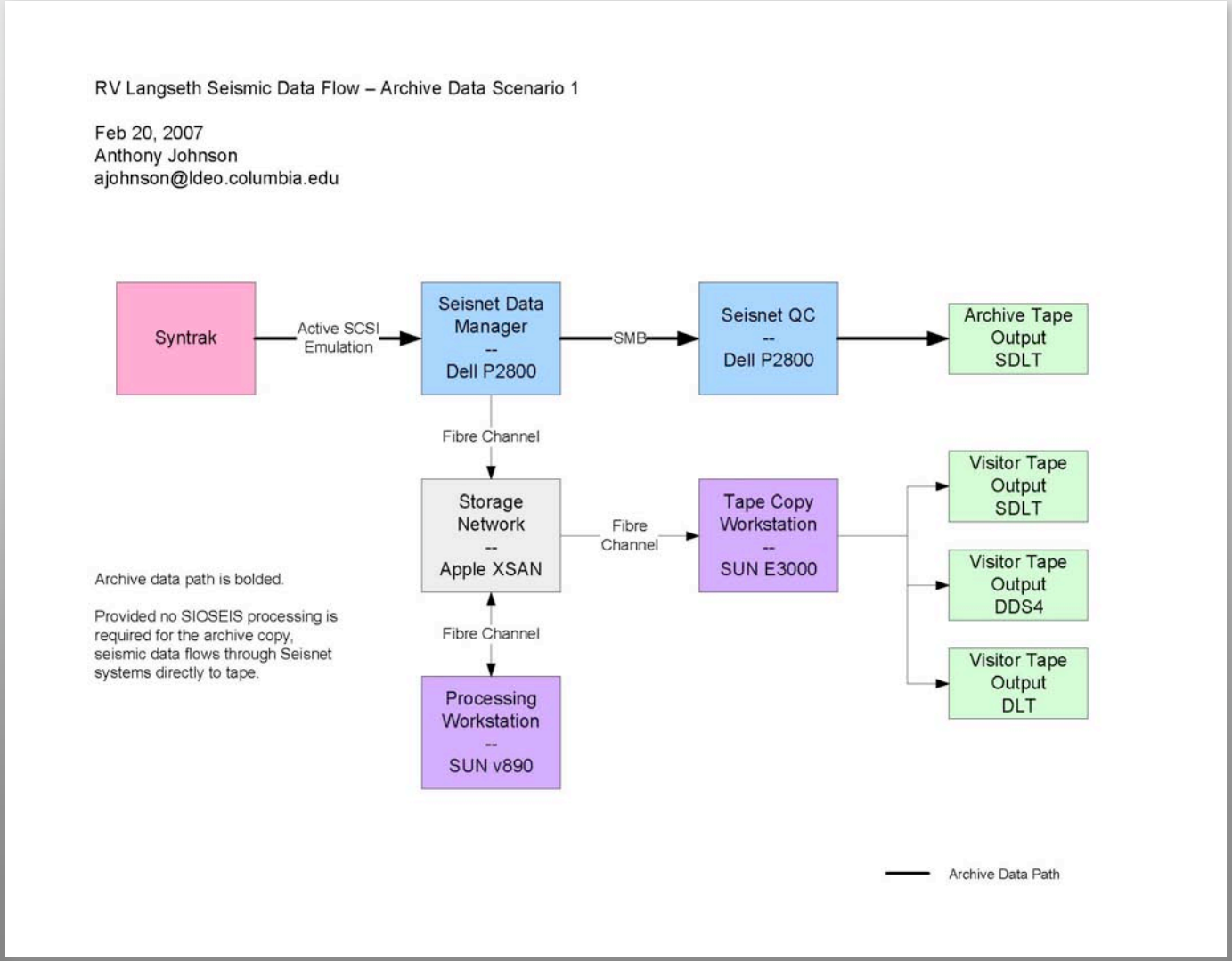
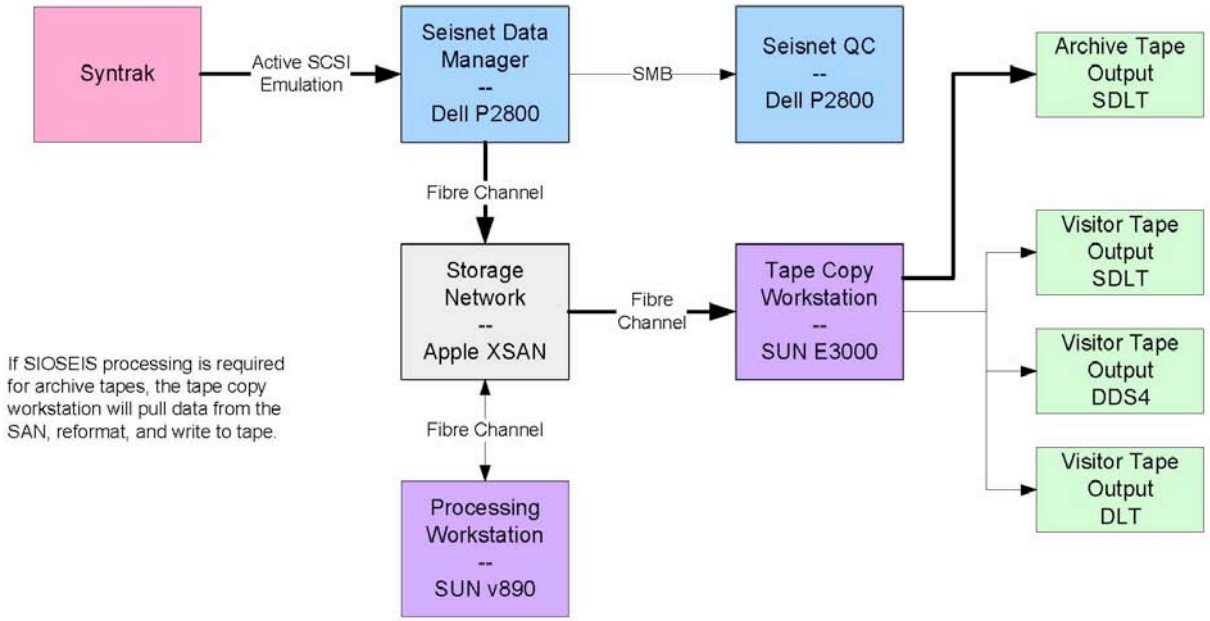
Archive Media / Seismic Process Flow



No 3590E for normal operations

RV Langseth Seismic Data Flow – Archive Data Scenario 2

Feb 20, 2007
Anthony Johnson
ajohnson@ldeo.columbia.edu



No 3590E for normal operations

RV Langseth Seismic Data Flow – Seisnet Failure Scenario

Feb 20, 2007
Anthony Johnson
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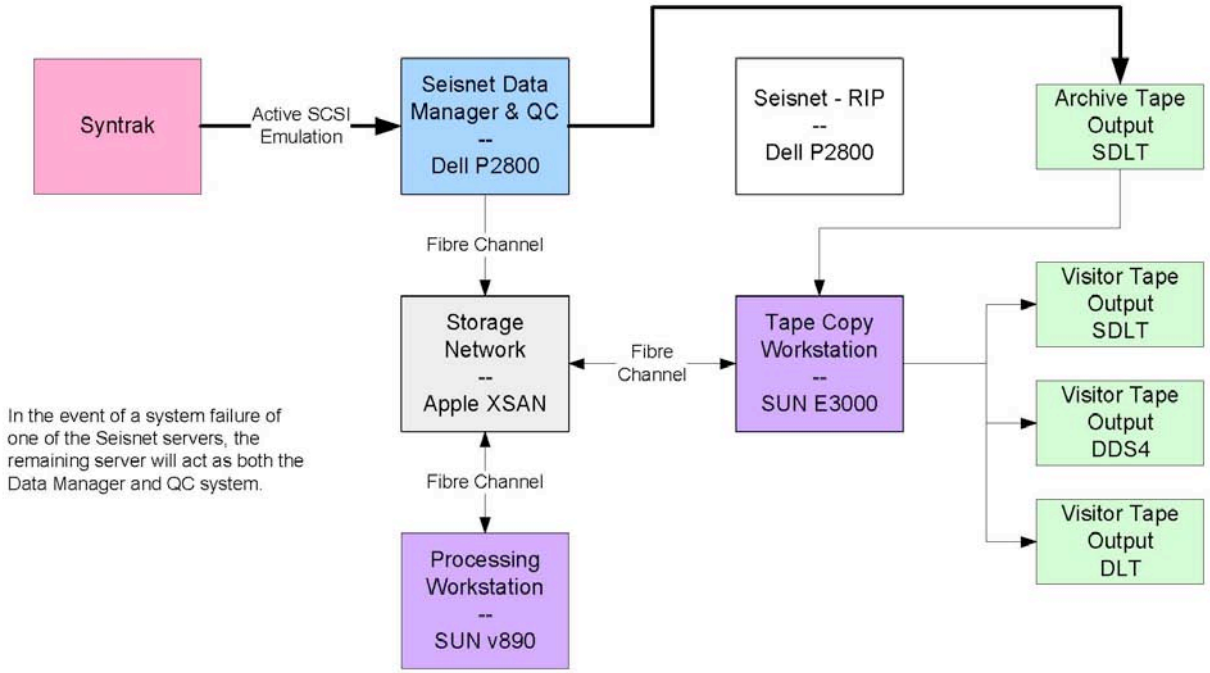
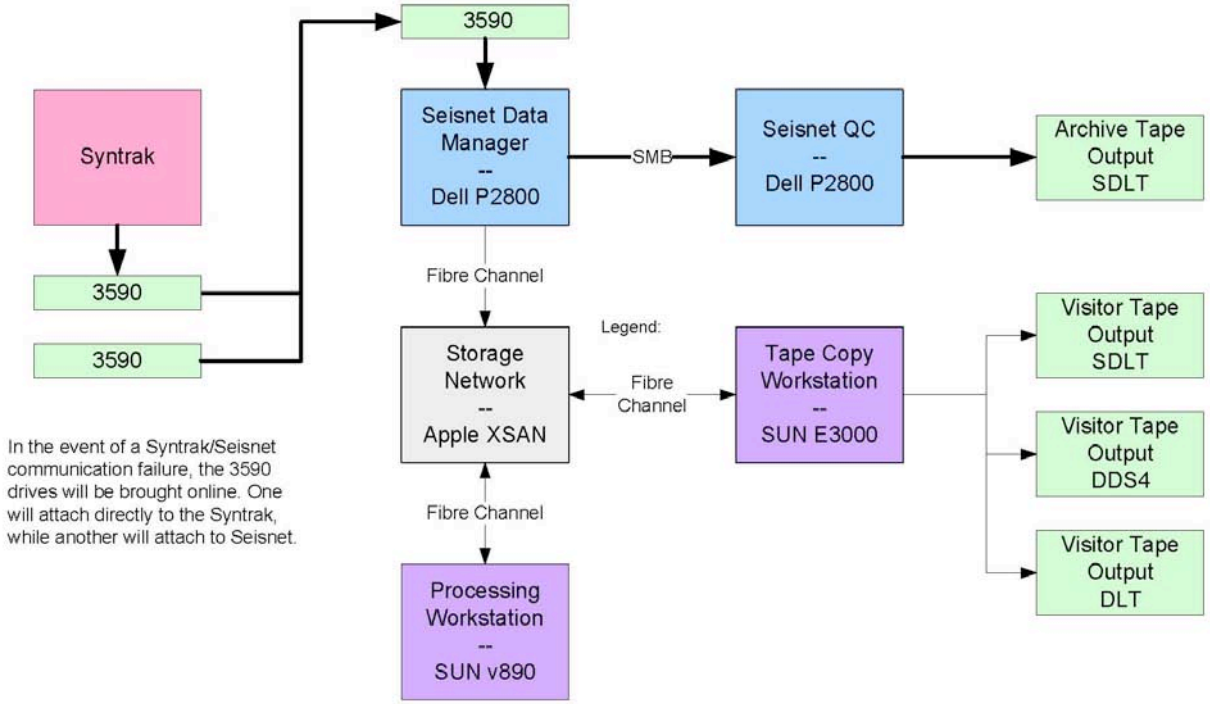


In the event of a system failure of one of the Seisnet servers, the remaining server will act as both the Data Manager and QC system.

Would use Syntrak QC for additional QC – otherwise spares

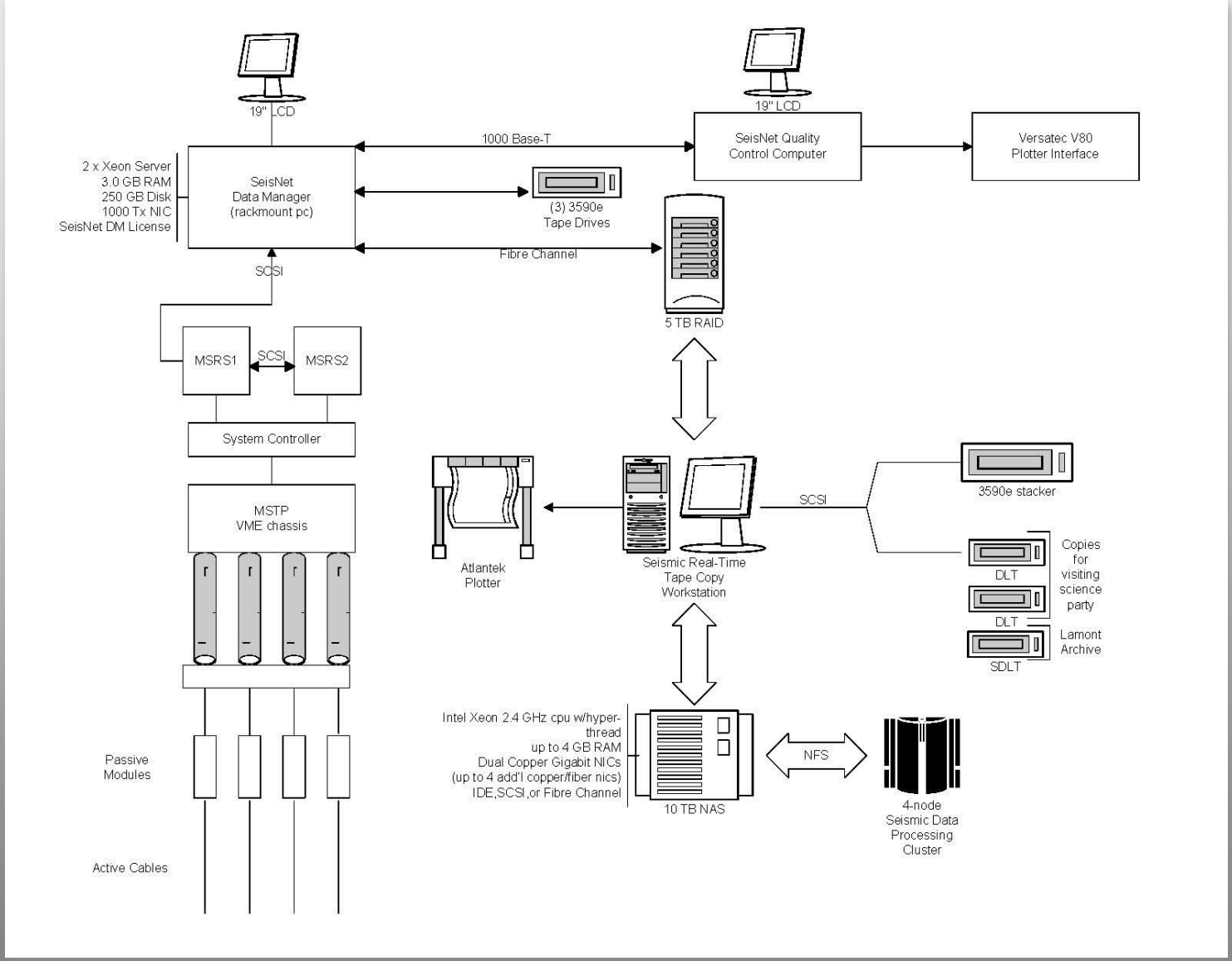
RV Langseth Seismic Data Flow – Syntrak/Seisnet Comms Failure Scenario

Feb 20, 2007
Anthony Johnson
ajohnson@ldeo.columbia.edu



In the event of a Syntrak/Seisnet communication failure, the 3590 drives will be brought online. One will attach directly to the Syntrak, while another will attach to Seisnet.

Would use Syntrak QC for additional QC – otherwise spares



Original plan with 3590Es as archive

Seisnet
-QC
-Stacks

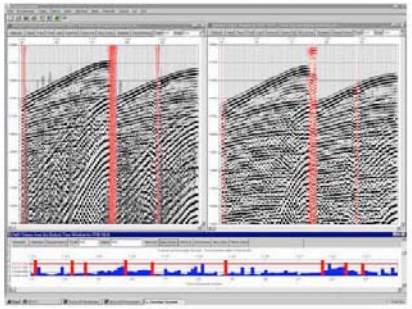
SeisNet™

Direct to Disk Recording & Real-time Seismic data Quality Assurance

Featuring:

- **Data Capture** - Tape Drive Emulation
- **Universal recording system compatibility**
- **Data display & plotting**
- **QC attribute analysis & display**
- **Tape Copy/Dual Write** with hard disk archive
- **Summing & Correlation capability**
- **SEG-D image to disk recording**
- **Intuitive Graphical User Interface**
- **Window operating system**

Raw/Filtered Data & RMS QC



SeisNet's read after write QC display and plotting capabiltities provides real-time assurance of recording system performance and recorded seismic data quality.

Display image GIF files created by SeisNet may be distributed and viewed using the SeisNet QC Viewer utility, providing a convenient cost effective, environment friendly alternative to paper plots.

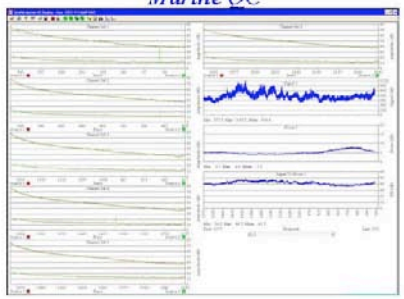
Software Sciences, Inc.
8333 Greenwood Boulevard, Suite 200
Denver, Colorado 80221, USA
Phone: 720-540-0846 Fax: 720-540-0851
Website: www.ssdenver.com

Extensive QC tools

Extensive range of SeisNet's processing modules to achieve optimum quality assurance and management of seismic data.

Compatible with all major recording systems, including Sercel, I/O, Fairfield and Geospace. SeisNet is currently in operation worldwide and is the system of choice for a number of major seismic contractors.

Marine QC



Streamer Signal/Noise attribute display option available.

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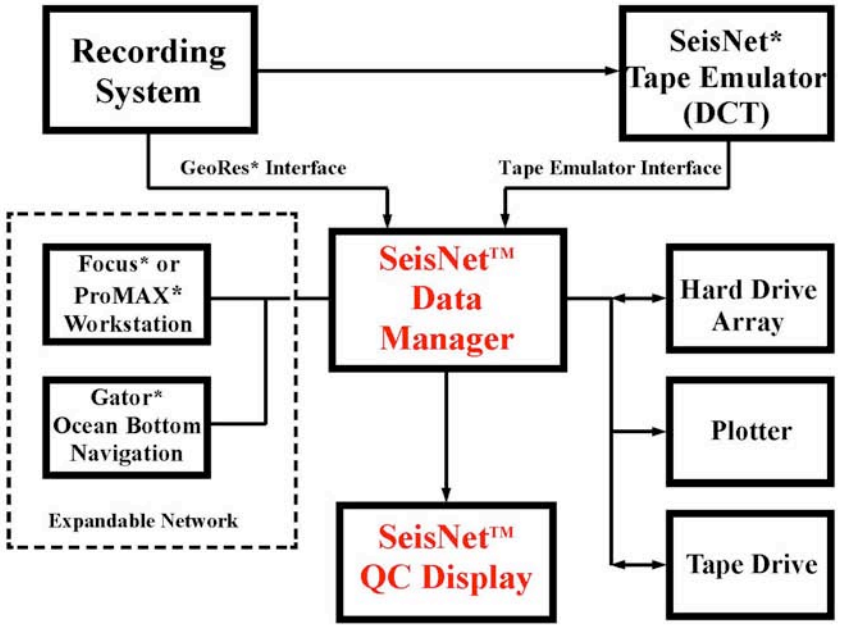

The SeisNet™ System

Capture
Tape Drive Emulator (40 Mbytes/Sec)
Dual write to hot swap hard drives or RAID option.

Processing
Shot Record Display + Filtering
Amplitude & Spectrum Attributes
Single Trace Gather
Marine QC Attribute Database
Read After Write Tape Verify
Summing + Correlation
Dynamic First Break Picking
4 Component Sensor Support
Tape Drive Emulator to Hard Disk
SPS Merge

*Focus is a trademark of Paradigm Geophysical
*GeoRes is a trademark of Geospace Inc.
*Gator is a trademark of Concept Systems Ltd.
*ProMAX is a trademark of Landmark Graphics Corp.
*SeisNet is a trademark of Software Sciences Inc.

Plotting
V80 Compatible, OYO 812/622/624, DFM480, HP LaserJet, Isys V12/24

Tape Copy/Dual Write
3480/3490/3590, DLT, LTO, 4mm & 8mm + Hard Disk Archive

System Compatibility
Compatible with all major recording systems including: Sercel 388/408/428/ SEAL/Syntrak, I/O 2/Image/MSX, Fair-field BOX & Geospace DAS/GeoRes, ARAM-Aires.

Software
Windows operating system

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Software Sciences, Inc.

Seismic Processing

HERE IS WHAT I THINK IS REALISTIC UNDER OPTIMAL CIRCUMSTACES TO APPLY TO DATA ONBOARD

Please note that analysis of data for many of the processes applied could involve only the desk top computer but that the application of the process to the full data set involves the cluster.

1. READ AND REFORMAT FIELD DATA

   Little CPU needed; large data I/O; requires significant analyst time.

2. GEOMETRY

   Little CPU needed; no data I/O; requires significant analyst time and QC (quality control=human involvement); here, it is assumed that the true source and receiver coordinates are calculated onboard the research vessel and are provided to the scientist in UKOOA P1 format.

3. BANDPASS FILTER (involves cluster)

   Applied to remove random noise outside the signal spectrum. Bandpass filtering is a 1D process regardless of the data type (1D, 2D or 3D), requires little CPU, and is repeated at various points in the processing flow. Large data I/O. Little QC.

4. SPARSE VELOCITY ANALYSIS (CONSTANT VELOCITY STACKS FOR CRYSTALLINE CRUST AND LAYER 2A; VELOCITY SPECTRUMS FOR SEDIMENTS) (involves cluster)

   Moderate CPU required to produce constant velocity stacks, velocity spectrums. Data I/O is moderate. Huge analyst time required. Done in order to later apply NMO corrections, which are necessary for aligning the signal before stacking.

5. NORMAL MOVEOUT CORRECTION AND STRETCH MUTE (cluster involvement)

   Needs some CPU; large data I/O; moderate QC. Stretch mute removes overly stretched data.

6. CMP SORT (involves cluster)

   Little CPU needed; large data I/O; little QC. Sorts the data traces to common midpoint gathers or common midpoint bin gathers.

7. CMP MUTE (involves cluster)

Little CPU required. Large data I/O; little QC. Removes top parts of the recordings that cannot be properly stacked.

8. AGC (involves cluster)

   Also a 1D process requiring little CPU; large data I/O; some QC. Balances all amplitudes.

9. STACK (involves cluster)

   Little CPU needed; large data input, some QC. Average data traces in each CMP gather along constant time horizons.

10. POSTSTACK TIME MIGRATION (involves cluster)

    Requires little to moderate amount of CPU; small amount of I/O; high QC. Done to collapse diffractions and position recorded reflections events to their true subsurface locations.