



HARTNELL COLLEGE

October 30, 2014

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Mr. Richard Grotegut
CCC NETLAB+ User Group Chair
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I strongly endorse the NetLabs+ User Group grant application. This grant application is designed to support student engagement, participation and success goals for Hartnell college computer science and networking students.

Hartnell College has used the NDG NetLabs+ infrastructure throughout the last two years to host labs for courses such as VMware Install Configure and Manage (ICM) course, EMC Information and Storage Management (ISM) course, and several security courses including Security+ and certified Ethical Hacker. The quality of the hosted labs, developed within NSF ATE consortia such as MP ICT, Cyberwatch and CASSIA has substantially elevated the depth of student understanding and proficiency regarding course content and lab skills. Additionally, the students more rapidly visualize the linkage between classroom topics and practitioner skills.

Receipt of this grant award will increase the quantity of labs which can be efficiently hosted, enabling extended lab offerings to collaborating community colleges (Gavilan and Merced) as well as Salinas Valley High School students interested in cybersecurity programs and competitions. Increasing NDG Netlabs+ lab capability will provide the college with resources needed to increase the impact of a new educational delivery model, facilitating lab and project access 24 hrs a day from any location within the district. We fully anticipate this upgrade in lab provisioning would achieve measurable success already demonstrated by the other grant programs on campus.

Hartnell College is in a unique position to employ the grant's IT provisioning resources to address the CS/IT educational needs of the targeted population. As a Minority Serving Institution, seventy percent (70%) of our students are from underrepresented groups and sixty-five percent (65%) of the students are receiving state or federal financial aid.

Hartnell College has a history of providing programs geared to preparing students for higher education. Among the most successful are the Title V - STEM Project and MESA Program that encourages underrepresented students to pursue careers in the sciences.

The NetLabs+ User Group grant award will strengthen our ability to meet the Hartnell College mission and contribute significantly to the campus commitment to assist underrepresented and low-income students in obtaining an Associate and Baccalaureate degrees in the computer and information sciences.

Regards,

Willard Lewallen, Ph.D.
Superintendent/President

Growing Leaders Opportunity. Engagement. Achievement.

HARTNELL COLLEGE MISSION STATEMENT

Focusing on the needs of the Salinas Valley, Hartnell College provides educational opportunities for students to reach academic goals in an environment committed to student learning, achievement and success.

*Project Name: **SiGNAL** - Student Gains with NDG Available Labs

Please enter the name (or a descriptive title) of the specific program seeking support.

*Project Amount (\$) \$33,282

*Project Start Date January 2015

*Project End Date December 2015

*Describe the project for which you are seeking funding (3-5 short sentences)

NDG resources would increase the value and role of labs in several course areas: security, OS, and virtualization. We are interested in applying for a grant in conjunction with Gavilan and Merced Colleges which would:

1. Update servers and software for NDG installation (scale infrastructure);
2. Expand capacity to enable access to hosted labs for 2 additional colleges;
3. Assess value of labs to participating students from added colleges; and
4. Evaluate/refactor further infrastructure to maintain support.

*Describe the need, problem and/or opportunity addressed by the project. How did you identify the particular need addressed by your proposal? Please provide measurable evidence if applicable.

The NDG Netlab+ hosted security labs (CNSS, Sec+, EMC ISM, vSphere) catalyzed our IT offerings in areas of security, storage networking, virtualization and student access. The labs were no longer site based and the students could access 24 hours a day. Most security classes require completion of two security labs per week and it was noted that engaged students were completing each lab twice. The difference in awareness and practice before and after employing these labs is immeasurable. After hosting security labs for one year we realized the value of extending some labs to local high schools as part of our CS outreach efforts (Cyberpatriot enhancement and CS security and OS labs). Additionally, we had several students work through the entire VMWare ICM course labs 5-6 times, assuring themselves of success on the ICM certification exam.

This grant would support modernization and upgrade of infrastructure sufficient to support Gavilan (confirmed) and Merced (proposed) Colleges in 1-2 sections of Intro to Security courses each. This need was identified in conversations with college faculty. NDG Netlab+ will extend the benefits Hartnell has realized to these two additional campus and their participating CS/IT students.

***Describe how you will use funds:**

We are interested in using the funds in conjunction with Gavilan (confirmed) and Merced (proposed) Colleges to:

1. Update servers and software for NDG installation - now at version vSphere 4.1, min server provisioning (RAM/HDD's);
2. Expand capacity to enable Gavilan and Merced Colleges to access to hosted labs;
3. Improve student success due to persistence (24 hour labs available throughout the week instead of solely during campus lab hours);
4. Extend NDG lab resources to CS/IT faculty across three campuses, building on insight and teaching techniques enhanced by MPICT and Title 5 grants;
5. Leverage excellent lab image development from CSSIA (NSF ATE grant); and
6. Facilitate student proficiency and exposure to state of the art IT training and awareness of offensive/defensive security tools.

***Why is this the right time for this project?**

This is the right time for this project because of past success, current workforce trends, and upcoming training opportunities:

1. NDG Netlab+ infrastructure has been in place for 2 years and the contribution and value to courses is stable and evident.
2. The need for increased proficiency in cybersecurity is clearly described in national cybersecurity and vocational trends. Hosted labs provide vitality to security, OS, IT courses. Capability can be reasonably extended to peer colleges. Collaboration infrastructure and agreements can be clearly defined and proofed.
3. Image development and deployment through CSSIA/NDG arrangements is excellent and provides reasonably prompt lab builds which are current and relevant.
4. Hartnell faculty received NDG Netlab+ training session during MPICT Su14 Faculty Training in Pomona.

***Describe your organization's ability to implement the project. Please include staff strength and operational & fiscal management.**

1. Hartnell College has four full time CS/IT faculty. One faculty member configures, maintains and troubleshoots NDG Netlab infrastructure. The system has been very stable throughout 2 years of use.
2. KIS IT vendor assisted with initial build and will support proposed upgrade. They are prompt and responsive for config/support needs resulting from initial provisioning. Their documentation is excellent.
3. Grant funds will be received and administered through the Hartnell College grants office. Fund planning, disbursement and tracking will be integrated with college budget system with oversight of the Hartnell Grants Accounting Manager and the Dean of Advanced Technology (CS/IT is a located in this division).

*What is the most difficult aspect of this project that could affect your success?

1. Project reviewed for risk factors and measures can be implemented to reduce risk.
2. Build and configuration risk. Mitigated by use of KIS IT vendor who has successful track record with college-wide server deployment and configuration as well as prior NDG Netlab+ configuration. They have demonstrated ability to implement designs within stated time schedule.
3. Schedule risk for initial implementation. Initial lab scheduling for peer community colleges will be conservative to prove infrastructure performance and scheduling interaction between colleges. Rubric to define useful lab schedules for subsequent years will be defined.
4. Casualty risk for infrastructure deployment. Risk can be mitigated by close monitoring of load and performance as first semester and then first year are completed.
5. Infrastructure build to commence approx 5 Jan and completed approx 30 Jan. First semester will allow basic provisioning (1-2 courses) for each collaborating college.

*Will you be requiring any resources from your Deputy Sector Navigator (DSN) other than funding for the project? Please explain.

No resources will be required from our DSN. However, DSN has been supportive in many areas of program, hardware and course development and DSN will be kept abreast of progress and implementation challenges.

*Given that you will share your results at the conclusion of your project, what are your plans to make your proposed project available for the NetLAB User Group and for your DSN and how will you increase the effectiveness of your work for the larger community? What would be your target audience?

Our plans to distribute configuration, utility and lessons learned include:

1. Define design and distribute to DSN.
2. Confirm completion of build, documentation of build, and initial lab plan to DSN.
3. Monitor configuration load vs. scheduled labs to assess sufficiency and margin to handle additional courses.
4. Define scheduling and management practices which allow infrastructure to effectively support most courses.
5. Develop short survey for distribution to participating students and faculty to identify benefit, utility description, and recommendations.

Organization:

Hartnell College

Project title:

SiGNAL - Student Gains with NDG Available Labs

	Requested from NetLAB User Group	Requested from Other Sources	Total Project Budget	Description
INCOME (planned)				
CSUMB NDG Netlab+ Support (Chevron)		8,985	8,985	3 yr NDG AE Lic - Funds are obligated
NDG Netlab Grant	33,282		33,282	
			0	
Total Income			42,267	
EXPENSES				
Refurbished Dell R720, full provisioning	5,501		5,501	(Note: grant can be completed, tested w/o additional server; capabilities will be less.)
Existing R710 server(x2) HW upgrade	9,261		9,261	
Vendor support - rebuild and config	16,520		16,520	
Vendor sustained support	2,000		2,000	
3 yr NDG AE Lic		8,985	8,985	
Total Expenses Remaining	33,282	8,985	42,267	

PROJECT TITLE AND TIMELINE: ___ SIGNAL - Student Gains with NDG Available Labs
(HARTNELL PROPOSAL IN CONJUNCTION WITH GAVILAN AND MERCED)

Activities	Measurable Outcomes	Timeline	Responsible Persons
1. Dec grant award HW purchase order initiated		Jan 2015.	Welch, KIS
2. Infrastructure SW and HW upgrade Planning Infrastructure Upgrade (vSphere 5.1, server addition ESXi03, server HW provision upgrade for ESXi 01,02) Netlab+ reconfiguration and lab provisioning, Windows activation provisioning	Hardware and software connectivity; access from on/off campus Pod builds for (HC, GC, MCC)Sp15 courses and test courses	Jan 2015.	Welch, KIS (Schedule of courses from GC, MCC; test labs if courses not scheduled)
3. Pod provisioning to support Sp15 semester	Weekly access to provisioned pods measured at HC, GC, MCC	Feb 15 - May 15	Welch, GC/MCC faculty
4. Mid-course assessment completed A. Student and faculty survey for utility of labs B. Student and faculty survey for availability of labs C. Infrastructure monitoring for average and peak load; forecast of capability to handle additional sections at HC, GC, MCC or additional sections at other CC's	A. Survey complete for all faculty, 85% of students B. Assessment, discussion held by HC, GC, MCC faculty C. 1-2 page report created - shared with HC, GC, MCC, DSN and DNG	Survey complete 31 Mar Report complete 15 Apr	Welch lead Survey from HC/GC/MCC students Discussion from GC/MCC faculty
5. End of semester assessment completed A. Student and faculty survey for utility of labs B. Student and faculty survey for availability of labs C. Infrastructure monitoring for average and peak load; forecast of capability to handle additional sections at HC, GC, MCC or additional sections at other CC's	A. Survey complete for all faculty, 85% of students B. Assessment, discussion held by HC, GC, MCC faculty C. 1-2 page report created - shared with HC, GC, MCC, DSN and DNG	Survey complete 31 May Report complete 15 Jun	Welch lead Survey from HC/GC/MCC students Discussion from GC/MCC faculty

<p>6. Procedures and guidelines for Fa15, Sp16 established in consultation with infrastructure capability HC/GC/MCC course scheduling.</p>	<p>A. HC/GC/MCC courses scheduled for which NDG offers lab support B. Number of course supported by NDG Netlab+ pods C. Survey conducted per course at end of semester</p>	<p>Review done 2 weeks into each semester; shared with HC, GC, MCC, DSN and DNG</p> <p>Survey results shared with shared with HC, GC, MCC, DSN and DNG</p>	<p>Welch lead Survey from HC/GC/MCC students Discussion from GC/MCC faculty</p> <p>[Project complete at end of Sp 16 semester when reports are concluded and shared.]</p>
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