Geophysical Research Abstracts
Vol. 12, EGU2010-4965, 2010
EGU General Assembly 2010

SM1.3 Seismic Centers Data Acquisition: an introduction to Antelope, EarthWorm, SeisComP and their usage around the world

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Many medium to big size seismic data centers around the world are facing the same question: which software to use to acquire seismic data in real-time? A home-made or a commercial one? Both choices have pros and cons. The in-house development of software usually requires an increased investment in human resources rather than a financial investment. However, the advantage of fully accomplishing your own needs could be put in danger when the software engineer quits the job! Commercial software offers the advantage of being maintained, but it may require both a considerable financial investment and training. The main seismic software data acquisition suites available nowadays are the public domain SeisComP and EarthWorm packages and the commercial package Antelope. Nanometrics, Guralp and RefTek also provide seismic data acquisition software, but they are mainly intended for single station/network acquisition.

Antelope is a software package for real-time acquisition and processing of seismic network data, with its roots in the academic seismological community. The software is developed by Boulder Real Time Technology (BRTT) and commercialized by Kinemetrics. It is used by IRIS affiliates for off-line data processing and it is the main acquisition tool for the USArray program and data centers in Europe like the ORFEUS Data Center, OGS (Italy), ZAMG (Austria), ARSO (Slovenia) and GFU (Czech Republic).

SeisComP was originally developed for the GEOFON global network to provide a system for data acquisition, data exchange (SeedLink protocol) and automatic processing. It has evolved into to a widely distributed, networked seismographic system for data acquisition and real-time data exchange over Internet and is supported by ORFEUS as the standard seismic data acquisition tool in Europe. SeisComP3 is the next generation of the software and was developed for the German Indonesian Tsunami Early Warning System (GITEWS). SeisComP is licensed by GFZ (free of charge) and maintained by a private company (GEMPA).

EarthWorm was originally developed by United States Geological Survey (USGS) to exchange data with the Canadian seismologists. Its is now used by several institution around the world. It is maintained and developed by a commercial software house, ISTI.