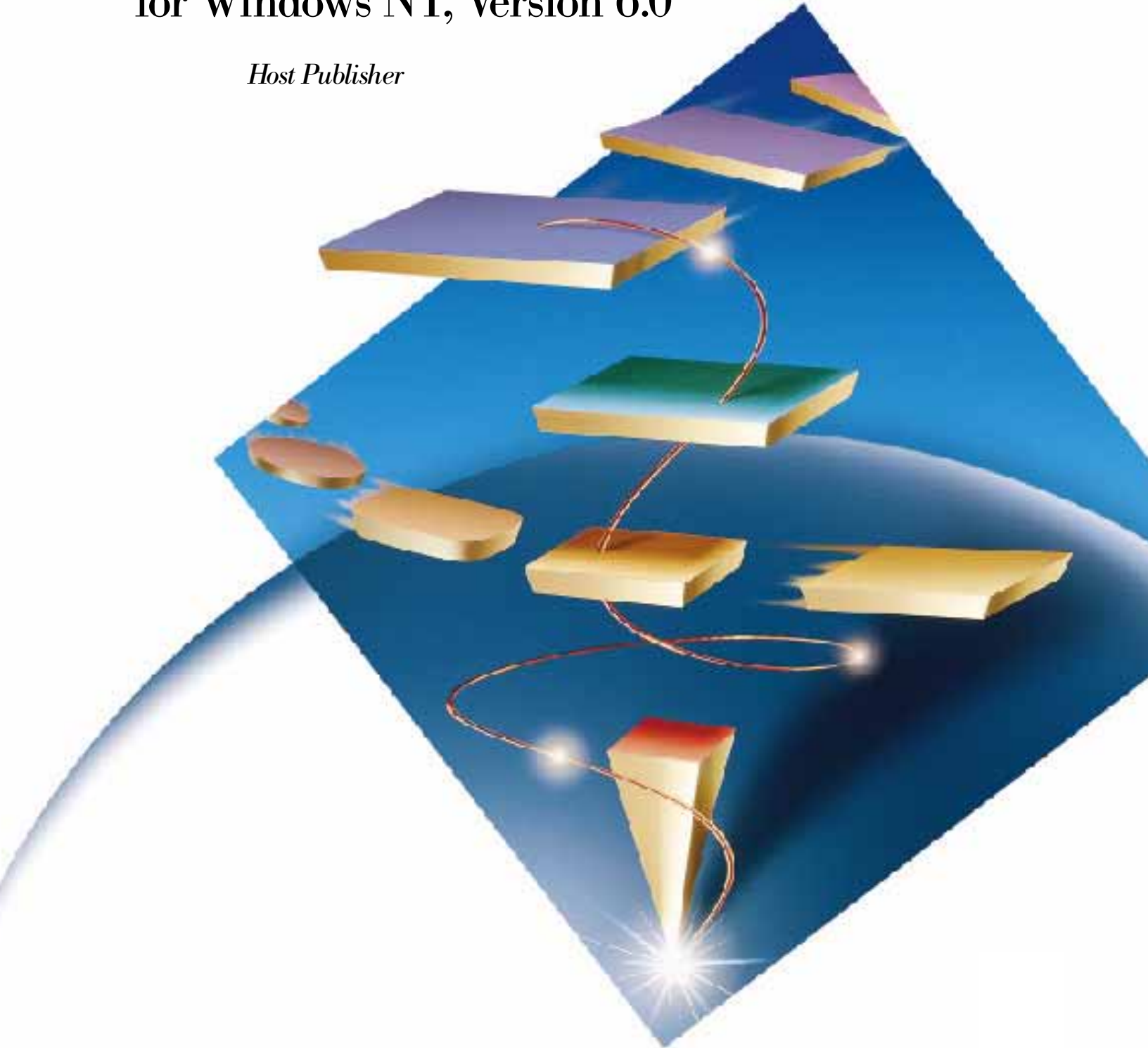IBM

IBM eNetwork Communications Server for Windows NT, Version 6.0

Host Publisher

Introduction

As Internet growth continues at exponential rates, many companies that were once considered leading edge simply because they had Web sites are now scrambling to implement Web-to-host solutions that will give them a competitive edge, or in some cases to remain competitive in their market. "Web-to-host" refers to the integration of a company's existing enterprise applications with the Web or the company's intranet to exploit the investment in these existing applications for competitive advantage.

By implementing a successful Web-to-host solution for their intranet, companies can expect to reduce end-user support costs, extend applications to new classes of users, and improve end-user productivity. However, companies expect more when they extend their applications across the Internet. When a company begins using the Internet to conduct business, they normally expect to reduce company overhead, for example, by easing call center loads. They also anticipate improved customer satisfaction and customer retention because of the ability to provide service around the clock. However, to generate as much new revenue as possible, a Web-to-host solution for the Internet must integrate the large variety of applications used by Web customers. Companies with Web-to-host solutions that can successfully handle many diverse applications will be able to attract new customers and assist more customers than their competitors.

Most companies first implement Web-to-host strategies with their intranet. The intranet is typically a secure network environment that's well understood and reasonably controlled – volume rates are predictable, the number of end-users is known, application usage typically falls within traditional usage patterns and client system capabilities are controlled within the enterprise.

The classic mistake many companies make is to select a Web-to-host technology solution based solely upon their needs for the intranet. When such companies later need to extend their applications across the Internet, they discover that the same solution will not meet the vastly different requirements of the Internet. The Internet is unlike the typical intranet environment. For the Internet, security is an absolute requirement; volume rates are unpredictable, making scalability critical; application usage characteristics are radically different and there is absolutely no control over client system capabilities (such as whether a user's system is Java-enabled).

To effectively and efficiently implement a comprehensive Web-to-host strategy, companies need a solution that is specifically optimized for the significantly different environments of the intranet and the Internet. IBM® eNetwork™ Host On-Demand delivers a leading edge solution for implementing Web-to-host solutions within intranet environments. The Host Publisher function of IBM Communications Server for Windows NT® is the answer for leveraging Web-to-host solutions across the Internet.

Host Publisher

Host Publisher, a function of Communications Server for Windows NT, provides a Web-to-host solution specifically designed to address the unique characteristics of the Internet. Bulletproof security options combined with industry-leading scalability make Host Publisher the industry's premier solution for integrating existing applications into the Internet environment.

Using Host Publisher, you can easily integrate a wide variety of interactive host types with the Web without having to change the existing application. In addition, Host Publisher's load balancing, fault tolerance, and unique clustering technology ensure the level of enterprise class scalability, availability and performance you need when you extend your business-critical applications across the Internet.

The combination of Host Publisher and Host On-Demand provides Web-to-host solutions specifically optimized for the Internet, intranet and extranet environments you need to address when extending your existing applications across the diverse user groups these environments represent.

Features and advantages

Host Publisher boasts a number of powerful features and benefits, including:

• Security
• Scalability
• Load balancing
• Fault tolerance
• Wide range of existing application types
• Investment protection

Security

Host Publisher was designed with Internet security in mind. Therefore, Host Publisher can support Web servers that are separate from the Host Publisher server. This allows you to place your Web server on the Internet (the unsecured side of a firewall), while Host Publisher, along with all of your applications, data, scripts, backend connectivity and user information are kept securely behind the firewall. Internet end-users are never allowed to pass through the firewall and into the secured network; their specific application requests are forwarded to Host Publisher for processing.

Because Host Publisher integrates your existing applications within industry-standard Web pages, all the typical security mechanisms available through the Web today can be used to control authentication and access to existing applications. This includes using Secure Socket Layers (SSL) to encrypt data transfers or using Secure ID cards to control access to your site.

Host Publisher is treated as a native user of the system by your existing applications. As a result, all of the available security mechanisms deployed for that application system remain available to control access and authorization to these applications and services. For example, in the case of IBM System/390® Servers, the predominant security mechanisms are RACF® and ACF2.

Host Publisher enables all of the available security mechanisms within your environment to be utilized, without change, to control Web-to-host access from the Internet, while also delivering unique Host Publisher security options to ensure the highest level of integrity for the secured network environment.

Scalability

Although it's relatively easy to predict usage over time for an intranet system, the Internet is wellknown for unpredictable growth and sudden spikes in site usage. Rapid growth and high usage are wonderful characteristics for a business to enjoy – but only if the business has a solution in place that can be rapidly scaled to meet this demand.

In addition to the high-performance characteristics of individual Host Publisher servers, Host Publisher delivers a unique clustering capability that allows you to group separate Host Publisher servers so that they have a single system appearance. Servers can be dynamically added to the cluster to meet unexpected surges in demand. This clustering capability provides industry-leading scalability for the high volume, unpredictable world of the Internet.

Load Balancing

Host Publisher's Dispatcher component provides dynamic and realtime load balancing across all of the Host Publisher servers within a cluster, which ensures maximum performance, throughput and customer service. Host Publisher constantly monitors the workload of each server within the cluster and allocates new user requests as necessary to ensure a balanced system. For added flexibility, the Dispatcher component can be placed on one of the Host Publisher servers or on its own machine.

Fault Tolerance

Host Publisher provides a high-availability configuration option that allows you to specify a mirror image as a hot backup for the Dispatcher component. If the Dispatcher server should become unavailable for any reason, the hot backup will automatically assume its function, preventing disruption to the Host Publisher cluster's operation. This high availability option, together with Host Publisher's load balancing capability of routing requests around a failed Host Publisher server within the cluster, deliver the dependability you need when Internet access to your business-critical applications must be assured 24 hours a day, seven days a week.

Wide range of existing application types

The flexibility to integrate any of your existing applications with the Web is crucial for ensuring that the Web-to-host solution you implement today will support your current business objectives as well as the objectives you may not realize for another 18 months. Host Publisher provides support for a wide variety of host systems and applications:

- 3270 applications
- 5250 applications
- VT applications
- ActiveX applications
- Java™ applications
- ODBC databases

In addition to the applications in the preceding list, Host Publisher includes a software development kit you can use to build access to additional application types and plug the resultant integration module into a Host Publisher server, where it will operate like any of the standard application types provided by Host Publisher. This capability is valuable when you have unique application types that have to be integrated with the Internet.

Host Publisher not only makes it easy to integrate an existing application within the Web, it also allows you to consolidate multiple application screens into a single Web page to improve ease of use for novice Internet users. In addition, the output of several different applications can be combined and consolidated into a single composite application with the output appearing as one consolidated Web page for the end user.

If you need to add specialized business logic to applications you send out through the Web, you can do so using Host Publisher to transfer control to scripts that you write. Your scripts can then execute the business logic you've added, which can include data manipulation, decision points, or additional processing of host application output. The script then returns control to the Host Publisher to finish building the Web page response and satisfy the request.

Investment protection

Host Publisher is designed to protect and maximize your investments in existing applications and employee skills, as well as in the Web and your network infra-structure. Advantages of Host Publisher include the following:

- No changes to your existing applications are required

- Widest possible range of Web clients are supported, and Java-enabled clients are not required

- Drag-and-drop techniques simplify customization, eliminating the need for programming to accomplish the most common Host Publisher functions

- Integration within industry-standard HTML pages maximizes your investment in existing Web technologies and skills

- Use of existing security mechanisms ensures a secure operation

- Novice end-users find it easy to use, because information is integrated into familiar Web pages

An added feature of Host Publisher is its unique ability to multiplex multiple end-user requests across a single existing session to a back-end application. The ability to multiplex is extremely important when applications are extended across the Internet and is what sets the Host Publisher apart from similar products which were designed for intranet use. Intranet users typically stay connected to an application all day long; however, typical Internet users may only execute a single request to an application before linking to another site. The two end-user groups differ greatly, because among Internet users there are a huge number of users entering only one or two requests each; but among intranet users there are a relatively small number of users entering a large number of requests each.

Typical Web-to-host solutions were designed for intranets, where users must establish and then terminate a session for each application they need to access. This is fine for supporting typical intranet usage patterns; however, when this design is implemented for supporting Internet users, who enter only single application requests, the cost associated with session establishment and termination quickly become prohibitive for the enterprise. Session establishment and termination requires network bandwidth, router cycles, server cycles and application host cycles. While the overhead required for a couple of sessions is not significant, when you multiply this by tens of thousands of Internet requests daily, it quickly becomes an expense that increases your total cost of ownership. Host Publisher's ability to multiplex multiple requests across pre-existing sessions eliminates this overhead, eliminates this cost, and at the same time delivers better service to the end user. To optimize system usage, Host Publisher can also establish sessions dedicated to specific users when necessary.

Summary

Web-to-host solutions offer tremendous opportunities for competitive advantage, expense reduction and increased corporate revenues. For successful Web-to-host implementations, it is absolutely critical for companies to consider both the intranet and Internet environments before making a decision. The intranet and Internet environments are significantly different in terms of security requirements, scalability requirements, client support requirements and end-user usage characteristics.

With the combination of Host Publisher and Host On-Demand, IBM delivers a Web-to-host solution optimized specifically for both Internet and intranet environments, allowing you to take full advantage of your existing applications across the diverse user groups these environments represent.

Availability
IBM eNetwork Host On-Demand is currently available. More information about Host On-Demand can be found at *www.software.ibm.com/enetwork.*

IBM eNetwork Communications Server for Windows NT, Version 6.0, will be available in July 1998; Host Publisher will be included in this version. Some of the host application types described in this white paper may not be available until shortly after July.

More Information
More information about Communications Server for Windows NT can be found at *www.software.ibm.com/enetwork.*

More information about IBM and its products, services and technology can be found at *www.ibm.com.*

The fastest, easiest way to get information about IBM software is to visit the IBM Software Home Page at *www.software.ibm.com.*

IBM®