The goal of the Web100 project is to provide the software and tools necessary to instrument and tune end hosts so that they can automatically and transparently achieve high bandwidth data rates over the high performance research networks. The Web100 software suite is a set of instruments that, at the kernel-level, collects as much TCP specific information as possible to enable a user to isolate performance problems associated with specific TCP connections. Built on top of the kernel instruments are derived instruments, and application programming interface (API) and a library of tools and functions.

The past year, we focused on the overall design of the Web100 software. Initially, as stated in the original proposal, we viewed the project as the development of an IETF-style Management Information Base (MIB). However, as we the overall Web100 design progressed, we realized that the MIB concept limited the overall capabilities of the software suite. Therefor, the overall design concept evolved to defining and designing instruments to measure TCP characteristics within the kernel. The kernel instruments set (KIS) collects as much TCP specific information as possible to enable a user to isolate performance problems associated with specific TCP connections. The derived instrument set (DIS) uses the KIS to determine basic networking performance metrics that can not be determined directly within the kernel. The API and library provides mechanisms for the end-user to directly access the Web100 instruments. End-users can access all the instruments for informational purposes and, in some cases, to set the instruments themselves.

The current Web100 releases are based on a version of the Linux operating system. Linux was chosen since it is readily available and widely used by the scientific community. The KIS and DIS have been documented in a standardized manner with the long-term goal of working with OS vendors to adopt and implement the instruments in other operating systems. This past year we have worked on defining and implementing the KIS, the core of Web100. These instruments are based on values or variables that can be directly collected within the host. The current KIS design has a total of 75 instruments, seven of which are read/write variables. The KIS has been divided into 8 categories, based on what types of performance problems they are able to identify.

The initial implementation of the Web100 software is referred to as Alpha0. It includes the 75 KIS variables mentioned above as well as some example applications that can be used to test the software as well as provide a general idea on how the code can be used. This software has been released to the set of 19 early evaluators. We have worked with them to identify and fix bugs within the code, resulting in version Alpha0.2 of the code.

Presentations on the Web100 project have been done in a number of both formal and informal settings. We have participated in the NLANR/I2 Joint Techs meetings, Internet2 workshops and members meetings as well as given invited presentations for a number of networking and applications groups. Actual presentations are listed later on in the report.