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Dockets - a Model for Adding Value to Content

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Motivation (1)

Information resources are a major investment of every enterprise.

Therefore, resource owners ...

- do not** want others to access their resource because they might...
 - modify (destroy) the resource's content in an erroneous way (e.g. pollute a database).
 - learn secrets which they shouldn't.
 - ...
- do** want others to utilize their resource because ...
 - the resource's value is realized by usage (e.g., payment → value of resource; information → value of employees).
 - the quality of the content has to be reviewed/increased continuously.
 - ...

Motivation (2)

The way out of the dilemma: controlled access to resources to maximize the ...

- security for resource owners and the
- freedom of the resource user

at the same time.

The control can be implemented as a ...

- pre-condition
 - Set up a contract defining the modalities for resource access and utilization, choose agents carefully.
 - contracting.
- side-condition
 - Monitoring, auditing, ... in conjunction with the possibility to prevent the user from performing a harmful operation. → not with autonomous agents?
- post-condition
 - Check the correct performance of the user a posteriori.
 - Enforce adherence of the modalities under which access was granted.
 - what if not? (Eric Yu: "Enforcement", "Insurance")

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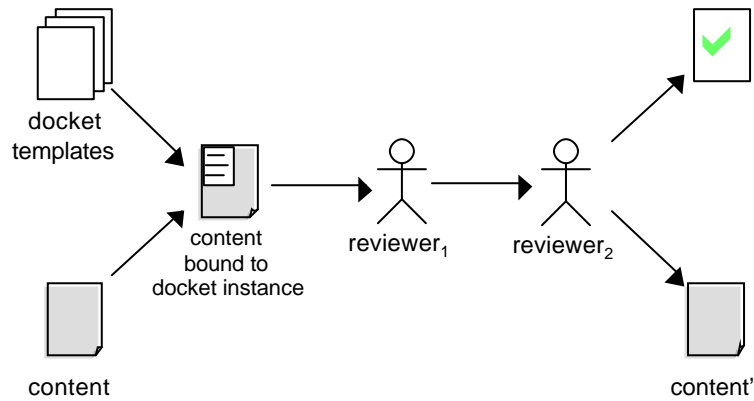
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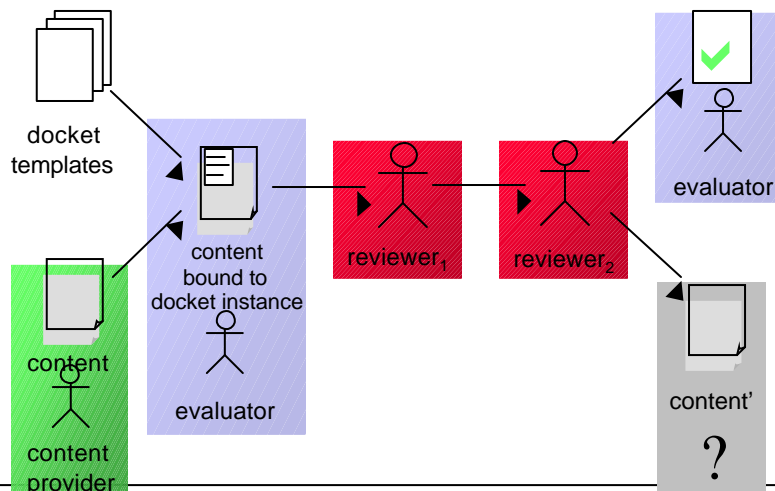
The Docket Metaphor (1)

Dockets are a traditional paper means for content management. They prescribe the actions to be carried out on the content and the kind of the expected results.



The Docket Metaphor (2)

A traditional docket and the content bound to it pass several domains. The contributions are provided by different actors.



A Common Docket Definition

Collins Dictionary of the English Language, Collins London & Glasgow, 1981:

Docket

- *a piece of paper accompanying or referring to a package or other delivery,*
- *stating contents, delivery instructions etc.;*
- *a summary of contents, as in a document;*
- *a list of things to be done;*
- *sometimes serving as a receipt.*

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A Conceptual Docket Model

Abstracting from the traditional dockets leads to the docket conceptual model.

A docket maintains the collaboration of three participators and their contributions and thus creates an environment which guides and protects them.

- ❑ Evaluator.
- ❑ Content provider.
- ❑ Reviewer.

Through a docket, the autonomy of the participators is maximized. This means:

- ❑ The autonomy of the content provider guarantees the protection of his resources since he keeps exclusive access to them.
- ❑ The reviewers autonomy allows him to freely choose actions to reach the goal of the collaboration.
- ❑ The evaluator alone plans and controls the whole process.

→ competing goals; every participator will have to accept some constraints.

Finally, the docket creates a documentation of the process.

Docket Template and Domains

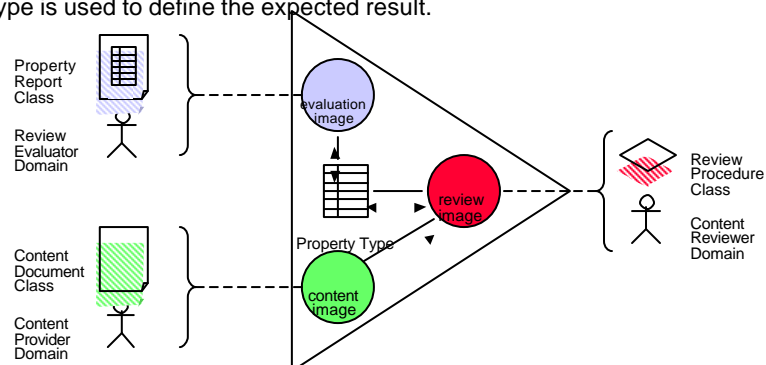
A docket template contains “best possible images” of suitable instances from the three domains involved.

Interested contributors understand it as a “job offer”:

It describes the requirements as well as the modalities of the collaboration.

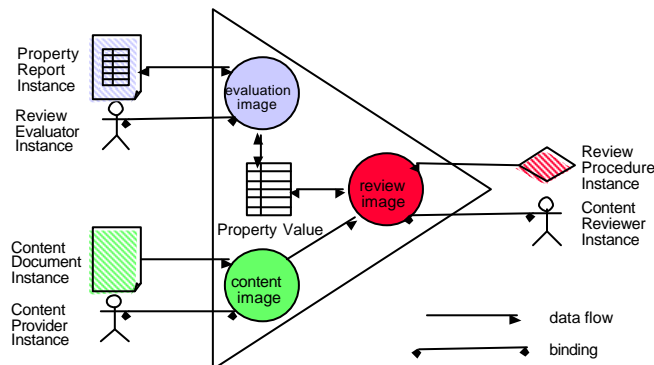
The property record is an auxiliary structure.

Its type is used to define the expected result.



Docket Instance and its Bindings

Exactly one performer is selected from each domain.
 By willing in to participate the contributors sign the contract defined by the template.
 A docket instance maintains the bindings to the contributions and the contributing individuals.
 Part of it is a property record which implements the property type.



Roles of Property Records

Goal definition and presentation of the results

- The properties define the docket's goal by their type and the values set by the evaluator at docket initialization.
- During the review they take up the review results.
- They are the basis for the property document which is passed to the evaluator at docket termination time.

The phases are introduced soon.

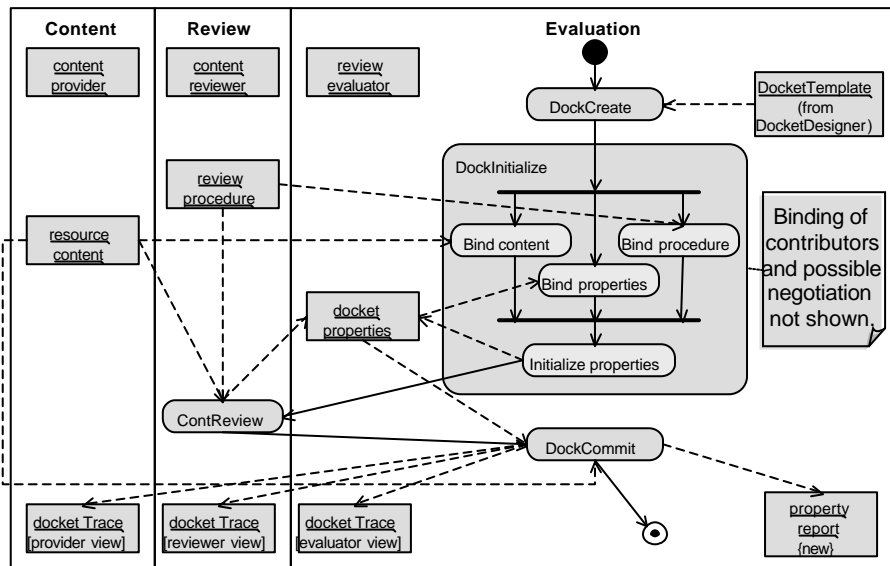
Control

- Under extended protocols the evaluator might be allowed to monitor the progress of the reviewer. If the review is not likely to be satisfying, he might adjust the properties to point the reviewer to the intended direction.

Acknowledgement

- After the completion of the process each participator receives as a receipt a view on the docket trace.
- It serves as a proof of the contributors performance as well as a reference for future participation in docket collaborations.

Generic Docket Enactment Scheme



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Quality Assurance by Dockets

When users collaborate using shared resources, there has to be some quality assurance before changes are made persistent.

Often this is done a posteriori with the danger of losing changes:

- Configuration management: bringover/putpack.
- Document management: checkout/checkin + editor.
- WEL, Story Knowledge Base: personalization/offering + "sanctioning".

These schemes allow any utilization of the content which is provided as a copy.

Dockets start quality management right from the beginning.

- The result will be correct if all contributors perform as expected.
- The abilities of the contributors are known beforehand.

Therefore the docket model addresses different forms of collaboration - those ...

- where mainly uniform tasks occur that can thoroughly be planned and
- for which there is some understanding of the expected results.

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Design

- Docket design involves analyzing value-adding processes to design docket templates.
- In non-standard cases it is necessary to design a special template on the occasion.

Implementation

- Docket templates are implemented in a form that allows to establish and maintain the necessary bindings between the contributors.
- Likewise, communication has to be supported.

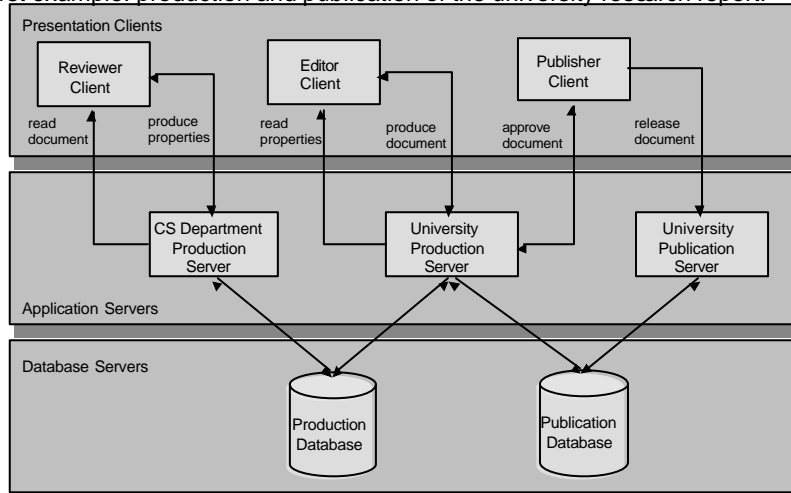
Presentation

- At enactment time it is necessary that the contributors understand the concrete requirements following the template images.
 - The separation of the three domains is given up in favor of a coherent docket presentation.
-

System Architecture for Online Report

Generic services for docket implementations will be provided in an upcoming Docket Technology Framework.

First example: production and publication of the university research report.



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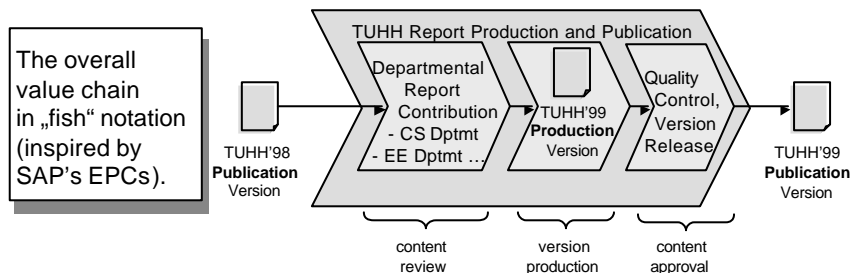
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University Report Production and Publication

Our university publishes a research activity report.
In the past this has been done using conventional media
(paper-based forms, preprints, hand-written corrections).

We have developed a web-based system for the production of the report.

- ❑ The data about departments and institutes can be edited using a web-form.
- ❑ At certain times the changes made are presented to the people responsible for the publication which they can accept or reject.
- ❑ If all changes are accepted, a new edition of the report can be published.

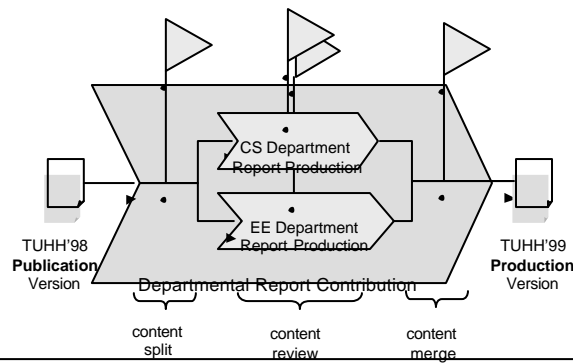


Refined Value Chains with Dockets

Below is a refinement of the first member of the research report production value chain.

It shows the content review and report production of the CS department.

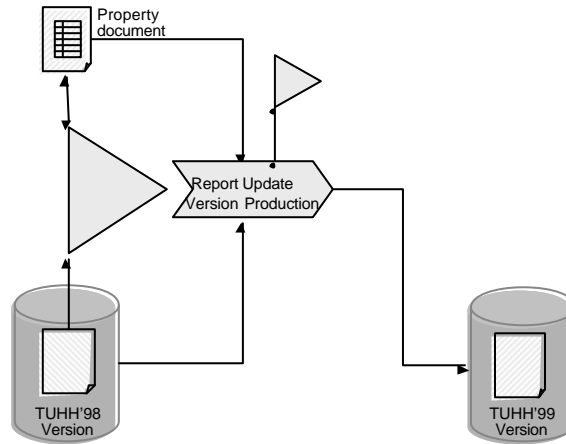
Repetitive and uniform task are marked (“flagged”) by docket symbols. This applies to the two processes as well as the (implicit) activities that split and merge the content.



Property-based Version Production

A docket enactment gives the evaluator a property document.

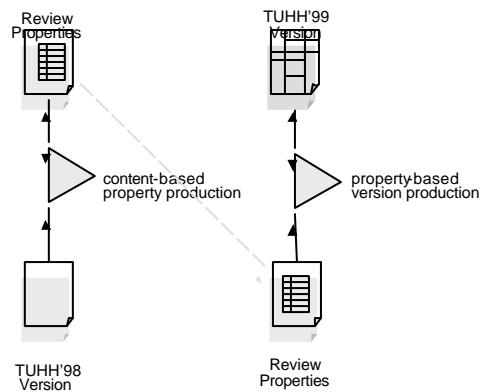
How is new content produced from that?



Roles of Properties in Version Production

Future examination of docket modeling will also be directed to sequences of collaborating dockets.

Important case: A property document can be the content used for a subsequent enactment of another docket.



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Summary and Future Work

Dockets are a model for value-adding processes which pay tribute to protection of the content and autonomy of the contributors.

They primarily aim at repetitive and uniform processes that can be described using templates.

In contrast to workflows docket concentrate on *one* collaboration. Scenarios involving sequences of docket enactments will be investigated.

A future docket framework will offer tracing to store the history of enactments .

- Participators use it as a proof and measure for their performance.
- Enterprise get an overview of the information distribution.
- A trace database would allow queries to find templates and contributors.
 It could serve as the basis for a data warehouse of business processes.

The (semi-) automatic generation of docket presentation is an important topic.