"Optimizing Application Delivery in Secure Web Environments:
Options and Approaches to Satisfy Business Demands for Throughput and Service"

NMCI Abstract Submission
FineGround Networks
May 2004

As Global 2000 companies and large agencies roll out web-based enterprise applications, they face significant challenges in delivering fast performance for remote users in different geographies and across slow dial-up connections. As more organizations shift critical business processes to the Internet, web-based applications that involve personalized data and transactions are proliferating. As more applications become 'webified' including portals, extranets, CRM, ERP, and other custom applications the challenges for agencies to provide optimized application performance persists.

During the past several years, a new approach has developed to address this challenge. Previous technologies aimed at optimizing performance are generally effective for static information, such as bitmap images, banner ads, and text. For example, static caching technology can accelerate the delivery of static content by distributing it to a Internet Service Provider (ISP) at the "edge" of the Internet -- it does nothing to accelerate delivery of the critical business information and fails to address the "last mile" problem of delivery from an ISP to end-users on low-bandwidth connections or users located far from central data centers. Even more importantly, most corporate, civilian, and military environments have additional requirements for security, privacy, and IT management, making the delivery of acceptable application performance an even more daunting challenge.

Agencies and other enterprises seek a complete solution that increases network and server infrastructure efficiencies. Focusing on holistic approaches for delivering application performance over a secure web gives organizations the best shot for satisfying user and agency demands. The need to reduce infrastructure costs, speed web-based application adoption, enhance employee and staff productivity, improve the user experience, and increase throughput can only achieved by delivering significantly faster web-based application performance. This paper will outline specific actions and approaches to simplifying a daunting IT challenge.

Applying appropriate solutions means not only evaluating specific approaches, but involves a deep understanding of the basic application and usage characteristics. This paper and the accompanying presentation will explore the following areas:

1. Exploring the nature of application traffic and user interactivity in defining the problem effectively. This discussion will quickly focus on the growth of web-based traffic and interactive versus asynchronous user access.

2. This portion discusses the nature of what makes interactive application traffic difficult in a web-based environment. Using examples from specific case studies, the section will explore the nature of the web, its basic architecture, and specific challenges in delivering service with mission-critical applications and portals. This section also introduces the concept of the IT Fault line between applications and networks.

3. A discussion of existing approaches, including caching, compression, traffic shaping and bandwidth management. In addition, this section will discuss the difficulty of dealing with optimization as part of the application stack itself. The section provides an understanding of the market and technology taxonomies appropriate to dealing with application performance in distributed http and https environments.

4. This final section will explore both integrated and additional options for delivering application performance and addressing network latency, network congestion, security congestion and server backend bottleneck. Specific military and civilian case studies and examples are highlighted. For example, a case study will highlight how to deliver optimized performance to VSAT or satellite networks. Such networks offer geographic flexibility at low-cost for branch or agency office connectivity, but these networks suffer from high latency. Learn how to specifically address latency issues without re-architecting your infrastructure.