EdSmart®

CLOUD TECH
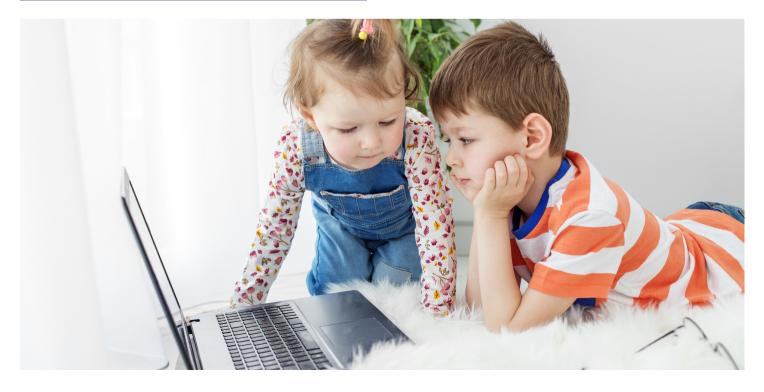## Cloud-based technology in schools

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EVERYTHING YOU NEED TO KNOW ABOUT SCHOOLS AND THE CLOUD

Describing the impact of the coronavirus pandemic on the education sector as 'traumatic' is anything but an overstatement. Before January 2020, many schools had given the concept of digital transformation some thought. Still, few had made concrete steps in the day-to-day challenge of prioritising scant resources to focus on the core business of teaching and learning.

COVID-19 had forced the education sector to embrace digital transformation by May of that year.

Cloud-based technology (or 'the cloud', as it's known) facilitated remote learning. It enabled many schools – whether K-12, tertiary or other higher learning institutions – to continue teaching in a way that would not have been possible even a few years ago.

Education and how it's delivered have now been fundamentally changed through adopting the cloud and digital transformation. Forever. This eBook provides schools looking at further digital transformation with a practical guide to all aspects of the cloud, especially when it comes to enriching the educational experience for your school community.

WHAT IS CLOUD-BASED TECHNOLOGY?

The term 'the cloud' or 'cloud computing' is widespread. Consciously or unconsciously, anyone who has used a smartphone, tablet or computing device to access email, stored or shared photos, or used a video-on-demand streaming platform like Netflix has interacted with cloud-based technology.

Cloud technology is also known as infrastructure as a Service (IaaS) in the IT industry. Steve Ranger, UK Editor-in-Chief of leading international tech website and magazine ZDNet, explains cloud-based technology in simple terms: "It's the delivery of on-demand computing services, from applications to storage and processing power – typically over the Internet."

"Rather than owning their computing infrastructure or data centres," he explains, "companies [or in our case, schools] can rent access to anything from applications to storage from a cloud service provider."

"One benefit of using cloud computing services," he adds, "is that firms can avoid the upfront cost and complexity of owning and maintaining their own IT infrastructure, and instead simply pay for what they use when they use it."

"What's often important to users of cloud-based technology is where their services and data are located, and the level of security surrounding access to them," he concludes.

A BRIEF HISTORY OF CLOUD COMPUTING

The concept of cloud computing stretches back as far as the 1960s. Computers could take up entire floors of buildings, or even have buildings of their own (depending on how powerful they were), and required considerable time, people-power and money to operate.

Because of these infrastructure and accessibility limitations, computer bureaus would rent time on their mainframe to other companies – what Steve Ranger describes as a form of time-sharing.

The arrival of the personal computer and its proliferation across workplaces, homes and schools gave rise to what became known as data centres, where businesses could store vast amounts of data.

"The concept of renting access to computing power," writes Ranger, "has resurfaced again and again [in the guise of] service providers, utility computing, and grid computing of the late 1990s and early 2000s. This was followed by cloud computing, which took hold with the emergence of software as a service and hyper-scale cloud computing providers such as Amazon Web Services."

As the ubiquity, capacity and accessibility of the Internet have grown, so too has the use of the cloud.

APPLYING THE CLOUD TO SCHOOLS

The advantages of cloud-based technology for schools run deep – for teachers in delivering syllabus to students and, perhaps more significantly, for administrators in the day-to-day running of the school itself.

> **The bottom line is that the cloud can enhance the quality of students, teachers and the wider community's interactions with the school.**

For all the advantages the cloud offers education institutions, though, any digital transformation program must (without exception) elevate learning and teaching. It should reflect the world that students, teachers and the wider community live in, allowing students to complete their formal education with the tech skills necessary for the industry in which they're employed.

It should specifically enable teachers to focus on their core tasks – teaching and creating effective relationships with their students to improve learning outcomes.

By working collaboratively with the right technology providers who understand schools, the cloud can tick all of these boxes. Parents and students have a range of expectations regarding what a learning institution offers.

As well as their effectiveness at delivering the three r's – reading, (w)riting and 'rithmetic – parents expect a school will adequately prepare their kids for success in the world beyond the school gates.

With many workplaces and businesses using cloud-based technology, welcoming it into your school enables students to complete their formal education with the skills necessary to use it productively in an industry-specific way.

Cloud services are also what David Andrade of EdTech Magazine describes as 'brand agnostic'. It doesn't matter whether your students and teachers are more familiar with Apple or Android operating systems (OS). Cloud-based technology means everyone can use the operating system they're most familiar with and comfortable. That means that teachers and students don't have to struggle with learning a new OS; instead they can focus on their learning work and get so much more out of their classroom experience.

Many teachers are familiar with the benefits of education technology for preparing and delivering their lessons; it reduces their workload and helps them engage better in face-to-face learning with students.

As David Andrade explains, "Cloud-based software… holds students more accountable for their work. It eliminates many excuses for not completing work or turning it in. Because all files are hosted in the cloud, no assignment can be 'left at home' and all assignments are available to be printed. Additionally, group projects can be assessed in some programs by the amount of time each student spends working on the assignment."

THE ADVANTAGES OF CLOUD TECH IN SCHOOL ADMINISTRATION

When it comes to technology in a school, it mustn't be seen as a mere add-on; it should be removing an existing human process and executing it faster, more easily and more accurately than a person.

What your school gets out of it must ultimately be greater than what you presently do (i.e. it should not simply mimic how you're already doing something). Otherwise, it's defeating its purpose.

When it comes to cloud-based edtech of the kind that EdSmart delivers, there are enormous benefits from the technology for the administrative side of running a school, a university or other higher learning institution.

CONTINUED... THE ADVANTAGES OF CLOUD TECH IN SCHOOL ADMINISTRATION

COST-SAVINGS

In an environment where so many school budgets are shrinking, cloud-based technology delivers significant cost-savings and efficiency improvements.

A non-cloud model, a school with its data servers, would need to store, maintain, and ensure program and security upgrades are correctly managed" to "A non-cloud model – a school with data servers – would need to store, maintain and ensure program and security upgrades are correctly managed (which is becoming a minefield these days).

They also need to ensure that staff and students have prompt access to support when things don't work as they should. All of this comes at a pretty high cost considering the staffing and capital expenditure costs especially in an around-the-clock, out-of-hours environment.

"Cloud technology significantly lowers these costs by moving or eliminating the need to have your IT infrastructure at your school's physical location," tech journalist Darren Nelson explains. "The costly technical aspects of maintaining and running a traditional IT infrastructure are tossed to the wind, alleviating budgets for more exciting outgoings or cutting costs."

By moving the IT infrastructure out of the school building," he continues, "the school cuts costs associated with supporting servers and huge amounts of data." Service providers manage maintenance, upgrades, and storage costs much more cost-effectively. At the same time, the customisable nature of the cloud enables schools to choose the upgrades and services they want when they want them."

Furthermore, cloud-based technology enables schools to take full advantage of the benefits of IaaS to maximise the spending power of their budget dollar. As journalist Amy Passow explains, "With a traditional data centre, the school bears the responsibility of building and maintaining the physical infrastructure."

Hundreds of thousands — in some cases, even millions — of dollars are invested into robust equipment to support the maximum capacity needed. Yet it's often used at only 10 to 20 percent of its capability. With IaaS, customers pay only for what they use. This model ensures schools get the most out of their investment without sacrificing the budget.

Far from focussing solely on the bottom line, though, school administrators and governance boards must balance the savings with how shifting to cloud-based technology assists the learning and teaching experience.

CONTINUED... THE ADVANTAGES OF CLOUD TECH IN SCHOOL ADMINISTRATION

SECURITY

Schools and education campuses maintain significant amounts of valuable data. This isn't just the software teachers preparing lessons or applications use to complete homework; it extends to information about staff, parents and students.

In some cases, that data is minimal; the school might keep a first name, surname and address. But often, information that a school records about its students is quite detailed and can include sensitive information like medical, mental health records, and pastoral care or financial information relating to individuals and the school itself, assessment records, exam papers and so on.

So the importance of maintaining and securing school data can't be overstated. Because of the highly sensitive identity data schools collect, school leaders have a major obligation to secure that information.

"We're talking about real people and real lives, and the potential for harm to people, so there's a real-world consequence if you get it wrong," says David Eedle, CEO and Co-founder of EdSmart. "Protecting, managing, maintaining and securing identity data needs to be the highest priority inside a school within the technology they use."

CONTINUED... THE ADVANTAGES OF CLOUD TECH IN SCHOOL ADMINISTRATION

SECURITY

Worryingly, there's a growing body of evidence to demonstrate that schools using their data centres don't have the kind of data security in place to meet the challenges of the 21st century.

During the pandemic, which forced schools to shift to remote learning, there was a sharp rise in cybercrime attacks on learning institutions in hacking and data theft – what's known as ransomware attacks.

Schools are increasingly seen as soft targets by hackers because of how easily their security can be breached. To add additional salt to the wound, hackers are employing increasingly sophisticated programs, which makes it impossible for schools to retrieve their data, even in situations where a ransom is paid.

When using cloud tech, other important data – like school work, assessments and statutory records – is securely protected in the cloud, and erased files can be retrieved easily. This means IT teams spend less time scrambling if something goes wrong with the school's technology, leaving everyone with more time to dedicate to the fundamentals of their job.

Cloud-based technology can employ a much more comprehensive range of security solutions to help keep school data safe, like authentication safeguards and Denial of Service programs (DoS) when the school's cloud system detects unusual activity.

Many cloud-based technology providers maintain multiple sources so they can retrieve lost or stolen data and multiple file backups to help keep a school up and running. Higher levels of security, provided at a lower cost when compared to a school running its data centre, is one of the major advantages that cloud-based technology companies offer clients and customers.

Cloud tech providers undergo regular external audits and certification tests to protect the integrity of their systems and the data they're entrusted with holding. For schools — from parents and students to principals, teachers, administrators and school boards — this means greater peace of mind and more effective use of their financial resources.

CONTINUED... THE ADVANTAGES OF CLOUD TECH IN SCHOOL ADMINISTRATION

SECURITY

I remain amazed at the lack of questioning of us and our product regarding our cyber security capabilities," continues Eedle. "I don't think prospective customers ask us enough questions about how we protect their data."

"What should schools be asking tech providers to ensure they're getting the right level of data security?" he asks rhetorically. "They should ask everything. Why should schools be asking tech providers about the protection of their data? So they can stay in business."

"Partnering with tech providers who recognise the importance of protecting client data and opening themselves to external scrutiny on their storage, management and protection of that data," Eedle stresses, "should give schools and higher learning institutions some comfort." "But it has to be a partnership; it can't be the responsibility of the tech provider."

ANALYTICS

Data that your school's cloud generates can easily be accessed to improve the overall experience you offer teachers, students and parents. While many schools already record information that their marketing generates – like enrolment leads and how many students use public transport to commute to and from school - the insights you can obtain from cloud data are much more profound.

For example, you can keep track of the number of students with allergies and ensure that your staff members are trained in first aid treatment for anaphylaxis or track that their teacher and other certifications are up-to-date.

You can gain valuable insights into which extra-curricular activities have the highest participation rates, languages other than English that may be spoken at home and countless other data streams that help schools decide where to dedicate their financial resources for the best learning outcomes. You can also use analytics to create a picture of your school community that helps with things like engagement levels, student retention and the syllabus effectiveness.

With teacher retention rates in schools trending downwards, you can glean insights from analytics to tailor and facilitate more meaningful staff professional development opportunities. You can ensure your school is well-placed to retain amazing teachers and staff who go above and beyond for you and the school's community every day!

OTHER ADVANTAGES OF CLOUD-BASED TECHNOLOGY IN SCHOOLS

UPDATES

Software, security and other important updates and improvements to your school's system can be performed remotely or simply by logging into a remote website. There's often little need for on-site technical staff for system outages during school hours, meaning less disruption and more time dedicated to teaching.

These updates often include upgrades to online textbooks used across the school and ensuring the information teachers are impart to their students is current.

SUPPORT FOR REMOTE LEARNING

As we all experienced during 2020 and 2021, cloud-based technology maximises support for hybrid/remote learning.

Staff, students and other authorised users can securely log in to the cloud – no matter where they are – without compromising the collaborative aspects of learning.

Student homework and assignments can be saved to the cloud, as can teachers' lesson plans, exam papers and student grades/marks.

EDSMART SUCCESS STORY: TURNING TO THE CLOUD IN AN EMERGENCY

Mount Carmel College in Tasmania is a Catholic school for Kindergarten to Year 10 students founded by the Sisters of Charity, the first group of Women Religious to come to Australia in 1838. They are a power user of EdSmart and, after only six months, recorded 94% of their school forms returned by parents within four hours of sending.

But then, an emergency showed the actual value of the EdSmart/Mount Carmel relationship. As Hannah Legge, Mount Carmel College Database Administrator, explains:

Due to severe weather conditions, power outages and flooding in some buildings at the College, we needed to close for the day. We had to urgently get this message to all of our families and staff.

We usually access EdSmart through our staff portal, which authenticates against our local authentication servers. But our servers weren't running due to the power outage.

Thankfully, we could access EdSmart because of our Office 365 cloud-based tenancy. Once logged in, we sent our urgent communication to families and staff using EdSmart, which was a huge relief.

Read the Mount Carmel Success Story in full.

HOW CAN SCHOOLS GET READY TO USE THE CLOUD?

Preparing your school for the change requires a multi-faceted approach. Here are the steps to take:

1.Know what you need

First, it's worthwhile to think about what your ideal cloud solution should look like, from everyday functions like managing enrolment and payments to the accessibility of class materials and teacher resources through to big picture pieces like what kind of compatibility you'll need with your existing infrastructure. You'll need to consider the capacity of your cloud solution to automate any time-consuming and labour-intensive processes your school needs to take.

Knowing what you need means you knowing the right questions to ask any potential cloud provider.

2.Do your dilligence

Due diligence is an essential step. You need to look at your existing system and identify its strengths and weaknesses: does it have enough bandwidth for now and into the future, is it worth investing in a new server and so forth?

The most important part of your due diligence is deciding on your cloud-based technology provider. Prioritising providers who specialise in designing cloud solutions for schools will make the transition as swift and pain-free as possible. They have the expertise, but they also understand the unique and often complex needs of schools for their cloud solutions. Accordingly, they should be able to upskill users, so your school community maximises usage.

CONTINUED... HOW CAN SCHOOLS GET READY TO USE THE CLOUD?

It makes it so much more likely that you'll end up with a product that's right for your school – and not a convenient, one-size-fits-all solution – if you take the time to complete proper due diligence.

If a potential partner can't deliver a product that fits best with what your school needs, ensure there's seamless integration with your existing IT, or doesn't provide ongoing training and around the clock access, then it's in your best interests to find one that can.

3.Establish policies and procedure

Establishing a suite of policies and procedures that safeguard your school's data must be a top priority. It's easy to download malicious code or malware of legitimate school-based work unintentionally, so having strict processes in place about what information can be accessed, how email and other apps can be used, will ensure minimal disruptions.

Training students and staff about identifying scam emails, what access permissions staff and teachers have, and what information they can access - all need to be codified. Having a clear set of policies and procedures to maintain the security of your school's cloud will make the transition to cloud-based learning more efficient.

4.Don't compromise your analytics

You should ensure your school's cloud solution includes a robust analytics program. The insights afforded will help assess which programs are being used effectively, and help drive engagement across the school, so you're enhancing the education experience throughout your community and providing value for money for parents of your students.

5.Make sure people have training

Another important part of preparing your school for cloud-based technology includes planning for how it will be implemented across your school community, including scheduled training early in the rollout. This is a valuable way to position the tech prominently in people's minds without causing unnecessary anxiety.

Onboarding through training is a valuable way of starting your staff thinking about the software, how it works, and gaining some insight into its capabilities. Many cloud tech providers rely heavily on this type of user feedback to ensure you take delivery of a product that best meets the needs of your school before final sign-off.

CONCLUSION

Transitioning to a tailored cloud-based solution with an expert service provider has innumerable efficiency benefits.

It can drive a more enriching educational experience within your school community.

Cloud-based technology provides superior security for valuable identity data, allowing teachers to deliver the curriculum in innovative and more engaging ways without increasing their workload.

It equips students with skills that enhance their capacity to thrive in the world beyond the school gates. It can deliver a range of data and analytical insights that help schools better allocate resources to where they're most needed, making the day-to-day management and operation of the school more streamlined.

Cloud-based technology really came into its own during the pandemic-enforced remote learning period, providing a compelling case study for why cloud-based technology can be better for schools. Education has now been fundamentally changed forever by the cloud and digital transformation.

Want to talk more about the cloud? Speak to EdSmart about your school's digital transformation.

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