



LibreOffice
The Document Foundation



New ODF Toolkit from TDF

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TIRANA | 11 Sept. 2019

ODF Toolkit? What for?



800 pounds sculpture (was stolen) from Healdsburg, Calif.

ODF Toolkit

ODF Basic

- **ODF document is a ZIP:**



- **ODF Package**
(part 3)

- **ODF XML**
(part 1)

- **OASIS ODF specification ==
*„Blueprint“ or „Cooking Recipe“***



ODF Validator

This service checks conformance of ODF documents based on their OpenDocument Format specification. It does not cover all conformance criteria, yet (see [implementation details](#)).

ODF Version:

auto-detect

Logging:

verbose

Choose ODF documents for validation:

Browse... list.odt

Validate

Reset

This service is provided to you by [The Document Foundation](#)



LibreOffice
The Document Foundation

This service does not cover all conformance criteria of the OpenDocument Format specification. It is not applicable for formal validation proof. Problems reported by this service only indicate that a document may not conform to the specification. It must not be concluded from errors that are reported that the document does not conform to the specification without further investigation of the error report, and it must not be concluded from the absence of error reports that the OpenDocument Format document conforms to the OpenDocument Format specification.

ODF Toolkit

Use Cases

- Online Validator (or via commandline)
<https://odfvalidator.org/>
- Running XSLT directly on ODF document (no unzipping XML)

ODF Toolkit

Use Cases

- Editing an ODF document (e.g. Cloud)
 - by API without Layout
 - for Data Extraction (e.g. Translation)
 - for Data Insertion (e.g. by Database)
- Collaboration on Documents (ODT)
 - backend for Web Offices (ODT)
(starting with ver 1.0.0)

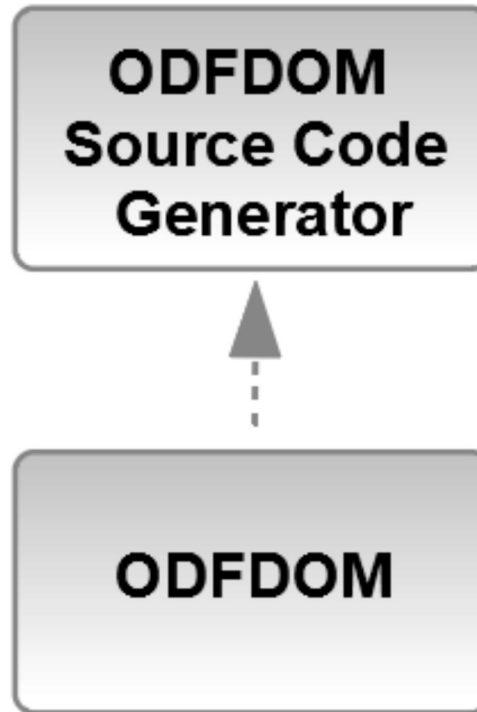
The Architecture of ODF Toolkit



Alcazaba of Almería

ODF Toolkit

Architecture



Dependencies:

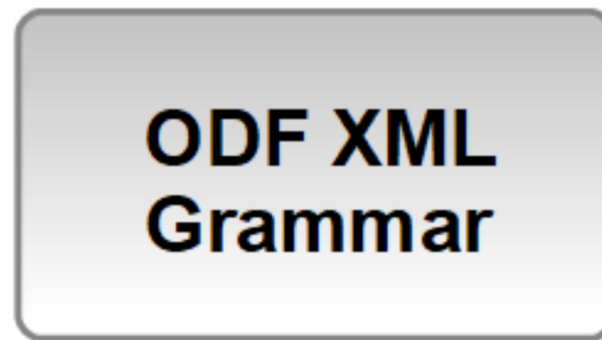
compile time



run time



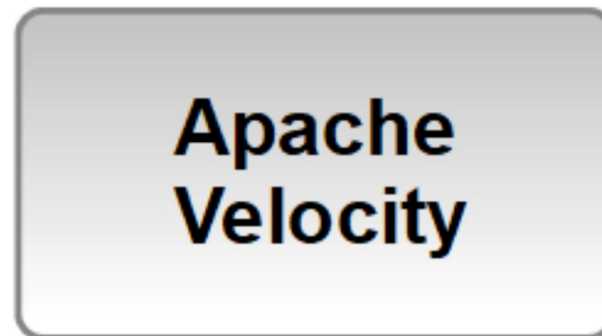
ODFDOM Source Code Generator Architecture



OASIS XML grammar:
~18000 text lines
~600 XML elements
~1200 XML attributes



XML Validator -
reads many
XML grammars



template engine
generating sources
by text templates
having a context
with Java access

ODF GRAMMAR - TEXT

HARD TO ANSWER



Can a
paragraph **<text:p>**
be nested
in a valid document?



ODF 1.2 XML:

- 598 **XML Elements**
 - 1300 **XML Attributes**
- > 18k lines

ODF GRAMMAR - TEXT

HARD TO READ



```
<define name="table-table">
  <element name="table:table">
    <ref name="table-table-attlist"/>
    <optional>
      <ref name="table-title"/>
    </optional>
    <optional>
      <ref name="table-desc"/>
    </optional>
    <optional>
      <ref name="table-table-source"/>
    </optional>
    <optional>
      <ref name="office-dde-source"/>
    </optional>
    <optional>
      <ref name="table-scenario"/>
    </optional>
    <optional>
      <ref name="office-forms"/>
    </optional>
    <optional>
      <ref name="table-shapes"/>
    </optional>
    <ref name="table-columns-and-groups"/>
    <ref name="table-rows-and-groups"/>
    <optional>
      <ref name="table-named-expressions"/>
    </optional>
  </element>
</define>
<define name="table-columns-and-groups">
  <oneOrMore>
```

ODF 1.2 XML:

- 598 XML Elements
 - 1300 XML Attributes
- > 18k lines

ODF GRAMMAR - TEXT

HARD TO READ



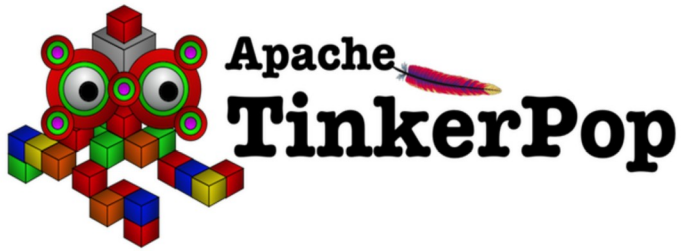
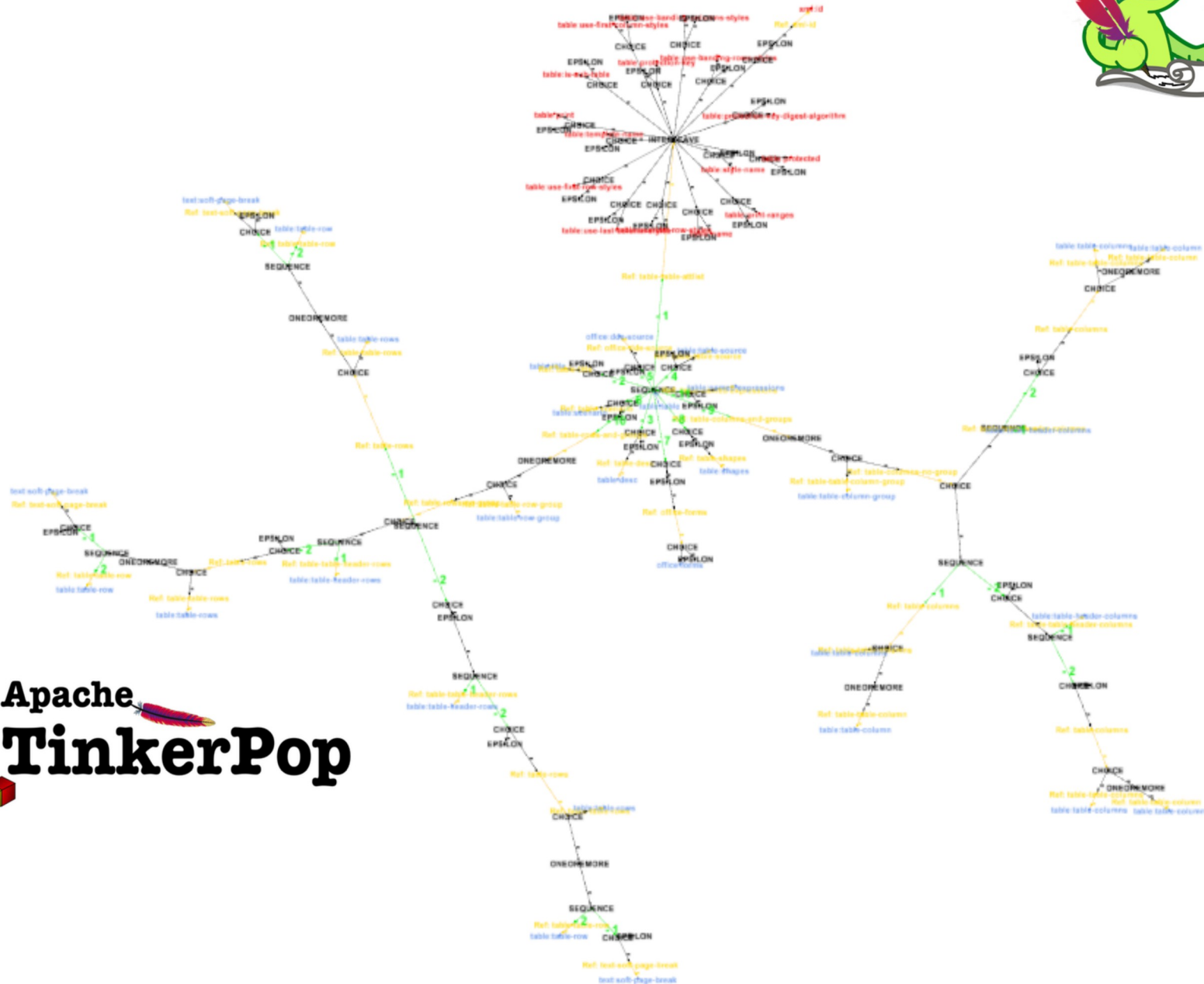
```
<define name="table-table">  
  <element name="table:table">  
    <ref name="table-table-attlist"/>  
    ...  
  
  <optional>  
    <ref name="text-soft-page-break"/>  
  </optional>  
  <ref name="table-table-row"/>
```

ODF 1.2 XML:

- 598 XML Elements
 - 1300 XML Attributes
- > 18k lines

ODF GRAMMAR - GRAPH

TABEL ELEMENT WITH CHILDREN



ODF GRAMMAR - GRAPH

HARD TO READ



text:soft-page-break

Ref: text-soft-page-break

EPSILON

CHOICE

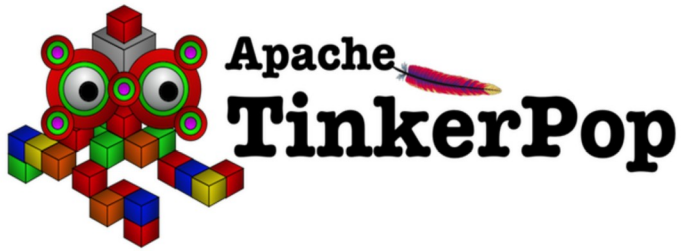
table:table-row

Ref: table:table-row

1

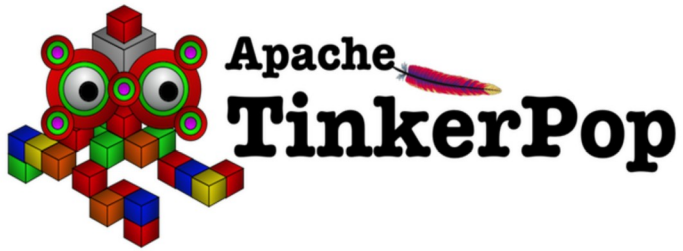
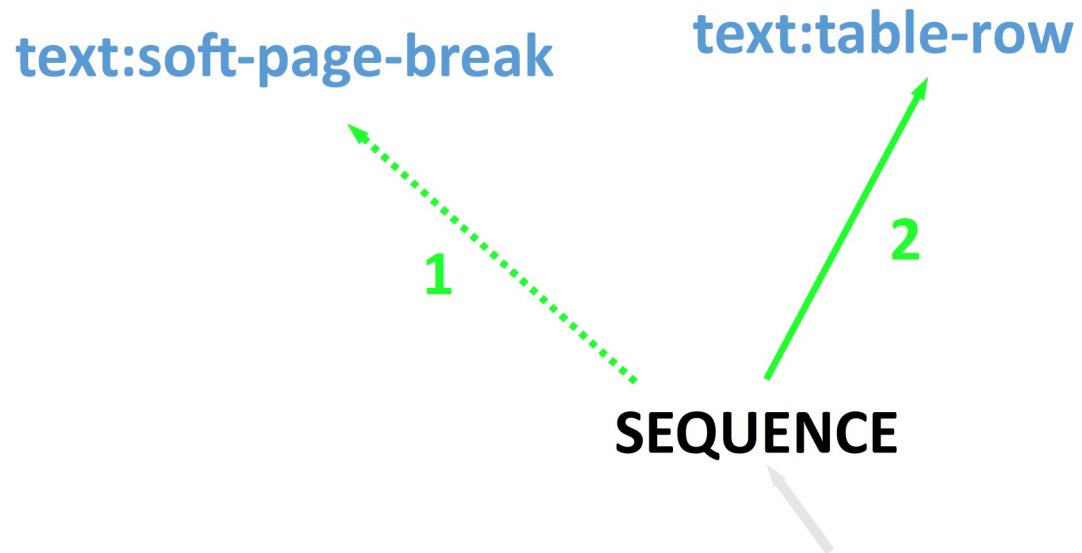
2

SEQUENCE

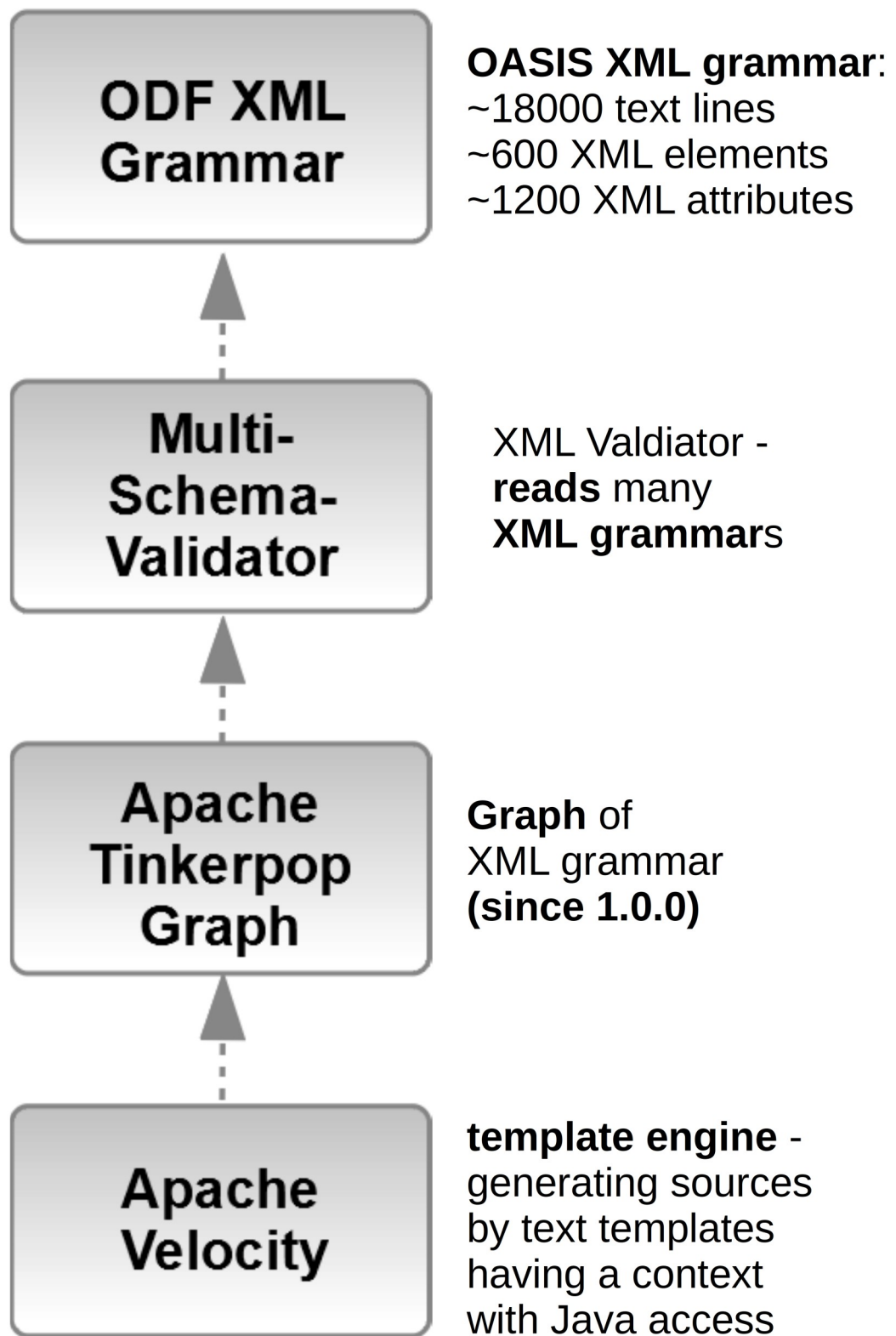


ODF GRAMMAR - GRAPH

SIMPLIFIED

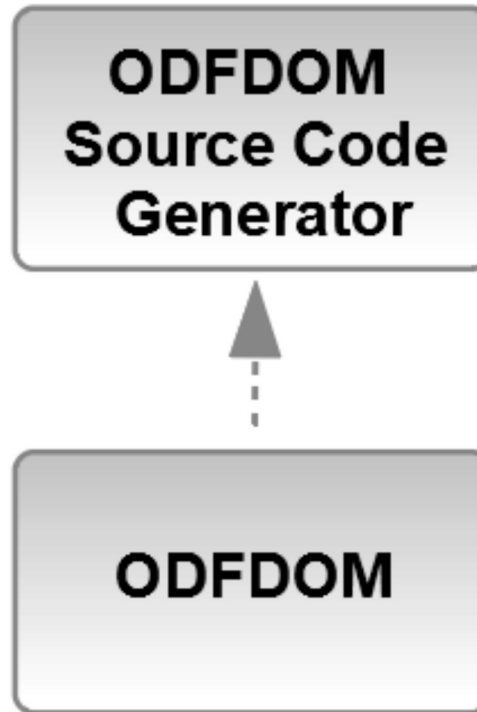


ODFDOM Source Code Generator Architecture



ODF Toolkit

Architecture



Dependencies:

compile time

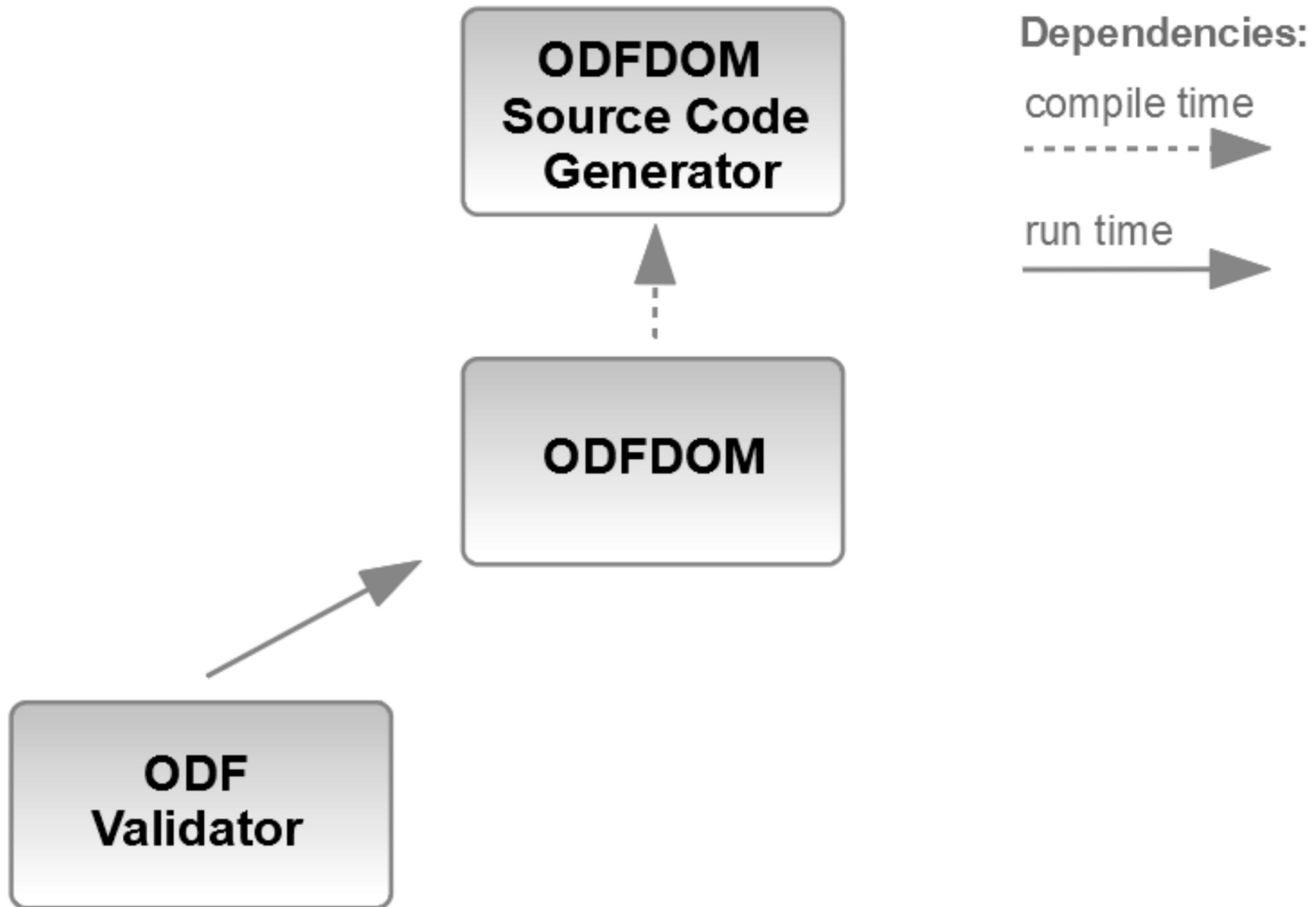


run time



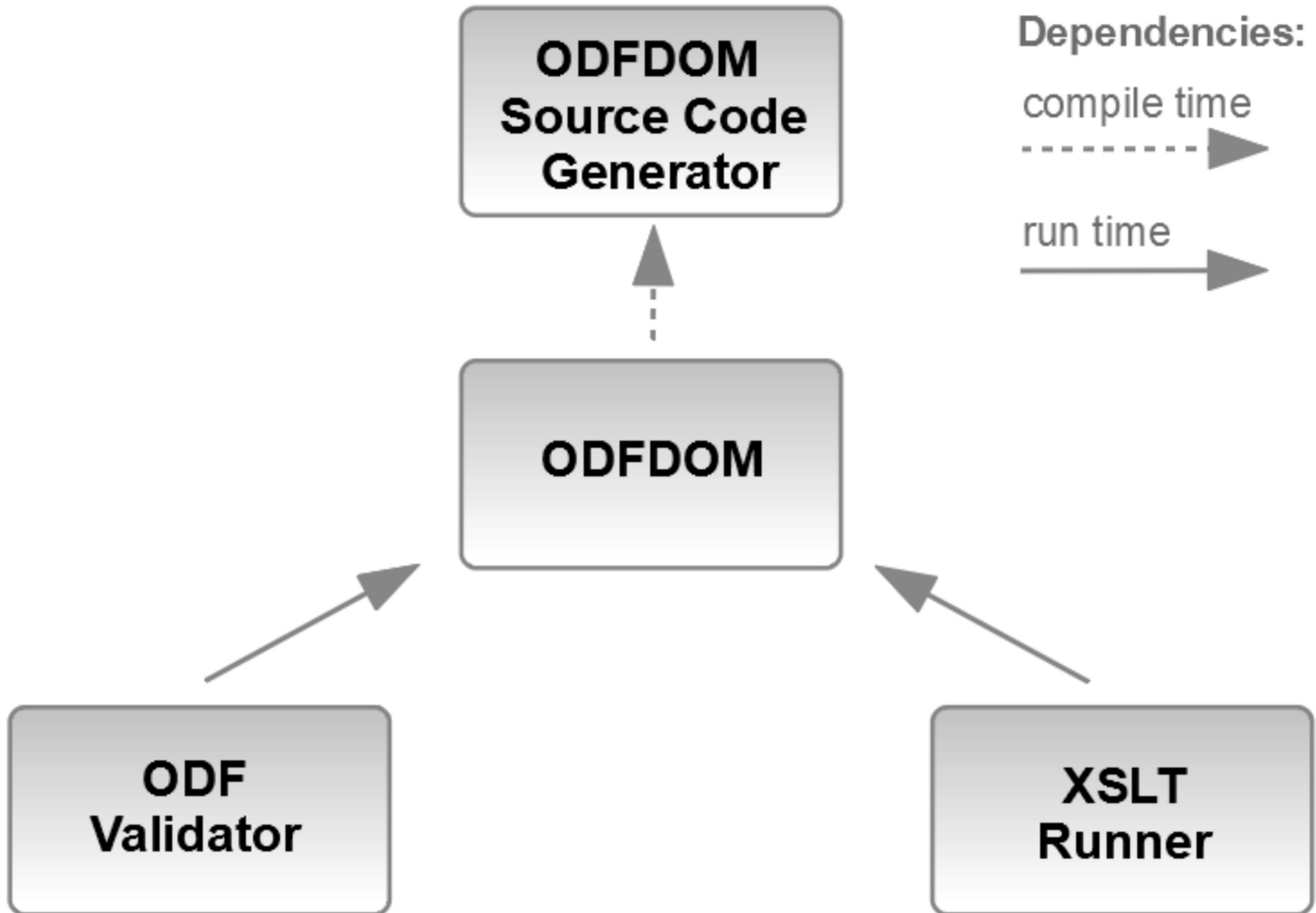
ODF Toolkit

Architecture



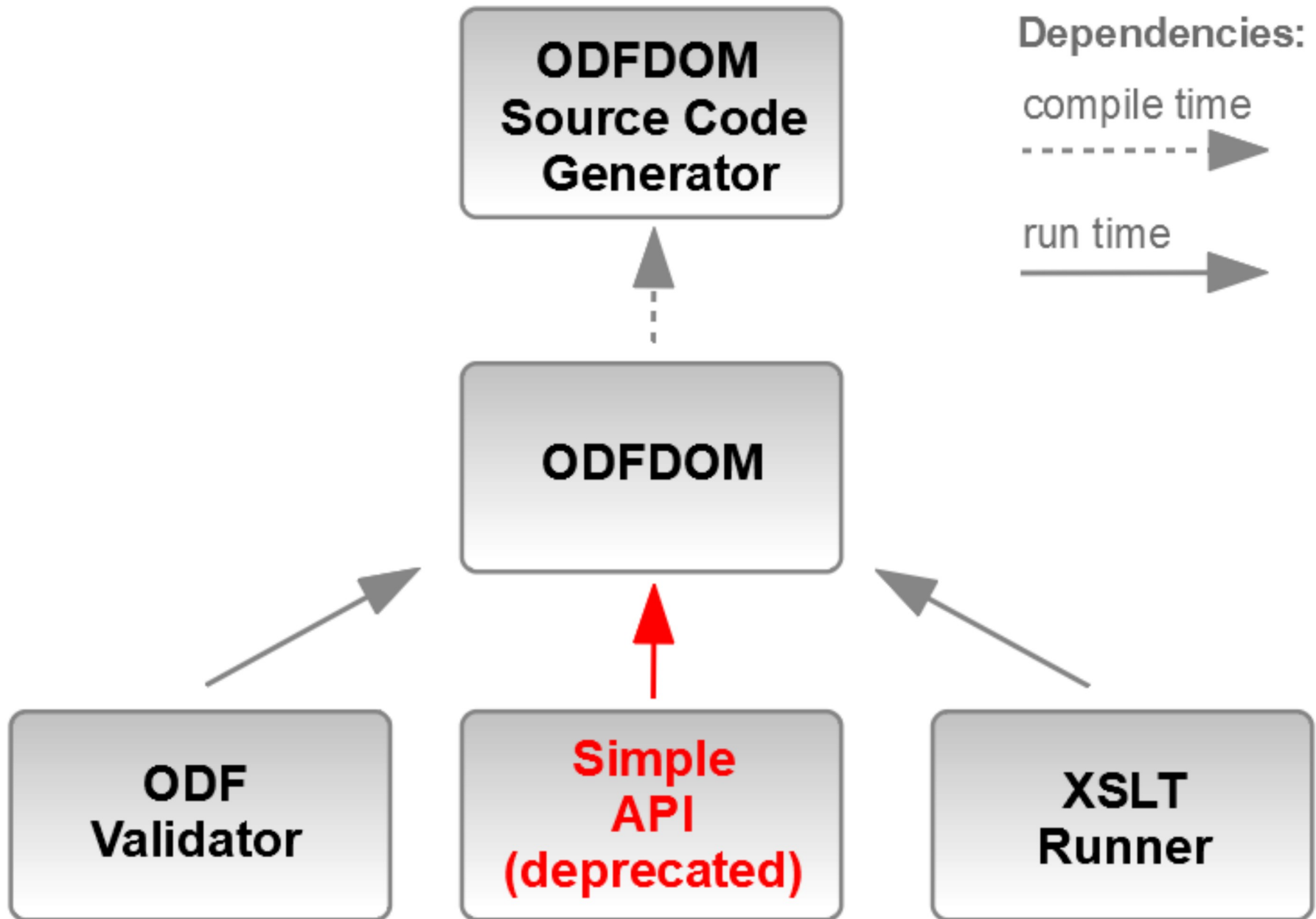
ODF Toolkit

Architecture



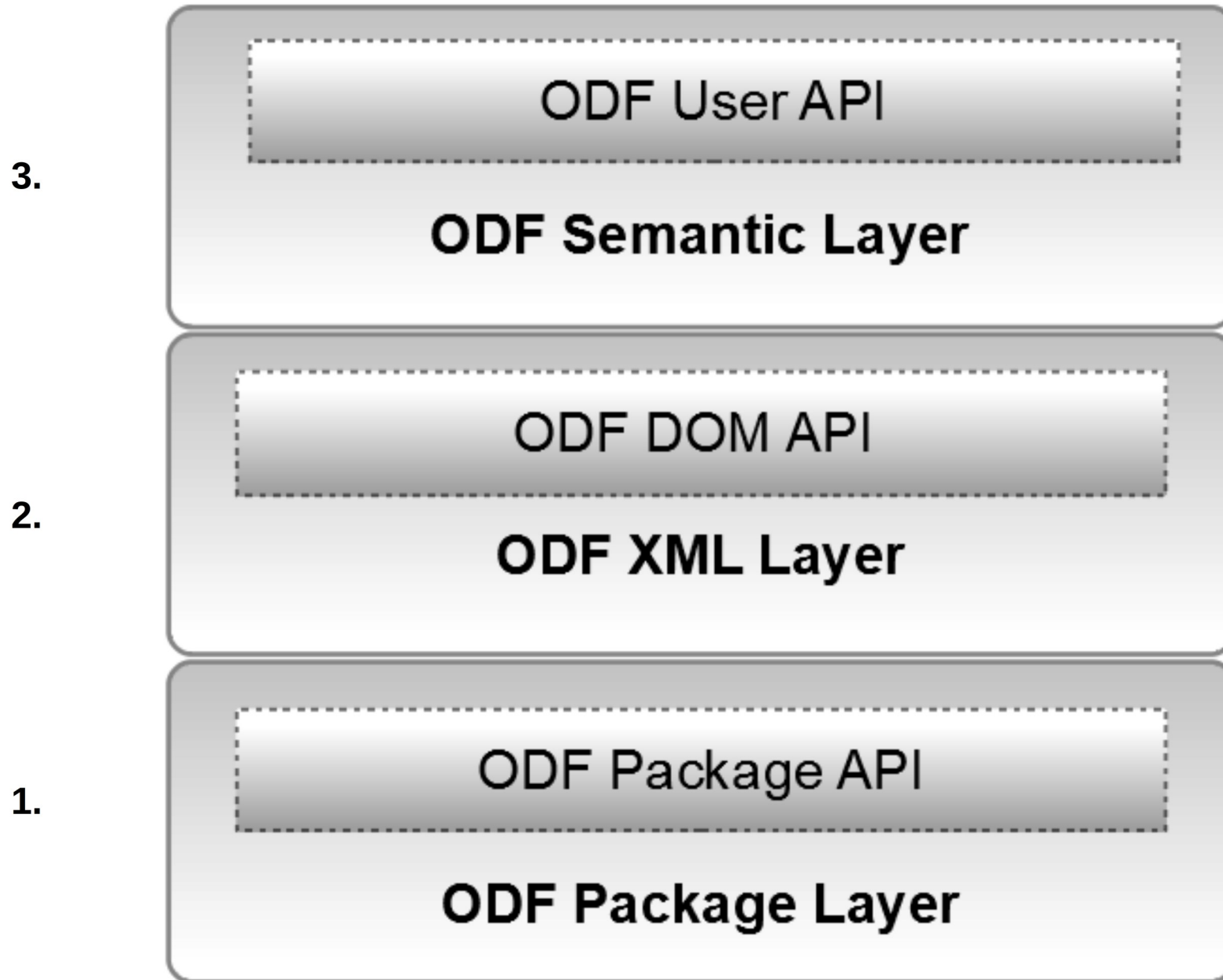
ODF Toolkit

Architecture



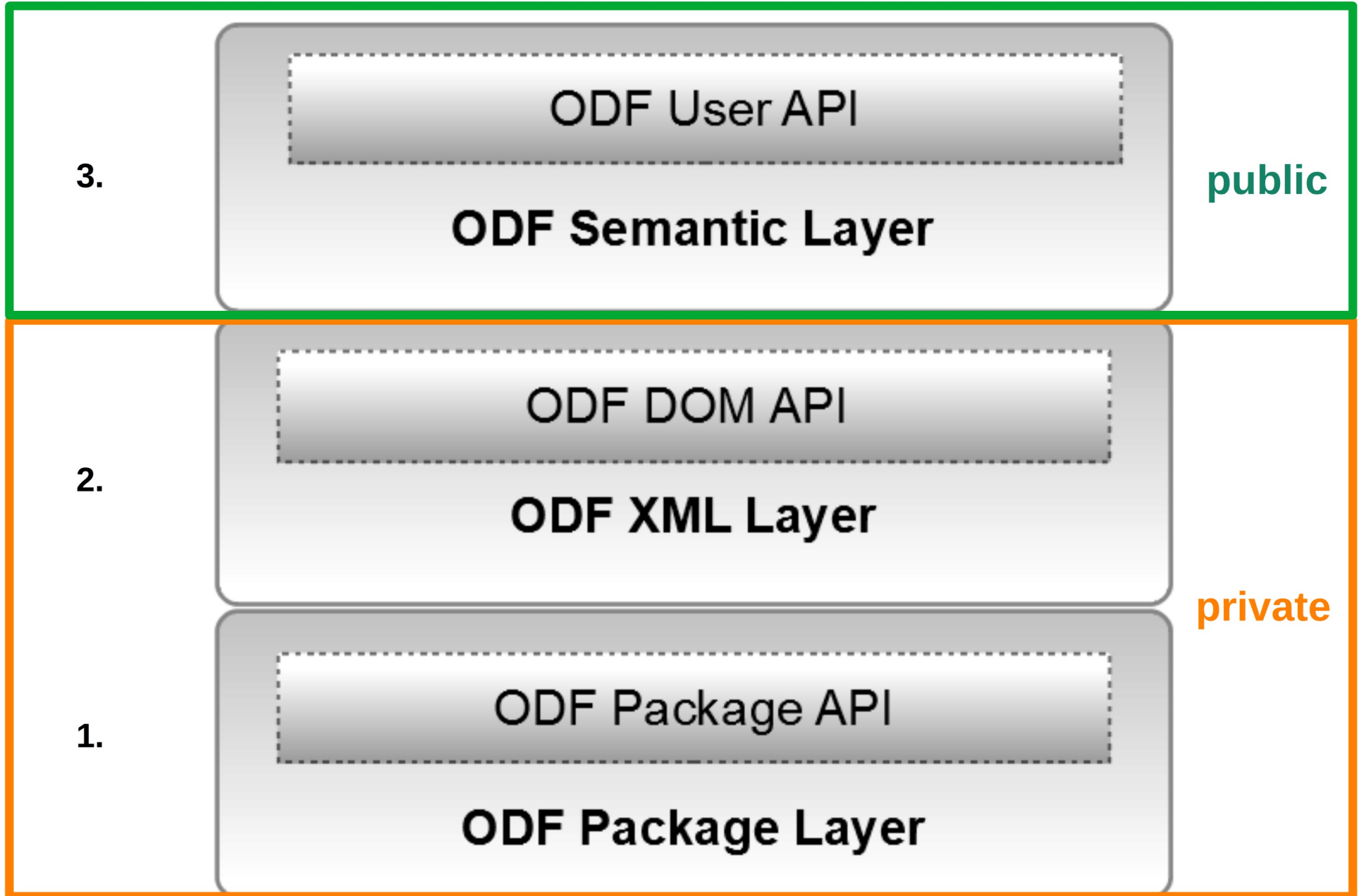
ODFDOM

Architecture



ODFDOM

Architecture (in spe)



Document Collaboration from 80ths

Design based on former Requirements

- In the 80ths: **One person on single machine**
- Exchanging document by **floppy disc** or **modem**

Document Collaboration Today

New Requirements

- With Smartphones **everyone** has **multiple machines**
(Smartphone & PC/Laptop)
- **Exchanging documents** faster via Internet, Mail, Dropbox, etc. will not solve the **merge problem!**
- **Key Collaboration Question:**
What have you changed?

Document Collaboration Idea

New Change Design

- Allow **collaboration functionality** similar as software developers have with repositories
- **Exchanging changes (commits) instead of documents (repositories)** via Internet, Mail, Dropbox, etc.
- **Solving Key Question:**
What have you changed?

Interoperable Collaboration

Exchanging ODF Changes



ODF Application

 ODF™ 2nd paragraph new



ODF Application

 ODF™ 2nd paragraph new



Google Docs

ODF Application

Interoperable Collaboration

Exchanging **ODF Changes**



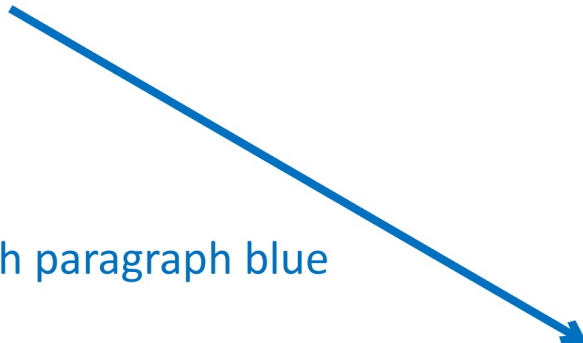
ODF Application



 **ODF™** 4th paragraph blue



ODF Application



 **ODF™** 4th paragraph blue

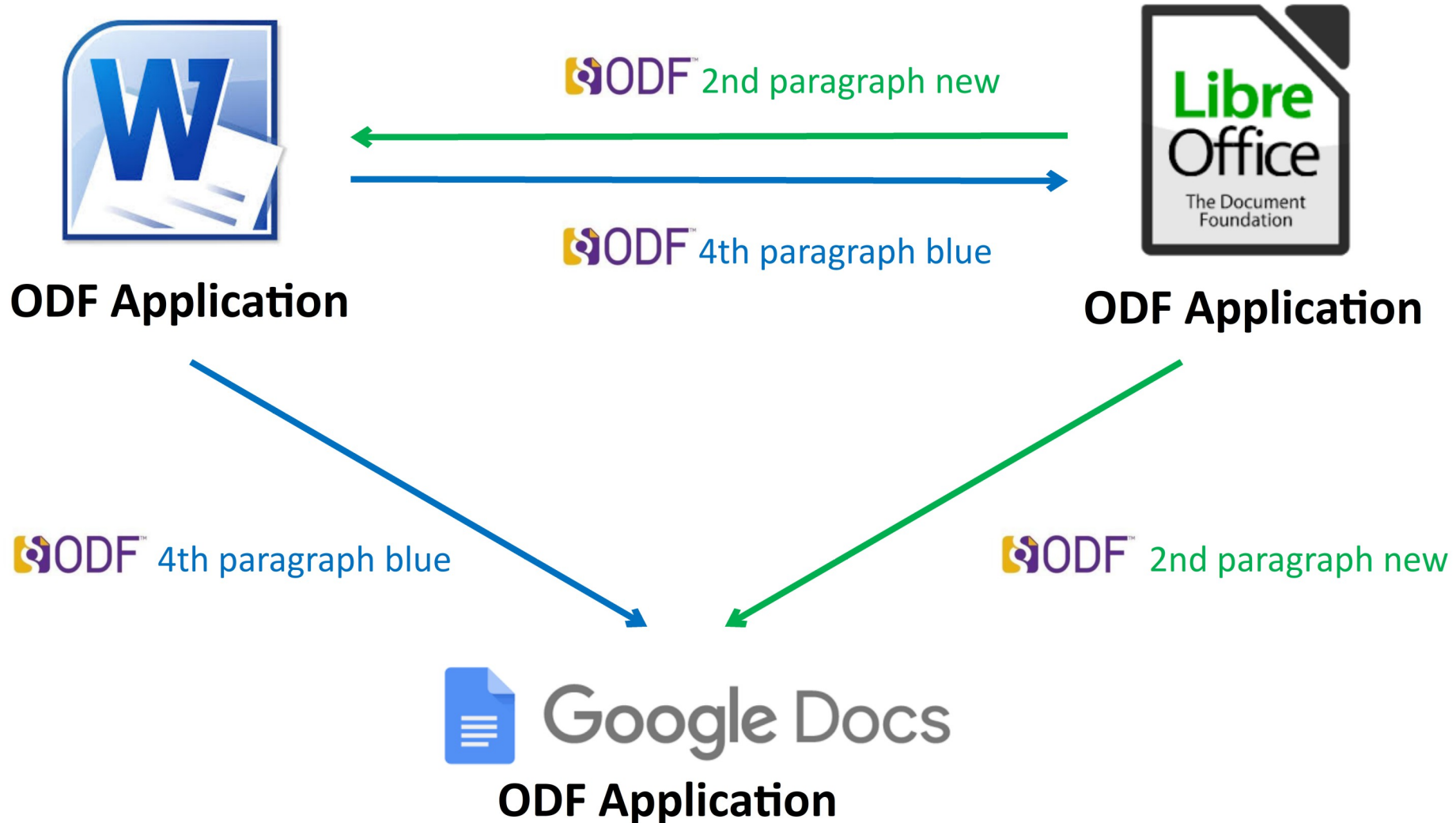


Google Docs

ODF Application

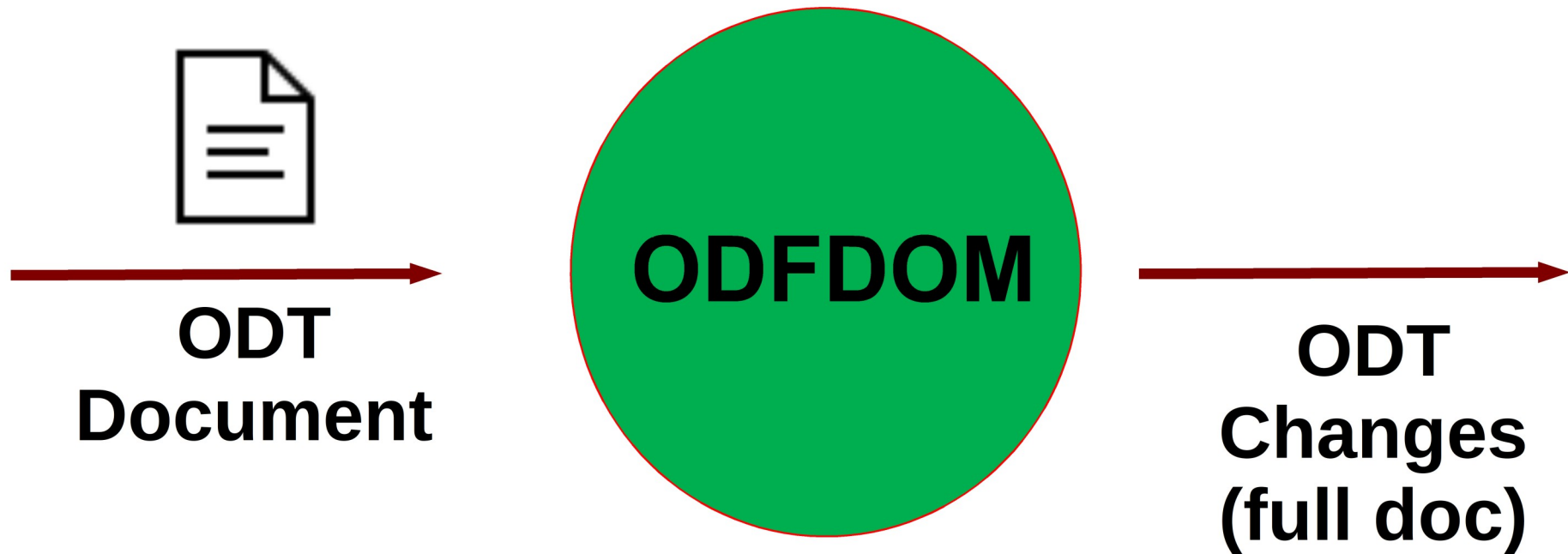
Interoperable Collaboration

Exchanging ODF Changes



ODT ⇔ Changes

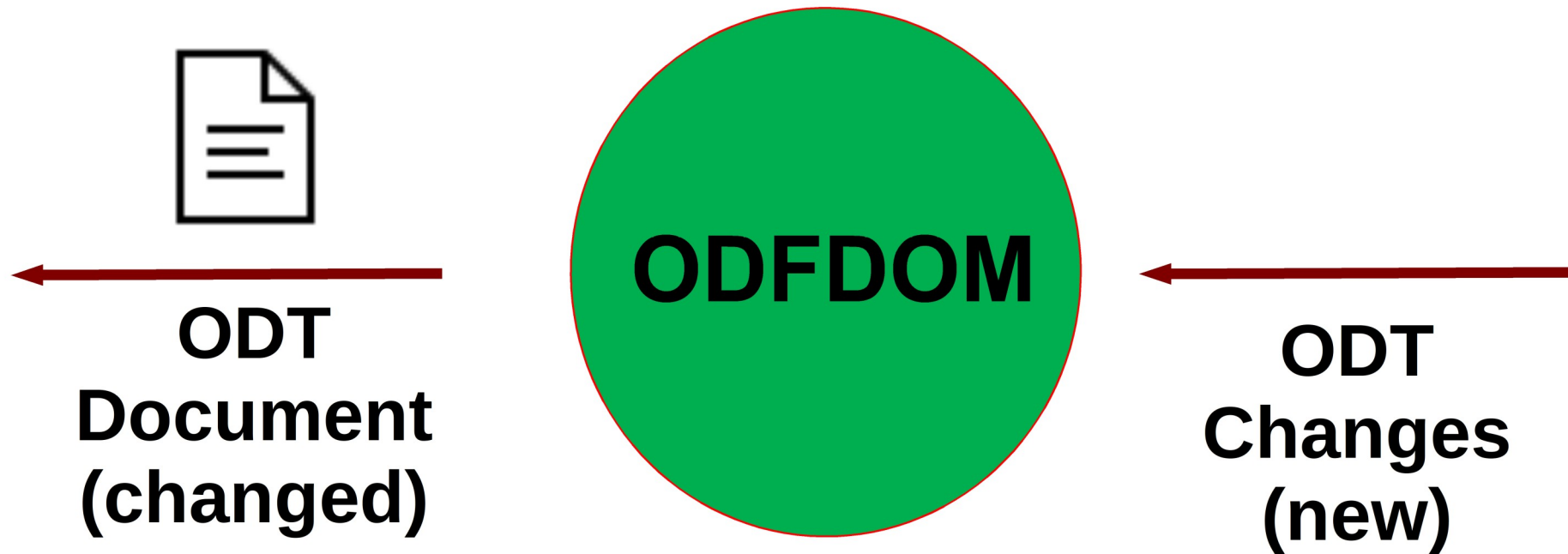
sponsored by PrototypeFund



See <https://github.com/svanteschubert/odftoolkit/tree/odf-changes/>
Soon <https://github.com/tdf/odftoolkit> (1.0.0-beta)

ODT ⇔ Changes

sponsored by PrototypeFund



See <https://github.com/svanteschubert/odftoolkit/tree/odf-changes/>
Soon <https://github.com/tdf/odftoolkit> (1.0.0-beta)

ODF Toolkit - ODFDOM

Upcoming Goals

- **Prototype of Collaboration of Editors** based on ODF Changes (ODFDOM)
- **WYSIWYG Editors with different feature set editing same ODT Document:**
 - LibreOffice (ODT)
 - Emacs (Text)
 - CKEditor 5 (HTML 5)

ODF Toolkit – CKEditor5

Upcoming Work

- Build your CKEditor5 example:

```
git clone -b stable https://github.com/ckeditor/ckeditor5-build-classic.git  
npm install  
npm run build
```

- Open local editor in browser (& add eventlistener from notes)

```
./sample/index.html
```


ODF Toolkit – CKEditor5

Demo results in Chrome console

- `eventinfo[object Object] args[{"baseVersion":12,"position":{"root":"main","path":[0,6],"stickiness":"toNone"},"nodes":[{"data":"X"}],"shouldReceiveAttributes":true,"__className":"InsertOperation"}]`
- `index.html:48 eventinfo[object Object] args[{"baseVersion":13,"range":{"start":{"root":"main","path":[0,3],"stickiness":"toNext"},"end":{"root":"main","path":[0,7],"stickiness":"toPrevious"}},"key":"italic","oldValue":null,"newValue":true,"__className":"AttributeOperation"}]`

ODF Toolkit

Resources

- **Website (in progress):**
<https://odftoolkit.org/>
<https://tdf.github.io/odftoolkit/docs/> (latest)
- **Sources:**
<https://github.com/tdf/odftoolkit>
- **Online Validator:**
<https://odfvalidator.org/>
- **ODF Specification**
<http://docs.oasis-open.org/office/v1.2/os/>