CyberShake Characterization

CyberShake

The Cybershake workflow is used by the Southern California Earthquake Center (SCEC) to characterize earthquake hazards in a region using the Probabilistic Seismic Hazard Analysis (PSHA) technique. Given a region of interest, an MPI based finite difference simulation is performed to generate Strain Green Tensors (SGTs). From the SGT data, synthetic seismograms are calculated for each of the ruptures that were predicted. Once this is done, spectral acceleration and probabilistic hazard curves are generated. CyberShake workflows resulting in a total of more than 800,000 jobs have been executed using the Pegasus Workflow Management System (Pegasus-WMS) on the TeraGrid. Additional details are available in Deelman et al.

Execution Profile

Execution times of CyberShake jobs

Job	Count	Mean (s)	Variance
PeakValCalc	418946	1.1	3.7
seismogram_synth	418946	43.4	9.8e+02
ZipPeakSA	78	444.54	6.1e+04
PeakValCalc	418946	1.1	3.7
seismogram_synth	418946	43.4	9.8e+02
ZipPeakSA	78	444.54	6.1e+04

Sizes of CyberShake data items

File Type	Count	Mean (MB)	Variance
sub_sgt	38	220.986	2.5e+04
input_variation	5726	5.5	2.6
grm	5726	0.023	0
bsa	5726	0.00021	0
psa.zip	1	2.1	0