When Higher Education Goes Digital

Section 1: Introduction / Overview

Staying Abreast of Changing Web Technologies

Back when the web was new, colleges and universities were among the most enthusiastic early adopters. Faculty, staff, and students launched their own web sites to support research projects and educational activities using the innovative development tools of the day. A few even invented new technologies in their labs and dorm rooms. For example, Dries Buytaert, co-founder and CTO of Acquia, started the Drupal project in 2001 while a student at the University of Ghent.

But today, many colleges and universities are struggling to stay abreast of fast-changing web technologies. Many lack a contemporary IT infrastructure to manage content, and are unable to satisfy rising expectations from faculty, staff, and students. Without a modern environment, it is difficult to support web, mobile, and social channels, as well as build communities around areas of common interests. All too frequently, campus-wide IT organizations operate outdated server environments and cannot easily deliver innovative digital experiences.

Needed is a flexible, scalable, and affordable platform for powering educational solutions across a campus web environment. This platform is Drupal.

With Drupal, campus IT organizations can migrate aging web sites and outdated development tools to a popular, fast-growing, open source platform. As a result, colleges and universities can modernize their underlying web infrastructure, rapidly support the varied activities of different departments, and readily deploy innovative experiences. Moreover, these institutions can build awareness about their educational activities and rely on the web to manage experiences with off-campus supporters who help sponsor research, cultural, social, and athletic programs.

Why should colleges and universities modernize their web infrastructure by adopting Drupal? How can campus IT organizations transition from legacy servers, decentralized hosting, and obsolete development tools to a contemporary, enterprise-class platform for managing educational applications?

How does Drupal impact higher education?

Here is a solution guide for how colleges and universities can better support their faculty, research staff, students, administrators, and off-campus supporters, enhance their core educational activities, and launch innovative solutions using Drupal.

Section 2: How Acquia Delivers Effective Solutions

What Acquia Delivers

As a commercial open source company, Acquia delivers Drupal-powered solutions to colleges and universities around the world. In the higher education market, Acquia:

- Develops and distributes expertly curated versions of Drupal for assembling educational applications, managing multiple web sites from a single source, building faculty sites, distributing mobile content, and deploying learning solutions

- Hosts Drupal environments for campus-wide deployments that are optimized for high performance and designed to adapt to widely variable network traffic

- Supports Drupal developers at colleges and universities with a hosted development environment, a range of developer tools, and self-service knowledge resources

- Provides training, site planning, professional services, and technical training essential to build Drupal expertise and to ensure success

With access to Acquia's know-how, colleges and universities can deploy Drupal-powered solutions to:

- Modernize the campus web infrastructure

- Support the activities of faculty and staff

- Promote e-learning environments

- Extend and manage web experiences to include sponsors and supporters

Let's consider how higher education institutions use Drupal to solve key problems.

Section 3: Vertical Specific Use Cases
Section 3: Use Case 1

Modernizing the Campus Web Infrastructure

Drupal is an open source platform for modernizing the campus web infrastructure. Colleges and universities rely on this platform to produce engaging educational experiences, incorporate both structured and unstructured data sources, and blend published information with user-generated content.

Drupal makes it easy to retire legacy software tools and technologies, and build next-generation solutions. Drupal delivers a web application development environment for assembling higher education solutions oriented around content and community.

- Rather than simply relying on a framework, a database, and application-level programming tools, web site designers and application developers begin with a rich set of content and community-enabled modules.

- Designers proceed to rapidly assemble content-centric applications from these building blocks.

- Developers can extend existing modules to deliver additional functions or develop new modules to accomplish new tasks.

The key to success in higher education is flexibility and extensibility. Using Drupal, designers and developers can quickly launch web sites and produce superior results by leveraging this content-centric platform. They can substantially reduce the time and effort spent on application development, rapidly produce results, and easily enhance solutions in light of on-campus feedback.

Moreover there is a worldwide Drupal community (encompassing 16,000 active developers and nearly 800,000 users) for sharing experiences – passionate Drupalists who contribute modules to the project, rapidly test new approaches, and quickly learn from one another. Campus IT staff members, faculty, and researchers can reach out to colleagues at other institutions for help solving problems.

The University of Colorado (CU) at Boulder highlights the challenges and the solution for modernizing a campus web infrastructure. Before it made the move to Drupal, CU was facing an IT nightmare – operating a decentralized environment with over 600 servers producing static content, developed using outdated tools, and storing information in discrete databases. There was no way to update these web sites to deliver contemporary web, mobile, and social experiences.

CU now maintains a modern campus web infrastructure, beginning with the university's home page (see Illustration 1). By adopting Drupal, CU has been able to centralize its IT operations, leverage the power of a campus-wide content management system, and enhance the quality of services provided to departments and research centers.

Illustration 1. Beginning with its Drupal-powered home page, CU can always focus on current topics and new educational activities.

To promote a CU-branded experience, the campus IT organization is establishing:

- A consistent look and feel for university web sites

- An information architecture for categorizing content into well-recognized categories

Departments and research centers at CU are now migrating the legacy content residing on hundreds of discrete web sites into the Drupal-powered content infrastructure.

Section 3: Use Case 2

Multiple Faculty, Research, and Administrative Sites

Once a campus web infrastructure is in place, faculty members, researchers, and administrators can get out of the hardware and infrastructure support business. At the same time, they still need to manage their own content and launch their own sites – within the context of the campus environment. Fortunately there is a compelling Drupal-powered solution.

With Drupal, it is easy to support many faculty sites from a common core. Thus a campus IT organization can provide departments and research centers with self-service options for delivering their own web experiences. With access to a

Drupal-powered platform, the faculty and staff can launch new sites with just a few mouse clicks.

There are several pre-configured Drupal distributions for higher education. Among the more popular are OpenScholar (developed at Harvard) and Open Academy (developed at Stanford and the University of California, Berkeley), as shown in Illustration 2. With little or no training and an easy user experience, faculty and staff can easily use these distributions to manage their own content and even design their own web sites, eliminating the reliance on IT assistance. Blogging and web publishing are only the beginning. Drupal provides the simplicity of a campus-wide platform for managing applications and launching interactive experiences – tailored to the needs of particular departments and research groups.

Illustration 2. OpenScholar and Open Academy are popular pre-configured Drupal distributions for higher education.

Acquia supports these distributions within its cloud infrastructure, the Acquia Managed Cloud. In addition, Acquia can deliver training and technical support services to ensure that a campus IT organization has access to the know-how to widely deploy Drupal across the institution.

For a college or university that does not want to maintain its own web campus infrastructure, Acquia offers Drupal Gardens as a compelling 'Drupal-as-a-service' solution. Acquia hosts and maintains the Drupal infrastructure, while enabling faculty and staff to manage content on their own. Thus a higher education institution has the option of maintaining any number of self-service sites while substantially reducing its up-front investments, staffing, and operational costs.

Finally, Acquia has the technical expertise to help colleges and universities solve complex integration challenges. These can include supporting existing single sign-on services, integrating Drupal with federated identity and authentication services, and encapsulating legacy databases within a Drupal-powered site. Acquia can provide both the professional and the advisory planning services to ensure the success of an application development project.

Section 3: Use Case 3

Creating and Maintaining Social Sites and E-Learning Environments

Today, faculty and students rely on the web to support teaching and learning across a campus – from classrooms and offices, to research labs and study carrels, and then onto dorm rooms and off-campus residences. Faculty and students are extending the web from passive online resources to active and engaging learning environments.

As a platform oriented around content, Drupal makes it easy to develop and maintain the social sites that support learning environments. Drupal offers a variety of social networking and community-building modules, including a Facebook-style micropublisher, a FriendList tool, profiles, an activity stream, and a social-sharing toolbar. A college or university can design social sites by choosing from these module options individually, or can take advantage of a ready-to-use solution such as Drupal Commons that has all of the necessary modules and community best practices built in.

Moreover, learning is not only social, it is also structured. A college or university can use Drupal to deliver online courseware – combining video snippets and audio tracks with lesson plans, lecture notes, and links to reading assignments and tests.

Thus developers at Penn State have pioneered a Drupal-powered Electronic Learning Management System (ELMS), one capable of blending rich media with text-oriented content, as shown in Illustration 3. Unlike a conventional LMS that primarily tracks and manages student performance, this solution focuses on content that drives educational experiences. Faculty members can readily manage course activities on their own – posting content, engaging with students, and tracking learning tasks and results. Students in turn can work together in a collaborative learning environment to share course projects.
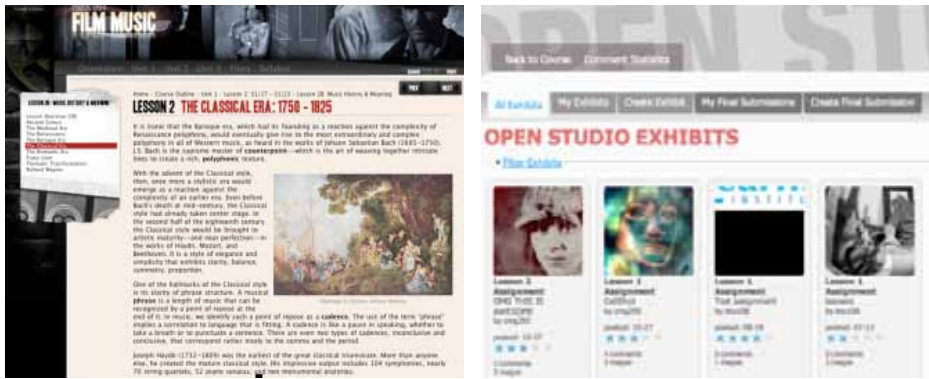
Illustration 3. There are several aspects to ELMS at Penn State. Faculty can rely on ELMS to manage course-related content and activities. Students can also use this platform as a collaborative learning environment to share course projects.

Penn State developers leverage Drupal's capabilities as a flexible and extensible platform, and add new capabilities to the ELMS as requirements change.

For instance, they can easily modify the access controls to courses in Earth and Mineral Sciences to benefit a global student community through the production of open educational resources (OER). With this simple enhancement, faculty members can engage students off campus, beyond the boundaries of the traditional university.

What's important for the evolution of OER at Penn State is a powerful content and community platform. Drupal provides the underlying platform for assembling innovative and engaging digital learning experiences. Drupal developers in a campus IT organization can share design, best practices, code snippets, and functional modules with the open source community. When they are pushing the envelop on a knotty problem, they can turn to Acquia for technical training and enterprise-grade support.

Section 3: Use Case 4

Promoting Web Experiences

The web promises to play an increasingly greater role in higher education in the future. A college or university can rely on its digital presence to raise awareness about its academic, social, and scientific activities. A savvy institution can forge deep connections with off-campus supporters who sponsor research, cultural, and athletic programs, and who are often essential to underwriting their long-term results.

A college or university needs to target content delivery to these key stakeholders, beyond simply publishing information over the web. Campus staff must proactively engage the sponsors and funders by:

■   Tailoring messages for email campaigns

■   Leveraging social media

■   Syndicating content across the web to various digital venues where supporters are found

Furthermore, it's essential for staff members to track results and determine the best ways to manage relationships with key supporters.

This is where Drupal makes a difference. Non-technical staff members, responsible for the success of particular programs, can rely on Drupal to manage the multi-media content that powers web experiences and reinforces digital connections. They can easily tailor content delivery to promote their educational missions and results. Drupal ensures that content flows seamlessly across web, social, and mobile channels – on demand and as required.

Of course, individual colleges and universities have their own particular requirements for managing web experiences and tracking results. With its professional and advisory services, Acquia can provide the essential technical expertise to transform the promise of web experience management into a practical reality.

Section 4: Summary / Wrap Up

Next-generation Digital Experiences in Higher Education

Using Drupal and relying on the capabilities of this flexible open source platform, colleges and universities can deliver compelling results at affordable costs. Acquia, in turn, provides the enterprise-grade support, training, hosting, and development services to ensure successful Drupal deployments.

■   Acquia delivers a range of professional, advisory, and training services to design and deploy Drupal sites, to make non-technical users and Drupal developers more effective, and to maintain Drupal-powered web sites on an ongoing basis. Acquia can provide the seasoned technical expertise to assist with modernizing a campus web infrastructure.

■   Acquia delivers Drupal solutions for engaging students, staff, and faculty

across the web. Acquia Drupal, Drupal Commons, Enterprise Drupal Gardens, OpenScholar, Open Academy, and ELMS provide colleges and universities with the solutions they need to best serve their key constituencies and stakeholders.

■ Acquia knows how to deploy Drupal for mission-critical applications. Acquia provides the Acquia Managed Cloud hosting service for running Drupal sites and rapidly scaling the underlying infrastructure services to meet changing needs.

In short, colleges and universities can rely on Drupal to deliver on the promise of a digital presence, support faculty, students, staff, and administrators, and reinforce connections with sponsors and supporters. Higher educational institutions can rapidly benefit by going digital with Drupal.