Broadband network on-line data acquisition system with web based interface for control and basic analysis

Marcin Polkowski and Marek Grad
University of Warsaw, Institute of Geophysics, Warsaw, Poland (marcin@marcinpolkowski.com)

Passive seismic experiment "13BB Star" is operated since mid 2013 in northern Poland and consists of 13 broadband seismic stations. One of the elements of this experiment is dedicated on-line data acquisition system comprised of both client (station) side and server side modules with web based interface that allows monitoring of network status and provides tools for preliminary data analysis. Station side is controlled by ARM Linux board that is programmed to maintain 3G/EDGE internet connection, receive data from digitizer, send data do central server among with additional auxiliary parameters like temperatures, voltages and electric current measurements. Station side is controlled by set of easy to install PHP scripts. Data is transmitted securely over SSH protocol to central server. Central server is a dedicated Linux based machine. Its duty is receiving and processing all data from all stations including auxiliary parameters. Server side software is written in PHP and Python. Additionally, it allows remote station configuration and provides web based interface for user friendly interaction. All collected data can be displayed for each day and station. It also allows manual creation of event oriented plots with different filtering abilities and provides numerous status and statistic information. Our solution is very flexible and easy to modify. In this presentation we would like to share our solution and experience. National Science Centre Poland provided financial support for this work via NCN grant DEC-2011/02/A/ST10/00284.