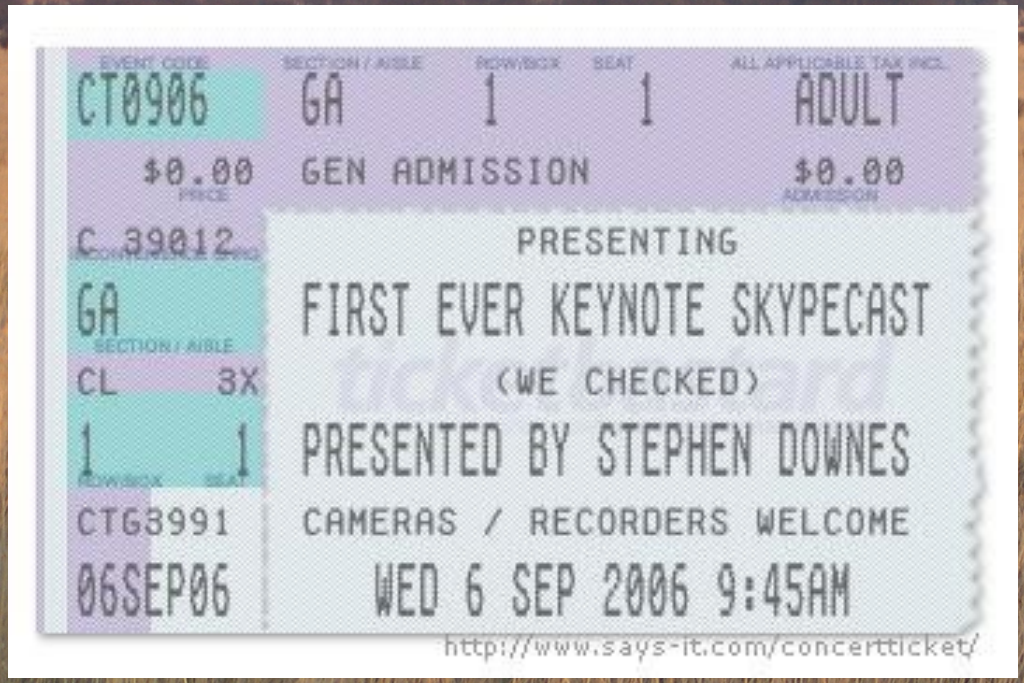
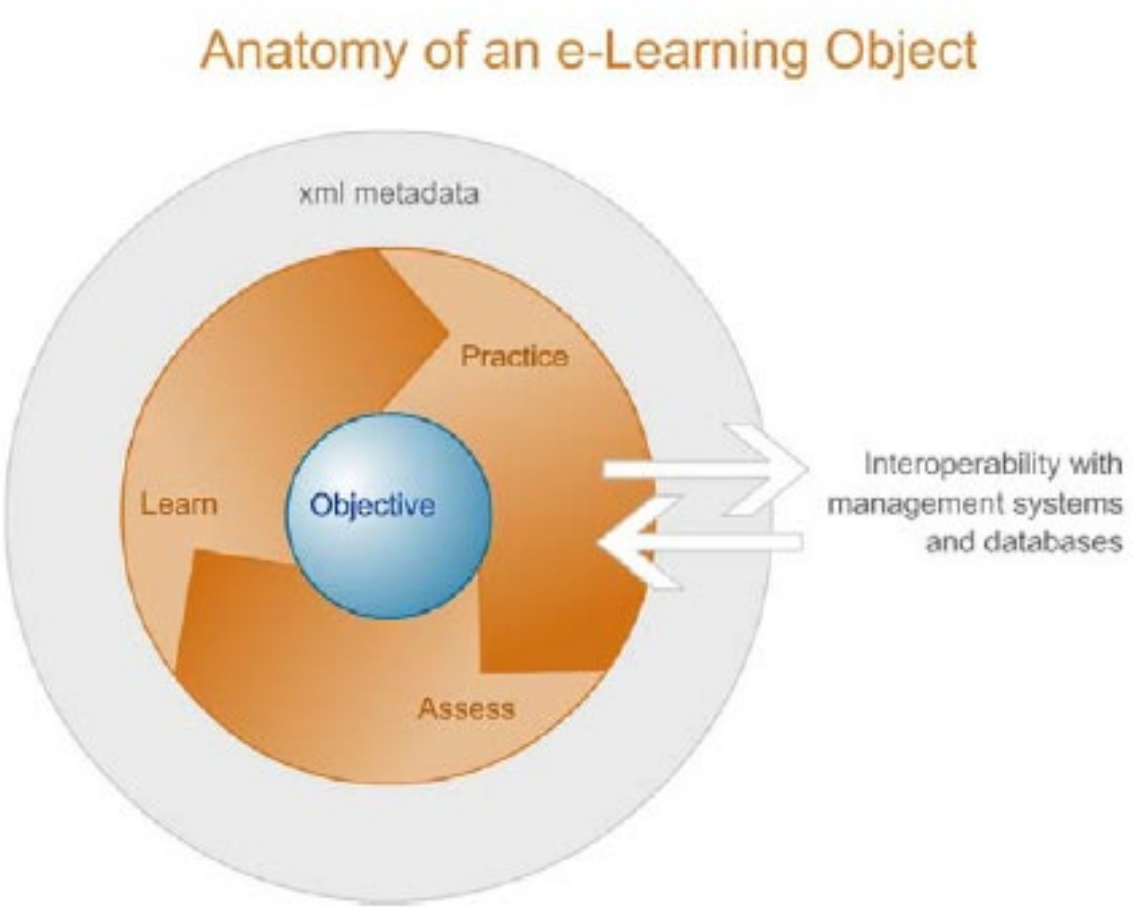
Learning objects:
what are they good for?



Stephen Downes

September 6, 2006

What Are Learning Objects?



http://download.macromedia.com/pub/solutions/downloads/elearning/elusive_vision.pdf page 4

Three Definitions

- “Modular digital resources, uniquely identified and metatagged, that can be used to support learning." -- NLII
- “Any digital resource that can be reused to support learning" -- David A. Wiley
- "Any entity, digital or non-digital, that may be used for learning, education or training." – IEEE

Source: http://www.uwm.edu/Dept/CIE/AOP/LO_what.html

Essential Properties

- Wisc-Online Resource Center
  - Smaller units of learning
  - Self-contained
  - Reusable
  - Can be aggregated
  - tagged with metadata

Essential Properties (2)

- Friesen, What Are Educational Objects
  - Discoverable
  - Modular
  - Interoperable

Examples

http://www.det.wa.edu.au/education/cmis/eval/curriculum/learningobjects/

From a Theoretical Perspective

- Object-Oriented Design
- Course Construction and RAD
- Open Standards
- A Common Language
- IMS, IEEE and SCORM

Object Oriented Design

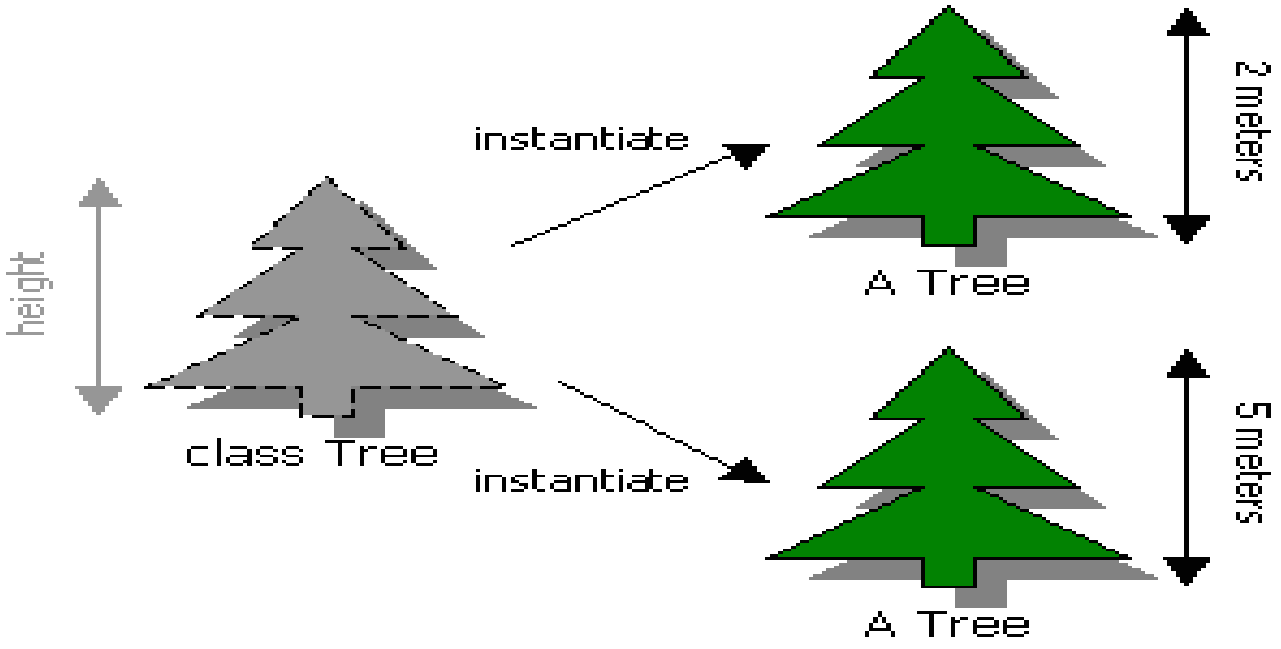
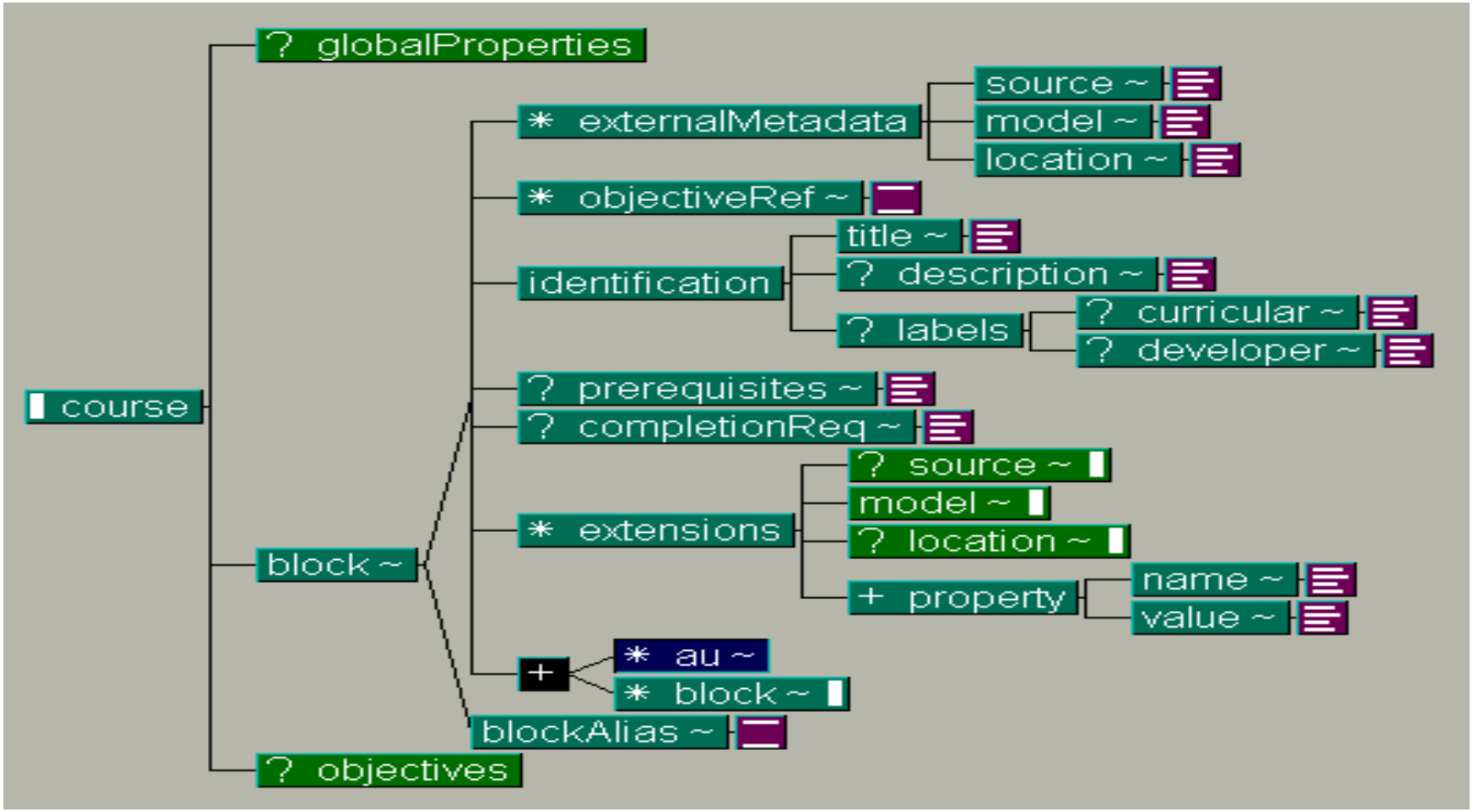


Fig. 1: Instantiating two Trees from the Tree class

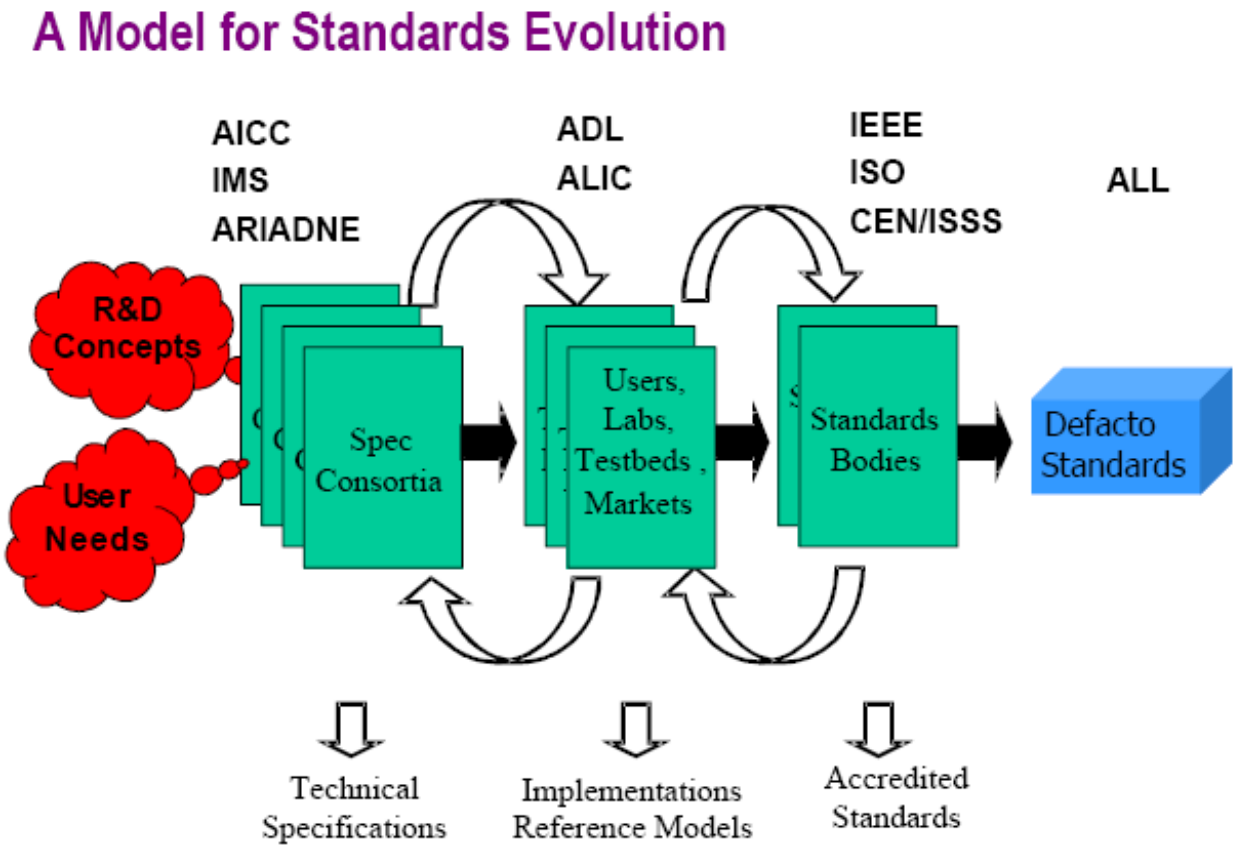
Object Oriented Concepts in Java. See also Basic Object-Oriented Concepts

Course Construction and RAD



http://www.downes.ca/files/Learning_Objects.htm

Open Standards



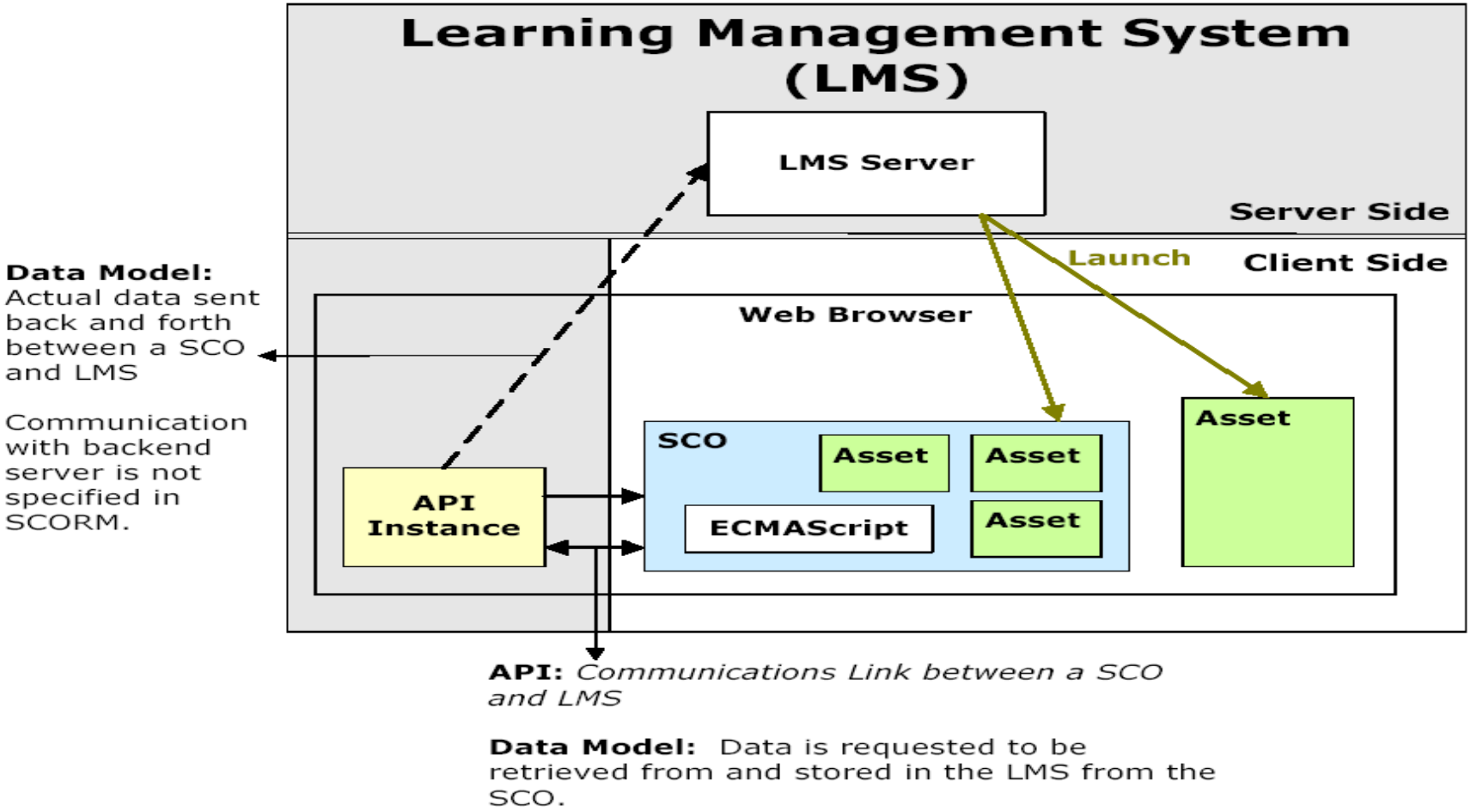
http://www.masie.com/standards/S3_Guide.pdf, page 10

A Common Language

```
<tome name="Bible">
        <book name="Genesis">
                <chapter name="1">
                <verse name="1">
In the beginning God created the heaven and the earth.
                        </verse>
                        <verse name="2">
And the earth was without form, and void; and darkness was upon
the face of the deep. And the Spirit of God moved upon the face of
the waters.
                        </verse>
                        …
                </chapter>
                …
        </book>
        …
</tome>[36]
```

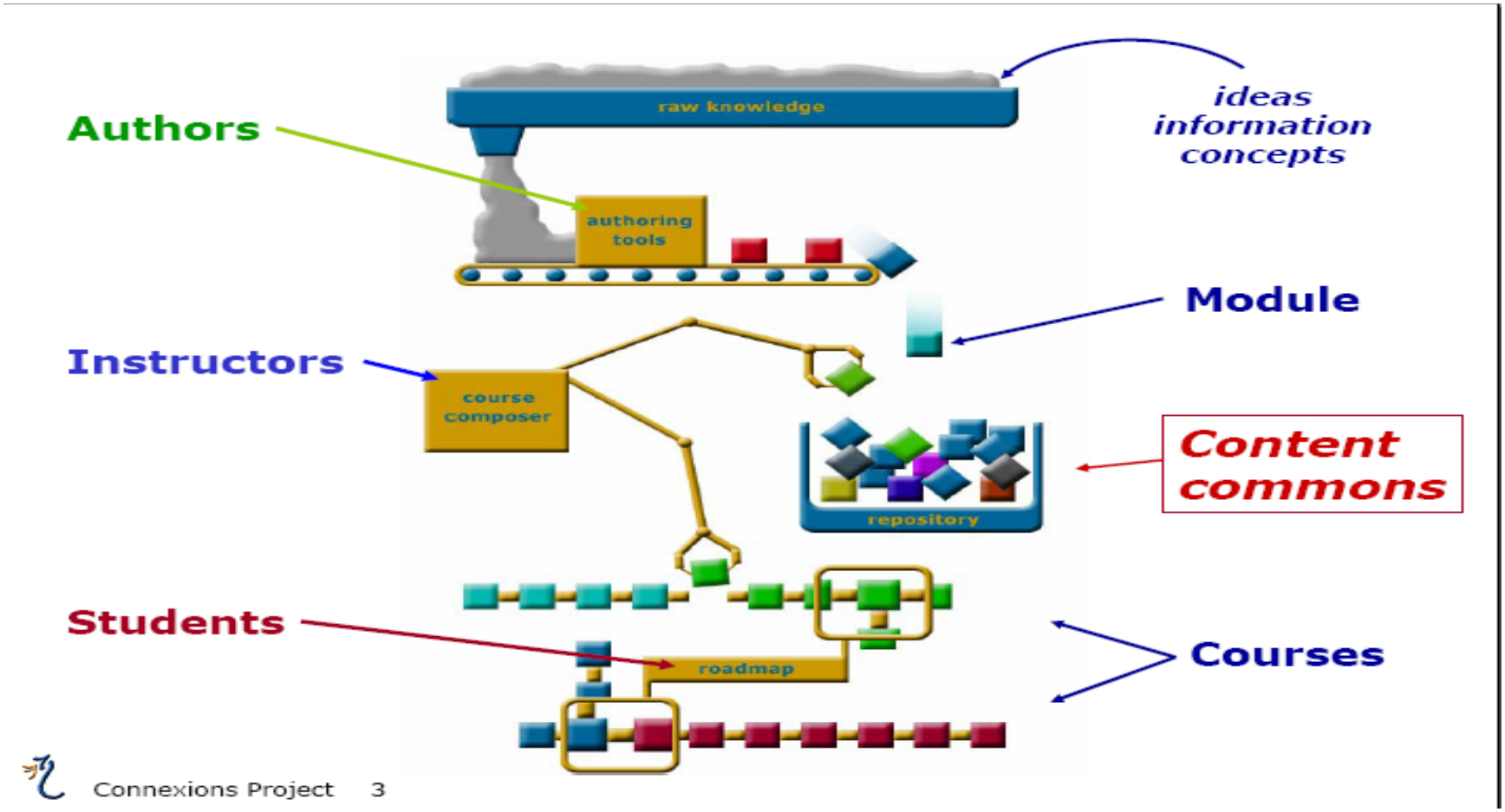
http://www.downes.ca/files/Learning_Objects.htm

IMS, IEEE and SCORM



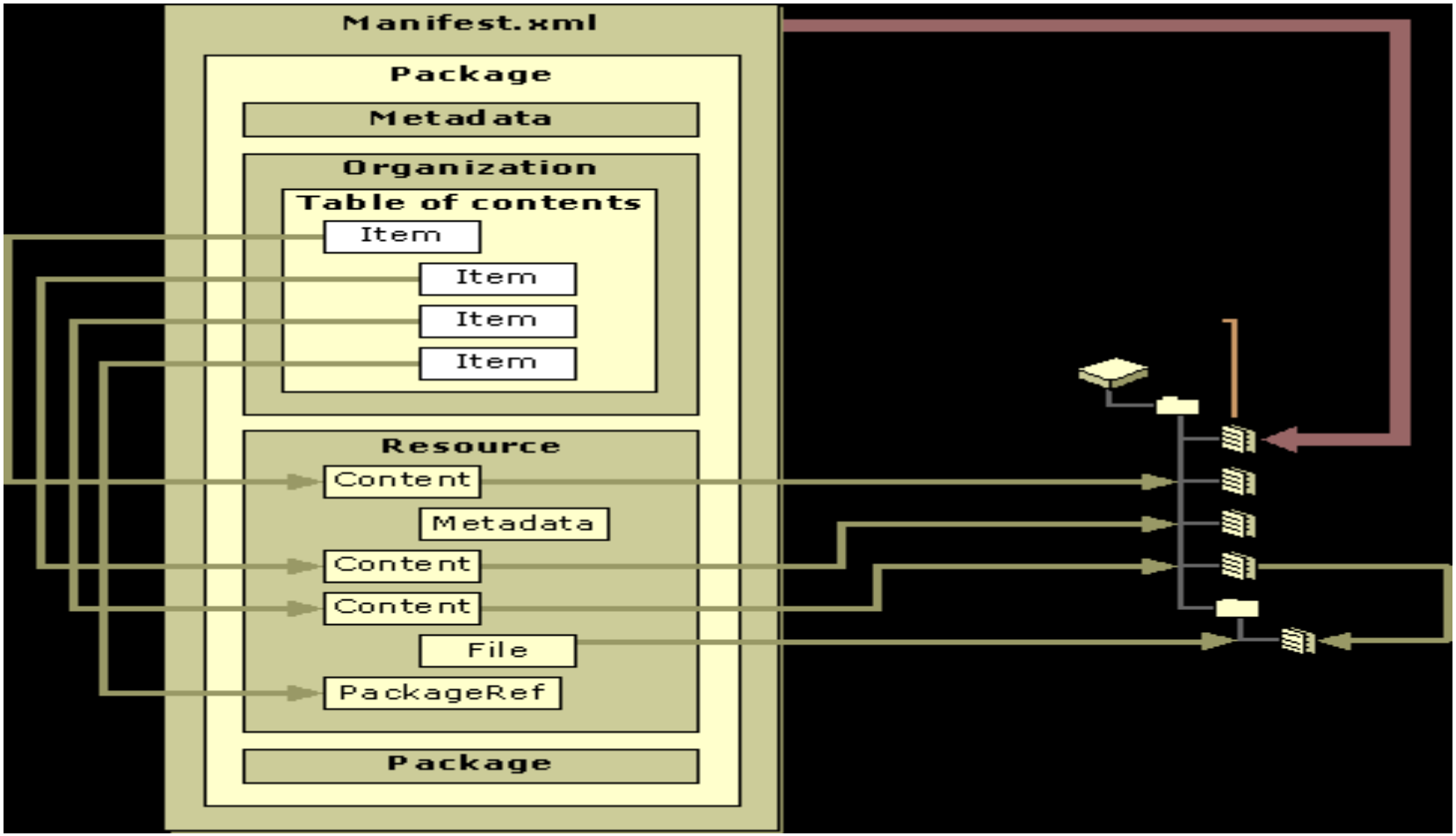
http://www.gungfu.de/studium/e-learning_scorm/vortrag.html

Course Assembly



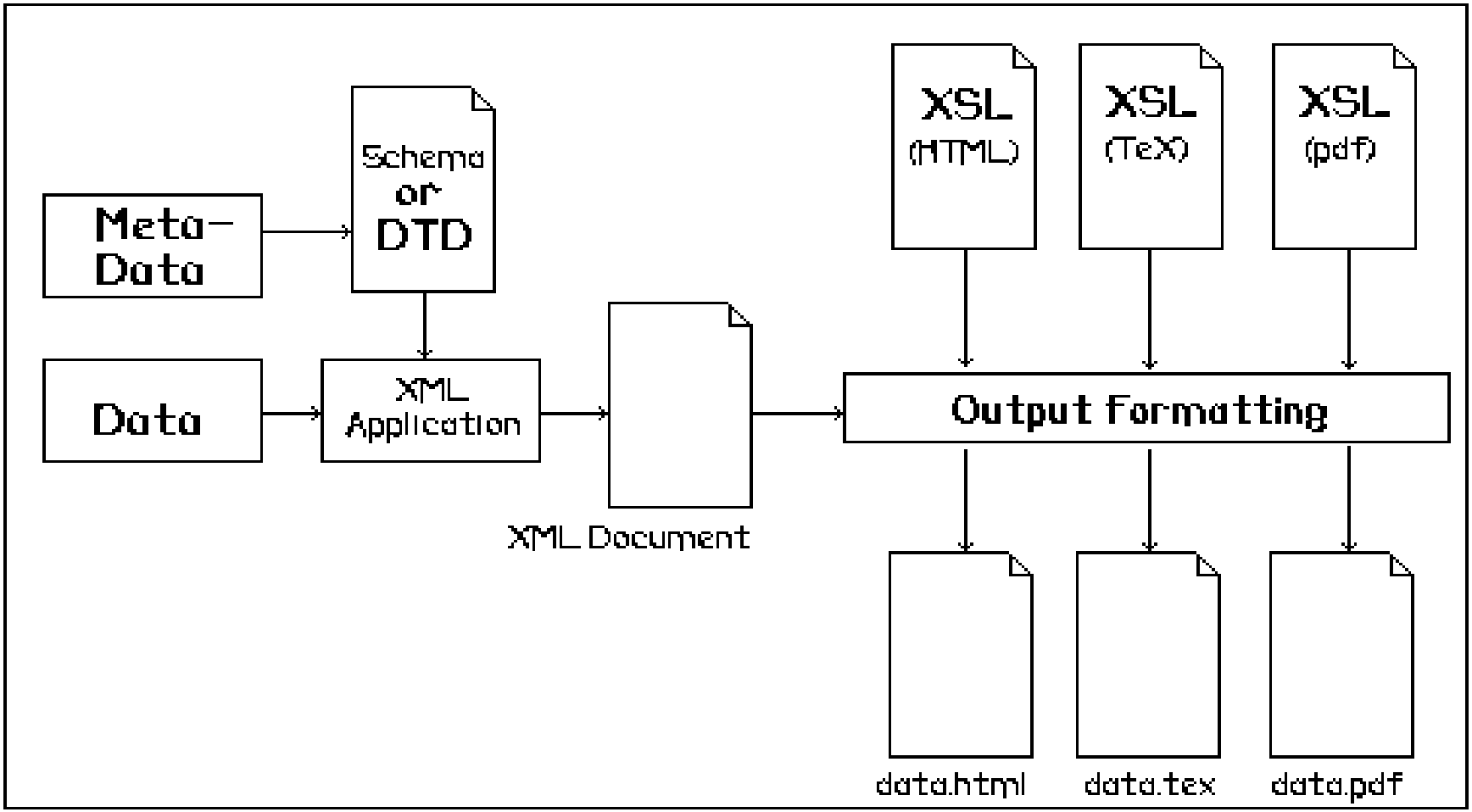
Richard G. Baraniuk, Connexions: An Educational Technology Case Study
http://www.educause.edu/ir/library/pdf/NLI0546A.pdf

Course Packages



http://www.downes.ca/files/Learning_Objects.htm

Reuse – A Different View



http://www.downes.ca/files/Learning_Objects.htm

2. The Death of Learning Objects?

over and over. Mr. Bush

Continued on Page 36

Learning Objects Education Concept, Dies in Finland at 24

By Teemu Leinonen

Three Objections (1)

- Objection 1: What's a learning object, anyway? - Norm Friesen: Three Objections to Learning Objects
- Any entity in the universe - digital or non-digital - can be used for learning, education and teaching … why should we call them "learning **objects**" and not just learning content, or pieces of learning content?

http://flosse.dicole.org/?item=learning-objects-is-the-king-naked

Three Objections (2)

- Objection 2: Where is the Learning in E-Learning Standards?

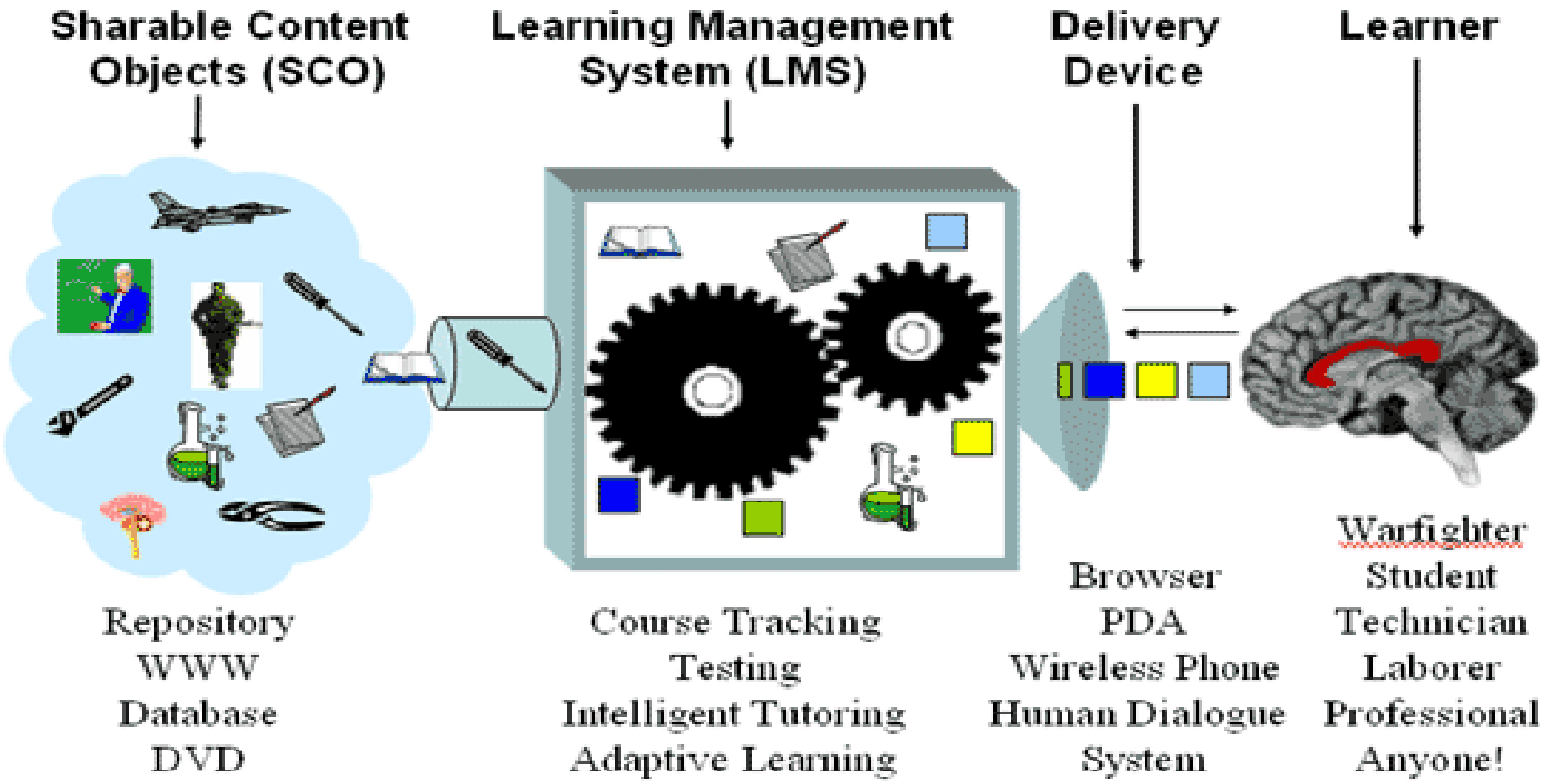
- Dan Rehak: "SCORM is essentially about a single-learner [whose learning is] self-paced and self-directed. This makes it inappropriate for use in [higher education] and K-12." - Kraan & Wilson, 2002

Three Objections (3)

- Objection 3: Education in a Militarized Zone?

- Friesen: “implied understanding of pedagogy: namely, from its simultaneous claims to pedagogical relevance and pedagogical neutrality. … The obvious fact is that the goals of public education are radically different than those of the American military.”

Learning?



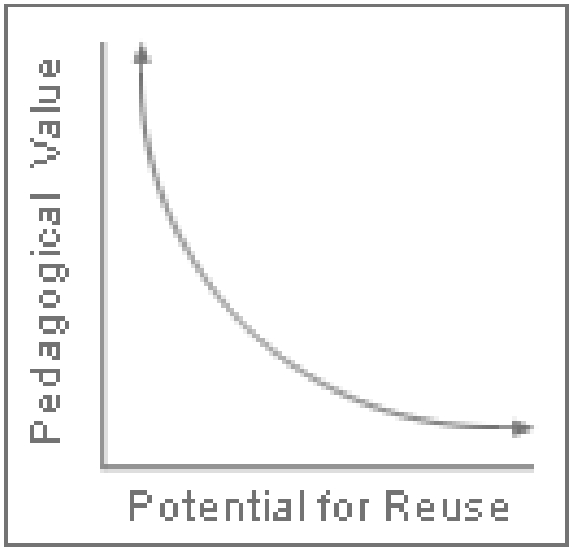
From: Slosser, S. (2001) "ADL and the Sharable Content Object Reference Model." MERLOT 2001.

In What Sense Reuse?

- For example, consider this example of a learning object, from CIDER … Check it out first:
- Alan Levine: What can I do with this "object"? How can I re-use it? How can I "recontextualize it"? What is it exactly I can do with it? Here is the big answer. I can link to it.
- Alan Levine http://cogdogblog.com/2005/05/24/learning-objects-rip/

The Reusability Paradox

- In a nutshell:
  - As usefulness (educational purpose) increases, reusability decreases
  - As reusability increases, usefulness decreases



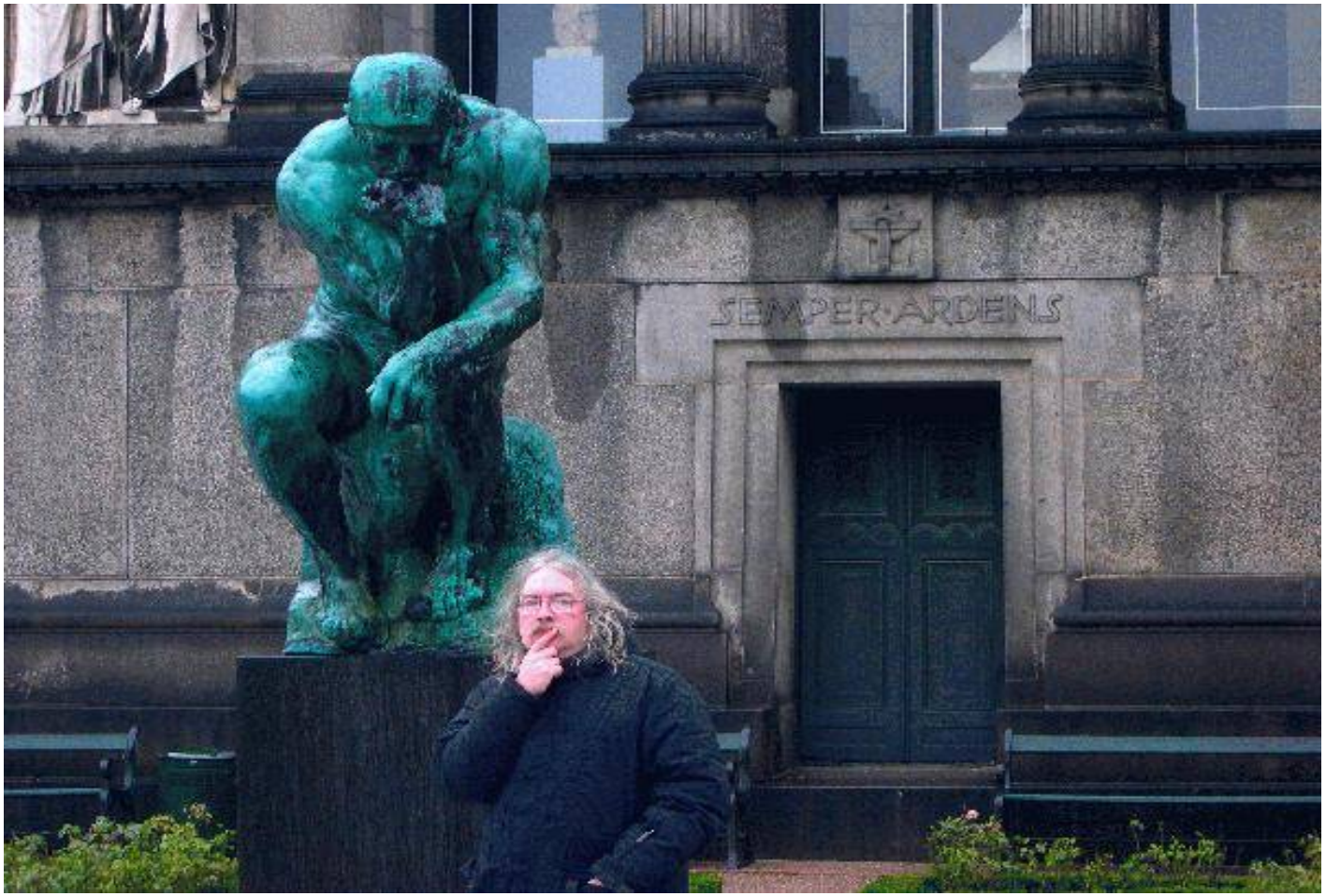
http://cnx.org/content/m11898/latest/

http://rclt.usu.edu/whitepapers/paradox.html

Other Issues

- The Complexity of the Metadata Specifications
  - Very few fields actually used
- Copyright and digital rights management
  - And therefore, authentication and identification

3. The Future of Learning Objects?



What Doesn't Work

- David Wiley: the idea of LEGO-like assembly of resources simply will not work from a learning perspective. The role of context is simply too great in learning, and the expectation that any educational resource could be reused without some contextual tweaking was either naive or stupid. http://opencontent.org/blog/archives/230

You Can’t

- Daniel Lemire: People who create objects on the fly for one project will simply not create highly reusable content, even if you add supposedly smart software to support them. You cannot easily package the work of teachers as lego-like objects. You can’t.

  http://www.daniel-lemire.com/blog/archives/2006/01/09/death-of-learning-objects/

Refocus on the Problem

- Scott Leslie: Address “the problems they were supposed to be trying to solve - namely enabling learning content to be shared and found through means that were otherwise unavailable”
- Scott Leslie http://www.edtechpost.ca/mt/archive/000681.html

Friesen: What Works

- The rate of adoption increases significantly when innovations possess some of the following characteristics:
  - Simplicity
  - Compatibility with existing methods and techniques
  - Relative advantage in comparison
    http://www.learningspaces.org/n/papers/objections.html

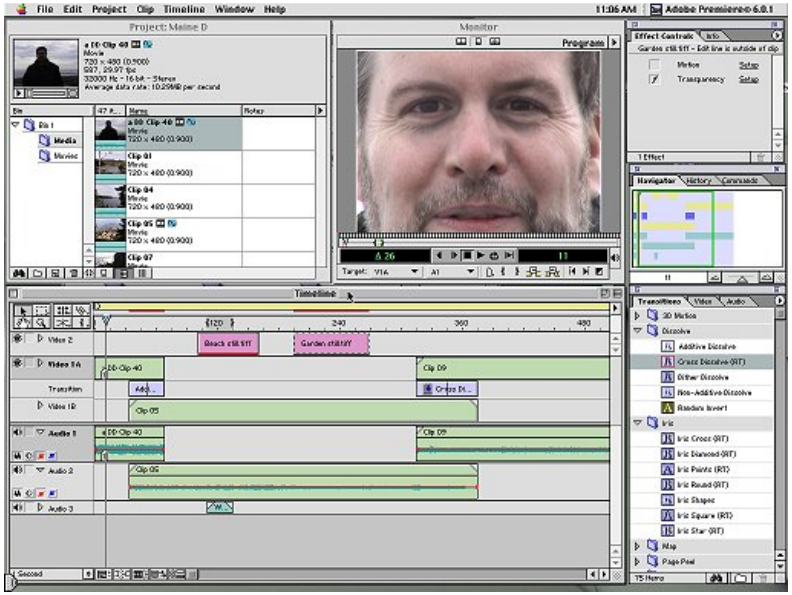
- See Also: Nine Rules for Good Technology

What Is Needed

- Friesen: In order for the positive potential of learning objects to be realized, they need to be labelled, described, investigated and understood in ways that make the simplicity, compatibility and advantages claimed for them readily apparent to teachers, trainers and other practitioners.

Examples

- The video (clips of audio, text, images organized in time and in channels)

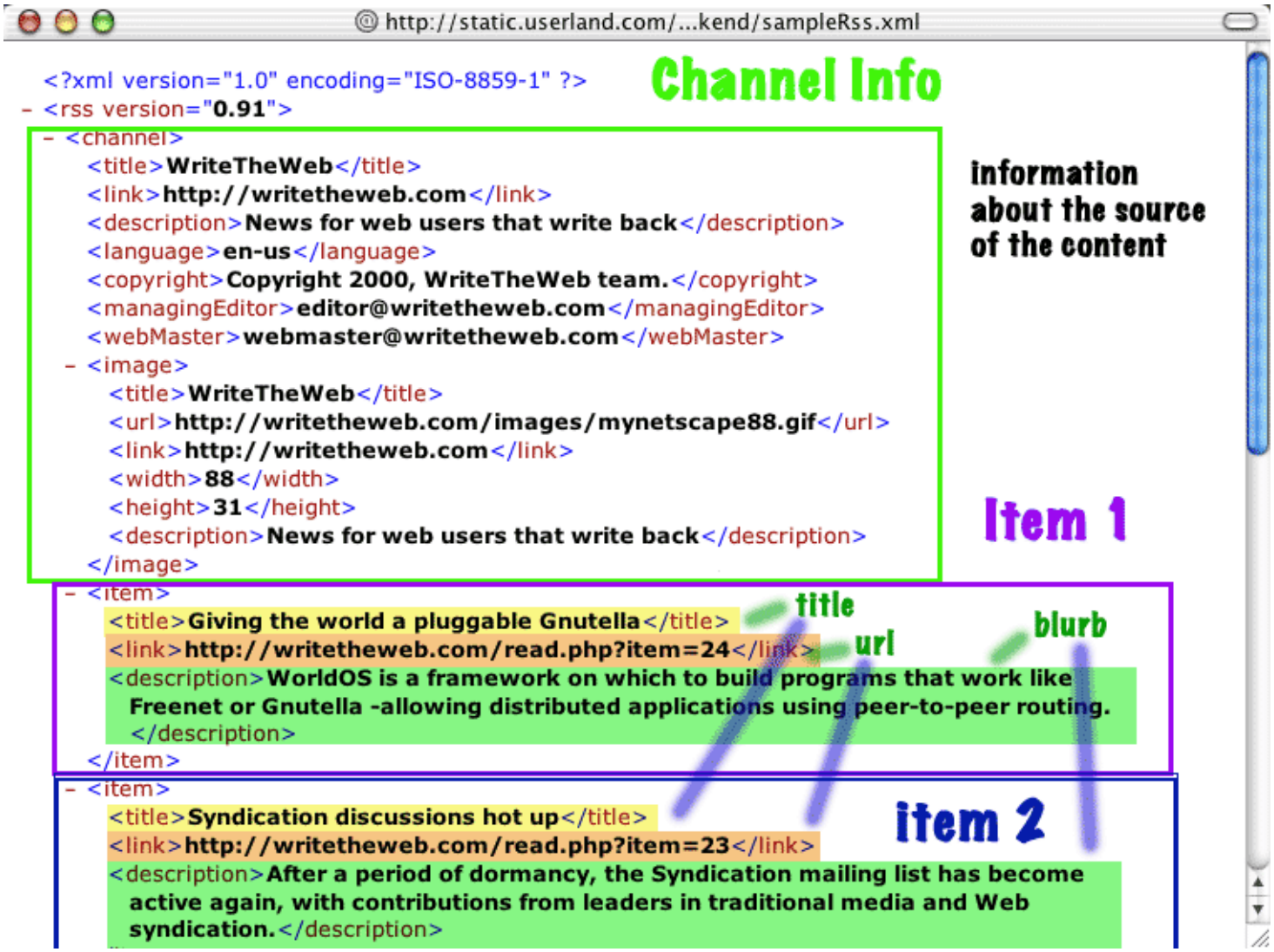


- The web page (a basic shell that links to images, video, audio, etc.)

Syndicating Learning Objects

http://www.mcli.dist.maricopa.edu/show/merlot03/

RSS - Simplest of Meta-Data

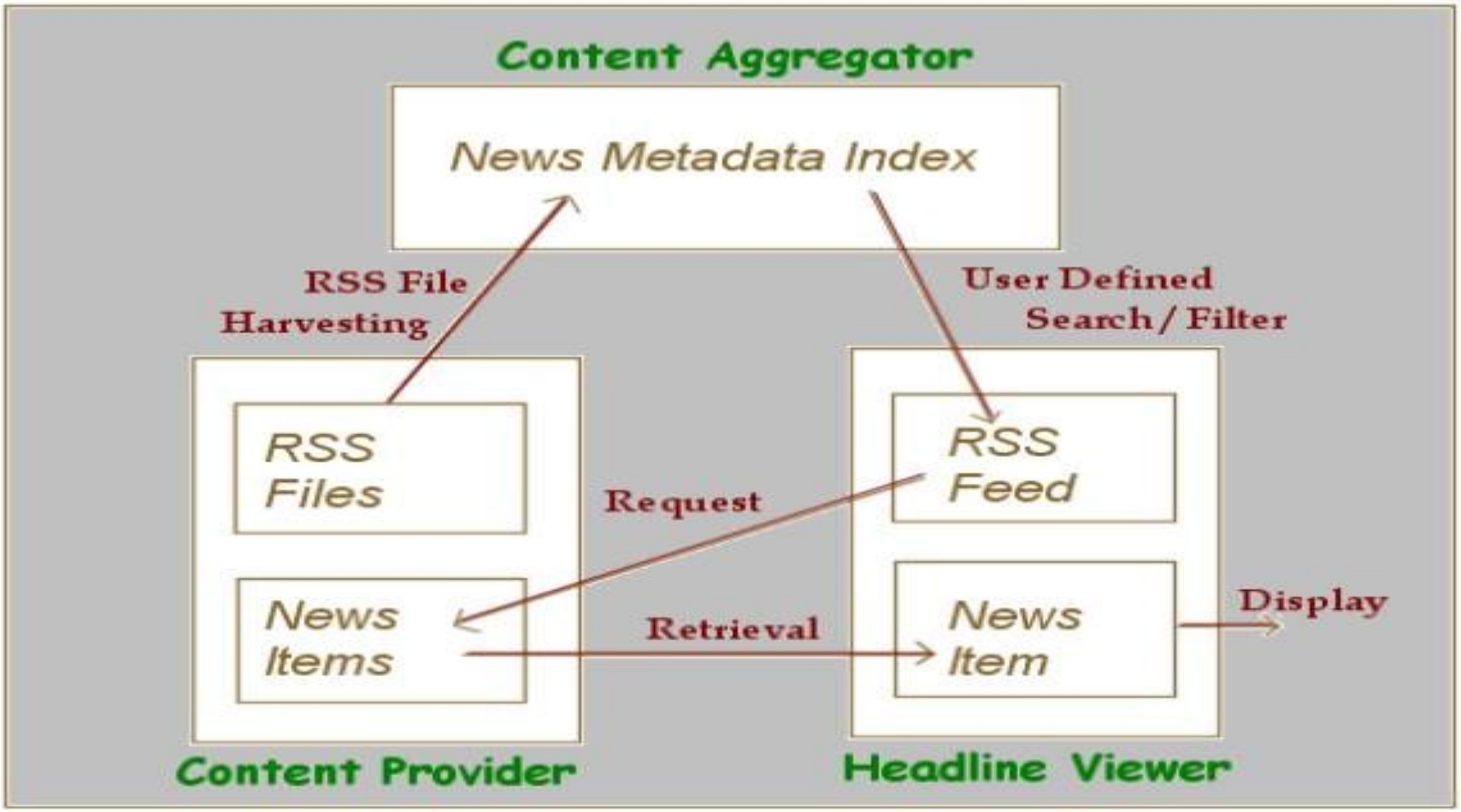


What is RSS?

Pick an Acronym

Killer App for Education?

How RSS Works



http://www.downes.ca/files/RSS_Educ.htm

RSS Network Examples

- Edu_RSS - http://www.downes.ca/edurss02.htm
  - Threads Community comment topic list
  - Search Posts
  - Research - lists of topics, publications and authors
  - Most Popular Links
  - Conversation
  - Edu_RSS Most Recent harvested links
  - Most cited links
  - Feed List and Feed List - OPML
- DLORN
  - http://www.downes.ca/cgi-bin/dlorn/dlorn

Context and Use

- Tarmo Toikkanen: "Learning for humans happens in context. Having complete reusability means having no context, and vice versa. Modularity and reusability is great when the material is to be used by a machine, but not when the user is a human brain - our brains need concrete, memorable, weird things that are anchored to our previous experiences and linked to our motivations and goals." http://flosse.dicole.org/?item=intentional-learning-reflecting-the-discussion-in-the-blogsphere
- What does this mean? The learning is not in the object, but in the **use** of the object

Examples of Use

- Non-instructional performance interventions
  - Electronic Performance Support System (EPSS)
  - Workplace Design
  - Knowledge Management (KM)
  - Just-in-Time Support
  - Communities of Practice
  - Multimedia
  - Internet and Intranets
  - Corporate Culture changes
  - Process Re-engineering
  - Job Aids

Web 2.0

O'Reilly: [What is Web 2.0?]

Content Creation

- Blogs
- E-Portfolios – ELGG
  - ePortfolios – Helen Barrett
  - ELGG and blogging – Miles Berry

    (a good way of promoting learner autonomy and voice)
- Images - Flickr
- Audio – Odeo, Audacity
- Video - YouTube

Collaborative Writing

- Wikis – PB Wiki, Media Wiki
  - RSS inside a Wiki – Alan Levine
  - South African Curriculum on a wiki
- Collaborative Bookmarking – del.icio.us, Furl
- Online Office Applications – Writely, Gliffy, iRows

Aggregators

- Aggregate This, Scott McLemee
- MetaxuCafe is "a network of literary blogs with over 300 members.“
- Postgenomic, aggregates "posts from life science blogs."
- Edu_RSS
- Intute - the new face of the Resource Discovery Network (RDN)

Webtops

- 30Boxes, PageFlakes, ProtoPage, Goowy
  - Interfaces of the future – Mark Oehlert
- The Personal Learning Environment
  - PLE Blog
- Windows Live

Enabling new forms of learning

Progress / Innovation

Linear, slow
Proprietary knowledge
Ideas as strategic advantage
Mentors
Learn by reverse-engineering
Progress by "Shoulders of Giants"
Wisdom of experts

Old (closed)

Exponential, networked, quick
Shared knowledge
Ideas "paid forward"
Micromentors
Lessons-learned benefit all
Progress by "The Mosh Pit"
Wisdom of crowds

New (open)

Kathy Sierra

E-Learning 2.0

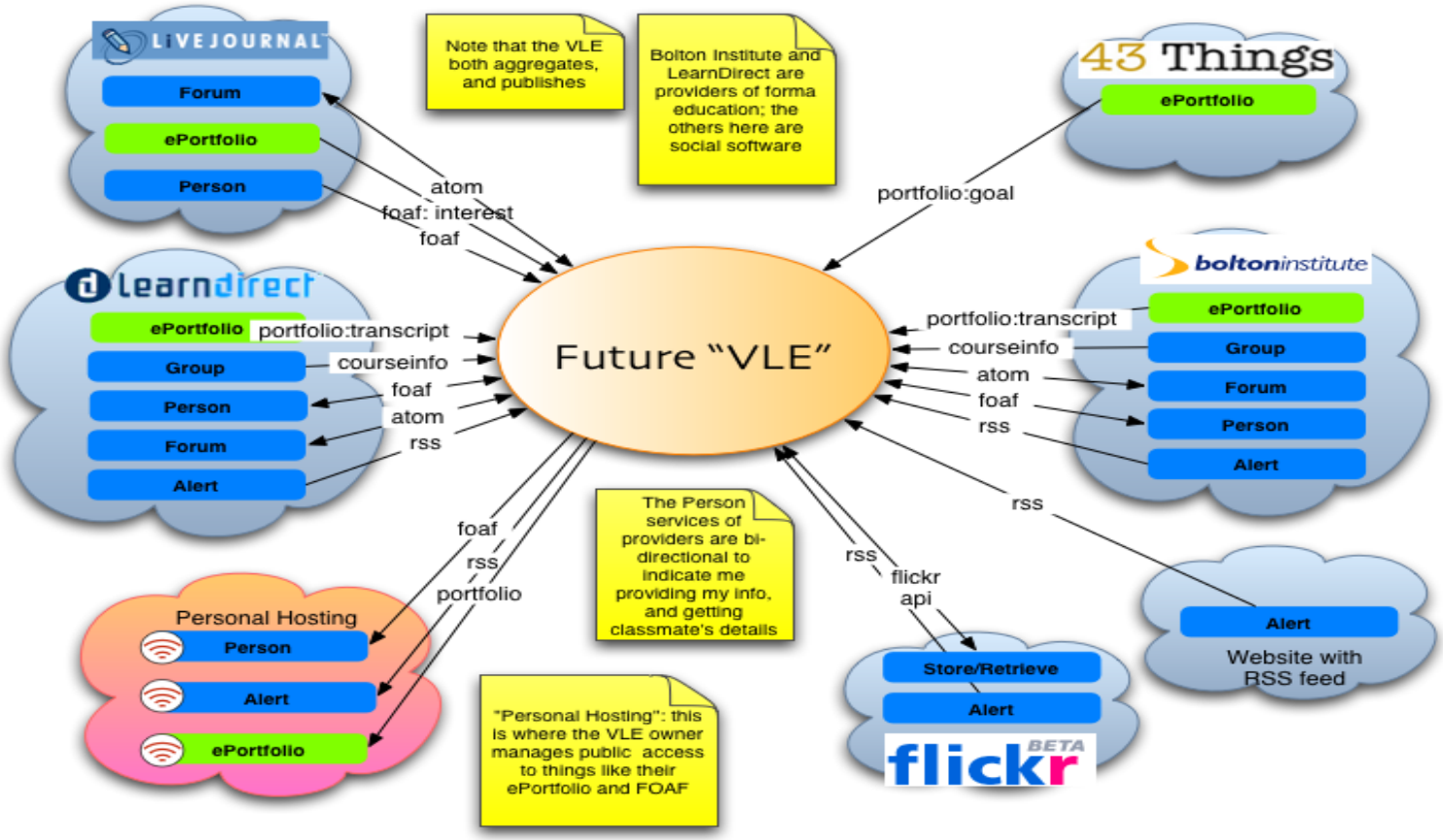
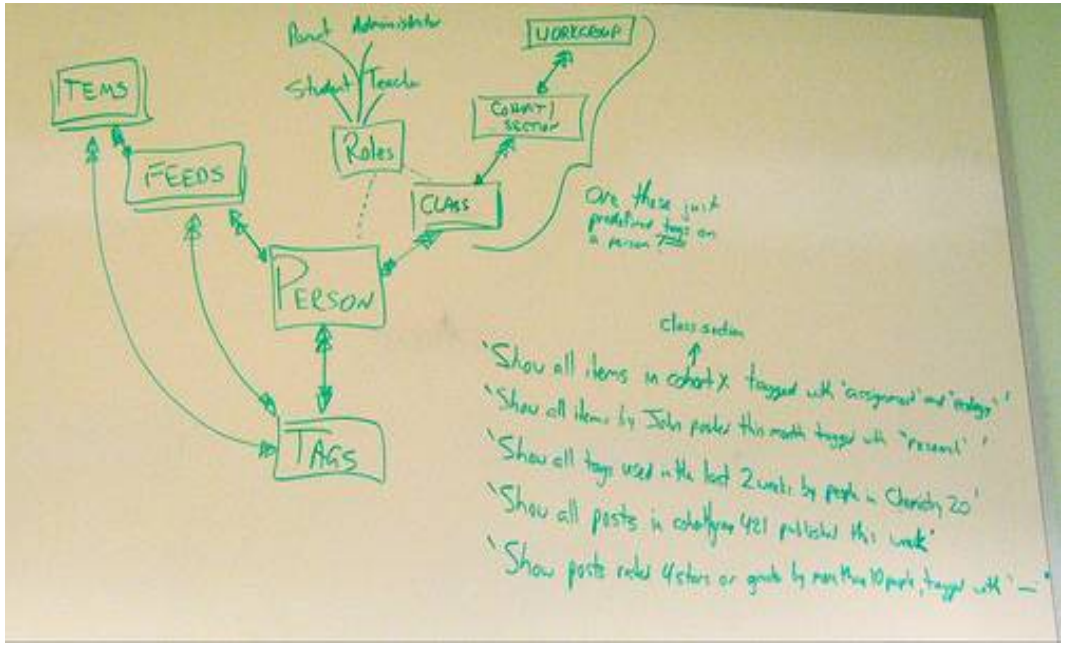


Diagram by Scott Wilson; Downes: [E-Learning 2.0]

Personal Learning Environments



http://www.cetis.ac.uk/members/ple

http://www.flickr.com/photos/dnorman/100494256

http://www.darcynorman.net/2006/02/16/eduglu-early-whiteboard

USB: Study Stick: http://blogs.open.ac.uk/Maths/ajh59/005515.html

Read/Write E-Learning

http://www.downes.ca/editor/writr.htm

Thank You

- Stephen Downes
  - stephen@downes.ca
  - http://www.downes.ca