Management of the Internet and Complex Services

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Deliverable D4.5
EMANICS dissemination, promotion and collaboration initiatives

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1 Executive summary

The main maintenance activities of the EMANICS site have consisted in day-to-day administration tasks, collection of statistics and the execution of a set of security audits motivated by partners feedback and reported Joomla CMS potential vulnerabilities.

Use statistics of the EMANICS site are presented, distinguishing the public site from the private one. In both cases we present the activity of the site reflected by the number of visitors, the number of hits and pages visited and the traffic generated. Concerning the public site we found that in the one year period of analysis it got 80000 visits by 19000 unique visitors[1] that generated 7.5 Gb of data. Similar measurement indexes are reported for the private site that reflect that it was visited 2900 times by 900 unique visitors[1] with a total amount of 25.5 Gb of data. Also the time duration distribution and the source domain of the above visits is reported and analyzed.

During the reporting period, three newsletters were published, which were made available to the community through our electronic dissemination environment. The first newsletter was published at the end of February 2008, whereas the second was done at the end of August and the last one in February 2009.

The redesign of the SimpleWeb site, a well established web portal devoted to network management, has been initiated but not yet concluded. The objective of this redesign process is to change the layout of the site to make it more amenable and aligned with nowadays webs layouts.

About 15 podcasts have been produced. These podcast represent recordings made at the AIMS 2008 Conference, NOMS 2008 Conference and IM 2007 Conference (note that some Podcasts for IM 2007 were already produced earlier). In addition, a number of SNMP tutorials have been converted into podcasts. In total these podcasts represent around 20 hours of recordings and around 13GB of data. Podcasts can be downloaded via RSS feeds on the EMANICS website, the SimpleWeb, as well as the iTunes shop.

News and events are an important dissemination activity within WP4. The former is oriented to the global community on network and service management whereas the later is more oriented to the EMANICS people only. For this reason an historic classified records of such news and events has been created to easy the navigation through all of them.

Wikipedia has also been used for dissemination of our activities inserting an article presenting the main highlights of EMANICS.

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[1] The number of unique visitors is a sum of number of unique visitors in twelve months. Unique visitor means unique IP in the access log in a month.

2 Introduction

Deliverable D4.5 is the report of activities conducted within WP4 in the one year period starting March 2008 and ending March 2009. This period is characterized by the maturity reached by our electronic collaboration and dissemination tools. All them are fully functional and used for the conceived purposes. This has been thanks to the effort devoted to the maintenance of all the hardware and software components that constitute our main web site (Emanics.org) as well as the SimpleWeb site, which is our complementary dissemination infrastructure.

But the effort in WP4 has not been exclusively in maintenance activities. In fact, the creation of new content has been a target of much importance. New podcasts, three more issues of the newsletter, and a classification of the news and events announced up to the end of 2008 are examples of content elaborated in the last year.

The deliverable has two main sections. One is devoted to the maintenance and consolidation activities – chapter 3 - and the other to the extension of dissemination and promotion.

Chapter 3 starts with a summary of the main maintenance actions carried out in the emanics.org site to continue with a presentation of a set of statistics collected by means of AWstats [1] for both, the public and the private parts of the site. These statistics have been collected since the beginning of the network of excellence and constitute an indicator of the impact of the site in the communities to which it is addressed. Finally, Chapter 3 concludes presenting the issues of the EMANICS newsletter published in the last twelve months. The EMANICS newsletter is the vehicle by means of which we pretend to inform the community worldwide about the most relevant events and opportunities.

Chapter 4 starts with a brief summary of the activity intended to change the layout and update some content of the SimpleWeb. This is an ongoing work and therefore we only mention it leaving the details for the next deliverable. The next subchapter is devoted to the library of podcasts that were produced. It is worthy to mention the effort devoted and thanks to which we count today with a considerable amount of material covering the most significant congresses and symposia in the field of network and service management. Then we present a classification of the news and events distributed through the site that will facilitate its searching and hence will help to track the activity of the network. Finally, Chapter 4 concludes presenting an article edited in Wikipedia to make EMANICS present there.

3 Maintenance and consolidation of dissemination and collaboration tools

3.1 Main maintenance actions

The whole structure and appearance of the site defined in the previous reported stage of the project before March 2008 was already in a quite mature form. The project participants including PSNC as responsible partner for Emanics.org site didn't notice any important new feature to be introduced or corrected to the site. During reported period described in this deliverable only a few actions and features were performed:

- Continue general maintenance of EMANICS website, which contained the following activities:

    o day-to-day administration tasks, which covered interacting with users

    o helping users with problem resolving: recovering missing password, changing password etc.

    o correcting some appearance and discovered errors in the new introduced content by responsible editors of the site

    o creating accounts and changing permissions

    o performing and maintaining scheduled backups of website files, related database, *svn* and *track* systems

- Collecting site statistics

    Collecting EMANICS site statistics has been continued for both the public and the private parts of the website

- A few security audits were performed in order to prevent potential attack risks and disable vulnerabilities reported in Joomla CMS; some Joomla components were upgraded and the website configuration was changed in order to provide a better security level. Also some potential holes in security were tightened or removed

Moreover some additions to the site's structure were introduced:

- A new item in the main menu of the site entitled "Scientific and Industrial Council of EMANICS"

    It presents the list of people included in the Scientific and Industrial Council of the network

- A new RSS channel entitled "Events RSS"

    This channel presents any new event item published on the site. Events are facts that occur or will occur whose interest is is addressed to the EMANICS community only

3.2 Results on EMANICS usage statistics

The statistics reported hereafter correspond to the period between March 2008 and February 2009. Presented reports were generated using AWstats software [1]. AWStats is a free powerful tool that generates advanced web, streaming, ftp or mail server statistics, graphically. This log analyzer works as a *CGI or from command line* and shows you all possible information your log contains, in few graphical web pages. Originally AWstats can generate report for particular month or for the whole year (from January to December), so it had to be modified a bit to allow select period between March 2008 and February 2009.

In the following subsections the main activity indexes are presented as tables and some comments are provided in line.

3.2.1 Publicly available EMANICS website

Reported period	Mar 2008 - Feb 2009				
	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Viewed traffic *	<= 18626 Exact value not available in 'Year' view	81227 (4.36 visits/visitor)	334044 (4.11 Pages/Visit)	485255 (5.97 Hits/Visit)	7.48 GB (96.52 KB/Visit)
Not viewed traffic *			65509	69197	127.79 MB

Figure 1[*] Summary statistics for the public part of EMANICS site for the period March 08 to February 09

During the last year EMANICS website was visited over 80 000 times by no more than 19 000 internet users. In a yearly report the number of unique visitors is a sum of unique visitors in every month, so visitor who visit the website regularly, lets say every day, in monthly report is counted once, but in yearly report he is treated as an unique in every month and thus counted twelve times. Total traffic volume is 7,5 GB.

We can notice also, that robots are quite smart – their hits are about 15% of total hits, but part of total bandwidth is below 2%.

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[*] Not viewed traffic includes traffic generated by robots, worms, or replies with special HTTP status codes.

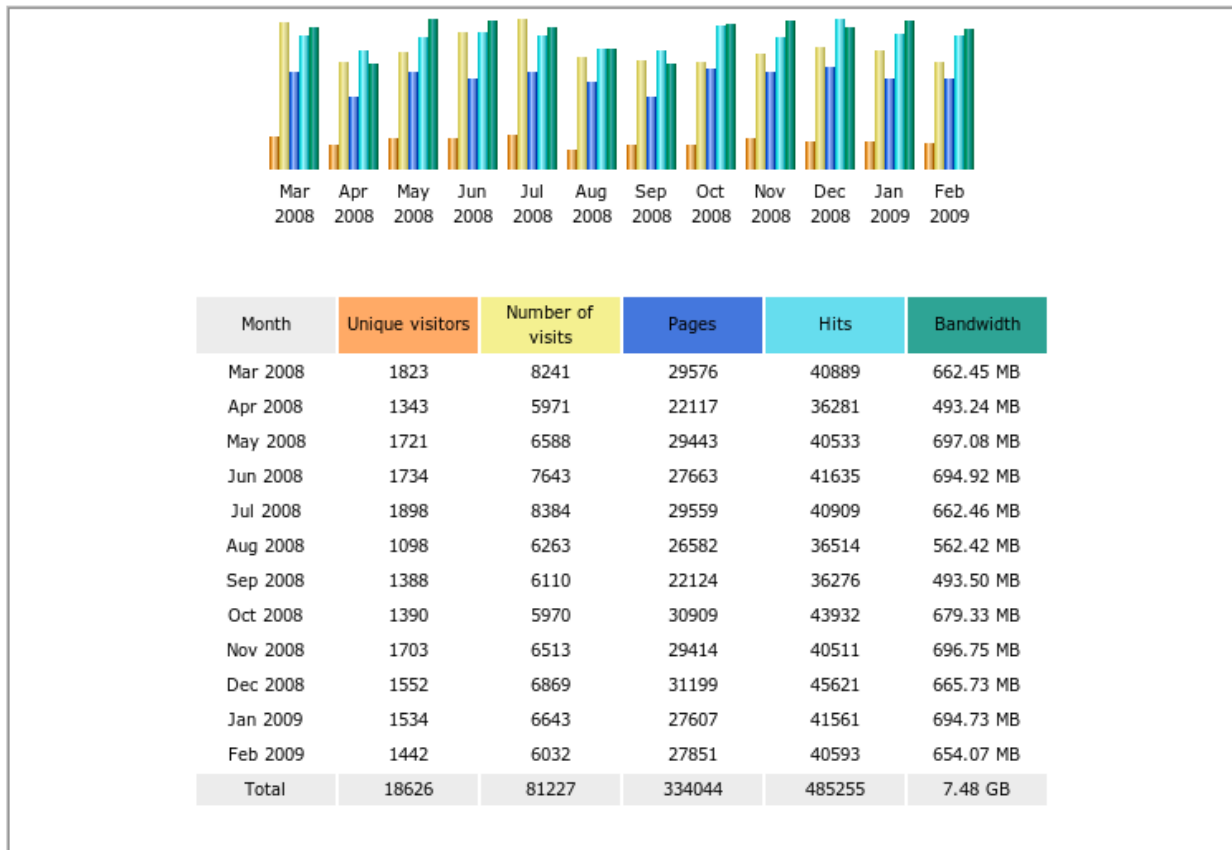| Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Mar 2008	1823	8241	29576	40889	662.45 MB
Apr 2008	1343	5971	22117	36281	493.24 MB
May 2008	1721	6588	29443	40533	697.08 MB
Jun 2008	1734	7643	27663	41635	694.92 MB
Jul 2008	1898	8384	29559	40909	662.46 MB
Aug 2008	1098	6263	26582	36514	562.42 MB
Sep 2008	1388	6110	22124	36276	493.50 MB
Oct 2008	1390	5970	30909	43932	679.33 MB
Nov 2008	1703	6513	29414	40511	696.75 MB
Dec 2008	1552	6869	31199	45621	665.73 MB
Jan 2009	1534	6643	27607	41561	694.73 MB
Feb 2009	1442	6032	27851	40593	654.07 MB
Total	18626	81227	334044	485255	7.48 GB

Figure 2 Visitors activity in particular months

The activity in different months is more or less equal, however we can notice a bit smaller number of visitors and visits during summer holidays (August, September). On the other hand, July is the month of the highest activity.
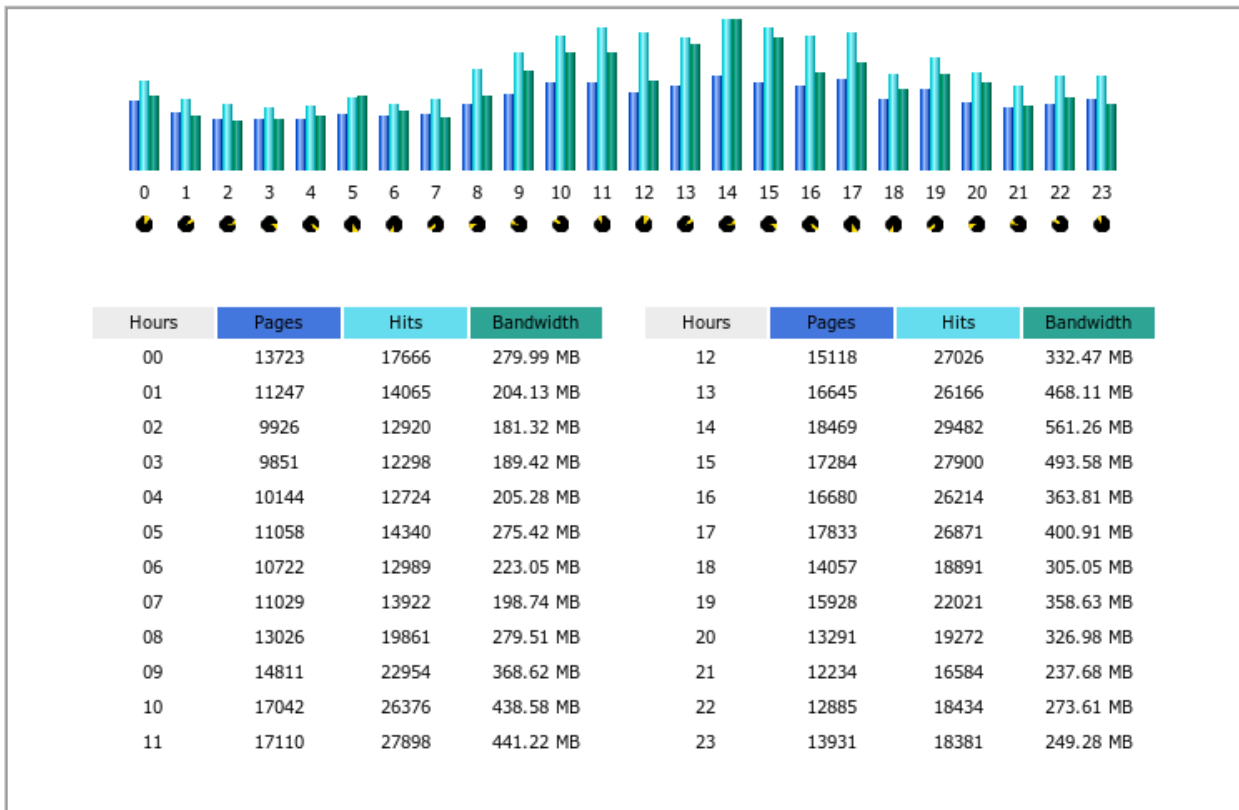
Figure 3 Visitors activity in particular hours

Hours	Pages	Hits	Bandwidth	Hours	Pages	Hits	Bandwidth
00	13723	17666	279.99 MB	12	15118	27026	332.47 MB
01	11247	14065	204.13 MB	13	16645	26166	468.11 MB
02	9926	12920	181.32 MB	14	18469	29482	561.26 MB
03	9851	12298	189.42 MB	15	17284	27900	493.58 MB
04	10144	12724	205.28 MB	16	16680	26214	363.81 MB
05	11058	14340	275.42 MB	17	17833	26871	400.91 MB
06	10722	12989	223.05 MB	18	14057	18891	305.05 MB
07	11029	13922	198.74 MB	19	15928	22021	358.63 MB
08	13026	19861	279.51 MB	20	13291	19272	326.98 MB
09	14811	22954	368.62 MB	21	12234	16584	237.68 MB
10	17042	26376	438.58 MB	22	12885	18434	273.61 MB
11	17110	27898	441.22 MB	23	13931	18381	249.28 MB

As far as we can rely on visitors classification (real users versus robots) from the summary, we can notice that EMANICS website is popular across all time zones, because despite that all partners comes from Europe (single time zone), there is also quite high activity during night hours.

	Domains/Countries		Pages	Hits	Bandwidth	
🌐	Commercial	com	100524	115215	1.62 GB	
🌐	Network	net	87684	106749	1.68 GB	
?	Unknown	ip	67178	107756	1.73 GB	
🇩🇪	Germany	de	28108	52208	765.51 MB	
🇵🇱	Poland	pl	17869	32928	438.19 MB	
🇬🇧	United Kingdom	uk	4502	8277	152.13 MB	
🇪🇸	Spain	es	3993	10195	164.15 MB	
🇳🇱	Netherlands	nl	3868	6701	87.23 MB	
🇫🇷	France	fr	2729	6021	133.77 MB	
🇨🇭	Switzerland	ch	1901	5093	105.39 MB	
	Others		15688	34112	649.09 MB	

Figure 4 Top ten domains/countries

Figure 4 above confirms what we noticed before – the site is equally popular as in the World as in Europe.

Hosts : 8516	Pages	Hits	Bandwidth
llf320020.crawl.yahoo.net	9243	9243	141.14 MB
crawl-66-249-65-115.googlebot.com	8862	8862	115.45 MB
llf320042.crawl.yahoo.net	6194	6194	85.10 MB
rose.man.poznan.pl	6028	6029	43.81 MB
llf520160.crawl.yahoo.net	5726	5726	82.89 MB
pc63-34.informatik.unibw-muenchen.de	5521	7852	118.11 MB
195.128.18.18	4859	4865	28.17 MB
42.red-80-32-128.staticip.rima-tde.net	4348	12523	144.51 MB
crawl-66-249-71-66.googlebot.com	4237	4237	56.18 MB
65.214.44.28	4164	4384	73.47 MB
Others	274862	415340	6.61 GB

Figure 5 Top ten hosts

From Figure 5we deduce that traffic from robots comes from very limited number of hosts while of the real users come from many different hosts.

Number of visits: 81227 - Average: 580 s	Number of visits	Percent
0s-30s	58680	72.2 %
30s-2mn	2514	3 %
2mn-5mn	1838	2.2 %
5mn-15mn	2713	3.3 %
15mn-30mn	2527	3.1 %
30mn-1h	3950	4.8 %
1h+	8194	10 %
Unknown	811	0.9 %

Figure 6 Visits duration

3.2.2 Internal collaboration EMANICS website

Reported period	Mar 2008 - Feb 2009				
	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Viewed traffic *	<= 890 Exact value not available in 'Year' view	2861 (3.21 visits/visitor)	18394 (6.42 Pages/Visit)	35229 (12.31 Hits/Visit)	25.59 GB (9378.63 KB/Visit)
Not viewed traffic *			58424	59689	153.91 MB

Figure 7 [*] Summary statistics for the internal part of EMANICS site

The internal part of EMANICS website consists of *Trac* and *SVN*. Project participants frequently synchronize their local copy of *SVN* repository using specialized *SVN* sofware.This software downloads/uploads only files changed from last synchronization. Checking if file has changed generates request classified in summary above as "not

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[*] Not viewed traffic includes traffic generated by robots, worms, or replies with special HTTP status codes.

viewed traffic" - that is why in contrast to the public website there is a lot of pages/hits in this category.
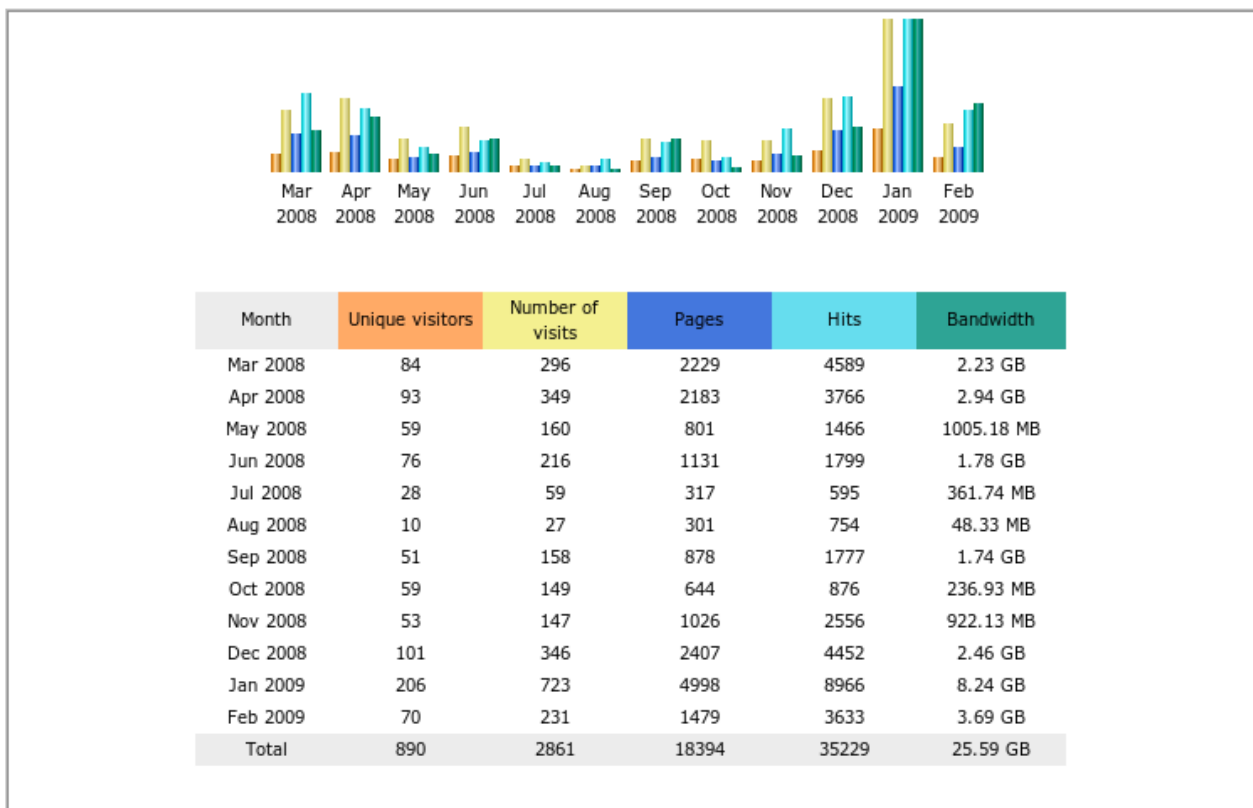

Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Mar 2008	84	296	2229	4589	2.23 GB
Apr 2008	93	349	2183	3766	2.94 GB
May 2008	59	160	801	1466	1005.18 MB
Jun 2008	76	216	1131	1799	1.78 GB
Jul 2008	28	59	317	595	361.74 MB
Aug 2008	10	27	301	754	48.33 MB
Sep 2008	51	158	878	1777	1.74 GB
Oct 2008	59	149	644	876	236.93 MB
Nov 2008	53	147	1026	2556	922.13 MB
Dec 2008	101	346	2407	4452	2.46 GB
Jan 2009	206	723	4998	8966	8.24 GB
Feb 2009	70	231	1479	3633	3.69 GB
Total	890	2861	18394	35229	25.59 GB

Figure 8 Visitors activity in particular months

Visitors activity in particular months looks similar to public website report usage in the sense that months during the summer holidays reflect the lowest activity, but in contrast to the public website report, January reflects the maximum activity, likely due to the completion of reports, deliverables and the audit preparation.
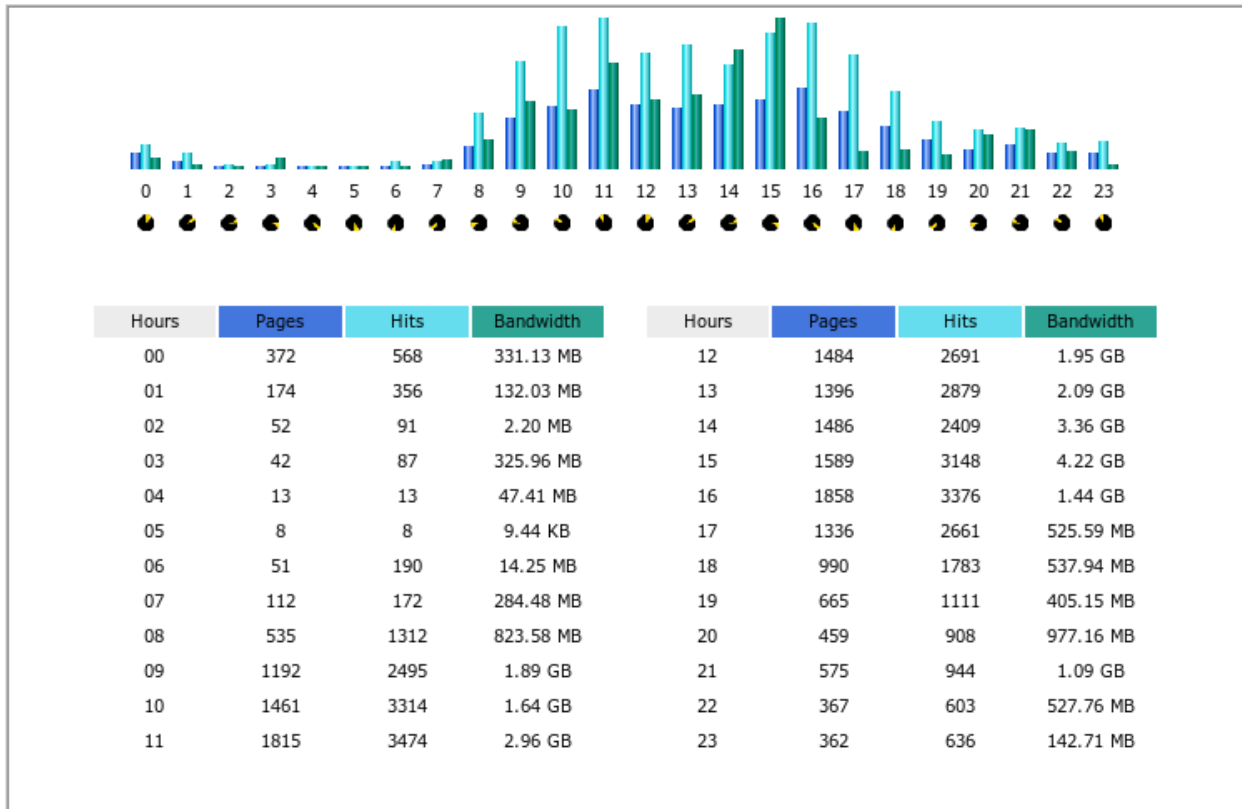
Figure 9 Visitors activity in particular hours

Hours of the highest and lowest activity show a normal behavior though correspond to working hours

	Domains/Countries		Pages	Hits	Bandwidth	
■	Germany	de	4378	8221	7.50 GB	
✚	Switzerland	ch	3103	4810	4.72 GB	
?	Unknown	ip	1971	5001	2.11 GB	
▮▮	France	fr	1893	2810	1.66 GB	
●	Network	net	1554	2885	1.36 GB	
▓	United Kingdom	uk	1532	3087	740.90 MB	
▬	Netherlands	nl	1253	2620	3.32 GB	
▬	Poland	pl	1211	2633	3.45 GB	
●	Commercial	com	1028	1964	511.17 MB	
▬	Spain	es	229	572	58.76 MB	
	Others		242	626	179.06 MB	

Figure 10 Top ten domains/countries

In respect to the most frequent requests index we can observe that it is highly correlated with countries of project participants.

Hosts : 634	Pages	Hits	Bandwidth
retsina.ifi.uzh.ch	1505	2274	339.81 MB
deimos.jacobs-university.de	875	959	990.01 MB
moose.loria.fr	800	1147	590.11 MB
pc63-34.informatik.unibw-muenchen.de	710	1167	741.03 MB
cpc1-glfd1-0-0-cust158.glfd.cable.ntl.com	670	1368	156.81 MB
ewi1009.ewi.utwente.nl	660	1072	592.48 MB
pc63-170.informatik.unibw-muenchen.de	533	1486	131.40 MB
pcheger13.nm.ifi.lmu.de	515	884	490.32 MB
spy.man.poznan.pl	402	954	1.22 GB
pc28.informatik.unibw-muenchen.de	399	1208	1.14 GB
Others	11325	22710	19.29 GB

Figure 11 Top ten hosts

Number of visits: 2861 - Average: 647 s	Number of visits	Percent
0s-30s	1449	50.6 %
30s-2mn	270	9.4 %
2mn-5mn	200	6.9 %
5mn-15mn	290	10.1 %
15mn-30mn	234	8.1 %
30mn-1h	252	8.8 %
1h+	166	5.8 %

Figure 12 Visits duration

Distribution of "visits duration" time is more balanced comparing to the public part. Most visits still take dozens of seconds, but apart from the shortest visits, the rest of durations ranges are more or less equally frequent.

3.3 EMANICS newsletter

The main objective of the EMANICS Newsletter is to provide updates of important events in the community. Produced every five months on average, it publishes success stories and cooperation initiatives among partners and also reports on a number of related events such as conferences, seminars and meetings. A list of upcoming events and CFPs for journals and conferences is also provided. The newsletter is published on the EMANICS Web site, it is automatically emailed to subscribed parties and it is also distributed in paper format in the key network and service management conferences (IM/NOMS and ManWeek).

During the reporting period, three newsletters were published, which were made available to the community through the established electronic dissemination environment. The first newsletter [2], published at the end of February 2008, included reports on the joint NMRG/EMANICS WP7 meeting that took place in October 2007, and on the Dagstuhl Seminar on Telecommunication Economics that took place in

January 2008. This issue also provided an overview of the newly established distributed computing and storage test-bed – the EMANICSLab.

The second newsletter [3] was published at the end of August 2008 and provided a comprehensive set of reports regarding activities in the network and service management community:

- 11th IEEE/IFIP Network Operations and Management Symposium (NOMS'08), held in Salvador, Brazil in April 2008.
- 1st IEEE workshop on Automated Network Management (ANM'08), held in Phoenix, Arizona in April 2008.
- Joint ACF, AutoI, EMANICS workshop on Autonomic Management in the Future Internet, held at the Technical University of Catalonia in May 2008.
- 2nd International Summer School on Network and Service Management (ISSNSM'08), held at the University of Zurich in June 2008.
- 2nd International Conference on Autonomous Infrastructure (AIMS'08) on resilient networks and services, held at Jacobs University Bremen in July 2008.
- Workshop on the Vision and Management of the Future Internet, held at Jacobs University Bremen in July 2008.
- Joint EC-GIN, EMANICS, SmoothIT workshop on Economic Traffic Management (ETM), held at the University of Zurich in August 2008.

The third newsletter [4] was published at the end of February 2009 and provided comprehensive reports on the following activities:

- Dagstuhl Seminar on the Management of the Future Internet, organised by EMANICS in January 2009.
- Future Internet Assembly (FIA), held in Madrid, Spain in December 2008.
- Networking session on the Management Challenges of the Future Internet, held during the ICT event in Lyon, France in November 2008.
- Joint EMANICS, NMRG workshop on the Netflow/IPFIX use in Network Management, held in Munich, Germany in October 2008.
- 4th International Week on Management of Networks and Services (ManWeek'08), held in Samos Island, Greece in September 2008.

The next issue is planned for July 2009 to include news on the EMANICS-sponsored Peer-to-Peer and Autonomic Management workshops, the International Symposium on Policies for Distributed Systems and Networks (POLICY'09), the International Symposium on Integrated Network Management (IM'09), the International Conference on Autonomic Computing and Communications (ICAC'09), and the International Conference on Autonomous Infrastructure (AIMS'09).

4 Extended dissemination & promotion

4.1 Update of the SimpleWeb

This activity consists of the redesign of the layout of many pages of the SimpleWeb site. The objective is to improve the visibility of the site and henceforth to increase its impact worldwide. Work was started in the last quarter of 2008 and hasn't been concluded yet. Therefore we prefer to postpone the reporting of all the modifications to deliverable D4.6 that will be produced by the end of this year.

4.2 Creation of podcasts

In the first quarter of 2009 a number of podcasts have been created. These podcast represent recordings made at the AIMS 2008 Conference, NOMS 2008 Conference and IM 2007 Conference (note that some Podcasts for IM 2007 were already produced earlier). In addition, a number of SNMP tutorials have been converted into podcasts. A description of each of these podcast is provided below; in total these podcasts represent around 20 hours of recordings, and around 13GB of data. Podcasts can be downloaded via RSS feeds on the EMANICS website, the SimpleWeb, as well as the iTunes shop.

4.2.1 Podcasts on AIMS 2008 events

The following Podcasts have been made at the IFIP/ACM 2nd Annual AIMS conference, which was held July 1-3, 2008 in Bremen, Germany (URL: http://www.aims-conference.org/2008/:

- Opening of the IFIP/ACM 2nd International Conference on Autonomous Infrastructure, Management and Security (AIMS) - Resilient Networks and Services.

- Keynote: Robust Network Operations - Adaptation and Control, by Simon Leinen

    In his keynote, Simon Leinen, who is working at the Swiss Education and Research Network (SWITCH), talks about their particular (and sometimes peculiar) network engineering and management practices, including things that didn't work so well, and about management tools that they would find useful.

- Tutorial: Where to Publish your papers, by Aiko Pras

    In this short tutorial we stress the importance of publishing your research results at the right venues. First we identify the workshops, conferences, magazines and journals in the area of network and systems management. We will discuss the quality of some of our conferences and journals, as perceived by experts in our field, as well as people outside our area. For this we present some acceptance rates, acceptance procedures, conference and journal rankings, as well as impact factors. Although some Ph.D. students may believe that a main goal is to publish as many papers as possible, this tutorial will stress that there are other important metrics, such as the number of citations, that are used to judge the quality of your research. We will discuss one metric that is currently popular, called the H-factor, and explain how to measure your own H-factor, using for

example the Web of Science (instead of Google's scholar). The tutorial concludes with explaining the importance of publishing in journals indexed in Thomson's Science Citation Index (SCI), or alternatives like Scopus. It also explains CPP, JCS and FCS factors.

- PhD Session 1:
  Presentation of the following papers:
  - o Entwined Influences of Users' Behaviour and QoS: A Multi-model Approach, by Julien Siebert, Vincent Chevrier, Laurent Ciarletta (France)
  - o Business-driven Management of Policies in DiffServ Networks, by Antonio Astorga, Javier Rubio-Loyola (Spain)
  - o Token-based Payment in Dynamic SAML-based Federations, by David J. Lutz, Burkhard Stiller (Germany, Switzerland)

- Session 2:
  Presentation of the following papers:
  - o A Role-based Infrastructure for the Management of Dynamic Communities, by Alberto Schaeffer-Filho, Emil Lupu, Morris Sloman, Sye-Loong Keoh, Jorge Lobo, Seraphin Calo (U.K., U.S.A.)
  - o PSH: A Private and Shared History-based Incentive Mechanism, by Thomas Bocek, Wang Kun, Fabio Victora Hecht, David Hausheer, Burkhard Stiller (Switzerland, China)
  - o Cooperation under Scarcity: The Sharer's Dilemma, by Michael Rogers, Saleem Bhatti (U.K.)

It should be noted that these recordings were made without good microphone. As a result, voice quality is poor and the podcasts may have to be removed in the near future.

4.2.2 Podcasts on NOMS 2008 events

The following Podcasts have been made at the 11th IEEE/IFIP Network Operations and Management Symposium (NOMS2008), which was held April 7-11, 2008 in Salvador de Bahia, Brazil:

- Opening of NOMS 2008, by Mehmet Ulema, Jose Marcos Nogueira, Marcus Brunner and Carlos Becker Westphall.

- Keynote 1: From Value Chains to Ecosystem: New Opportunities for Telecommunications and New Challenges for Managing Networks and Services, by Roberto Saracco

  The world is getting flatter and flatter, hierarchies and structures leave way to way to mesh and mash ups. Value chains morphs into ecosystems. The impact on the biz is significant. What are the new challenges that the management of networks and services has to meet? In addition, ecosystems tend to have a much more dynamic sense of stability; their evolution is subtle in the short term but can be staggering in the longer term. And as they evolve they may overlap and this leads to dramatic changes in the way biz and supporting infrastructures are shaped. Words like pervasive and ubiquitous may assume a quite different connotation: no more something planned and directed from the center to the edges under the control of few actors, rather something happening as result of loosely related actions originating at the edges. The talk will address the broad

picture to stimulate thinking on the direction for the next steps, both in fixed and mobile infrastructures as well as in the changing paradigm of service creation and provisioning.

▪ Keynote 2: Spectrum, Network And Operations Management in Cognitive Radio Networks, by Ian Akyildiz

Today's wireless networks are characterized by a fixed spectrum assignment policy. However, a large portion of the assigned spectrum is used sporadically and geographical variations in the utilization of assigned spectrum ranges from 15% to 85% with a high variance in time. The limited available spectrum and the inefficiency in the spectrum usage necessitate a new communication paradigm to exploit the existing wireless spectrum opportunistically. This new networking paradigm is referred to as cognitive radio networks. In this talk, the novel functionalities and current research challenges of the cognitive radio networks are explained in detail. More specifically, an overview of the cognitive radio technology is provided and the network architecture is introduced. Moreover, the cognitive network functions such as spectrum management, spectrum mobility and spectrum sharing are explained in detail. The influence of these functions on the performance of the upper layer protocols such as routing and transport are investigated. Moreover, the network management, operation and maintenance problems are highlighted and open research issues in these areas are also outlined.

▪ Keynote 3: Brazilian Terrestrial Digital TV System, by Luiz Fernando Gomes Soares

Brazil has recently launched its terrestrial digital tv system. The system is based on a reference model that differs from others counterparts by using most recent and advanced technologies. This talk aims to briefly present this reference model, focusing predominantly on the main Brazilian innovation: the middleware called Ginga. Some design decisions with regards to the support offered to applications are discussed and then the middleware architecture is presented with more attention paid to its declarative environment. The talk finishes with a discussion about management issues raised by this new media service and their relationships with Ginga modules.

▪ Distinguished Experts Panel
Panelists: George Pavlou, University College London, UK (Chair), Ian Akyildiz, Georgia Tech, USA, Bruno Albuquerque, Google, Brazil, Morris Sloman, Imperial College, UK, Rolf Stadler, KTH Royal Institute of Technology, Sweden

In recent years we have been introduced to computing environments that integrate wireless and wired components, providing ubiquitous access to information services and applications in a seamless manner. The years to come are expected to be more exciting as we will witness a proliferation in the use of emerging wireless technologies (e.g., sensor networks, vehicular networks, etc.) and enhanced networked applications (e.g., bio-sensing networks for healthcare, terrestrial ecology observing systems, smart spaces, dynamic communities, etc.) Such increasingly pervasive environments will require new management strategies, which can cope with resource constraints, multi-federated operation, scalability, dependability, context awareness, security, and mobility, to mention

just a few challenges. The issue to be addressed in this Distinguished Experts Panel is whether we are reinventing the wheel or there are real new challenges ahead. If so, what are they, in which context, and how should we approach them? If not, how can existing management solutions be used/combined/modified/extended in order to address the management needs the emerging ubiquitous environments?

4.2.3 Podcasts on IM 2007 events

The following Podcasts have been made at the 10th Integrated Management Symposium (IM 2007), which was held May 21-25, 2007 in Munich, Germany:

- Opening of IM 2007, by Alexander Keller (IBM T.J. Watson Research Center, USA), Technical Program Co-Chair.

- Opening by Prof. Heinz-Gerd Hegering (Leibniz Supercomputing Center, Germany), Technical Program Co-Chair.

- Opening by Hans Spitzner, Bavarian Vice-Minister of Economic Afairs, Infrastructure, Transport and Technology.

- Keynote 1: From Network to Service Management - How to Optimize Your Business Outcome, by Ulrich Pfeiffer, Regional CTO, Software Global Business Unit, HP

  Picking up the theme of this year's conference Ulrich takes you on an evolutionary journey how IT can move from managing the bits to delivering real business value. The key challenges and technologies used along the way are described and are accompanied by customer examples and a live demonstration. Starting from network management over to service driven operations, IT service management including CMDB techniques up to business service management. Of course the relevance of ITIL v2 is included, as well as the soon to be published version 3. Towards the end Ulrich briefly outlines how HP's Business Technology Optimization (BTO) solutions can be used to cope with the challenges introduced earlier. BTO management software and services help you understand the impact of technology on your business outcomes and help to make your most important strategic initiatives succeed.

- Keynote 2, by Prof. Dr. Wolfgang Gentzsch

  Over the past decade, due to the promising potential of the client-server paradigm, our IT infrastructures have grown along with our changing research and business needs, with often ad-hoc add-ons and fixes, as globalization proceeded to flatten the world. Today, many businesses and research communities face the need to restructure and align their existing IT infrastructures to achieve the flexibility and efficiency needed to compete in a rapidly changing world. During the same time, the grid computing paradigm has evolved, providing 'piping' technology and tools to virtualize the whole IT stack, from the network and hardware resources up to the application and services layer. Still, our experts in multiple locations work on different building blocks, like the Open Grid Services Architecture (OGSA), the Service Oriented Architecture (SOA), or the Web Oriented Architecture (WOA), within local or global settings. Just because we are using different names must not mean that they are so

different. Therefore, one aim of our presentation should be to analyze the differences and commonalities of these architectures, and demonstrate their strengths with the aid of practical use cases. This presentation has a slight grid-bias, in concert with the perspective and experience of the speaker.

▪ Keynote 3, by Keith C. Goodman

Best practices in IT service delivery have evolved from a focus on resource management, past systems management to the new era of service management. Leading IT organizations are implementing a services oriented framework that shifts the focus from a reactive to a proactive model that delivers high value services aligned to business needs. This presentation discusses several best practices and case studies for this evolution in service delivery management.

▪ Panel 1: Techniques for Policy Refinement: The Importance of Going One Level Down!

Chair: Jorge Lobo, IBM T.J. Watson, USA. Panelists: Emil Lupu, Imperial College London, Great Britain, Joan Serrat, Universitat Politecnica de Catalunya, Spain, Seraphin Calo, IBM T.J. Watson Research, USA, John Strassner, Motorola Research Labs, USA.

Policy Refinement refers to the process of deriving concrete implementable policies from higher-level goals or Service Level Agreements. It has been presented often as one of the most desirable research objectives in policy-based management yet one of the most challenging to address. In recent years, several approaches that have made some headway towards addressing this goal have emerged. They include amongst others: goal elaboration and abductive reasoning, model checking, case-based reasoning, and model transformation based on models and ontologies. The aim of this panel is to confront these approaches and in the process a number of questions will undoubtedly arise: are any of these approaches viable? How can refined policies be analyzed e.g., for conflicts? How much user intervention is required? When is each approach applicable? Can these approaches be combined?

▪ Panel 2: The End of the Waterfall -- Integrating Application Development and Operational Management

Chair: Chair: Tamar Eilam, IBM T.J. Watson Research, USA. Panelists: Joe Hellerstein, Microsoft, USA, German Goldszmidt, IBM, USA, Jerry Rolia, HP Laboratories, USA, Mark Burgess, University College Oslo, Norway.

Two trends are pushing the industry towards the merger of application development and operational management, activities that have largely been treated as distinct phases in the software lifecycle. The first trend, which has been on-going for some time, is that it is very difficult to set up meaningful test environments for distributed applications, with test setup consuming a large fraction of the test time. These difficulties here are a consequence of the need to: (1) have a large scale environment in which to test and (2) access realistic data in order to conduct meaningful tests, and (3) have multiple different test environments for multiple test phases. The second trend is architectural styles such as SOA, mesh-ups, and Web2.0 in which programmers integrate services

from live web sites. Such composites of running services are a very different style of development and deployment from the use of programming frameworks such as J2EE and .NET.

- Panel 3: Virtual Machine Management: Old Wolf in New Sheep's Clothing?

  Chair: Omar Cherkaoui, Universite du Quebec a Montreal, Canada. Panelists: Guy Pujolle, University Paris 6, France, Masum Hasan, Cisco Systems, USA, Giovanni Pacifici, IBM, USA, Rene Schmidt, VMware, USA

  Virtualization allows isolation between applications and portability of applications over OS and hardware resources. But another main challenge of virtualization is to allow the decoupling of infrastructure providers (who deploy and maintain network equipment) from service providers (who deploy network protocols and offer end-to-end services). This new network virtualization will help the deployment of shared experimental facilities, such as PlanetLab and GENI. Those projects try to build this virtual network that will consist of virtual nodes and links that belong to the same service provider. This panel will try to give an answer to the mains issues behind this new virtual network: 1) How can we use virtualization technology (XEN, VMware, etc.) to build virtual nodes? 2) Why is an old technology like virtual machines suddenly so important again? 3) For what reason to people deploy virtualization technology? 4) How do people deal with the increased number of machines that need to be managed, and patched? 5) After virtualizing networks, machines, operating systems,..., what is the next thing to virtualize? 6) What are the network management functions we need to build and to deploy this new virtual network? 7) What are the issues for the network management community to solve the migration and configuration of those virtual nodes?

- Panel 4: What's IT management worth to the business?

  Chair: Claudio Bartolini, HP Laboratories, USA. Panelists: Mark Burgess, Oslo University College, Norway, Jacques Sauve, Federal University of Campina Grande, Brazil, John Strassner, Motorola Research Labs, USA, John Wilkes, HP Laboratories, USA

  Enterprises in every industry sector are increasingly demanding that their investment in IT is justified by keeping IT service delivery and support aligned and in synch with their business objectives. Our research community is also growing more aware of the issue, as testifies the theme of this 2007 edition of IM: "moving from bits to business value". Our panelists will address the following questions and more from the audience. 1) What is the business value of managing networks and IT systems? 2) How can an enterprise capture this value, or even how can line of business managers be convinced that it pays off in the long run to spend money in management software? 3) What's automation really worth? 4) Would an IT manager make the same decisions as he/she makes every day if they had better visibility on the business that IT supports? 5) How is the network and system management community addressing these issues??

- Closing of the IFIP/IEEE Integrated Management 2007 Symposium by Gabi Dreo.

Announcement of the Dan Stokesberry Award to Joe Hellerstein. Best paper awards and travel grants. Announcement of NOMS 2008 and Manweek 2007.

4.2.4 Podcasts on tutorials of SNMP

The following Podcasts have been recreated from earlier SMIL (REAL media) tutorials:

- Management standards

  This tutorial provides an overview and the history of the ISO, ITU-T, IETF and DMTF management standards. It presents CMIP/CMIS, TMN and SNMP, and discusses the main differences between these approaches.

- Introduction to SNMP

  This tutorial discusses the goals, principle operation, structure and SNMP standards.

- Structure of Management Information (V1 and V2)

  This tutorial introduces the Structure of Management Information (SMI). The SMI is a language that defines the syntax for management information that is stored in SNMP MIBs. After introducing SMI versions 1 and 2, this podcast discusses the syntax to define scalar objects (naming, instances, definition) and table objects (definition). Textual conventions and notification types are introduced too.

- Introduction to MIBs

  This tutorial starts with an example, discusses the difference between MIB definition and instance, and the modular structure of MIBs. It gives the list of current IETF hardware MIBs, transmission MIBs, network MIBs, transport MIBs, application MIBs and vendor specific MIBs. It concludes with naming of MIB modules.

- MIB-II

  This tutorial discusses the standard Management Information Base: MIB-II. After an introduction it gives the status of the MIB-II, the original design goals, its basic structure and relationship to the TCP/IP layers, and the various groups (system, IF, AT, IP, ICMP, TCP, UDP, EGP, Transmission and SNMP).

4.3 News and events disseminated through the EMANICS site

News and events are an important dissemination activity within WP4. The former is oriented to the global community on network and service management whereas the later is more oriented to the EMANICS people only. All these news and events are kept in the web site for historic purposes. Nevertheless, there have been so many that it was decided to organize them in topics. In the case of news we found six topics for classification; namely Announcements, EMANICS Participation on Key Conferences, Organization or Workshops and Meetings, Nominations, Awards and Important roles of EMANICS Members, Organization of IEEE IFIP Workshops and finally organization of

Summer Schools. The following tables present this classification for news published up to the end of 2008. The tables will be updated quarterly.

Announcements:

Date	Title
03-12-2008	**Autonomic Communications Conference in Barcelona**
22-11-2008	**AIMS Conferences Webpage**
22-09-2008	**EMANICS proposes a Networking Session at ICT 2008**
01-02-2008	**Student Travel Grants for NOMS 2008**
13-12-2007	**International M.Sc. at KTH**
06-10-2006	**First EMANICS Contribution to an IETF Proposed Standard**
27-06-2006	**EMANICS researchers successful at DSOM'2006 during MANWEEK'2006**
11-04-2006	**EMANICS Kickoff Meeting**

EMANICS Participation on key Conferences:

Date	Title
13-11-2008	**EMANICS Participation in MANWEEK 2008**
02-05-2008	**EMANICS Participation in NOMS 2008**
17-11-2007	**2nd International Conference on Autonomous Infrastructure,Management and Security (AIMS 2008**
05-11-2007	**EMANICS participation in MANWEEK 2007**
06-10-2006	**AIMS '2007 in cooperation with the ACM**
27-06-2006	**EMANICS supports IM'2007**
27-06-2006	**EMANICS members were active in NOMS'2006**

Organization of Workshops & Meetings:

Date	Title
22-12-2008	**1st Traffic Monitoring and Analysis (TMA) Workshop**
04-12-2008	**Management of the Future Internet**
21-10-2008	**EMANICS organizes a Networking Session at ICT 2008**
22-09-2008	**EMANICS Workshop on Netflow/IPFIX usage in network management**
19-08-2008	**Workshop on "Economic Traffic Management"**
12-06-2008	**EMANICS Workshop "Vision and Managemen of the Future Internet"**

Date	Title
14-04-2008	**Joint ACF, AUTOI,EMANICS Workshop on Autonomic Management in the Future Internet**
13-11-2007	**1st IEEE Workshop on AUTOMATED NETWORK MANAGEMENT (ANM'08)**
24-10-2007	**1st EMANICS Workshop on Peer-to-Peer Systems**
19-10-2007	**23rd NMRG Meeting in Enschede (Netherlands)**
28-07-2007	**Dagstuhl Seminar on Autonomic Management of Networks and Services**
18-08-2006	**Workshop on Future Directions of Network and Service Management Research**
27-06-2006	**Oslo University College organized the first EMANICS Technology Transfer Day**
11-04-2006	**EMANICS WP meetings Days**

Nominations, awards and relevant roles of EMANICS members:

Date	Title
13-06-2008	**ICAC 2008 Keynote (Marc Burges)**
14-12-2007	**Olivier Festor nomination as IFIP WG6.6 vice-chair**
06-10-2007	**Aiko Pras nomination as IFIP WG6.6 Chair**

Organization of IEEE/IFIP Workshops:

Date	Title
06-12-2006	**IFIP/IEEE IM'2007 (21-25 May 2006) in Munich, German**
04-12-2006	**IFIP/IEEE DSOM'2006 Best Paper Award to Mark Burgess and Gard Undheim**

Organization of Summer Schools:

Date	Title
16-04-2008	**2nd International Summer School on Network and Service Management (ISSNSM 2008)**
08-05-2007	**1st International Summer School on Network and Service Management (ISSNSM 2007)**

4.4 Usage of Wikipedia for dissemination purposes

Since early this year, EMANICS appears as a term in Wikipedia. The article presents

Figure 13 Partial view of the EMANICS term in Wikipedia

the objectives of the project as well as the partners and other data.

In the future we plan to continue using Wikipedia to create new articles or improve existing ones in our domain.

5 Concluding remarks

The main effort in the period March 2008 to March 2009 has continued in creating as much dissemination and collaboration content as possible. In addition, maintenance and evolution tracking of the electronic dissemination infrastructure are also worthy to mention. The collection and analysis of the website statistics is a relevant part of this maintenance and tracking process. Therefore we can conclude that WP4 is progressing well in view of its objectives.

Our policy is summarized with three keywords, namely, consolidate, enhance and extend. Consolidate means to look at tools and content that has been proven to be effective and therefore that deserve to be kept alive and to take the appropriate actions to allow them to be fully operational. Enhance means to do appropriate modifications, even the full replacement if necessary, of tools and content that manifest a clear way to be improved. Finally, extension means to look forward both in terms of dissemination means and content properly said.

According to the conclusions derived from a continuous web usage data capture and evaluation, we conclude that the EMAINCS electronic dissemination and collaboration environment is fulfilling its main objective to serve our community to work together as well as to inform the external world about our activity. The operation is smooth and the impact is kept under the initial expectations. Our future goal is to pursue in that direction so that the EMANICS site and its sister the SimpleWeb site become more and more impacting sites in the field of network and service management. In addition, we also work with the intention to facilitate as much possible the flow of information within our EMANICS community and ultimately to contribute to make integration a reality.

6 References

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[2] EMANICS Newsletter Issue 6 – February 2008 (PDF),
http://Emanics.org/media/documents/NewsLetter6_03_2008.pdf

[3] EMANICS Newsletter Issue 7 – August 2008 (PDF),
http://Emanics.org/media/documents/NewsLetter7_08_2008.pdf

[4] EMANICS Newsletter Issue 8 – February 2009 (PDF),
http://Emanics.org/media/documents/NewsLetter8_02_2009.pdf

7 Abbreviations

AIMS   Autonomous Infrastructure Management and Security (annual conference)

CGI   Common Gateway Interface (web scripting facility)

CMS   Content Management System

IFIP   International Federation for Information Processing

IM   Integrated Management (bi-annual conference)

ManWeek   Management Week (group of annual workshops)

NOMS   Network Operations and Management Symposium (bi-annual conference)

NRMG   Network Management Research Group

RSS   Really Simple Syndication

SVN   SVN is a version control system

Trac   Trac is an open source, web-based project management and bug-tracking tool