, the e-mail service also had to meet stringent security and content-filtering requirements.

The cutover to the new system would be carried out near the end of 2008, and special care would be required so that the transition would not have an impact on end-of-year student examinations. Capacity testing was required to ensure that e-mail accounts and data could be rapidly transferred to the new system, and that the transition process would be as transparent as possible for students.

Approach

DET issued a tender for a replacement e-mail service in late 2007, and undertook the selection process during early 2008. This timing was chosen to ensure there was sufficient time to go through the necessary government-mandated procurement process and still leave enough time to transition to the new system by the end of 2008. The tender was awarded to a vendor consortium consisting of Google, Telstra and SMS (an Australian system integrator).

Separate Student and Staff E-Mail Systems

A key architectural decision was to place staff and students on different e-mail platforms to better suit the different security, privacy, administrative and usage requirements of each group of users. For example, Gmail did not have a "global address list." Students are used to creating their own contact lists, whereas staff are expected to have access to a global address list to facilitate their frequent communication with other staff.

DET already had a separate Microsoft Exchange e-mail system for corporate staff. All of the teaching staff would be transferred onto the corporate system, and DET would go to market to replace the student e-mail service only. DET created additional functionality in the corporate Exchange system so that staff could easily access e-mail addresses for students attending their classes or at their school.

Security, Content Filtering and E-Mail Archiving

DET assessed and was satisfied with Google's security, encryption and management of student e-mail data in the "Google cloud" (which involves storing data outside of Australia).

Security and content filtering (for prohibited words and some document attachment types such as .exe) were key goals for student e-mail. The security architecture that was selected uses Google's spam filtering, as well as a second independent layer of spam and content filtering provided by the e-mail gateway service provider. This double filtering reflects DET's strong focus on fulfilling its "duty of care" responsibilities and ensures that almost no spam gets through to students.

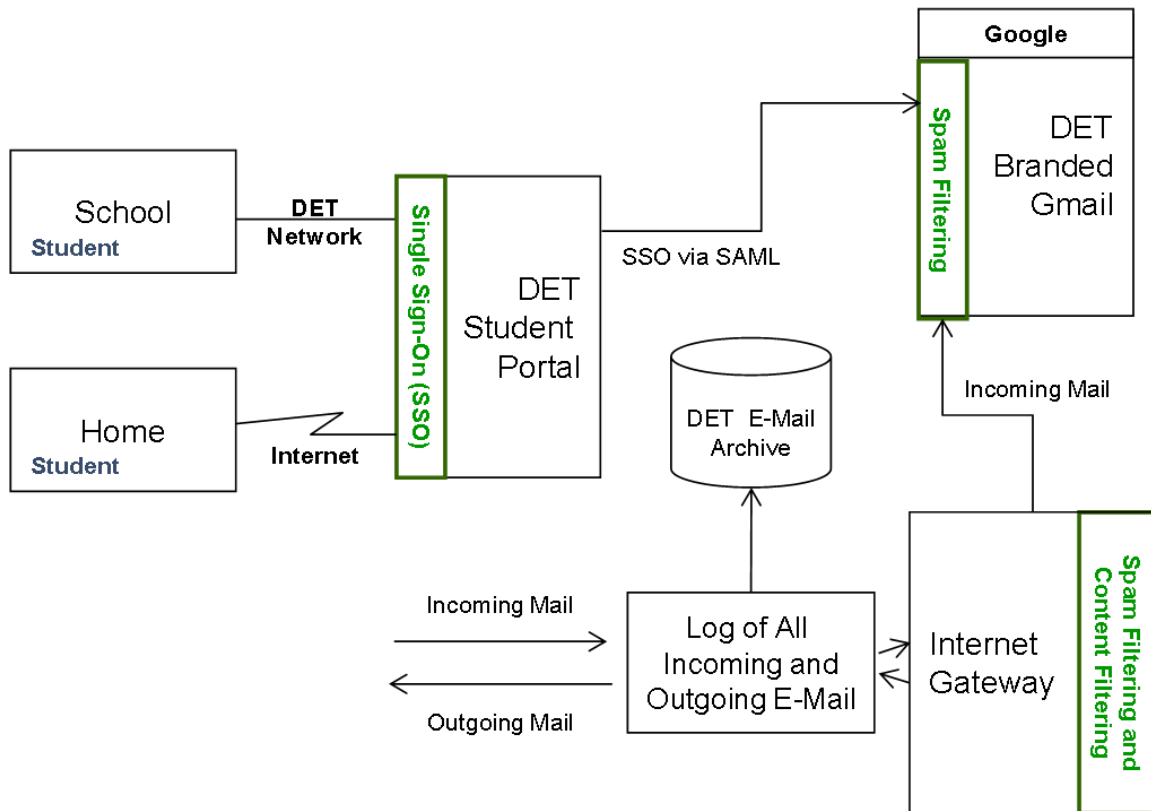
For similar security and "duty of care" reasons, custom-built software at the Internet gateway maintains an Oracle database log of all incoming and outgoing student e-mail. If a staff member sends e-mail to a student, the e-mail is logged as it enters the student domain.

Student Access to Gmail

Students are only able to access Gmail after first signing on to DET's student portal — students cannot access Gmail directly via the Internet, and students can't log on to Gmail except through the DET student portal (see Figure 1). No advertising is presented to students in the Gmail interface. The branding is predominantly DET's own, with only a reference to Google terms and conditions at the bottom of the e-mail screen. There is no mining of information. DET reports that it had little difficulty negotiating these arrangements with Google or implementing these capabilities.

Google chat, Google Docs and calendaring functions were not made available to students. DET is currently reviewing cloud-based collaboration/document suites. Google Apps is one of the candidates currently being considered for future implementation.

Figure 1. Student Authentication and Access to Gmail



Source: Gartner (January 2010)

Transition to Gmail

In preparing for the transition, DET adopted an iterative approach for developing required capabilities. For example, early preproduction versions did not include archiving and filtering. By the end of the development process (after four or five iterations), all the required functionality was in place.

The transition was not just a clean installation of the new environment, but a full migration from the Web-based mail system to Gmail. DET transitioned students' existing e-mail accounts, including e-mail address, user name, password, in-box and contacts. Some students had as much as 4,000 to 5,000 files and 35 megabytes of data collected over a period of up to six years.

All of this data had to be transferred over the Internet to the Gmail system. The 1.2 million e-mail accounts were split into batches scheduled over a seven-week period. A couple of hundred thousand accounts were migrated across to Gmail each weekend.

An e-mail was sent to every student prior to the transfer of his or her e-mail, and another message welcomed them to the new Gmail service. As batches of student accounts were transferred to Gmail, the student portal simply directed affected students to the Gmail service rather than to the old Web mail service. Students still had to log on to the student portal before accessing their e-mail (as they had previously been required to do), whether within the school environment or from home.

DET included student representatives as participant observers throughout the process of selecting Gmail. The transition team visited several schools and undertook usability testing with students. This testing demonstrated that it was not necessary for DET to provide any detailed instructions or training on how to use the new system. Students simply logged on to their e-mail on the Monday after their account had been transferred and found themselves using the Gmail system.

Students reported that they found Gmail intuitive and easy to use. For those needing assistance, peer help is a standard practice in the school environment. The students providing help were not necessarily the ones using Gmail at home, but simply the ones that seemed to pick it up the quickest. In addition, some online help guides in a comic format were also made available to students, together with documentation that could be used by teachers to assist students.

Results

- DET experienced few problems or errors in the data migration and transition of students to the new system.
- The transition was trouble-free, involving virtually no calls on Monday morning as the students started using the Gmail service for the first time. Almost no complaints have reached the CIO's office, and analysis of the help desk call data has shown only a minimal number of account access issues.
- Gmail has proven to be a reliable, robust solution.
- Usage is higher and growing (compared to the previous Web mail solution) — driven by an aggressive "computers in classrooms" program.
- Transition to the Gmail service has increased student's e-mail storage allocation from 35 megabytes to 7 gigabytes.
- Google does not charge educational institutions for the Gmail service (see "Google and Microsoft Battle for the .edu E-Mail Market"). DET reports that the overall costs have been reduced in transferring to the new service, although it still has costs related to communications links, e-mail archiving and filtering services, and the project management and system integration services associated with the transition to the new system.

Critical Success Factors

- Prior experience with a hosted Web mail solution meant the transition to Gmail involved no major cultural or organizational change hurdles for IT. Students also found the transition easy — as evidenced by the lack of need for a formal training program.
- Communications were clear, so that all stakeholders (schools, teachers and students) knew what was happening.
- DET carefully chose partners (Google, Telstra and SMS) that were mutually committed to creating a successful outcome. There was a strong focus on "partnership" rather than an adversarial vendor/client relationship.
- DET's well-developed enterprise network architecture and the availability of high-speed bandwidth contributed to creating a smooth transition.
- The upfront decision to place students and staff on different e-mail platforms made it much easier to serve the different needs of these two groups.

- Experience gained during previous IT projects helped DET build mature processes and experienced staff. They understood their capabilities in areas like procurement, project management and services integration — and conducted the project within the scope of their capabilities.

Lessons Learned

- Pay special care to maintaining a healthy relationship with an incumbent service provider to enable a smooth transition to the new service provider. Purchasing other services and keeping open the potential for future work can help to maintain a positive relationship with the outgoing service provider.
- Spend enough time at the beginning of the project — clarifying requirements, priorities and key architectural decisions — to accelerate and simplify later project stages.
- Although Gmail services are provided for free to educational institutions, potential users have to set aside that aura of "free" and consider what else will be required to make the service successful in their organizational context. The end-to-end service is not free, when taking into account the cost of other factors required to ensure a successful outcome — implementation partners, communications bandwidth, additional security and content-filtering services, etc.

Based on an interview with Stephen Wilson, CIO, NSW Department of Education and Training, July 2009.

RECOMMENDED READING

"ACU Adopts Gmail for Students and Staff"

"Case Study: Avago Embraces Gmail for 3,800 Global Users"

"Q&A: Hosted Exchange Services for the Education Market"

"Google and Microsoft Battle for the .edu E-Mail Market"

"E-Mail and the Cloud"

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