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Menlo Park, June 9, 2004

Dear General,

We haven't met but I had the opportunity of visiting one of your IT institutes and delivering a series of lectures on how the Internet works and network performance monitoring during my visit to Pakistan in June 2001. This visit sowed the seeds of our current collaborative research which was reignited when Dr Arshad Ali and I met in Rio de Janeiro in Feb 2004 at the ICFA/SCIC (International Committee on Future Accelerators / Standing Committee on Inter-regional Connectivity) meeting. We agreed that Dr Ali would put together a letter of support for the MAGGIE (Measurement and Analysis for the Global Grid Internet Environment) proposal that SLAC was submitting to the U.S. Department of Energy together with LBNL, Internet2, PSC and the University of Delaware. We also agreed to pursue requesting funding for NIIT to more effectively collaborate on the goals of the MAGGIE proposal. A proposal was prepared and submitted to the Pakistan Ministry Of Science and Technology (MOST) and the US Department of State to provide 100,000/= USD funding. This was successful and will be used to allow NIIT students to travel and spend extended internships times at SLAC, as well as enabling SLAC researchers to visit NIIT. The first visits will probably be later this year when we have resolved visas issues etc.

Meanwhile, the collaboration (now named MAGGIE-NS, the NS being for NIIT SLAC) has actively started. A web site and email lists have been set up, problems with blocking of monitoring probes to NIIT have been resolved, there are regular fortnightly phone meetings following an initial video meeting so people could achieve some visual recognition. Even more important, real tasks have been defined, documented, and assigned. And successful results have already been achieved.

Tasks that are currently in progress involve: improved ways to visualize the deployment and analysis of the PingER worldwide measurements; exploring new Internet/host configuration debugging tools; extending the Internet End-to-end Performance Monitoring (IEPM) analysis tools to measurements from the National Laboratory for Advanced Network Research (NLANR) Active Measurement Project (AMP); identifying common paths etc. between hosts in Internet countries around the world.

I must tell you, I am very encouraged by the progress so far. Despite the large distances, the lack of familiarity between the people at the two sites (only Dr Ali and I have ever met face to face), the cultural and environment differences etc., email contact (hundreds of emails have already been exchanged between the collaborators) and the phone meetings have enabled very effective working conditions. Substantial progress is being made on the projects assigned so far. The NIIT students have quickly understood the requirements and independently done further study to obtain more in-depth understandings as to what the possibilities are, communicated approaches back to the task definers, and then quickly put together effective pilot solutions. As we better understand the potentials, we are in the process of defining new more advanced projects. However, there are some projects that will require much closer daily associations between people to better understand and react to changing needs and capabilities. This will be the purpose of the longer term internships that we hope to embark on later this year.

As part of our collaboration we have also set up more detailed monitoring of the Internet performance to NIIT and other sites in Pakistan, as seen from the U.S. This resulted in more in-depth understanding of the challenges and we put together a presentation on our findings. This showed that the upgrade from 364 kbps to 1 Mbps was effective in providing extra bandwidth. However, NIIT still experience high packet losses (>> 2.5%, and often above 12%) during the Pakistan work-day that make interactive use almost impossible. Such diurnal loss patterns are usually indicative of congestion. Providing better connectivity for NIIT will be greatly assist its ability to contribute to major international collaborations.

Sincerely,

R. Les. Cottrell, BSc, PhD
Assistant Director, SLAC Computing Services