Growing Skills of the Future – Today
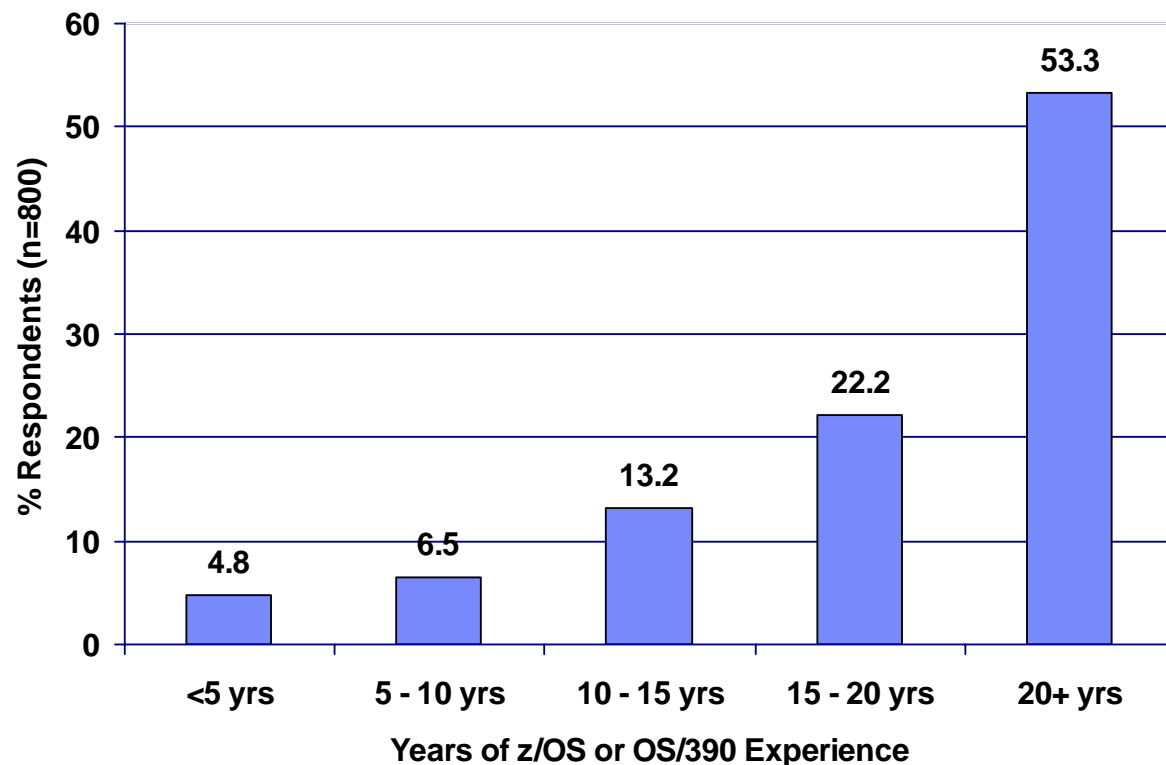
IBM Academic Initiative, System z

A perfect storm is brewing….

- 1.5M skilled I/T workers needed by 2012

- 70M baby boomers exiting the workforce in next 15 years

- Only 40M additional skilled workers anticipated

- Newly declared Computer Science majors down 32%

We know those mainframe workers want to retire and go surfing!

53% of mainframe workers have 20+ years

Why Enterprise Systems Thinking in College?

January 9, 2008

The U.S. IT job market grew at a blistering pace in 2007, shooting up 8% and adding nearly 300,000 jobs, according to year-end <u>data</u> from the Bureau of Labor Statistics.

What is "Enterprise Systems Thinking"?

- Education about:

  - Enterprise systems
  - Commercial computing
  - Large scale computing

- Including:

  - Enterprise Servers (IBM Mainframes)
  - Operating Systems and Software
  - Service Oriented Architecture (SOA)
  - Virtualization
  - Open source, open standards
  - IT Optimization and energy efficiency

IBM System z
The cornerstone

Made in the USA

What is the IBM Academic Initiative?

IBM Academic Initiative
Open standards, open source and IBM resources for academia

Updated 18 July 2007

Get access to academic resources.

Why IBM
Reap the benefits of open source, keep up with the latest technologies, prepare your students for the hottest jobs in the top fields, and get the resources you need to reach these goals, all at no charge.

Products & technologies

- **DB2.** Information Management Software
- System i
- System z
- **IBM.** | **ON** DEMAND BUSINESS
- **Lotus.** software
- **Rational.** software
- **Tivoli.** software
- **WebSphere.** software

- **Membership in the IBM Academic Initiative is free and open to individual faculty members.
  Apply at www.ibm.com/university**

  - Worldwide program
  - Supports many IBM Brands and technologies
  - Encourages open standards, open source
  - Provides easy access to hardware, software, courses, textbooks, and resources
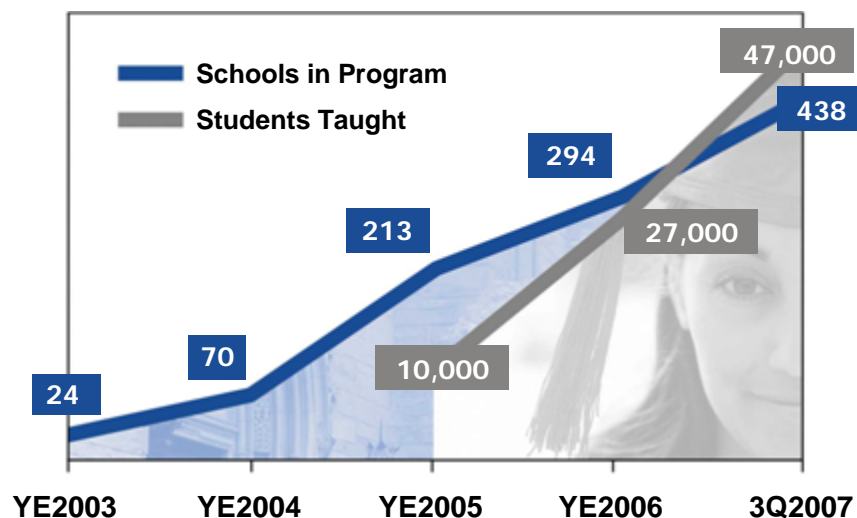
Access to valuable resources and offerings

- Access to IBM hardware and software

- Course materials and textbooks

- Ongoing Faculty skills development

- Certification offerings and discounts

- Curriculum advisory

- Roundtable events

- Student Opportunity System (SOS)

- Tutorials, articles and Redbooks

- Forums, technical webcasts, forums and newsletters

- Contests

- Student portal

- IBM Ambassador community

What schools are teaching Mainframe technologies?

Growing Academic Initiative

- Schools in Program
- Students Taught

47,000
438
294
213
27,000
70
24
10,000

YE2003   YE2004   YE2005   YE2006   3Q2007

EnergiZed
DEVELOPING SKILLS FOR THE MAINFRAME COMMUNITY

Large Systems Thinking

Profiles of **28** schools from around the globe teaching mainframe skills

Published with permission from IBM Systems Magazine, Mainframe edition.

- Educators from over 430+ schools worldwide are currently investigating or teaching mainframe technologies

- For a complete list, see www.ibm.com/university/systemz - "Participating schools" tab

IBM System z courses

Foundational principles
- Intro to the Mainframe: z/OS Basics
- Intro to the Mainframe: Networking
- Intro to the Mainframe: Security
- Intro to the Mainframe: Large Scale Commercial Computing

Operating systems
- Linux on System z
- Introduction to z/VM®
- UNIX® System Services (Module)

User interfaces
- ISPF: z/OS Basic Interfaces

Storage management
- VSAM

Tivoli security, systems, network, and storage management courses

IBM Tivoli License Compliance Manager for z/OS 4.2 Implementation
- IBM Tivoli System Automation for z/OS 3.1 Introduction and Operations
- IBM Tivoli System Automation for z/OS 3.1 Implementation and Administration
- IBM Tivoli Workload Scheduler 8.2 for zOS Scheduler's Workshop

Application development
- WebSphere Application Server for z/OS
- Intro to IBM WebSphere Developer for z (Web based)
- WebSphere MQ for z/OS System Administration

Information, data and transaction management
- Enterprise Server Data Management
- DB2 Family Fundamentals (Cross product)
- DB2 SQL Workshop (Cross product)
- DB2 for z/OS Database Admin Workshop – Part 1
- DB2 for z/OS Database Admin Workshop – Part 2
- DB2 Programming Workshop for z/OS
- An Introduction to IMS (Textbook reference)
- Transaction Management

Programming languages
- Assembler
- JCL

eLearning resources:
- Flash Demo for professors and students: *Learn about your future in Large Systems*
- Interactive e-Learning module*: Careers in Mainframes*
- Interactive e-Learning Module: z*/OS Basics*

Worldwide Mainframe hub systems

Locations:

- Marist College, New York

- University of Arkansas

- Brazil

- Montpellier, France:
  IBM site "ZEUS"

- China: 5 systems, serving 8 schools

- IBM Innovation Center

Building mainframe skills for the community
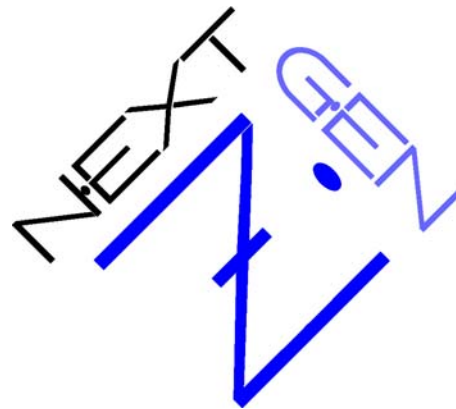
z/OS Mastery Exam

to validate z knowledge

Z Skills Help Desk
to assist the community

zNextGen & SHARE Academic Initiatives

to extend the community

Student Mainframe Contests

to generate interest

Roundtables on Campus
to get industry input

IBM System z entry level for z/OS System Programmer Mastery Test

- Measure and validate mainframe z/OS knowledge
  - *Introduction to the Mainframe: z/OS Basics*
- Developed by a panel of subject matter experts
  - IBM
  - College and university faculty
  - Mainframe customers
- Worldwide proctored exam

- Results recorded in IBM certification database
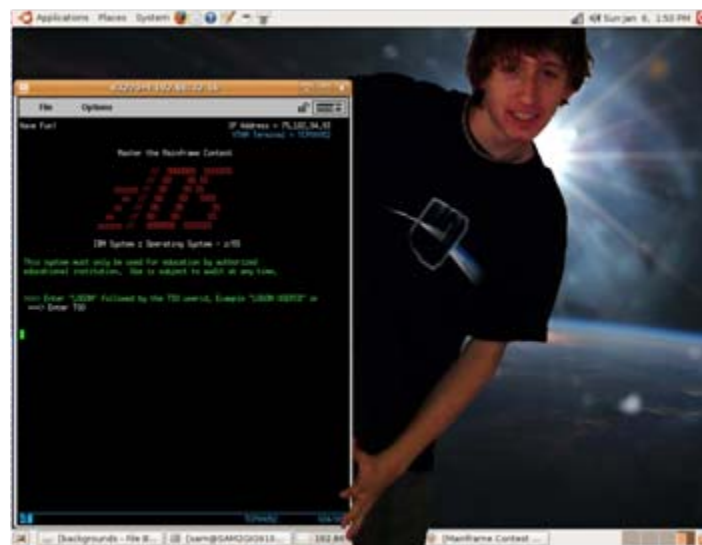 - Goal: Increase the chances for success within an organization

THOMSON ™
PROMETRIC

ibm.com/certify/mastery_tests/ovrZ01.shtml

Student Mainframe Contests

- Hands-on remote mainframe contest
  - No experience necessary
  - Three levels of challenges
    Prizes: T- shirts, iPods, Laptops, XBox360, Wii, Sony PSP, trips

- 2007 U.S./Canada contest
  - 1,750 students from 325 schools
  - 133% increase in registration since 2005
  - 57 high schools represented
  - Contest, winner details at ibm.com/university/contest

Location	Students	Schools
Brazil	2011	390
BeNeLux	76	9
Nordics	147	11
Thailand	960	40
UK	1401	99
North America	3585	587
Totals	**8,180**	**1,136**

Large Systems Thinking Roundtables on Campus

- Introduce Large Systems Thinking to educators

- Validate the demand for students educated in Large Systems Thinking

- Show faculty how to leverage the IBM Academic Initiative

- Include business perspective from the mainframe community

Building relationships - zConnections

zNextGen & SHARE Academic Initiatives

to extend the community

zNextGen member profiles
+ zAcademic Initiative students
_____
= Valuable connections with
Mainframe professionals

SHARE
Technology · Connections · Results

zNextGen Member Profiles

CIGNA HealthCare

Keith Shaffer

Location: Windsor, Connecticut

Contact preference: keith.shaffer@cigna.com, (860) 298-2889

Graduated from: Syracuse University, Computer Engineering (2003)

Job description: I am a z/OS system programmer. My responsibilities include installing new base products, applying PTF/APARs to all of our SMP/E zones, and configuring parms for our Initial Program Loads (IPLs) and Power-on-Resets (PORs). More recently, I have been exposed to z/VM.

Mainframe background and interests: Out of school, I took a job as a DB2 database administrator and got thrown into the world of z/OS. After two years, I wanted to learn more about the mainframe and so I moved to the z/OS & z/VM system programming team. In the future, I would like to learn more about the individual products running on the mainframe (MQ Series, WAS, etc.).

Hobbies: Soccer, running, tennis, golf, photography, Nintendo Wii

It's all about assisting clients with z skills.....

IBM's Academic Initiative, System z

- **Mainframe Skills Help Desk – <u>zskills@us.ibm.com</u>**

  Where can I locate students?

  Who do I contact at the school?

  How can IBM help me with internal education?

  Are there online programs?

  Will someone at IBM talk with my VP about skills?

  How do we partner with IBM and schools?

  Does IBM have certifications for the mainframe?

  Does IBM have resumes from the student mainframe contest?

  Will someone from IBM join me on a call with a professor?

  Are there schools that need speakers or teachers?

Marist College z/OS Certificate Program

- Fully online, web based delivery

- Three Certificates, 10-12 week modules

- "Lectures", Quizzes, Labs, Assignments

Certificates	Modules
System z™ Associate (starts March, 2008)	▸ Introduction to the z/OS Operating System and Components (03/03/2008 - 05/23/2008) ▸ System z Networking (9/08*) ▸ System z Security (12/08*)
System z™ Professional (starts 2008)	▸ Advanced Topics in zArchitecture: (including z/OS) ▸ RAS and Diagnostics (Availability, Serviceability, and Diagnostics) (12/10/2007 - 02/22/2008) ▸ Emerging Technologies (Linux, Grid, System Oriented Architecture)(03/03/2008 - 05/09/2008)
System z™ Expert (starts September, 2008 and 2009)	Application Development Track ▸ Application Development Environment and Deployment on System z, Unix System Services, Eclipse, WDz (WebSphere Development for z/OS) ▸ J2EE on System z Systems Administration Track ▸ Operating System, Installation, Configuration (JES, RACF, TSO, SMP/E and Fixes) ▸ System Measurement and Tuning (WLM configuration, SMF and RMF)

www.idcp.org/learnzos

Contact:
Angelo.Corridori@Marist.edu

•Scholarships up to 50% of cost

Important Web sites and contacts

- **System z Community**
  - **ibm.com**/systems/z/about/charter/community.html
- **Academic Initiative for the Mainframe**
  - **ibm.com**/university/systemz
- **z/OS Entry Level Mastery Exam & DB**
  - **ibm.com**/certify/mastery_tests/ovrZ01.shtml
- **zNextGen**
  - **Znextgen.org**
- **Enhanced skills portal**
  - **ibm.com**/systems/z/about/charter/skills.html

Program Manager,
  Academic Initiative for the Mainframe:
  Kathy Pfeiffer, **pfeiff@us.ibm.com**

External skill leader, System z
  Don Resnik, resnik@us.ibm.com