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Remote Data Collection for Single-Crystal and Powder Diffraction. Joerg Kaercher, Michael Ruf, Bruker AXS Inc., Madison, WI, USA.

Many synchrotrons and other X-ray laboratories offer remote data collection services today. Remote data collection has advantages for these facilities and for the crystallographers. Local staff is already familiar with the instrumentation and safety regulations, whereas visiting scientists first need to be trained. Remote access increases the efficiency of the facilities and leads to higher throughput. The crystallographers in addition save time and money on travel.

Bruker's client/server based software architecture is well suited for remote data collection. The server part, called Bruker Instrument Service (BIS), is installed at the X-ray laboratory to control the equipment. BIS communicates with its client applications over a network, e.g. the Internet. At the other end of the connection, the client software sets up the experiment and analyzes the data collected by BIS. Three client software packages currently exist: APEX2 for small molecule applications, PROTEUM2 for protein applications, and PILOT for Phase ID applications.

The client software packages use a relational database for storing sample related data. This database can be installed on the same computer as the client software or on a separate computer. Multiple clients can share the same database. Conventional mass storage devices, e.g. a network attached RAID, hold the diffraction data.