

LibreOffice 10th Anniversary Digital Sovereignty & Open Document Standards

Italo Vignoli

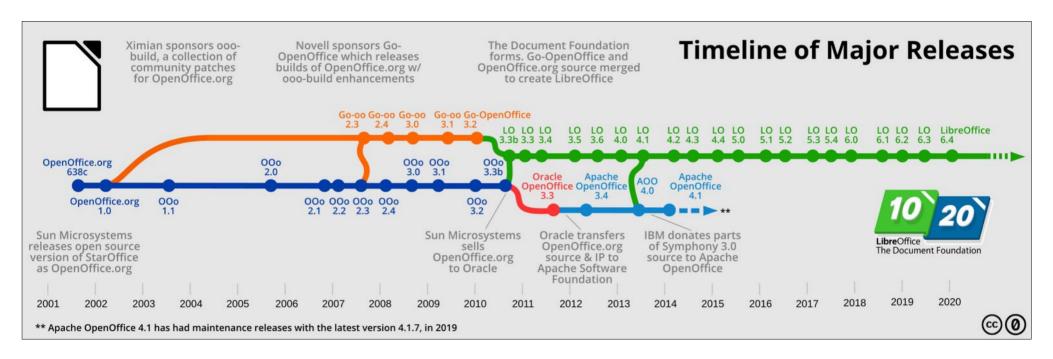


10 Years / 20 Years

July 19, 2000: Sun announces OpenOffice.org Sept 28, 2010: OpenOffice.org community announces LibreOffice



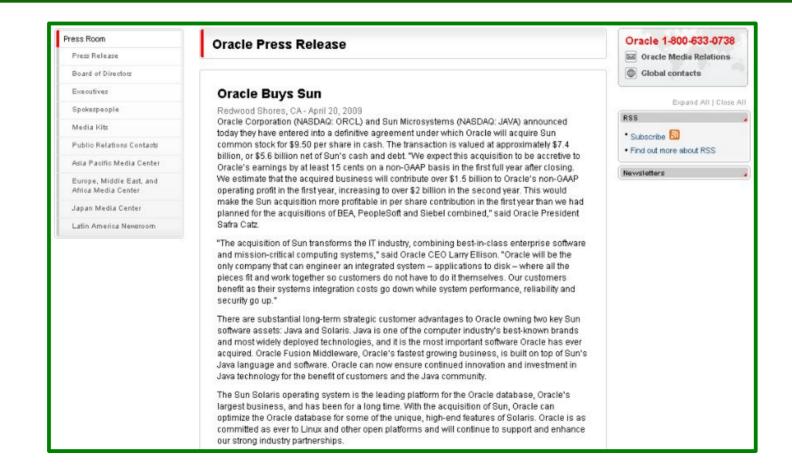
Timeline

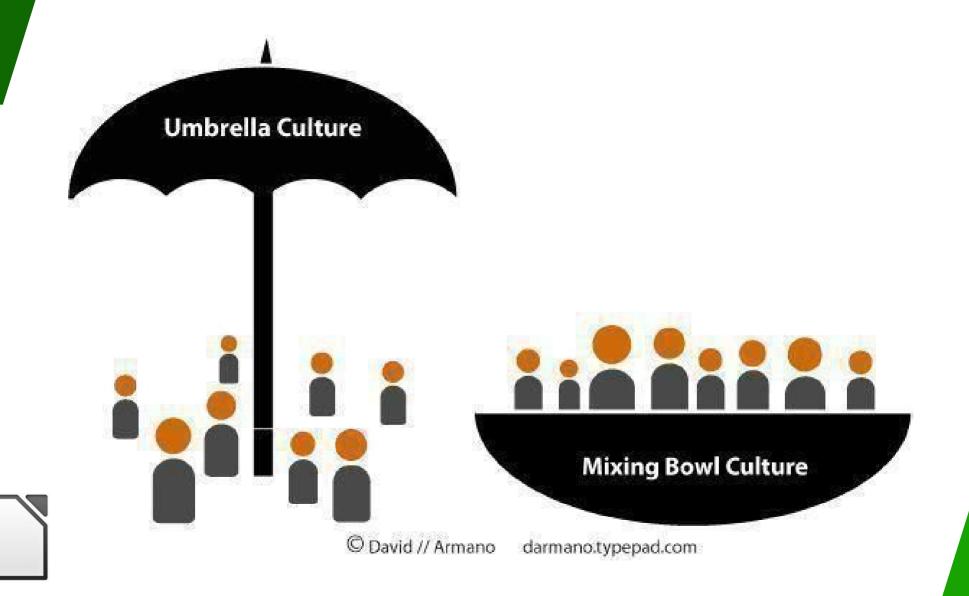




35 years since **Marco Börries** releases the first version of StarWriter in 1985

2009: Oracle acquires Sun





Relaunch the Innovation

Visual Representation of the Fork

the community takes control to relaunch the innovation and develop a self sustaining project backed by a solid ecosystem

LibreOffice

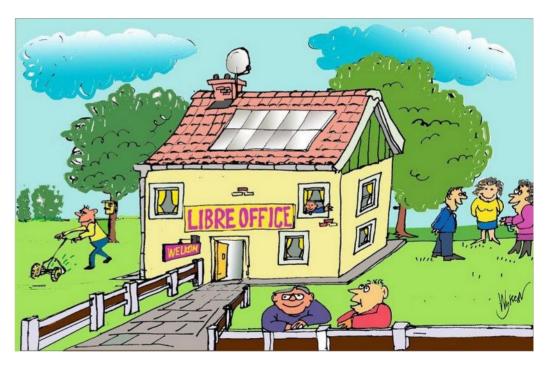
today

OpenOffice

risk of abandon by Oracle after 10 years of continuous growth backed by Sun and community

OpenOffice vs LibreOffice





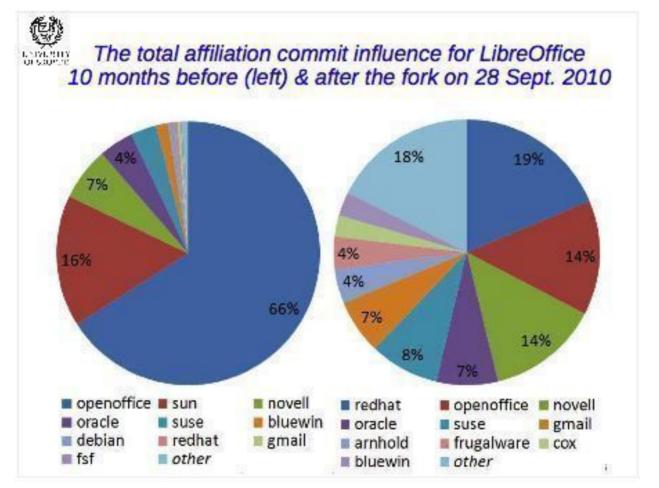


SEPTEMBER 28, 2010

OpenOffice.org Community announces
The Document Foundation

The community of volunteers developing and promoting OpenOffice.org sets up an independent Foundation to drive the further growth of the project

The brand "LibreOffice" has been chosen for the software going forward





LibreOffice 3.3 at FOSDEM 2011



Roadmap to the Future

- Time based, six-monthly release train ...
 - Synchronised with the Linux distributions cadence
 - i.e. a normal Free Software project
 - Rapid fire, (monthly) bug-fix release on stable branch

The Document Foundation





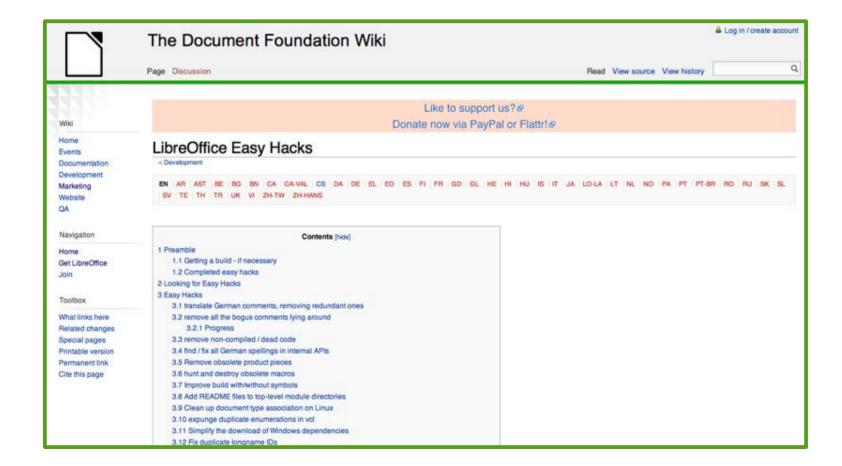
The Document Foundation

Founding Principles
COPYLEFT LICENSE
NO CONTRIBUTOR AGREEMENT
MERITOCRACY
COMMUNITY GOVERNANCE
VENDOR INDEPENDENCE

LibreOffice Main Asset



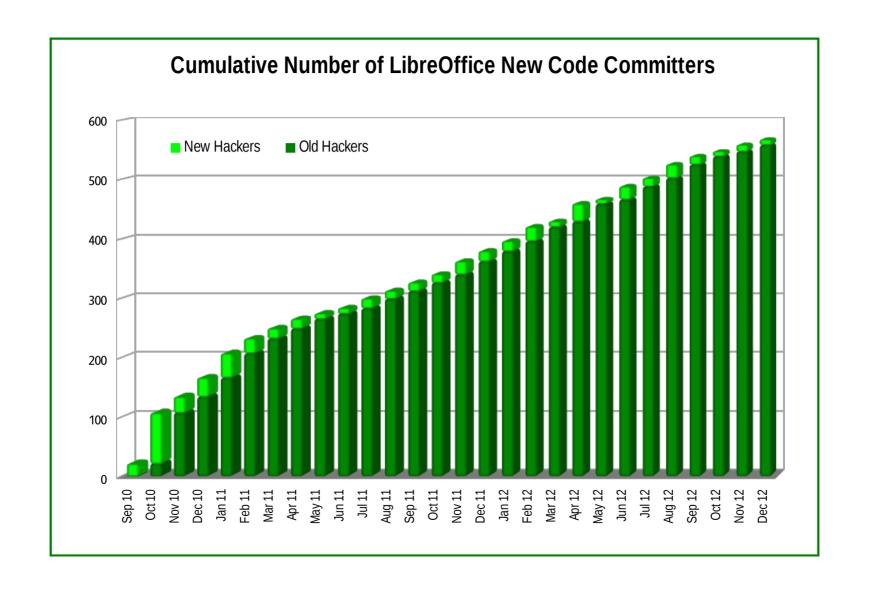
Incredible Easy Hacks





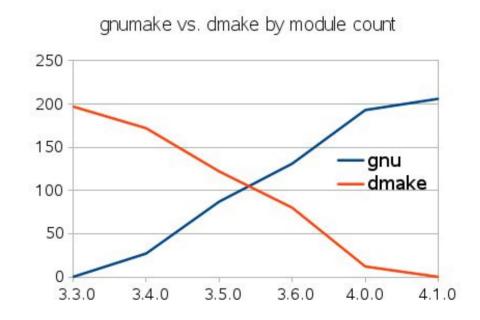
Huge Mentoring Effort



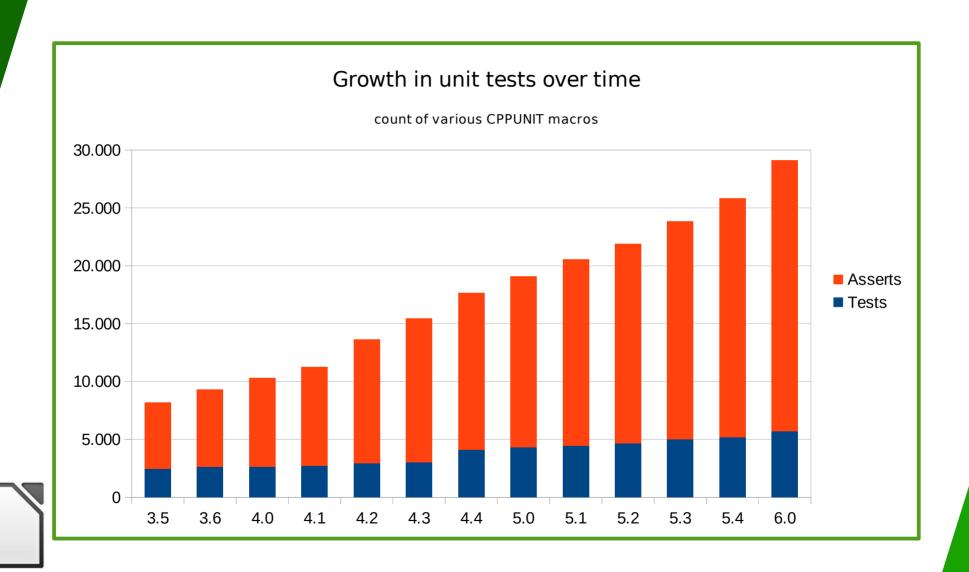


GNUmake: 1 make to build ~10k wide

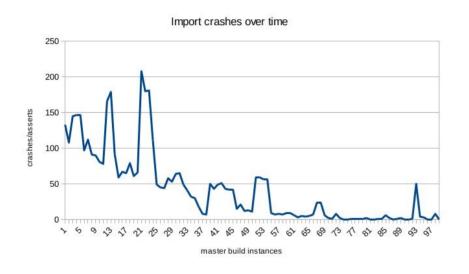
- Completed re-write of legacy perl + dmake build system ...
- Carl Fogel: "LibreOffice is now ridiculously easy to build"

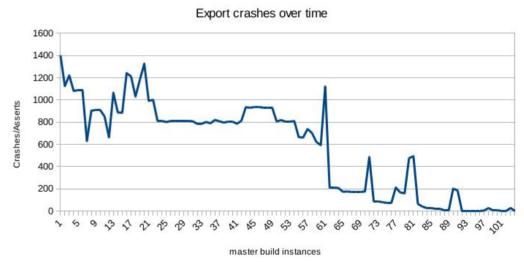






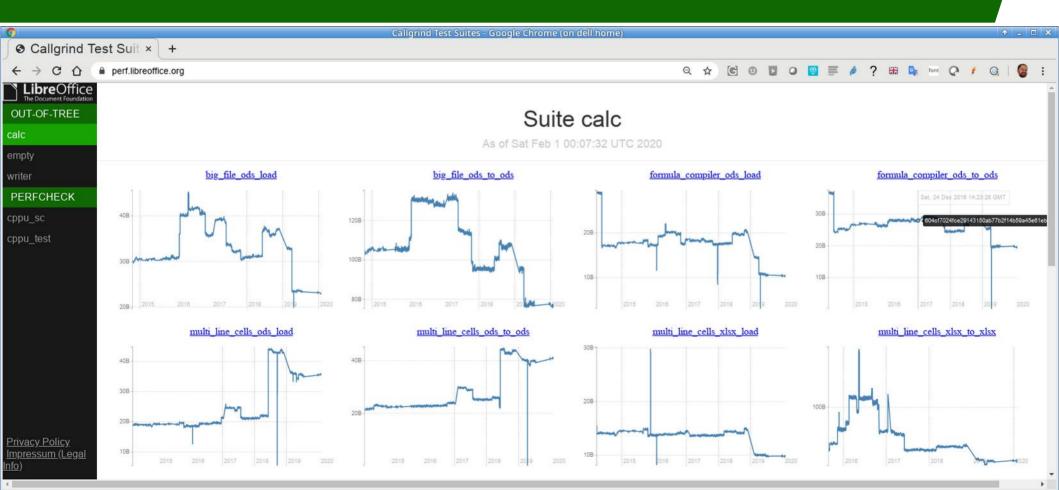
Systematic Load Crash Testing





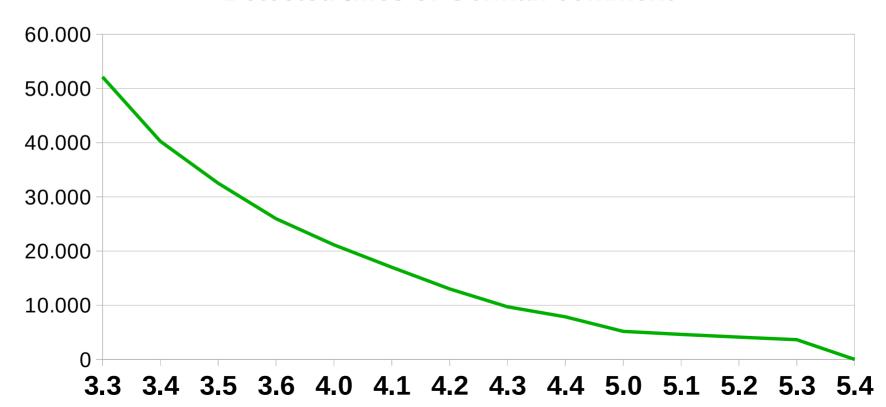


Callgrind Based Automated Testing



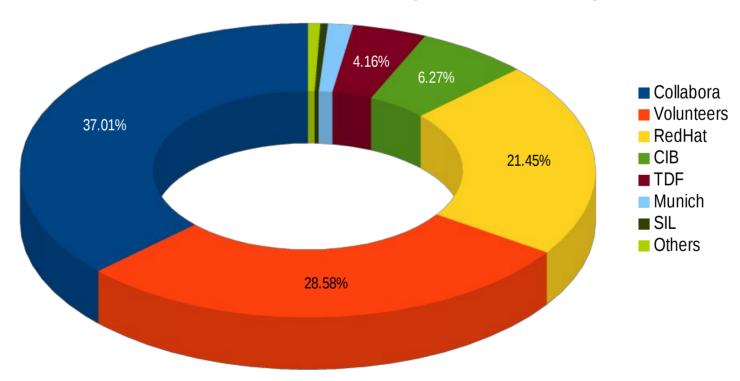
German Comment Translation

Detected lines of German comment



Git Commits by Organization

LibreOffice Git Commits (Last Two Years)



Coverity Scan Score 2020

Sep 12, 2020 Last Analyzed 6,133,797
Lines of Code Analyzed

0.00 Defect Density

Defect changes since previous build dated Sep 09, 2020

1

Newly detected

2

Eliminated

Defects by status for current build

25,968

Total defects

1

Outstanding

328

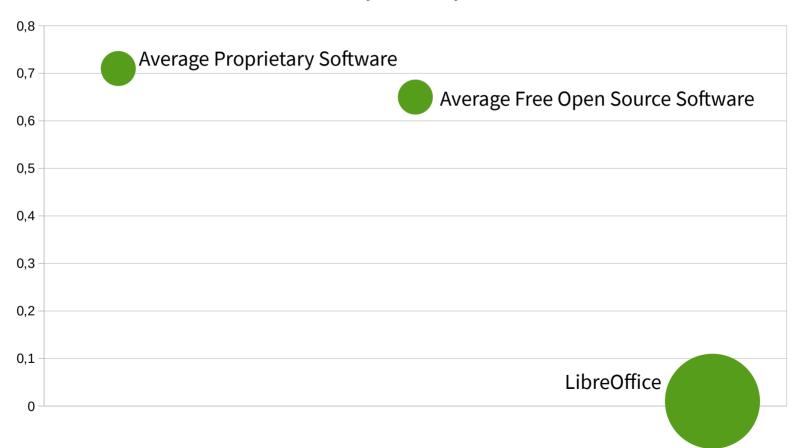
Dismissed

25,639

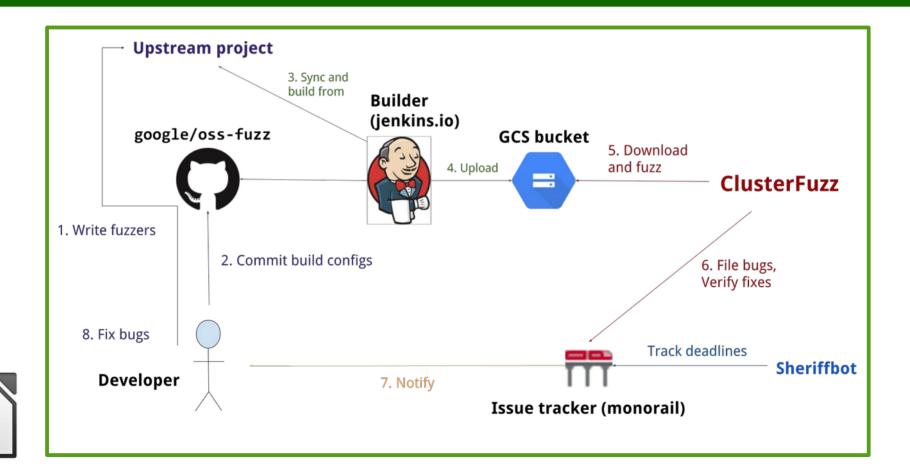
Fixed

Issues x 1000 Lines of Source Code

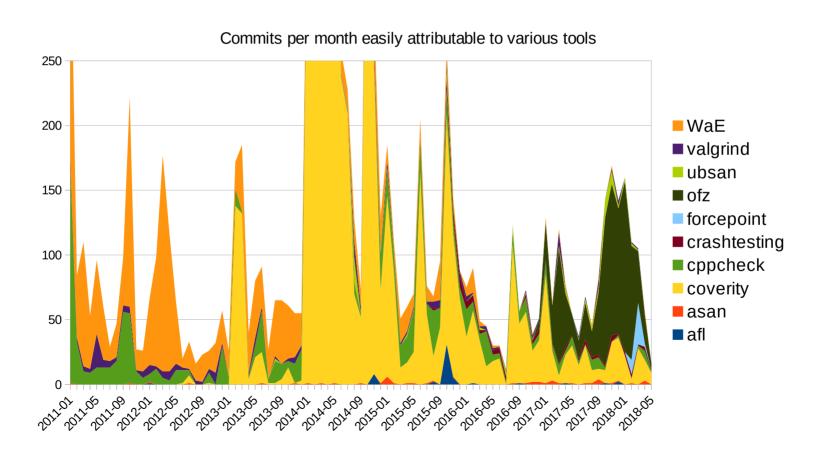
Source Code Scan by Coverity Scan (since 2015)



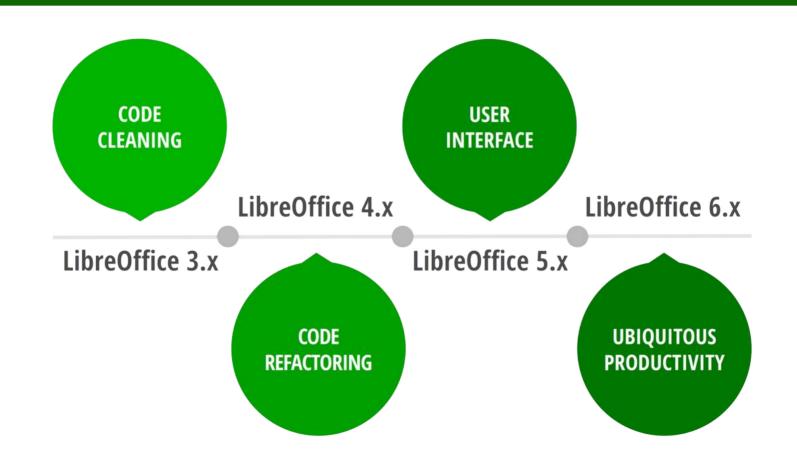
Google's OSS-Fuzz



Commits Based on Fuzzing



Development Cycles



Achievements

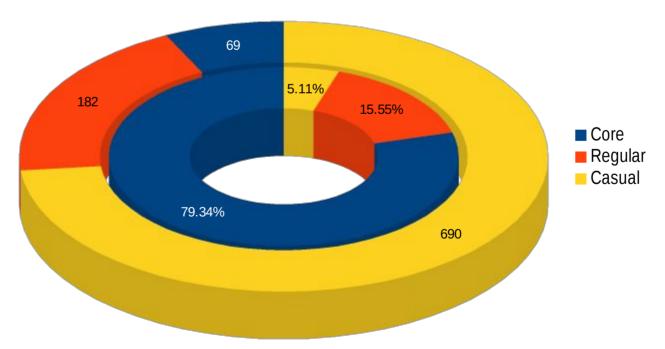
- Reduced footprint of the software
- Undertaken long awaited code renovation
- Removed tens of thousands lines of dead code
- Removed deprecated libraries
- Translated many German comments to English
- Many other code renovation actions
- All: paying down substantial technical debt
- Using 20'th Century C++ constructs



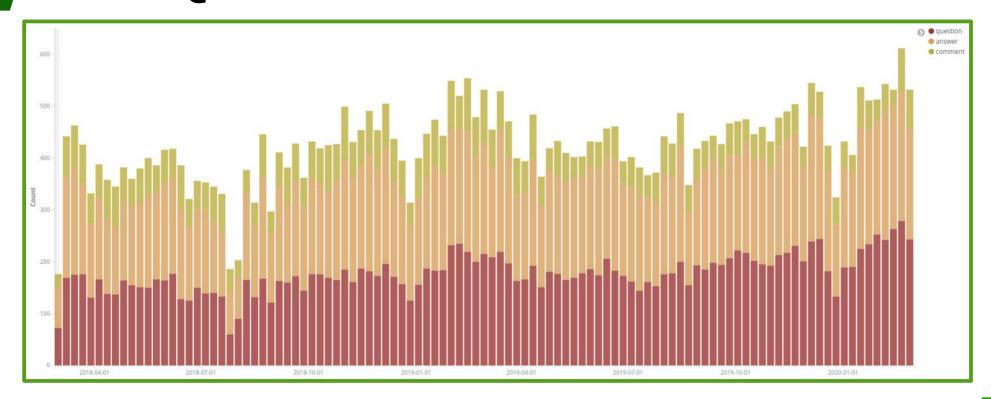
Community by Numbers

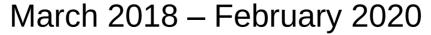
Community by Numbers

People Outside - Contributions Inside

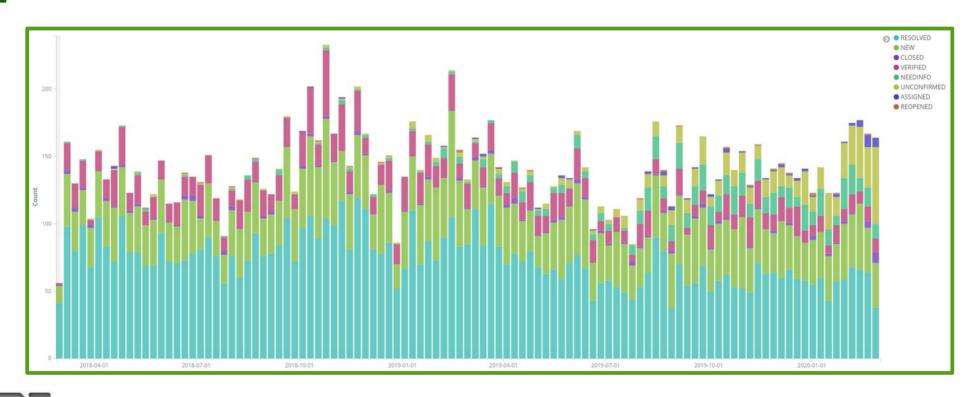


Ask Q&A and Comments





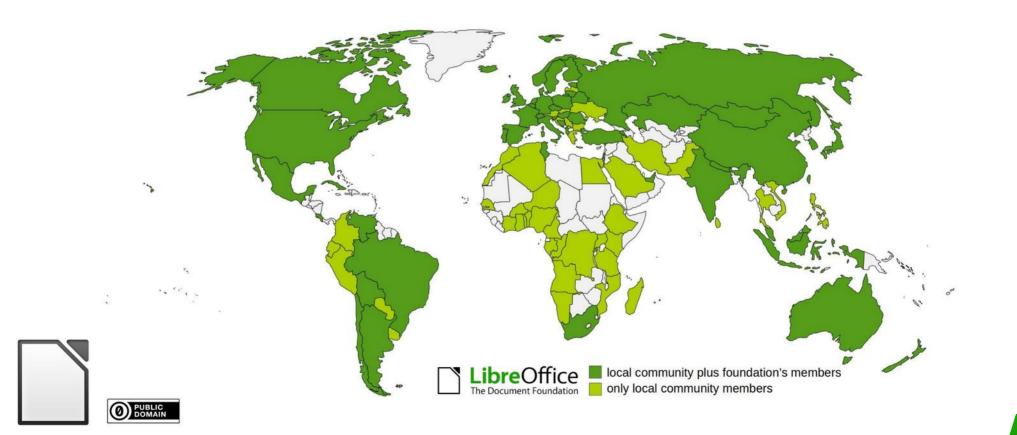
Bugzilla Issues by Status



Native-Language Communities

- Localization teams are growing (Weblate stats)
 - 145 active languages
 - ~119 shipping languages
 - 4605 users
 - 404532 translations made
- Thanks to so many for their hard work translating!

LibreOffice Community



LibOCon Paris 2011



LibOCon Berlin 2012



LibOCon Milan 2013



LibOCon Bern 2014





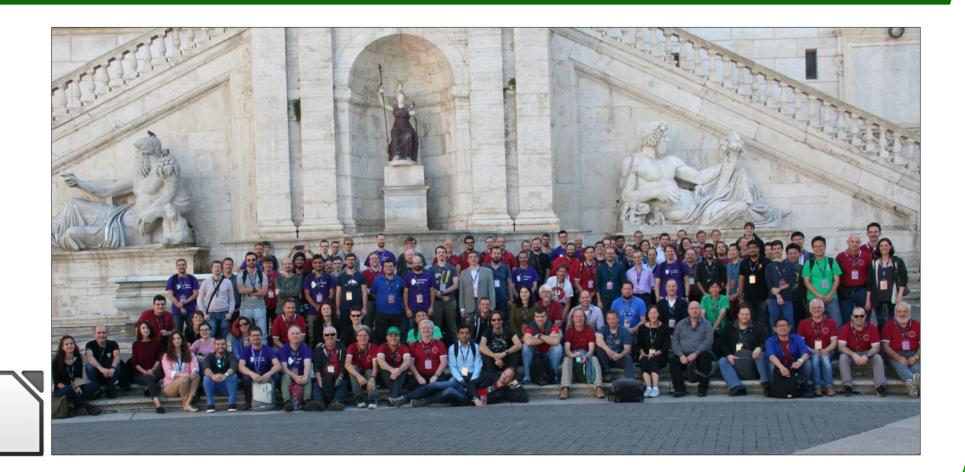
LibOCon Aarhus 2015



LibOCon Brno 2016



LibOCon Rome 2017



LibOCon Tirana 2018



LibOCon Almería 2019







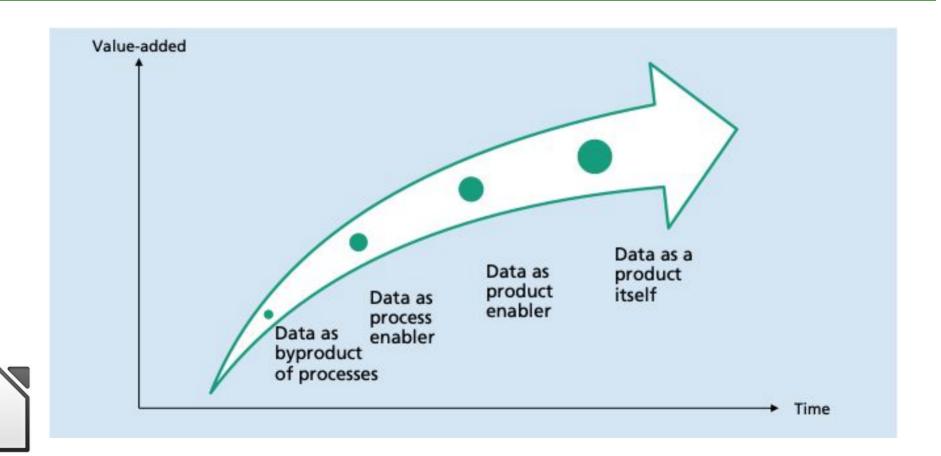
What is Technology Sovereignty?

Technology sovereignty is the ability of a state or a federation of states to provide the technologies it deems critical for its welfare, competitiveness, and ability to act, and to be able to develop these or source them from other economic areas without one-sided structural dependency

How to Achieve Technology Sovereignty?

Actively influencing standards to direct international markets towards our own technologies as well as patent pools or Open Source software and hardware which prevent monopolization and thus structural dependencies

Evolution of Data





Enabling the Data Commons

- Can we regain control of our data?
- We want to decide who to share it with, under which rules, when and for what purpose
- One can decide in a democratic way based on trust but if data is a monopoly of a few, collective intelligence is lost...



Open Document Format

the true document standard which offers freedom of choice



Open Document Format

- Independent from a single product: anyone can write a software that handles an open format
- Interoperable: allows the transparent sharing of data between heterogeneous systems
- Neutral: it does not force the user to adopt and often buy a specific product, but leaves a wide choice based on features/quality vs price ratio
- Perennial: protects user developed contents from the "evolution" based obsolescence of technology

Basic Concepts

- ODF is solid and robust
- ODF is consistent across OS
- ODF is truly interoperable
- ODF is predictable
- ODF is the best standard file format for users of personal productivity SW

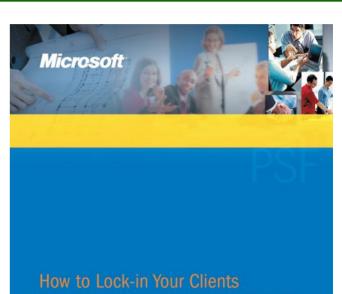
Digital Document

- Can be used only by those who have access to the decoder
- Primary purpose of a digital document is to use it in the future
- It should be readable and interpretable as long as possible, and ideally forever

Lock In

WE CANNET READ YEUR DECUMENT5





How Professional Services Firms Can Create Compelling Value for Clients Using Collaborative Technologies

Ross Dawson

CEO, Advanced Human Technologies

Author, Living Networks and Developing Knowledge-Based Client Relationships

January 2004

A STRATEGIC WHITE PAPER FROM MICROSOFT BUSINESS SOLUTIONS

Importance of the HTML Standard

- It was the standardization of the HTML format that allowed the web to take off. And not just the fact that it's a standard, but the fact that it's open and royalty-free...
- Had HTML not been free and open, and a proprietary technology, the business of selling HTML and competing products would have been born...
- This means we need standards, because this avoids competition over technology, and fuels the value-added business built on the platform...

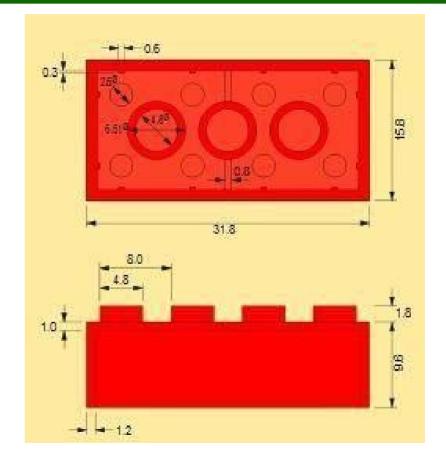


Tim Berners-Lee, CERN world wide web inventor

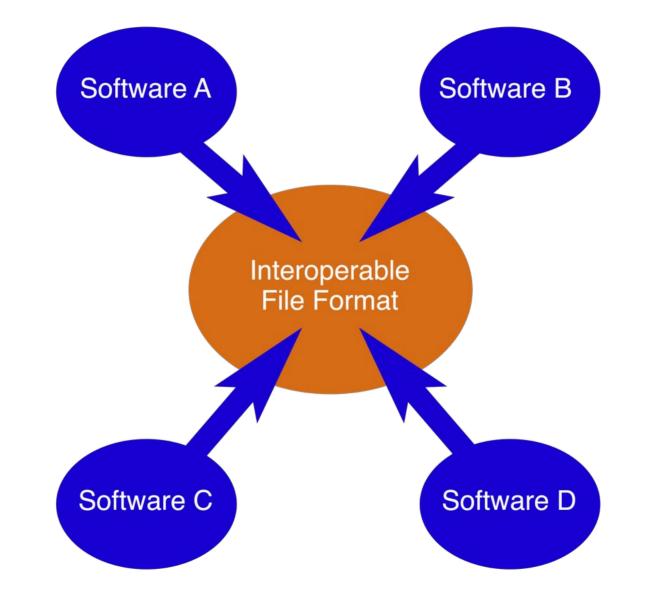
Standard and Interoperability

Interoperability is the ability of information and communication technology (ICT) systems, as well as of the business processes they support, to exchange data and enable the sharing of information and knowledge.

European Interoperability Framework, IDABC







Digging into Document Formats







OOXML Transitional and Strict

- As of 2020, the Office default for .docx, .xlsx and .pptx is
 Transitional OOXML, a proprietary document format which
 was created as a bridge from legacy MS Office formats and
 the approved ISO Standard.
- OOXML Strict is the ISO approved open standard, but being the non publicized last option on MS Office "file, save as..." menu has not been adopted, so 100% of existing OOXML files we are referring to are proprietary (non standard).

OOXML Strict Standard Support

- MS Office 2010: NO
- MS Office 2013: YES, but default is Transitional
- MS Office 2016: YES, but default is Transitional
- MS Office 2019: YES, but default is Transitional
- MS Office macOS: NO
- MS Office 365: NO
- According to Microsoft statements in 2007, OOXML Strict should have been the default since Office 2010

ODF Philosophy

- The philosophy behind the ODF standard document format was to design a mechanism in a "vendor neutral" manner from the ground up using existing standards wherever possible
- Although this means that software vendors would need to tweak their individual packages more than if they continued down their original routes the benefits for interoperability were important enough to justify the move

OOXML Philosophy

- The OOXML pseudo-standard document format appears to be designed by Microsoft for Microsoft products, and to inter-operate with the Microsoft environment
- Little thought appears to have been exercised for interoperability with non-Microsoft environments or compliance with established vendor-neutral standards

ODF vs OOXML Strategic Difference

- ODF has been designed as a document standard for the next 20-50 years, to liberate users from the lock-in strategy built into yesterday's and today's proprietary formats, and foster interoperability
- OOXML has been designed as a pseudo-standard document format to propagate yesterday's document issues and lock-in strategy for the next 20-50 years, to the detriment of users and interoperability

Standardization Process

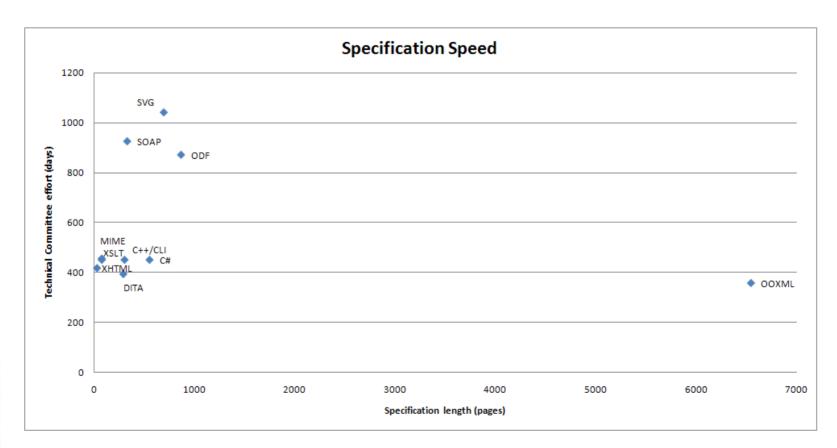
ODF

- Based on OOo XML format
- Dec 12, 2002: document format presented to OASIS
- May 1, 2005: ODF released by OASIS
- Nov 16, 2005: ODF presented to ISO/IEC JTC1 based on Publicly Available Specification (PAS)
- May 3, 2006: ODF approved as ISO/IEC IS 26300 standard
- Review: 720 paged in 1239 days

OOXML

- Based on Microsoft Office 2003 XML format
- Dec 15, 2005: document format presented to ECMA
- Dec 31, 2006: ECMA standard approved by General Assembly
- Jan 31, 2007: OOXML presented to ISO/IEC JTC1 based on Fast Track
- Mar 31, 2008: OOXML pseudo standard approved
- Review: 7200 pages in 838 days

Specification Speed Comparison





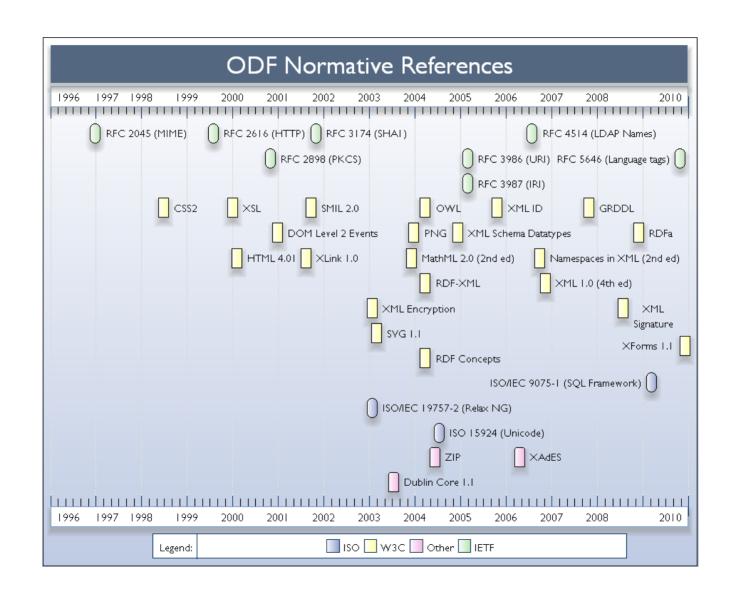
Reuse of Existing Standards

ODF

- Dublin Core
- XLS:FO
- SVG
- MathML
- XLink
- SMIL
- XForms

OOXML

Dublin Core



The Bigger Truth

- Без муке нема науке
 - No pain, no gain
- Без алата нема заната
 - No tools, no craft

LibreOffice (ODT)

- <text:p>Без муке нема науке</text:p>
- <text:p>No pain, no gain</text:p>
- <text:p>Без алата нема заната</text:p>
- <text:p>No tools, no craft</text:p>

MS Office Windows (DOCX)

```
<w:t>Без</w:t>
                                    <w:t>5e3</w:t>
<w:t xml:space="preserve"> </w:t>
                                    <w:t xml:space="preserve"> </w:t>
<w:t>myke</w:t>
                                    <w:t>aлaтa</w:t>
<w:t xml:space="preserve"> </w:t>
                                    <w:t xml:space="preserve"> </w:t>
<w't>+ema</w't>
                                    <w't>+eMa</w't>
<w:t xml:space="preserve"> </w:t>
                                    <w:t xml:space="preserve"> </w:t>
<w:t>hayke</w:t>
                                    <w:t>заната</w:t>
<w:t>No pain, no gain</w:t>
                                    <w:t>No tools, no craft</w:t>
```

MS Office macOS (DOCX)

```
<w:t>Без</w:t>
                                    <w:t>5e3</w:t>
<w:t xml:space="preserve"> </w:t>
                                    <w:t xml:space="preserve"> </w:t>
<w:t>myke</w:t>
                                    <w:t>алата</w:t>
<w:t xml:space="preserve"> </w:t>
                                    <w:t xml:space="preserve"> </w:t>
<w't>+eMa</w't>
                                    <w't>+eMa</w't>
<w:t xml:space="preserve"> </w:t>
                                    <w:t xml:space="preserve"> </w:t>
<w:t>hayke</w:t>
                                    <w:t>заната</w:t>
<w:t>No pain, no gain</w:t>
                                    <w:t>No tools, no craft</w:t>
```

MS Office 365 (DOCX)

```
<w:t>Без муке нема науке</w:t>
<w:t>No pain, no gain</w:t>
<w:t>Без алата нема заната</w:t>
<w:t xml:space="preserve">No tools, no </w:t>
<w:t>craft</w:t>
```

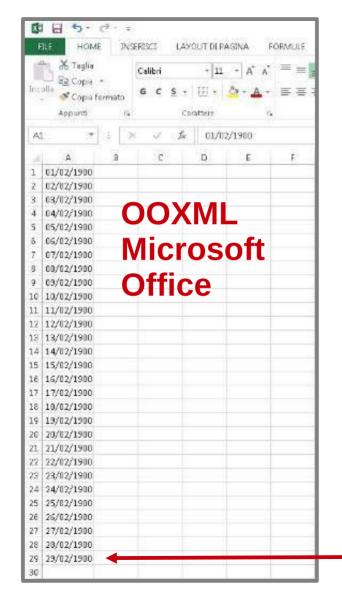
Brain & Computer

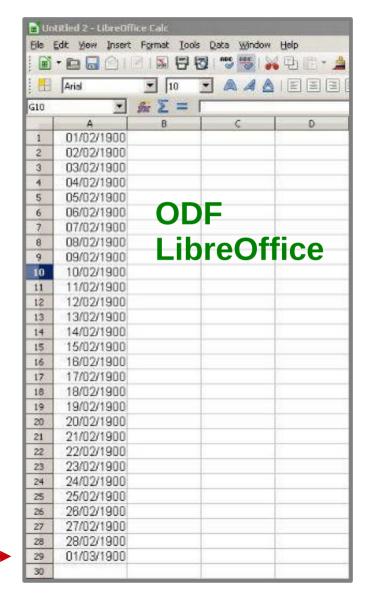
ODF (LibreOffice)

- Writer fo:color="#FF0000"
- Calc fo:color="#FF0000"
- Impress fo:color="#FF0000"

OOXML (MS Office)

- Word w:color w:val="FF0000"
- Excel color rgb="FFF0000"
- PowerPoint a:srgbClr val="FF0000"



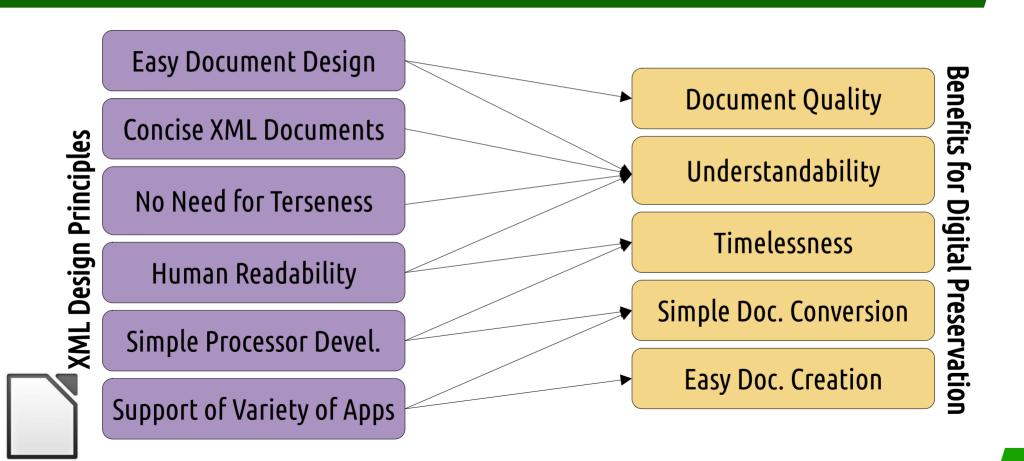


Writing Dates the Excel Way

Event	Calc	Excel
Italo Vignoli Birthday	12/08/1954	19948
Italo Vignoli Graduation	19/11/1978	28813
Italo Vignoli First Job	01/10/1981	29860
Italo Vignoli First Computer	01/09/1983	30560
Italo Vignoli Wedding	08/09/1984	30933
Italo Vignoli Installs OOo	02/01/2003	37623
LibreOffice Announcement	28/09/2010	40449



XML Design Advantages



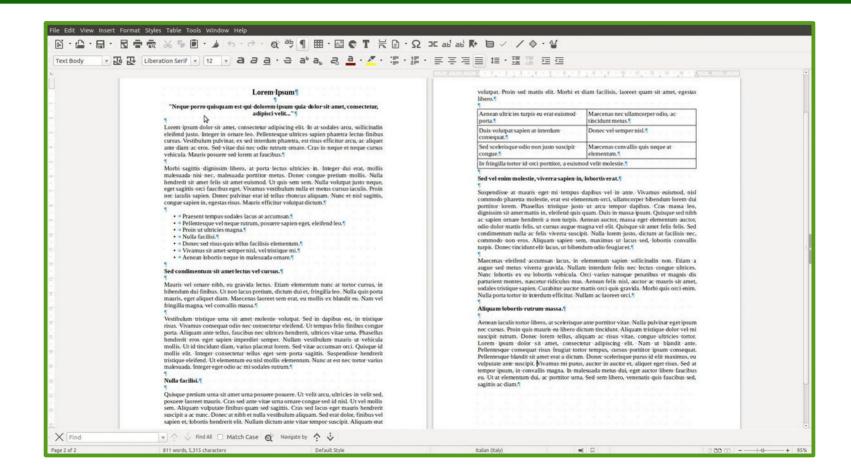
OOXML Poor XML

- Poor names and inconsistent naming conventions for elements and attributes
- Ecma 376 contradicts the goals of XML which are
 - XML documents should be human-legible and reasonably clear
 - Terseness in XML markup is of minimal importance
- Instead, Ecma 376 often uses unclear names and inconsistent naming conventions
 - These include unnecessary vowel removals, name truncations, and unusual abbreviations, as described in next slide

Differences in Tags and Tag Naming

- The OOXML has shorter tag names, which save file space and facilitates an increase in the speed used of "parsing" the data to convert it to the internal structures the application needs, but increases the number of tags needed in that format.
- The ODF naming is longer and more wordy as it follows the XML convention for naming tags, to ease interoperability when implementing the standard, while file space and slower parsing are offset by the fact there are fewer tags required in this format.

Comparison ODF/OOXML



Length in Lines of the XML File

Version	Lines of XML
ODF 1.2 (any version of) LibreOffice	222
OOXML 2010 Transitional (MS Office Windows)	1040
OOXML 2011 Transitional (MS Office MacOS)	12854
OOXML 2013 Transitional (MS Office Windows)	1590
OOXML 2016 Transitional (MS Office Windows)	11667
OOXML 2016 Transitional (MS Office MacOS)	11646
OOXML 2019 Transitional (MS Office Windows)	7085



"Seasonality" of MS Office XML Files

Versione	Lines of XML
Windows OOXML 2013 Transitional Summer 2017	1590
Windows OOXML 2013 Transitional Winter 2018	13515
Windows OOXML 2016 Transitional Summer 2017	11667
Windows OOXML 2016 Transitional Winter 2018	969
Windows OOXML 2016 Transitional Fall 2018	11288
Windows OOXML 2016 Transitional Spring 2019	7085
MacOS OOXML 2016 Transitional Summer 2017	11646
MacOS OOXML 2016 Transitional Fall 2018	854
MacOS OOXML 2016 Transitional Spring 2019	7731



"Naive" Deductions

- All LibreOffice developers are genius
- All Microsoft Office are just i****s

"Real" Deductions

- Microsoft Office XML files are artificially filled with unnecessary content to reduce the chances that software other than Microsoft Office can open them correctly
- Microsoft has a clear commercial interest in opposing interoperability based on standard and open formats, to protect a market that is still worth more than \$25 billion
- So, documents created with Microsoft Office are standard on paper, but in reality they are built to fool users (and convince them that interoperability cannot exist)

Simplicity vs Hidden Complexity

ODT / LibreOffice

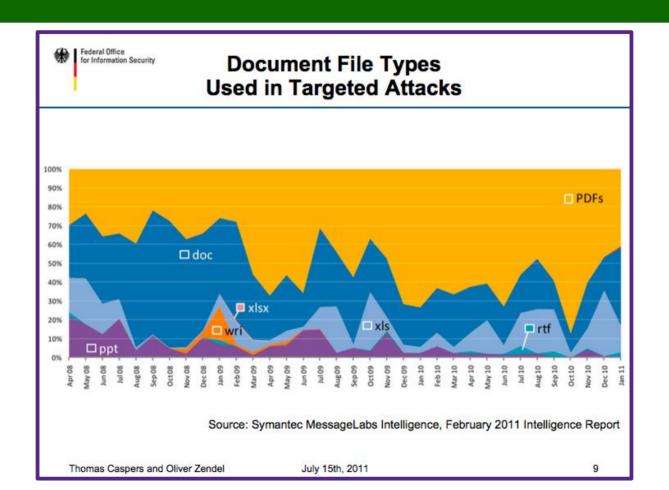
- Reduced, very low or non existing complexity
- XML files are human readable (as they should be)

OOXML / Microsoft Office

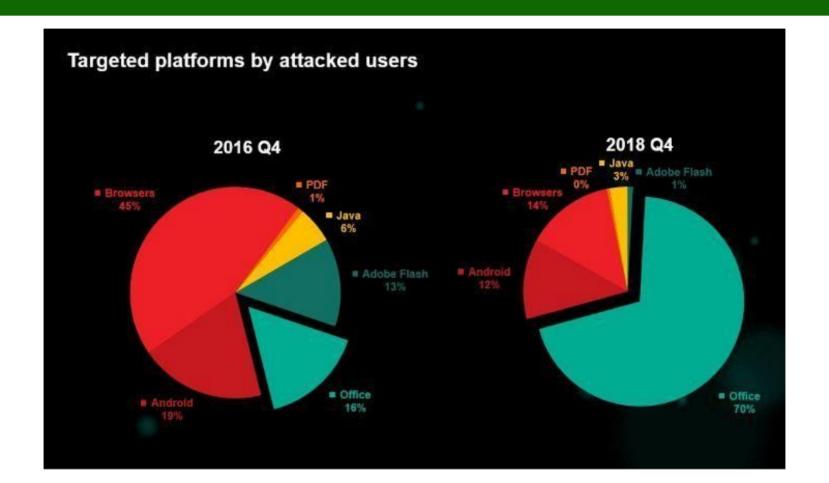
- Highest possible complexity vs technology
- XML files are not human readable (contrary to what the XML standard language mandates)



Document Vulnerabilities in 2011



Document Vulnerabilities in 2018

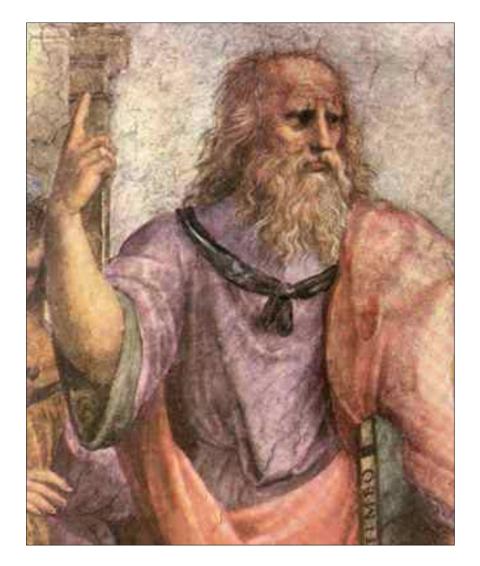


Myth: OOXML is Better Documented

- No, more than 80% of OOXML huge documentation (over 7K pages) is used to "reinvent the wheel":
 - Describe proprietary Microsoft formats adopted to replace available open standards (i.e, VML over SVG)
 - Describe OOXML incredibly complex XML Schema, which is not following any XML convention (i.e., text for "text", strong for "bold", etc.)
 - Describe proprietary elements of legacy MS Office formats, which are not part of the ISO standard

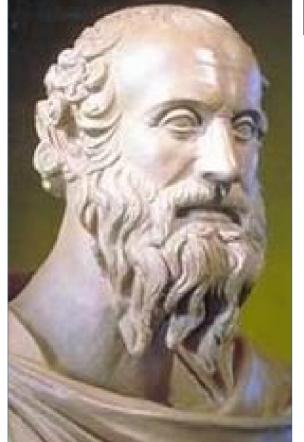
Myth: OOXML is Backward Compatible

- No, the truth is exactly the opposite:
 - OOXML is backward compatible with legacy proprietary MS Office formats, but not with OOXML standard docs (which do not exist as OOXML Strict has never been adopted by users)
 - OOXML files are not versioned, are not consistent over time (probably because of different versions, if they were documented), and 100% of them is still proprietary
 OOXML Transitional



Man is an animal with two legs and no feathers

Plato



Diogenes the Cynic







Subservience to Microsoft

Is that true? Is that real? Unbelievable, Microsoft rules

Human Genes Renamed To Please Excel

Written by Janet Swift

Friday, 07 August 2020

More than two dozen human genes have been renamed so that they can be typed into a spreadsheet without being formatted as dates. New guidelines for standardized gene naming explicitly allow for renaming genes to avoid problems with data handling.



LibreOffice Versions

- Desktop (TDF)
- LTS (Collabora & CIB)
- Online (TDF, Collabora & CIB)
- Android (Collabora)
- iOS & Apple Store (Collabora)
- Windows Store (CIB)

LibreOffice 7.0

- ODF 1.3 Support
 - PGP Cryptography, Change Tracking, Improved Description of Elements, Solution of Many Bugs
- Skia Graphic Engine and GPU Acceleration
 - Default Solution for Windows
- Improved MS Office Compatibility
 - Alignment to Last Version of Files

LibreOffice User Base Estimate

In term of number of users worldwide, we provide the following estimate based on a global number of PC users between 2 and 3 billion (88% Windows, 9% macOS, 3% Linux):

- 100% of desktop Linux users (between 60 and 90 million)
- 10% of desktop Windows users (between 176 and 264 million)
- 10% of desktop macOS users (between 18 and 27 million)

So, we pick the lower figure of 254 million users worldwide, and we further reduce it by 20% to 200 million users worldwide to account for some duplications.

Growing the Ecosystem

- Educating enterprises about getting professional support for LibreOffice
- Certification program, to allow community members to add value and make money with LibreOffice
- Help migrations from MS Office to LibreOffice, based on professional support

Thanks

Italo Vignoli
The Document Foundation
italo@libreoffice.org
italo@vignoli.org

