A Behavioural Approach for the Coordination of Open Source Software Intermediaries (OSSIs)
Motivation

Aim of this initiative, which is funded by the Ministry of Science and Research of the Federal State of North Rhine-Westphalia (Germany), is to set up cooperative processes for the development of software systems and modules as well as the creation and operation of an infrastructure for computer and network-based teaching and learning at universities. The efforts of single university projects will be brought together and the Open Source platforms as technical requirement of a virtual university will be provided for use and further development to everyone interested.

CampusSource

A web-based cooperation platform which supports asynchronous communication processes and coherences in (learning) projects and (educational) institutions. Its target group are project participants. Also, all organizations linked to the projects, e.g. universities, will be supported.

University of Hamburg

CommSy

CommSy is a web-based literature management system, which enables working groups to enter literature data independent of location or time.

University of Münster

litw³
Design of Open Source Software Intermediaries

- Coordination between supply and demand side of the OSS market
- Reduction of transaction costs of market participants
OSSI Example - Sourceforge.net

> 80,000 OSS Projects

- Communications (10,324 projects)
- Database (4,196 projects)
- Desktop Environment (2,239 projects)
- Education (2,135 projects)
- Games/Entertainment (9,637 projects)
- Internet (16,468 projects)
- Multimedia (8,265 projects)
- Office/Business (3,342 projects)
- Other/Nonlisted Topic (16,665 projects)
- Printing (303 projects)
- Religion (185 projects)
- Scientific/Engineering (6,302 projects)
- Security (17,801 projects)
- Sociology (229 projects)
- Software Development (11,255 projects)
- System (13,480 projects)
- Terminals (409 projects)
- Text Editors (1,850 projects)
OSS Coordination Deficiencies

„If, however, there is no market, then there is no reliable mechanism to steer the interests of developers towards the actual wants of customers, either. Customer sovereignty cannot be accomplished without product prices – software users who do not write programs turn into passive recipients of what the open-source developer community puts out.“

[Kooths, Langenfurth, Kalwey, 2003 – Open Source Software - An Economic Assessment]
Behavioral Data – Log Files
Typical Structure of a Log File

2001-12-01 00:01:50 217.1.197.24 - W3SVC2 NERO 62.180.61.218 80 GET /interakt/dialog/briefk.html - 200 0 23191 819 2625 HTTP/1.1 www.bundestag.de Mozilla/4.5+(compatible;+OmniWeb/4.0.5;+Mac_PowerPC) - http://www.bundestag.de/interakt/dialog/index.html

- Date & Time of access
- Client IP-address
- Server name
- HTTP method
- Requested resource
- Status code, bytes transferred
- Protocol version
- Server DNS
- User agent (browser type, OS)
- Cookie name (not active)
- Referrer

= relevant attributes
Informational Benefits of Log Files – an Exploratory Study for CampusSource

Characteristics

- Log file data
- From 09-2001 until 03-2003
- Use of standard analytical tools
  - "Web Log Analyzer"
Web Site Reach

Visits per quarter - Average duration
## Top 10 - Referrer

- **Search Behavior of Visitors**
- **Key Findings**
  - The „Google Bias“ (>75% of visits)
  - Intentional Search Behavior
  - Attraction of Sourceforge Visitors
- **Management Deployment**
  - CampusSource‘s Communication policy

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Top 10 - External Search Terms

- Hybrid Search Behavior
  - Product specific
    - e.g. OpenUSS, Ilias, Webassign
  - General Concepts
    - e.g. E-Learning, Virtual Learning, Open Source
- Indicates existence of different user segments
- Management Deployment
  - Segment specific services / products
  - Personalization

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<tr>
<td>2</td>
<td>openuss</td>
</tr>
<tr>
<td>3</td>
<td>Virtuelles lernen („virtual learning“)</td>
</tr>
<tr>
<td>4</td>
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<td>5</td>
<td>webassign</td>
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<tr>
<td>8</td>
<td>wie funktioniert die börse („how the exchange works“)</td>
</tr>
<tr>
<td>9</td>
<td>software exchange</td>
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<tr>
<td>10</td>
<td>open source</td>
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Product Downloads

- Diffusion Tracking of Single Products
- Management Deployment
  - Provision of product-specific services
  - Timing strategy is critical

The diagram shows the product downloads over time, with a peak in late 2002 and early 2003. The products included in the graph are Ilias, OpenUSS, UniOnline, VU - Virtual University, and WebAssign, with the total downloads also shown.
Summary

- Further data acquisition necessary
- Log files report OSS product distribution
- Log files report basic search behaviour
- Segmentation necessary
- Log files report basic figures
- Identification of unique visitors necessary
Further Analytical Research Issues for OSSIs

Process Analysis (Path Analysis)

Visitor Segmentation

Association Analysis

Darstellung der segmentspezifischen Attributausprägung
1: Produktinformation der Warengruppe (ob) wurden abgerufen
0: Produktinformation der Warengruppe (ob) wurde nicht abgerufen