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## Subtlenoise: reducing cognitive load when monitoring distributed computing operations

The operation of distributed computing systems requires comprehensive monitoring to ensure reliability and robustness. There are two components found in most monitoring systems: one being visually rich time-series graphs and another being notification systems for alerting operators under certain pre-defined conditions. In this paper the sonification of monitoring messages is explored using an architecture which fits easily within existing infrastructures based on mature opensource technologies such as ZeroMQ, Logstash, and Supercollider (a synth engine). Message attributes are mapped onto audio attributes based on broad classification of the message (continuous or discrete metrics) but keeping the audio stream subtle in nature. The benefits of audio-rendering are described in the context of distributed computing operations and may provide a less intrusive way to understand the operational health of these systems.

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