

**Quality Control in  
Scholarly Publishing.  
What are the Alternatives  
to Peer Review?**

William Y. Arms  
Cornell University

## This talk is about:

How can readers recognize good quality materials?

How can publishers maintain high standards and let readers know?

## This talk is not about:

What criteria should libraries use in selecting materials?

What criteria should universities use in promoting faculty?

But we must consider:

How can a scientist build a reputation outside  
the traditional peer-reviewed journals?

*A sample of one: William Y. Arms*

## Today's students:

### (a) High school

Primary sources are *Yahoo Science*  
and *about.com*

### (b) University

Primary source is *Google*

"Please can I use the web? I don't do libraries."  
Anonymous Cornell student, circa 1996.

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**In the Spotlight** Thu, Feb 1, 2001

**[Plato, Reincarnation, and the Zodiac](#)**  
 Repeat after me: "Plato can be fun." Chances are that when reading this article - you'll discover you knew more about the ancient Greek philosopher, Plato, than you thought. Those who already know Plato might have a few surprises, too.

**[Archetypal Astrology](#)**  
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# Current Quality Strategy 1: The Reader Looks for Clues

Internal clues can inform an  
experienced reader

**All that glitters is not gold.  
And vice versa.**

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ACM Digital Library

# Journal of the ACM

(ISSN: 0004-5411)

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The *Journal of the ACM* serves as a venue for careful presentation of theoretical research in the core areas of computing: complexity of algorithms, computer architecture, system modeling, AI, data structures, database theory and graph theory, to name a few. The authors are world class scientists, writing to other scientists about advances, methods and findings behind the fundamentals. For more information about the publication, see the [Journal of the ACM home page](#).

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### ◆ [Volume 44 \(1997\)](#)

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# Considerations

Publisher, ACM, is a well-known scientific society that follows standard procedures for peer review.

Editor-in-chief is a well-known professor in a strong department.

Papers in theoretical computer science can be reviewed from their content.

**Gold**



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ACM Digital Library

## ← International Conference on Digital Libraries

Proceedings of the fifth ACM conference on ACM  
2000 digital libraries

June 2 - 7, 2000, San Antonio, TX USA

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## The psychology of multimedia databases

Mark G. L. M. van Doorn and Arjen P. de Vries

Pages 1 - 9

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# Considerations

Looks the same as the *Journal of the ACM*.

*but ...*

Procedures for selecting and reviewing conference papers are loosely controlled.

Papers in applications research are difficult to evaluate by superficial reading.

~~Not gold~~

Netscape

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RFC: 791

INTERNET PROTOCOL

DARPA INTERNET PROGRAM

PROTOCOL SPECIFICATION

September 1981



Document: Done



# Considerations

The appearance looks like a draft.

Nothing technical from 1981 is current.

Who is DARPA anyway?

*yet ...*

This is the official definition of IP.

**Gold**



# CS 430 Information Discovery Spring 2001

Professor William Y. Arms

Lectures: Tuesday and Thursday, 12:20 to 1:10 pm Thurston Hall 203  
Discussion class: Wednesday 7:30 to 8:30 p.m., Hollister 110

3 Credit Hours

- [Notices](#)
- [Code of practice](#)
- [Syllabus](#)
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Check the **Notices** file regularly for information about schedule, assignments, etc.

# Considerations

Course materials from a well known university.

*but ...*

Is the faculty member an expert in this field?

How carefully have these materials been developed?



arXiv.org e-Print archive - Netscape

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Bookmarks Location: <http://xxx.lanl.gov/>



# arXiv.org e-Print archive

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# Considerations

The appearance looks like a joke.

"xxx" in the URL is suspicious.

Why does it have a ".gov" name?

*yet ...*

This is the working literature of physics research.

**Gold**

# Current Quality Strategy 2: The Publisher as Creator

Materials are written by authors or selected by curators who are employed by the publisher.

Quality is tied to the reputation of the publisher.

Nat'l Academy Press, The Digital Dilemma: (2000), Front Matter - Netscape

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chapter selector ▶ Front Matter, pp. i-xvi  page selector ▶

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# The Digital Dilemma

## Intellectual Property IN THE INFORMATION AGE

Committee on Intellectual Property Rights and the  
Emerging Information Infrastructure

Computer Science and Telecommunications Board  
Commission on Physical Sciences, Mathematics, and Applications  
National Research Council

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## The Making of a Suspect: The Case of Wen Ho Lee

By MATTHEW PURDY  
FROM SUNDAY'S TIMES

A re-examination of the case against Los Alamos scientist Wen Ho Lee indicates that investigators took ambiguous evidence about Dr. Lee's behavior and Chinese atomic espionage and wove it into a case that eventually collapsed. The first of a two-part series. [Go to Article](#)

• DIAGRAM: [Building a Smaller H-Bomb](#)

## U.S. Tries Defusing Allies' Opposition to Missile Defense

By MICHAEL R. GORDON  
FROM SUNDAY'S TIMES

Defense Secretary Donald H. Rumsfeld, the first senior Bush administration official to visit Europe, tried today to defuse opposition to the administration's antimissile plans by offering to help European nations and other allies to deploy missile defenses.



(NYT)

After a five-year investigation, Dr. Wen Ho Lee, pictured here in December, was all but threatened with execution for not admitting spying. But prosecutors were never able to connect him to espionage. [Go to Article](#)

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Russell 2000	501.50	-7.44



## Northern Great Plains, 1880-1920



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Interactive Weather Information Network  
**IWIN**

### HIGHLIGHTED PRODUCTS

<p>Storm Prediction Center's <a href="#">Watch/Warning Display</a> ( 20 minute update )</p>	<p>Hydrometeorological Prediction Center's <a href="#">24 Hour Surface Forecast Chart</a> ( twice daily )</p>
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**SPECIALIZED CENTERS**

# Current Quality Strategy 3: External Readers Chosen by the Publisher

Publishers ask external experts to  
review materials

Digital Libraries - Netscape

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Bookmarks Location: <http://mitpress.mit.edu/book-home.tcl?isbn=0262011808>

# The MIT Press Books

NEW BOOKS DIGITAL PROJECTS JOURNALS



## Digital Libraries

by [William Y. Arms](#)

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COMMENT ON BOOK

PURCHASE

1999  
ISBN 0-262-01180-8  
344 pp., 8 illus.  
\$45.00/£30.95 (cloth)

[Table of Contents](#)

"Bill Arms offers a comprehensive look at Digital Libraries from many perspectives. He's right: we're just at the beginning of this story. The best is yet to come."  
-- **Vint Cerf**, Senior Vice President,  
Internet Architecture and Technology,  
MCI WorldCom

The emergence of the Internet and the wide availability of affordable computing equipment have created tremendous interest in digital libraries and electronic publishing. This book is the first to provide

Document: Done



JoDI: Journal of Digital Information - Netscape

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### Volume 1

#### Issue 7 - Hypertext Criticism

S. Tosca (January 2001)  
Editorial: [Hypertext Criticism: introduction to a special issue](#)

M. Engebretsen (December 2000)  
[Hypernews and Coherence](#)

A. Miles (December 2000)  
[Hypertext in the Dark: cinematic narration with links](#)

A. ... (December 2000)

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# Observations about Peer Review

At its best, it is superb.

At its worst, it validates junk.

Some topics can be reviewed from a paper, e.g., mathematics.

Some topics cannot be reviewed from a paper, e.g., computer systems.

"Whatever you do, write a paper. Some journal will publish it." Advice to young faculty member, University of Sussex, 1972.

# Current Quality Strategy 4: Independent Reviews

Reviewers, hopefully independent of the author and publisher, describe their opinion of the item.

Value of the review to the user depends on (a) the reputation of where the review is published and (b) how well it is done.

# D-Lib Magazine

ISSN: 1082-9873

Vol. 7 No. 1

January 2001

## EDITORIAL

### [Free and Fee: Future Information Discovery and Access](#)

by Peter Hirtle

[To the Editor: Letters](#)

---

## BOOK REVIEW

### [The Intellectual Foundation of Information Organization](#)

Elaine Svenonius. MIT Press, 2000

Reviewed by: Caroline R. Arms, Library of Congress

*"...This book about cataloging certainly deserves to be read outside the community whose principles and traditions it describes and illuminates."*

---





Rate it

## Editorial Reviews

Amazon.com

These days we seem to be creating information faster than we can store it, but the near future is looking bright. Cornell professor William Y. Arms offers a program for that future in *Digital Libraries*, a synthesis of library and computer sciences that presents the history and current developments in each field with special emphasis on their interactions.

Since the book necessarily must appeal to a broad spectrum of professionals, any given reader will find some parts elementary, but Arms clearly maps the common ground and much of the text will appeal to all. Chapters covering the basics of information management, the Internet, security, archives, and retrieval bridge the traditional books-and-shelves library systems and the often jury-rigged information architecture developed over 40 years of computer use.

*Digital Libraries* contains plenty of sidebars detailing historical information as well as definitions primarily suited to professionals entering the interdisciplinary zone (but which would unacceptably break up the text flow, while it's important to understand both MARC codes and TCP/IP protocols, it's best for each reader to decide what supplementary information is needed). *Digital Libraries* is an ambitious and important book--if we are to develop truly efficient and accessible information management systems, everyone concerned must understand their shared technical history and move forward as one. --Rob Lightner

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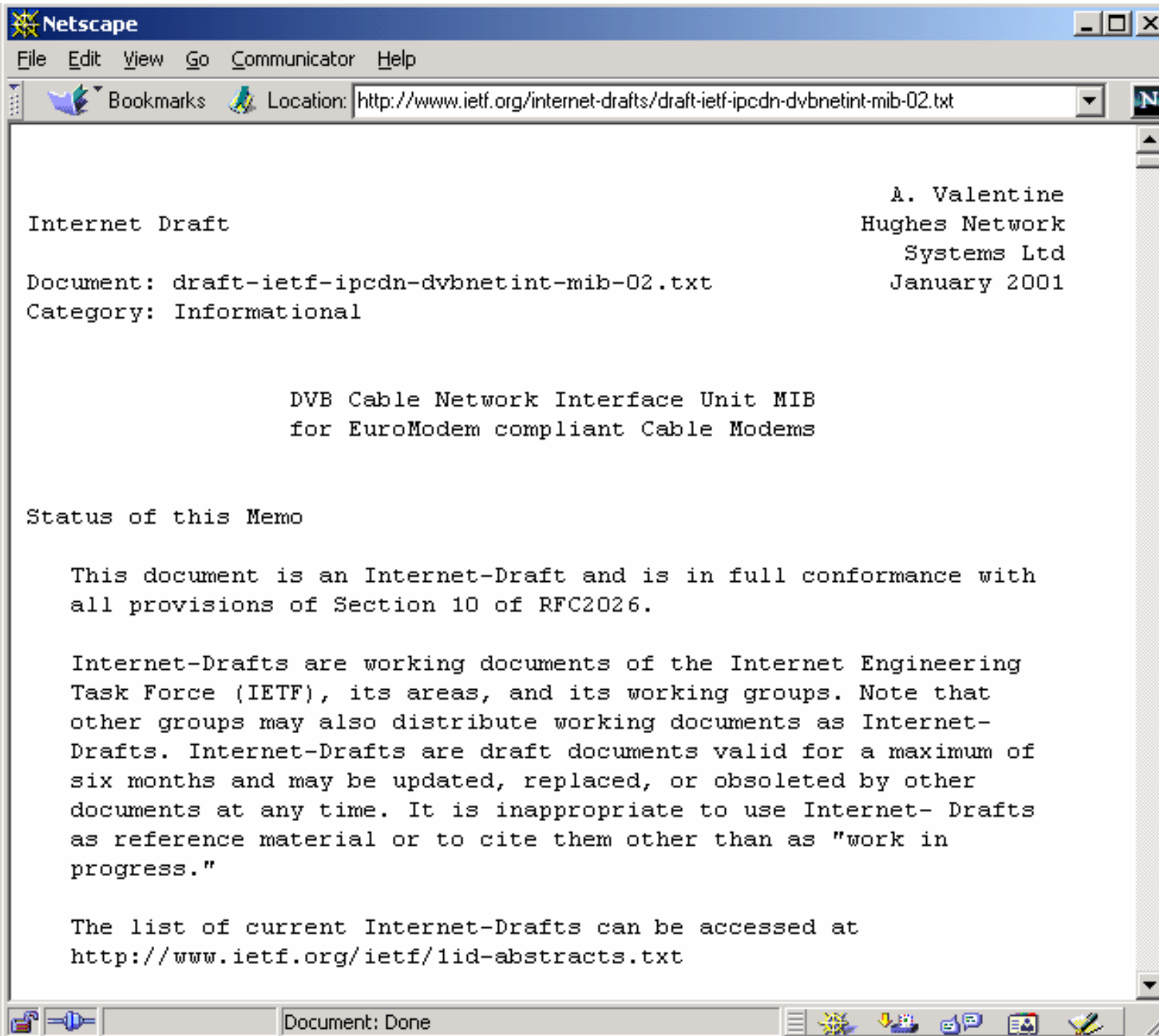


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Part time Hawaii resident that likes Hawaii and Classic Cars.

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# Proposed Quality Strategy 1: Separate Peer Review from Publication

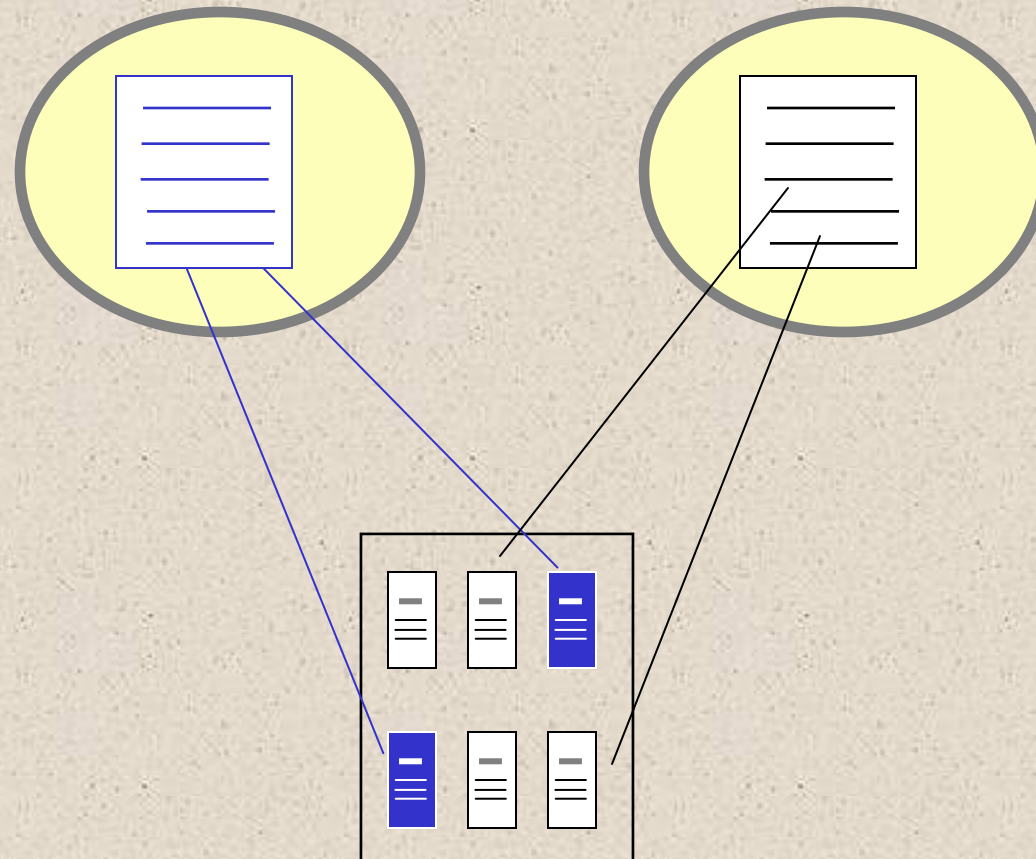
Author publishes article, e.g., on  
eprint archive.

Publisher provides reviews,  
reputation, indexing, etc.



# Overlay Journals

Links show  
the articles in  
the overlay  
journal



# Example of an Overlay Journal

A physicist deposits a paper in the Los Alamos arXiv and notifies the XYZ society.

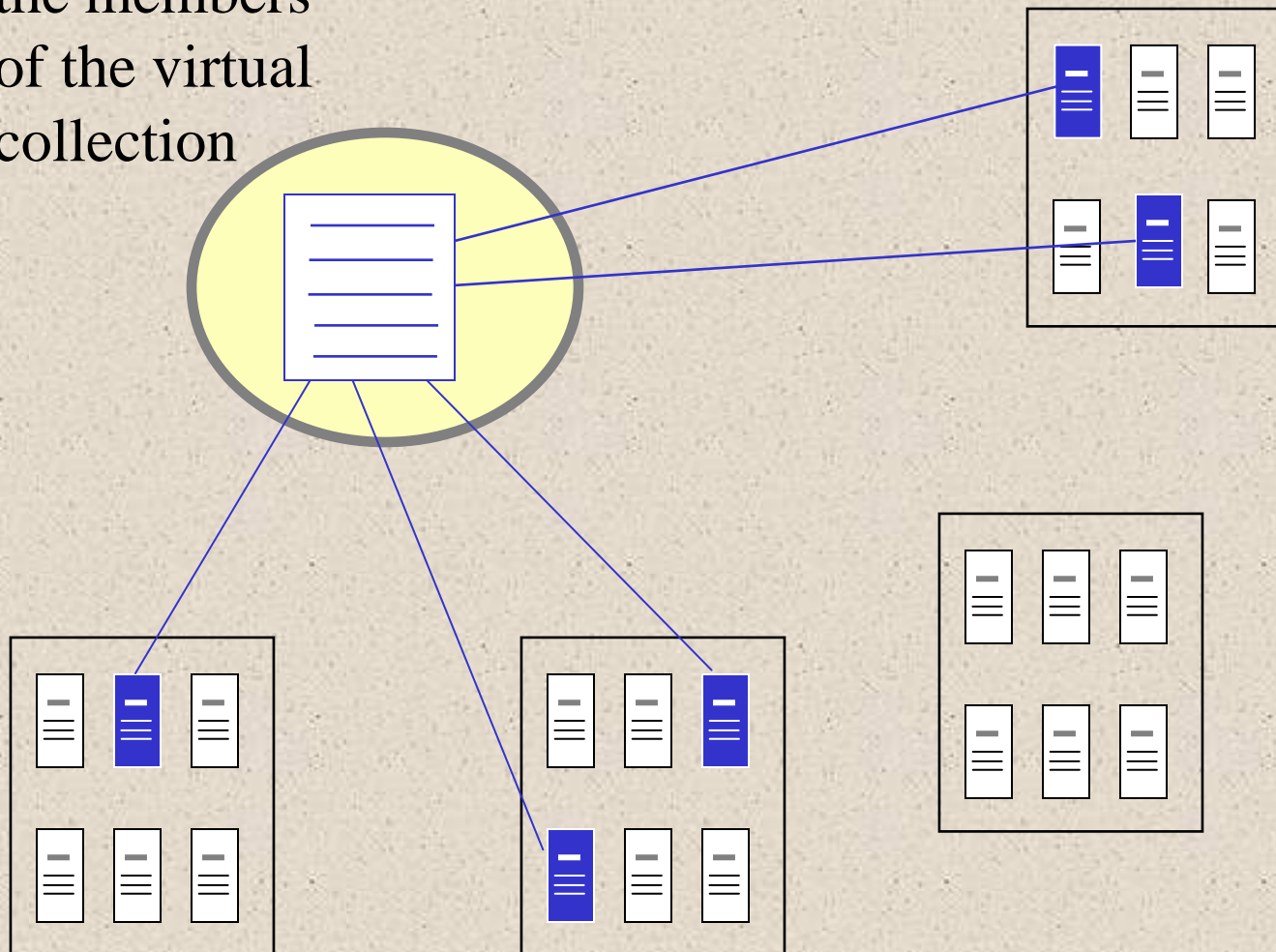
XYZ arranges reviewers who suggest changes.

The physicist revises the paper and deposits the revised version in arXiv, noting that the paper has been reviewed by XYZ.

XYZ links to the paper.

# Virtual Collections

Links show  
the members  
of the virtual  
collection



# Proposed Quality Strategy 2: Exchange of Quality Metadata

Given a digital object, how can a reader discover if there is a review or other metadata about its quality?

# Metadata Example

<oai-quality>

<category> internal </category>

<process>

peer review

</process>

<organization>

CERN

</organization>

<policies>

<http://www.cern.ch/policies/review.html>

</policies>

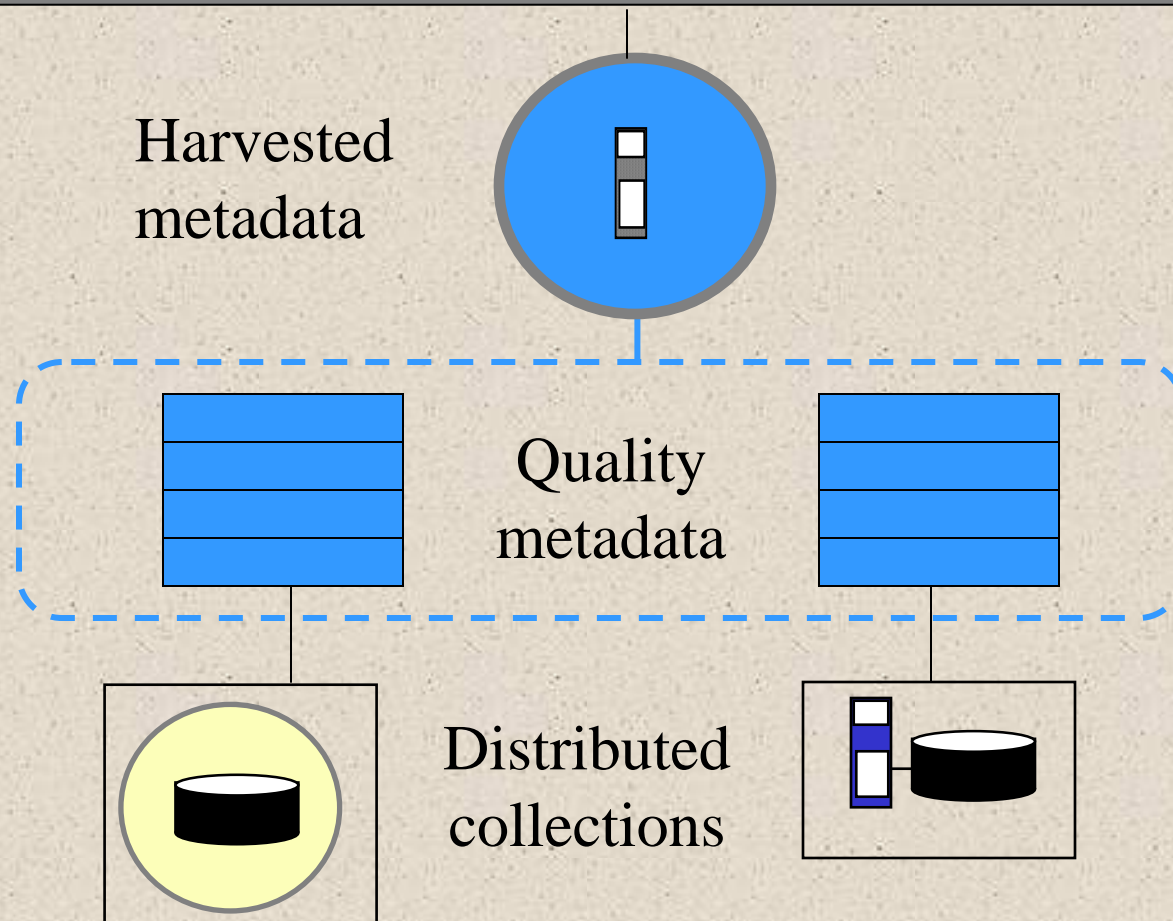
</oai-quality>

# Options

- (a) Establish a database of links between digital objects and metadata, e.g., as an extension of CrossRef.
- (b) Make metadata available for harvesting, e.g, as an extension of the Open Archives initiative.

# Metadata Harvesting in the NSDL

Central service matches metadata to documents



**Quality Control in  
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What are the Alternatives  
to Peer Review?**

William Y. Arms  
Cornell University