The WFS system at La Casa del Suono, Parma - *Fons Adriaensen*

At the start of 2009 a 189-channel Wave Field Synthesis system was installed at the Casa del Suono in Parma, Italy. All audio and control processing required to run the system is performed by four Linux machines. The software used is a mix of standard Linux audio applications and some new ones developed specially for this installation. This paper discusses the main technical issues involved, including sections on the audio hardware, the digital signal processing algorithms, and the software used to control and manage the system.

Pro Audio is Easy, Consumer Audio is Hard - *Lennart Poettering*

Audio Production and consumer audio share a lot of infrastructure -- however there are a number of major differences. While for audio production environments reliable low latencies are key, dynamic reconfigurable routing unimportant and power management irrelevant, for consumer audio (i.e. desktop and mobile), latencies and routing must be dynamically reconfigurable and power consumption minimized. This has the effect that a good consumer audio stack must adjust much more dynamically, flexibly and seamlessly to its current workload than a pro audio stack. Buffer sizes/latencies (up to 2s!) must be changed dynamically, the whole audio pipeline must be able to "rewind" its playback position if needed so that long buffers do not result in slow reaction to user input, and unreliable clients with different latency requirements must be handled at the same time. This makes it necessary to leave the limited domain of the sound card clock and schedule audio with the system clock, which of course adds major complexities due to the required estimation of deviation.

Hence one can argue that while an idealized pro audio stack could be modelled as a set of one-way fixed-speed FIFO buffers, a consumer audio stack needs to be modelled as buffers that can be rewound, dynamically changed in size and run with varying speeds, in addition to many other additional complexities.

In this talk I hope to explain a little how the consumer audio stack works, how it is different from the pro audio stack, where the complexities are, where we can share technology, where we cannot, where we should, and where we shouldn't.

Of course, the title of this talk is a bit exaggerated to catch your attention. However, there's some truth to it, and in this talk you might hopefully learn why I believe that.

Lennart Poettering works for Red Hat's desktop group and is to blame ;-) for stuff like PulseAudio and more.