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GRENDL: Grid Enabled Deployment for Laptop Orchestras

(Source: George Tech Center for Music Technology)

Laptop Orchestras (LOs) have become a very popular mode of musical expression. They engage groups of performers to use ordinary laptop computers as instruments and sound sources in the performance of music composed with piece-specific software. Perhaps the biggest challenge for LOs is the distribution, management and control of this software across heterogeneous collections of networked computers. Software should be stored and distributed from a central repository, but launched on individual laptops immediately before the performance. The GRENDL project addresses the challenges of software distribution and control through an integrated system that deploys, manages, and controls the specific technologies needed for the performance of music for laptop orchestras. It leverages proven grid computing frameworks and approaches the Laptop Orchestra as a distributed grid computing platform for interactive computer music. This allows us to readily distribute software to each laptop in the orchestra depending on the laptop's internal configuration, its role in the composition, and the player assigned to that computer. Using the Simple API for Grid Applications (SAGA) framework, GRENDL is able to run pre-distribution scripts on a master computer, distribute software to client computers, launch post-distribution scripts on the master computer and launch application scripts on client computers that in turn manage application environments for each composition. GRENDL behaves much like a music librarian for laptop orchestras, managing which machine gets which software for each piece and performance.

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