

Final Year Project Proposal Form

Please complete this form, get it signed by the Proposed Supervisor,
and then hand it in to the Departmental Administration Offices.

Name: David O Neill

Student ID: 0813001

Course Code: LM051

Project Identifier: OWN

Project Title (initial): Group Policy for GNU (linux et al)

Project Category: Software Application Development

Supervisor Signature: _____

Proposed Supervisor

Supervisor Code (initials): _____

Date: _____

Software Environment Required:

VMware workstation will be used to host multiple flavours of Linux. (home).
Ideally an ESXI 4.1 server would be best with at least 12 gb of ram, ESXI is free.

Languages:

Languages include

Client : Perl / Bash

Server : Perl / C# / Mysql

Student is proficient in above languages

Do you have a computer suitable for this project YES

Is it a portable? NO

What is your current level of expertise in the languages/tools/techniques you will use?

Background

EUEC Windows Servers Services Team (All this active directory)
EUEC Lab solutions and services Team (Troubleshooting all things linux)
EC Global Altiris OS Provisioning Team (Linux provisioning with Perl)
EUEC Virtualization Team (ESXI Virtualization)

Microsoft Certified Professional
Network Certified Professional

Description of Own Proposed Project:

Forward

In an Active Directory production environment group policies associated with organisational units enforce corporate security and best practices requirements. Network infrastructure services combined with Vintela authentication services (<http://www.quest.com/authentication-services/>) enforce password requirements in a Linux enterprise server environment.

Post customization and maintenance using Cfengine (<http://cfengine.com/>) in a production environment ease post customization of Linux production servers and for the windows Domain BigFix (<http://www.bigfix.com/>). Furthermore Centrify (<http://www.centrify.com/>) AKA Likewise (<http://www.likewise.com/>) do offer limited scope for machines GNU systems; however companies may be unwilling to make Active Directory Schema Changes in order to support very little extensibility in controlling GNU systems.

In a non-production lab environment with many distributions of Unix, Linux, BSD etc, the requirements of a development project are abundantly not compatible with a production environment restrictions; due to the end developers requiring full control over the target machines and vanilla installations.

Kickstart and or other unattended installations methods for Linux provide relatively easy OS provisioning solutions, but do not provide for long term maintenance and enforcement of software updates and policy requirements in the lab environment.

As corporate security requirements and policies change, the LAB environment is a left grey area.

Main Software Aims

- 1) A real world solution to a real world problem.
- 2) Provide a highly compatible client catering for a broad range of Unix / BSD flavours. That will act as a client; which will cater for poll and push commands. (PERL)
- 3) Provide an Intermediate middle ware Server application that will work with the clients. (PERL)
- 4) Provide and administrative interface (C# / Mysql)
- 5) Domain specific language for (instructions / group policies) or (general purpose XML, client may not have XML Parser)
- 6) General tar.gz client deployment installer

Extended Software Aims

- 1) Remote deployment of client via Perl::Expect::SSH
- 2) Windows Management Instrumentation ([http://msdn.microsoft.com/en-us/library/aa394582\(v=vs.85\).aspx](http://msdn.microsoft.com/en-us/library/aa394582(v=vs.85).aspx)) provides a remote management interface to windows based machines. The client should implement a similar interface.

Main Research Aims

- 1) Group policy and schema specifications (SCHEMA)
- 2) Domain specific languages as An XML Alternative (high availability / low dependency on perl modules)
- 3) Ad Hoc Client Server Architectures.
Push / Pull technologies (Perl Socket Programming)
- 4) Pluggable authentication modules (PAM)
LDAP lightweight directory access protocol (Kerberos AD Authentication)
eg. Authorization Samba 4 Domain controller

Special Resources Required

Optional : Server with at least 12 gb of ram to host 10 virtual machines

Significant Mile Stones

Semester 1

Coding

Proposal and Acceptance	Thursday Week 2	
Perl Client Server	Week 4	
Perl Push Poll Configuration and client module updates	Week 6	Presentation
Perl Example Module (Enable / disabling services)	Week 8	
Deadline agreement form	Week 10	

Research

Client Server Model (Concurrency)	Week 3	
DSL or use of XML policy / module update commands	Week 5	

Semester 2

Coding

C# Frontend (Show clients)	Week 2	
C# Policy editor (Create policies for Perl modules)	Week 4	
C# Push / Poll Clients (Inventory / Status reporting)	Week 6	
Working Prototype / Demo	Week 10	Demo

Research and Report

Directory Services Schema	Week 1	
Draft Report	Week 7	
Report Submission	Week 11	

Background Research to Date

Ventelo Authentication Services (Active Directory Password Enforcement)

CFEngine (POST Customization / Working knowledge)

Big Fix

OS Provisioning Altiris PXE (Extensive)

Windows Management Instrumentation (Extensive)

Domain Specific Languages (beginner)

Remote Procedure Call (beginner)

Perl Socket Programming (beginner)