

Sociomantic & D(u)

Leandro "Luca" Lucarella

Technical Development Lead



sociomantic

Introduction

- D's history
- Sociomantic's D-related history
- My Sociomantic & D-related history
- The now
- The future!

The Big Bang

- Dec 8, 2001: **D 0.00**
 - First public release of D / DMD
 - Changelog:

```
New/Changed Features
```

```
* Initial release
```

- Yes, not even 0.01
- Yes, only 2 digits after the dot
- We are close to D's 15th birthday!

The Beast Crawls Out Of The Ocean

- Jan 2002 **D 0.15**
 - *"I've finally got packages implemented"*
- Apr 2002 **D 0.29**
 - *"Released the front and compiler source"*
- Sep 2002 **D 0.40**
 - *"Implemented templates"*
- May 2003 **D 0.63**
 - *"Added linux version"*

The Dinosaurs

- Sep 2003 **D 0.71**
 - *"Added foreach statement"*
- May 2004 **D 0.89**
 - *"Mixins added"*
- Sometime between 2004 and 2005
 - **Me Me Me!** This is more or less when I discovered D
- May 2005 **D 0.124**
 - *"Added static if and iftype" (iftype???)*

The Meteorite is Approaching...

- Mar 2006 **D 0.149** "*Changed on_scope_XXX to scope(XXX)*"
 - Sociomantic founders (to be) start PhD project
- May 2006 **D 0.157** "*Partial Dwarf symbol debug info for Linux*"
 - First commits to Tango (in stealth-mode)
- Jul 2006 **D 0.163** "*Added static, renamed and selective imports*"
 - A little buggy, but finally fixed 10 years later
- Dec 2006 **D 0.178** *Last 0.xxx release*
 - Andrei's back

The Short Story of D1

- Jan 2007 **D 1.00!!!**
 - No interesting changelog, arbitrary tag
 - Tango announced publicly a few days after this release
- Feb 2007 **D 1.006** "*Compile time execution of functions*"
- Apr 2007 **D 1.011** "*Added keywords ref and macro*"
 - First Tango release (0.97 RC1)
- Jun 2007 **D 2.000** forked "*Added const, invariant, and final*"
 - Major and controversial breaking change
 - D1 feature freeze (only small and mostly non-breaking changes)

Controversial Times

- Mid 2007 - late 2008 a dark time for D
- The rise of the Phobos vs. Tango battles
- Some people didn't like the new *const-system*
- A D1-derived language without *const* was even started (Amber)

Time for Choices

- Aug 2008 **D 1.034 / 2.018** First Tango/D Conference (in Poland)
 - First question from Sociomantic founder asked in Tango forums
 - I start working on my thesis (CDGC)

D2 + Phobos

- No version-control
- Mostly still a one-man show
- Hard to contribute
- Focused on new features and experimentation

D1 + Tango

- Version-control in Dsource
- Community-driven
- Easy to contribute
- Focused on stability and usability

Sociomantic Era Begins

- Feb 2009 **D 1.040 / 2.025**
 - First issue opened in Tango by Sociomantic's founders
- Apr 2009 **D 1.044 / 2.029**
 - **Sociomantic Labs is founded**
- May 2009 **D 1.045 / 2.030** "*global storage now defaults to TLS*"
 - First patch submitted to Tango by Sociomantic's founders
- Aug 2009 **D 1.046 / 2.031**
 - First Sociomantic employee: D developer (to be)

Opening Roads

- Sep 2008 **D 2.020**
 - *"First version using Druntime"*
- Mar 2009 **D 1.041 / 2.026**
 - *"Added buildable dmd source"*
- Oct 2009 **D 2.033**
 - *"Phobos is now using the Boost 1.0 license"*
- Dec 2009 **D 1.050 / 2.035**
 - *"First releases from SVN / dsource"*

CDGC's 15 Minutes

- Sep 2010 **D 1.064 / 2.049**
 - CDGC is finished
- Oct 2010 **D 1.065 / 2.050**
 - Submitted CDGC Tango integration patches
- Nov 2010
 - Sean Kelly's publishes experimental CDGC branch in Druntime
- Jan 2011 **D 1.066 / 2.051**
 - *DMD project moves to GitHub*
 - CDGC merged to Tango

Sociomantic and Me

- Apr 2011 **D 1.067 / 2.052**
 - Sociomantic starts playing with CDGC. freenode #d.tango:

```
Apr28 13:04| Suprano: luca_, I am using  
your cdgc right now :)
```

- May 2011 **D 1.068 / 2.053**
 - First formal contact with Sociomantic
- Oct 2011 **D 1.070 / 2.055**
 - I start working for Sociomantic
 - 4th D developer, ~15th employee overall in the company

64bit Migration

- Dec 2011 **D 1.072 / 2.057**
 - D1 announced to be discontinued in 1 year
 - We start migrating to 64bit ("*first 64bit, then D2*")
 - First 64bit commit in DMD only 1.5 years ago
 - First (supposedly) working 64bit compiler for Linux only 8 months ago
 - Probably the first serious users of the 64bit compiler
- Jan 2012 Don Clugston joins Sociomantic (5th D developer)

The Horror

- Feb 2012 **D 1.073 / 2.058**
 - The term DBOTD becomes popular
 - Don's lists of 64bit bugs become popular too. Real example:

```
8060 (involves mixing ints+floats)
8091: (involves nested ? : expressions)
7478: (memory corruption, affects xfbuild)
8078: (Luca's out contract regression)
7546: (64bit, 0.0 != -0.0)
5809: (wrong code for *p == 0 with 64 bit)
8095: horrific optimizer bug, see below
partial fix of 5570, 64bit extern(C) ABI
```

64bit Migration Finished

- Completed in Jun 2012 **D 1.074 / 2.059**
- More than 6 months of work
- No language changes, only adding `-m64` when compiling
- Most 64bit bugs involve bad code generation and/or corruption
- Lots of pain, but we pushed for a reliable 64bit DMD compiler
(we contributed our beta-testing suffering to the community)

The End, The Beginning

- Dec 2012 **D 1.076** *Last D1 release. RIP D1... or not?*
- Feb 2013 **D 1.076+++** *First informal internal D1 "release":*

David asked me for this but might be also useful for other people. I compiled the more recent DMD1 with the additional Don's merge for the fix to the regression Ben found (http://d.puremagic.com/issues/show_bug.cgi?id=9568).

You can download it from here:

<http://192.168.2.152/dmd-v1.077-devel-6c4ef55>

Of course it was a 64bit bug: Issue 9568 - [64bit] wrong code for scope(exit)

2013 Miscellaneous

- May 2013 **D 2.063**
 - First global D Conference: DConf2013
 - Two Sociomantic speakers
 - First real analysis of D2 migration at Sociomantic (after DConf)
- Jun 2013 Mihails (*dicebot*) joins Sociomantic (10th D developer)
- Dec 2013 **D 1.076+git20130909.c8427d6+sociomantic1**
 - First internal DMD release via deb repository

D1's Not Dead

- Feb 2014 **D 1.076.s1 / 2.065**
 - First formal internal DMD release
 - 17 internal releases since then (every ~1.5 months in average)
 - Lately more like one release every 3 months
- May 2014
 - DConf2014
 - Two Sociomantic speakers again
 - We manage to talk about D1 in a D2 conference again

But the Assassination is Planned...

- Mar 2014
 - Serious plan to migrate to D2 started
 - We can't afford to stop development or to fork our codebase
 - Code must work with both D1 and D2 as a transitional step
- Jun 2014 **D 1.076.s3** "*add -v2 switch*"
 - Official plan (dicebot is tricked into being the main executor)
- Oct 2014 **D 1.077.s7 / 2.066** "*-v2 warns on const storage class*"
 - Mihails' experimental port of CDGC to D2
 - d1to2fix tool created
 - Internal Tango migration starts

D2 Migration Starts Rolling

- Mar 2015 **D 2.067** (we stick internally to **2.066** for stability)
 - Migration of our big internal base library (Ocean) starts
 - Iain Buclaw joins Sociomantic (not a D developer... **TRAITOR!**)
 - DIP75: Release Process is created
- Apr 2015 **D 1.077.s13 / D 2.066.1**
 - First official DMD point (stable) release
- May 2015
 - Tango migration finished
 - DConf2015: Two speakers again, one talk about D2 migration

And It Keeps Rolling

- Jul 2015 **2.066.1.s1**
 - First internal DMD2 bugfix release
 - Since then we've done 5 internal DMD2 releases
- Sep 2015 **D 1.077.s16 / 2.068.1**
 - Ocean migration complete
- Nov 2015 **D 2.069.0**
 - DMD has been ported to D
 - Bad for D1 bugfix backporting (still in C++, of course)

Life On Mars

- Jan 2016 **D 2.070.0 / 2.066.s3**
 - Two applications fully ported to D2
 - Sociomantic and D Foundation talks start
 - Mathias Lang (geod) to contribute to DMD2 via Tsunami
- Feb 2016 **D 2.070.1 / 2.070.1.s1**
 - Move to D **2.070** (some breaking changes need code updates)
 - Work started on a Buffer replacement for D1 stomping arrays

TangOcean

- Mar 2016 **D 2.070.2**
- We merge Tango user library into Ocean
- We only use Tango runtime as the Druntime for D1
- Easier to port having a user library separate from the runtime
- Runtime D1-only, the user library is both D1 and D2 compatible

It's ALIVE

Apr 2016 (last month) **D 2.071.0 / 2.070.s2**

- 2 more applications fully ported (4 in total)
- 2 applications compiled with D2 running instances **LIVE!**
- Some applications have performance regressions
- One performs better and use less memory

The Now

- We are at DConf2016
 - First DConf co-organized by Sociomantic
 - First DConf held in Europe
 - 2 Sociomantic speakers again (+ 1 + 6 + 1)
- D2 Migration summary
 - 3 years since we started thinking about D2 migration
 - 2 years since we have a D2 migration plan
 - 1++ years since we started the serious migration work
 - CI to ensure projects that are moved to D2, stays D2
- ~30 D developers (and still growing...)

The Future

- Still a **long road** to go
 - 4 from 5 core libraries ported (80%)
 - 3 from 6 utility libraries ported (50%)
 - 4 from 30++ applications ported (10~15%), the simplest ones
 - And we are only talking about the transition phase
- We need to address the performance regressions
- We'll probably need to work on the GC for the real-time processes
- More D(2) developers: **YOU** join Sociomantic

(we are hiring! <https://careers.sociomantic.com/>)

Pull Request

- We want to merge back to D's community
- Ocean open source release! (Tsunami)
 - Scheduled for June
 - Bits from Tango must stay BSD
 - Dual license for our code: BSD + Boost (Phobos-friendly)
- More collaboration with D community and D Foundation
 - We are having monthly meetings with Martin Nowak
 - More people contributing to the community (Tsunami)
 - More open sourcing (Tsunami)

The End... Of This Talk

Thank you! Questions???

NO?

REALLY?

Next talk...