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TODAY'S MODERN EDUCATOR

The Modern Campus:

Security, Automation, Hybrid Cloud

A Red Hat eBook by Today's Modern Educator

Foreword

Today's universities and colleges need a robust, resilient, and innovative IT infrastructure to support students, faculty, and researchers. From high-performance computing that enables research to applications that power learning games, one thing is constant – the need for IT solutions that are scalable, secure, and budget-friendly.

According to Red Hat experts, education IT leaders are often faced with a difficult dilemma – they can have solutions that are scalable and secure, or scalable and budget-friendly, but cannot meet all three criteria. With ongoing uncertainty about budgets as higher educational institutions navigate the challenges of today's pandemic, the challenges of finding IT solutions that can meet these needs has never been more dire.

However, with the right EdTech solutions, colleges and universities can build an IT infrastructure that checks all the boxes.

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Chapter One:

Increasing Speed to Capability by Automating Across Environments

> " *Everything we touch now is software… now people are really opening up the aperture of 'how can these be applied to other areas of the organization and drive in that adaptability?'"*
>
> **Jason Corey**
> Senior Director for Emerging Technologies
> Red Hat

2020 has been a pivotal year for digital transformation. The coronavirus pandemic has accelerated the need for **digital transformation** like few events have done before, **shared Jason Corey,** *the Senior Director for Emerging Technologies at Red Hat.* "People recognize now the more you can automate technologies to do things on their own, the quicker you can adapt – and in these times adaptation is really thekey," he said.

For Boston Children's Hospital, automation means agentless IT configuration automation across environments and repeatable delivery for research-based applications. According to Dr. Ellen Grant, *the Director of Fetal and Neonatal Neuroimaging Research at Boston Children's,* "…we are able to create an open, scalable, and shareable platform capable of reducing the time it takes to analyze key images from hours to minutes."

In order to deliver automated and timely analysis of data, Boston Children's is making use of training and delivering machine learning models. By training models to "learn" about patterns in images of the brain, clinicians and researchers are able to automate the discovery of patterns to provide more timely decisions.

Other **academic and research institutions** are creating automated workflows from DevOps using enterprise open source software, which allows them to focus on application delivery rather than IT provisioning and packaging. By identifying repeatable items of work in a delivery value stream like automated builds and configuration management, more timely submission and triaging of support tickets, organizations are able to deliver faster with more consistency.

"Enterprise open source technologies bring a higher level of security and support to our deployments, allowing us to free up time for continual innovation towards student success and research administrations DevOps," said Rachel Moorehead, *Executive Director of Infrastructure and Operations*, University of Alabama, Birmingham.

"Everything we touch now is software, and that really is what is driving the rise of how agile can be applied to this [open source philosophy]. Such great software has been developed by these same methodologies, now people are really opening up the aperture of 'how can these be applied to other areas of the organization and drive in that adaptability?'" shared Corey.

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Automation Bridges Enterprise and Academics

" To meet evolving business demands in the face of uncertain global conditions, we see IT organizations accelerating their automation efforts to help drive faster innovation while managing demand surges due to remote workforces."

Thomas Anderson
Vice President, Ansible Automation
Red Hat

Colleges and universities have made significant changes to support remote learning initiatives. While some institutions had previous experience with remote learning, most were scrambling to stand-up resource-friendly, secure, and student success-oriented programs.

The process of implementing a remote environment has not been a simple one. With disbursed devices, increased network traffic, and ever-evolving security threats, including ransomware attacks, among the list of **challenges facing education IT leaders,** institutions are searching for emerging technologies that can deliver better services with fewer resources. The solution? Automation.

What can schools automate with Red Hat?

With enterprise IT automation, institutions can streamline operations and configurations throughout environments. From deploying a new device to moving data to the cloud, automation provides a faster, more efficient process across every phase of the application lifecycle. "To meet evolving business demands in the face of uncertain global conditions, we see IT organizations accelerating their automation efforts to help drive faster innovation while managing demand surges due to remote workforces," **said Thomas Anderson,** *Vice President, Ansible Automation,* Red Hat.

Automation technologies are essential for successful remote learning experiences by enhancing security, remaining budget-friendly, and freeing IT professionals to focus on strategic, high-value tasks. According to a **recent IDC report,** automation technology-enabled 68 percent more productive IT infrastructure management teams and reduced unplanned downtime by 53 percent.

For institutions in a hybrid, or remote learning environment, effective resource and staffing management is paramount. **Damien Eversmann,** *Delivery Strategist for Education* with Red Hat explains that "automation isn't about laying people off and saving money that way. It's about enabling the workforce."

Enterprise open source automation technologies are enabling educational institutions to quickly stand-up remote learning environments. With automated solutions, educational institutions have seen a 30 percent cost savings. Factor in the enhanced security and improved deployment process and educational institutions have a powerful tool to overcome remote learning challenges.

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How Can Higher Ed Institutions Secure Remote Learning?

" It's vital that colleges and universities find the security solutions that work for their environment and can continue to protect data as students rely on remote learning. "

Debbie Hall
Solutions Architect for State, Local & Education
Red Hat

While colleges and universities may have previous experience with blended learning programs, the COVID-19 pandemic thrust institutions headfirst into the challenges of operating in a fully digital environment. With this unexpected shift came a variety of obstacles, the most urgent being IT security. With students and teachers scattered throughout the country, and in some cases the world, higher education institutions need security solutions for remote learning that are scalable across disbursed environments.

As higher education institutions ramp up and continue to deliver remote learning initiatives, the need for advanced security defenses has never been more important. According to a recent **Gartner report,** mobile devices such as tablets, phones, and laptops that students are using for learning are prime targets for bad actors. "Hackers have become much more sophisticated," **said Professor Leona Mitchell,** director of the University of Pittsburgh School of Computing. "When you look at cybersecurity, the ramifications of a mistake there are much more serious." To defend the r**emote learning climate,** colleges and universities should look to trusted security partners.

"It's vital that colleges and universities find the security solutions that work for their environment and can continue to protect data as students rely on remote learning," said Debbie Hall, *Solutions Architect for State, Local & Education* with Red Hat. "Paired with skilled IT professionals, higher education institutions will be set up for success today and in the future."

However, finding the **right IT employees** to run these solutions can be difficult. According to **a recent report,** there are currently over 4 million unfilled IT jobs and 65 percent of respondents state they are lacking proper IT staff. "There's a huge demand for more people in the workforce who are focused on cybersecurity," **said Chengcheng Li,** an associate professor at the University of Cincinnati's School of Information Technology. "It's an area of concern for every business today."

The lack of security professionals, paired with the expanded attack surface and increase in threat vectors present in remote learning environments, showcases the need for an **experienced partner** that offers scalable, resource-friendly solutions. "As we define the 'new normal' shaped by the pandemic, it's vital that colleges and universities continue to prioritize security. Finding the right partner can make implementing new solutions, handling security issues, and bolstering your overall cyber posture much more manageable," said Hall.

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Open Hybrid Cloud: Scalability, Security, Portability for Education

" Hybrid cloud is about a capability. It's not about an end state. It's not about having this percentage in public cloud, and this percentage in a private cloud, and this percentage on bare metal."

Stefanie Chiras
Vice President and General Manager
Red Hat Enterprise Linux Business Unit
Red Hat

From remote learning challenges to shrinking budgets, academic institutions are navigating a new educational environment that is driven by technology and connectivity. With a focus on lowering costs, remaining flexible as needs change, and embracing technology, schools are looking to implement a hybrid cloud approach. What exactly is a hybrid cloud approach? It's one that offers an array of benefits.

The **experts from Red Hat** describe it like this: Instead of building a local two-lane road (fixed middleware instances) to connect two interstate highways (a public cloud and a private cloud), you could instead focus on creating an all-purpose vehicle that can drive, fly, and float. Either strategy still gets you from one place to another, but there's a lot less permitting, construction, permanency, and ecological impact if you focus on a universally capable vehicle.

With this all-purpose hybrid cloud strategy, academic institutions can choose the solution that is best for each workload. Many schools are implementing new applications to enable student success in today's distance learning environment, and hybrid cloud solutions can ensure these applications are secured, scalable, and agile.

"Hybrid cloud is about a capability. It's not about an end state. It's not about having this percentage in public cloud, and this percentage in a private cloud, and this percentage on bare metal. It's about the ability and the capability to be able to move and adapt and adjust as you see fit, and based upon your needs," **said Stefanie Chiras,** *Vice President and General Manager, Red Hat Enterprise Linux Business Unit,* Red Hat.

With a hybrid cloud built on open source code, organizations have realized a 38 percent lower IT platform cost, enhanced security, and agility with the freedom to move between clouds as needed. With an open hybrid cloud strategy, schools can adapt quickly without costly rebuilds and have a consistent foundation to build new applications. "Your operations, development, and security teams can build and manage a full IT stack in a standard, unifying platform that works on bare metal, virtual machines, private clouds, public clouds, and at the edge," **stated a recent article.**

With hybrid cloud powered by open source code, schools can run workloads on any cloud to develop apps faster, automate processes, and enhance security. This focus on **portability, scalability, and security,** enables educational institutions to see cost optimization, enhanced mission delivery, and more.

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Conclusion

If you step back and look at Red Hat and all of the solutions it offers, you might classify it as a software company. Maybe "technology company" would be the phrase you'd choose. Certainly "hybrid-cloud company" would be in the mix. But it's likely at first blush, that "EdTech" would not appear at the top of your list. And that is one of the most interesting things, because Red Hat's offerings and solutions are intrinsically "EdTech" solutions.

Whether the need is automation to bring healthcare to patients more stably and learning to students more reliably, or securing the access to those clinical assets or classroom streams, or even hosting those assets in ways that are dependable and secure and flexible, Red Hat solutions fill that need. The infrastructure that hosts your EdTech workloads and the network that connects them and platforms that run them are provided by, supported on, automated with, and delivered via Red Hat solutions. Education and open source are kindred spirits and we wouldn't have it any other way.

– Damien Eversmann, Delivery Strategist for Education, Red Hat

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