Applicant Name:  EMPIRIX INC.

Project Title:  Assuring Quality of Service for American Broadband Consumers

Project Type:  Sustainable Broadband Adoption

_______________________ Executive Summary _________________________

Extending broadband to all Americans and ensuring that broadband access extends beyond the federal investment is an essential goal of the Sustainable Broadband Adoption project. And especially important is making sure critical, life impacting applications made possible by broadband such as distance learning and telemedicine are delivered for maximum benefit of consumers. These applications rely upon the efficiencies of IP networks for delivery of voice, video and data and ensuring the quality of these applications is critical to sustaining broadband investments made by the federal government in sites around the country. Service providers seeking to extend broadband service to underserved rural, urban and tribal areas recognize that IP based networks are the optimal choice for application delivery due to low cost and maximum flexibility. But IP networks are also complex and were originally designed for 'delay tolerant' applications like email (delay tolerant meaning that the consumer experience is not affected if there is a delay between when content is sent and when it is received). When the essential service of voice is part of a broadband service offering, either on its own or coupled with video or data as in the case of distance learning, IP networks must now be able to deliver a 'delay intolerant' quality of service. Making sure that broadband services, especially delay intolerant services, are delivered correctly and efficiently is important to two major constituencies. First are the American citizens who are the consumers of these services. A couple of example of how broadband services will be used: 

Telemedicine: Broadband holds the promise of extending the skills of our nation's most skilled and empathetic medical practitioners to consumers in rural areas that may not benefit from an extensive medical infrastructure. Specialists can communicate diagnoses using words and high resolution pictures over high speed connections. But consider the case of an oncologist explaining treatment options to an anxious patient. Choppy or garbled voice will dramatically undermine the effectiveness of the telemedicine service. 

Distance Learning: Broadband can bring educational and re-training opportunities to far flung communities such as those spread across Alaska. Instructors can use impactful pictures and video to explain concepts and accelerate learning. But if the ability of students to carry on a dialog with a professor is hampered by poor quality audio, the value of the class drops significantly. Second are American taxpayers who have funded the American Recovery and Reinvestment Act as well as other initiatives to extend broadband services throughout the country. Accountability and objective measurement of success are crucial to maintaining government's promise to the American people to spend tax dollars wisely. Broadband service providers have the best of intentions in extending voice, video, and data to rural and tribal communities and their anchor institutions including hospitals and schools. But if the implementation of IP networks to deliver broadband is not optimized, the intended end users of broadband services will be ill served and tax payer funds will have been spent inefficiently.