Preparing for Information Systems in the Future

The University of Michigan

U-M Online:
An Information and Communication Service Network for Alumni

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The University of Michigan is one of the most distinguished universities in the world and leader in higher education. With more than 51,000 students and 4,700 faculty at three campuses, this public institution is consistently ranked among the nation's top 10 universities. The University of Michigan boasts one of the largest health care complexes in the world, one of the best university library systems in the country, and the most computer access for students and faculty of any campus in the world. In the 19 separate schools and colleges on the Ann Arbor campus, more than 5,600 undergraduate and graduate courses are taught each term. Each year, students choose from 512 majors, 650 student organizations, and over 400 concerts and recitals every year, as well as hundreds of speakers, symposia, films, and readings.

As the boundaries between postsecondary institutions and society at large become blurred, Academic Outreach seeks to extend the traditional educational mission of teaching, research, and service. As partners with the Information Technology Division and the Alumni Association, Academic Outreach identified alumni as an initial target audience. U-M Online was developed to deliver a convenient means for alumni, especially recent graduates and other remote-access constituents, to access University resources for lifelong learning opportunities, regardless of time or place. U-M Online has accomplished its initial goals by packaging the components necessary to create the infrastructure required to support this expanded audience. This infrastructure can be applied to specific outreach needs of the 19 schools and colleges that make up the Ann Arbor campus of the University of Michigan. The presentation will focus on identifying the technology needs of the alumni, coordinating the components needed to build the infrastructure, including software licensing and development, accounting and billing, Web security technology, Web site development, pricing and packaging, marketing and communications.
U-M Online: An Information and Communication Service Network for Alumni

Introduction and Background Information

U-M Online is an information and communication service network for alumni and other remote-access constituents of the University of Michigan. The service is built on a partnership formed between Academic Outreach and the Information Technology Division (ITD). U-M Online is supported by the Alumni Association, Office of Development, and many of the schools and colleges that make up the University of Michigan. The project goal is to provide a convenient means for the greater academic community, especially recent graduates, to stay in touch with the University. The service is based on Internet technology, which provides users access to the University community at times of their choosing and enhances the University’s ability to communicate effectively with its alumni.

Assisting in a Campus-wide move to distributed computing

Though refined during its metamorphosis into a more fully featured service, U-M Online continues to focus on connecting alumni to U-M. The service also supplies the technical infrastructure necessary for all constituents to connect to U-M distance-learning initiatives. Additionally, U-M Online played a major role within ITD and the campus in building a customer-focused and accessible distributed computing environment that, from an end-user perspective, has a seamless infrastructure. U-M Online assisted in developing the technical architecture, business processes, and related components that allow faculty, students, staff and all constituents to connect and utilize campus resources remotely.

Changing the ITD approach to infrastructure support

The task of redefining the boundaries of the University community was a new challenge for ITD. U-M Online was successful in promoting the needs of the alumni and distance learners and establishing the infrastructure for providing access to this expanded audience.

Responding to an unprecedented demand for dial-in services

In 1995, U-M Online pilot users exposed the strained capacity of the Merit-run Michnet network, which supplies authenticated access to U-M’s computer environment. In response, Academic Outreach funded additional modem pools throughout the state, resulting in robust, statewide service. To extend dial-in service to subscribers outside the state of Michigan, U-M Online helped initiate the current national and international service available to U-M faculty, students, and staff.

Providing Internet access and a Web presence

In order to meet the computing needs of a wide audience, U-M Online offers a comprehensive service package for a monthly subscription fee. Subscribers can supply their own Internet service or choose from several offered by the University through their affiliation with the Merit Network.

The U-M Online Web site (http://www.umonline.umich.edu) offers members access to an intranet, while providing general information in public space. This intranet is a common repository for unique material, much of which is supplied by the Alumni Association, schools, colleges, and administrative departments.

Creating the infrastructure (becoming a service enabler)

U-M Online provides a structure that enables communication between the individual ITD computing service providers, campus units, and subscribers. U-M Online administers authenticated, authorized space on the
Web for campus units, relieving them of the administrative overhead. The team helped draw up license agreements with software vendors authorizing distribution to the expanded audience. These agreements supply subscribers with much of the same software available on campus and make it easier for technical support by ITD consultants, since end-user technical support is supplied by the same phone and online consulting organization that provides campus support.

Accounting and billing for subscriptions is handled in-house, with an infrastructure developed to support the U-M's distributed computing environment. This method saves time and effort for campus units who may choose to offer for-fee services within the U-M Online structure, because the billing could be included in the monthly credit card statement.

U-M Online has partnered with several ITD service providers to initiate new products for the campus. For example, RealAudio/RealVideo services were developed for subscriber use, and these are expected to be available to the campus population Winter term 1998. U-M Online also participated in a pilot program of Conferencing On the Web (COW) prior to its general release to the campus population.
Project Timeline

1994
The U-M Online project was chartered in late 1994 as a presidential initiative with support from the Office of Academic Outreach. Its mission: connect alumni to campus with more than just an e-mail address.

1995
Research and planning began with a survey of alumni regarding their computing needs and wants. A pilot program composed of alumni residing in Michigan was launched to test the software and service.

1996
January-March: The current project team formed, and negotiations with University of Michigan Computing Environment (UMCE) services for support to alumni began. Moved to production planning stage. The service was priced at $19.95 per month, with limited dial-in included. U-M Online Web site deployed.
April-May: Finalized agreements with various ITD service providers. U-M Online announced to spring graduates on all three U-M campuses. U-M Online intranet completed.
June-July: National dial-in became available for the first time. Testing began on RealAudio service. Price reduced and service package changed. Announced the Maize, Blue, and Custom Service Packages, with prices for those outside Michigan set at $8.10 a month with dial-in charges additional, and $13.60 a month, which includes a Michnet dial-in package for those in state.
August-September: RealAudio deployed on the Web site with several programs available to subscribers.
October-December: First netcast of Wolverine hockey live and online! First promotional mailing to 18,000 Michigan alumni.

1997
January-February: Construction of private Web space within the U-M Online intranet service. Pilot delivery of course material via RealAudio.
March-April: Introduced Conferencing On the Web (COW), a Web-based conferencing package. Promotional mailing of application brochures to 32,000 alumni throughout the northeast. First member workshops developed. Subscription offered to May graduates on all three U-M campuses.
May-June: Intranet Web resources expanded. Redesigned the look of the U-M Online Web site to correspond to our marketing image. Developed and produced CD-ROM as an alternative means to distribute software to subscribers.
July-August: Participated in Summer Orientation programs for Parents.
September-October: U-M Online subscription enrollment reaches 2,000 participants. Partnered with the Alumni Association to develop a hardware sales program: alumni can purchase selected IBM equipment already installed with U-M Online software.
November-December: Participated in CAUSE ’97 in Orlando, Florida.

1998
January-February: Solicited December graduates via targeted email messages. Deployed online application form to be used by recent graduates.
March: Planning underway to simplify service package / pricing.
Challenges facing the Project

Identify target audiences, determine why they might choose to use U-M Online, and establish how they relate to the campus population

The project's primary goal was to provide alumni with an online connection back to campus—with more than just an e-mail address. However, it soon became clear that this audience was too limited. Alumni wanted their spouse or same-sex domestic partner's (SSDPs), children, and parents to have the privilege to participate as well. Retired faculty and staff and their spouses and SSDPs also wanted to continue their computing privileges after they left campus. Students requested that their parents and their spouses or SSDPs be allowed to subscribe.

U-M Online chose to align the participation requirements to those established by the University's Benefits Office. Participation is restricted to alumni and their spouses or SSDPs and those individuals who are eligible for other University benefits. This definition allows us to offer the service to current faculty, staff, students, and their spouses or SSDPs, retired faculty and staff and their spouses or SSDPs, parents of enrolled students (while their student is enrolled plus the following three years). Service is not currently available to the children of any of these defined audiences.

Those units on campus who support the U-M Online service also had some requirements relating to audience definition. The Alumni Association requested that their members who participate in U-M Online receive special consideration. Academic Outreach determined that the service would be appropriate for nontraditional students who participate in outreach learning opportunities, such as continuing education programs. These distance learners could benefit by using U-M Online to connect to campus from wherever they might live and participate as a virtual member of the campus community. Others required that U-M Online offer services that promote and support outreach opportunities for development efforts and that we collaborate with campus alumni departments to help foster strong relationships between alumni and the individual campus units.

In response to these requirements, all Alumni Association members who also participate in U-M Online receive a one-month free subscription when they renew their Association membership. In return for this benefit, the Alumni Association provides space in the Alumnus Magazine for U-M Online advertisements and shares membership lists and information for marketing purposes. Temporary students, distance learners, and those participating in continue education programs can subscribe to U-M Online and participate in many activities previously restricted to students on campus. The School of Dentistry has used U-M Online to connect dentists across Michigan who participate in their continuing education courses and the UAW/Ford University Program, sponsored by the School of Social Work and Academic Outreach is using the service to connect distance learners to the Ann Arbor campus.

Create a service that meets the needs of an expanded campus community

Prior to the creation of U-M Online, computing services were permitted to those who were considered a part of the campus community, with few exceptions. Faculty, students, and staff had full privileges. Visiting faculty and students were granted limited access to the University's resources; however, once they left the campus community, those services were no longer available.

As students increasingly relied on core services such as e-mail and shared file space (IFS), the continuation of these services quickly became an issue. Students published the @umich.edu e-mail address on resumes and applications to graduate schools, and they depended on it as another communication avenue. Losing access to services on graduation was a major concern. However, the University appreciated that maintaining services for a population no longer supported by tuition or employment was a major expense.
Both issues were resolved with the introduction of U-M Online as a service provider, with an additional benefit to those campus units who rely on alumni support by providing another means to connect alumni to campus.

Building the U-M Online infrastructure presented a variety of challenges. In 1993-94, the Information Technology Division (ITD) moved from a mainframe based technology (MTS) to a distributed model of computing (UMCE). This change was still undergoing modifications when the U-M Online service was conceived. Packaging the services for alumni and others off-campus presented a complex problem in a situation already in disarray. All the components required to identify, authenticate, and authorize this new audience in a distributed environment had to be recognized, and sometimes modified, to accommodate their inclusion. A system had to be built that could facilitate the subscription, billing, software distribution, and customer service required to support this group.

Cross-departmental and cross-team partnerships had to be fostered to build support for providing services to this new audience. Some units who were comfortable providing services or support to the campus constituency were not so willing to expand their service to alumni and others off campus. There were training and staffing concerns to be dealt with. Because subscribers could choose to use (and pay for) U-M Online, the relationship between the individual service provider (such as a consultant) and this audience was more demanding than the relatively captive campus audience. Also, because there is no face-to-face contact between the service provider and subscriber, all communication between the two had to be crafted for use via the phone, e-mail or postal service. These differences challenged many ITD service providers.

Providing access to the campus computing environment was a major requirement that could determine the success of the project. The remote access offered in 1995 by Merit through Michnet was not robust enough to support a growing population, and the University offered limited access outside of Michigan. U-M Online needed to find solutions to these problems before the service could be offered to a large segment of the half-million alumni now eligible to participate.

By cultivating a relationship with Merit, and collaborating in the negotiations with CREN, ADP, and IBM, U-M Online and the University now provide the opportunity to access the secure campus computing environment from across the state, country, and world. To accomplish this, Academic Outreach funded additional modem pools throughout the state, resulting in the current robust Michnet service. Recently, additional national and international service has been offered as the Merit Global Service (MGS), which is supplied by IBM.

Provide resources for the development, implementation, and maintenance of the service

The U-M Online team consists of a project manager, technical leader, marketing manager, and content development manager, who participate in other ITD projects as well. These individuals provide the overall management for the service.

We first had to determine who would provide the day-to-day contact for this new audience. The solution, based on the limited resources available from the core team and the willingness of service providers, was to decide that all subscriber contact would be delivered by individuals who primarily work with the campus population. To reduce the impact of this additional work, services offered to U-M Online subscribers mirror those provided to the campus population whenever possible. Subscription and billing services are provided by the Accounts Office staff, and software installation support is provided by the campus consulting staff.

The next step was to determine how to develop information for subscribers and maintain the infrastructure for delivering ongoing information and campus-related content. The technical knowledge of our audience varies from recent students (who are very familiar with the software and can surf the Web unaided) to older alumni (who often have limited exposure to computers and have no understanding of how the campus computing environment is organized). The ITD Documentation group wrote installation instructions to accompany the software furnished to access the campus computing environment and the Internet. To supplement that information, a user guide was developed to offer the basic information needed to use a Web
Developing the Web site was the cornerstone for delivering the service to subscribers. Because U-M Online is a for-fee subscription service delivered via the Internet, we developed a secure intranet (with authentication and authorization) that would offer useful and informational content for U-M Online subscribers:

- Academic resources: authenticated access to student records, online writing lab, Michigan Information Transfer Source, Internet Public Library, etc.
- U-M news, sports, and student radio netcasts on the U-M Online Web site
- Museum exhibits and historic speeches
- U-M alumni networking listing (Ambassadors pages)
- Private online conferencing (ConferU, Conferencing on the Web)
- Ann Arbor community area information

The site also complements the User Guide, providing a source of online help and useful Internet information for U-M Online subscribers (ISP support):

- Online Frequently Asked Questions' pages
- Online subscription and dial-in information, including description of service, dial-in options, hardware and software requirements, current dial-in phone number list with both Michnet and national access numbers, and the order form, uniqname application, and compliance agreement.
- Web page creation form and help
- U-M Online software upgrades and links
- Call-in help and Web-based help forms
- U-M policies for the proper use of Information resources and user responsibilities
- Access to online U-M alumni ambassadors across the country
- IT-related information and instructions useful to students leaving campus
- Instructions on how to use the online conference

Site maintenance is an element of the project requiring daily activity. Maintaining current information and links, updating news items, adding new content and campus events captured for delivery via RealAudio are only a few of the Webmaster's activities.

While the marketing strategy, planning, and management is provided by a member of the core team, marketing support and graphic design services, including kit construction, are provided by ITD staff. A central image, developed to complement both electronic and the print materials, had been widely used for promotional materials, the Web site and printed supplemental publications included in the membership kit (installation instruction books and the User Guide.)

Build a business model that provides competitively priced services and is self-funding

The biggest challenge facing the development of this service, which has not been completely resolved, is the need to build a business model that recovers costs, competes for an audience wooed by well-funded commercial Internet Service Providers (ISPs), and fulfills the University's guidelines for appropriate use of resources.

The service was heavily subsidized during its creation, with the understanding that, in time, it would become self-supporting. The annual budget of $300,000 supports the core team and auxiliary staff who manage the Web site, provide marketing support, graphic design, and technical writing. Revenue collected from subscribers flows through the ITD accounting system to fund the support services, such as accounting and billing, software consultants, software kit development, and individual UMCE services.

Determining the subscription price was an exercise in compromise. Price competition in the marketplace was fierce. In order to compete, we had to align our prices competitively. Also, prices for services to
campus users were highly publicized and students could choose to pay for a variety of services using an allocation provided by ITD. U-M Online was required to align its price with the campus service fee structure. And because the University of Michigan is a public, not-for-profit institution, there were also unrelated business tax criteria to be considered. All these factors combined to limit our income stream, thus restricting the availability of funds for content development and slowing the cost-recovery process. As of November 1997, U-M Online has approximately 2,100 subscribers, with approximately 130 new subscribers added each month. With the current budget and pricing model, we need about 7,000 subscribers before we are self-supporting. At the current growth rate, this will take another three years, during which time the University will need to continue to subsidize the project.

Determining a marketing strategy that would reach the approximately 350,000 Michigan alumni and would petition the graduating classes each December and May was a formidable task. Competition with commercial ISPs, who have seemingly unlimited budgets for marketing and content development, and who bombard prospective subscribers with offers of free service and unlimited access, was difficult to counter. Funds and other resources available for marketing U-M Online were limited, and some were used during the pilot program. Remaining funds were used to develop promotional materials—a promotion/application brochure that includes eight pages of University policy and the support publications, such as the User Guide, that are distributed to new subscribers.

Two mailings (to 18,000 Michigan residents in December, 1996 and 32,000 alumni in the Northeast in March, 1997) had some success, but it was clear that we could not afford the expense to continue this practice. Growth in subscriptions has been slower than desired. In May 1996, U-M Online had 709 subscribers (74 paid, 635 pilot and gratis). By May, 1997, paid subscriptions had grown to 800. Promotion to students before graduation would be the most economical option, and offered the best opportunity to keep recent alumni connected after they left Ann Arbor. But successful promotion to students prior to graduation is hindered by the University policy that continues computing services to students for several months after they leave campus. Promoting the service, using ads in the student paper and distributing applications on campus, had some impact on growth, but without the immediate risk of losing services, most students left campus without subscribing. Establishing contact with them after service is terminated is difficult and expensive. Partnering with the Alumni Association during campus events gives us access to a small number parents and alumni when they visit, but this has not resulted in sufficient additional subscriptions.

The slow but steady growth in subscribers has some positive benefits. Because the subscription process is managed by the same staff who provide support to the students, receiving more than the current 150 new subscriptions each month would result in overtime for staff or delayed response time to subscribers. And, since subscribers access the same services provided to campus users, U-M Online must insure that the addition of this audience enhances and in no way impedes the ability of faculty, students, and staff to use the resources.

The University has placed numerous policy restrictions on the service that have contributed to slow growth, and therefore, a longer pay-back period. Adhering to University’s policy for appropriate use of resources has limited our subscription procedure to paper because it requires a signature on the compliance agreement form. An electronic subscription form on our Web site would offer an easier way for alumni to complete the subscription process and would also lessen the burden for the Accounts Office. Subscribers are also restricted from using the U-M Online services (personal Web sites, e-mail, conferencing) for business purposes. Alumni who want to employ the Internet for business must choose to have two services, one for business and U-M Online, or we lose them to the commercial ISP which places no such restrictions on them.

It is the unique content, specifically University of Michigan in flavor and substance, that makes U-M Online a valued service to alumni. But due to the current funding model and slow subscriber growth, content development has been reduced to audio taping campus events for netcasting from the Web site. There are almost no funds available to develop partnerships with campus units who could supply stimulating content—academic outreach programs, continuing education courses offered via the Web, mentoring programs.
between alumni and students, and placement opportunities. Digital library resources, so valued by students while on campus, cannot be made available to U-M Online subscribers due to exorbitant licensing fees. The constant need for new and stimulating material to lure alumni to the Web site and encourage them to participate in the virtual campus community is an expensive requirement which we have been unable to accomplish to the extent that we think it should be done. Without this feature, it is more difficult to persuade alumni to subscribe to U-M Online and continue their online affiliation with the University.

**Next Steps**

U-M Online meets many of the needs of its community. It gives alumni an online connection back to campus; provides good outreach opportunity for the U-M development efforts; and encourages collaboration opportunities with campus alumni departments, the U-M Alumni Association, and Academic Outreach programs. It allows recent graduates to continue using software and computing services that they are familiar with from campus days. The @umich.edu e-mail address provides benefits after graduation by continuing the association with the University in a very public way for job searches, alumni networking, etc. U-M Online provides support and help services that are friendly and familiar, not "commercial.”

support the campus community of approximately 60,000 students, faculty, and staff. Strong relationships and constant communication between U-M Online and other customer-related services within the IT community makes early problem identification possible. System-wide problems (such as server outages or problems with dial-in) or process breakdowns are identified early; everyone works together until a solution that will positively impact all involved service providers is found and implemented.

U-M Online also offers unique benefits to campus groups by providing managed, private intranet space that can be accessed by authorized faculty, students, alumni, and other remote access constituents. This private space enables alumni to easily form a private online community where they can share ideas, interests, and support for one another.

U-M Online's philosophy is to teach our users how to benefit from the resources that are available to our current students, faculty, and staff. We supply the technological tools (Internet access, distributed file storage space, software and documentation, online and telephone help) and the incentive to use them (online conferences for U-M Online subscribers discuss U-M sports, academics, and events in the news). Additional training for the novice subscriber on how to install the software kit and how use basic Internet services (e-mail, creating Web pages) are available from U-M Online, the Alumni Association, and on our Web site at [http://www.umonline.umich.edu](http://www.umonline.umich.edu).

U-M Online must influence University policy and resolve the policy and pricing dilemmas which are currently limited hindering our growth. We can then increase our subscription numbers and improve the schedule to become self-supported. If we can continue to build partnerships with the schools and colleges and supply them with a service which is valued by them and their alumni, then U-M Online will have successfully accomplished all the objectives outlined by the University, ITD and the original presidential initiative that conceived the program.
Mission and Vision Statements

UNIVERSITY OF MICHIGAN

Mission Statement

The mission of the University of Michigan is to serve the people of Michigan and the world through preeminence in creating, communicating, preserving, and applying knowledge, art, and academic values, and in developing leaders and citizens who will challenge the present and enrich the future.

Vision Statement

As we enter the twenty-first century, the University of Michigan intends:
• To be a source of pride for all the people of Michigan and have a place in the heart of every member of the University community.
• To have a place in the dreams of every potential member of the community of students, staff, and faculty.
• To be recognized as a university that honors human diversity.
• To be a scholarly community in which ideas are challenged, while people are welcomed, respected, and nurtured.
• To be an institution whose environment fosters creativity and productivity among all faculty, staff, and students.
• To occupy a position of unique leadership among the nation’s universities in research and scholarly achievement.
• To be a community whose members all share responsibility for supporting its mission and receive recognition for their contributions.

UNIVERSITY OF MICHIGAN INFORMATION TECHNOLOGY DIVISION

Mission

Enhance research, teaching, learning, and administrative processes through the provision of valued information technology services.

Vision

Enhance and extend the formation, quality, and evolution of knowledge communities and be recognized as a leader in the design and delivery of supporting technology solutions.
U-M Online Project Participants

U-M Online Core Team:
Carrie Edlund, Content Coordinator, retired
Scott George, Webmaster
Linda Hancock Green, Marketing Coordinator
Becky Spaly, Content Coordinator
Brian Vaughan*, Technical Coordinator
Ellen Vaughan*, Project Director
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Product Area Manager
• Sandy Colombo

University-wide Steering team
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• Athletic Department—Tom Cecchini, Keith Molin, Bruce Madej
• Alumni Association—Jerry Sigler, Joel Berger, Andy Shaindlin
• Central Development Office—Judy Malcolm
• Schools & Colleges:
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  School of Public Health—Sarah Evett

Information Technology Division Service Support Teams

Real Audio production:
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• Jason Luke (student temporary employee)
• Dan Bree (student temporary employee)

Web Services:
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• Dave Winkel

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• Information Technology Division Accounts Office—Karen Dymond, Edi Van Hoosear, all the accounts office staff members
• Accounting and Billing Services group—Chitra Ramanujan, Paul Turgyan, Bill Doster
• Product Development & Deployment—Gordon Leacock, Matt Kelley
• Dial-in Group—Andy Palms, Michelle Marcouiller,
• Merit—Scott Gerstenberger, Jon Volbrecht, Wei Wang
• 4-HELP (telephone) and Online consulting—Liz Sweet, Deb Zarem Steiner, Adam Wilkinson, Karon Bernhard, Chaim Kram
• Graphic designers—Sabrina Meyers, Sandy Ackerman
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• Support Staff—Cindy Kemner