

Granularizing BITS XML for product(ion) flexibility

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XUG
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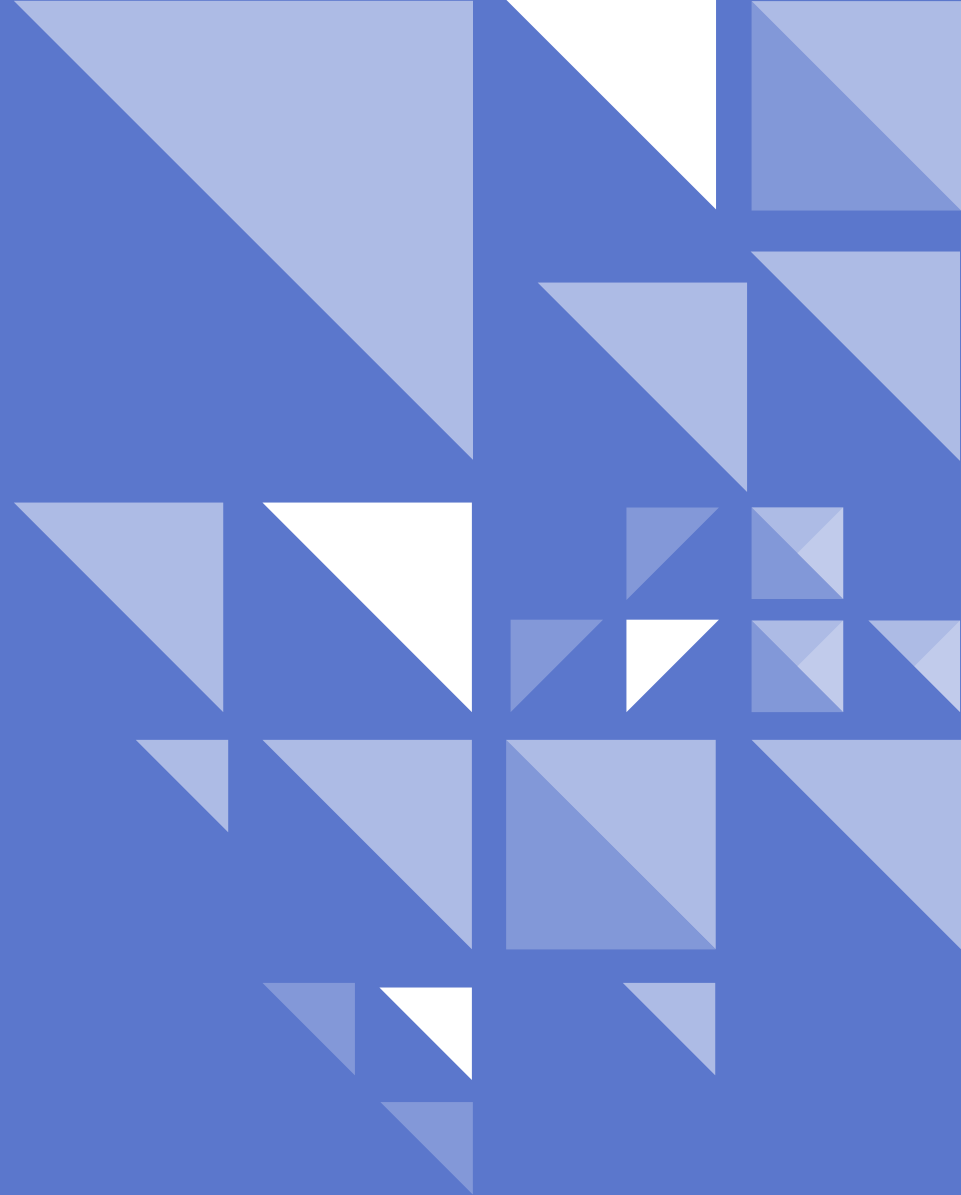
Curriculum: background

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- Several programs, including CFA® Program, originally conceived and created as print textbooks
- Content is updated annually by a large pool of external SMEs
- Candidate study products are reproduced from the ground up annually using
 - eXtyles SI
 - automated workflows for product conversions (Typefi, custom scripts)

The old way



OLD: Chapter (“Reading”)



Gray boxes indicate individual Word documents and NLM 3.0 <book-part>s

Learning Outcome Statements

Reading text

Glossary
Term

Glossary
Term

Glossary
Term

Glossary
Term

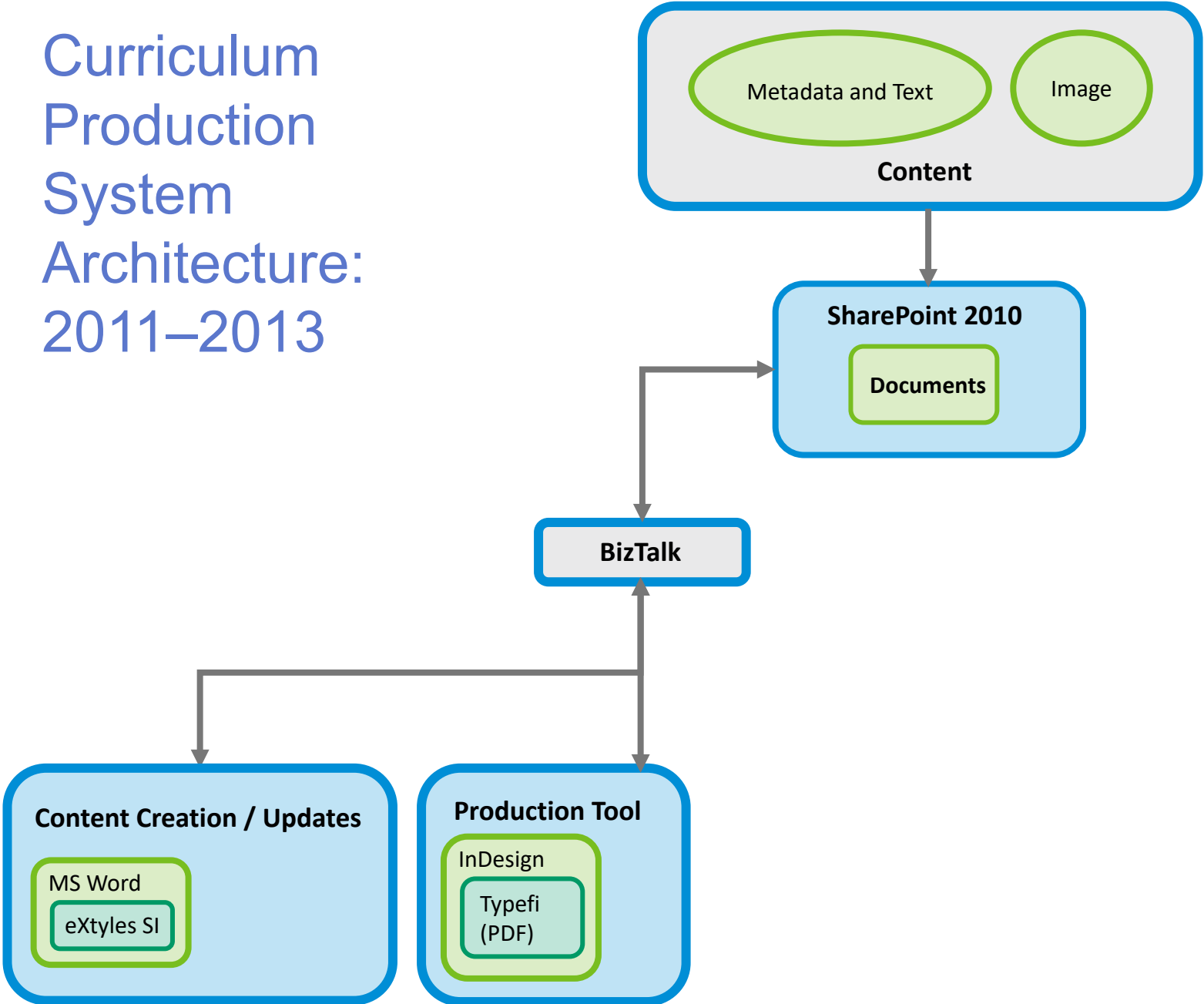
Glossary
Term

Glossary
Term

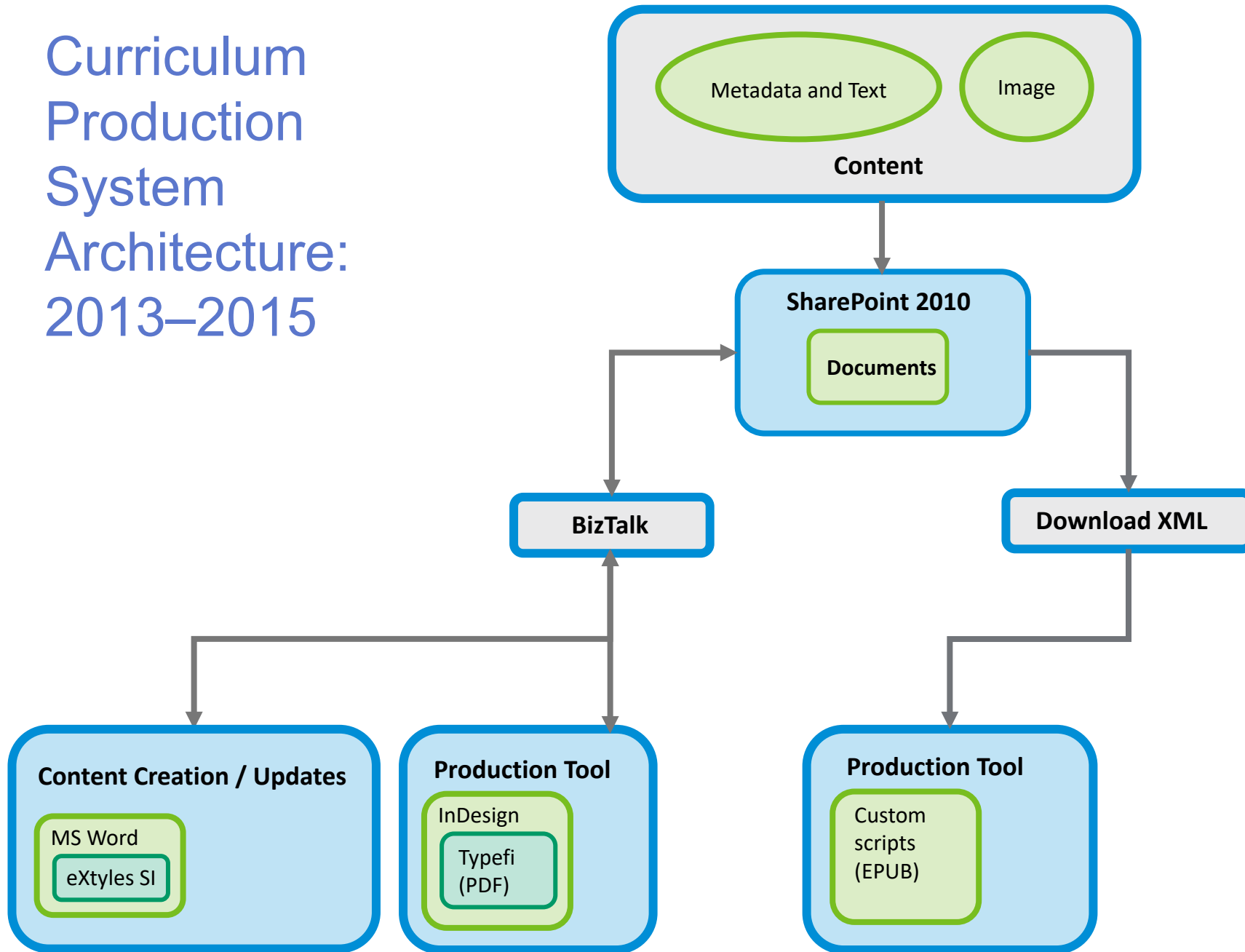
Problems

Solutions

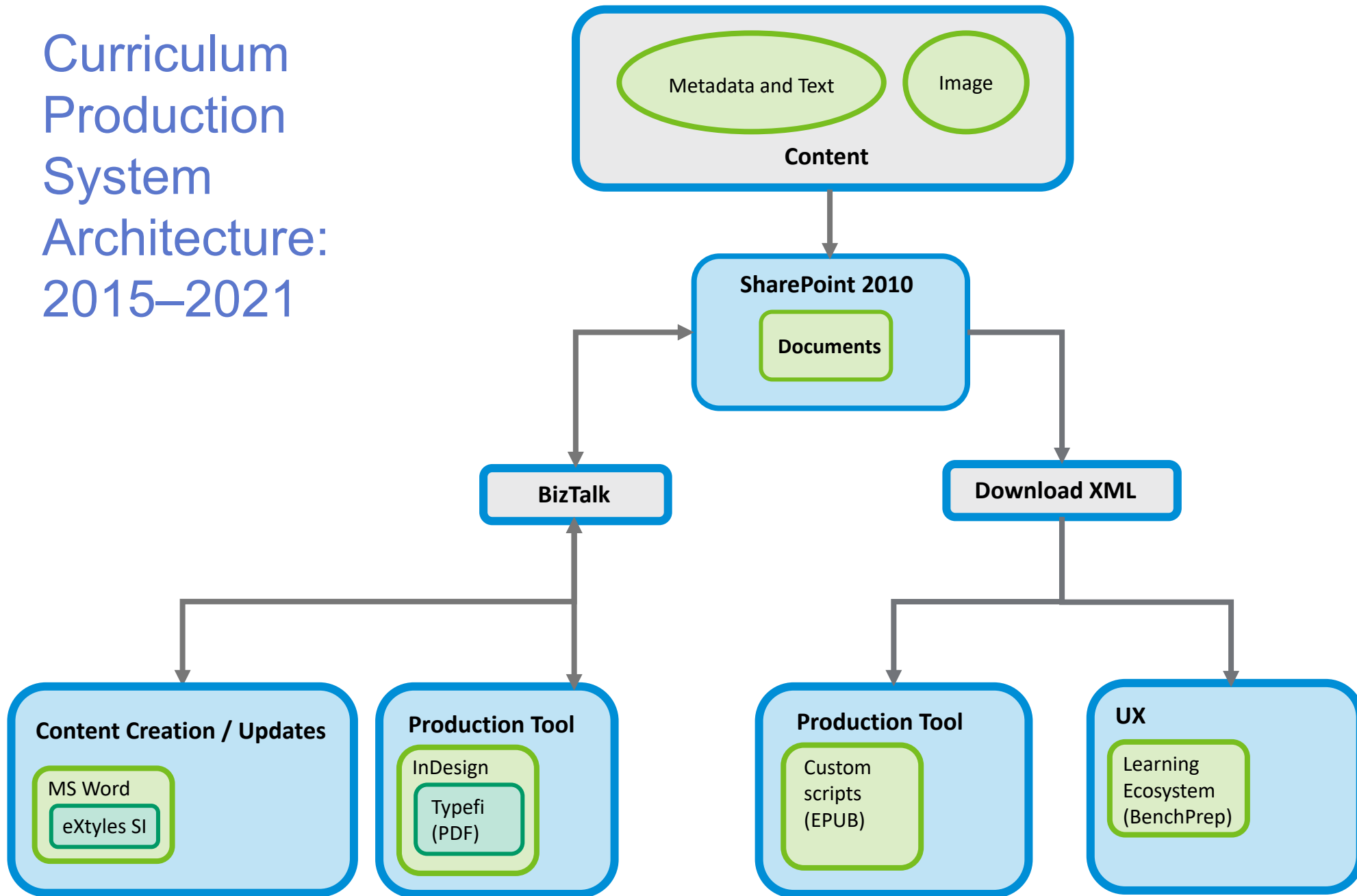
Curriculum Production System Architecture: 2011–2013



Curriculum Production System Architecture: 2013–2015



Curriculum Production System Architecture: 2015–2021

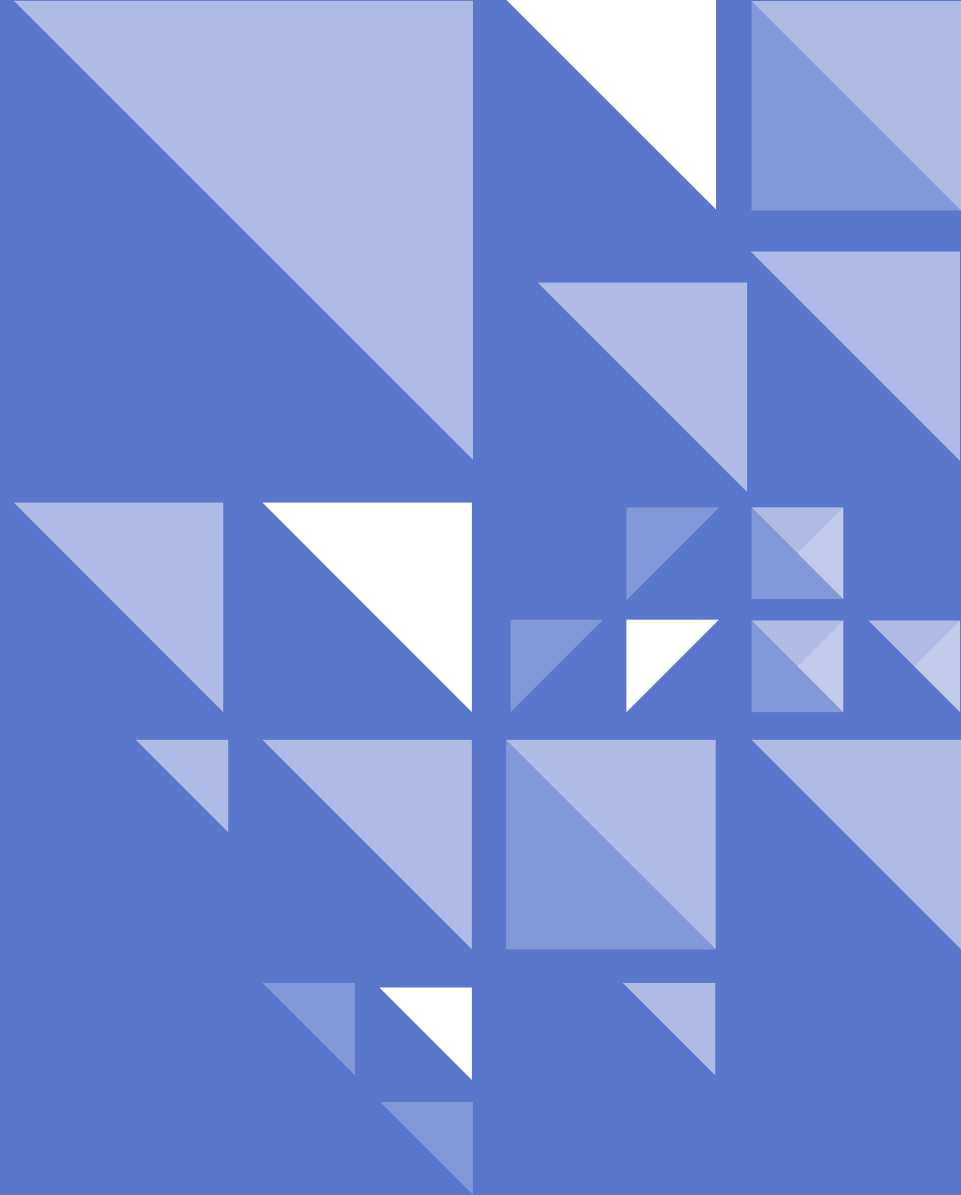


Why change?



- SharePoint 2010 end of life
- Production of EPUB and Learning Ecosystem courses relied on inefficient and risky downloading and processing of files
- Glossary term usage across multiple readings required de-duping and standardization of definitions
- Conversion of curriculum to digital Learning Ecosystem revealed that XML needed more granularity and internal linking
- Inability to link curriculum to exam

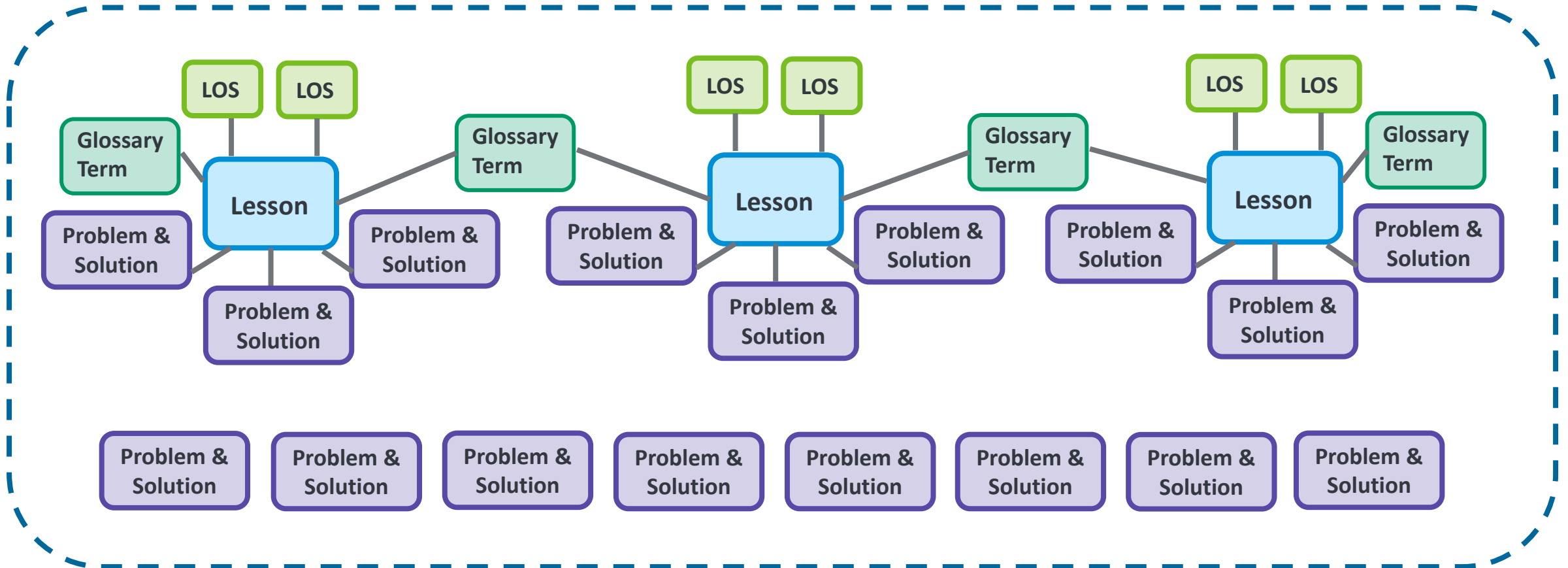
The new way



NEW: Learning Module



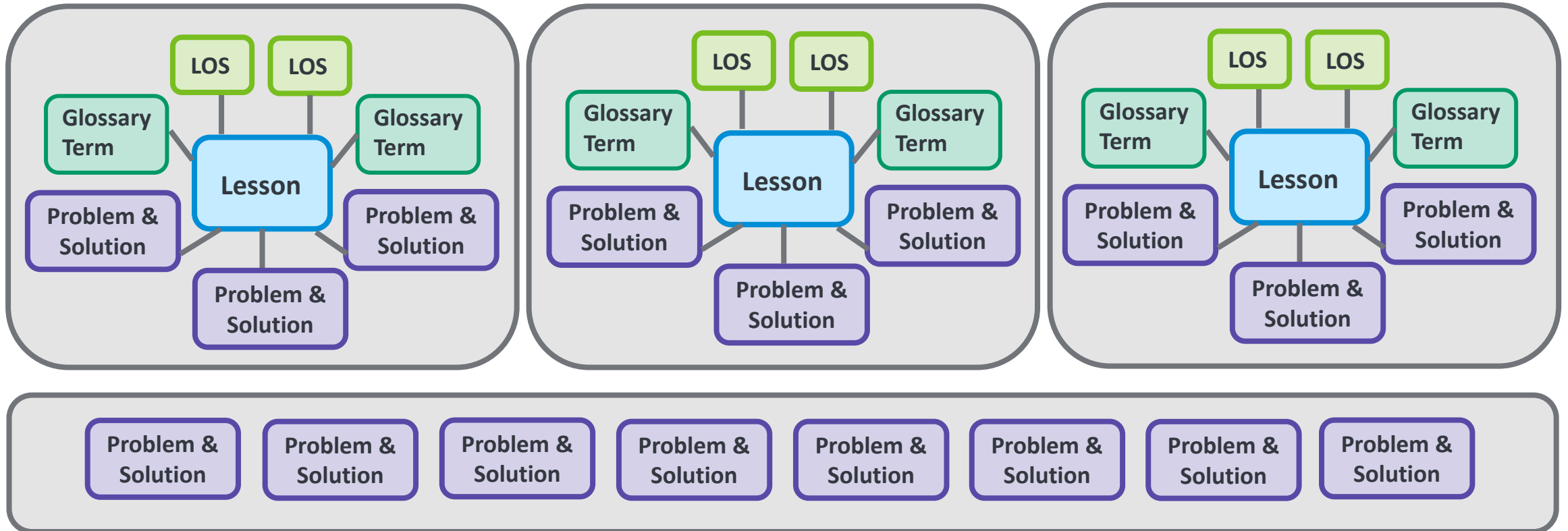
Each individual component is a BITS 2.0 <book-part> saved separately in the database



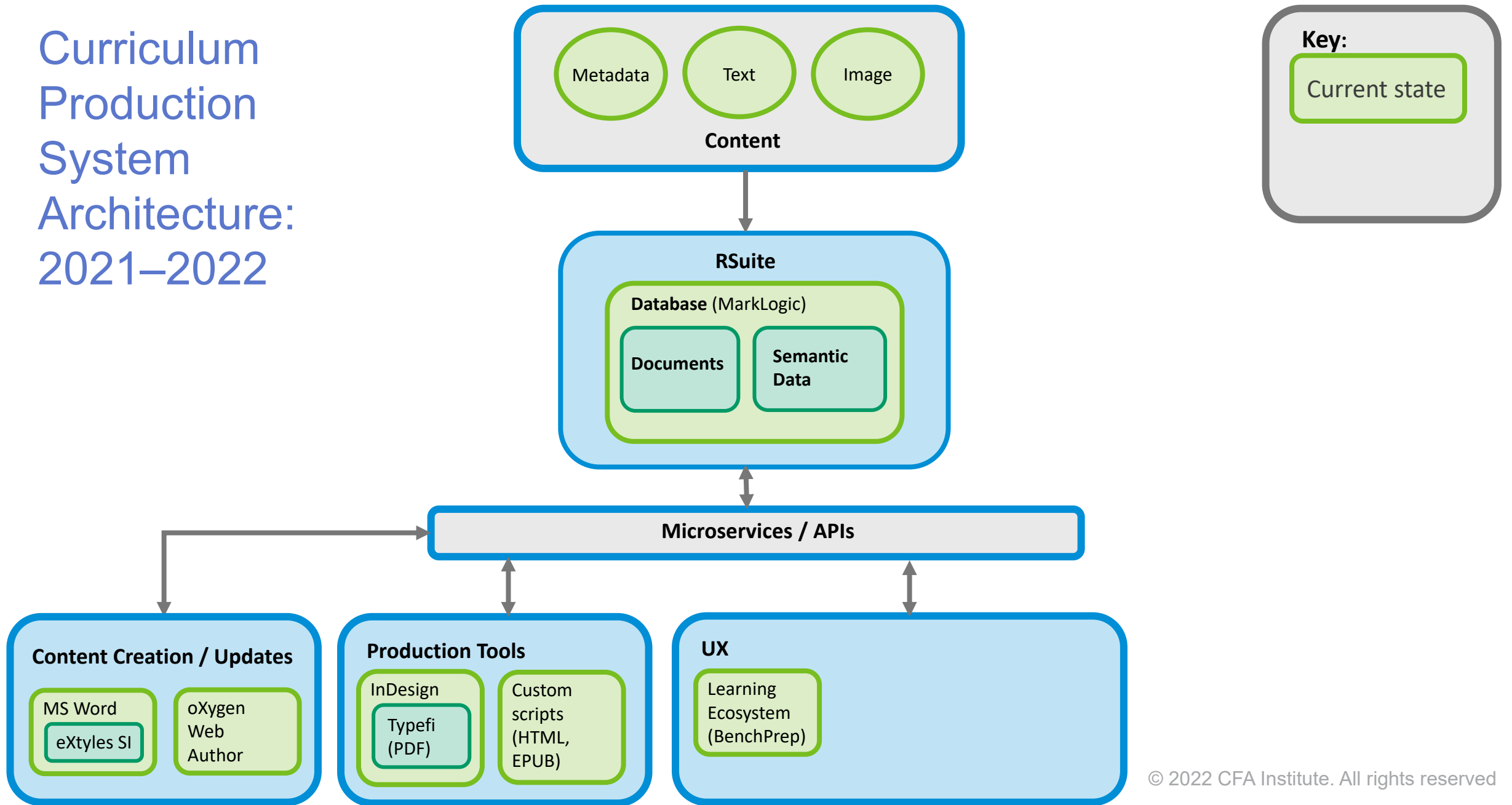
NEW: Learning Module



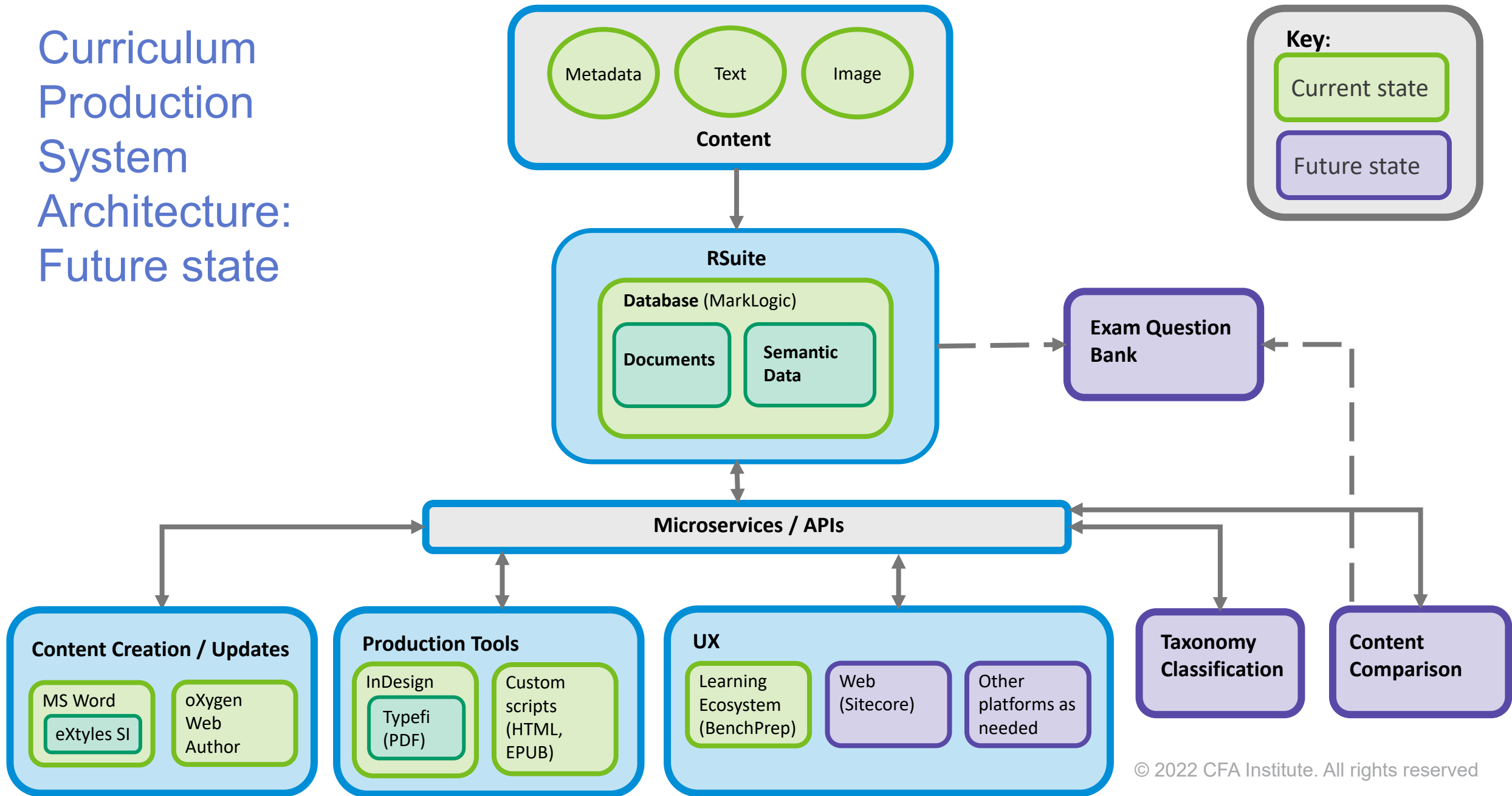
Gray boxes indicate Word documents



Curriculum Production System Architecture: 2021–2022



Curriculum Production System Architecture: Future state



What we did right & wrong

Benefits for product flexibility



- Benefits for candidates:
 - Decreasing production time means increased time available for content development — the curriculum is as recently updated as possible
 - Totally automated production means fewer human hands potentially introducing errors into content
 - Customizing output formats is easy: all Q&A can go at the end of a print reading but be broken out individually across lessons in the LES, etc.
- Future state: remixing and reusing content on a granular level becomes much easier
- Metadata on individual <book-parts> makes it possible to create persistent links between curriculum and exam year over year

Benefits for production flexibility



- Additional, digital output formats integral to how system and workflows were created
- All formats produced through system automation — no more downloading to process
- Glossary de-duping can be done at time of upload to database
- Robust reporting about curriculum content
- Ease of moving individual LOS, Lessons, Problems/Solutions across locations in curriculum
- Numbering of objects handled dynamically at the time of production
 - Figures
 - Tables
 - Text boxes
 - Equations
 - Footnotes

Mistakes we made



- Letting systems fossilize before we upgraded/replaced them
- Not staying more tightly connected to content SMEs and other system users
 - SMEs began to diverge from defined content structure
 - Assuming one user group's voice was reflective of all users
- Muddying the waters with where/how we are tracking certain metadata

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