



GStreamer
20 Years

Wim Taymans

1 nov 2019 – GStreamer Conference
Lyon, France

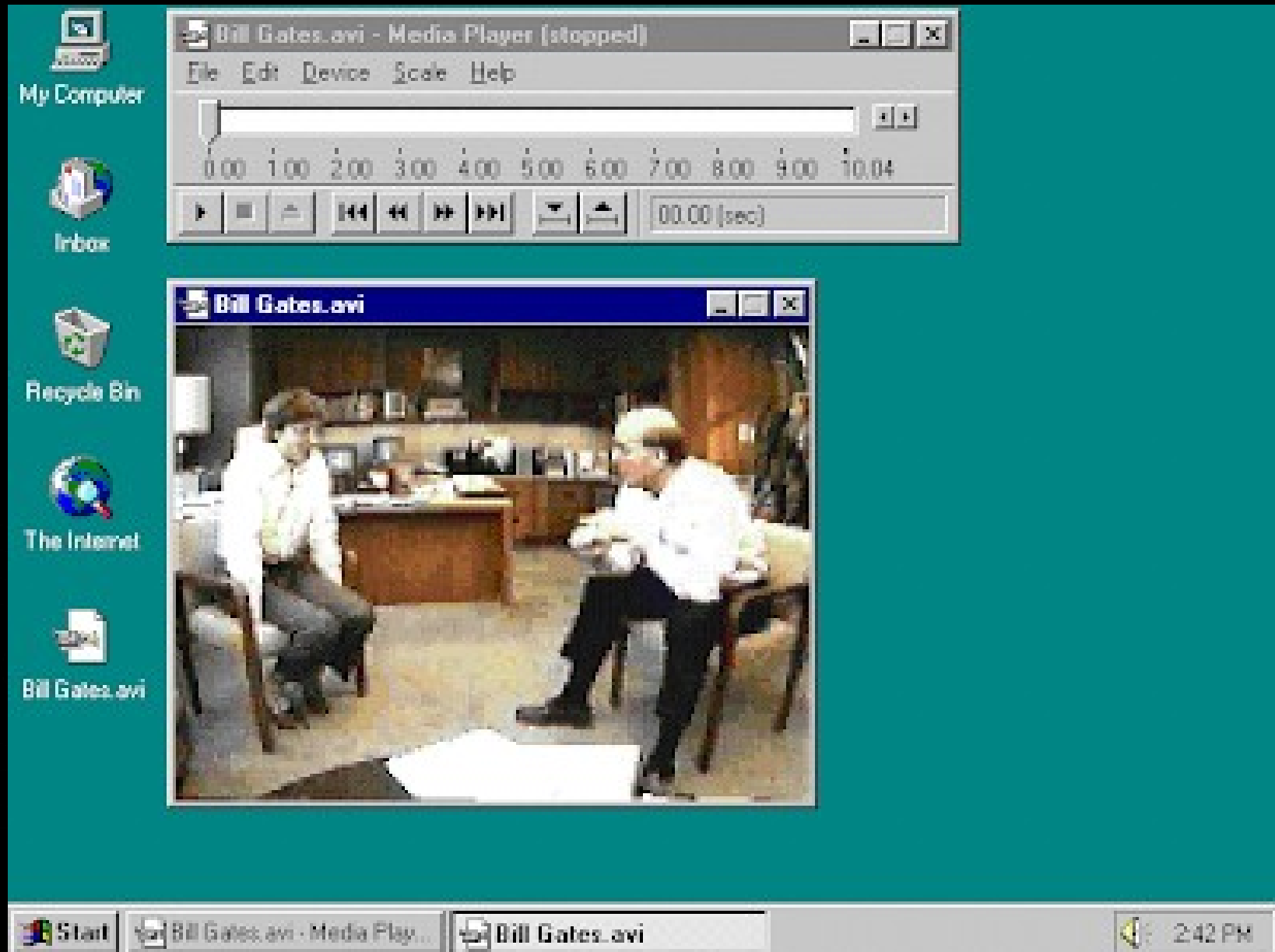


Chapter 1 : Genesis

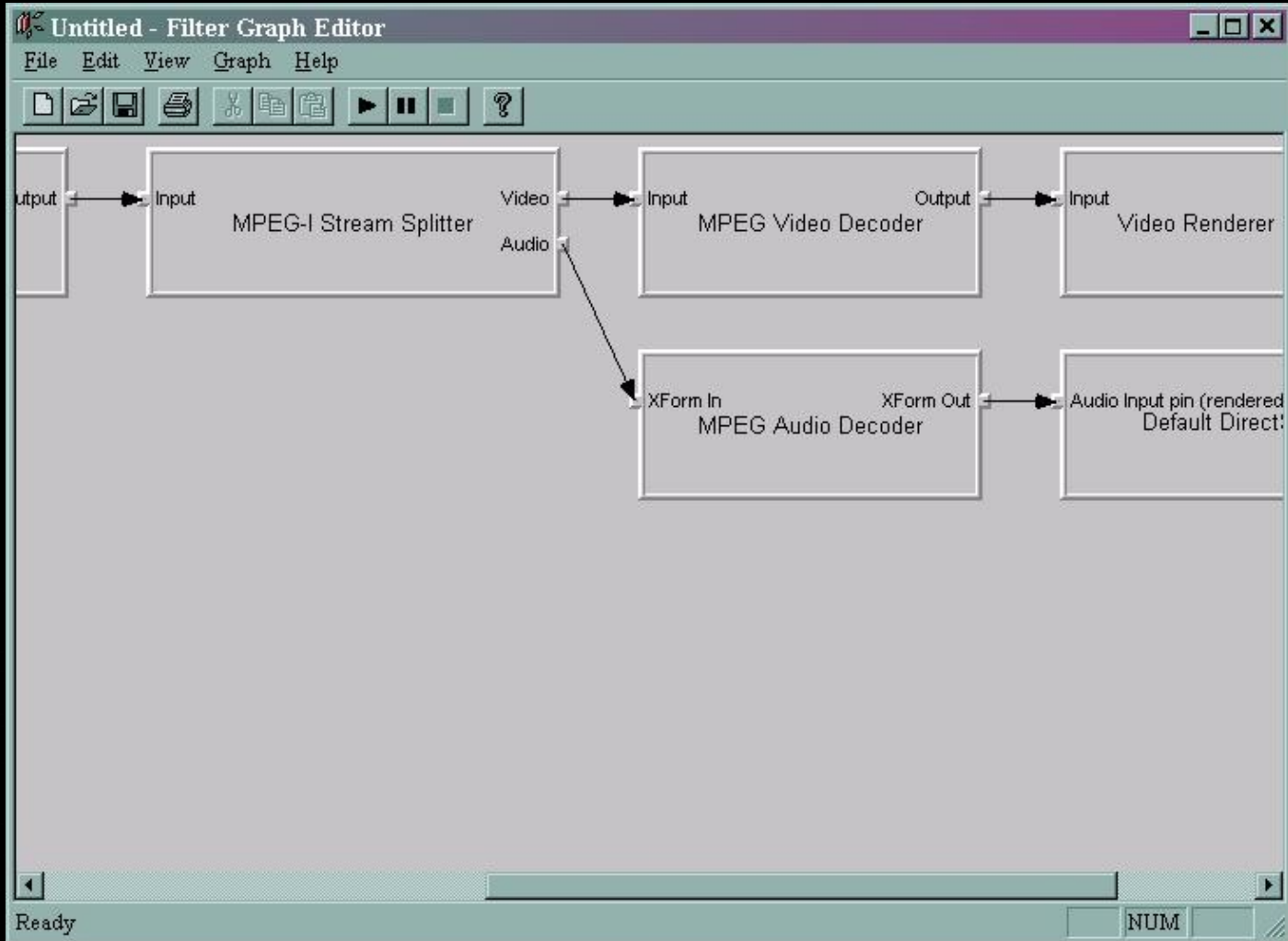


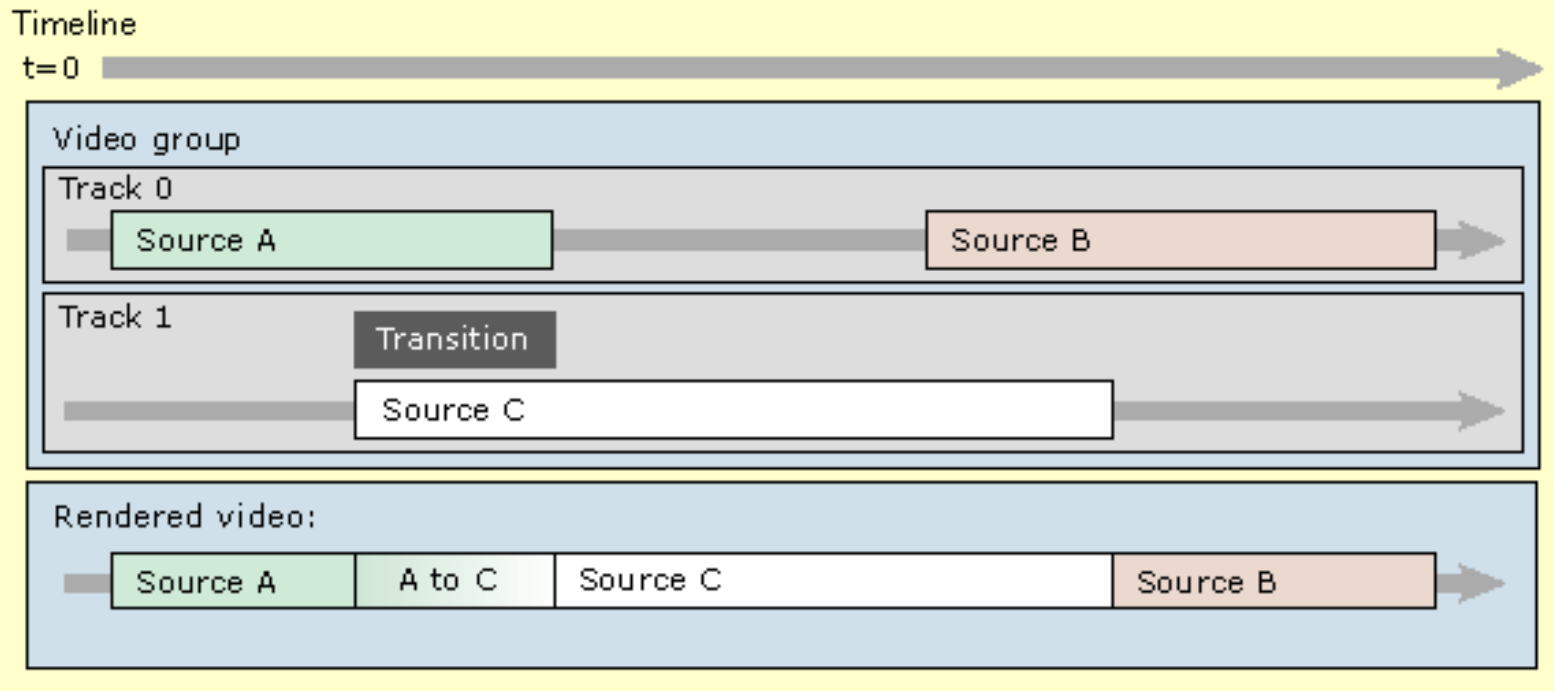
Linux multimedia in 1999 was awful

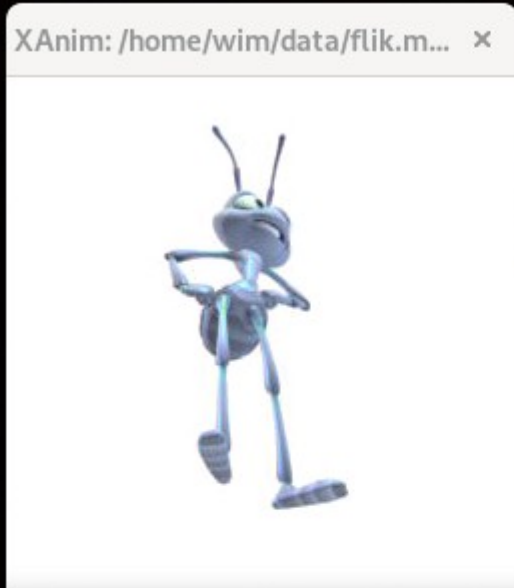












```
wim@wtay:~  
wim ~ xanim /home/wim/data/flik.mov  
XAnim Rev 2.80.0 by Mark Podlipec Copyright (C) 1991-1999. All Rights Reserved
```



```
wim@wtay:~  
wim ~ xanim /home/wim/data/bedroses.mov  
XAnim Rev 2.80.0 by Mark Podlipec Copyright (C) 1991-1999. All Rights Reserved  
Video Codec: Radius Cinepak not yet supported.(E18)  
To support this Codec please read the file "cinepak.readme".  
Can't Open /dev/dsp device  
Notice: Video and Audio are present, but not yet supported.  
Usage:  
XAnim [options] anim [ [options] anim ... ]  
-h lists some common options, but may be out of date.  
See xanim.readme or the man page for detailed help.  
wim ~
```

Third Generation even worse

- 1991 MPEG1 video (VCD)
- 1992 mp3
- 1994 MPEG2 video (DVD)
- 1995 RealPlayer
- 1998 Sorenson (Apple trailers)
- 1999 MPEG4, napster
- 2000 TrueMotion VP3/4



And then our hero appears...

GScrea..., um, GStreamer 0.0.9 released

- *From:* Erik Walthinsen <omega.cse@ogi.edu>
- *To:* gnome-announce-list@gnome.org, gnome-devel-list@gnome.org
- *Subject:* GScrea..., um, GStreamer 0.0.9 released
- *Date:* Sun, 31 Oct 1999 21:34:34 -0800 (PST)

OK, lame Halloween joke. And it's almost not Halloween anymore. Oh well.

This is the first public release of GStreamer, designed mostly for coders who want to root around in the code. Since most of my plugins aren't in top shape right now, there's not much cool stuff to demo (besides being able to *draw* an MP3 player in 15 seconds and hit Play, if you have a working MP3 decoder plugin that is).

As such, be prepared to have to muck with the build process a bit, it isn't fully polished yet. I'll have a list of errata for 0.0.9 on the



Shortly after we were 3 people



Free Software response

- 1999 aRts
- 2000 mplayer
- 2000 Xine
- 2000 FFMpeg
- 2001 VLC
- 2002 LAD, JACK1



0.1 slipstream (jan 2001)



----- Forwarded Message -----
Subject: Re: GStreamer
Date: Thu, 11 Jan 2001 15:59:28 -0800
From: Charles Samuels <charles_at_kde.org>
To: kde-multimedia_at_max.tat.physik.uni-tuebingen.de

I'm fairly certain that the GNU/Gnome people are pure evil. Now not only are they FUDing KDE to hell, but they also pretend to go around and help aRts "in the hope that gnome will use it too", but then they go off the GStreamer, which can't be nearly of the quality of aRts.

-Charles

On Thursday 11 January 2001 08:52 am, Neil Stevens wrote:

> <http://news.gnome.org/gnome-news/979174768/>

>

> --

>

> *GStreamer "Slipstream" 0.1.0 is a streaming-media framework which allows*
> *developers to construct arbitrary graph of filters to process media in*
> *just about any way you can think of. A long list of cool features and a*
> *huge (and growing) selection of plugins makes it able to play anything*
> *from mp3 files to DVD and DivX ;-) movies, out of the box.*



We were noticed



Chapter 2 : Into the world

G*STREAMER*



G*STREAMER*



G*STREAMER*





We got to meet our competition





Chapter 3 : Growing frustrations



[gst-devel] Sad day in GStreamer development

Erik Walthinsen [omega at temple-baptist.com](mailto:omega@temple-baptist.com)

Fri Sep 28 21:48:01 CEST 2001

- Previous message: [\[gst-devel\] bye, but see you soon](#)
- Next message: [\[gst-devel\] Sad day in GStreamer development](#)
- **Messages sorted by:** [\[date \]](#) [\[thread \]](#) [\[subject \]](#) [\[author \]](#)

This evening, after significant discussion between myself and vishnu, he has decided that he wishes to fork GStreamer.

For the past month, vishnu (Joshua Pritikin) has been doing significant work on GStreamer, the *vast* majority of it very good stuff. Recently there have been a few incidents of commits being made to CVS without any prior discussion, several of which were counter to the already discussed direction GStreamer has been going.

The problem unfortunately boils down to the seeming unwillingness to work within the development model that has built up around GStreamer, which has worked quite well up till now, though perhaps not quite as fast as some have wanted. There are conventions that we follow, including sending RFCs (request for comments) to the list for significant changes, discussing things in IRC before committing, and maintaining general coding style.

I have tried to work with vishnu to resolve these issues, and we appeared to have dealt with them, but in discussing his latest proposed patch, he





GNOME 2.0 (june 2002)

- Gstreamer 0.4.0 for video



Erik started to lose interest



[gst-devel] Re: rhythmbox: gstreamer vs xine

Bastien Nocera [hadess at hadess.net](mailto:hadess@hadess.net)

Mon Jan 13 02:59:02 CET 2003

- Previous message: [\[gst-devel\] resend ...](#)
- Next message: [\[gst-devel\] Re: rhythmbox: gstreamer vs xine](#)
- **Messages sorted by:** [\[date \]](#) [\[thread \]](#) [\[subject \]](#) [\[author \]](#)

On Sun, 2003-01-12 at 21:03, Jorn Baayen wrote:

```
> Hi,  
>  
> I'm mailing to let you know I have been moving CVS Rhythmbox  
> (monkey-media) to use xine instead of GStreamer. While I prefer the  
> gnomishness of the GStreamer API over xine, GStreamer is still not very  
> stable, and xine just works. Since I would like everyone (including  
> myself *G*) to be able to start seriously using rb I decided to use xine  
> for now.  
> I will however be moving back to gstreamer once it is more usable.  
>  
> Well, I hope y'all will forgive me ;)
```

It's a shame you don't use the GtkXine widget anymore. The issues you had with it could have been easily fixed. And Thomas was interested in porting it to Gst at some point. We could have had 2 apps ported using



0.6.0 in GNOME 2.2 (feb 2003)



Chapter 4 : 'GNOME 2.6 or bust'



0.6.0 branch largely abandoned



gst-player vs Totem (xine)



Wim loses interest (jul 2003)

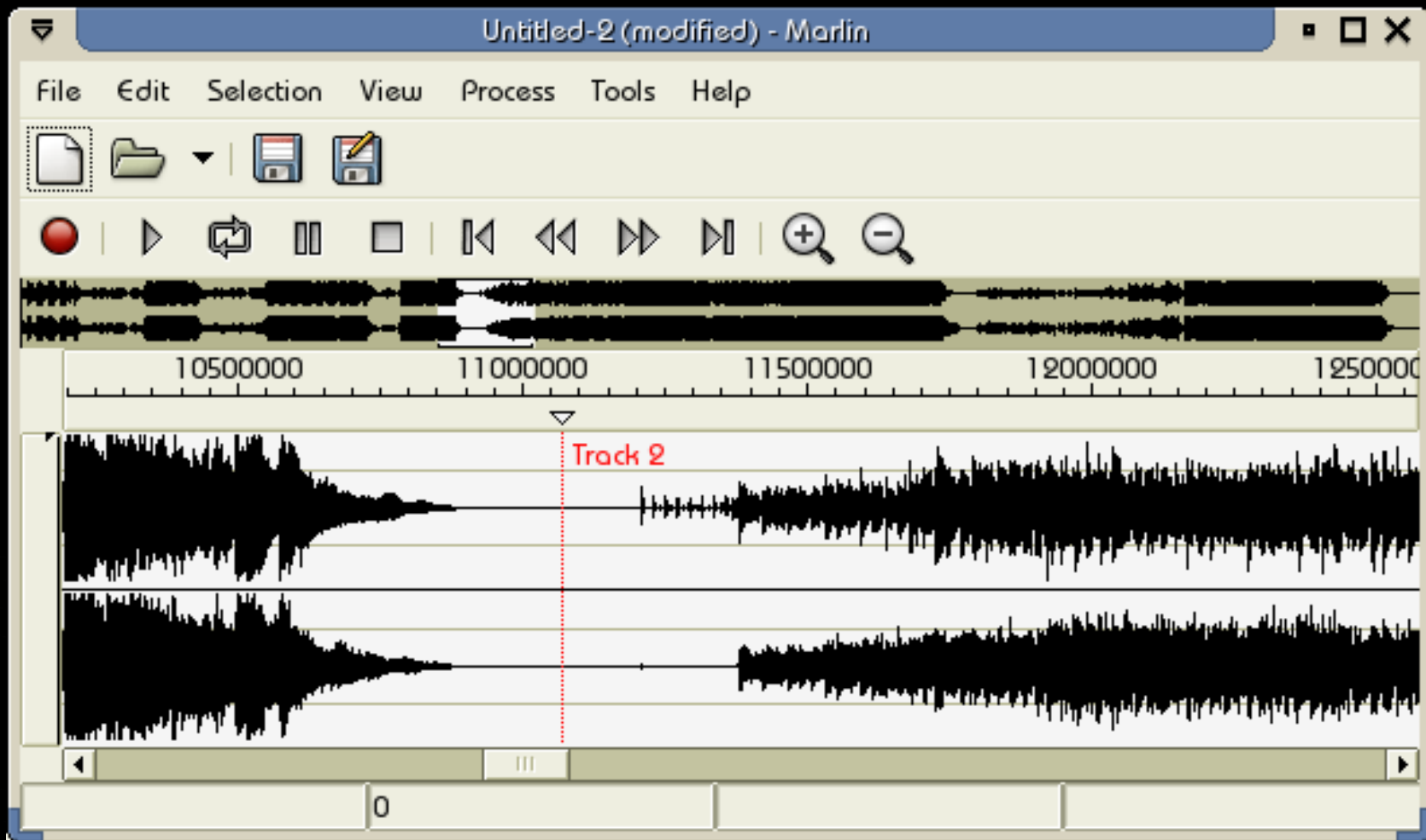


Gnome 2.4 (sep 2003)

- No Totem (gstreamer 0.6.2 doesn't work)



Can we make it work for 2.6? if not...





The pressure was mounting



NMM on the scene (oct 2003)



Helix Player for Gnome investigated (dec
2003)

[gst-devel] GStreamer needs a maintainer

Benjamin Otte [in7y118 at public.uni-hamburg.de](mailto:in7y118@public.uni-hamburg.de)

Mon Dec 15 19:52:03 CET 2003

- Previous message: [\[gst-devel\] Re: \[gst-cvs\].yippi_gstreamer: gstreamer/gst/parse/](#)
- Next message: [\[gst-devel\] GStreamer needs a maintainer](#)
- **Messages sorted by:** [\[date \]](#) [\[thread \]](#) [\[subject \]](#) [\[author \]](#)

... becuse I'm fed up dealing with Thomas and his ideas and arguing every change I do. Especially with someone who doesn't have a clue about anything but build system related things. [1]

I need a definitive instance to decide on things. This "we'll argue for a while about it and then everyone does what he wants" doesn't work.

Benjamin

[1] Yes, that was a flame and as such an exaggeration.



GNOME 2.6 (april 2004)
– With 0.8



Plans for adoption in KDE



[gst-devel] GStreamer in KDE

Scott Wheeler [wheeler at kde.org](mailto:wheeler@kde.org)

Wed Mar 31 14:01:02 CEST 2004

- Previous message: [\[gst-devel\] adder and float](#)
- Next message: [\[gst-devel\] GStreamer in KDE](#)
- Messages sorted by: [\[date \]](#) [\[thread \]](#) [\[subject \]](#) [\[author \]](#)

-----BEGIN PGP SIGNED MESSAGE-----

Hash: SHA1

Hi guys --

There's been really a lot of talk lately about the future of GStreamer in KDE. It's been pretty clear that it's been gaining mindshare in both the KDE community at large and specifically with the multimedia developers.

I'll be working next weekend to update the GStreamer bindings to 0.8, but I think this may not be necessary.

I'd like to propose that GStreamer be ported from glib over to Qt / C++, but keep the name GStreamer. I think this would provide a base that would appease both the GNOME and KDE communities -- by having the name GStreamer and a group of GNOME developers active in its development it would fit comfortably within the ranks of GNOME software, but by using Qt / C++ it would be able to take advantage of the advantages of C++ for object oriented development while working within a stable and comfortable object framework.

Benjamin seems particularly enthusiastic and has already taken the initiative to start by working on kiosrc and seems to be very pleased with the ease of development in a Qt-based framework. I've been helping out and I think within a few days we'll have a pretty good example of the direction that such a port would take us.



Chapter 5 : The rise of consulting



Julien Moutte starts Fluendo (jan 2004)



What now ?

0.9 plans (David/Benjamin) (mar 2004)
- Event/trigger scheduling



Guadec 5 (jun 2004) Kristiansand

TECHNOLOGY

TECHNOLOGY; One Small Step In Uphill Fight As Linux Adds A Media Player

By [Steve Lohr](#)

June 28, 2004



GNU Linux, the free computer operating system, has had far more success in winning converts in corporate data centers than on desktop personal computers. But as more user-friendly software makes its way onto the Linux desktop, the free operating system is starting to make progress in its David-vs.-Goliath competition against Microsoft, the dominant power in PC software.

Another step in the progress of Linux in personal computers will

come today, when two large Linux distributors, Red Hat and Novell, are expected to announce that they will ship the media-playing software of RealNetworks in their Linux desktop products.

RealNetworks, founded by Rob Glaser, a former Microsoft executive, was the early leader in software for playing digital



Fluendo was doing streaming of GUADEC

- In ogg/theora/vorbis
- GStreamer became a force



[gst-devel] Comparison: MAS, GStreamer, NMM

Marco Lohse [mlohse at cs.uni-sb.de](mailto:mlohse@cs.uni-sb.de)

Wed Aug 25 05:50:02 CEST 2004

- Previous message: [\[gst-devel\] Problems with one threaded pipelines?](#)
- Next message: [\[gst-devel\] Comparison: MAS, GStreamer, NMM](#)
- Messages sorted by: [\[date \]](#) [\[thread \]](#) [\[subject \]](#) [\[author \]](#)

Hi there,

from the feedback we got at the KDE conference I think one important thing for KDE multimedia developers (as well as for other multimedia developers) would be to have some comparison between MAS, GStreamer, and NMM.

We would like to start this comparison with a look at two things:



GStreamer summit (feb 2005) Barcelona

- Talk about 0.9
- Threading vs event based scheduling



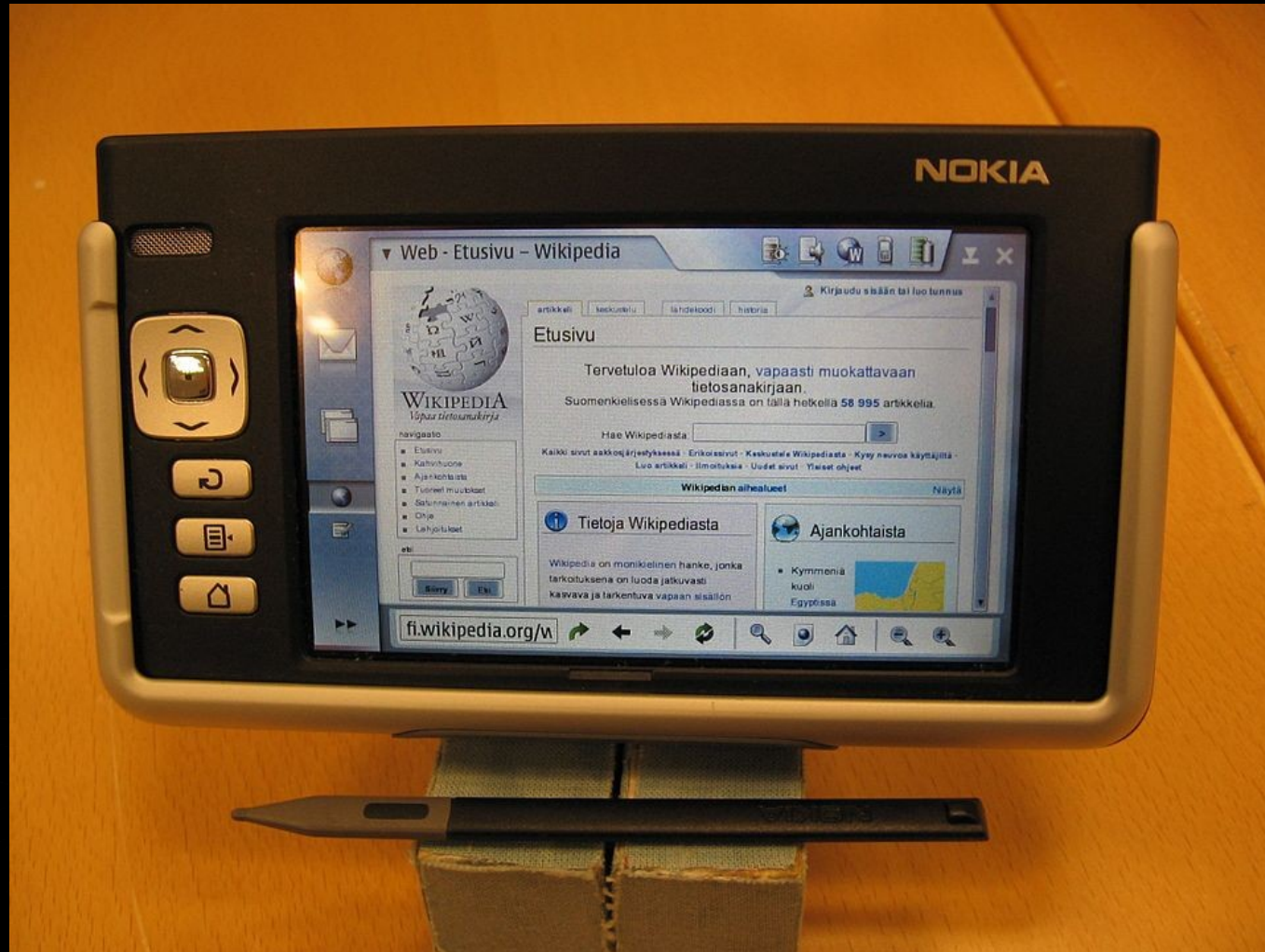
0.9 merging starts (mar 2005)

- Weekly updates
- First release june 2005
- It was so fast... why ?



Nokia

Nokia secretly started funding lots of open source projects in 2004-2005 (also 0.9/0.10)







[gst-devel] GStreamer 0.10 is here!!

Christian Fredrik Kalager Schaller [uraeus at linuxrising.org](mailto:uraeus@linuxrising.org)

Mon Dec 5 10:36:19 CET 2005

- Previous message: [\[gst-devel\] gst-launch, examples gives errors. AVI and MPEG need syntax f](#)
- Next message: [\[gst-devel\] release is out](#)
- Messages sorted by: [\[date \]](#) [\[thread \]](#) [\[subject \]](#) [\[author \]](#)

One and a half year. A large number of developers contributing. High expectations and a lot of pressure. The wait is over, GStreamer 0.10 has arrived! GStreamer 0.10 is a huge step forward for GNU/Linux and Unix multimedia. Power, stability, functionality, deployment, industry support, GStreamer 0.10 has it all. Prepare yourself for the revolution!

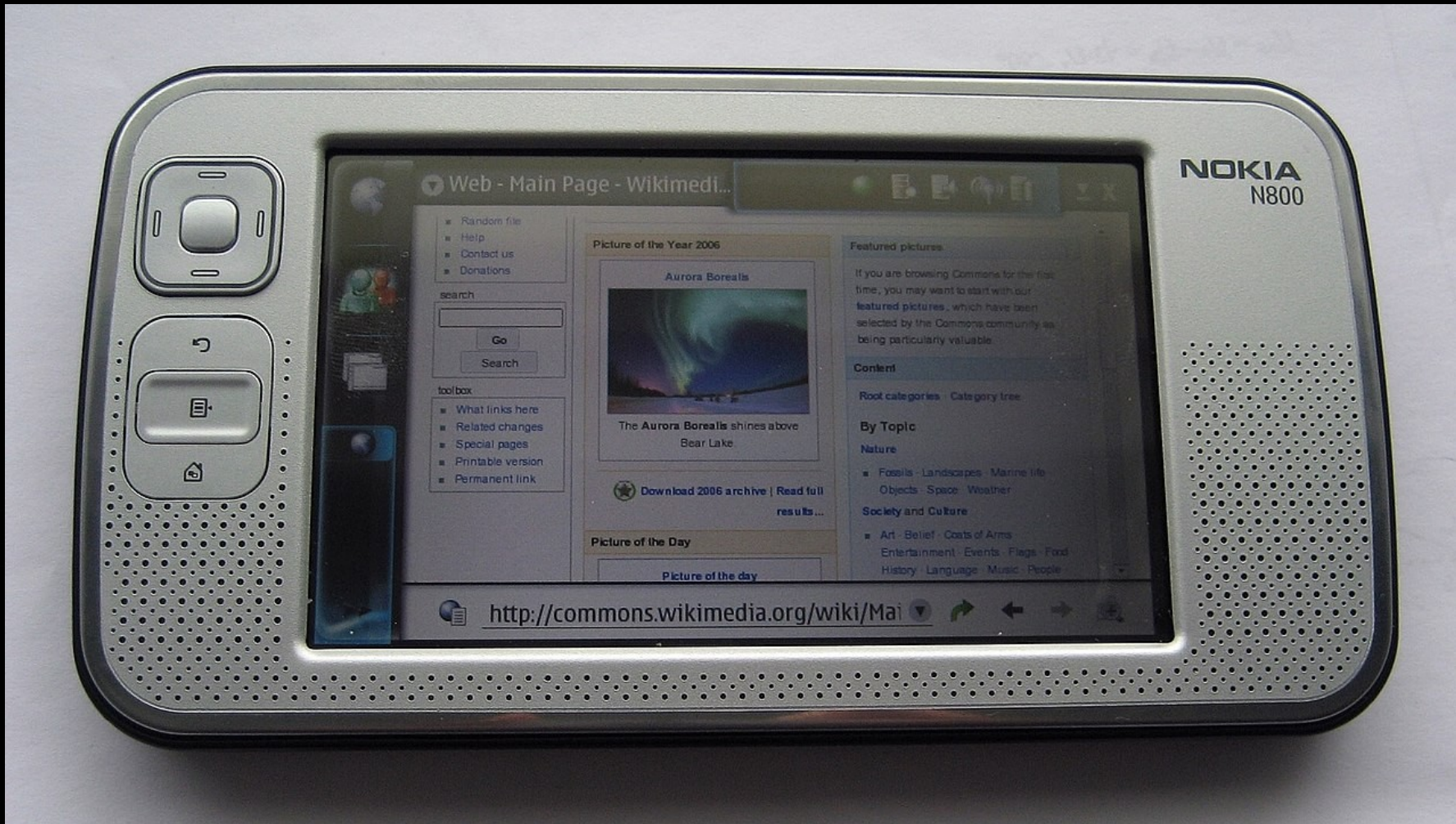
GStreamer is the leading multimedia framework for GNU/Linux and Unix systems and is being used in a wide range of applications such as music and video players, streaming servers, video editors, sound editors and software synthesizers.

GStreamer is a generic multimedia framework based around the concept of media pipelines linking elements, providing support for all manner of things. In GStreamer you'll find plug-ins supporting multimedia file

Phonon vs Gstreamer (may 2006)
- Kde 4.0

GUADEC 7 (jun 2006) Vilanova i la Geltrú







Chapter 6 : Disruptive forces







Continuation of 0.10 design
– Mostly consulting



Battle of the DVCS (aug 2008)
– Git vs bazaar (fdo vs Canonical)

Git conversion (feb 2009)



[gst-devel] 10 years of GStreamer

Thomas Vander Stichele thomas at apestaart.org

Mon Sep 14 12:45:14 CEST 2009

- Previous message: [\[gst-devel\]_problem on freescale gstreamer plugin](#)
- Next message: [\[gst-devel\] 10 years of GStreamer](#)
- **Messages sorted by:** [\[_date \]](#) [\[_thread \]](#) [\[_subject \]](#) [\[_author \]](#)

Marc-André Lureau reminded me that this year we celebrate 10 years of GStreamer. Somehow we both thought the first release was done in October of 2009.

Checking now, it seems that version 0.0.0 was actually released May 13 1999!

So we've already past the ten year mark! Congratulations to all hackers past and present on an arguably successful Free Software project...

Here's to another 10 years!

Thomas



Video Hackfest (nov 2009)

- Propose cairo for video buffers
- The quest for efficient GPU usage
(VDPAU, libva, ..)
- 1.0 plans ?



2010-09-26: First GStreamer conference
in Cambridge

- 1.0 work begins (dec 2010)



Nokia burning platform (feb 2011)

- Panic with contractors
- N950 (jul 2011)



- GNOME 3.0 (april 2011)
 - Desktop fragmentaion, Cinnamon, Mate, Unity, GNOME, Elementary, etc.



Chapter 7 : On to the next version



Gstreamer Summit (oct 2011)
– More features for 1.0



(may 2012)

- Fluendo and Collabora effort
- 0.10
- Awesome docs



RELEASE: GStreamer 1.0.0

Tim-Philipp Müller [t.i.m at zen.co.uk](mailto:t.i.m@zen.co.uk)

Mon Sep 24 09:10:17 PDT 2012

- Previous message: [Trouble with mpegtsdemux/flutsdemux in connection with mad](#)
- Next message: [RELEASE: GStreamer 1.0.0](#)
- Messages sorted by: [\[date \]](#) [\[thread \]](#) [\[subject \]](#) [\[author \]](#)

The GStreamer project is pleased to announce the very first release of the new API and ABI-stable 1.x series of the GStreamer multimedia framework.

The 1.x series is a stable series targeted at end users. It is not API or ABI compatible with the 0.10.x series. It can, however, be installed in parallel with the 0.10.x series and will not affect an existing 0.10.x installation.

Major improvements include: more flexible memory handling; extensible and negotiable metadata for buffers; caps negotiation and renegotiation mechanisms, decoupled from buffer allocation; improved caps renegotiation; automatic re-sending of state for dynamic pipelines; reworked and more fine-grained pad probing; simpler and more descriptive audio and video caps; more efficient allocation of buffers, events and



One year since last update on 0.10

Marc Leeman marc.leeman@gmail.com

Fri Feb 22 03:01:49 PST 2013

- Previous message: [One year since last update on 0.10](#)
- Next message: [One year since last update on 0.10](#)
- Messages sorted by: [\[date \]](#) [\[thread \]](#) [\[subject \]](#) [\[author \]](#)

> *no new releases for 0.10 are planned because of missing resources to do
> one and also everybody is focused on 1.x.*

IMO, prolonged active support on 0.10 will only add confusion and serve to poor overall quality of the code base: I've had a number of meetings on people bent on using 0.10. As a result, this drains resources on the 1.0 development because patches and work needs to be backported, fixes need to be done on old code: an overall reinforcing effect.

The cut should be clean: 0.10 is dead; long live 1.0

The more momentum in 1.0 there is, the better the quality is and rendering the 0.10 release question void.

/my 2c



Chapter 8 : a new home



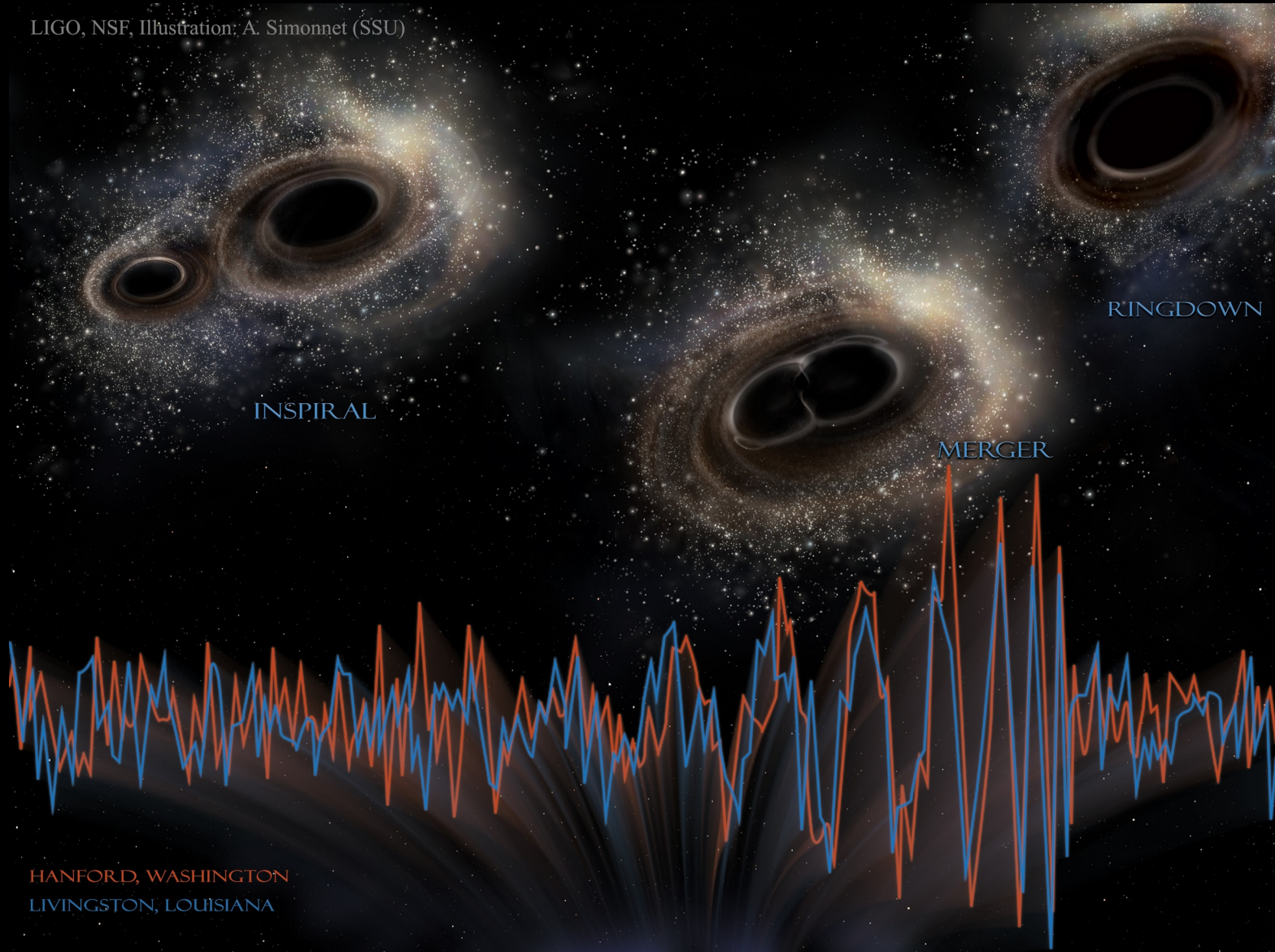
Tim, Sebastian, Edward, Jan form
centricular (sep 2013)

- 1.0 continuation
- Takes over maintenance

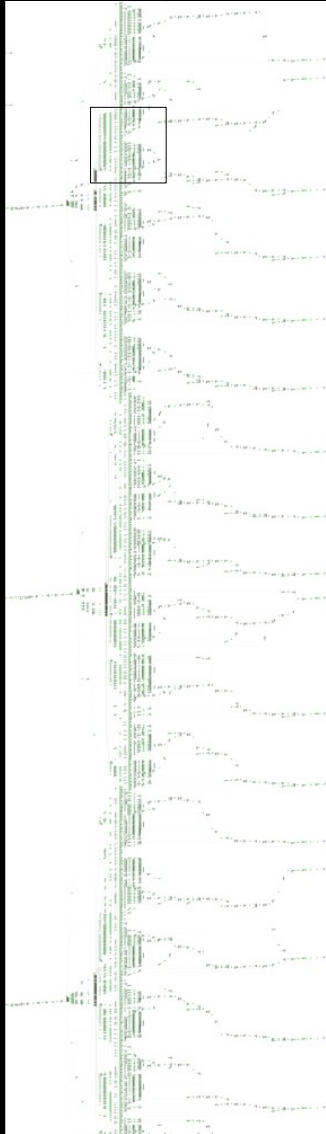


Oct 2013 GStreamer trademark

LIGO, NSF, Illustration: A. Simonnet (SSU)



HANFORD, WASHINGTON
LIVINGSTON, LOUISIANA







Since then

- 10 conferences
- 13+ hackfests
- 8 major releases
- 44+ point releases



Many thanks to all of you !



Contributors



Sponsors



Conference attendees



Bug reporters, testers



Friends and fans



And last but not least....



Thank you for 20 years !



What's next ?



Ideas are forming

- Rust
- Decouple scheduling from plugins
 - event based
- Experiments are being done..



Stay tuned !