Institute of Computer Science

Annual Activity Report 1999

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MU INTERNET PRESENTATION

1   History

The Institute of Computer Science (UVT) began to develop the integrated presentation of Masaryk University (www.muni.cz) in the autumn of 1996. It was made public in the spring of 1997. Since then, as a central part of the external information system of the university, the presentation is regularly maintained and expanded.

2   Characteristics

The presentation gives access to survey information on all MU institutions and is based on the principle of unified information content, a unified form of presentation and automatic acquisition of information from university-wide sources, the basic condition being its continuous maintenance. Information is provided both in English and in Czech.

Data for the presentation is stored in the database wwwdata.muni.cz (further referred to as wwwdata). The database contains information acquired from several independent information subsystems of MU as well as its own subsystem built and maintained primarily for the needs of www.muni.cz. The data acquired from other primary sources is mirrored in wwwdata without any alteration to its content. Data whose primary database is wwwdata is completed and updated by authorized administrators from all institutions (units) of MU – the data is maintained by means of an intranet editor (accessible from common web browsers, i.e. not requiring any special client software), on the principle of differentiated user rights.

3   Scope of www.muni.cz

The www.muni.cz system typically provides the following information:

− survey lists (structured according to the units of MU, with the option to switch between units)
− detailed information on items specified in lists
− search engines; These contain data on MU and its units of the following character: profile data (including basic statistics on the number of employees/students), contact data (including locations in Brno and relevant transport services), annual reports
− information on academic bodies (management), including contact data
− structure (hierarchy of MU units and their locations) with links (contact data of individual locations, lists of employees including their positions, telephone directories and other lists, publications issued by individual institutions)
− lists of employees with links to their personal pages containing contact and personal data (CVs), information on their academic status and qualifications, employment, study and teaching
− information on accredited study programmes, on the conditions, process and results of entrance examinations, and lists of students enrolled in individual study programmes
− calendars of important events
− competition proceedings and vacant positions

- information on research, development and publishing activities (associate professor and full professor proceedings, works listed in the RIV, research proposals and research projects)
- links to the web servers of individual units (especially to pages containing legal norms and international relations)

4   Data for www.muni.cz

The wwwdata.muni.cz database contains the following data acquired from independent information subsystems of MU:

- *from the personnel and economic subsystem of MU – acquired daily:* personal data of all persons registered at MU (including photographs of students), lists of employees, data on the administrative and academic positions of individual employees
- *from the study subsystem of MU – acquired while updating the integrated student registries of the Czech Ministry of Education (to be acquired daily in the future):* lists of students by study programme, data related to individual students' course of study
- *from the publishing subsystem of MU – daily:* data on MU publications in the RIV list of the Czech Ministry of Education
- *from the faculty user administration subsystems of the MU network – acquired daily:* email addresses of employees (Faculty of Arts, Faculty of Informatics, Faculty of Medicine, MU Rector's Office, and Halls of Residence and Refectory Administration) and students (Faculty of Arts, Faculty of Informatics, School of Social Studies, Faculty of Medicine, Faculty of Education and Faculty of Science)
- z *from Masaryk University Press – acquired once in six months:* data on works published by Masaryk University

The Unified System of Personnel and Economic Management is developed and maintained by the Institute of Computer Science. The *Information System for Study and Publishing Activities at MU* is developed and maintained by the Centre of Computer Technology at the Faculty of Informatics.

The wwwdata.muni.cz database primarily contains:

- general and contact information on MU units and their components (profile information on the units, the addresses of units and their departments including the relevant transport services, telephone and fax numbers, e-mail addresses, Czech and English URLs of the local web pages)
- information on the academic bodies of the University (lists of members of the Academic Senates and Academic Councils of MU and its faculties, members of the MU Board of Directors and the Disciplinary Committee, contact data related to academic positions – telephone/fax numbers, email addresses, office addresses and numbers)
- information on entrance examinations at MU – descriptive information on entrance regulations, on-line information on acceptance/non-acceptance, statistics of the results of these proceedings
- personal contact addresses of employees and students (telephone/fax numbers, e-mail addresses, office addresses and numbers, the URLs of personal web pages)
- a register of associate professor and full professor proceedings at MU (list of accredited fields of study, detailed information on the proceedings and their results – systematic information provided since the end of 1998)
- a register of research activities undertaken at MU – research proposals (their identification, scope, department, researchers and annotations) and research projects undertaken at MU (their identification, scope, programmes, researchers, partners and annotations)
- lists of accredited study programmes at MU (their detailed characteristics and division into fields of study)
- calendars of important events held at MU (detailed information on dates and places, annotations of subject matter, links to organizers and responsible persons including their contact data, and data for publication in the calendars of individual units of MU)

- data on competition proceedings (detailed information on the conditions and procedures thereof)

The data from wwwdata is presented via regularly generated pages of statistics placed on the www.muni.cz server, and via the output generated from wwwdata on-line. In justifiable cases (of a limited scope), there are direct links on the www.muni.cz pages that refer to the web pages of the Information System for Study and Publishing Activities at MU is.muni.cz; www.muni.cz pages may be generated on-line from the is.muni.cz database (links to CVs, teaching programmes and lists of publications on personal web pages).

The administration of www.muni.cz within wwwdata is supported by data and applications for the following purposes:

- to publish lists of responsible persons
- to administer the users of the editor
- to register the changes of passwords into the editor
- to administer access rights to the applications
- to generate the statistics and graphs of the use of the serve
- to provide information on the server and its new features

5   Developments in 1999

In 1999, the www.muni.cz/wwwdata.muni.cz system was expanded to include:

- *profile and contact information:* statistics on the number of employees and students, information on transport services in Brno
- *information on academic bodies:* lists of members of the Disciplinary Committee and the Board of Directors of MU
- *information on MU studies:* results of entrance examinations, a list of accredited study programmes and fields of study at MU
- *information on competition proceedings and vacant positions*
- *information on research and development and publishing activities:* a list of the publications of individual departments stated in the RIV, information on associate professor and full professor proceedings, information on research projects undertaken at MU
- *other institutions of MU:* the web pages of the MU Halls of Residence and Refectories
- *pages containing information on www.muni.cz:* a description of the scope and contents of the presentation, URL links and scripts, statistics of the number of visitors to the server wwwdata.muni.cz, the lists of responsible persons

The following data transfers were carried out or automated:

- data from the new personal database of MU including a new system for the numbering of departments (and the publishing of that system) was acquired
- daily updates of the e-mail addresses of the employees of the Faculty of Medicine, Faculty of Arts, MU Rector's Office and Halls of Residence and Refectories Administration were automated
- daily updates of RIV publications from is.muni.cz were automated
- results of entrance examinations in 1999 were made accessible and the relevant statistics published
- information on employment and study was integrated into personal pages, including references to teaching activities and academic qualifications; searches of people at MU were unified
- lists of students were updated according to the new structure of study programmes at MU, information on students to be eventually updated from the central student registry of MU
- the editing of the calendar of events was expanded to include the MS Word format for printed versions of the calendar

6 Users

In 1999, external users (visitors) made 765,000 accesses to www.muni.cz/wwwdata.muni.cz (428,000 from within MU, 337,000 from outside). The number of IP addresses was 26,500 (2,200 at MU, 24,300 outside MU). The percentage of accessing the server according to the number of IP addresses from different domains was: cz… 65 %, net… 9 %, com… 7 %, sk… 4 %, de… 2 %, edu… 2 %, uk…1.2 %, ca… 0.9 %, at… 0.8 %, nl… 0.8 %, it… 0.7 %, fr… 0.7 %, au… 0.7 %, others… 5.2 %. (one percent represents 265 addresses; in the cz domain, 13 % were from muni.cz). The maximum achieved response of the server wwwdata.muni.cz was 6,720 requests in one hour.

Internal system users are appointed data administrators from the departments of MU in the wwwdata.muni.cz database. User names and passwords into the wwwdata editor are issued on request by the Institute of Computer Science or, within individual departments, they are created and issued by the faculty data administrators. There are 60 persons responsible for the accurateness of the data in the system. Data administration is logged consistently (by the time and identification of the administrator carrying out the change).

7 Volume of data in the system

The overall volume of published data stored in the wwwdata database grew from 10 MB (as of January 1st, 1999) to 50 MB + 50 MB (c. 14,100 photographs) as of December 31st, 1999. About 25 MB of data in wwwdata is updated from primary sources every day.

8 Technical specification and performance

The system runs on the main public university-wide server of MU (www.muni.cz) and the dedicated database-application server wwwdata.muni.cz (a personal computer with a Pentium Pro 200 processor, 128 MB memory and 2 GB disk, running on the operation system Windows NT 4.0 and the database system MS SQL Server 7.0). As far as its hardware, software and performance (the speed of reply) are concerned, the system is very stable.

THE LIBRARIAN INFORMATION CENTRE

The Librarian Information Centre of Masaryk University (a part of the Institute of Computer Science) coordinated further technical development of the libraries at the University and the building of the foundations of digital libraries. Among others, the Centre provided the following services: it administered the university-wide library catalogue, purchased professional sources of information on CD-ROMs and secured effective access to them within the university-wide computer network, expanded the scope of services of the virtual library http://www.muni.cz/library, coordinated the administration of the *Current Contents Connect* cooperative server for Charles University in Prague, Masaryk University in Brno and Palacký University in Olomouc, and finally worked on the inclusion of MU into the related *Web of Science* project. As main grant-project researcher, it finished and defended three major grant projects. It made significant contributions to the three-year MOLIN (Moravian Library Information Network) project sponsored by the Mellone Foundation.

ECONOMIC AND STUDY INFORMATION SYSTEMS

Like other schools of higher education, MU runs a number of services necessary for the management of the school, among which the Information System (headed by Ing. Brandejs) should be mentioned, as well as the economic and accounting data processing system, which provides instant access to information according to access rights, easy book-keeping inspections and economic assessment of individual departments as well as events.

ACCESSIBILITY OF INFORMATION SOURCES AT THE UNIVERSITY

Given the fact that all departments of MU are interconnected by means of a reliable computer network, all information is readily available to everyone according to their access rights. A large volume of information is available to the public on the Internet.

USE OF EXTERNAL AND INTERNAL INFORMATION SYSTEMS

The information systems of the school are put to considerable everyday use (cf. paragraph 6 'Users').

INVOLVEMENT IN THE EUROPEAN HIGH-SPEED NETWORKS PROJECT

Through the CESNET z.s.p.o. association, MU employees take an active part in the QUANTUM project involving the building of the TEN-155 pan-European network and the testing of new technologies, products and services (QUANTUM Test Programme). Based on the programme of co-operation between CESNET and the Internet2 Project in the USA, the employees of MU took part in work utilizing the latest technologies. At the end of 1999, a new connection between MU and Prague with a capacity of 2.4 Gb per second (with the relevant network elements) was put to test use.

COMPUTER NETWORK OF MU

MU runs the main connection point of the TEN-155 network to the Brno Academic Computer Network (BAPS).

In co-operation with VUT (Technical University), it administers 45 km of optical cables that form the basis of a metropolitan spine connecting the institutions of the Brno schools of higher education and the Academy of Sciences. To further improve the BAPS, the optical cable network was substantially extended, mainly due to the cable installed to connect the MU Bohunice campus. The existing cable capacity was increased in the most needed sections and the topology of the design was altered to include closed circuits which increase the reliability of the system. There was an increase in the number of active ATM elements purchased with funds obtained from grants and the school's own resources. In view or the rising costs and inadequate capacity of commuted connections, several distant departments were connected to the University network by means of microwave links.

Number of Computers at MU	FEA	FA	FI	ScSS	FM	FE	FL	FSc	ICS	RO	HRRA	Total
a1 PC-Intel	197	330	179	120	349	260	125	595	59	128	48	2390
a2 workstations	0	0	70	0	0	0	0	29	13	4	0	116
a3 servers	8	4	26	3	2	7	2	19	22	3	4	100
a4 others	0	1	2	1	4	2	0	5	22	1	4	42
Total	205	335	277	124	355	269	127	648	116	136	56	2.648
Number of PCs on the network	197	313	179	98	200	247	125	610	52	107	22	2150

Important servers in the MU network administered by the Institute of Computer Science:

- SGI Origin 2000 – supercomputer
- SGI InfiniteReality2 Onyx2 – graphics superprocessor
- SGI Power Challenge XL – supercomputer
- Sun Enterprise 450 – server of the economic and personnel part of the MU information system
- Sun Enterprise 450 – server of the distributed file system and the high-capacity backup system
- Sun Server 1000 – server of the network services of the MU Network (www, ftp, etc.) and of the Librarian Information System
- Dell Power Edge 4100/200 – CD ROM server
- Dell Power Edge 2300 – server for distant access to applications running under Windows
- Sun UltraSparc 1 – main server of the electronic mail of MU