

***TSYS Card Tech  
User Group Conference 2008***

***“Growth Through Flexibility”***

***Amsterdam Marriott Hotel***

***Tony Keith***

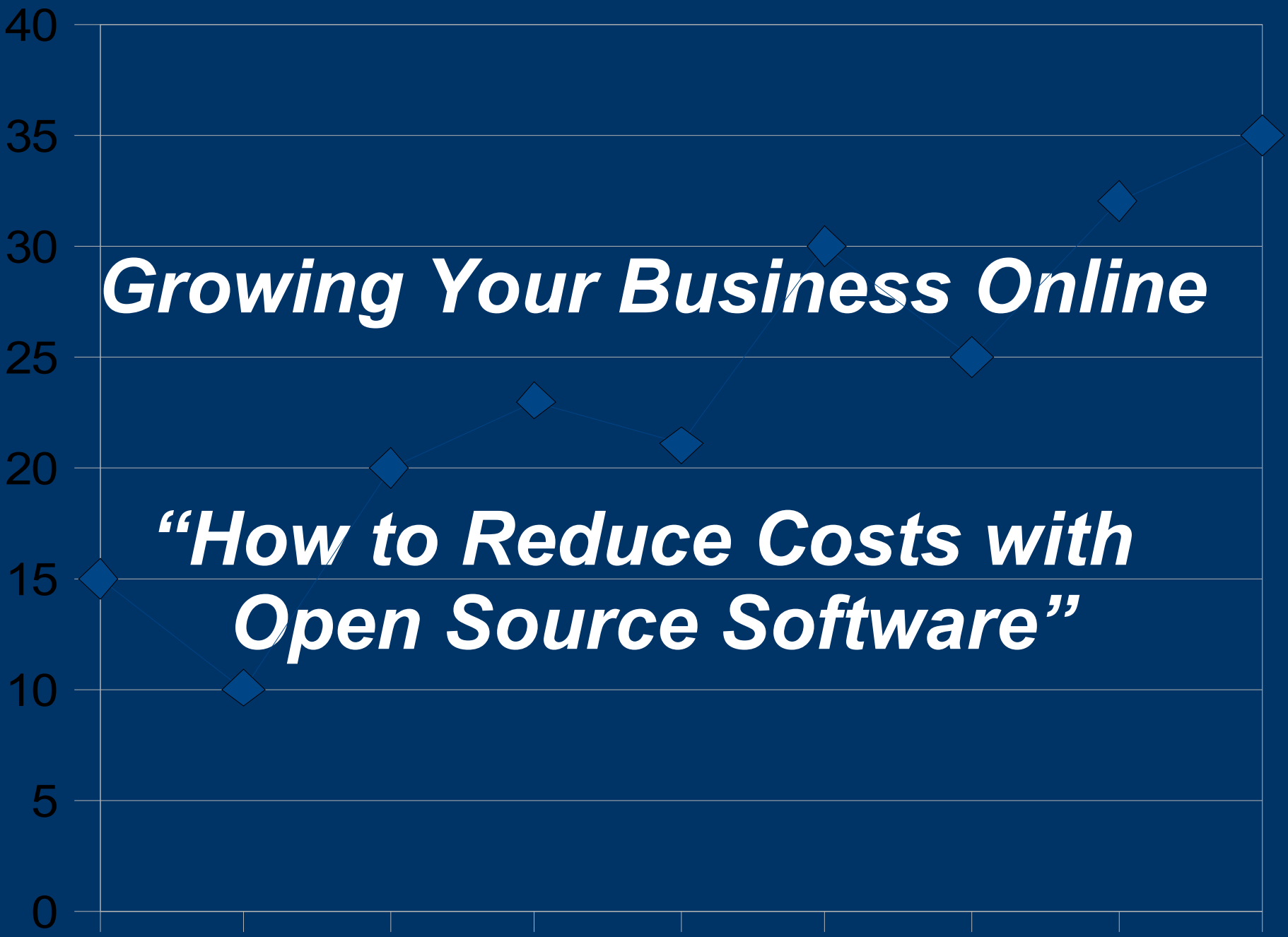
***April 10, 2008***

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# ***Growing Your Business Online***

## ***“How to Reduce Costs with Open Source Software”***



# *Presentation Overview*

## **Objective:**

Introduce Open Source Software projects that can reduce your business costs.

- What is Open Source Software?
  - Why use Open Source Software?
  - Who is using Open Source Software?
  - Show examples of Open Source Software and ways it can be used and applied.
  - Conclusion
  - References to software and projects.
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# What is Open Source Software?

- Open Source software generally is distributed under a license that allows it to be read, modified, redistributed and used freely.
- Users are generally not subject to restrictive License Agreements that must be accepted before using as with traditional proprietary software.
- Source code is included that allows you to build applications specifically for your environment or download a pre-compiled version.
- Some of the licenses:

GNU General Public License (GPL), GNU Lesser (or Library) General Public License (LGPL), MIT license and the BSD-new license.

For more information see Open Source Initiative or Free Software Foundation website at: [opensource.org/docs/osd](http://opensource.org/docs/osd) or [www.fsf.org](http://www.fsf.org) .



# Why use Open Source Software?

- **Cost** – Total Cost of Ownership (TCO) is much less than proprietary software to initially acquire and upgrade.
  - **Scalability and Robustness** - A large community of highly skilled software developers have created open source solutions that are proven suitable for both large and small organizations.
  - **Security** – Since the source code is exposed, it is reviewed by peers as well as hackers for security flaws. This allows for vulnerabilities to be identified and fixed quickly.
  - **Large Support Community** - A large community of developers and users communicate through online forums and support groups. This allows for problems and bugs to be quickly identified and fixed. It also provides a channel of feedback from users for new features and enhancements.
  - **Source Code** – Open source software includes the source code which allows you to add custom features and enhancements.
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# Who is Using Open Source Software?

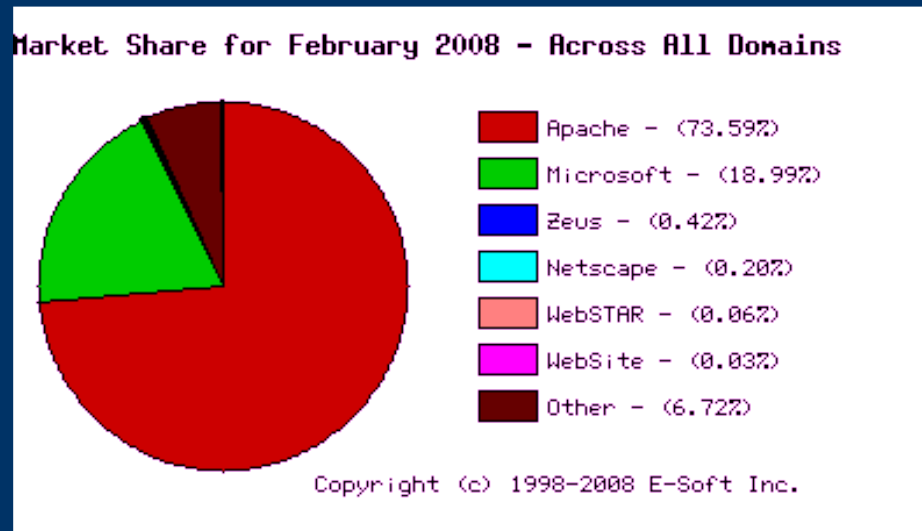
**Google** – Uses a customized version of Linux.

**Yahoo** – Is running free BSD (free Berkley Standard Unix).

**Amazon** – Is running Linux with Apache Web Server and an e-commerce system written in Perl.

**IBM, Dell, HP, Sun** – Ship and support multiple Linux distributions on servers to enterprise class machines.

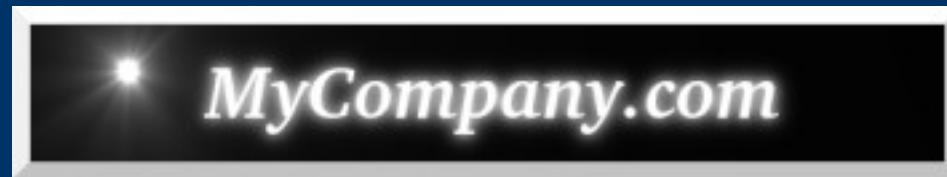
**Ticketmaster** - The ticket seller and distributor uses the open source database MySQL for its on-line transactions. This site is one of the largest e-commerce sites on the Internet.



# *How Can My Company Use Open Source Software to Reduce Costs?*

Lets start with an example of a fictitious company:

**Welcome to**



“Providing Online Products and Services”

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*MyCompany.com*

## *Departments*

There Are Six (6) Departments in MyCompany.com:

- Executive
  - Accounting
  - Sales
  - Customer Service
  - Marketing
  - Information Technology (IT)
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## *All Departments*

### How can Each Department Benefit from Open Source Software?

#### **What is a Basic Workstation?**

Internet access, Email access, Word, Excel, PowerPoint, PDF viewer, Access to Corporate Network.

#### **Operating Systems:** (Unix Like)

**Linux** – Linux is one of the most prominent examples of free software and open source development.

**Berkley Software Distribution (BSD)** – FreeBSD, OpenBSD and NetBSD.

**Solaris** – OpenSolaris created by Sun Microsystems.

#### **Distributions:**

A distribution (or referred to as a “Distro”) is convenient package of operating system, tools, libraries, additional software, a windowing system / desktop environment. Most distributions can be downloaded (ideal for high speed connections) or for a small fee it can be purchased in CD or DVD format.

**Ubuntu, Fedora, Red Hat, Debian, FreeBSD, OpenSuse, KNOPPIX**

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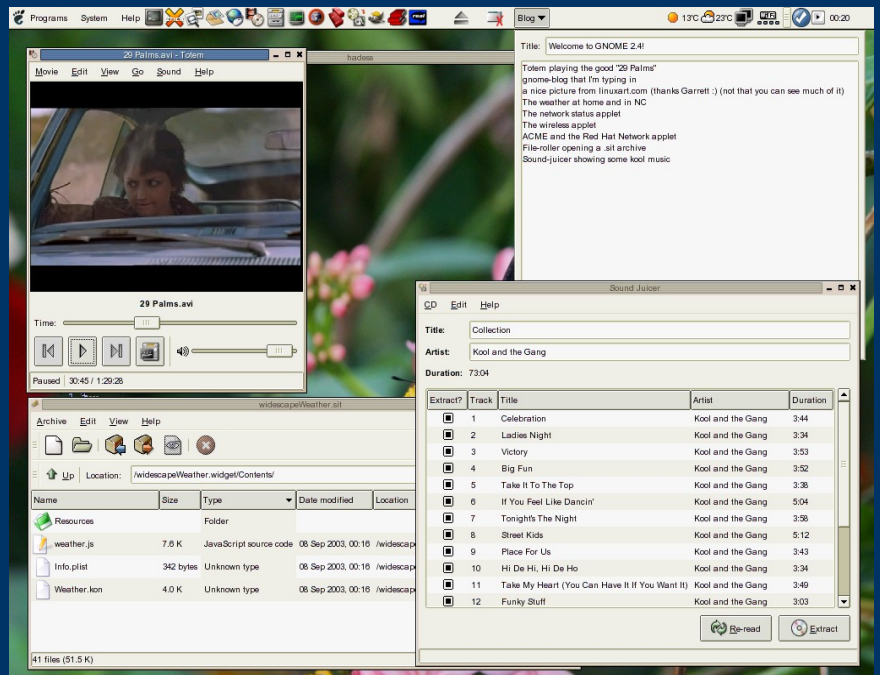
# All Departments (cont'd)

## Desktop Environments:

Two of the most popular desktops environments are:

**K Desktop Environment (KDE)**

**GNU Object Model Environment (GNOME)**



## *All Departments (cont'd)*

### Browsers:

Mozilla Firefox – Firefox had 17% of the browser usage share in January, 2008.

Konqueror – Web browser for the K Desktop Environment (KDE).

Epiphany – Web browser for the GNU Object Model Environment (GNOME).

Not open source but a free web browser worth mentioning: **Opera**

### Email Clients:

Thunderbird – An open source email client developed by mozilla foundation.

Evolution – Integrates email, calendaring, task and contact management all in one.

### Office Applications:

#### **Open Office Suite**

**Writer** – A word processor similar in look and feel to Microsoft Word.

**Calc** – A spreadsheet similar to Microsoft Excel.

**Impress** – A presentation program similar to Microsoft Powerpoint.

#### **Koffice Suite**

**Kivio** – A Visio style flowcharting application.

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## *Executive Department*

### **SCENARIO:**

**Need to expand existing phone system to handle incoming calls about new product.**

### **PROBLEM:**

**Phone system (PBX) is at capacity and would require additional hardware and updated software.**

### **OPEN SOURCE SOLUTION:**

**Asterisk – The world's leading open source telephony engine and toolkit.**

## **Asterisk**

Since the company was Internet based, it had an extra T1 line available. With a minimal investment in an interface card to connect the T1 to server, they were able to configure Asterisk to switch and route the calls to the new department.

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## *Executive Department (cont'd)*

### **SCENARIO:**

**New product being released and CEO wants to make sure the information doesn't get sent to anyone that it shouldn't be sent to.**

### **PROBLEM:**

**Need to implement email system with authentication and encryption/decryption capability.**

### **OPEN SOURCE SOLUTION:**

**GNU Privacy Guard (GnuPG) – The complete and free implementation of the OpenPGP standard.**

## **Encrypted Emails**

This can be easily implemented using GNU Privacy Guard (GnuPG), along with a security extension (plug-in) for the Mozilla Thunderbird (and SeaMonkey) email client called Enigmail.

Now when the CEO sends an email to the CTO it can be digitally signed and encrypted. The CTO will be able to authenticate the email from the CEO, decrypt and read it. An unauthorized recipient would be unable to decrypt and read it.

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*MyCompany.com*

## *Customer Service*

### SCENARIO:

Call center workstations recently upgraded, old workstations moved to storage.

### PROBLEM:

New product release means increased call volume. The call center needs more workstations at minimal cost to handle volume.

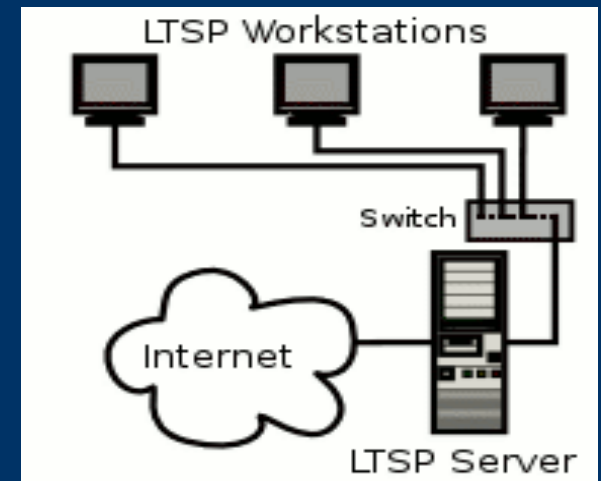
### OPEN SOURCE SOLUTION:

**LTSP – Linux Terminal Server Project and recycle old workstations.**

### LTSP

This project provides a simple and easy deployment of graphical workstations network booted from a server.

Using **LTSP**, the department was able to re-cycle the old computers as graphical workstations and provide the necessary applications for the call agents to do their jobs. This saved money on hardware and software licensing.



MyCompany.com

## Sales Department

### SCENARIO:

All employees and all clients need to be informed of the status of the new product release.

### PROBLEM:

No way to communicate to all employees other than email and each salesperson maintains own list of client contact information.

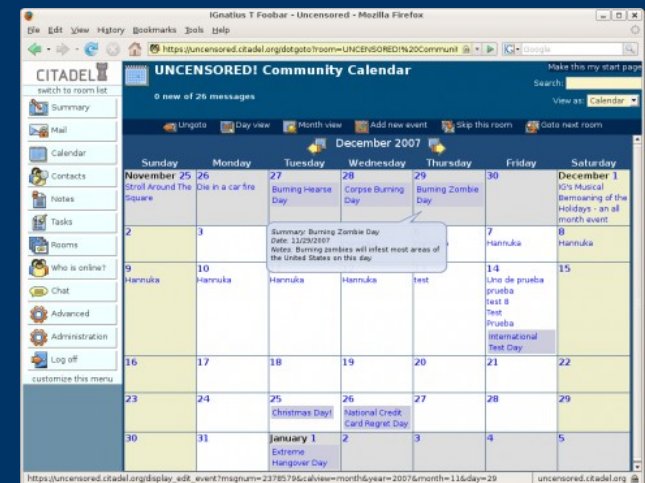
### OPEN SOURCE SOLUTION:

**Citadel Groupware Server – A turnkey solution providing groupware functionality.**

#### Citadel Groupware Server

Email, group calendaring and scheduling, address book, bulletin board and instant messaging.

- Create a company wide calendar that showed news about the new product with pertinent dates and events.
- Create a centralized database of clients containing all contact information.
- Mass email all clients keeping them informed and up to date on the new product and release date.



## *Marketing Department*

### **SCENARIO:**

The new product has overburdened the department. Several new graphics designers were brought in to help out.

### **PROBLEM:**

Department is already over budget and wants to minimize the expense of additional software for the graphics tools it uses.

### **OPEN SOURCE SOLUTION:**

**GNU Image Manipulation Program (GIMP) and Inkscape are two powerful graphics editing tools.**

### **GNU Image Manipulation Program (GIMP)**

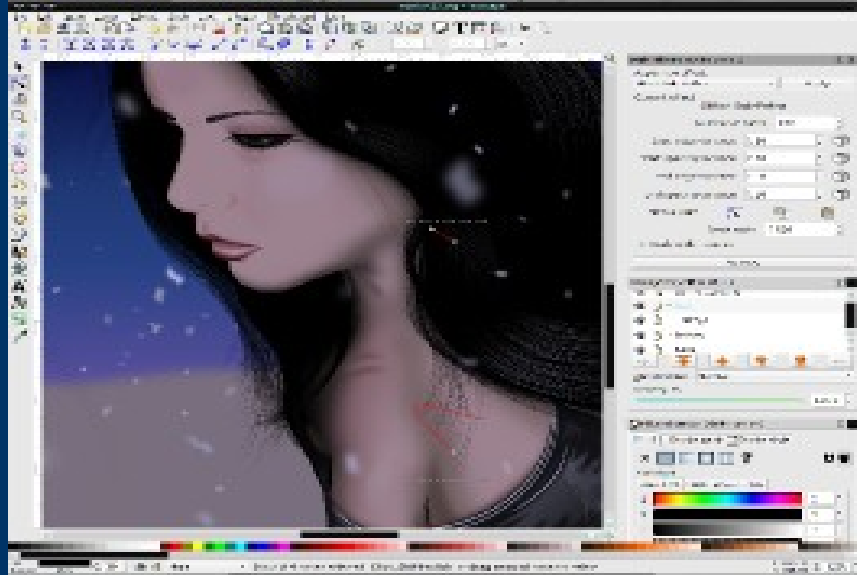
This application is a very powerful graphics editor used to create graphics and logos, resizing and cropping, altering colors, combining images, converting between graphic formats. It supports a wide range of filters and effects and has many features that are comparable to Adobe Photoshop and Microsoft Paint.



## Marketing Department (Cont'd)

### Inkscape

This application is a very powerful vector graphic editor that supports the Scalable Vector Graphics (SVG) file format. It is easy to edit nodes, perform complex path operations, trace bitmaps and supports many advanced SVG features such as markers, clones and alpha blending. It has many capabilities and features comparable to Illustrator and CorelDraw.



By using GIMP and Inkscape, cost for graphical tools were minimized.

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# Accounting Department

## SCENARIO:

The new product needs to be marketed, tracked and sold under a new division.

## PROBLEM:

The CEO wants to be able to remotely access financial reports and real-time inventory data. Current system does not support.

## OPEN SOURCE SOLUTION:

**SQL-Ledger – A multi-platform supported double entry accounting system with SQL database server backend.**

### SQL-Ledger

The user interface is web based and any standard web browser can be used to access screens and reports. It supports accounts payable / receivable, general ledger, inventory, billing/invoicing, chart of accounts, vendors, customers just to name a few of the features.

The accounting department was able to setup and configure the new company along with the new product. The new product was entered and tracked using the inventory feature and was linked to income, expense, inventory and tax accounts. When a product was sold or purchased the accounts were all updated accordingly.



## *IT Department*

### **SCENARIO:**

**Before the release of the new product, the CEO wants a new web site with a better customer interface.**

### **PROBLEM:**

**Existing online system is already having problems with current volume. Need to develop site with better customer interface.**

### **OPEN SOURCE SOLUTION:**

**Many solutions and projects, however we will look at 4 areas and projects.**

- **Load Balancing – IPVS (IP Virtual Server)**
  - **Web Servers – Apache Web Server**
  - **Database – MySql Database**
  - **Web Site – AJAX and JavaScript Libraries**
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## IT Department (cont'd)

### PROBLEM:

Routing and load balancing traffic to a new set of web servers and system must be scalable.

### OPEN SOURCE SOLUTION:

Use IP Virtual Server, Apache Web Server and MySQL database.

#### IP Virtual Server (IPVS)

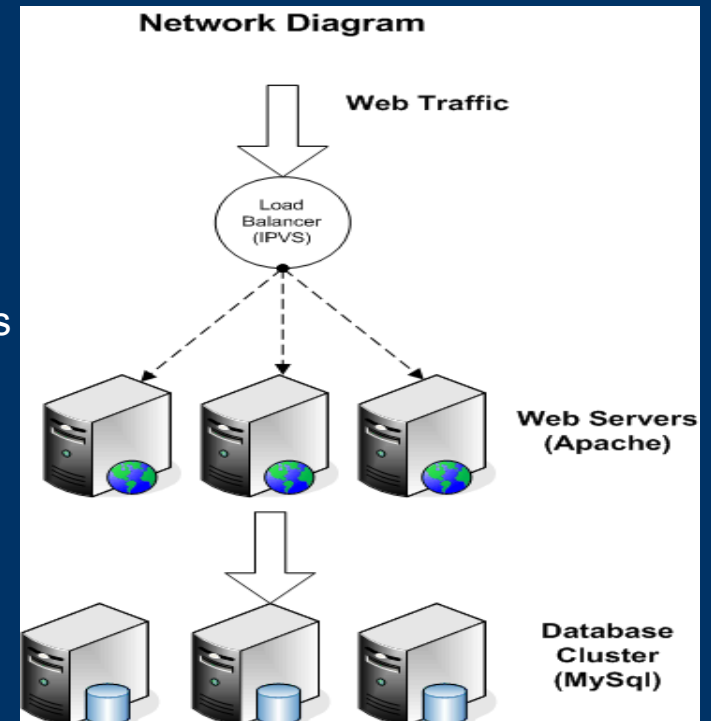
Provides an advanced load balancing solution using transport layer (layer 4) switching inside the Linux kernel. It supports a number of load balancing technologies and ten (10) connection scheduling algorithms.

#### Apache Web Server

Supports a variety of features, many extend the core functionality as compiled in modules. These modules can range from server-side programming languages support to authentication methods. There are also many supporting projects around this application making it the #1 web server and best of all it is free.

#### MySQL Database Server

A multi-threaded, multi-user SQL database management system (DBMS) that supports advanced features like stored procedures, partitioning, replication and even high availability clustering.



## IT Department (cont'd)

### PROBLEM:

A new web site with better customer interface.

### OPEN SOURCE SOLUTION:

Use **AJAX**, **Prototype** and **Script.aculo.us**

#### AJAX (Asynchronous JavaScript and XML)

A set of web development techniques that was made popular by Google in 2005. It is based on JavaScript and HTTP requests to increase responsiveness and interactivity of web pages by exchanging small amounts of data with the server. This allows for the web page to update without having to reload the page each time data is needed from the server.

#### Prototype

A standard method of dealing with AJAX calls in a JavaScript library. This library provides cross platform (browser) class-based object oriented interface designed to ease the development of dynamic web applications.

#### Script.aculo.us

JavaScript library built on Prototype, that provides dynamic visual effects and user interface elements. It is divided into modules, each in a separate file. These modules are arranged by theme. The modules are broken down into the following: animated effects, drag and drop, auto completers and in-place editing, sliders, DOME builder and sound support.

- The new web site was developed with a dynamic customer interface in a timely, cost effective manner.
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# *Conclusion*

- Open Source Software offers many viable solutions that can save your business money.
  - Open Source Software has many diverse and creative applications.
  - Open Source Software is here and corporate ready!
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***Thank you for your time and  
attention.***

***I hope you found this presentation  
useful.***

***Tony Keith***

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