

Managing Multiple Descriptions and Rights on P2P Networks

The DiMaS System

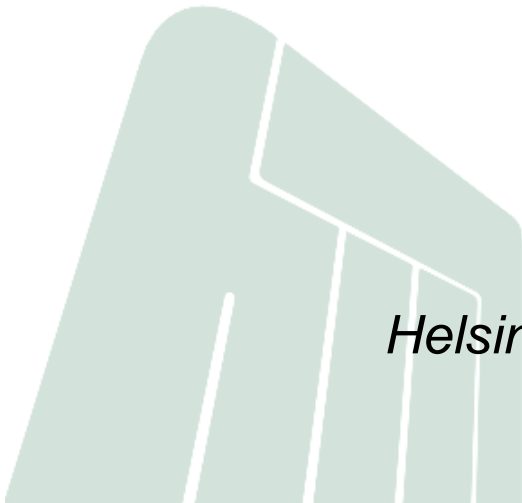
<http://www.hiit.fi/tommo.reti/dimas/>

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Agenda

- Introduction and Background
- Consumer Wants
- Producer Wants
- Architecture: Step-by-Step
- Research Problems
- Solution
- Benefits
- Future Work

Project Introduction

- Helsinki Institute for Information Technology HIIT, founded in 1999, is a joint research unit of the two principal universities in Finland
- "DiMaS" is a pilot system by HIIT's Digital Economy and Digital Content Communities research groups. It highlights and solves challenges of managing digital content distribution on new emerging environments, e.g., P2P networks
- Technical implementation started by grad. students in 2003, already over 11.000 lines of code, and the working technical prototype since April 2004
- Selected as "The Best e-Business Application in Finland" in 2004 and nominated to represent Finland in World Summit Award 2005
- Today over 30 developers are involved with DiMaS to publish the second version of the system with extended features in May 2005

Two Background Phenomena

1. Virtual amateur content producing communities have an audience

2. Popularity of Peer-to-Peer (P2P) file sharing networks



Consumer Wants

Search

Wants alternative provider independent content sources with rich content descriptions

Licensing

Wants to search using license terms as criteria and wants to honor copyright agreements

User Interface

Freedom to choose any search application, and possible to preview and make purchase without a dedicated content player

Producer Wants

Publishing

Alternative distribution channels to reach a wide audience, yet with rich descriptions for content, copyrights, and pricing

Licensing

Wants to include rights, licenses, and if selling the content, wants to protect it and charge for it

User Interface

Wants to use content descriptions and licensing without understanding metadata languages and complex legalities

Summary

Producer

Publishing

Alternative channel,
wants metadata

Licensing

Wants to set rights

User Interface

Don't want to
understand metadata
and licensing

Consumer

Search

Alternative source,
wants metadata

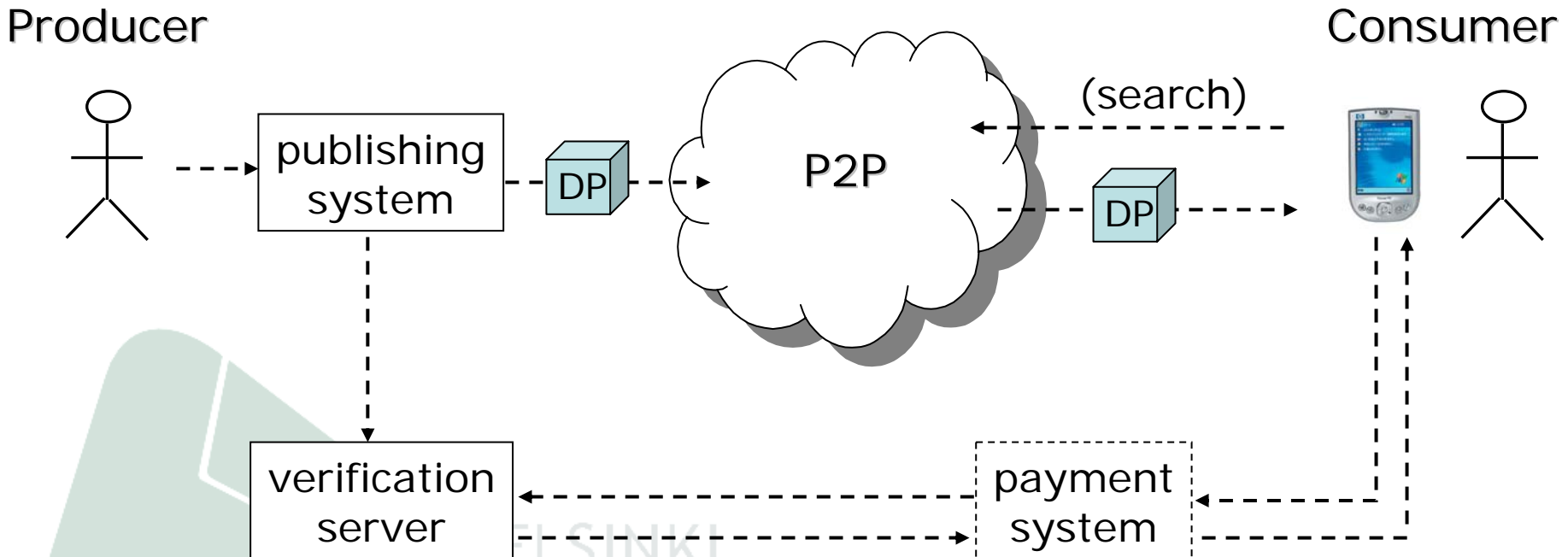
Licensing

Wants to honor rights

User Interface

Don't want to
understand metadata
and licensing

Architecture: Step-by-Step



* DP = DiMaS Distribution Package

Research Problems

- How to facilitate the insertion of content, rights, and charging descriptions into standardized metadata?
- How to make these descriptions compatible and comparable with other communities and applications?
- How to bundle the metadata and the actual content into one package?
- How to preview the actual content when it is encrypted against unwanted usage?
- How to make this package easily accessible without creating a new file format and another player application?

Solution: DiMaS

Configurable user interface for inserting rights, pricing, and content information, which are automatically converted into user-selected metadata standards

The Distribution Package does require **no dedicated player**, but includes built-in Java browsing user interface for descriptions

Authentication and **charging** infrastructure **based on the consumption** of the Package

Benefits

Providers

Helps forming a community

Offers DRM capabilities even to amateur content producers

Changes distribution from limiting to encouraging

Content can be brought closer to consumers

Different kinds of pricing models

Descriptions and browsing for various terminals included

Consumers

Network connection is necessary only for paying

Descriptions viewable without a dedicated content player

No special end-user skills needed to view the content

More efficient semantic searching and browsing based on metadata

Licensing descriptions searchable

A consumer knows his rights

Existing Problems ⇒ Future Work

Search: many search applications do not support advanced semantic content and license descriptions ⇒ *Standard languages*

Security: how to limit downloadable decryption keys to serve only paying customers ⇒ *Open Trusted Platform Module*

P2P Networks: now many P2P networks are not built semantics, licensing, and efficiency in mind ⇒ *DiMaS P2P Network*

Kiitos!

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The DiMaS Project

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