Sociomantic & D(u)

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sociomantic

Introduction

- This talk is about D's history
- This talk is about Sociomantic D-related history
- This talk is about my Sociomantic & D-related history
- This talk is about the now
- This talk is about the future!

The Big Bang

- Dec 8, 2001: **D 0.00**
  - First public release of D / DMD
  - Yes, not even 0.01
  - Yes, only 2 digits after the dot
  - Changelog:

```
New/Changed Features

* Initial release
```

Life Starts Growing

- Jan 15, 2002: **D 0.15** "*I've finally got packages implemented*"
- Mar 29, 2002: **D 0.24** "*Release source to lexer and parser*"
- Apr 10, 2002: **D 0.26** "*implement delegates*"
- Apr 23, 2002: **D 0.29** "*Released the front end compiler source*"
- Sep 8, 2002: **D 0.40** "*Implemented templates*"
- Jan 27, 2003: **D 0.51** "*Added template value parameters (as opposed to just type parameters)*"
- Feb 25, 2003: **D 0.57** "*Added function literals, nested functions, closures*"
- May 10, 2003: **D 0.63** "*Added linux version*"

The First Dinosaurs

- Aug 11, 2003: **D 0.69** "*Added dchar keyword, Added bool as an alias for bit*"
- Sep 3, 2003: **D 0.71** "*Added foreach statement*"
- Sep 18, 2003 **D 0.73** "*Added static asserts, Added properties*"
- Jan 2, 2004 **D 0.77** "*Added typeof, pragmas, template alias parameters*"
- May 17, 2004 **D 0.89** "*Mixins added*"
- May 19, 2005 **D 0.124** "*Added static if and iftype*" (`iftype`???)
- Jun 7, 2005 **D 0.126** "*=== now deprecated, replaced with is, add --help*"
- **Me Me Me!** This is more or less when I discovered D.

The Methorite is Approaching...

- Mar 2006 **D 0.149** "*Changed on_scope_XXX to scope(XXX), added limited support for implicit function template instantiation*"

  Sociomantic founders (to be) PhD project that will lead them to D when PHP starts choking at data crunching
- May 2006 **D 0.157** "*Partial Dwarf symbol debug info now generated for Linux*"

  First commits to Tango (by then, a stealth-mode project)
- Jul 2006 **D 0.163** "*Imports now default to private instead of public. Added static imports, renamed imports, and selective importing*"

  (a little buggy, but finally fixed 10 years later)
- Dec 2006 **D 0.178** *Last 0.xxx release*

Andrei Alexandrescu talks with Walter Bright about getting involved in D

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 raise 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**
  - In stealth-mode (AFAIK it never saw the light)
  - Developed mainly by the LDC and Tango teams
  - New frontend written from the scratch and self hosted
  - Used Tango runtime and as the standard library
  - C and LLVM backends
  - It was quite advanced, not just a prototype

Time for Choices

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

- D2 + Phobos
  - No version control / sources not buildable
  - Mostly still a one-man show / hard to contribute
  - Focused on new features and experimentation

- D1 + Tango
  - Version-control in Dsource
  - Community-driven / several contributors / easy to contribute
  - Focused on stability and usability

Sociomantic Era Begins

- Sep 2008 **D 2.020** "*immutable implemented*"
  - First version using Druntime (a fork of Tango runtime)
- Nov 2008 **D 2.021** "*Added -safe and range support to foreach*"
- Mar 2009 **D 1.041 / 2.026** "*Added buildable dmd source*"
- Feb 2009 **D 1.040 / 2.025** "*Added Mac OSX support*"
  - 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** "*classic global storage now defaults to TLS*"
  - First patch submitted to Tango by Sociomantic's founders

- Aug 2009 **D 1.046 / 2.031** "*Warning on no return expr; is now an error*"
  - First Sociomantic employee: D developer (to be)

Past and Future, Opening Roads

- Oct 2009 **D 2.033** "*Phobos is now using the Boost 1.0 license*"
- Oct 2009 **D 1.050 / 2.035** *First releases from SVN / dsource*
- Feb 2010 **D 1.056 / 2.040**
    - DMD beta mailing list created
    - Last Tango release (0.99.9)
- Jun 2010 **D 1.062 / 2.047**
    - First 64 bit commit "64 bit start"
    - The D Programming Language book comes out
    - Brad Robert adds the skeleton of a public test suite

CDGC's 15 Minutes

- Sep 2010 **D 1.064 / 2.049** CDGC is finished
- Oct 2010 **D 1.065 / 2.050** "*Added relaxed purity checking rules*"
  - Submitted CDGC Tango integration patches
- Nov 2010
  - Sean Kelly's publishes experimental CDGC branch in Druntime
- Jan 2011 **D 1.066 / 2.051** "*Both druntime and phobos now build successfully with dmd -m64. Still somewhat behind dmd1, very little executes correctly still*"
  - CDGC merged to Tango
  - DMD project moves to GitHub

Sociomantic and Me

- Apr 2011 **D 1.067 / 2.052** "*64 bit support for Linux*"
  - Sociomantic starts playing with CDGC. freenode #d.tango:

  ```
  Apr28 13:04| Suprano: luca_, I am using your cdgc right no
  ```

- May 2011 **D 1.068 / 2.053** "*Added FreeBSD support*"
  - First formal contact with Sociomantic
- Oct 2011 **D 1.070 / 2.055** "*Add support for Mac OS X 10.7 Lion*"
  - I start working for Sociomantic
  - 4th D developer, ~15th 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*")
- Jan 2012 Don Clugston joins Sociomantic (5th D developer)
- Feb 2012 **D 1.073 / 2.058** Don's lists of 64bit bugs become popular. 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

- By Jun 2012 **D 1.074 / 2.059**
- More than 6 months of work
- No changes in the language involved, only passing `-m64` when compiling
- Most 64bit bugs involve bad code generation and/or corruption
- Lots of pain, but at the end 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 aditional
  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 Miscelaneous

- Feb 2013 **D 2.062** *First release with Andrej Mitrović's beautiful changelog*
- May 2013 **D 2.063**
  - First global D Conference: DConf2013
  - Two Sociomantic speakers
  - First Sociomantic real analysis about D2 migration after DConf
  - DMD releases start to be done much less frequently and include tons of changes
- Jun 2013 Mihails Strasuns (*dicebot*) joins Sociomantic (10th D developer)
- Dec 2013 **D 1.076+git20130909.c8427d6+sociomantic1 / 2.064**

- First internal DMD release via deb repository

D1's Not Dead

- Feb 2014 **D 1.0776.s1 / 2.065**
  - First formal internal DMD release
  - 17 internal releases since then (one release every ~1.5 months in average)
  - Lately more like one release every 3 months
- May 2014
  - Andrej Mitrović joins Sociomantic (17th D developer)
  - 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

- Jun 2014 **D 1.076.s3** "*add -v2 switch*"
  - We have an official plan (Mihails is tricked into being the main executor)
  - We can't afford stop development or duplicating the stuff
  - Must have code that works with both D1 and D2 as a transitional step

- Oct 2014 **D 1.077.s7 / 2.066** "*Warn about const storage class when using -v2*"
  - Mihails' experimental port of CDGC to D2
  - d1to2fix tool created

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
  - DIP75: Release Process is created
  - Iain Buclaw joins Sociomantic (but not as a D developer… **TRAITOR!**)
- Apr 2015 **D 1.077.s13 / D 2.066.1**
  - Backport `deprecated("message")` to D1
  - First official DMD point (stable) release
- May 2015
  - First internal Tango release that's D2 forward-compatible

- DConf2015: Two speakers again, one talk about the migration process

Ch-Ch-Changes

- Jul 2015 **2.066.1.s1**
  - First internal DMD2 bugfix release
  - Since then we've done 5 internal DMD2 releases (3 for 2.066, 2 for 2.070)
- Aug 2015 **D 2.068.0**
  - Andrei leaves Facebook to work on the D Language and Foundation
- Sep 2015 **D 1.077.s16 / 2.068.1**
  - Ocean migration complete
- Nov 2015 **D 2.069.0**
  - DMD has been ported to D

- Any bugfix in DMD now must be backported completely manually to DMD1

  (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 (initially about LTS releases)
  - Mathias Lang approved to contribute to DMD2 via Tsunami Program
- Feb 2016 **D 2.070.1 / 2.070.1.s1**
  - Move to D 2.070 (some breaking changes need code updates)
  - Work started on Ocean Buffer replacement for D1 stomping arrays

Run On Mars

- Mar 2016 **D 2.070.2** TangOcean
  - 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
  - The runtime is 100% D1, the user library is both D1 and D2 compatible

- Apr 2016 (like… last month) **D 2.071.0 / 2.070.s2**
  - Static, selected and renamed imports fixed (APPLAUSE!!!)
  - 2 more applications fully ported (4 in total)
  - 1 application has a horrible performance regression (needs investigation)
  - 2 applications compiled with D2 running instances **LIVE**!

The Now

- DConf2016: First DConf co-organized by Sociomantic

  Also first DConf held in Europe
- Two years since we started planning D2 migration
- One year++ since we started the serious migration work
- Still a **long road** to go
  - 4 from 5 core libraries ported (80%)
  - 3 from 6 utility libraries ported (50%)
  - 4 from 32 applications ported (12.5%), and we started with the simplests
  - We need to address the performance regressions

- For every project we ported to D2, every PR is tested in both D1 and D2
- ~30 D developers (and growing...)

The Future

- **Ocean open source release!**
  - 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
  - All the work we did for Tango / internal DMD releases now can contributed
  - More collaboration and open sourcing through the Tsunami program

- We'll probably need to work on the GC for the real-time applications
- More D(2) developers: **YOU** join Sociomantic

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

The End... Of This Talk

Thank you, Questions???

NO?

REALLY?

Next talk...