Bringing together master artists and performers either individually or in a group, to assist developing artists or performers either individually or in a group in a cost effective way poses a significant problem. Considerable barriers exist some of which are: the number of performers, cost of travel, rigid schedules, time required and availability of suitable sites. Use of the Internet2Next Generation Internet (NGI) test-bed Abilene and state-of-the-art but affordably priced video streaming gear and TV production and sound equipment have been piloted so as to deliver the teaching, training, and monitoring in a virtual classroom to develop minority musicians by master performers of a symphony orchestra.

This paper will describe the significant problem of providing training and exposure to a representative number of African-Americans and other minority musicians that can facilitate their professional aspirations toward membership in a symphony orchestra. This paper will describe the principal collaboratants to the pilot project, i.e., Florida A and M University, a historically black public university also a connector to the Internet1 Abilene Project, The New World Symphony Orchestra also an Internet2 affiliate and Star Valley Solutions, Inc. also an Internet2 corporate members.

The goals and objectives of the pilot will be presented and a detailed look will be taken at the problems that need to be solved to realize these goals and objectives. The virtual classroom and performance center established in the pilot served as a teaching and learning environment for two organizations five hundred miles apart. The New World symphony selected professional artists consisting of five members was located in Miami, Florida and the one hundred ten members of the Florida A&M University Symphony Band was situated in their campus practice hall in Tallahassee, Florida. The critical issue of the bandwidth to support high-speed video streaming between the sites was addressed via a OC3 connection to the Abilene network from the FAMU campus and a DS3 connection from the New World Symphony.

Using kodecs furnished by Star Valley Solutions, Inc. the technical staffs of the New World Symphony and Florida A&M University sought to establish a video streaming rate that provided high quality video and high fidelity audio. This presentation will reveal to readers and attendees the lessons learned in selection and acquisition of digital television production equipment that is affordable and of high quality which can be packaged into a light-weight, portable television production system. It will also discuss the required testing; and configuration for optimum video streaming quality and the conservative use of bandwidth so that the e-learning delivery system can be established within circuits and wide area network connections that is much more prevalent and affordable for the high speed application than the NGI environment used in the pilot project thereby ensuring that this e-learning approach can be more easily replicated. The results of a survey of the New World Symphony performing musicians and the students and faculty of the Florida A&M Symphony band will be provided. The survey results will be analyzed to ascertain important
questions of effectiveness of the e-learning laboratory and satisfaction with the virtual classroom environment established in the pilot project. Finally video excerpts of the live virtual laboratory application for E-learning will be shared with participants at the presentation. 