

Appendix IV: History and Context of Administrative Computing at the University of Washington

The current non-ERP approach to computing at the University of Washington has evolved through a series of institutional decisions made over the last 30 years, each of which has contributed to the current situation and strategic approach. These include decisions to invest in key elements of the UW's non-ERP approach.

Those key elements are:

- Ongoing support for the core administrative systems
- Web-based applications and interfaces to the legacy systems
- Data-warehousing approaches
- Best-of-breed systems
- Middleware infrastructure

This appendix provides a brief history of administrative computing at the university and an overview of the current organizational and technical environment that is the basis for our current strategy.

EARLY UW COMPUTING HISTORY

In the late 1960s, the University of Washington began to develop its current, core administrative systems on Burroughs (now Unisys) hardware and operating systems using the COBOL programming language.

In 1972, after a competitive selection process and exhaustive benchmarking, the UW Board of Regents selected the Unisys computing platform to continue to support its administrative computing environment. The Unisys hardware and operating system environment has been periodically enhanced and upgraded since that time and continues to support the university's core administrative systems, including student, financial, and human resources/payroll.

The development of the core administrative systems occurred as follows:

- The basis for the current Financial Accounting System (FAS) was implemented in 1974.
- The Higher Education Personnel Payroll System (HEPPS) was implemented in 1981 and continues to provide the platform for payroll and related processing.

- The Student Records and Student Accounts Systems were implemented in the 1980s and early 1990s.

Significant enhancements to many of these systems continued through the mid-1980s, including the implementation of online purchasing and budgeting systems and student telephone registration.

COMPUTING & COMMUNICATIONS

Prior to the late 1980s, the UW had multiple organizations serving its information technology needs, including administrative computing, academic computing, and telecommunications. As a result, there were separate organizations responsible for computing operations, client support, and cable and wiring infrastructure. In addition, there were five separate networks, including administrative, academic, and library, that could not communicate with one another.

In the late 1980s and early 1990s, the UW merged all of these information technology organizations into a single unit: Computing & Communications (C&C). At the same time, the university consolidated its five separate networks into a single, institution-wide network that enabled communication and collaboration both within the university and externally.

The resulting efficiencies allowed the UW to keep pace with an explosion in campus computer usage caused by the advent of Internet technologies. During this same period, funding priority was given to the network infrastructure that supported basic email, Web hosting, and related services.

RECENT UW COMPUTING HISTORY – THE NON-ERP APPROACH

During the past decade, The university has made the following investments in the University Services Renewal (USER) project and other key elements of the non-ERP approach.

USER

In the late 1990s, the university made a key decision to fund and support the USER project, which established a firm foundation for the UW's non-ERP approach. The funding provided the resources necessary to build user-friendly, Web-based interfaces to mainframe legacy administrative systems and to develop transactional services, such as the Online Payroll Update System (OPUS), that have streamlined administrative processes. The USER project also has involved members of the UW community in identifying the best ways to make administrative processes more efficient and in developing the new Web-based systems.

The combination of these efforts has resulted in significant improvements to core administrative systems and services, including the following:

- Payroll coordinators use the Online Payroll Update System (OPUS) to enter and update payroll information online, rather than submitting paper forms that must be keyed into the system by another employee.
- Employees review their payroll, tax, and benefit information online through Employee Self-Service (ESS).
- Students and faculty manage many aspects of their academic life online, including registering for classes, seeing their class schedules, accessing or posting course materials, viewing grades, calculating progress toward degree, paying tuition, reserving library books, submitting or accepting papers, and giving or taking quizzes.
- USER projects now underway will allow research grants and contracts proposals to be submitted and reviewed online.

Y2K AND COBOL UPGRADES

During the past five years, the university has focused staff resources on major upgrades to the administrative systems necessary to keep them technically current. In the late 1990s, the systems were modified and extensively tested to ensure continued functionality for year 2000 (Y2K) date-handling requirements. This was accomplished primarily with existing staff.

In 2002, an intensive effort was initiated to convert older versions of COBOL that were no longer supported by Unisys to a modern version that is supported by the vendor on its latest hardware and operating systems. This conversion effort is still underway.

The need to focus staff resources on these two major upgrades has meant that other work has had to be set aside, resulting in substantial deferred maintenance on the core administrative systems.

DATA WAREHOUSING

The UW has made small, incremental investments in developing the foundation for a comprehensive data warehouse to meet the information needs of managers and executives throughout the university. The University Strategic Analysis Group (USAG) took the initial lead in this effort.

Start-up funding provided by the Provost and Executive Vice President is now supporting an institutional data warehousing initiative that is allowing this effort to gain momentum. Initiative partners include the Executive Vice President, the Provost, the Vice President for Student Affairs, C&C, and others.

BEST-OF-BREED APPLICATIONS FOR FUNCTIONAL AREAS

The university has invested in specialized *best-of-breed* systems that are specifically tailored to meet the needs of individual functional areas. For example:

- **The Development Office** replaced the older UNISYS mainframe development system in 1998 with BSR Advance, which is considered the best-of-breed system in that area.
- **The Facilities Office** more recently implemented a system to improve management of the UW's facilities. In addition, another best-of-breed system has been implemented to meet the equipment inventory management needs of the institution.
- **The UW Medical Center** is implementing a personnel and time-reporting system that will integrate with the university's payroll system.
- **The Undergraduate Admissions Office** is implementing a community college degree-articulation system to improve the community college transfer process.
- **University Stores** has purchased a modern accounting package.
- **Human Resources** is planning to implement a new system to support the job application process.

There are demands for additional best-of-breed solutions, including a system to support imaging of paper-based documents and another to replace the current budget system.

These best-of-breed products must be integrated with the core administrative systems (student, financial, and human resources/payroll), the data warehouse, and the USER project systems. In addition, they must be integrated with the operational, systems, and database support environments.

MIDDLEWARE

Since the late 1990s, C&C has been incrementally developing the middleware infrastructure that is needed to create a consistent, user-friendly experience across all of the university's Web resources and services, and to provide security and access control. This middleware is enabling the use of a single user identification and password to log onto to most systems, a common access control system that will be easy to use and manage, and portal services that tailor content to each individual user.

C&C has created this infrastructure using approaches developed collaboratively with peer research universities through meetings and task groups associated with Internet2, EDUCAUSE, and the Common Solutions Group (a select group of research university computing representatives). While some of the middleware is now in place, further work is needed.