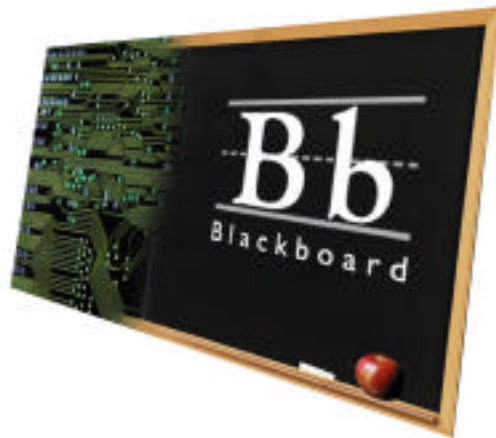


Bringing Education Online



CNI Presentation – Deploying "Enterprise" Scale Instructional Management Systems



Table of Contents

- Internet & Higher Education: Electrifying!
- “Enterprise” Course Management Systems
- Case #1: Blackboard’s CourseInfo Integrated Online “Platform”
- Case #2: Georgetown University



Harnessing the Power of the Internet



Harnessing the Power of the Internet



- Fastest growing mass market medium in the history of the world
- Strengths in content, communication and collaboration



- \$240 billion industry
- Successful, but Middle Ages economic model
- Wired campuses and digital customers



Blackboard's Mission

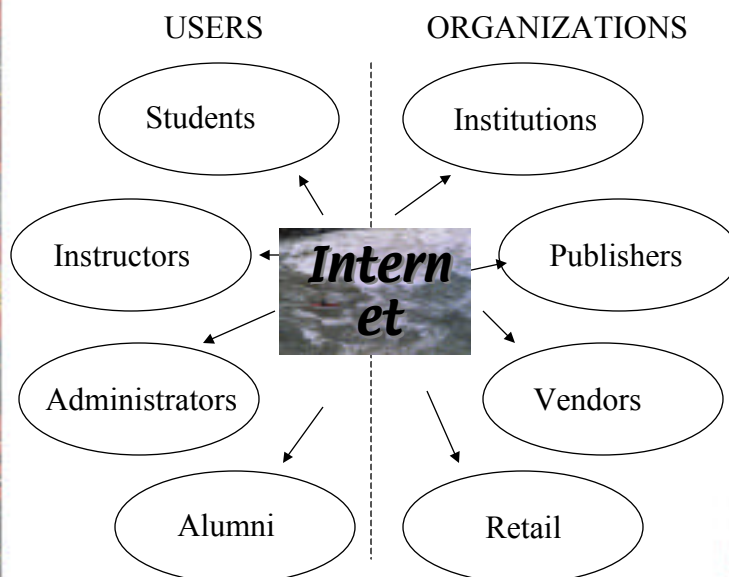
To harness the power of the Internet to improve quality, increase access and transform costs in the global education marketplace.

The next big killer application for the Internet is going to be education...it is going to make email usage look like a rounding error.

-- John Cambers, CEO of Cisco



The Higher Education Landscape



Industry Pressures

- Serving a changing demographic and digital generation
- Respond to competition and generate new revenue
- Improve operational efficiencies
- Achieve ROI for network investments
- Meet enrollment growth
- Better cognitive design



The Teaching and Learning Enterprise

Integrated Online "Platform"

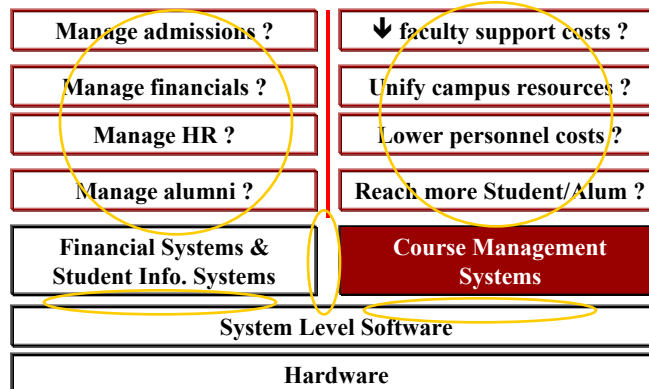
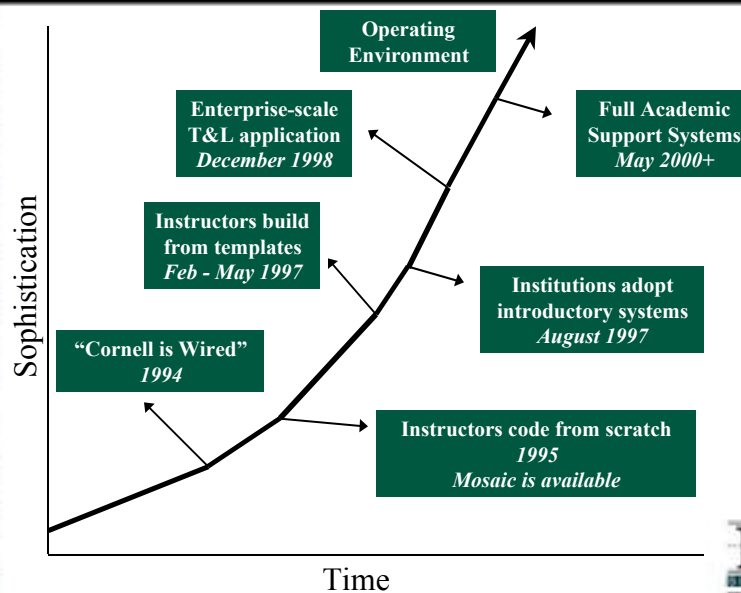


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Evolution of the CMS Category





“Enterprise” – Market Definition

- Scalability
- Customization
- Integration
- System Management
- Shared Content Repositories
- IMS-based Modular Architecture



“Enterprise” -- Scalability

- Moving from 100 to 1,000 courses; from documents to full multimedia; and from course supplement to mission critical
- Ability to implement on redundant servers with common synchronization and database services
- Use of Enterprise databases and Web servers
- Not just technical, but support and usage too!





“Enterprise” -- Customization

- “Engine inside” versus template editor
- UI separate from the core technology
- Student experience can vary from institution to institution despite common CMS
- Biggest demand among commercial education providers such as Kaplan, TPR, Academic Systems and others



“Enterprise” -- Integration

- Leverage existing security and directory services
- Data integration with SIS and similar systems beyond batch upload – i.e. snapshot and event-driven
 - Two-way user data, courses, etc.
- Common user interface for single-login campus-wide experience





“Enterprise” – System Management

- Sophisticated system management capabilities that match scale of usage
 - Archiving
 - Templates
- Automation of manual processes
- Domains, roles, rights and privileges
- Extended database reporting



“Enterprise” – Content Library

- Central repository of online learning resources
 - Multimedia
 - Links
 - MS Office Documents
 - Assessments, etc.
- Encourages re-use
- Manage rights and permissions





“Enterprise” – IMS & Modularity

- Fundamental IMS adoption at the architecture level
- IMS-enabled modularity and tool options
- Other IMS benefits:
 - Metadata for easier discovery
 - Integration with standard interfaces
 - eCommerce
 - Profiles



“Enterprise” – Future Directions

- Constant innovation of the teaching and learning environment
 - Ease of use
 - Adaptive learning
- Opening the platform (developer’s network and Blackboard-enabled program)
- Leveraging the database and maturing into a full academic information system
- Transforming into a full learning “operating environment”



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Blackboard CourseInfo Platform

- Brings academic, administrative and campus community services online
- First two-tier product line in the marketplace that allows institutions to grow from “standard” to “enterprise” needs
- Common user interface, identical course-level functionality and total commitment to IMS
- Designed for on-campus and distance learning
- 450 live institution-wide installations in every state, with 100 institution backlog
- 1,000+ additional institutions with smaller usage
- Reaches 5 million potential accounts, with 2.1 million active users



Blackboard Platform -- Partners

- **Oracle, PeopleSoft and Microsoft** all name Blackboard as their primary platform partner
- **Dell and Sun** both name Blackboard as their primary platform partner
- **KPMG Consulting**, the largest system integrator in higher education, named Blackboard its primary platform partner
- **Pearson Education, Houghton Mifflin, Archipelago, Norton Publishing** and others provide content for the Blackboard platform
- **NLII**, the original sponsor of IMS, tapped Blackboard to serve as primary contractor

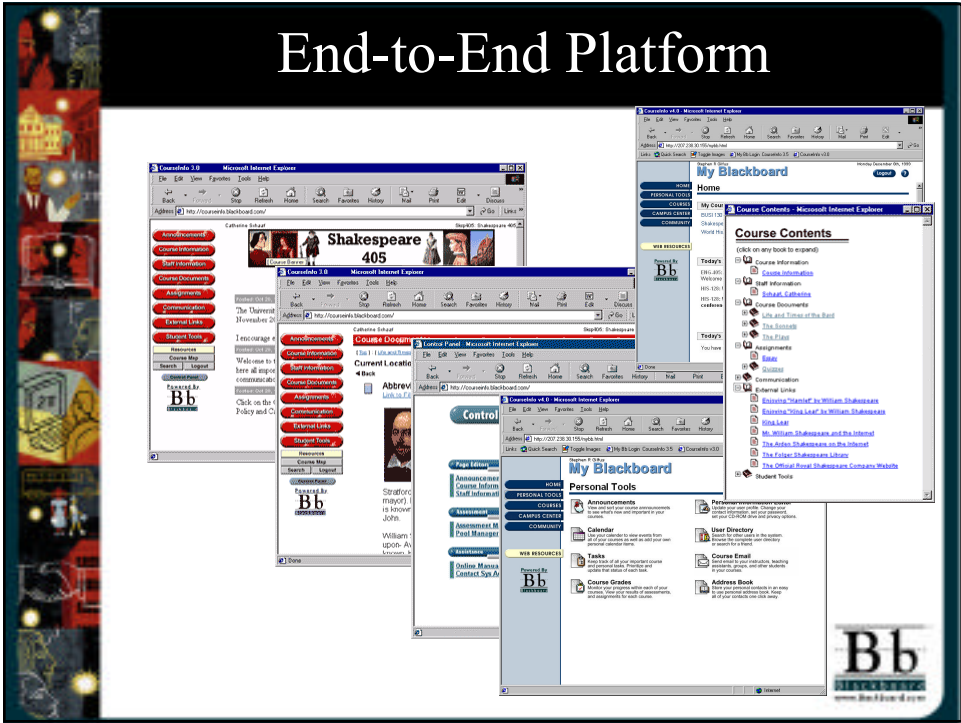


Blackboard CourseInfo

- Originated at Cornell University in March 1997
- Released v1.0 June 1997 – (real world beta)
 - First release of Blackboard CourseInfo used to accumulate feedback
 - Cornell University
 - Morehead State University
 - UC Berkeley
 - University of Pittsburgh
- Release v1.5 November 1997
 - First “true” market release of Blackboard CourseInfo
 - First on relational database
- Released v2.0/2.1 1998 (NT Platform)
 - NT support and significant additional functionality
- Released v3.0 1999 (Quiz - Discussion Boards) (Active State)
 - Major focus on stability and assessment improvement
 - Supporting more than 14,000 students at the University of Pittsburgh

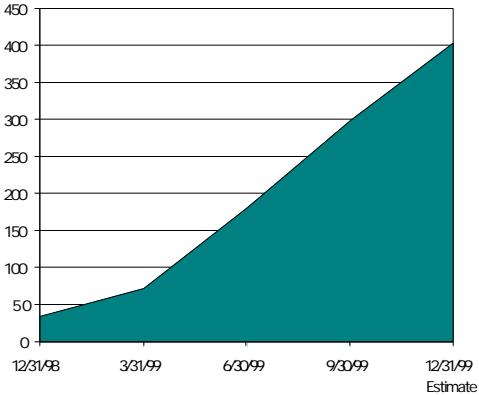


End-to-End Platform



Blackboard Platform -- Growth

Blackboard Platform Licenses





Bb CourseInfo Enterprise Edition

- Began Development in June 1998 w/ code name “Campus” as next generation course management system
- Goal was advanced addition to Blackboard CourseInfo product line for highly scalable, integrated and customized online teaching and learning environments
- Driven by IMS and largest Blackboard CourseInfo customer requirements (Original IMS development team led design efforts)
- Sophisticated Java technology base and architecture
- Familiar and proven Blackboard CourseInfo user interface
- Completed Beta in December 1999
 - Florida State University, Georgetown University, Dallas Community College District, Boston University School of Management, and Mortgage Bankers Association of America



Bb CourseInfo Enterprise Edition

- Blackboard CourseInfo Enterprise Edition v1.0
- Beta Completed on Dec 15
- Release – December 20, 1999
- Blackboard CourseInfo Enterprise Edition v1.0 includes:
 - New Technologies
 - Server Side Java - IBM WebSphere Servlet Engine
 - Oracle and SQL Server database support
 - Standard SQL calls using JDBC Drivers
 - Multi-platform - UNIX/NT
 - Security (Creating a centralized login that allows students and faculty to have a single username and password.)
 - LDAP Layer, Kerberos
 - Integration
 - Course data and user data via batch and snapshot
 - Customization (UI is separate from core technology)





Near Term Growth Directions


- Push “Breadth and Depth!” Expand platform functionality and usage to drive traffic
- Launch Blackboard Certified ASP Program
 - i.e. NextEd.com
- Seed “Blackboard-Inside” Licensing Opportunities
 - i.e. Academic Systems
- Push hard on International expansion
 - Australia
 - Netherlands



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Bb CI Adoption @ Georgetown

- Choosing a product
- Implementation of standalone Blackboard CourseInfo
- Implementation of Blackboard CourseInfo Enterprise Edition (CIEE)
- Long Term Goals



Choosing a Product

- CAUSE, Dec. 1997- determined the University's need for courseware
- Spring 1998- GUiide Committee and faculty reviewed courseware
- Summer 1998- chose Blackboard CourseInfo and deterred others at GU from using other courseware products



Why Blackboard?

- Full featured
- Excellent user interface
- Ease of use
- IMS developers
- Blackboard indicated that they planned to develop enterprise solutions
- Close proximity of company and ability to forge working relationship

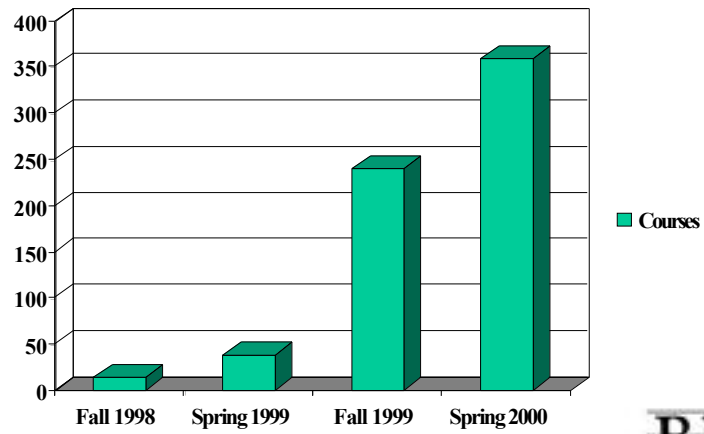


CourseInfo Implementation

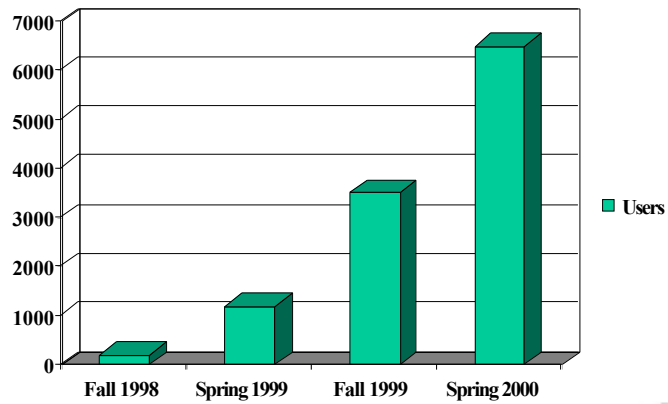
- Fall 1998- Blackboard CourseInfo first implemented and used by ~15 faculty
- Spring 1999- ~40 faculty and 1200 students
- Fall 1999- over 240 courses and 3600 users
- Spring 2000- over 360 courses and 6500 users



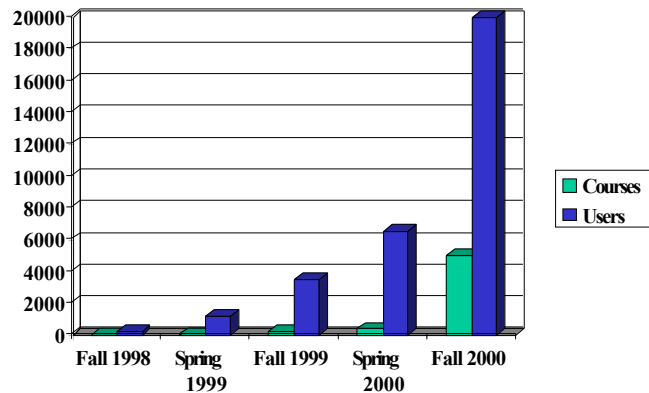
Courses in CourseInfo



CourseInfo Users



The Future



(CIEE): Identifying the Need

- Enterprise-wide solution
- Addresses maintenance difficulties of Blackboard CourseInfo standalone
- Integrated backend with SIS and with frontend Kerberos and LDAP
- Focus on pedagogy
- Customized “My Georgetown”
- IMS libraries of resources



CIEE Implementation

- Beta-tested Blackboard CourseInfo Enterprise Edition with 31 courses and 2 large, diverse organizations in fall 1999 (~600 users)
- Limited pilot of integrated Blackboard CourseInfo Enterprise Edition implementation with roughly the same users in spring 2000
- Full rollout for all credit and non-credit courses and extensive number of organizations planned for summer 2000

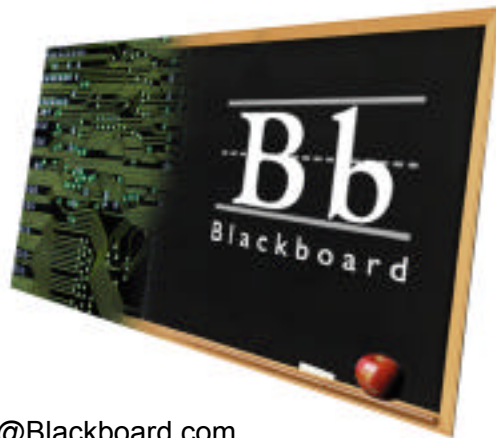


Long Term Goals for CIEE

- Greatly enhanced teaching, learning, and communication environments
- Full, rich IMS libraries of teaching and research materials
- Low maintenance system
- Fully integrated not only with SIS and Kerberos, but also with Access+ and data warehouse tools
- Complete portal services



Bringing Education Online



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