Serial and Random-Access to Data

Most access to LCLS shot data is done via small-data ("smd") mode (see Event Iteration). This mode uses small-data files (.smd.xtc) in directories like /sdf/data/lcls/ds/xpp/xpptut15/xtc/smalldata/ which is the most commonly used pattern. There is an additional random access "idx" mode with uses small .xtc. idx files (in directories like /sdf/data/lcls/ds/xpp/xpptut15/xtc/index/). Both files contain "fseek" offsets to the large-data .xtc files (as well as some small supporting data) which are in directories like /sdf/data/lcls/ds/xpp/xpptut15/xtc/. The idx mode existed first, since the DAQ generated those files, but had the disadvantage that they were only available at the end of the run. The smd mode is used by psana to enable real-time parallel analysis. An example of random-access to shot data with idx mode can be found here.