University of Vermont
College of Medicine

Gluing It All Together:
Building A Seamless Computing Environment
University of Vermont College of Medicine

- Located in Burlington, Vermont
- Founded in 1822
- Nation’s seventh oldest medical school
- One of 126 medical schools in the US

Enrollment
- 401 medical students
- 102 graduate students
- 79 post doctoral fellows
- 264 residents

Faculty
- 450 full time faculty
- 1435 part time faculty

Affiliated with Fletcher Allen Health Care (FAHC)
- a level 1 trauma center
History

- Senior Selectives
- Add/Drops
- Course Evaluation
- Salary Planning
History

- HR, Student Affairs, Medical Education, and Departments all had their own processes and data
- When people left, processes broke
- Multiple departments maintained their own list of students, courses, registrations, and faculty assignments
- If you wanted data you had to know the individual who kept that data
- Population includes College and teaching hospital
- No central IT organization, departments forced to fend for themselves
History

• Leadership
  – College leadership recognized they were being inefficient in their use of technology

• Commitment
  – Committed to making a significant investment in technology and change business processes

• Creation of a Vision
  – Embarked on a process to define a long-term vision while showing short-term, visible results

• Enterprise-wide view
  – Consistent commitment to focus on a college-wide view, not department-specific view of solutions
Vision

- Self-Service
- Available from anywhere
- Simple to use
- Single Home for Core Data
- Managed centrally, decentralized ownership of information
Strategy

- **Infrastructure – Building the foundation**
  - Engaged people from the University, the hospital, and the Medical School to establish linkages across the environment
  - Built a robust server environment to provide core network services and to support an enterprise data/application environment
    - Active Directory, File/Print Services, Exchange, SQL Server, IIS, Citrix, SMS are some of the key technology components
  - Engineered a desktop baseline
  - Designed and implemented 3-tier support model
Strategy

• Leverage core network services
• Use crises as opportunities
  – Fix broken business processes with enterprise-wide solutions
• Leverage assets in which the University had already made significant investment where possible
• Utilize these assets as authoritative sources of information.
• Only build custom tools to collect data where no other authoritative source exists
• Build custom tools to be as generic as possible
Strategy

- Establish Enterprise Data Repository as the foundation for all information
  - Feed information from authoritative data sources
  - House information where no authoritative source exists.
- Logical model of the whole data environment.
  - Identify core data
    - Students, faculty, courses, registrations
- Start building in chunks to support specific business processes.
  - Senior Selectives
- Identify owner(s) and users for all data
- Recognize that the implementation of new systems relies on and impacts Data, Core Network Services, Business Applications, End User Tools, and associated Business Processes.
Architecture - Logical

• Security
  – Permissions (entity, record, and field) clearly defined only once
  – All authentication and authorization leverage Microsoft Active Directory, including 3rd party and off the shelf applications.
  – Leverage one-way trust with Hospital environment

• Scalability
  – Dedicated application servers for critical business applications.
  – Dedicated database servers for process intensive applications (Blackboard)

• Reliability/Availability
  – Shared highly available database servers support application servers.
  – 24 x 7 remote monitoring ensures with predictive fault analysis
  – Proactive patch management
Architecture - Technical

- SQL Server 2000
  - Integrated security at object level
  - User-defined functions to enforce row-level security
  - DTS jobs control data flow in and out of environment
- Active Directory (W2K)
  - User, group management
  - Controls authentication and authorization to services and applications/
- Use Basic Authentication with SSL for all sites
  - No integrated authentication (must log into applications)
- IIS/ASP/ASPX-based web sites
- Generic Custom tools
  - Report Center, Password Changer, External System User Migration
- MS Office Tools for targeted-audience application front ends
- Web site tool enables distributed responsibility for web site maintenance
One Example: Data Integration

**COMIS**

- **HRS**
  - People and Demographics
- **UVM LDAP**
- **Banner**
  - Students, Courses, Registrations

**Faculty and Roles**

**CV type info**

**Curriculum Management**

**People Management**

**Enterprise Database**

**Active Directory Database**

**Blackboard Database**

**COMET**
Another Example: Faculty Bios

Active Directory

- Salary Planning
- Faculty Evaluation
- Clinical Trials
- Grant Proposals
- On-Line Learning
- Marketing

Report Center

Tools

User Mgt.

Database

HRS

Employee demog. info, Assignments

CV-type info

Bio Builder
Value Proposition

• Time to execute business processes greatly reduced:
  – registering for courses
  – creating annual salary budgets
  – evaluate courses/faculty

• Financial, curricular decisions can be made more quickly

• Users can focus on their primary roles: teaching, learning, researching, and support
Faculty Bios – A Tour

- People Management
- Curriculum Management
- COMET
- Report Center
- Public Web Site
- COMFACT
The Future

• Biographical data on more faculty
• Expand data environment with research data (administrative and statistical)
• Address more business processes (grant management, competency-based assessment, faculty reappointment)
• Distribute application and data management responsibilities
  – Give application owners ability to manage user permissions, themselves
• More robust reporting tools (SQL 2000 Reporting Services)
• Portal strategy for students, faculty, alumni, the larger medical community
Contact Us

- Jim Heintz
  Technology Program Manager
  Jim.Heintz@uvm.edu
  (802) 656-9770

- Steve Goldman
  Business Technology Consultant
  Stephen.Goldman@uvm.edu
  (802) 764-1736