Network-Enabled Platforms (NEP-2) Program
Progress Report – Feb 28, 2010.

Project NEP54: Open Orchestra
Appendix 2: Plan for Use of Digital Libraries

Digital Orchestration Plan

In addition to playing with the live orchestra recording, Open Orchestra users will also be able to perform with an orchestra of synthetic instruments. The hired composer, digital orchestrator, is preparing scores of symphonic music performed by **Synth Orchestra**. The advantages of using synthetic orchestras are many: lower cost, more expanded library of scores, easy change of tempo and pitch, upgrade to new instrument libraries.

The Performance Method

The original print of an orchestral score is converted to MIDI (Musical Instrument Digital Interface), either by hand or through automatic character recognition software interpretation of a scan. The quality and speed of the available automatic conversion systems are being tested. MIDI is a standardized specification for music synthesizers that respond to MIDI messages. The preliminary work involves orchestrating the score of The Nutcracker Suite by Tchaikovsky in MIDI and generating the audio files from using a library of sampled acoustic instruments. The East/West Library has been used so far, and Vienna library is being considered for subsequent projects. A multichannel set of audio files organized in stems (groups of similar instruments or sections) is generated including the solo parts. The quality of the sampled instruments is critical for the sonic outcome of the piece because each note and each articulation or dynamic marking may require a different sample for it to sound authentic. This is why the translation of the printed score to MIDI, which encodes the nuance of the score into performance instructions, is critical and requires the work of a qualified composer and performer. The actual sound library needs to have a wide variety of samples of each note and articulation for all orchestral instruments without reverberation.

As is the case with live orchestra recordings, the Synth Orchestra tracks will also receive panning and auditory perspective in post-production using the virtual ambience processing.

The Synth Orchestra performance will be recorded at different tempos and the files will be available on the server providing options for players with different skill level.

The conductor image is not available in Synth Orchestra, therefore tests will be carried out on adding the conductor image and gesture in video post-production.

The Use
The Synth Orchestra is used in prototyping the audio capabilities of the Open Orchestra system and pilot testing the mixer, monitor, and presets. This pilot project contains 3 categories of MIDI data: Upper Winds, Lower Winds+brass+Percussion and Strings. Each grouping can be used separately or layered together for full orchestra. Each has their designated audio recordings.

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