



Marist College

Cloud Computing with IBM

Problem

Many colleges and universities don't have the time, knowledge base, or resources to install and maintain software applications for academic use.

Solution

IBM Smart Analytics/Academic z cloud environment

Goals

- Build on existing cloud environments at Marist (such as z/OS) to give students and professors access to a broader range of IBM products
- Create a cloud environment based on Cognos on Linux for z, TM1® and Virtual Computing Lab (VCL) that will provide virtual desktop access to many BI applications
- Develop a cloud environment based on Rational Team Concert for System z that will provide easy access to a full software development environment
- Utilize Tivoli® System Automation Manager to provision new instances of these environments as needed to meet fluctuating demands during the course of a semester

This work will already complement an existing z/OS hub that has been in existence at Marist College for several years.

Marist College, recognized for excellence by U.S. News and World Report, TIME Magazine and the Princeton Review, and by Barron's Best Buys in College Education, is noted for its leadership in the use of technology to enhance the teaching and learning process.

What started as a school for the training of future Marist Brothers has developed into one of the leading colleges of the arts and sciences in the Northeast. Marist is ecumenical in character and reflects the ideals of the founder of the Marist Brothers, St. Marcellin Champagnat; commitment to excellence in education, a pursuit of higher human values, and dedication to the principle of service.

Marist pioneered the hosting of IBM technology for academic institutions with the creation of the z/OS® Knowledge Center in 2002. The use of that system by IBM Academic Initiative participants has grown each year. As of July 2010 the Marist z/OS hub supports 189 active colleges and universities, 461 active faculty, 168 active courses, and over 4400 active students. Marist, working with IBM, would like to make other z-based software products and solutions available through this cloud-like hub. This year a Smart Analytics environment based on Cognos® and a Rational® Jazz hub primarily comprised of Rational Team Concert will be added. The plan is to pilot access to these environments with a small number of schools in the Fall of 2010 and then gradually expand it to other schools. Provisioning technology will be incorporated to dynamically allocate resources as needed.

Marist will explore the feasibility of creating a cloud/SaaS environment based on the integration of Cognos and SGHE's Banner product. It would be a model for a service offering that several small and medium colleges and universities would take advantage of if successful.

The Challenge

To provide these environments for a student population that fluctuates throughout the year Marist will take advantage of the virtualization capabilities of System z. The Smart Analytics environment will be based on Cognos 8.4.1 and DB2 9.5 running on Linux™ for z® virtual servers. Students will access Cognos via virtual desktops provided by Cognos Framework Manager running on Virtual Computing Lab blade servers.



IBM Cloud Academy



Results

- An RTC environment is installed and up and running at Marist. Teachers and students will start using this environment this Fall semester.
- Parallel with providing an RTC hosted environment for academic purposes, Marist is building a prototype Rational environment to determine the feasibility of a z-based cloud for large scale development projects. Other products will include ClearCase®, Rational Quality manager, ClearQuest®, and TSAM for provisioning.
- The Cognos environment is in place and currently being used for business intelligence courses offered by Marist College. Marist is preparing to make this available to other Academic Initiative schools this Fall semester.

The Rational environment for academic purposes will primarily include Rational Team Concert 2.0 running on Tomcat on a Linux for z server. The RTC server will provide developer licenses for each student and access to the Build Toolkit running on Linux for z so that students can build and compile their own projects. Other features that will be made available to the students are being developed now.

The Solution

For the students at Marist College, the community-wide collaboration enabled by IBM technology is a catalyst that inspires progress. The Marist/IBM academic cloud has helped unite disciplines, students, faculty and different campuses throughout the world by connecting them with a shared communication environment. It enables an online space where students and researchers can share and develop ideas, adding depth to the educational process.

Marist College represents a school that has really pushed the advantages of cloud computing to innovative ends. They've used IBM solutions to expand their systems' access to students in other schools, making Marist's applications and mainframe available, to any student in the world. And by sharing course environments and content with other schools, Marist can educate and interact with a number of students that were never accessible before.

One such innovative program enables students on separate campuses to collaborate on the same academic project. Two professors teach the same class on two different campuses. The students work as a single body. Their project is to develop an application for Facebook to be used by cystic fibrosis patients. The students are able to work together by sharing a development environment with Rational Team Concert, hosted on the Marist/IBM academic cloud. The environment is automatically provisioned for the students using Tivoli® System Automation Manager. This example demonstrates what's possible with IBM cloud computing --schools that don't have access to hardware and software resources can easily get them from an academic institution that provides this environment using cloud technology.

The Marist/IBM academic cloud expands access to the learning applications and library databases students and faculty need. For example, schools around the world can access the Marist cloud, request user IDs, and provide online lab exercises for students. Or, a researcher can request a cluster of machines to support a computationally intensive research project. And, using the same infrastructure, a professor can select over 20 machines for a class of 20 students, each running all of the software needed for that class.

Once the project is finished, the resources can be disassembled and returned to the general pool to be reallocated for the next requester. This is how resources are only used when they are needed, maximizing the utilization of the hardware and software licenses, while reducing energy costs and purchasing requirements. And internet accessibility means they're available 24-7, from a classroom, from a dorm room or from the home.



IBM cloud environments can host a wide variety of applications. Some solutions for the z/OS environment include:

- DB2®
- WebSphere® Application Server
- Customer Information Control System (CICS)
- Information Management System (IMS)
- Interactive System Productivity Facility (ISPF)
- z/OS Test Drive Images

Cloud 9: Breaking down workloads, offering services for education

By using new innovations in cloud computing technologies, Cloud 9 helps Marist reduce costs and optimize services. It frees up their IT and capital resources to be reinvested in more constructive ways. That means Marist can spend precious funds on enriching education—not on maintaining an inefficient IT infrastructure.

IBM Cloud 9 lowers IT costs and offers new capabilities. This gives Marist and other academic institutions new opportunities to:

- Enhance student learning
- Develop workforce skills
- Improve administrative efficiency
- Accelerate scientific discoveries
- Create a more robust, agile and flexible infrastructure
- Support evolving education objectives
- Scale with future changes in processing demands, traffic or technology

Smarter Education Mean Brighter Futures for Marist Students

The Marist/IBM academic cloud is expanding access to academic resources and enabling greater collaboration and conversation between students, researchers and faculty. It's helping Marist College deliver education in new and smarter ways while deepening their impact as a global educational presence. And the successful results seen from implementing IBM cloud computing at Marist College can be repeated for other schools and universities, too. But in the end, the ones who benefit most from cloud-enabled educations are always the students.

Harry Williams
Director of Systems
and Technology
Marist College

Tel: 845.575.3252
Fax: 845.575.3035
harry.williams@marist.edu

Howard Baker
Marist College
3399 North Road
Poughkeepsie, NY
12601

Tel: 845.575.3101
hcbaker@us.ibm.com

Chris Bernbrock
Program Director,
IBM Cloud Academy

IBM Global Education
Industry
Tel: 714.472.2515
cwbernbr@us.ibm.com





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Software Group
Route 100
Somers, NY 10589 U.S.A.

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