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Powering IT & Engineering

Core Internet Technologies - Non -.Net
Choose Wisely

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Introduction

Organizations today are confronted with an overwhelming array of choices when it comes to Internet technologies. Thoroughly evaluating these choices is not economically feasible for most organizations due to three primary factors:

1. Lack of sufficient in-house technical expertise
2. Voluminous amounts of information requiring thorough analysis
3. Lack of resources to truly test the technologies in production environments with differing requirements for extended periods of time in order to gain a complete understanding of their strengths and weaknesses

We have spent years evaluating competing relational database management systems, operating systems, programming languages, server software, networking architectures, etc. As a result of our continued focus on understanding these evolving technologies for purposes of delivering the best possible solutions to our clients, we are in a unique position to render an educated opinion as to which Internet technologies can best meet organizations' near-term and long-term goals.

Given the far reaching consequences of choosing an Internet technology platform and the company to deploy, leverage, and help manage that platform, it is critical to understand the risks and benefits upfront.

Criteria for Choosing Internet Technologies

Most studies focusing on choosing an Internet technology platform within a business context, base their decisions on Total Cost of Ownership (TCO). TCO is a figure that represents all costs inherits with the use of a particular technology – licensing costs, implementation costs, support costs, maintenance costs, training costs, and any associated opportunity costs. In other words, TCO attempts to look at the whole picture. Given this insightful figure, it would seem simple to choose the right Internet technologies by choosing the ones that offer the lowest overall TCO. Unfortunately, reaching a reliable TCO figure that applies to all organizations is virtually impossible due to two primary reasons:

1. Many factors that have a high impact on TCO (i.e. training and support costs) are largely organization/situation specific. In other words, what may prove costly to one organization may have no affect on the bottom line of another.

2. We have found that many studies performed by independent research groups focusing on TCO are directly or indirectly funded by the companies whose technologies are supported by the studies. This of course, brings the validity of these studies under question. Publicized cases of studies with notable conflicts of interest do exist.

Certainly studies publishing TCO figures offer some valuable insight; however, given their drawbacks, they cannot solely be used for making an intelligent decision. Therefore, we have formulated our own set of criteria based on what our customers demand most from their Internet infrastructure based on our over 10 years of experience in this field:

- **Reliability**

  Our customers have come to demand reliability as the single most important factor. As more and more organizations come to rely on their web sites for important business initiatives such as e-Commerce and customer communications, they require reliability. Put simply, if the solution cannot offer at least 99.99% uptime with consistent operation,

- **Performance**

  Just because a technology meets your performance requirements today doesn't mean it will tomorrow. How well does the technology scale to meet your future needs?

- **Freedom from Vendor Lock-In**

  Many of the technologies available today lock you in to a particular operating system, relational database system, web server, or all of the above. All other factors being largely equal, the solution that offers the most long-term flexibility should be given more consideration.

- **Effect on the Bottom Line**

  Licensing costs, implementation costs, support costs, maintenance costs, training costs – it all adds up. If vendor lock-in is present and long-term support is predicated on version upgrades, future licensing fees must also be considered. All other factors being largely equal, the solution that has the least impact on the bottom line should be given more consideration.

"Taking these criteria into consideration, Contact Designs has adopted Internet technologies based on the open source methodology of software development as the foundation upon which we provide solutions to our customers.

Open Source Software

Source code is the foundation of all software. Open source, means that you can see, change, and share the code to make it fit your exact needs. This provides users greater control and freedom from vendor lock-in. The open source development model emphasizes the collaboration of a community of software developers that share a similar goal. That goal is the development and improvement of software used for a particular purpose and to make that software's source code freely available. An excellent example of a successful open source project is the Apache web server. A central and qualified argument for the use of open source software is that the development model results in more reliable, more secure, higher performing, more flexible, and less expensive software products.

Below are some results of studies and projects validating the open source development model?

National Security Agency's SE-Linux Project (http://www.nsa.gov/selinux)

The NSA makes source code contributions to the open source Linux kernel project in order to help bolster security in an already very secure open source operating system: "The Information Assurance Research Group of the National Security Agency is responsible for carrying out the research and advanced development of technologies needed to enable NSA to provide the solutions, products, and services to achieve Information Assurance for information infrastructures critical to U.S. National Security interests."

My-SQL Database Project (http://www.mysql.com)

Reasoning, a company that makes software that measures the quality of other software's source code, conducted a study that found the following regarding the MySQL database:

- MySQL code quality was considerably better than that of comparable proprietary code
- MySQL benefits from the large communities of programmers who "battle test" the code
- MySQL benefits from users who not only report bugs, but track down their root cause and fix them

Apache Web Server Project (http://httpd.apache.org)

The open source Apache web server powers by far more web sites on the Internet than its nearest competitor, Microsoft's Internet Information Server. Two independent studies validate these findings:

- Netcraft's Web Server Survey
- Security Space's Web Server Survey

The Fastest Supercomputers In the World Run Linux (http://www.top500.org/)

Four out of five of the fastest supercomputers in the world run Linux as of November 2004. The only computer in the top five that does not run Linux is the Earth Simulator Center in Japan. The engineers of these four systems, costing more than $250 million dollars, decided that the open source Linux operating system offered the best solution to meet their supercomputing needs.

Computer Sciences Corporation's Leading Edge Forum (http://www.csc.com/lef)

CSC published the results of s study (executive summary and full report) investigating the benefits businesses can reap from open source software. Some quotes from the report include:

- The software stack is being put to work as open source software powers mission-critical projects. From financial institutions to governments to Google, it is clear that open source has arrived as an industrial strength tool.

- The core of the open source savings proposition is no software license fees, reduced hardware costs from commodity hardware, and less unplanned downtime.

- The modularity of Linux can allow a very lean build to be deployed, which in turn can enable more stability and thus higher availability than a Windows environment.

- As a result of large communities of development and use, IT managers are guaranteed a growing pool of open source skilled developers and IT support staff. The rate of innovation is greater due to larger numbers of developers and users associated with open source software, and the quality of the code is increasingly higher, again due to the large scale associated with open source communities

- Many companies, including HP (http://opensource.hp.com/), Google (http://www.google.com), IBM (http://www.ibm.com/linux), Novell (http://www.novell.com), Yahoo (http://www.yahoo.com), Network Solutions (http://www.netsol.com), and even Contact Designs, not only make extensive use of open source software, but also make significant source code contributions..

L.A.M.P

While Contact Designs uses many different open source technologies, for purposes of simplification we will focus on four primary ones: Linux, Apache, MySQL, and PHP/Perl (commonly referred to as LAMP). These four technologies uniquely meet our customers' needs by providing rock-solid reliability, uncompromising security, scalable performance, freedom from vendor lock-in, and substantial cost savings. More specifically, they provide the platform on which Contact Designs builds most web-based applications and web sites.

Linux

The Linux kernel is the epicenter of the Linux operating system. In addition to the excellent reliability and security provided by the already robust software, Contact Designs provides further enhancements to security by adding a proactive network intrusion detection system and advanced firewall technology. Here are two studies focusing on the security benefits provided by Linux based operating systems and a FAQ:

- Life expectancy increasing for un-patched or vulnerable Linux deployments
- A comparison of Windows and Linux security vulnerabilities
- Linux FAQ

Apache

A web site's uptime is largely dependent on the reliability of the web server powering it. Not only is Apache one of the most reliable web servers available today, it has also been and remained the leader regarding security. Here are two articles, a study covering the results of Apache's strong security design and a FAQ:

- Gartner Recommends Against Microsoft IIS
- Apache 2.0 Beats IIS at Its Own Game
- SANS Top-20 Most Critical Internet Security Vulnerabilities
- Apache FAQ

My-SQL

A high performance relational database providing ACID support is a requisite for scalable web-based applications and dynamic web sites. My-SQL is uniquely suited for web-based applications due to it fast read speed and low memory footprint. Here is an article comparing popular relational databases' performance metrics, a case study, and a FAQ:

- Server Databases Clash
- Yahoo! Finance Powers Services with MySQL
- MySQL FAQ

PHP / Perl

PHP (recursive acronym for: Hypertext Preprocessor), first developed in 1995, and Perl (Practical Extraction and Reporting Language), first developed in 1985, are programming languages. Both languages are especially adaptable to web-based application development and dynamic web sites. Furthermore, both languages are cross-platform – meaning that an application written in either language can readily be ported to a different operating system. Here are two articles on PHP and two FAQs:

- PHP and ASP.NET Go Head-to-Head
- The PHP Scalability Myth
- Perl FAQ
- PHP FAQ

Contact Designs has spent years evaluating Internet technologies in order to provide the best possible solutions to our customers. As a result of our continued focus on understanding these evolving technologies, we have centered our attention on the core technologies that best meet our clients' near-term needs and long-term best interests. Given the far reaching consequences of choosing an Internet technology platform, it is imperative to choose the right technology and the right company to deploy, leverage, and help manage that platform.

About Eden Information Services

Eden has well established & commendable track record in supporting leading Energy, hydrocarbon, Engineering, Manufacturing industries in their product development support, optimizing their development time & processes. Our unique business model is built around relationships. Our relationship quotient is all about commitment, flexibility and top-to-bottom approach path. Eden has well established & commendable track record in supporting leading Energy, hydrocarbon, Engineering, Manufacturing industries in their product development support, optimizing their development time & processes. Our unique business model is built around relationships. Our relationship quotient is all about commitment, flexibility and top-to-bottom approach path.