Aspen Systems in the Gulf – Review of a Client-Centric Open Platform

Authors: Mathias Franke, Stefan Radman, Toufik Allili

In the Gulf area, seven data centers have an Aspen Seismic Information System with robust real-time data acquisition and processing, and extensive state-of-health network monitoring using the Antelope Software. Many of them are seamlessly exchanging real-time data. Beyond such core processes, the installed Aspen Systems carry out a plethora of other tasks supported by the rich and documented APIs for interfacing client programs or taking advantage of the open source contributed software repository.

It is worthwhile to review the commonalities and differences of implementation in order to learn where and how to improve seismic monitoring in the Gulf. Over the past years, the Aspen Systems were expanded to produce USGS ShakeMaps in English and Arabic with the appropriate GMPE, provide event alerts as e-mails, text messages, and xml files in both languages. A database with place names also in English and Arabic is used for directional and distance information of an earthquake with respect to important or critical locations. Another database of polygons (countries, counties, islands, water bodies, etc.) in English and Arabic was developed to address the epicenter location beyond general geographic regions or coordinates. Beside these application level developments, recent deployments of Aspen Systems run in virtualized computer environment on enterprise class servers providing high-availability infrastructure leveraging Antelope's intrinsic mission-critical design. Moreover, automatic failover procedures that are continuously refined through real-world implementations allow the set-up of backup data centers giving the network operator peace of mind to overcome a breakdown of the primary data center.

A roadmap for future enhancements could include streamlined moment tensor calculation, real-time response spectra computation for rapid structural damage assessment, and app based event dissemination to the public.

Organization: Kinemetrics, Pasadena, CA 91107, USA
Author's E-mails: mf@kmi.com, smr@kmi.com, ta@kmi.com