

ITEC 495 Capstone Project Ideas

Open Source Content Filtering – OpenDNS

A 25-person architectural firm with one single location needs to implement a low cost, secure, easy to deploy and administer web content filtering and monitoring service to protect their system and track personal web usage of employees. If possible they do not want to buy an expensive network appliance to support and manage. Options: Untangle Open Source system, IPCop, and OpenDNS service.

Open Source System Monitoring Platform - SpiceWorks

A 500-person insurance company with 3 locations requires a full featured yet affordable monitoring platform to monitor network availability, core services, servers, MS IIS and Exchange, Disk Space across all servers and SANS, events, etc. The new monitoring system will be easy to administer centrally from one interface, providing a multi-dimensional view of the overall health of the IT system. After reviewing a number of commercial products, the IT team decides on Spiceworks.

VOIP Implementation for Small Interior Design Company

A 50-person design firm needs to implement a low cost, all-in-one and easy to administer VOIP phone system to replace an aging analog system. They currently have a 100 MB ethernet-based (MS Windows) network with 7-year old network switches. Project requires the segmentation of voice and data on the network (either physically through separate cabling, or use of VLANS) and better performance all around. Imperatives are cost, simplicity, security, robust admin features, performance, reliability, integration with MS Outlook/Exchange, remote access, as well as standard feature-sets of most VOIP packages.

Server Virtualization

A 125-person municipal parks department currently runs 15 physical Windows servers (mix of 2003 and 2008) to provision information services to its employees and citizens. At its next lifecycle upgrade it wants to employ server virtualization to reduce the number of physical servers as much as possible. Optional platforms include Citrix, VMWare and MS Hyper-V. Project will scope out possible services and applications that can be efficiently delivered on hypervisors, as well as networking, storage, security and backup requirements. The existing IT staff currently has very little experience with virtualization, with in terms of deployment and administration.

Network Segmentation Using IPCop (Open Source)

A 75-person law firm with one single location and a generic MS Windows setup has just added a new intellectual property attorney whose work must remain separate from the firm at large. Although his system (one Windows SBS and one workstation and printer), will be physically connected to the main network, and he will use common gateway to the internet, other network clients and users should not be able to access any of his information. The imperatives will be security, low cost, ease of implementation and support. In addition the solution will also address the need to replace an aging Cisco PIX Firewall gateway. Solution: Install and configure IPCop (open source firewall and network application on a dedicated computer to achieve required objectives)

Hosted MS Exchange Solution

A 50-person law firm with one single location, one IT practitioner and a generic MS Windows setup is currently using POP3 internet email from its internet provider. In order to gain some of the collaborative features available in an MS Exchange/Outlook solution, it is considering a hosted Exchange solution rather than an in-house installation of MS Exchange. In addition, to shared folders and access controls in Outlook, the firm also may wish to introduce basic Sharepoint services and Blackberry Enterprise services into its environment, also through a managed service provider. The initial project scope involves a comprehensive comparison and review of available Exchange service providers, such as Go Daddy, Intermedia, SherWeb, and Microsoft's own Business Productivity Online Suite (BPOS) in terms of cost, features, service offerings, high availability and other defined service imperatives.

Active Directory Implementation

A 500-person utility company with 2 locations requires a secure and efficient directory infrastructure to support the authentication and security needs of the company's users and resources. Plan every aspect of the AD design including Forest, Domains, OUs, Groups, Computers, Users, Security Policies, Group Policy, DNS, Directory Replication, etc. Assume MS Windows Server 2008 R2 and Exchange 2010 will be used in this environment. Careful attention to ensure that best practices are applied in the design and security of this AD infrastructure will be expected. A plan for backing and restoring the directory will also be expected, as will detailed Visio diagrams representing the AD design imperatives.

Other Ideas...

- Automated patch management software update system proposal
- Project involving the installation of a new gigabit Ethernet network and supporting components (CAT6 cabling, Fiber uplinks between trunks, voice and data segmentation, possible VLANs for isolation).

- Open Source firewall and filtering using Untangle platform
- Enhancing an existing systems response time and/or performance and/or reliability.
- Install a new security system or enhance an existing system.
- Create a VPN connection for performing updates and monitoring remotely.
- Create migration plan from Windows XP to a Linux distribution, such as UBUNTU (include MS office to Open Office migration as well as other key apps and utilities)
- Google AdSense, or Amazon referral website designed to generate high volume web traffic and ad-related income
- Joomla Content management website
- Ubuntu server and client install – Samba, print services, Apache, SMTP server, client setup and connectivity etc.
- WordPress blog site install, setup, configuration, documentation
- Designing an Active Directory Schema for a small organization
- Scoping out a migration from Windows and MS Office to Linux Ubuntu and OpenOffice or Mac OSX Server and workstations
- Designing a secure wireless network/segment for a small business
- Devising a desktop imaging solution
- Setting up a Zimbra Collaboration Server
- Virtualization deployment of a server(s)
- Design and Deploy a full featured networked digital signage platform (Scala – example vendor)

SOME POSSIBLE APPLICATION DEVELOPMENT PROJECTS

Note: If considering an app or web development project, due consideration of all IT related areas is required, such as networking, servers and services (Apache, IIS, ASP.NET, MYSQL etc) infrastructure, security, support, administration and training.

Application Project A

Company needs a web application for booking audio-visual equipment such as audio, video, projectors, laptops, etc.

- Web forms, email confirmation, backend database, ASP/SQL Server or PHP/MySQL driven?
- Admin views and features
- Privacy and security integration
- Logging and reporting features

Project B

Company needs a database for tracking IT Assets

- Possible web front or VB.Net
- Bar coding support
- MySQL or Access database
- Searchable
- Built-in queries (Assets by ...)
- Client Server Network considerations

Project C

Easy to Use File Transfer Application

As files are growing larger it is obvious that emailing attachments is not the answer moving forward. I started envisioning and researching a simple and elegant application that would allow a sender to fill out a simple (and ideally secure) web form, upload a file or file(s) - this would then transfer the file to one of our servers. The recipient here at our company would get an email notification containing a link to the file itself. Upon clicking on the link, they would be asked where they want to save the file. (there are other features but this is essentially the process)

What is nice about this is that it is user friendly on both the senders end and for us (as our guys never have to leave their email application)

- Possible .NET or java

Project D

Simple web-based Help Desk Application

- online forms for intake, backend database, auto-ticketing assignment, email notifications

Project E

Employee Availability Application (Online In/Out Sheet)

- possibly web-based or VBA for MS Outlook, or Access
- Client Server Network considerations
- Full end user documentation

Project F

Local kids association needs online registration application

- web form for registering kids in soccer
- updates database
- secure online payment
- email confirmation
- web reports for association administrators

Project G

Company requires intranet resource for posting internal job openings

- web-form for data entry, database back end
- searchable database of job openings
- Apply now features
- Email confirmation
- MS IIS/ SharePoint platform a possibility, or PHP

Project H

Local Business Association requires online award nomination application

- Each year they give out Annual Business Awards
- People are encourage to go to website and nominate companies and individuals for various awards
- Web-form, database, email confirmation

Project I

Local Business Association requires online Event Registration Platform

- Events listed by date, Click Here to register (activates form with event details populated in appropriate fields)
- Updates database, sends email notification to association and confirmation to person registering
- Admin view shows who is registered for various events for event planning purposes