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## INTRODUCTION

Data Center University™ (DCU) by American Power Conversion, is designed to provide worldwide, industry-leading, on-line education to IT Managers, Facilities Managers, Consulting Engineers, and others involved in the design, build and operation of data centers. DCU's offerings include courses focusing on: Site Selection, Power, Cooling, Racks, Availability, Blade Servers, VoIP, Fire Protection, Physical Security, Network Security, and Network Critical Physical Infrastructure (NCPI) Management (American Power Conversion, 2006, para.1). All courses are created with Macromedia Breeze, are self-paced, and are designed to take less than one hour to complete.

<b>datacenteruniversity.com</b> <b>On-line Education</b>	On-line Education is self-paced and available on-demand via the Customer Education Portal at <a href="http://www.datacenteruniversity.com">www.datacenteruniversity.com</a> . Courses offered address the core competencies required for data center design, build and operations. The program allows learners to take individual courses or to follow a fee-based Certification path (available Q3 2006). The Associate Level Certification will require completion of 14 course modules, the Professional will require 21 modules, and the Master will require 28 modules.
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This essay will utilize the “SECTIONS model” to analyze the use of Macromedia Breeze to create on-line courses for Data Center University (Bates & Poole, 2003, p. 77-79). “Macromedia Breeze is a rich web communication system that allows users to provide on-line meetings, training courses and on-demand presentations, using engaging multimedia content” (Adobe, Macromedia Breeze, 2006, para. 3).

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“The Breeze system is comprised of the core Breeze Communication Server and applications for real-time and on-demand communication. Together, the Breeze server and applications deliver complete solutions for on-line communication” (Adobe, Macromedia Breeze, 2006, para. 4).

## **ANALYSIS**

The SECTIONS model is used for selecting and applying an appropriate technology for a particular educational experience. It is comprised of a set of questions which are asked by distance educators when making decisions about investment in technology and when choosing specific media and technology applications for a course (Bates & Poole, 2003, p. 77-79).

### **Students**

The interaction of student with learning content is a defining characteristic of education (Moore & Kearsley, 1996, p. 128). Data Center University™ integrates a “student-centered systems approach” to the delivery of on-demand education (Mason, 1998, p.53; Rumble, 2000, para. 1).

Daniel (1998) discusses the importance of having a “technology strategy” and accounting for the wants of the student in that strategy (p.86). DCU’s educational content is hosted on an external, web-based LMS. DCU’s audience of knowledgeable IT professionals is well-versed in computer technology; therefore, they will experience very little learner frustration in regards to the delivery method. These IT professionals have access to computers, and the Internet, and will therefore have what they need to participate. The technological feature that is required to participate in a

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Breeze presentation on-line, Flash Player, is already incorporated into 98% of all browsers, so there is no need for supplemental plug-ins (Adobe, Breeze System Overview, 2006, para. 6).

Students have “different preferences for various kinds of technology and media” (Bates & Poole, 2003, p.84). Macromedia Breeze addresses the needs of all learning styles: visual, audio and kinesthetic. Dynamic presentations can be created that incorporate simulations, streaming video, audio narration, charts, graphs and case studies.

### **Ease of use**

#### *Ease of use for students*

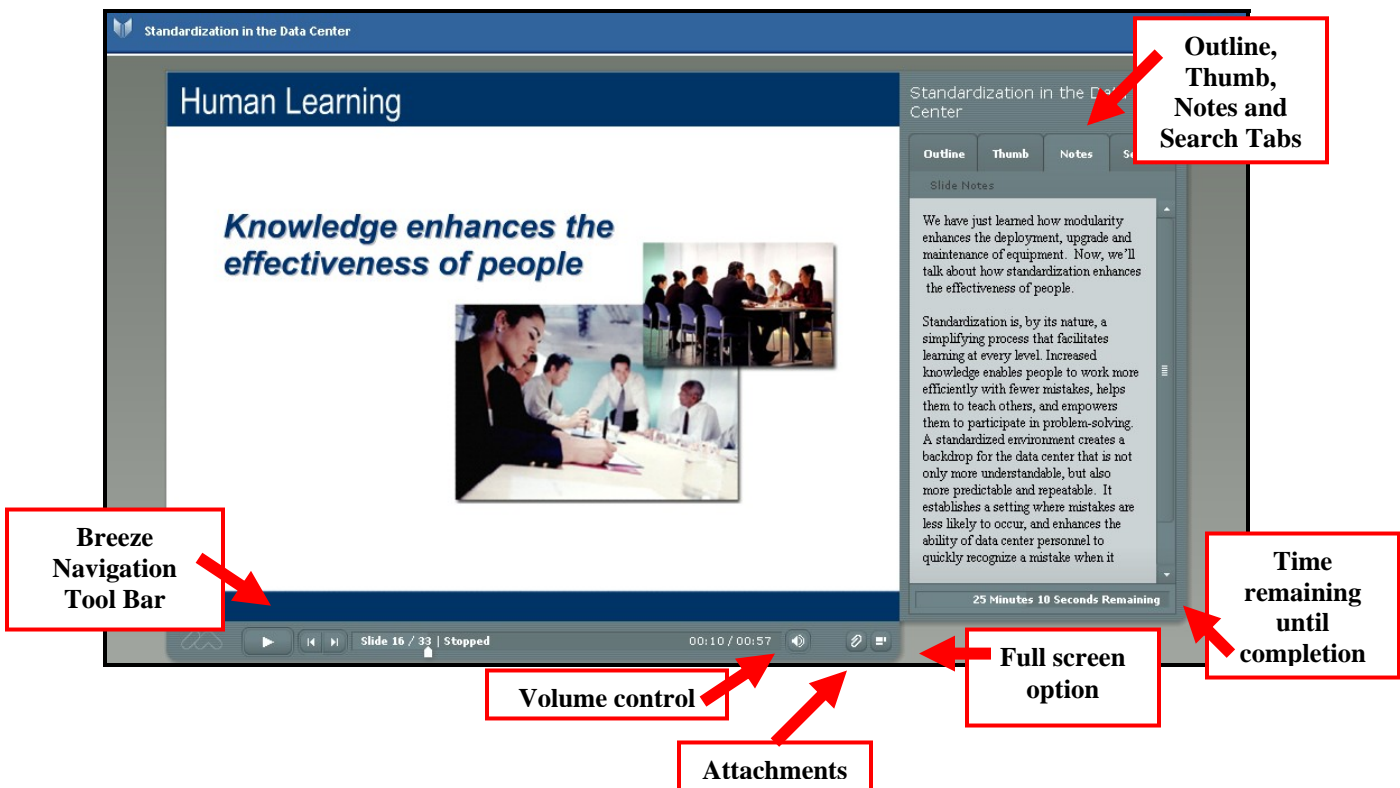
The final product that Breeze yields is very easy to use. Once registered, students can participate in as many courses as they wish, taking one course at a time, or participating in a fee-based Certification Program. Because the courses available through DCU have been approved by professional associations like IEEE, BICSI, IFMA, and many state engineering boards, busy professionals are able to earn Continuing Education Units (CEUs) with just a click of the mouse (American Power Conversion, 2006, para.3).

“Macromedia Breeze converts Microsoft® PowerPoint® presentations into interactive flash files, publishes them on-line for students to view at their convenience. Macromedia Breeze content plays back in any standard web browser with Macromedia Flash 6 or later installed” (Adobe, Breeze System Overview, 2006, para. 4). Features include:

- Easy to use navigation tool bar

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- Volume control button
- Attachments feature, where ancillary job aids can be stored and downloaded by participants
- A tabs section that contains a topical outline feature, thumbnail section, a notes section which contains the script, and a search element
- A full screen option, and time remaining display are also present



### *Ease of use for instructional designers*

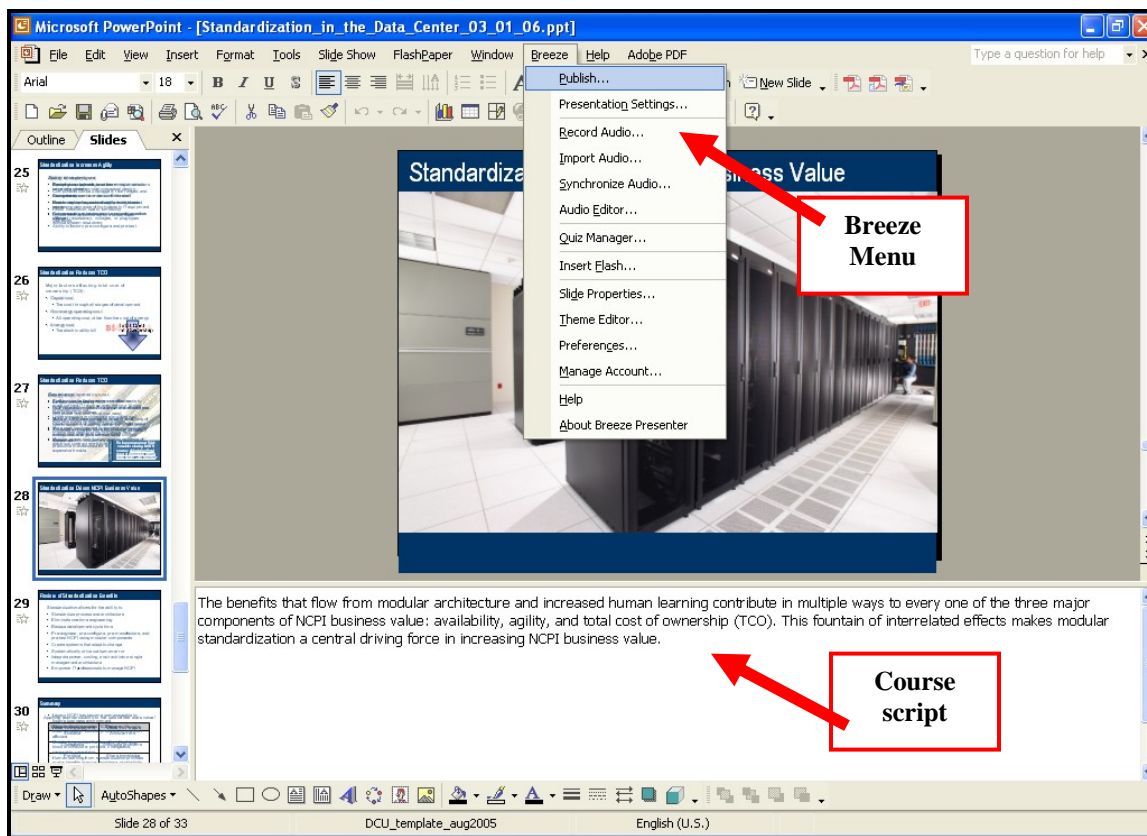
With a strict 4 week “plan, design, develop and implement” timeline, an Instructional Designer at American Power Conversion needs access to an application that is reliable and simple, but that will also deliver a high quality, dynamic product (Bates & Poole, 2003, p. 137). “Using Macromedia Breeze and PowerPoint to create and deploy on-line courses makes sense. With

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Breeze, anyone with basic knowledge of PowerPoint can easily add narration, animation, quizzes, and surveys to PowerPoint content and publish that content efficiently over the web via Flash Player” (Clothier, 2003, p. 2).

Once the Breeze plug-in is downloaded, the Breeze actions menu appears directly on the PowerPoint tool bar. Instructional Designers (IDs) have the ability to record and edit narration, insert Flash movies, add quizzes and customize the design template right from one menu. The course script is typed directly into the Notes section of PowerPoint, making Breeze and PowerPoint very useful tools, a one-stop developing experience for the ID.



## Costs

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As previously mentioned, the two applications that are needed to develop courses at DCU are PowerPoint and Breeze. Fortunately, PowerPoint and Breeze licenses were already purchased previous to the banding of the Worldwide Customer Education Team (February 2005) and the official launch of Data Center University (January 2006). Additional software licenses had already been accessible, and there were no costs associated with the transfer of these licenses to the current IDs.

The Worldwide Customer Education Team works closely with an ancillary internal department, Creative Services (CS). CS is tasked with providing dynamic, high quality resources to the Instructional Designers to visually enhance the learning content. Most visual resources are found in-house, but occasionally, outsourcing the development of a shockwave file, or the purchase of external stock images, is necessary. The Customer Education budget accounts for this.

According to Bersin and Associates (2003), the “cost to develop using Breeze falls in the range of \$100 – \$1000 per instructional hour,” making it an affordable option (p.3). There are always salaries of employees to consider. Those members of the Worldwide Customer Education Team directly related to technological development within the organization are:

- 1 Training Manager and Designer
- 3 Instructional Designers
- 1.5 Creative Services Technical Developers
- 1 Web/LMS Project Manager

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### **Teaching and learning**

The underlying purpose of the DCU courses is to provide relevant, industry-related information to busy IT professionals. Data Center University's courses are designed to be completed in less than one hour, enabling participants to quickly capture important up-to-date information. Breeze enables IDs to "construct a variety of quizzes, from multiple-choice to fill-in-the-blank, and the assessment results can be tracked using a convenient reports dashboard. Because Breeze enables content creation at a fraction of the time and cost of traditional E-learning methods, the load on training resources is reduced" (Adobe, Macromedia Breeze, 2006, para. 10).

Breeze also provides complete curriculum management, including the ability to require live seminars, as well as self-paced courses, within a single curriculum. Finally, Breeze content complies with AICC and SCORM standards, enabling straightforward integration with existing learning management systems.

*What can be expected from Breeze?*

<b>Category of Learning</b>	<b>Broadcast of New Information</b>	<b>Important Knowledge Transfer</b>	<b>Developing New Skills</b>
<b>What the learner will do?</b>	Read	Read, listen, and answer some questions	Read, listen, and try out new skills
<b>Tracking needed?</b>	None	Who took this? Did they get it?	Did they really learn? What score did they get?

### **Interaction**

Bates and Poole (2003) state "as students...move more and more towards to technology-based learning, this fact needs to be acknowledged in the design of learning materials. This means

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building opportunities for explicit interaction within the learning materials through the use of exercises, activities, tests and feedback” (p.99).

Breeze has the ability to provide a highly interactive learning experience. Courses can include voice-over narration and video, animations, and simulations. In its infancy, DCU is not using Breeze to its fullest capability; it is a goal to continue to improve the interactive elements involved in these courses. For example, “the Flash files generated by programs like Captivate can be included in Breeze presentations. Presentations can include linear Captivate demonstrations to show users how to perform a task, as well as interactive Captivate simulations to allow users to practice completing tasks” (Adobe, Macromedia Breeze, 2006, para.4).

### **Organizational issues**

“Technology-based teaching needs an effective organizational system to make it feasible and practical” (Bates & Poole, 2003, p. 102). Utilizing Breeze, users who are familiar with Microsoft Windows-based applications, like PowerPoint, can easily create and share course content.

Learning content is hosted on an external, web-based LMS and has been shown to be very reliable. However, should technical assistance be required, contacts are available via email and phone.



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American Power Conversion has a dedicated resource at Adobe who can be contacted if a technical problem should arise during development. All problems that have been encountered have been solved within 48-72 hours.

The senior management team does support both the use of this technology, and Data Center University. They were highly involved in ensuring a budget, initiating DCU, and in choosing which technology would best suit the overall goal.

### **Novelty**

Bates and Poole (2003) explain that “innovation is a double edged sword” (p. 103). How innovative is the technology? Breeze was first launched in 2003, making it relatively new. However, because it uses a platform of PowerPoint for creation of course materials, it is very dependable, consistent and user-friendly.

### **Speed**

“Breeze is designed to easily adapt and expand to suit the needs of an organization. Extensive branding functionality allows an organization to incorporate its own brand, including color scheme and logo, throughout the Breeze experience” (Adobe, Macromedia Breeze, 2006, para. 5). Course content is easily managed using Breeze’s fully searchable content library, which makes it effortless to find, retrieve, reuse, and update existing course material.

## **CONCLUSION**

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There are many different factors that need to be taken into account when deciding which technology an institution should use in order to best support the learning environment. The SECTIONS model provides a framework of questions that help assess which choice will be the most appropriate.

Very often, the simplest approaches to a problem are the most effective. By utilizing PowerPoint, organizations can significantly increase the speed of development of E-learning by using an authoring tool with which employees are already familiar. Using customized PowerPoint templates to guide content organization, Instructional Designers can rapidly create on-line content that is engaging, effective and instructionally sound.

Taking into account the mission of Data Center University and the needs of its student population, it is clear to see why Macromedia Breeze is a solid technology choice for creating E-learning courses.

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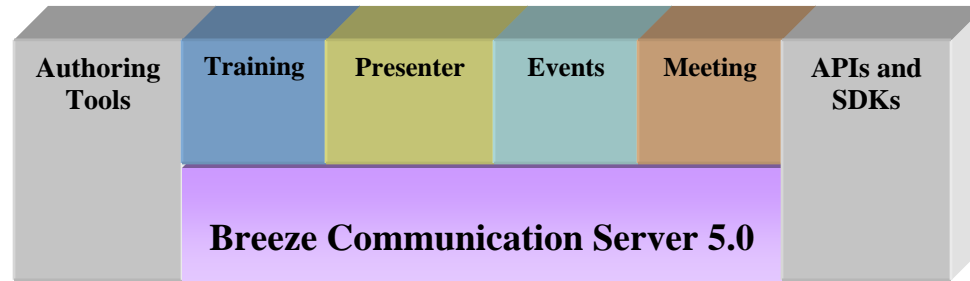
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**APPENDIX**

*Breeze System Components (Adobe, Breeze System Overview, 2006, para.3-9)*



<b>Breeze Communication Server 5.0</b>	Breeze is available as licensed software for managing on-premise or on a hosted subscription (ASP) basis. The Breeze Communication Server integrates real-time and on-demand communications and provides user administration, tracking, and reporting, as well as integrated content management across all Breeze applications through a fully searchable content library. Breeze offers true enterprise-class scalability, providing reliable redundant deployment that can support thousands of concurrent users.
<b>Authoring Tools</b>	Breeze allows users to easily integrate and deliver existing content authored in other Adobe e-learning tools, including Captivate, Authorware, Dreamweaver, and Flash.
<b>Training</b>	Breeze provides everything you need to manage, deploy, and track highly engaging on-line training everyone can access instantly. Comprehensive curriculum management capabilities enable integration of both live and self-paced courses, including courses created with other authoring tools. User completion and course results can be tracked using convenient dashboard reports or at a more detailed learner-by-learner and question-by-question level.
<b>Presenter</b>	Breeze Presenter enables PowerPoint authoring of narrated, self-paced e-learning courses and on-demand presentations, and provides unique support for high-impact content through adaptive streaming of audio and video. The Breeze Presenter drag-and-drop audio editor and wizard-based quiz and survey creation enable subject matter experts to easily deliver professional-quality e-learning courses. Breeze courses can also be delivered and tracked by SCORM 1.2, SCORM 2004 and AICC-compatible LMS systems.
<b>Events</b>	Breeze Events manages user registration, qualification, notification, automatic e-mail reminders, and tracking for

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	large on-line seminars and presentations. On-line registration forms, events listings, and information pages can be easily customized to reflect corporate branding. Breeze Events generates detailed reports on attendee demographics, registrations, attendance, and answers to both registration survey responses and in-session polls.
<b>Meeting</b>	Breeze Meeting delivers real-time meetings and seminars that all participants can access instantly, through any web browser, without downloading cumbersome plug-ins. Breeze Meeting provides unparalleled support for sharing rich content, including streaming audio, video, and software simulations, and also enables multi-point video conferencing. Breeze customizable meeting room configurations and all content are automatically saved and available for the next session, dramatically reducing preparation time for recurring seminars, team meetings, and sales presentations.
<b>APIs and SDKs</b>	Breeze is highly customizable and extensible, with support for custom branding, directory services integration, system extensibility, bidirectional data integration, and meeting extensibility. Breeze enables system extensibility with application interfaces to integrate web communication capabilities with the application network, including integration with portals, reporting applications, CRM systems, content management systems, and other corporate systems. Through a published API, organizations can incorporate external data and functionality directly within the Breeze Meeting experience.