Center for Grid Enabled Self-Managing Scale-Out Software

April 3, 2005

Center for Grid Enabled Self-Managing Scale-Out Software

An Industry-University Partnership for IT Workforce Diversity
and World Class R&D

Research Focus

Critical Applications

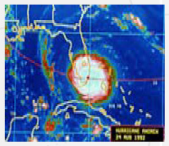
GridAware
- Middleware - Autonomic
- Fault Tolerance - QOS

Tools:
- Grid Toolkit - DB2
- LoadLeveler - Eclipse
- Websphere - Linux
- Rational Suites

Infrastructure


Large-Scale GIS


Biomedical Science


Hurricane Mitigation


IP Communications

Selected Research Topics:
- Transparent Shaping
- Knowledge Discovery
- Autonomic Storage
- Scale-Out Software
- High Availability High Performance Networking
- Advanced Load Balancing and Failover

Basic Research ⟷ Industry Application

Cluster Components

Institutional Grids

HPC Networks 10Gbs

Education Initiatives

Graduate Education

Pipeline To Grad. School

Industry-Univ.Training

Student Recruitment

CC/HS Outreach

University ⟷ Industry

- Center Research Activities
- Joint Advisors
- Industry Relevant Course Development
- Experience at Industry Labs

- Undergrad. Research
- 4+1 masters Program
- Career Counseling
- Industry-Univ. Workshops

-Internships - Capstone Project - Joint Mentorship

University Driven Activities

- Student Exchange
- US/LA Expanded Student Recruitment
- Expand Univ. Partners

- Miami-Dade Col.
- Fla Memorial Col.
- Teacher Training
- CC/HS Curriculum Development

Founders

FIU IBM Recinto Universitario de Mayagüez

Goals:

- Significantly Expand Minority Participation in Computing Research, Education and Workforce
- Pursuit of Excellence in Computing Research, Education and Workforce Training
- Pursuit of Federal/Local Funding to Become Self-Sustaining.
- Produce a Diverse Industry-Ready Workforce.
- Become a National Model for Industry-University Partnerships Focused on Broadening Participation of Minorities.

Resource Commitments:

- IBM Commits to Funding Equipment, Student Research, Student Internships, Faculty Support.
- FIU/UPR Commits to Student Support, Facility, Tech/Admin Personnel, and Networking Infrastructure.
- IBM/FIU/UPR commit to Release Time For Employees to Develop Initiatives, Research and Collaborative Work
- IBM/FIU/UPR Commit to Jointly held Professional Development Activities Like Conferences and Workshops

Impacts:

- Create Broad and Steady Hispanic/Minority Student Pipeline to IBM and industry.
- Increase Student Exposure to IBM technologies.
- Joint wide scale outreach efforts to broaden Hispanic/ Minority participation in CSE.
- Double minority graduate enrollment at FIU/UPR; Increase Total US Hispanic Computer Science PhDs By 25%
- Nationally recognized center for R&D and IP generation
- Create a Self Sustaining Center with $1M annual External Research Funding
- Attract Other Universities With Significant Minority Populations to join alliance at Multiple Levels

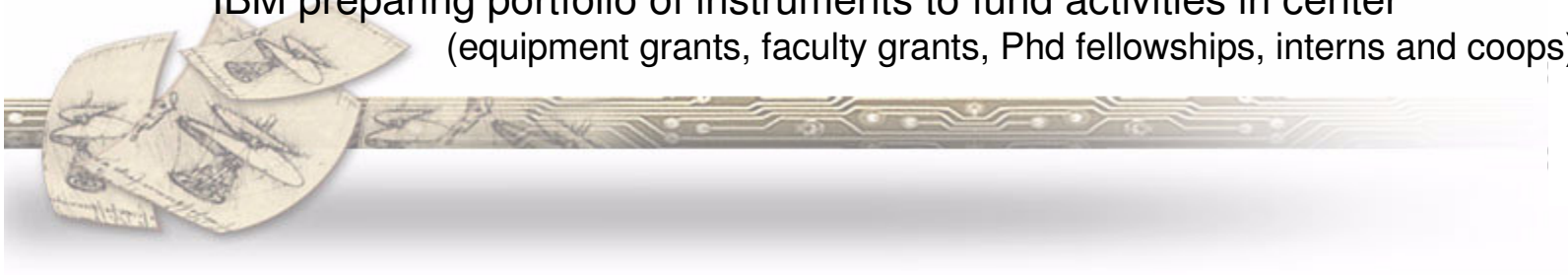
Estimated Center Budget

Item	Description	Costs	Univ	IBM
1	10x RA - Grad/yr ($25K x 10)	$250,000	$125,000	
2	8x Faculty (1mth sal+ Fringe) x $13K	$120,000		
3	40x Undergrad/yr x $1k	$40,000		
4	Admin Costs	$20,000		
5	Equipment + Infra	$100,000		
6	Total Min. Est. Center Budget	$530,000		
7	10x Summer Intership ($25/hr) * 40 Hr * 12wK	$120,000		
8	RA in Summer residence (Paid as part of Item 1)			
9	4x IBM Faculty Award ($40K) spit between #1/2			

UPRM starting process of preparing proposal for matching funding

FIU prepared to commit

IBM preparing portfolio of instruments to fund activities in center
(equipment grants, faculty grants, Phd fellowships, interns and coops)



Model for Increased Hispanic Participation in Computing Research and IT Workforce

Alliance Partnership and Comprehensive Program Overview

Large Hispanic Student Population

- Miami-Dade College
- Miami-Dade County Public Schools
- US Permanent Residents from Latin American Countries

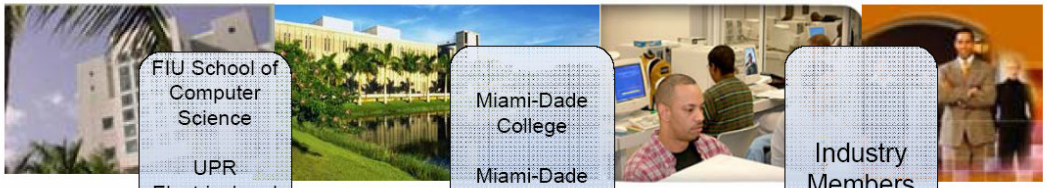
Current Enrollment:

X Hispanic Students (x%)
Z Female Students (z%)

Mitigating Factors

- Large community college transfer student attrition rate
- Limited advising and mentoring
- Lack of coordinated awareness campaign for advanced degrees, research, career possibilities
- Lack of role models
- Financial pressures
- Difficulty of adjusting to college life or graduate school

Hispanic Degrees Awarded
X BS (x%)
Y MS (y%)
Z PhD (z%)



FIU School of Computer Science

UPR Electrical and Computer Engineering

Miami-Dade College

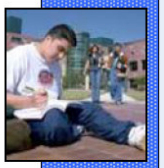
Miami-Dade County Public Schools

Industry Members

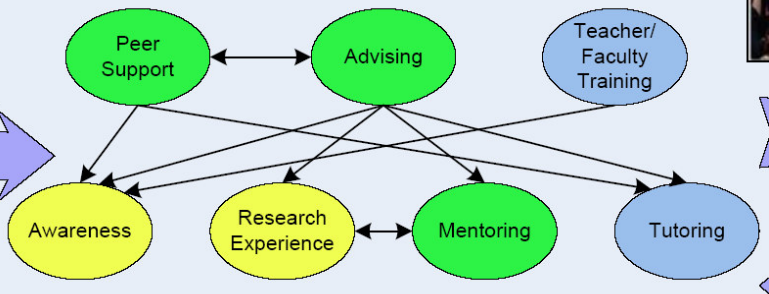
- Joint advising
- Joint research projects
- Research experience exchange
- Cross listed/accepted courses
- Expand undergraduate research experience
- Market campaign to increase enrollment

- Coordinated curriculum development
- Faculty Training
- Awareness Seminars
- Career Counseling
- High School Outreach Education

- Industry driven research projects
- Joint outreach efforts
- Dedicated internship opportunities, supported scholarships/assistantships
- Employee release time for mentoring and collaboration
- Jointly developed professional development workshops/seminars
- Equipment donations



Student-Centered Approach to Attrition Reduction and Articulation Enhancement



Articulation Enhancement | Both | Attrition Reduction

Expected Outcomes:

Become a National Model for University-Industry partnerships focused on broadening participation of minorities.

Projected Hispanic Degrees Awarded Yr 3 and Y6
X BS (x%) X BS (x%)
Y MS (y%) Y MS (y%)
Z PhD (z%) Z PhD (z%)

Projected Enrollment Yr 3/ 6
X Hispanic (x%) X Hispanic (x%)
Z Female (z%) Z Female (z%)

Academic:
- Broader research opportunities for minorities.
- Significantly improved coordination and interventions with local School District and Community College.
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Industry:
- Graduating IT Workforce Ready students
- Better pipelining into Industry
- Improved career transition

Evaluation:

- Mitigating factors addressed
- Data collection and assessment
- Tracking key indicators for participation
- Reporting methods include workshop for other HSIs, website, publications
- Feedback and program adjustment

Broadening Participation in Computing

- NSF Grant

To NSF Grant overview

- Expected Number of Awards: 20Estimated
- Total Program Funding:$14,000,000.00
- Award Ceiling:$3,000,000.00
- Award Floor:$10,000.00

The Broadening Participation in Computing (BPC) program aims to significantly increase the number of students who are U.S. citizens and permanent residents receiving post secondary degrees in the computing disciplines. Initially, its emphasis will be on students from communities with longstanding underrepresentation in computing: women, persons with disabilities, and minorities. Included minorities are African Americans, Hispanics, American Indians, Alaska Natives, Native Hawaiians, and Pacific Islanders. The BPC program seeks to engage the computing community in developing and implementing innovative methods to improve recruitment and retention of these students at the undergraduate and graduate levels. Because the lack of role models in the professoriate can be a barrier to participation, the BPC program also aims to develop effective strategies for identifying and supporting members of the targeted groups who want to pursue academic careers in computing.