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

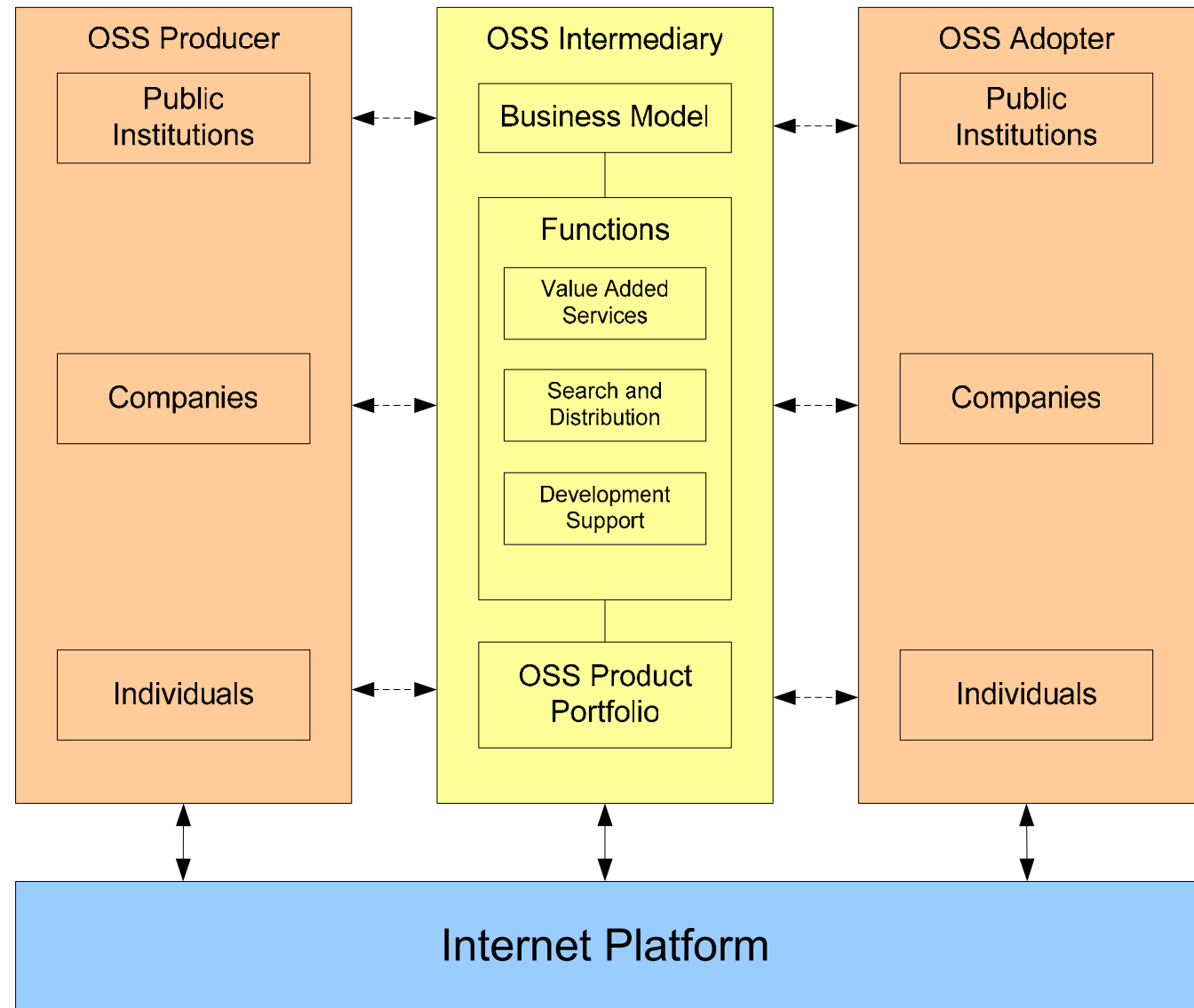
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# Motivation



# Design of Open Source Software Intermediaries

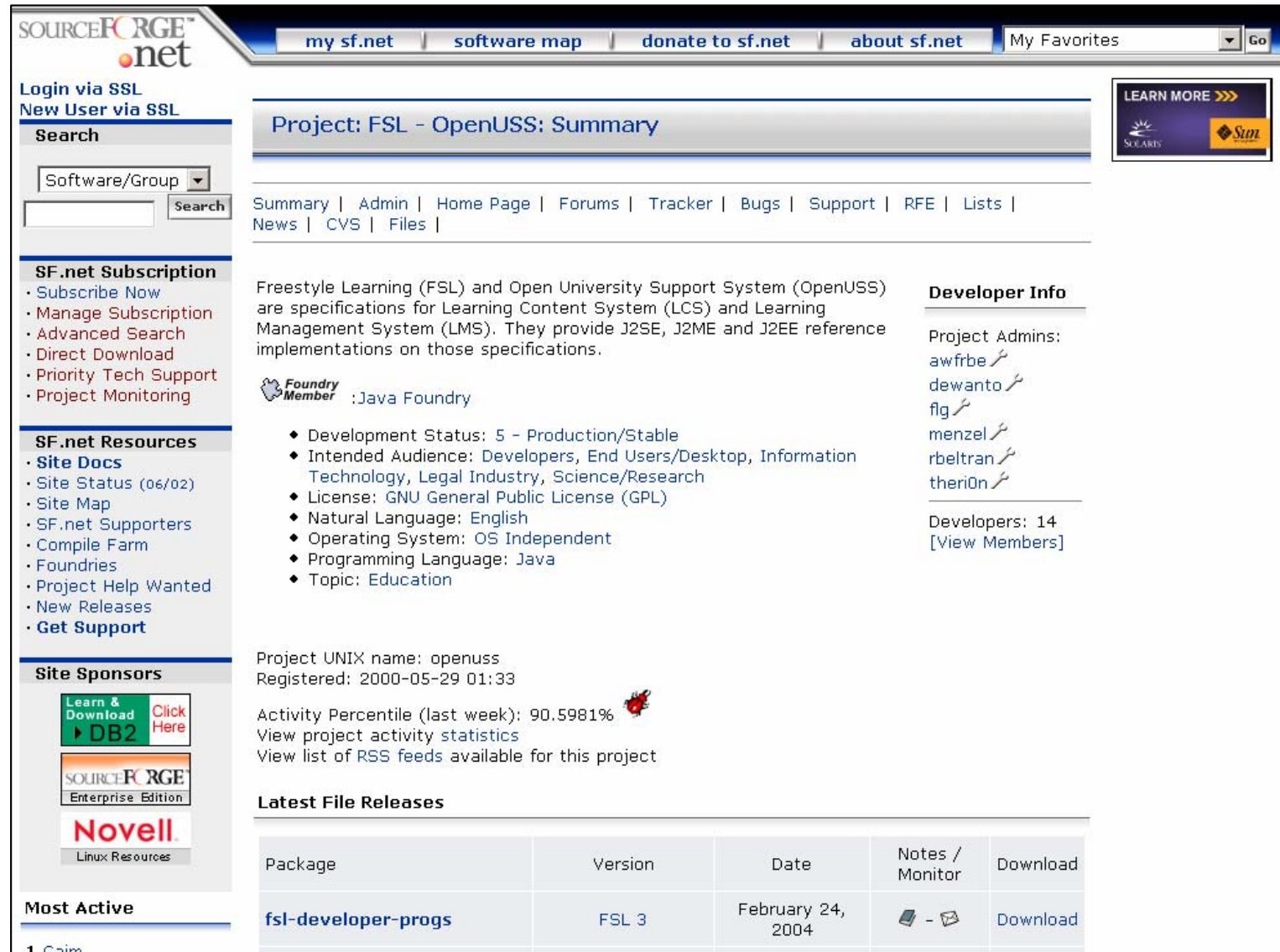
- Coordination between supply and demand side of the OSS market
- Reduction of transaction costs of market participants



# OSSI Example - Sourceforge.net

## > 80.000 OSS Projects

- 📁 [Communications \(10324 projects\)](#)
- 📁 [Database \(4196 projects\)](#)
- 📁 [Desktop Environment \(2239 projects\)](#)
- 📁 [Education \(2135 projects\)](#)
- 📁 [Games/Entertainment \(9637 projects\)](#)
- 📁 [Internet \(16486 projects\)](#)
- 📁 [Multimedia \(8265 projects\)](#)
- 📁 [Office/Business \(3342 projects\)](#)
- 📁 [Other/Nonlisted Topic \(1665 projects\)](#)
- 📁 [Printing \(303 projects\)](#)
- 📁 [Religion \(185 projects\)](#)
- 📁 [Scientific/Engineering \(6302 projects\)](#)
- 📁 [Security \(1780 projects\)](#)
- 📁 [Sociology \(229 projects\)](#)
- 📁 [Software Development \(11255 projects\)](#)
- 📁 [System \(13480 projects\)](#)
- 📁 [Terminals \(408 projects\)](#)
- 📁 [Text Editors \(1860 projects\)](#)



The screenshot shows the Sourceforge.net interface for the project 'FSL - OpenUSS'. The page includes a navigation bar with links like 'my sf.net', 'software map', and 'donate to sf.net'. A sidebar on the left contains a search bar, 'SF.net Subscription' options, 'SF.net Resources', and 'Site Sponsors' (including DB2, Novell, and Gaim). The main content area features a 'Project: FSL - OpenUSS: Summary' header, a navigation menu, a description of the project as a Learning Content System (LCS) and Learning Management System (LMS), and a list of specifications. A 'Developer Info' section lists project administrators and developers. At the bottom, there is a 'Latest File Releases' table.

Package	Version	Date	Notes / Monitor	Download
<a href="#">fsl-developer-progs</a>	FSL 3	February 24, 2004	-	<a href="#">Download</a>

## OSS Coordination Deficiencies

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„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

```

[04/Jul/2000:23:55:04 +0200] "GET /cgi-bin/conshop/ConShop.pl?TK PAR[USER ID]=04040271707
[04/Jul/2000:23:55:04 +0200] "GET /cgi-bin/ass/AssDisplay.pl?PP PAR[USER ID]=04040271707
[04/Jul/2000:23:55:04 +0200] "GET /cgi-bin/conshop/ConShop.pl?TK PAR%5BSTART POS%5D=29693&TK PAR
[04/Jul/2000:23:55:04 +0200] "GET /cgi-bin/ass/AssDisplay.pl?PP PAR%5BUSER ID%5D=040302777096274725
[04/Jul/2000:23:55:04 +0200] "GET /cgi-bin/ass/AssDisplay.pl?PP PAR[URL]=/nav/nav_main.html&PP PAR[USER
[04/Jul/2000:23:55:04 +0200] "GET /cgi-bin/conshop/ConShop.pl?TK EU[BASKETREFINE]=&TK PAR[A900001;ANZAHL;TY
[04/Jul/2000:23:55:05 +0200] "GET /cgi-bin/conshop/ConShop.pl?TK PAR%5BSTART POS%5D=32882&TK PAR%5BEND POS%5D=3
[04/Jul/2000:23:55:05 +0200] "GET /cgi-bin/ivw/CP/BAK/io temp/templates bigshop/startseite de.html HTTP/1.1" 200
[04/Jul/2000:23:55:05 +0200] "GET /images/trustedshops_50.gif HTTP/1.0" 200 2762 "http://www.conrad.de/cgi-bin/ass
[04/Jul/2000:23:55:05 +0200] "GET /cgi-bin/conshop/ConShop.pl?TK PAR[USER ID]=0404046970962746563&TK EU[SHOWPAGE]=&TK
[04/Jul/2000:23:55:05 +0200] "GET /cgi-bin/conshop/ConShop.pl?TK PAR%5BSTART POS%5D=24483&TK PAR%5BEND POS%5D=24547&T
[04/Jul/2000:23:55:05 +0200] "GET /images/webmiles_w.gif HTTP/1.1" 200 1935 "http://www.conrad.de/cgi-bin/ass/AssDispla
[04/Jul/2000:23:55:05 +0200] "GET /nav/images/auswahl_anzeigen_neu.gif HTTP/1.1" 304 - "http://www.conrad.de/cgi-bin/as
[04/Jul/2000:23:55:06 +0200] "GET /cgi-bin/ass/AssNavi.pl?PP PAR[BEREICH]=SERVICE&PP PAR[USER ID]=0404005400962747425
[04/Jul/2000:23:55:06 +0200] "GET /cgi-bin/conshop/ConShop.pl?TK PAR%5BSTART POS%5D=28273&TK PAR%5BEND POS%5D=28314&TK
[04/Jul/2000:23:55:06 +0200] "GET /cgi-bin/ivw/CP/shopping/tmpl/ProductPage.tpl HTTP/1.0" 200 43 "http://www.conrad.de
[04/Jul/2000:23:55:06 +0200] "GET /cgi-bin/ivw/CP/BAK/io temp/templates bigshop/startseite de.html HTTP/1.0" 200 43 "h
[04/Jul/2000:23:55:06 +0200] "GET /images/leer.gif HTTP/1.0" 304 - "http://www.conrad.de/cgi-bin/ass/AssDisplay.pl?
[04/Jul/2000:23:55:06 +0200] "GET /nav/images/bg_menu.jpg HTTP/1.0" 304 - "http://www.conrad.de/cgi-bin/ass/AssDi
[04/Jul/2000:23:55:07 +0200] "GET /cgi-bin/ivw/CP/shopping/tmpl/ProductPage.tpl HTTP/1.0" 200 43 "http://www.con
[04/Jul/2000:23:55:07 +0200] "GET /cgi-bin/conshop/index.cgi HTTP/1.1" 200 2233 "-" "Mozilla/4.0 (compatible;
[04/Jul/2000:23:55:07 +0200] "GET /service/c_header_service.html HTTP/1.0" 200 1633 "-" "Mozilla/4.51 [de]
[04/Jul/2000:23:55:07 +0200] "GET /nav/images/button_go_blaue.gif HTTP/1.0" 304 - "http://www.conrad.de
[04/Jul/2000:23:55:07 +0200] "GET /cgi-bin/ivw/CP/nav/c_banner.html HTTP/1.1" 200 43 "http://www.con
[04/Jul/2000:23:55:07 +0200] "GET /cgi-bin/conshop/ConShop.pl?TK PAR[USER ID]=04080349709627469
[04/Jul/2000:23:55:07 +0200] "GET /cgi-bin/conshop/ConShop.pl?PP PAR[BEREICH]=SERVICE&PP
[04/Jul/2000:23:55:07 +0200] "GET /images/ssl.gif HTTP/1.1" 200 776 "http://www
[04/Jul/2000:23:55:07 +0200] "GET /cgi-bin/conshop/ConShop.pl?TK PAR

```

# 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

2001-12-01 00:01:50

217.1.197.24 -

W3SVC2 NERO 62.180.61.218 80

GET

</interakt/dialog/kontakt.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>

= relevant attributes



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)

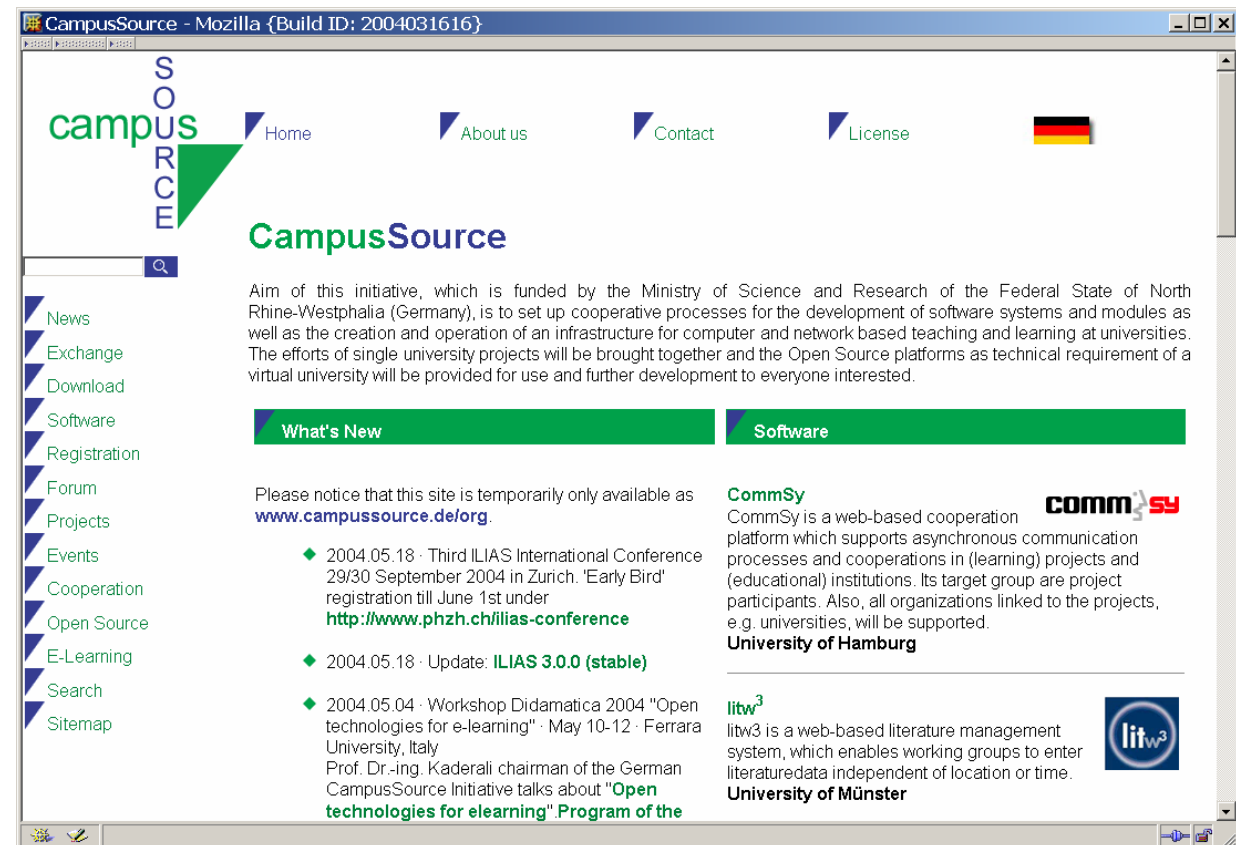


Referrer

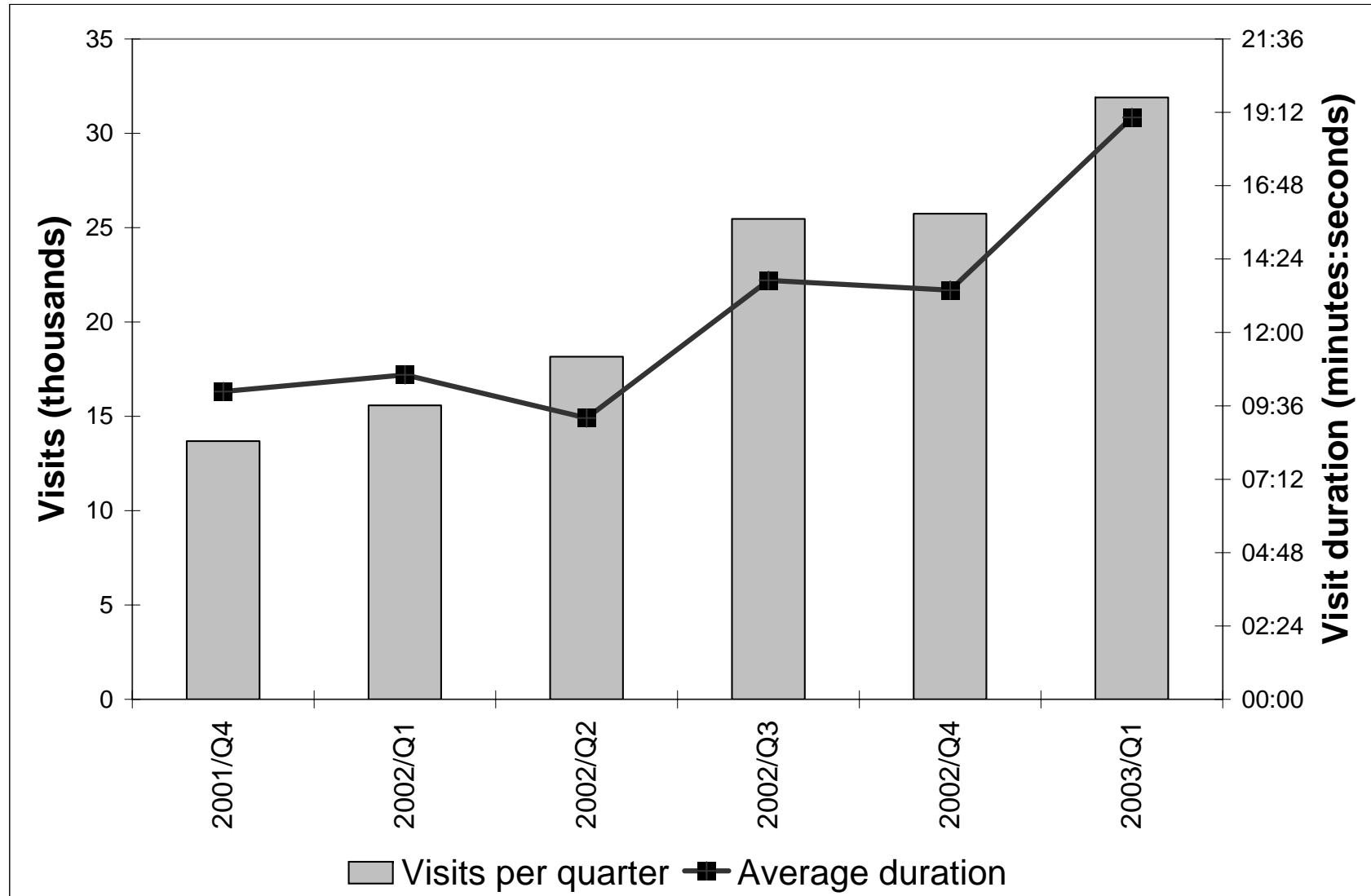
# Informational Benefits of Log Files – an Exploratory Study for CampusSource

## Characteristics

- Log file data
- From 09-2001 until 03-2003
- Use of standard analytical tools
  - „Web Log Analyzer“



# Web Site Reach



# 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

No.	Top referrer	Share
1	<a href="http://www.google.de/">http://www.google.de/</a>	51,88 %
2	<a href="http://www.google.com/">http://www.google.com/</a>	19,46 %
3	<a href="http://openuss.sourceforge.net/">http://openuss.sourceforge.net/</a>	8,09 %
4	<a href="http://www.ilias.uni-koeln.de/">http://www.ilias.uni-koeln.de/</a>	4,59 %
5	<a href="http://www.gmd.de/">http://www.gmd.de/</a>	3,08 %
6	<a href="http://www.fernuni-hagen.de/">http://www.fernuni-hagen.de/</a>	2,76 %
7	<a href="http://www.google.ch/">http://www.google.ch/</a>	2,73 %
8	<a href="http://www.google.at/">http://www.google.at/</a>	2,24 %
9	<a href="http://www-pi3.fernuni-hagen.de/">http://www-pi3.fernuni-hagen.de/</a>	1,95 %
10	<a href="http://muckel3.fernuni-hagen.de/">http://muckel3.fernuni-hagen.de/</a>	1,66 %

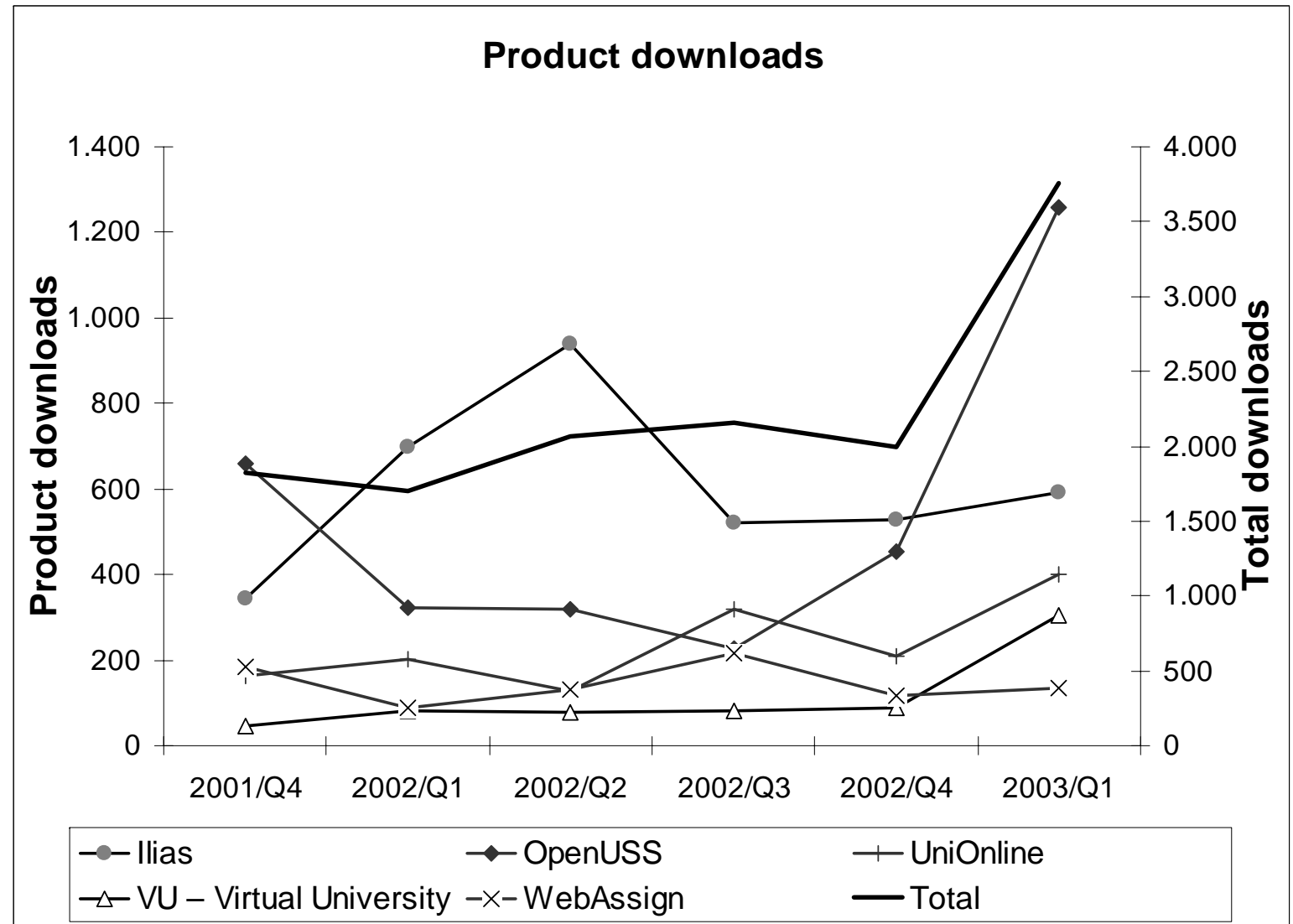
# Top 10 - External Search Terms

- 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

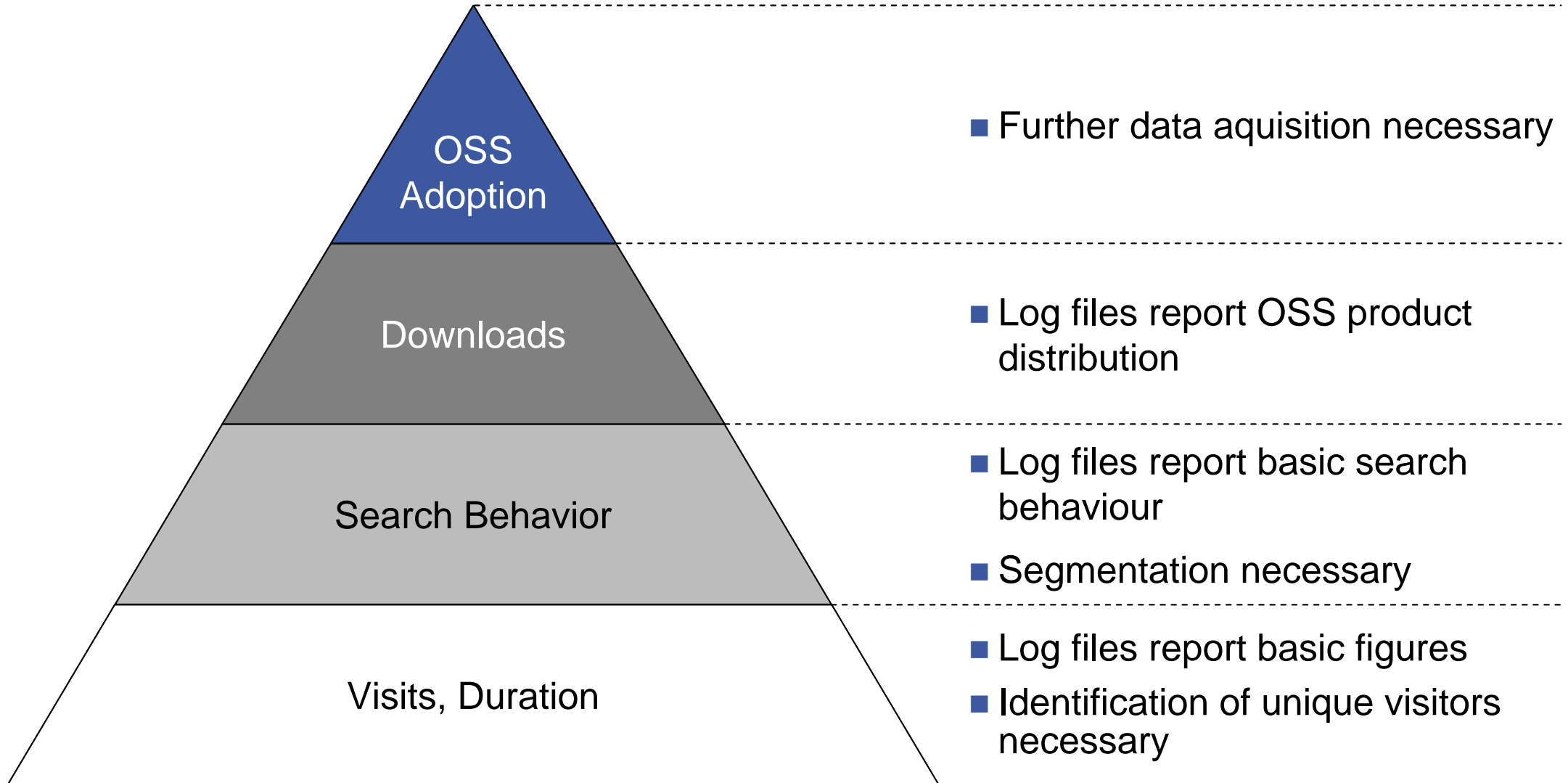
No.	Search term
1	e-learning
2	openuss
3	Virtuelles lernen („virtual learning“)
4	ilias
5	webassign
6	campussource
7	opensource
8	wie funktioniert die börse („how the exchange works“)
9	software exchange
10	open source

# Product Downloads

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

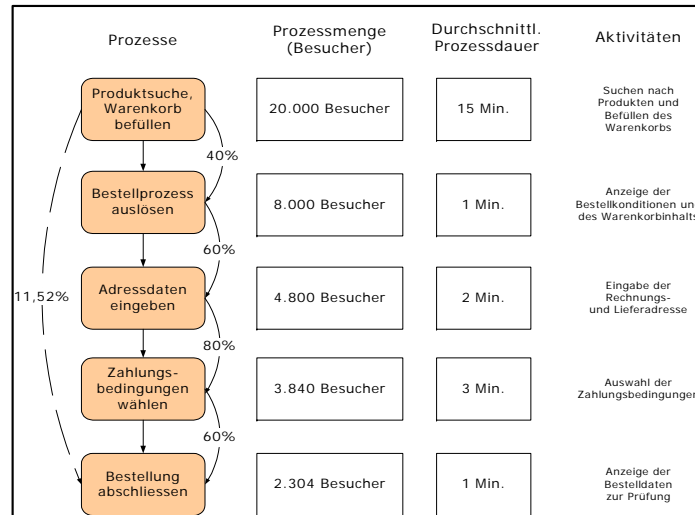


# Summary

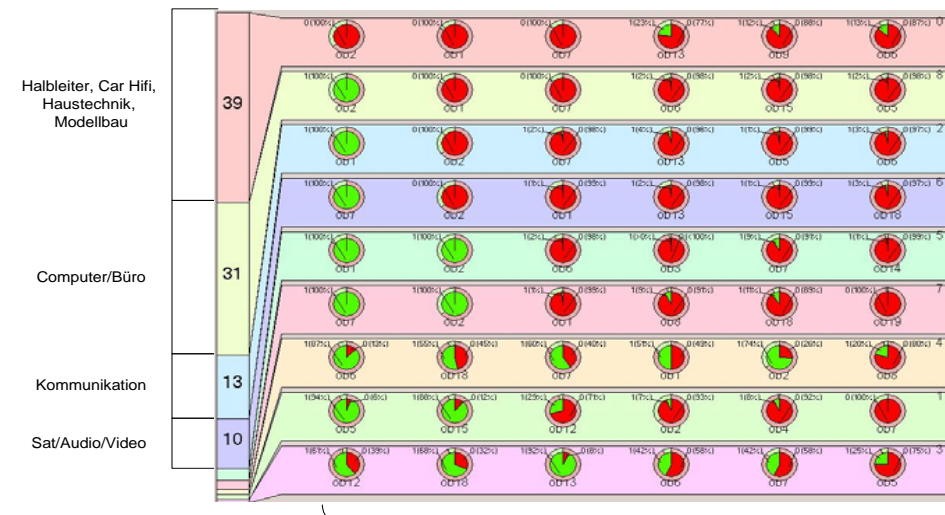


# Further Analytical Research Issues for OSSIs

## Process Analysis (Path Analysis)



## Visitor Segmentation



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

## Association Analysis

