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The open enterprise survival guide

You can't look anywhere these days without seeing some reference to the Internet, intranets, and the World Wide Web (see net definitions sidebar). Not only a computing phenomenon, the net is a cultural one as well. Whether a company's URL appears on a television commercial or in the cover story of *Time* magazine, the steady march toward net-enabled computing is actually more like a stampede.

The pace of change in the computing industry is, if anything, accelerating. Observes one pundit: " 'web years' are more like dog years than calendar years." As soon as you begin using one new technology, something even newer is announced or released. Estimates suggest that if the current growth rate of new Internet users continues unabated, everyone on the planet will be net-enabled by the year 2000. Obviously, this pace can't continue

indefinitely. (For one thing, everyone on the planet will not even be *electricity*-enabled by the year 2000!) So what happens when the hype dies, and cold, hard reality sinks in? Clearly the net is here to stay; it will continue to grow in popularity and functionality. The sooner you embrace it, the better equipped you will be to compete in the "age of the web."

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Types of web computing
The web's technology is pervasive. Differing from most other types of new technologies in that it touches all aspects of computing, it should not be considered simply another component of your organization's computing structure, but should be integrated into every aspect of it.

Three basic types of web computing exist:

1. *Net access* enables corporate information to be accessed (and conceivably

The Internet is a worldwide collection of connected networks that communicate via TCP/IP. The Internet is comprised of many services including the World Wide Web, email, FTP, Gopher, and many others.

Intranets are internally deployed networks and systems based on the adaptation of Internet technologies and protocols.

modified) via the Internet. The information can range from simple documents, to marketing information, to quarterly reports, to data stored in legacy databases. With the web, volumes of information can be made readily available to millions of potential readers.

2. *Net-enabled applications* are those whose actual code is tied to the Internet. This can be achieved in a number of ways, including remote access to other sites over the Internet, remote software distribution of the application via the Internet, execution of the entire application within a web browser, generation of HTML output from the application, and many others.

3. *Net administration* is the process of managing and controlling the Internet infrastructure. As with any other computing environment, Internet

The World Wide Web (also WWW, or simply "the web") is a special Internet service that enables web browsers to display styled text, graphics, and multimedia at the click of a button.

Note: In this article I use the more nebulous term "net" to refer to these concepts.

COMMON INTERNET TERMS

CGI (Common Gateway Interface): an interface used for communication between web server software and a server operating system.

computing must be managed to be efficient and usable. Providing access to volumes of useful information doesn't help you a bit unless you can actually access it.

Internet computing may fall into still other categories, but it is obvious from even this short list that the Internet touches all aspects of the computing spectrum. The first two categories are reasonably well covered in the industry, but the third poses problems that organizations may not be well equipped to handle. Let's examine problems that may occur in net administration.

Net administration issues

The migration to net-based computing has been quite rapid. Those exposed to the benefits of "information at your fingertips" via the net quickly grow to expect instantaneous data. As a result, the net has become a mission critical component of most

Firewall: a security device for protecting one network from another.

FTP (File Transfer Protocol): method of exchanging files across interconnected networks.

Gopher: a protocol for disseminating information over the Internet using menus, where menu items can be documents or links.

HTML (HyperText Markup Language): computer language used to create web pages.

Java: an object-oriented programming language (based on C++) for creating

organizations' computing infrastructures.

As with anything produced so hastily, however, crucial ingredients are missing from most net implementations and plans. True, search engines help us find things and hypertext links help us move from area to area. But how is change handled? How do we gauge performance and availability? In the race to "get wired," we seem to have forgotten to institute a solid management and administrative architecture to ensure that net access continues effectively, efficiently, and consistently.

Impelled by your company's expectations for instantaneous data, you've implemented a net strategy. Now your organization relies upon it. But you've gone beyond the pilot project. The developers who created the applications and pages have no time to keep them updated and running. Those charged with providing the content are not

applications that can be distributed and executed over the net.

Page: a file containing HTML that can be displayed as a web browser.

TCP/IP (Transmission Control Protocol/ Internet Protocol): a layered protocol used for inter-network communication.

URL (Uniform Resource Locator): web address (such as http://www.bmc.com)

Web browser: software that converts HTML into a formatted, viewable image.

skilled in Java, HTML, CGI, and the technology required to run a web site. In sum, you have a management and administration problem.

What happens when you must scale up net development (either by expanding the content on your web site or by developing intranet applications)? Things begin breaking, links become orphaned, pages are misspelled, no one keeps track of what is on the server on any given day. In the net age, it is particularly difficult to keep things up and running. (Honestly, it's always been hard to keep things up and running!)

What must be done? Organizations must scale up the enterprise, providing knowledge workers to write content, programmers to convert the content to HTML, technicians to run the web server, and strategists who understand the overall structure and intent of the site. If the project is a public web site, product marketing folks must get involved to manage corporate style and image issues.

In short: an enormous amount of work and a huge flow of information are required to sustain net projects.

Web site: a section of a computer containing net documents.

Automation is crucial to ensure success. Among the issues:

Change and configuration management tools are essential. These tools enable organizations to perform version change for web server content. Without change management, it will be impossible for administrators to determine what was available on your web site three months ago at 10:57 P.M. Why do you care? Because someone has filed a lawsuit over content they believe was available on your site. The workflow for the entire change process can be automated, including interspersing manual steps with automatic steps, checking links, and testing for security holes.

Performance and availability are potentially huge problems. Anyone who has ever surfed the web knows that a page that was available just five seconds ago can produce that exasperating "Error- 404 requested information is unavailable" message. We're all aware that the very page that took five seconds to load this morning can take ten minutes this afternoon. Performance tools can be set up to monitor web server processes. Most web and intranet servers are on UNIX or Windows NT boxes. A web slowdown can affect everything running on the system — including other non-web work you're trying to do. This can be prevented by using a performance tool to configure alerts that trigger agents to detect resource usage problems, and then execute external actions using other systems management tools.

Others — what about testing, security, problem

resolution, storage management, and chargeback issues? All need to be managed within the context of the net. Perhaps the best exercise you can perform is to examine the infrastructure that has been implemented for your legacy systems. All of the components are still there for net development and support.

One step further
Perhaps the most exciting advantage of net-based computing is that it can be used to assist with its own management. As more applications and tools become available with web interfaces, the web can be exploited within the context of systems management. Consider the concept of a web-enabled help desk. As users encounter problems with their intranet applications, they can access the help desk using a web browser to scan trouble tickets and solutions. In this scenario, users may not need to interface with support personnel at all.

These types of solutions will become more common as intranet applications become more prevalent.

Summary
The Internet has forever changed our lives. Organizations that accept this fact and quickly develop and embrace a sound net infrastructure will find the transition to net-based computing enjoyable, not simply less difficult.

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