



F E D E R A L
S T U D E N T A I D

We Help Put America Through School

TO 116 – eZ-Audit

Production Readiness Review

March 17, 2003

Discussion Agenda



- Welcome and Introductions
- Approach
 - eZ-Audit Project Overview
 - eZ-Audit Project Milestones
- Testing Summary
 - Testing Efforts
 - Summary of UAT Results
 - Performance Test Results
- Collaboration
- Independence Quality Assurance
- Risk Summary
- Lessons Learned
- Conclusion
- PRR Checklist

eZ-Audit Overview

Summary of Business Case and Approach



What are the eZ-Audit business drivers?

- A manual process for more than 13,500 documents each year
- 2-4 copies made and handled of each document
- Reports sometimes lost and additional copies requested from Schools
- Current business rules force a “check-the-checker” type operation
- Backlogs created at peak times slow down resolution process

What is eZ-Audit trying to do?

- Create a paperless single point of receipt for financial and compliance reports through the web.
- Integrate business rules for automated screening
- Immediate Identification of high risk school submissions
- Design an application to provide for managing workflow, automation of repetitive tasks and to provide electronic record of school filing



Project Milestones

| 2002 | | | | | | | | | | | | 2003 | | |
|--|---|---|----|---|---|----|---|---|----|---|---|------|---|---|
| 1Q | | | 2Q | | | 3Q | | | 4Q | | | 1Q | | |
| J | F | M | A | M | J | J | A | S | O | N | D | J | F | M |
| <p>★ ✓ Kickoff 1/16</p> <p style="margin-left: 40px;"><u>Requirements Definition</u></p> <p style="margin-left: 60px;">★ ✓ Requirements 3/20</p> <p style="margin-left: 80px;">★ ✓ Repts Baseline 4/16</p> <p style="margin-left: 40px;"><u>Application Design</u></p> <p style="margin-left: 60px;">★ ✓ Preliminary Design 5/15</p> <p style="margin-left: 80px;">★ ✓ Functional Design 7/15</p> <p style="margin-left: 100px;">★ ✓ Tech Arch Design & HTML Prototype 8/19</p> <p style="margin-left: 120px;">★ ✓ Master Test Plan 9/30</p> <p style="margin-left: 40px;"><u>Application Development</u></p> <p style="margin-left: 60px;">✓ Build 12/20 ★</p> <p style="margin-left: 80px;">✓ Test 1/1 – 2/28 ★</p> <p style="margin-left: 100px;"><i>Application Delivery 4/1/03</i> ★</p> <p>✓ - Indicates on schedule task completion</p> | | | | | | | | | | | | | | |

Testing Efforts



| Testing Type | Testing Method | Testers | Testing End Date |
|--|-----------------------|--------------------------|-------------------|
| Unit and Assembly Test | Manual Scripts | eZ-Audit Dev Team, IV&V | December 20, 2002 |
| System Test | Manual Scripts | eZ-Audit Test Team | February 6, 2003 |
| Pre-UAT Regression Test | Manual Scripts | eZ-Audit Test Team | February 21, 2003 |
| User Acceptance Test - Session 1 | Manual Scripts | Institution Users | February 26, 2003 |
| User Acceptance Test - Session 2 | Manual Scripts | FSA Case Team Members | March 6, 2003 |
| Performance Test | Automated Load Runner | ITA, Integration Partner | March 14, 2003 |
| Pre-Production Regression Test | Manual Scripts | eZ-Audit Test Team | March 14, 2003 |
| Interconnected System Test (PEPS/eZ-Audit) | Manual Scripts | eZ-Audit, FSA, CBMI | March 21, 2003 |
| Production Test | Manual Scripts | eZ-Audit Staff | March 28, 2003 |

Remaining System Investigation Requests (SIRs)



| SIR Severity: | Logged | Remaining |
|-----------------------|--------|-----------|
| Level 1 – High | 95 | 0 |
| Level 2 – Medium | 245 | 1 |
| Level 3 – Low | 126 | 0 |
| Level 4 – Enhancement | 114 | 108 |
| Total SIRs Logged: | 559 | 97 |

There is one PEPS-Integration related SIR still open – “Years in zone/ consecutive years in zone” –

This SIR will be closed at the conclusion of the PEPS IST at the end of the week – March 21st.

Results from UAT Session #1 (Feb 26) – Institution Users



- Test Participants (4 Total)
 - 2 Profit Institution users
 - 2 Non Profit Institution users
 - No Public Institution (Cancelled at last minute)

Quotes from the participants:

“This system is going to make my life easier.” – Not-for-Profit Institution

“You mean to tell me that when I complete my annual submission this June 30th, that is it; I am finished. This system is *way cool!*” – FSA Institution

Results from UAT Session #2 (March 5 & 6) – FSA Case Users



- Test Participants (10 Total)
 - 2 Screeners
 - 4 Financial Analysts
 - 2 Audit Resolution Specialists
 - 2 Co-Team Lead

Quotes from the participants:

“The eZ-Audit system is user-friendly and easy to navigate.” – Financial Analyst

“I like it! eZ-Audit is a new Case Management [workflow] tool to track submissions and assignments” – Financial Analyst



Performance Test Assumptions

School Usage Assumptions

1. Submissions using eZ-Audit: 4,500
2. Peak submissions in a given month: 1,000
3. Average working days per month: 20
4. Average hours per day the system is used: 12
5. Average time required to complete a submission: 1 hour
6. Percentage of submissions in the peak month done in a single week: 40%
7. Peak hour of peak week multiplier: 5
8. Pages required for a submission, including login including reviews: 15
9. Average times per year a school will check a submissions status: 5
10. Percentage of schools submitting more than just an annual submission: 25%
11. Average time it takes for other submissions: 30 minutes
12. Average number of users created per school: 5
13. Pages per user creation: 3

FSA Usage Assumptions

1. Number of FSA Users: 300
2. Percentage of FSA users logged in at peak: 45%
3. Percentage of users logged in with active sessions (i.e. not reviewing a print out, in a meeting, or on the phone reviewing information): 15%
4. Average time spent per page: 5 minutes (12 pages per hour)

Concurrent Users

1. Annual Submission: 60 concurrent users
2. Search: 20 concurrent users
3. Create users: 20 concurrent users
4. Login / Institution home: 70 concurrent users
5. Login /Co-Team home: 20 concurrent users
6. DDIF or ACD: 20 concurrent users – unique data records



Performance Test Results

- **Cycle 1 (Feb 25) – 110 concurrent users**
 - ✓ Problem: Memory Leak caused by:
 - ✓ Java Virtual Machine (JVM) size was not big enough.
 - ✓ Session data was stored in the Database as supposed to in Session Persistence
 - ✓ Resolution:
 - ✓ Increase JVM from 64 MB to 128 MB
 - ✓ Store session data in Session Persistence
- **Cycle 2 (March 4) – 80 concurrent users**
 - ✓ Problem: Co-Team Lead Home Page response time was really slow (~50 sec) with 33 concurrent co-team lead users.
 - ✓ Resolution:
 - ✓ Applied Struts-specific e-fixes for WebSphere
 - ✓ Modified the server code to offload some of the work done displaying the page, from the server to the client
 - ✓ Changed the way the page pull pull data (jsp:getProperty instead of bean:write)
 - ✓ Cut down the drop down list elements from 300 to 30
- **Cycle 3 (March 11) – 180 concurrent users**
 - ✓ No problem.
 - ✓ Average response time was really good (less than 10 seconds for all screens except for file upload: 28 seconds)
- **Cycle 4 (March 13) – 250 concurrent users**
 - ✓ Problem:
 - ✓ Create Users page – response time was slow (~60 seconds)
 - ✓ Session management issue with multiple application servers
 - ✓ Resolution:
 - ✓ Trimmed the number of users displayed on the page as the number of users have been built up to 1,700 users
 - ✓ Used a different Java Method (function) to identify the active session
 - Old Method: isRequestedSessionIdValid()
 - New Method:
 - HttpSession session = request.getSession(false) // returns true if nothing is there
 - if (session == null) // map to expired session page

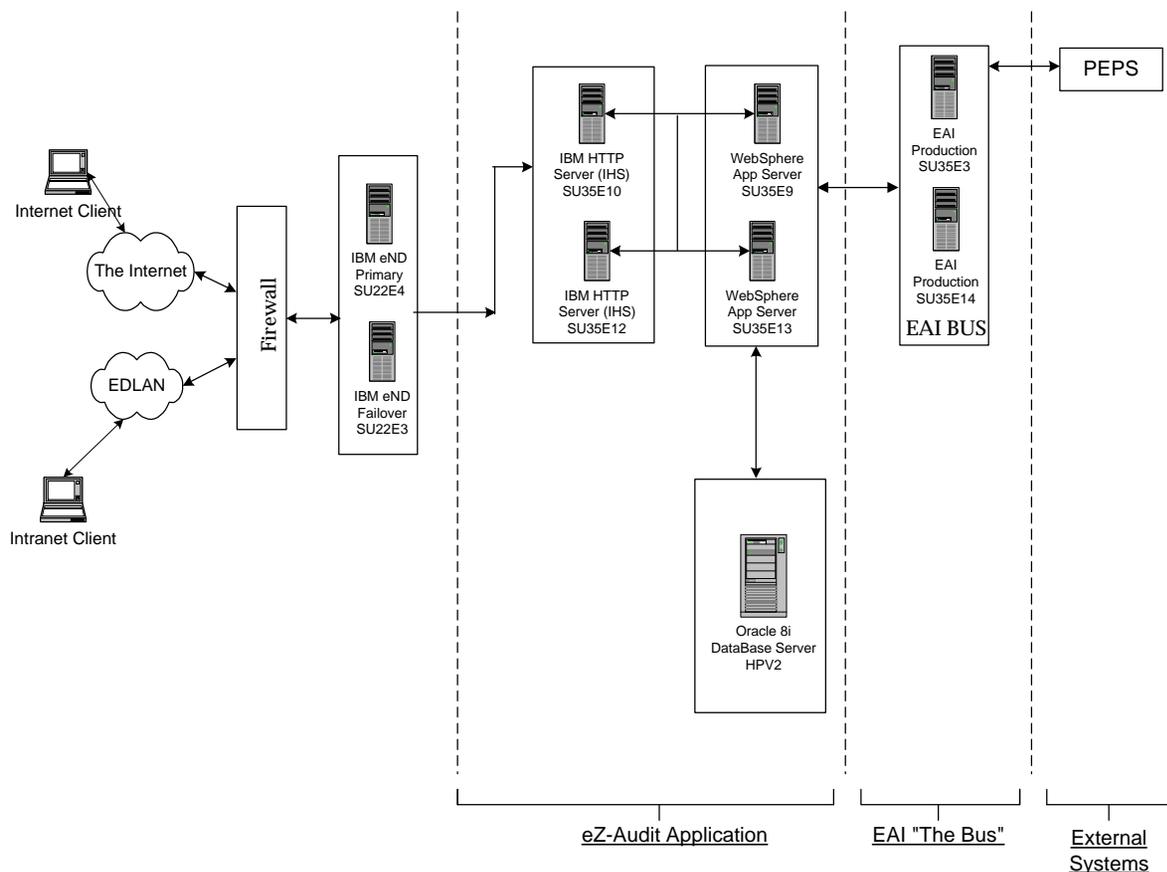
eZ-Audit Collaboration



| Area | Responsible Party | Validation |
|--|--|--|
| Business Owner | Kay Jacks | Interim Authorization to Operate (IATO) |
| VDC | Jack Gillotti | Operation Readiness Review (ORR) |
| FSA Chief Security Officer | Robert Ingwalson | System Security Plan (SSP) |
| eZ-Audit System Security Officer | Barbara McClurkin Johnson | System Security Plan (SSP) |
| Enterprise Architecture Review | Integration Partner ITA – Alex Lefur Integration Partner EAI – Bruce Kingsley | Design Documents, Code Review, Performance Test |
| FSA Quality Assurance | Mike Rockis | Memorandum of Records (MOR) |
| IV&V | GAITS (Barbara von Mettenheim – PM, Sheila Giscombe – Chief Security Analyst, Jim Stendeback – IV&V Analyst) | Risk Assessment |
| eZ-Audit Help Desk and Training Coordinators | Ti Baker, Byron Scott | Help Desk document, Customer Support Service Center (CSSC) |
| Stabilization Support | Accenture | Task Order |



eZ-Audit Production Environment



- Using FSA Enterprise Architecture
- Existing VDC Production Environment
- Leveraging shared ITA and EAI established Infrastructure

Independent Quality Assurance

External IV&V conducted by GAITS



- Collaborated with the development team through all phases of the project acting as a second set of eyes. (11 March 2002-15 April 2003)
- Provided timely and cogent input and feedback ensuring that all ED procedures were addressed.
- Formed an amiable, yet independent, relationship with the developers that enhanced the process, rather than taking a stance as a critical “auditor.” This allowed information to be passed easily and productively.
- Attended meetings and reviewed all documents providing feedback through MORs/risk tracking and formal reports and analysis.
- Attended and observed activities of the CCB.
- Innovation – observed the developer’s unit and assembly tests helped to keep them on schedule – no checkpoints were late.

Risk Summary



- Risk Assessment (Reported on February 13, 2003)
 - Security Training Plan
 - Continuity of Support Plan
 - System Security Plan
 - eZ-Audit specific Backup Procedure

- Corrective Action Plan (as of March 17, 2003)
 - Security Training Plan is in place
 - Continuity of Support Plan is in place
 - System Security Plan is finalized and signed
 - eZ-Audit specific backup procedure is documented in the ORR documentation

Lessons Learned



■ What Could be Improved

- Obtaining decisions on Regulatory and Policy issues is much more difficult than the project team thought
- COTS product support is more complicated than anticipated
- External existing system integration coordination needs to be managed at the appropriate FSA level
- Configuration Management tool needs to be supported by personnel with the right skill-set
- Provide at least two-week preparation period in between Joint-Application Design (JAD) sessions

■ What worked well

- Co-residency of functional and technical teams
- Full integration of Integration Partner ITA team
- Use of existing Integration Partner reusable assets
- Early and Valuable involvement of the IV&V team
- Well-defined baseline requirements
- Scope Containment
- Early identification on exception-based processes
- Strict configuration management control practices
- Access to key decision maker

Conclusion



- All scheduled activities to date are complete
- Inter System Test between PEPS and eZ-Audit will be completed - March 21
- Application Production test will be completed - March 28
- Production Data Load – March 31
- On schedule for April 01 launch

PRR Checklist



- Appendix A – Summary Checklist
- Appendix B – Sign-off Memorandum