Three issues with Linux Audio
LAC 2014, ZKM Karlsruhe

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1. What's wrong with our community?
2. Thoughts about professional Linux Audio
3. The future of LAC

About me

Jörn Nettingsmeier, age 38, from Essen, Germany

- freelance audio engineer

- studied music and computer science, saw the light, bailed out of academia after 6 years, got a crafts qualification instead.

- regrets it once every few years, but never for long.

About me

Current occupations include:

- touring with a contemporary dance company
- touring with Rendezvous des Tambours, an inclusive percussion band
- live mixing in a number of local clubs
- sound design and consulting for a large German entertainment group
- a few studio and live recording projects on the side
- studio and theatre infrastructure design + installation
- tech super for the bi-annual convention of the German audio engineers' association (Tonmeistertagung)

Why Am I here?

I don't know.

My contribution to the corpus of Linux Audio is significantly less than **1k lines of code**.

Why Am I here?

Short term goal: make this keynote sufficiently entertaining so that no bored hacker in the last row writes more than that while it lasts.

Because of artistic achievements?

In a seminal contribution to rock music history in the early 2000s, I have provided irrefutable proof that you **can** play "Smoke on the Water" on a glockenspiel.

Photo (and glockenspiel) courtesy of Frank Neumann

Because of artistic achievements?

In a seminal contribution to rock music history in the early 2000s, I have provided irrefutable proof that you *can* play "Smoke on the Water" on a glockenspiel.

And yes, I regret to concede that it is indeed a Pokémon t-shirt.

Photo (and glockenspiel) courtesy of Frank Neumann

Because of artistic achievements?

Not sure that qualifies.

The only explanation I can think of:

Photo (and glockenspiel)
courtesy of Frank Neumann

Because I've always been here.

Introduced to the LAD crowd by none other than his Daveness around 1997, I was running the lists a few years later and happily joined Frank N.'s effort to put together a booth at the Linuxtag trade show – the first F2F in Linux audio history.

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Chatting with Werner Schweer (author of Muse/Musescore) at LinuxTag 2001.

photo courtesy of Frank Neumann

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Way back when mobile computing separated the the men from the boys:

Yours truly with a dual 350 MHz Pentium II bigtower (and personal items for a week) on the way to the LinuxTag booth.

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Way back when mobile computing separated the the men from the boys:

Yours truly with a dual 350 MHz Pentium II bigtower (and personal items for a week) on the way to the LinuxTag booth.

Needless to say, a "bring-your-own-towel" operation.
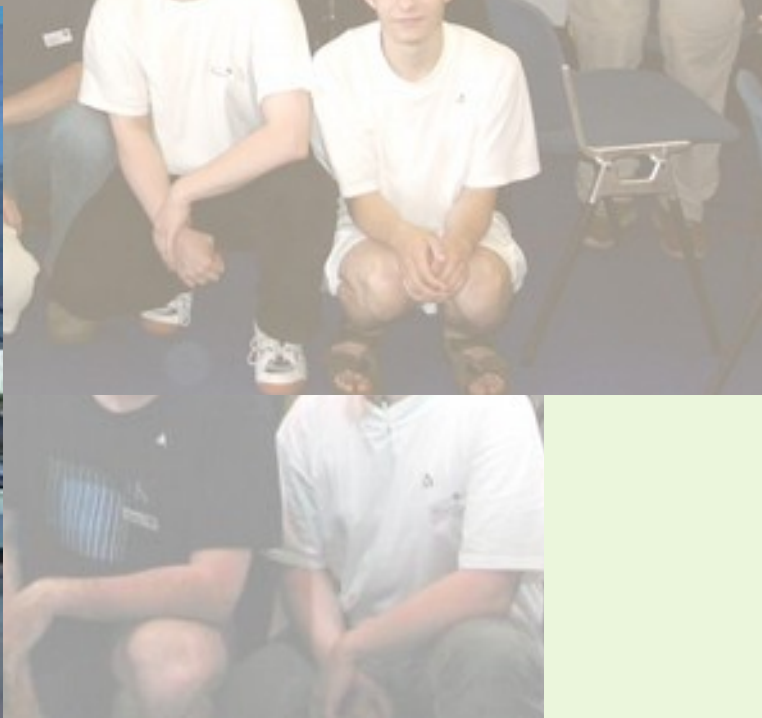
photo courtesy of Frank Neumann

Because I've always been here.

2002 Stuttgart

Becaus

2003 Karlsruhe

Becaus

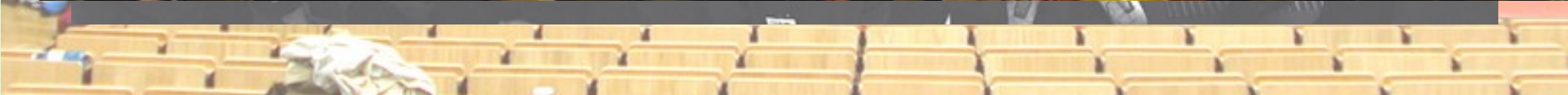*2003 ZKM*

Becaus

2004 ZKM

2005 ZKM

2006 ZKM

2007 TU Berlin

2008 KHM Köln

2009 CdM Parma

2010 HK Utrecht

2011 NUI Maynooth

2012 CCRMA Stanford

2013 IEM Graz

Photo credits:

- 2001 Frank Neumann
- 2002 Frank Neumann
- 2003 Frank Neumann
- 2003 Fernando Lopez-Lezcano
- 2004 Frank Neumann
- 2005 Frank Neumann
- 2006 Rui Nuno Capela
- 2007 Folkmar Hein
- 2008 Niels Mlynek
- 2009 Frank Neumann
- 2010 Marc Groenewegen
- 2011 unknown
- 2012 unknown
- 2013 unknown

Three unrelated issues with Linux Audio

1. What's wrong with our community?
2. Thoughts about professional Linux Audio
3. The future of LAC

1. What's wrong with our community?

1. What's wrong with our community?

This just in:

- Recent research indicates that at least 25% of the Earth's population might be female.

- Fringe opinions claim significant inhabited land masses outside of Europe.

1. What's wrong with our community?

If this is true, it has significant repercussions:

- Every _fourth(!)_ member of our community would be female.

- The _majority_ of people here would be from "other continents".

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...ong with our community?

Fuzzy and blue,
that's me, I'm fuzzy and blue.
That's just the way that I grew
— fuzzy and blue.

...ong with our community?

Is "male and European"
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Is "male and European" just the way that we grew?

1. What's wrong with our community?

Is "male and European" just the way that we grew?

If so, that's probably fine. But do we do anything to perpetuate this situation, either unknowingly or, worse, intentionally?

1. What's wrong with our community?

Is "male and European" just the way that we grew?

- What can we do to avoid cultural blunders when dealing with extra-Europeans and non-males?

- Or even with extra-European non-males?

1. What's wrong with our community?

- How can we be more welcoming and inclusive?

- Are there "outreach programs" that can be implemented without making the target demographic bang their collective under-represented head on the table of awkwardness?

1. What's wrong with our community?

As to cultural imbalance (those "other continents" they keep telling us about):

Why not just go there?

Let the LAC set sail and see if it really falls off the rim.

ong with our community?

Ultimately, we may f... ...es to be j... ...and...

orange!

1. What's wrong with our community?

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That will be boring.

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Hint: scripting won't solve this one.

2. Thoughts about Linux Pro Audio

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In the 1960s, SETI co-founder Dr Frank Drake came up with a rather hand-wavey but interesting formula in which he combined the odds of individual factors for intelligent live to evolve in the universe and eventually try to *communicate* with us.

$$N = R_* \, f_P \, n_E \, f_l \, f_i \, f_c \, L$$

2. Thoughts about Linux Pro Audio

On the next slides, I will show you a few "terms" which will make up my "Drake's equation", for reasons that will become apparent shortly.

2. Thoughts about Linux Pro Audio

This slightly long-winded line of reasoning will form the basis of *Heretical Thought No. 1*, namely, that

- a) there may be a peaceful co-existence and mutual synergy between the free software community and vendors of proprietary products based on free software, and that

- b) we can profit from the involvement of said vendors, much as they can profit from free software.

The Allen&Heath
iLive and GLD series
run Linux, and there
is a Linux editor for
the iLive.

The HD Core of every LAWO mc² runs Linux for Routing and Control.

"The Control System controls the functionality of the entire system. It runs on an embedded Linux operating system for speed and increased reliability."

Every Directout product that has an embedded operating system at all, uses Linux.

To the right: a MADI embedder/de-embedder and AES67 Audio over IP bridge.

Below: a 1024x1024 crosspoints MADI routing matrix.

Korg's flagship synthesizers have been based on Linux since the introduction of the OASYS in 2005, up to and including their current model, the KRONOS.

[OT] MA Lighting have migrated their grandMA2 high-end lighting console to Linux from VXWorks.

Yamaha Motif XS/XF keyboard workstations have been running Linux since 2007.

The stagetec Polaris prototype runs Linux, as does the Audio core of the Triagon console:

"All control functions run under Linux, the fastest and most reliable system for these kinds of operations."
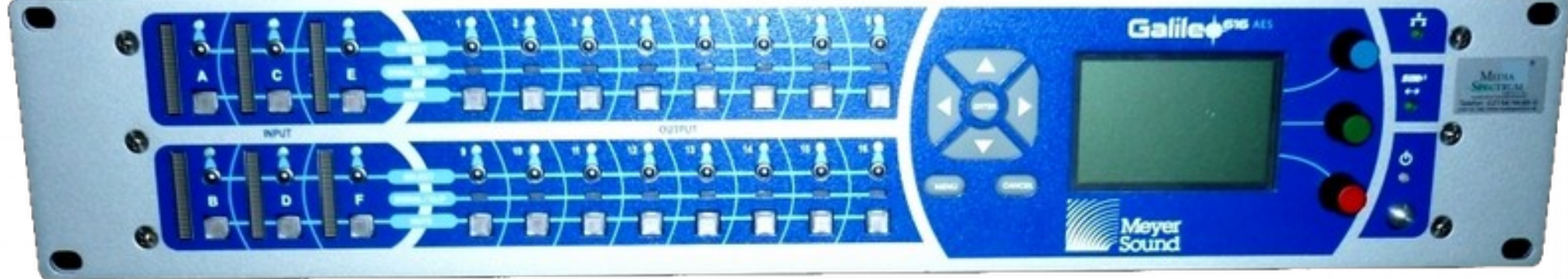
Meyer Sound, member of the Linux Foundation, use Linux in their Galileo and D-Mitri DSP loudspeaker controllers.
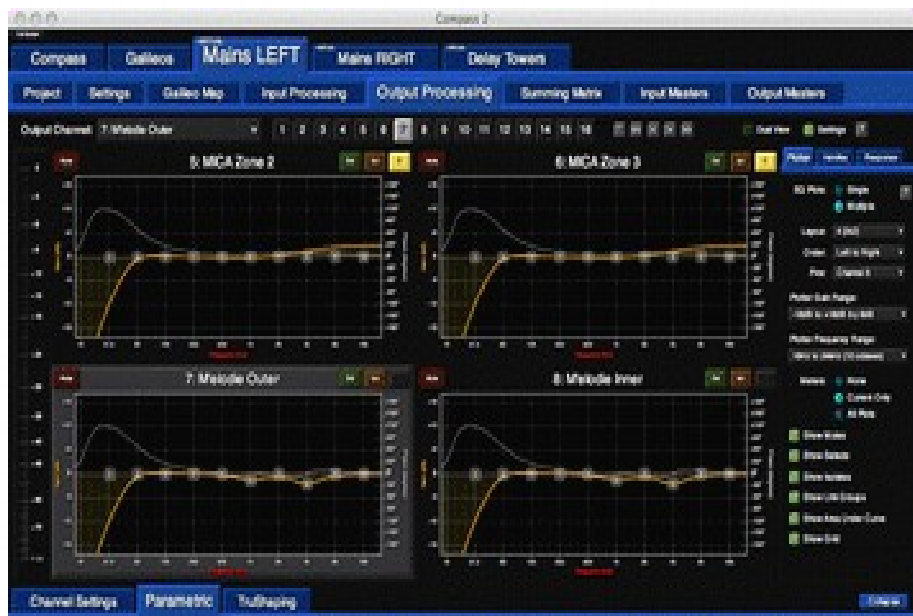
Harrison's operating system of choice on all their digital equipment is Linux.

They are contributing to Ardour development and maintain a commercial spin-off of Ardour2 called Mixbus, which makes Ardour technology available to Linux, Mac OS X, and Windows users.

The Xdubber is a hardware dubbing system running an embedded Ardour2.

Midas' top-end digital consoles have been running Linux since 2006, and do so to this day.

"Proven, stable, Linux operating system."

Behringer continues in a Linux-friendly stance with a native editor for the entry-level X32 console.

2. Thoughts about Linux Pro Audio

All these vendors and their top-of-the-line products are certainly relevant factors in the market, and indicators for the adoption of Linux as a solid foundation for professional audio.

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Which leads us directly to the most famous corollary of the Drake equation, namely

Fermi's paradox,

usually put in a nutshell as:

2. Thoughts about Linux Pro Audio

WHERE IS EVERYBODY?

2. Thoughts about Linux Pro Audio

WHERE THE F*$& IS EVERYBODY?

2. Thoughts about Linux Pro Audio

Allow me to state Heretical Thought No. 1 more precisely:

Does it always have to be "free software" and "open hardware"?

Mostly, my answer is "yes, of course".

But I really want to see those commercial vendors here, for two reasons:

2. Thoughts about Linux Pro Audio

- I want to learn what *they* like about Linux (audio) as a platform, and what problems they have.

- And I want *them* to be in touch with the free software community, to ensure compliance, respect for open source licenses, and to learn that sometimes, cooperation and sharing of knowledge (and code) is a good and productive thing that can make good business sense.

2. Thoughts about Linux Pro Audio

The downside of being an audio professional is that you have to use proprietary gear, and play by corporate rules most of the time.

Getting more of the open source spirit out into the pro audio world would make that aspect of my job suck a lot less.

2. Thoughts about Linux Pro Audio

I don't think we should pester everybody to open up all their code, which might not be the best option for all people at all times. But I'd like to make companies understand that maybe they don't have to play the cards so close to their chests, all the time.

2. Thoughts about Linux Pro Audio

- I want to be able to call Meyer Sound and say, guys, how about opening up the D-Mitri framework enough so that I can upload some custom DSP code, and them being in a position to actually consider that a possibility. Even if they ultimately decline.

  Right now, chances are they won't understand the question.

2. Thoughts about Linux Pro Audio

- I want to be able to call LAWO and ask them what would be involved for me to plug my own custom panners into an mc² 96 and render to higher-order Ambisonic B-format.

  Likewise, for them to understand the question and seriously consider it would make me happy already.

2. Thoughts about Linux Pro Audio

- I want to be able to ssh into a Directout MADI router and take a walk through its file system.

  Oh wait, you can already do that if you ask Flo for the password nicely :)

2. Thoughts about Linux Pro Audio

- Allen & Heath provide very good MIDI and TCP/IP implementation charts.

- Behringer documents the OSC interface of the X32 and provides Linux editing software right from the start.

  These are ways of making closed devices more hackable, and ultimately more useful. And it does not interfere with old-school proprietary productization at all.

  Who knows, they just might let us implement a DMX fader layer next, if there's a few kB left in their firmware. And why not LV2 plugins? One can dream.

2. Thoughts about Linux Pro Audio

Some companies are already very good at listening to their users.

Being in touch with the free software community is just another aspect of listening to prospective users.

Companies may find those users can solve some of your problems, and provide excellent bug reports and feedback. If you send your prototyping engineers to LAC, who knows, they might learn a new trick or three. In turn, we have their ears over pizza and beer.

And then, just maybe, come next spring, we won't have to boot into Windows anymore to access that one recalcitrant hardware editor that never worked in WINE.

3. The future of the Linux Audio conference

3. The future of the Linux Audio conference

Back at ZKM, thanks guys for your long-term support and dedication!

We've gone full-circle after the first 13 years of in-real-life Linux audio meetings – let's talk about where we want to take this in the future.

3. The future of the Linux Audio conference

Warning: I enjoy playing the Devil's advocate, and if there was going to be only one Heretical Thought, I wouldn't have bothered to number it, a few slides back.

3. The future of the Linux Audio conference

- Is there one?

- Do we still need this conference?

- Are we sure we really mean

    - **"Linux"** (or GNU/Linux),

    - **"Audio"**, and

    - **"Conference"**,

  or could it be

    - **"Free Software"**,

    - **"Multimedia"**, and

    - **"Hackfest"**?

3. The future of the Linux Audio conference

3.1 Linux?

Does it have to be Linux-centric?

- Linux dominates the free software market by a huge margin.

- But why not be open towards other platforms? They may be doing interesting stuff that we don't see. *BSD, Haiku... (insert obvious Hurd joke here)

- A lot of the software we create is used on other (proprietary) systems today, and vice versa, some interesting free software is created on those systems.

3. The future of the Linux Audio conference

3.1 Linux?

Does it have to be Linux-centric?

- Porting stuff to other platforms helps weed out portability issues, linkage problems, and false assumptions with respect to compiler flags.

- Porting makes code and documentation more robust – which is a benefit for everybody in the long run.

3. The future of the Linux Audio conference

3.2 Audio?

Well, yeah. Of course audio. But we touch so many other fields of media production:

- Why not be more open to video and show control software?

- And: There are many hotshot DSP gurus out there who work in free software and who we never get to know, because they happen to do software-defined radio or smash heavy ions at very close to the speed of light. How do we know their stuff doesn't sound good?

3. The future of the Linux Audio conference

3.2 Audio?

Well, yeah. Of course audio. But we touch so many other fields of media production:

- It's good to keep the focus, and there's no point in competing with Siggraph or other events specialising on visuals. But maybe we chould be more inviting to projects that straddle audio (or signal processing in general) and other fields.

3. The future of the Linux Audio conference

3.2 Audio?

And music?

- We've maintained a wide stylistic horizon over the last years, and that's a good thing. It's great to have lots of cutting-edge electro-acoustic music in the afternoon, and a club gig at night.

- We have workshops dealing with classical and pop productions, interactive soundscapes, distortion techniques, and many other things...

- But: are we maximally cool yet? Or is there stuff we've turned a blind eye on?

Are we too eclectic? Too mainstream? Do we do too much art? Too little? Are we just right?

3. The future of the Linux Audio conference

3.3 Conference?

Are we a real conference? Do we want to be?

- How much of an impact factor does the LAC have?
- Can we attract academics with a reputable publication opportunity?
- Is the scientific quality good enough?
- Or is there already too much academic red tape to frighten off the real movers and shakers of the community?

Should we rather be a hackfest? Or a bunch of pre-organized BOF sessions with an agenda? Or just one huge social event with a fast free WiFi?

3. The future of the Linux Audio conference

3.3 Conference?

Heretical thought No. 2: Does anybody need F2F anymore in a time of social networks, worldwide video conferencing and ubiquitous instant messaging?

Heretical thought No. 3: Are we just creating an excuse for dorks with too much travelling money to hang out and feel snug about themselves, while the real programmers are locked up in basements writing FORTRAN code in any language?

3. The future of the Linux Audio conference

3.4 Developers? Researchers? Users?

Who's our target group?

- Do we want more beginner's tutorials, more installation help, more theoretical papers, more jam sessions, more hackspaces, more development time?

We dropped the "developers" from the conference title a long time ago, for a good reason, but we should re-consider from time to time who we want to address.

3. The future of the Linux Audio conference

3.4 Developers? Researchers? Users?

Waiting for papers and contributions to trickle in randomly has worked for years. Why change?

- Some issues with Linux Audio have needed serious love for years, but nothing ever happens, because they are unsexy, difficult, or simply cannot practically be addressed by any single contributor.

- Sometimes, we take our time picking up hot topics from the outside world, and then struggle to catch up for years.

Heretical thought No. 4: Why not set session topics in advance, and install session chairs to actively acquire contributions to match?
Pretty much all scientific conferences do that.

3. The future of the Linux Audio conference

3.5 Money?

Do we need more funding for LAC?

- Shouldn't we be able to award more key developers free travel to the conference?

- What part of our souls are we prepared to sell for that until money grows on trees again?

- Should we go after sponsors more aggressively?

Heretical thought no. 5: if we each paid 50€ admission fee, we could fly in 2-5 people from overseas, or more than 10 from neighbour countries.

Wouldn't that make a great deal of sense?

3. The future of the Linux Audio conference

3.5 Money?

How about an opt-in voluntary admission fee at registration time, or a pledge to contribute to travelling costs of one developer?

3. The future of the Linux Audio conference

In the past years, the LAC has been shaped and moved around by a very enthusiastic bunch of people.

But there was never much open discussion about where the LAC should be heading.

No doubt we're pretty awesome already, but there is always room (and a need) for new ideas.

3. The future of the Linux Audio conference

The organisers of this year's LAC felt confident that **I** could meaningfully fill a 75 minute slot.

I don't.

So let's use the time to have this discussion now. And with luck, we'll still get an early coffee break.

I'm not kidding myself – keynotes are sort of cool, but coffee breaks are the beating heart of any conference.

Thanks for your patience.

I'm totally curious to learn how
you see the future of the LAC!