

Assignment 2. CNB Project Initiation

Project Charter

Project Name

“Crash and Burn” labs (CNB labs)

Project initial location

Kazakhstan, Astana city, Astana IT University, C1.1.260

Project founder

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Domain

www.cnb.kz

Brief background

Teachers at IT University usually gives a brief theoretical knowledge about hardware. The main load is prioritized on theory and practice with software. Software usually available on demand or for specific labs they can be reached remotely. Students never touch the hardware. Most of University administration even cannot allocate budget to equip a lab. Because nowadays high performance computing resources are very expensive. Also providing too much expensive hardware to poor skilled students is not good idea.

Even is University have a hardware lab they would not allow students to disassemble them. The most interesting is lying inside. Student must know how internal components interact with each other. Touching the hardware will give them confidence in future. Because while they considering computing environment as a black box, they won't be able to go further in investigations.

Concept

Our project proposes a revolutionary concept of Crash-and-Burn labs. This lab gives student ability to deeply understand computer architecture, to look inside of IT equipment, experiment with specific tasks which are not possible to do with real production equipment. Try to destroy configuration, experiment with fault tolerance, get real life proof of concept.

How it works

This lab equipment will be provided to Universities at almost no cost. This how it works:

All midsize and bigger companies that operates in Kazakhstan are obliged to comply with environmental regulations. They must handover for recycling all material assets that already covered its residual value. This equipment usually working equipment. Crash and Burn labs can conclude a contract for partnership with those organizations to donate equipment to University needs. Crash and Burn labs can even repair nonfunctional equipment. Even completely nonfunctional equipment can be object for autopsy.

Inputs

Crash and Burn labs developed a course for complete semester. Course contains laboratory works and practical assignments. No theoretical classes, because this course has a theoretical pre-requisite.

Course consists

Laboratory work 1. Crimping RJ-45 connector for UTP cable. Disassemble laser printer to see what's inside. Disassemble HDD to see what's inside.

Laboratory work 2. Disassemble PC, Laptop, x86 Server to see what's inside

Laboratory work 3. Organize Local Area Network with network switches and hosts. Assign static IP addresses. Organize dynamic IP addresses assignment via DHCP.

Laboratory work 4. Configure IP cameras and integrate to network. Organize video monitoring. Divide network, VLANs

Laboratory work 5. Install OS on server. Organize Localhost via Internet Information Services on server, and test Web, FTP functionality on hosts connected to network.

Laboratory work 6. Organize Aggregated links. Configure and test Spanning Tree Protocol functionality.

Laboratory work 7. Configure two types of possible virtualization functionality on existing server.

Laboratory work 8. Install hypervisor management software and add all VMs.

Assignment 1. Using thin client create functional and working device.

Assignment 2. Create Live USB with collection of usable utilities. Determine laptop parameters using utilities.

Assignment 3. Boot from network PXE.

Assignment 4. How to determine broadcasting IP address?

Collaboration

In order to take existing worldwide experience and develop it in new way Labs planning to conclude a partnership with European Universities to gain fundamental methodologies in similar area. Experience exchange also welcomed. With support of eminent experts from European Universities Labs can become a most efficient source of knowledge to graduate competitive specialists for specific field of production.

It will be long term partnership in order to develop course content, because IT world is changing very fast. Therefore continuous experience exchange is mandatory.

Conclusion

The course is industrial, which means that the students won't get common knowledge, they will get specific knowledge which is needed right here and right now in the head hunting market. Graduate students will be able to easily adapt to new workplace and successfully pass the onboarding. This will help them to confidently pass the probation. University will increase their overall scores, and become a main provider of talented workers to market. Vendors will spread recognizability of their IT solutions. Organizations can hunt future specialists directly from labs participants for internship or job offer. Current course completion and result will be reflected in each students e-portfolio. Also Crash and Burn labs by achieving popularity and recognition can provide digital badges to reflect student's success in professional networks (like LinkedIn).