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THESIS

A WEB-ENABLED DATABASE FOR TRACKING THE PERSONNEL QUALIFICATIONS OF INFORMATION PROFESSIONAL OFFICERS

by

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December 2005

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13. ABSTRACT (maximum 200 words)

The US Navy's Information Professional Community currently qualifies its officers using a paper-based system. Candidates for the Basic, Intermediate and Advanced Qualifications use qualification books to attain knowledge and subsequently, prove possession of it. Once those books are filled with signatures, a board of Subject Matter Experts tests the candidate and verifies his mastery of that knowledge.

Using Knowledge Value Added analysis and Business Process Reengineering, the return on knowledge (ROK) for the current Personnel Qualification System was estimated and improved processes were designed with the goal of maximizing ROK. First, the as-is ROK was estimated for the three processes and their various subprocesses. Then, a new to-be workflow for each of the three processes was designed emphasizing incremental improvements that could be implemented quickly. Finally, another workflow was designed, emphasizing radical, unlimited change.

When it was proven that Web-enabling the PQS system indeed improves the knowledge-creating capability of these processes, a prototype Web-enabled database, called the Electronic Qualbook was developed as a demonstrator of the technologies and capabilities involved.

This thesis includes appendices illustrating the design of the database schema and the Electronic Qualbook's Web interfaces. A third appendix lists the majority of the HyperText Markup Language (HTML) and Active Server Pages (ASP) code integral to the Electronic Qualbook.

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A WEB-ENABLED DATABASE FOR TRACKING THE PERSONNEL QUALIFICATIONS OF INFORMATION PROFESSIONAL OFFICERS

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I. INTRODUCTION

A. BACKGROUND

Since the widespread introduction of the microcomputer in the 1980s, and since computer networks became ubiquitous in the 1990s, information technology (IT) has assumed a very prominent position in national security of the United States. In his National Security Strategy, President Clinton delineated a national commitment to maintaining information superiority: "Operational readiness, as well as the command and control of forces, relies increasingly on information systems and technology. We must keep pace with rapidly evolving information technology so that we can cultivate and harvest the promise of information superiority among U.S. forces and coalition partners while exploiting the shortfalls in our adversaries' information capabilities." (U.S. National Security Council 1999, 12) The Bush Administration retained Clinton's commitment to maintaining information superiority, spurring other initiatives such as force transformation and concepts such as net-centric warfare.

In the late nineties, Navy leadership began to realize that if information superiority was to become a linchpin in the future of warfare, the *status quo* in personnel policy was not sustainable. In order to maintain information superiority, a completely new cadre of officers was required. Consequently, the Information Professional (IP) Community was born.

1. IP Community History

Vice Admiral Richard Mayo announced the formation of the IP Community in his naval message, NAVADMIN 182/01. VADM Mayo promulgated this message to the entire Navy in July of 2001. In it, he delineated the new era of Defense Strategy that required new specialists in command, control, computers, and communications (C4), as well as space systems.

Since its inception, the Information Professional Community has grown to over 500 commissioned officers. Its mission statement is as follows:

> We are the Navy's community of Information Warriors with expertise in information, command and control, and space systems. We own the Naval Network, the foundation of information dominance and successful execution of Naval, joint, allied and coalition operations. We plan, acquire, operate, maintain, and secure the Naval Network and the systems that support the Navy's operational and business processes to ensure they are reliable, available, survivable, and secure. We evaluate and integrate leading edge technologies, innovative concepts, and essential information elements to ensure a warfighting advantage. We will aggressively foster development and maturation of the skills needed to conduct network-centric operations, both afloat and ashore. (LCDR Dannelle Barrett, USN 2004, 12)

As a very new community (only four years old at the time of this writing), Information Professionals have had to develop programs and core business processes that many officer communities established decades ago. Included are processes such as accessions, assignments, mentorship, continuing education, and the Personnel Qualification System (PQS).

B. PURPOSE

The purpose of this thesis is to analyze the potential knowledge value added by a Web-enabled personnel qualification system and to develop a prototype Web-enabled database for the PQS with a user-friendly Web interface. This research will explore the feasibility of developing such a database. The Web interface will enable the US Navy's Information Professional (IP) officer community to track their individual PQS signatures and qualifications. It will also enable the program manager, Naval Network Warfare Command (NETWARCOM), to manage the PQS program more effectively.

C. AREA OF RESEARCH

The area of research for this thesis involves three-tier, Web-enabled databases. Supporting technologies may include Hypertext Markup Language (HTML), Extensible Hypertext Markup Language (XHTML), Extensible Markup Language (XML), Active Server Pages (ASP) with Visual Basic Script (VBScript) or JavaScript, ColdFusion, PHP (a recursive acronym standing for PHP: Hypertext Preprocessor) and Structured Query Language (SQL).

The primary research questions to be addressed are:

- How does the current qualification process work?
- How will Web-enabling the process benefit the IP Community and the Navy?
- What methods can be used to access an IP qualifications database from the Web?
- Which method is the most appropriate?
- How can the security of such a Web-enabled database be ensured?

D. SCOPE DEFINITION

This thesis will focus first on the evaluation of the current qualification process and how Web-enabling it will benefit the IP Community. It will then focus on the issues regarding implementing the Web-enabled database. While security is an important consideration in any Web project, it will be given a rather cursory treatment in this thesis due to time limitations. In addition, the issues regarding the design, performance and normalization of relational databases will not be covered in depth.

E. METHODOLOGY

This thesis will be developed in conjunction with and supplemented by a project consisting of the generation of a Web-enabled database. A user-friendly, prototype Web interface will also be developed in order to access the database. It is the hope of the author, that NETWARCOM can implement the project portion of this thesis for widespread use by the IP Community with little additional effort.

The specific methodology for this thesis follows:

- Conduct literature research on current Personnel Qualification Systems
- Conduct literature research on the Information Professional Community
- Conduct telephone interviews with various commands involved with the tracking of IP qualifications, the awarding of AQDs, and the recording of AQDs.

- Conduct temporary additional duty (TAD) trip to Norfolk, VA to extract functional requirements from SMEs at NETWARCOM and Naval Personnel Development Command (NPDC)[1].
- If necessary, conduct temporary additional duty (TAD) trip to Millington, TN to extract functional requirements from SMEs at Naval Personnel Command (NPC)
- Conduct review of ASP, ASP.net, PHP, and ColdFusion methodologies
- Choose a methodology to be employed for the IP qualification database
- Design a database schema
- Design a Web interface to access the database

In order to fulfill the purpose of this thesis, material will be presented in the following fashion. Chapter II will present the analysis of the current PQS process and how Web-enabling it can benefit the Navy. Chapter III will address the functional requirements and design of the database schema. Chapter IV will analyze the potential Web-enablement technologies and delineates the best methodology. Chapter V will address the design and integration of the database. Chapter VI will be a conclusion and will include recommendations for future research.

[1] In a Naval Administration message dated June 17, 2005, the Chief of Naval Operations transferred management of PQS to NPDC in Norfolk, VA.

II. PROBLEM ANALYSIS

A. CURRENT PQS MANAGEMENT PROCESS

Currently, the IP Personnel Qualification System is paper-based. The process requires candidates for the IP Intermediate Qualification, for example, to carry around a 79-page book to designated Subject Matter Experts (SME) who test the knowledge of the candidate and certify by his or her signature that the candidate possesses the required knowledge for that qualification. The Director of the IP Center of Excellence (IPCOE) must approve SMEs in writing. SMEs may be enlisted, officer, or civilian. Enlisted SMEs may be of any rank above E-6 as long as they come from two enlisted ratings, IT, or ET. Officer SMEs must come from the following communities:

- Information Professional (160X)
- Surface Electronics Limited Duty Officer [LDO] (618X)
- Surface Communications LDO (619X)
- Data Processing LDO (642X)
- Submarine Electronics LDO (628X)
- Submarine Communications LDO (629X)
- Surface Electronics Warrant Officer (718X)
- Surface Communications Warrant Officer (719X)
- Submarine Electronics Warrant Officer (728X)
- Data Processing Warrant Officer (742X)

However, Commanding Officers (COs) of Naval Computer and Telecommunications Master Stations (NCTAMS) and Numbered Fleet C4I (Navy Office Code N6) Officers may determine an additional mechanism for identifying SMEs that do not meet the above criteria. (Commander, Naval Network Warfare Command 2003, 7)

Upon completion of all of the signatures in the PQS book (qualbook), candidates for the Basic and Intermediate Qualifications request the convening of a Qualification Review Board. The purpose of the board is to demonstrate that

the candidate possesses baseline knowledge required for that qualification. The Basic Qualification is not "intended to be a rigorous examination of all IP [core competencies] but instead an introduction to basic skills, vocabulary, organizational relationships, references, and other resource material." (Commander, Naval Network Warfare Command 2003, 4) However, the purpose of the IP Intermediate Qualification Review Board is to demonstrate baseline knowledge in each of the core competency areas, including:

- Communications
- Information Systems Theory and Applications
- Databases and Network Fundamentals
- Knowledge Management
- C4I Systems and Infrastructure
- Information Assurance (Commander, Naval Network Warfare Command 2003, 4)

After a candidate attains the requisite signatures, thereby proving that he or she possesses the requisite knowledge for the pertinent qualification, the candidate then presents the qualbook to his mentor. The mentor examines the book and if he finds it to be complete and genuine, signs page two, certifying that the candidate met the requirements of the qualification and recommending commencement of a Review Board. After the candidate passes the board, the board president signs page two, recommending the candidate for qualification. Page two of the qualification book is sent to NETWARCOM in Norfolk, VA. If the qualification in question is a Basic or Intermediate qualification, NETWARCOM's Training Officer then signs page two, enters the candidate's name in a flat file spreadsheet, informs the IP detailer of the qualification, and sends the signed copy back to candidate. The IP detailer then enters into the candidate's record an Additional Qualification Designation (AQD). The process is slightly different depending on the type of qualification. The process for each type is covered in detail in Chapter II.

The AQD is a code that "when entered in an officer's record, identifies the attainment of skills and knowledge, as recognized by competent authority, in

addition to those identified by the officer designator, grade, NOBC or subspecialty." (Commander, Naval Personnel Command 2004, D-1) The AQDs that may be assigned to Information Professionals are GA1, GA2, and GA3. The letter G indicates that the AQD pertains to Information Professionals. The letter A is a sequential indicator of an AQD subject area. At present, IPs have only one subject area, A, pertaining to qualifications. The numbers 1, 2, and 3, apply to the Basic, Intermediate, and Advanced qualifications, respectively.

B. EXPLANATION OF THE PQS MANAGEMENT CHALLENGE

Like most programs, the Personnel Qualification System involves a certain number of challenges that have the potential to impede effective management. The challenges most pertinent to effective management are authenticity, reporting, and data security.

1. Authenticity

Depending on which school of thought you belong to, there are between three and five attributes that make up information security. Proponents of the "big three" school of though believe that secure information systems ensure the attributes confidentiality, integrity and authenticity. "Big four" proponents add availability to the list, and "big five" proponents add non-repudiation as well as availability. (Fulp 2005, 3-6) "Big four" proponents believe that non-repudiation is achieved with a combination of the attributes, integrity and authenticity. As the author is a subscriber to the "big four" school of thought, any discussions of information security will ignore non-repudiation.

They are defined as follows:

- Confidentiality: unauthorized users are not able to observe the information
- Integrity: information cannot be maliciously or accidentally altered without its owner's or user's knowledge
- Authenticity: the stated or purported originator of the information is the true originator
- Availability: information is accessible in a reasonable amount of time (Fulp 2005, 3-6)

Since the current PQS system is paper-based, the responsibility of maintaining confidentiality (if that has been a concern), integrity, and availability has been the responsibility of the candidate. Those attributes, largely, have been attained using physical security: the owner maintained control of the qualbook.

Heretofore, ensuring the authenticity of signatures has been the responsibility of the review board; part of the board process involves the board members' inspection of the signatures in the candidate's qualbook. It has been next to impossible to ensure that every signature in every qualbook is authentic; many signatures are completely illegible. Also, board members do not have the expertise necessary to be able to spot signature forgeries. Thus, the qualbook has been, largely, a formality, with the review board being a more reliable indicator of a candidate's knowledge.

With the advent of public key infrastructure (PKI) and digital signatures, a method of ensuring the authenticity of qualification signatures has become viable. Since PKI could enable the indisputable authenticity of qualbook signatures, the qualbook becomes a much more reliable indicator of a candidate's knowledge, perhaps rendering the review board redundant. Because the oral review board tests a candidate's public speaking abilities in addition to his knowledge, the complete removal of review boards from the process seems unlikely. However, the Basic qualification happens for junior IPs at ranks of Lieutenant and below, where public speaking is considerably less important. The Web-enablement of the qualbook with PKI digital signatures could render the review board unnecessary for basic qualifications. Further examination, including a Business Process Reengineering study, will be conducted in later chapters.

2. Reporting

Reporting is an important aspect of managing any Navy program. Often program managers want to be apprised of the current state of the programs over which they have purview. A common tool used to convey such information is the report; an example is the SHARP (Sierra Hotel Aviation Readiness Program) application. SHARP captures data about all Navy aviation operations in a

database. TYCOMS (type commanders) can then execute reports that demonstrate the state of any unit's mission readiness, for example. In this case, SHARP apprises TYCOMS (program managers) of the state of programs under their purview: training, readiness, qualifications, and operations.

No such reporting capability exists for NETWARCOM. Thus, if NETWARCOM's training officer wanted to know exactly how many of the Navy's IPs have completed the Basic Qualification or more importantly, how many of the Navy's IPs are delinquent in attaining a qualification, there is no simple way for him to ascertain such information. This makes management of the PQS very ineffective.

3. Data Redundancy

Attaining all of the signatures required for a long qualification such as the Intermediate, can take as long as three years. There is no systematic method for maintaining backups of signatures. Thus, if a candidate finds himself the victim of a hurricane or other catastrophe and his paper qualbook is destroyed, it is conceivable that he would have to re-acquire over 300 signatures adding years to the attainment of the intermediate qualification. A prudent IP would certainly maintain his own backup in the form of photocopies of the qualbook. However, that is expensive and a waste of paper, when the same function can be fulfilled electronically. Why not make this function systematic?

C. BUSINESS PROCESS REENGINEERING AND KNOWLEDGE VALUE ADDED (KVA)

The term business process reengineering (BPR) originated in a book by Michael Hammer and James Champy entitled *Reengineering the Corporation.* In it, the authors outlined a methodology to analyze the workflows of an enterprise, and re-design them with the aim of increasing the efficiency of the enterprise's processes. There are many guiding principles of BPR. One of the most useful and commonsensical is the principle of streamlining processes by "removing waste, simplifying, and consolidating similar activities." Another useful principle is that of "Lose Wait," which attempts to "squeeze out waiting time in process links to create value." (El Sawy 2001, 57)

Knowledge Value Added (KVA) is a methodology for valuing processes (workflows) within an enterprise. "KVA analysis produces a return-on-knowledge (ROK) ratio to estimate the value added by given knowledge assets regardless of where they are located…" (Housel and Bell 2001, 91) Determining relative values between processes allows a business process reengineer to focus his efforts where they will pay the highest dividends.

> The essence of KVA is that knowledge utilized in corporate core processes is translated into numerical form. This translation allows allocation of revenue in proportion to the value added by the knowledge, as well as the cost to use that knowledge. Tracking the conversion of knowledge into value, while measuring its bottom-line impacts, enables managers to increase the productivity of these critical assets. (Housel and Bell 2001, 91)

KVA allows a reengineer to obtain the most "bang for the buck" by concentrating his efforts on those processes that add the most value to the organization or by allowing him to eliminate processes that provide relatively little value. In this instance the word, value means the ability of the process to create knowledge. The business process "learns from the participants it interacts with each time there is an interaction." (El Sawy 2001, 49) Using KVA to enhance BPR has the potential to drastically improve the effectiveness of any reengineering efforts.

D. AS-IS PROCESS WORKFLOWS INVOLVED IN PQS PROGRAM

Generally, business process reengineering looks at three scenarios. The first scenario is that of the process in its current state, its as-is state. The second scenario, the to-be state, represents the process after one or more changes have been made that improve it in an incremental, but immediate way. The third scenario models the process after radical and far-reaching changes have been made to it.

The workflows associated with the Basic, Intermediate, and Advanced Qualifications follow. They are intended to give enough detail to adequately describe the processes involved without losing the audience in the minutiae. For each qualification, three workflows will be presented—one describing the as-is

process, one describing the to-be process and one describing the radical process.

1. Basic Qualification

From the date an IP is designated as such, he has 6 months to complete the Basic Qualification. The steps are as delineated in Figure 1. Naval Network Warfare Command's Training Officer approves all Basic Qualifications. The Training Officer has bee delegated "by direction" authority from the Human Capital Strategy Officer. Figure 1 outlines the process in more detail.

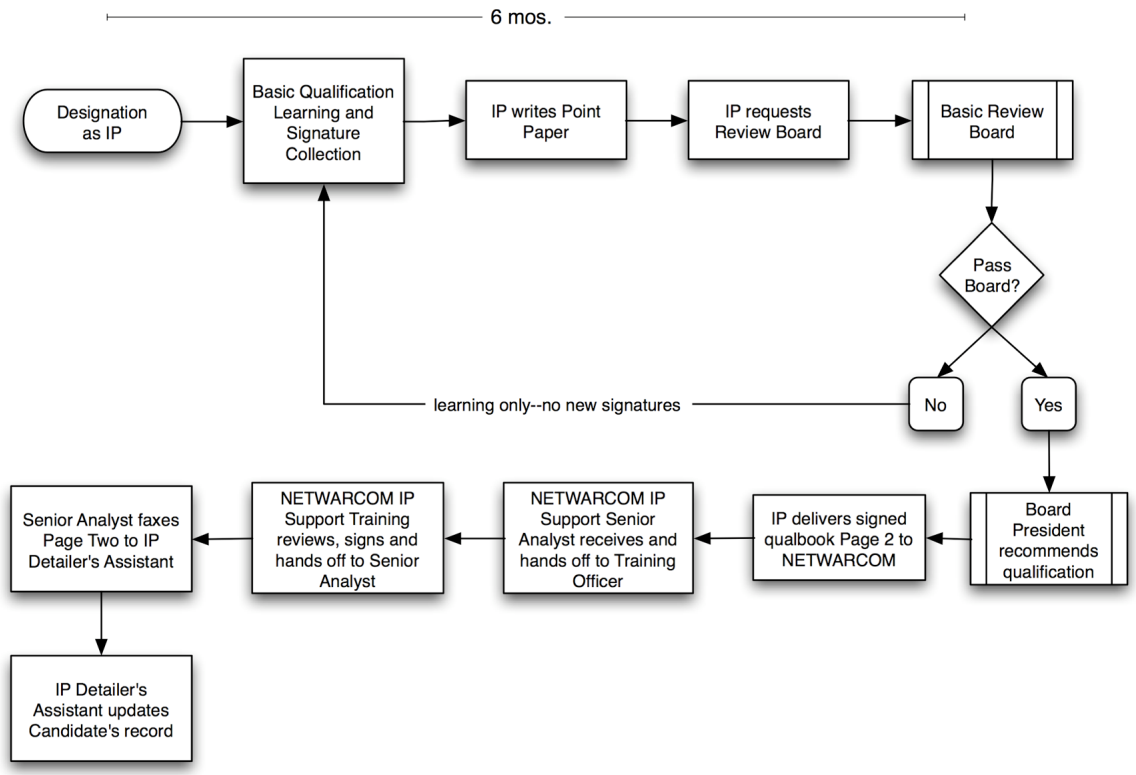

Figure 1. Basic Qualification As-Is Workflow

2. Intermediate Qualification

IPs have three years from the date of their designation to complete the Intermediate Qualification. The Intermediate is similar to the Basic in that it involves a board process. However, the board does not include the presentation of a point paper. NETWARCOM's Training Officer also has "by direction" authority for Intermediate Qualifications. Figure 2 outlines the process in more detail.

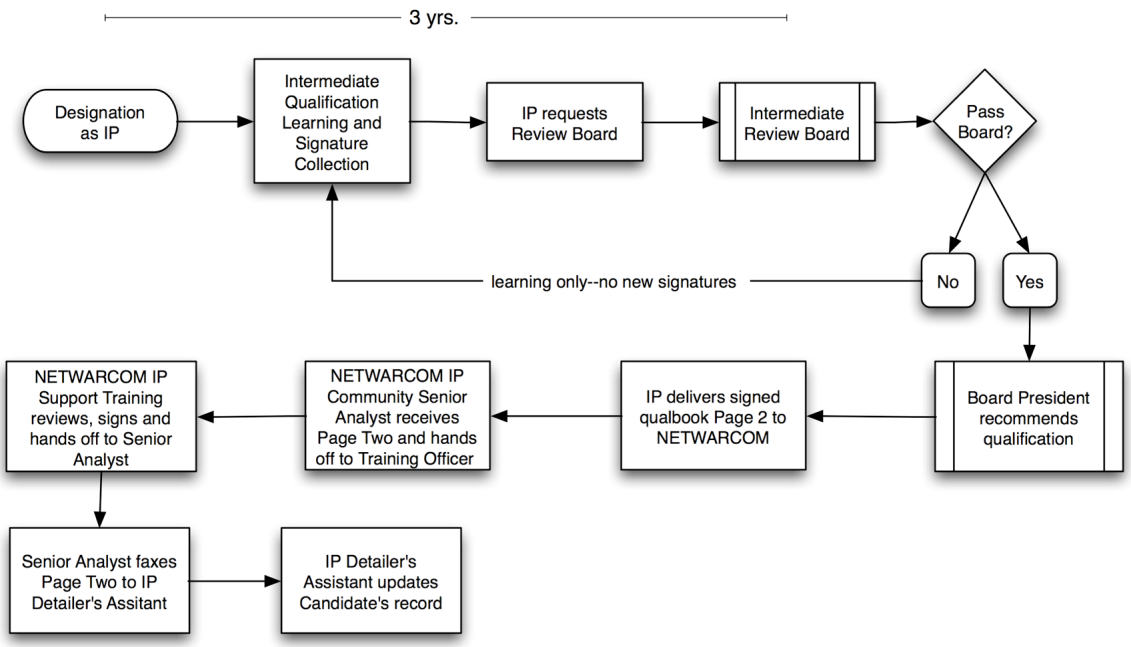

Figure 2. Intermediate Qualification As-Is Workflow

3. Advanced Qualification

Advanced Qualifications are different from Basic and Intermediate Qualifications in that there is no requirement to have SMEs sign off on knowledge line items. Rather, the Advanced Qualification involves the attainment of Functional Area Qualifications (FAQ). FAQs are comprised of approximately 32 different qualifications or achievements. Examples include the completion of a Space Operations Masters Degree, the attainment of the Certified Information Systems Security Professional qualification, the completion of a tour as a IP Commanding Officer, and the completion of a tour as Strike Group Knowledge Manager.

Additionally, there is no requirement for a review board. When the IP has achieved four of the FAQs, he sends the evidence of completion to NETWARCOM, where the Training Officer reviews it before sending it on to the Human Capital Strategy Officer. Figure 3 outlines the process in more detail.

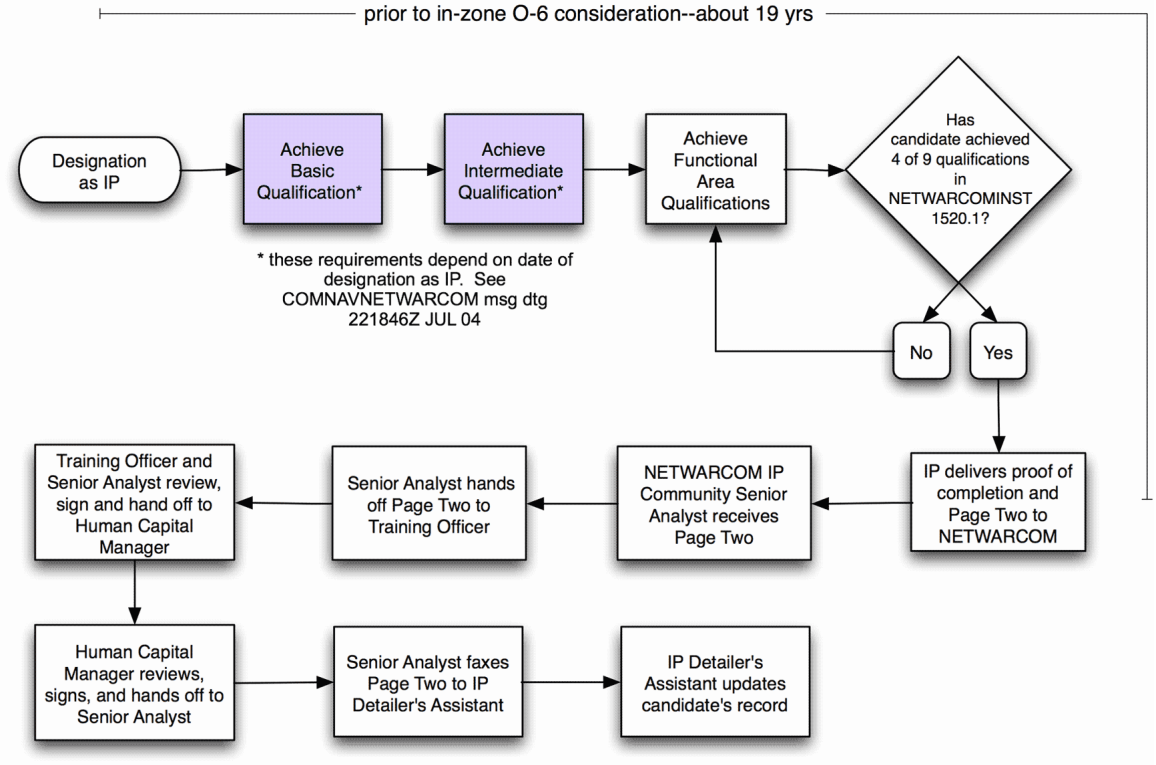

Figure 3. Advanced Qualification As-Is Workflow

E. AS-IS KVA ANALYSIS

1. Basic As-is Process

Figure 4 is a spreadsheet showing the analysis of the knowledge value added by each subprocess in the basic qualification. Return on Knowledge is calculated much like a business return on investment would be: benefits divided by costs. In this case, the benefit is the knowledge held in the process; the cost is the time required to execute that knowledge. The return on knowledge (ROK) column is color-coded based on the results. ROKs above the average ROK (at the bottom of the column) are colored green. Those below the average are colored red.

The most valuable subprocess in the Basic Qualification is the collection of signatures and the significant learning that accompanies it. The next processes with the highest ROK are the last two, filing the Page Two and entering the AQDs into the service records. This is due to the relatively large

differences in the time it takes to learn the subprocess (the benefit) and the time it takes to execute it (the cost).

2. Intermediate As-is Process

The as-is process for the Intermediate Qualification has been analyzed using KVA and the results are depicted in Figure 5. As might be expected, the most valuable part of the process is the subprocess involving the collection of knowledge and signatures that certify the possession of said knowledge. Like in the basic qualification, there are a lot of subprocesses that add much less value to the overall qualification process. Those processes will get more attention in the next section, the incrementally changed to-be process.

3. Advanced As-is Process

The Advanced Qualification process is, by far, the most knowledge-creating of the three. Its overall return on knowledge is enormous at 1356%. The next highest is the Intermediate at 40%, followed by the Basic at 34%. The Advanced has such a high ROK due to the subprocess, Functional Area Qualification collection, which has a ROK of 3761%. This comes from the huge average amount of time required to acquire these qualifications and the relatively small amount of time required to execute the knowledge gained.

	Cognizance	Subprocess	Nbr of pers	Actions per Week	Actual Work Time (hrs)	Actual Learning Time (hrs)	IT %	Total Learning Time (hrs)	Num.	Den.	ROK
1	Qual Candidate	Signature collection / learning	118	2.04	0.17	0.67	30%	0.87	208.79	40.15	52%
2		Write point paper	118	0.04	3.00	4.00	30%	5.20	25.57	14.75	17%
3		Present point paper	118	0.04	2.00	2.00	30%	2.60	12.78	9.83	13%
4		Request review board	118	0.04	0.08	0.03	50%	0.05	0.25	0.41	6%
5		Attend review board	118	0.04	1.00	1.00	0%	3.00	0.29	0.29	10%
6	Review Board Members	Review qualbook	3	2.27	0.17	0.17	0%	0.17	1.13	1.13	10%
7		Attend presentation / review board	3	2.27	1.10	1.00	0%	1.00	6.81	7.49	9%
8		Rate candidate performance	3	2.27	0.17	0.33	0%	0.33	2.27	1.13	20%
9	IP Community Support Senior Analyst	Receive page two	1	2.27	0.03	0.03	50%	0.05	0.11	0.08	15%
10		Handoff to Training Officer	1	2.27	0.02	0.03	0%	0.03	0.08	0.04	20%
11	IP Community Support Training Officer	Review and sign page two	1	2.27	0.17	0.50	0%	0.50	1.13	0.38	30%
12		Handoff to Analyst	1	2.27	0.02	0.03	0%	0.03	0.08	0.04	20%
13	IP Community Support Senior Analyst	Fax to detailer's assistant	1	2.27	0.17	0.25	50%	0.38	0.85	0.38	23%
14		File Page two	1	2.27	0.03	0.13	0%	0.13	0.30	0.08	40%
15	Detailer's Assistant	Enter AQD in service record	1	2.27	0.07	0.17	60%	0.27	0.61	0.15	40%
									261.05	76.33	34%

Assumptions:

Line 3: Presenting point paper requires at least one rehearsal of one hour in length. AWT includes amount of time required to develop PPT slides

Lines 5-14: Number of actions per week is actual (number of completed quals divided by weeks the program has been in force)

Lines 1-4: Number of completions divided by 1.5 years

Line 2: ALT includes amount of time required to research topic.

Line 6: ALT includes at least one hour to sit in on a board as an observer.

Line 6: ALT includes one hour of "murder board" time

Figure 4. Basic Qualification KVA Analysis — As Is

	Cognizance	Subprocess	Nbr of pers	Actions per Week	Actual Work Time	Actual Learning Time	IT %	Total Learning Time (hrs)	Num.	Den.	ROK
1	Qual Candidate	Signature collection / learning	13	2.96	0.17	0.75	30%	0.98	36.58	6.25	59%
2		Request review board	13	0.01	0.08	0.03	50%	0.05	0.00	0.01	6%
3		Attend review board	13	0.01	3.00	3.00	0%	3.00	0.29	0.29	10%
4	Review Board Members	Review qualbook	3	0.26	0.25	0.08	0%	0.08	0.07	0.20	3%
5		Attend review board	3	0.26	3.00	0.02	0%	0.02	0.01	2.38	0%
6		Rate candidate performance	3	0.26	0.17	0.33	0%	0.33	0.26	0.13	20%
7	IP Community Support Senior Analyst	Receive page two	1	0.26	0.03	0.03	50%	0.05	0.01	0.01	15%
8		Handoff to Trng Officer	1	0.26	0.02	0.03	0%	0.03	0.01	0.00	20%
9	IP Community Support Training Officer	Review and sign page two	1	0.26	0.25	1.00	0%	1.00	0.26	0.07	40%
10		Handoff to Senior Analyst	1	0.26	0.02	0.03	0%	0.03	0.01	0.00	20%
11	IP Community Support Senior Analyst	Fax detailer's assistant	1	0.26	0.17	0.25	50%	0.38	0.10	0.04	23%
12		File page two	1	0.26	0.03	0.13	0%	0.13	0.04	0.01	40%
13	Detailer's Assistant	Enter AQD in service record	1	0.26	0.07	0.17	60%	0.27	0.07	0.02	40%
									37.7	9.4	40%

Assumptions:

1 week class= 40 hours

Lines 2-4: Number of personnel is number of completions to date divided by 1.5 years

Line 3: Actual learning time for attend review board is the time required to perform one "murder" board.

Lines 4-13: Number of actions per week is actual (number of completed quals divided by weeks the program has been in force)

Line 6: ALT includes three hours of "murder board" time

Figure 5. Intermediate Qualification KVA Analysis — As Is

	Cognizance	Subprocess	Nbr of pers	Actions per Week	Work Time (hrs)	Actual Learning Time (hrs)	IT %	Total Learning Time (hrs)	Num.	Den.	ROK
1	Qual Candidate	Functional Area Qualification collection	42	0.005	3.00	868.00	30%	1128.40	227.85	0.61	3761%
2		Send proof of completion to NWC	42	0.001	0.50	0.25	50%	0.38	0.02	0.03	8%
3	IP Community Support Senior Analyst	Receive page two and proof of completion	1	0.88	0.02	0.05	50%	0.08	0.07	0.01	45%
4		Hand off to Training Officer	1	0.88	0.02	0.03	0%	0.03	0.03	0.01	20%
5	IP Community Support Trng Officer and Analyst	Review page two	2	0.88	0.33	0.83	20%	1.00	1.75	0.58	30%
6		Hand off to Human Capital Manager	1	0.88	0.02	0.03	0%	0.03	0.03	0.01	20%
7	Human Capital Management Officer	Review and sign	1	0.88	0.25	0.67	0%	0.67	0.58	0.22	27%
8		Hand off to Analyst	1	0.88	0.02	0.03	0%	0.03	0.03	0.01	20%
9	IP Community Support Senior Analyst	Fax detailer's assistant	1	0.88	0.17	0.25	50%	0.38	0.33	0.15	23%
10		File page two	1	0.88	0.03	0.13	0%	0.13	0.12	0.03	40%
11	Detailer's assistant	Enter AQD in service record	1	0.88	0.07	0.17	60%	0.15	0.34	0.04	90%
									231.14	1.70	1356%

Assumptions:

1 week class= 40 hours learning time

It takes 19 years from IP accession to in-zone O-6 consideration

Line 1-2: Number of personnel is the number of completions to date divided by 1.5 years

Line 5: Review learning time includes time to learn the instruction

Lines 3-11: Number of actions per week is actual (number of completed quals divided by weeks the program has been in force)

Line 1: ALT is the average of the different learning times for each FAQ (see "TimeToComplete" tab)

Line 1: AWT is the average of the times required to get a certificate (exams, etc.)

Figure 6. Advanced Qualification KVA Analysis — As Is

F. TO-BE KVA AND WORKFLOWS

The subsections below illustrate some of the insights gleaned from the analysis of the as-is processes and the design of the to-be processes. To reiterate, to-be process designs are meant to be incremental. That is, the changes are meant to be implemented immediately, giving immediate positive results.

1. Basic To-Be Process

In the analysis of the as-is process of the basic qualification, a lot of interesting information came to light. The basic qualification line items emphasize information that is intended to introduce the new accession to the community. However, the basic qualification was written before the induction of the IP Community Basic Course in March, 2005. In its incremental to-be form, the Basic Qualification should be devolved of its introductory material in lieu of the new accession acquiring that knowledge in the Basic Course.

Currently, the only path for a prospective IP to enter the community is via the Lateral Transfer process. Lateral Transfer is not possible for most prospective IPs until they have been in the Navy about 4 years. Thus, the average rank of new community accessions is Lieutenant and the IP Community has a dearth of officers junior to Lieutenant. However, in the future, more accessions may be acquired through means other than Lateral Transfer, including direct accession from Officer Candidate School, ROTC, or the Naval Academy. This may drive the average rank of new accessions lower, negating the importance of public speaking ability. Public speaking skills are very important in any organization, but in the Navy, they are most important at the ranks of Lieutenant and above. Thus, the subprocesses of writing and presenting a point paper are absent from the Basic Qualification workflow (see Figure 7), but can be found unchanged in the Intermediate workflow.

After the IP submits proof of completion to NETWARCOM, the process becomes somewhat mired by the need to transfer papers between the IP Community Support Senior Analyst and the IP Community Support Training Officer. The to-be process fixes this inefficiency by empowering the Senior

Analyst to review and sign Page Twos on his own. This frees the more highly educated Training Officer to work on the more strategic, less administrative tasks appropriate to his position.

These minor changes to the Basic Qualification result in increases in overall productivity. The subprocesses that were removed were ones that added little to no value to the entire process and that added to the time required to complete the processes. By removing these inefficient practices, the productivity of the overall process can be increased from 34% in the as-is to 52% in the to-be (see Figure 8).

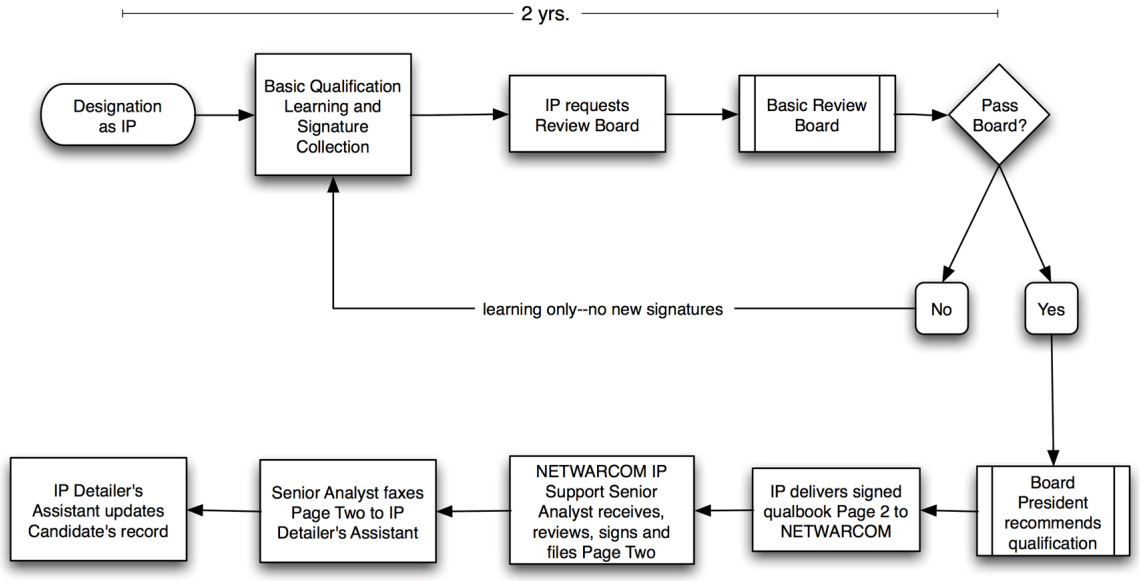

Figure 7. Basic Qualification Workflow — To Be

2. Intermediate To-Be Process

The incremental changes made to the Intermediate Qualification mimicked some of those carried out for the Basic Qualification. Like in the Basic, some inefficient practices were built into the workflow and tended to limit the productivity of the process. The IP Community Support Senior Analyst was again empowered to review and sign intermediate qualifications, enabling the Training Officer to work on more strategic issues, appropriate to his training and level of education.

However, adding the tasks of writing and presenting the point paper, subprocesses that take a lot of time to learn as well as a lot of time to execute, resulted in a decrease in the Return on Knowledge for the entire Intermediate Qualification process. Some might say that the point paper subprocesses should be eliminated from the process altogether as it returns little knowledge to the organization. But they would be wrong. True, the ROK for this subprocess is relatively low, but the knowledge and experience it gives to the officer involved is necessary and important to his future career, whether it be in the Navy or in the civilian sector.

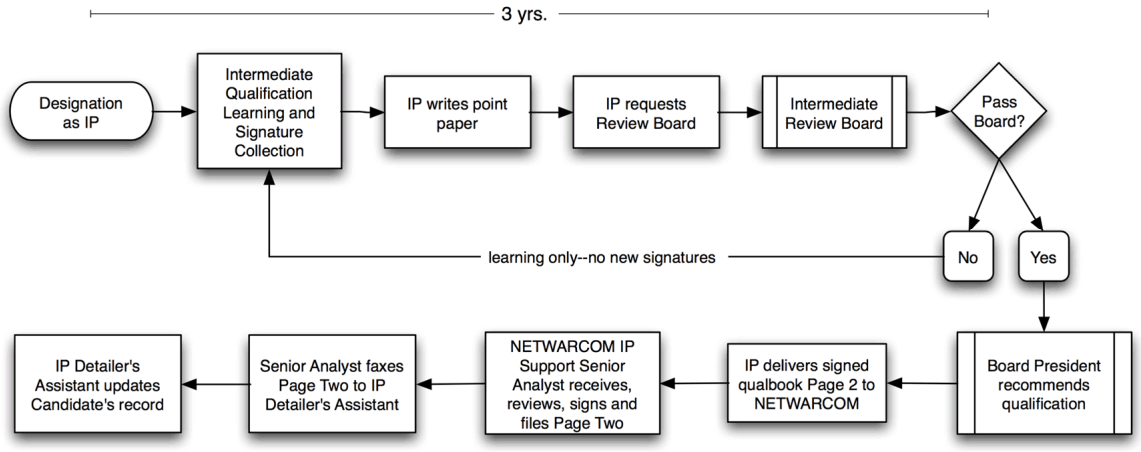

Figure 8. Intermediate Qualification Workflow — To Be

3. Advanced To-Be Process

The Advanced Qualification as-is process has, by far, the greatest return on knowledge of all three processes at 1356%. Such huge returns would make any prudent business process reengineer hesitant to change the process. But, to fail to take action would be a mistake, because significant increases in Return on Knowledge can be realized with relatively little effort.

Figure 9 illustrates the changes made to the Advanced Qualification process. One change was made, the elimination of the handoff between the IP Community Support Senior Analyst and the Training Officer just after reception of the Page Two from the candidate IP. Eliminating this step resulted in a small

reduction in the total time to complete the process, but made for an increase in ROK of 16%.

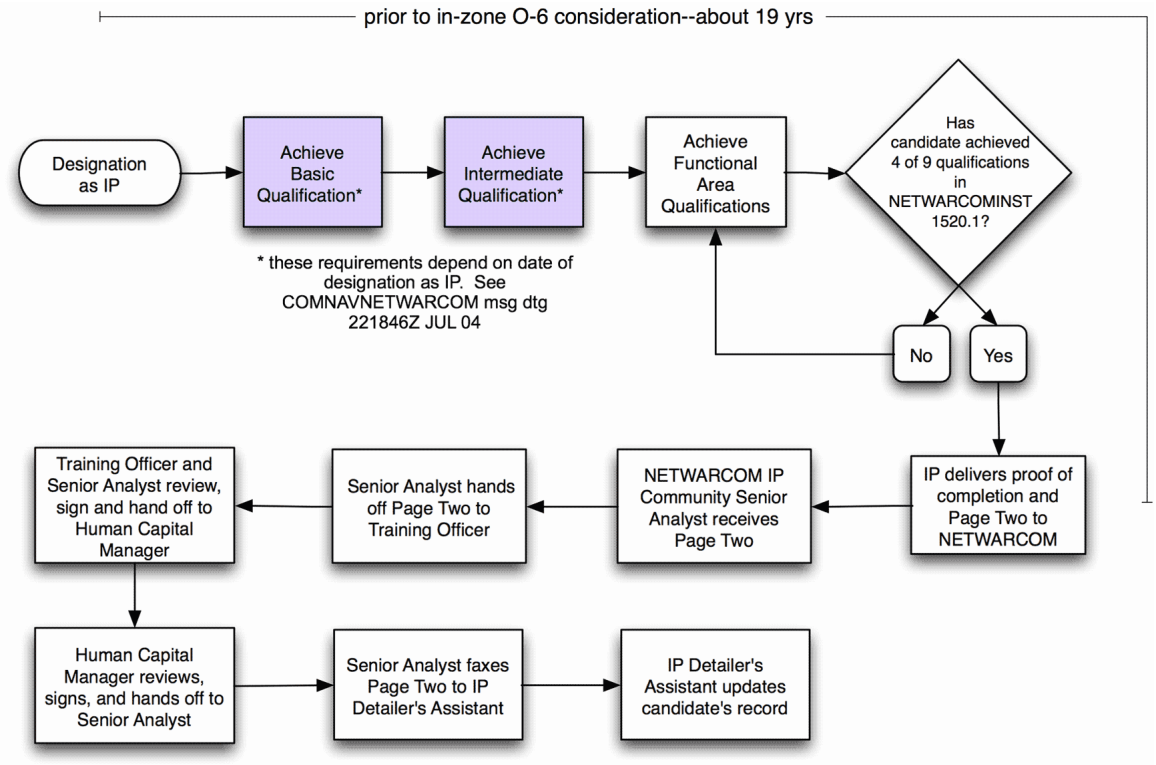

Figure 9. Advanced Qualification Workflow — To Be

	Cognizance	Subprocess	Nbr of pers	Actions per Week	Actual Work Time (hrs)	Actual Learning Time (hrs)	IT %	Total Learning Time (hrs)	Num.	Den.	ROK
1	Qual Candidate	Electronic signature collection / learning	118	2.40	0.17	0.67	50%	1.00	283.65	47.28	60%
2		Request review board	118	0.01	0.08	0.03	50%	0.05	0.06	0.09	6%
3		Attend review board	118	0.01	1.00	1.00	0%	3.00	0.29	0.29	10%
4	Review Board Members	Attend presentation / review board	3	2.27	1.10	1.00	0%	1.00	6.81	7.49	9%
5		Rate candidate performance	3	2.27	0.12	0.33	0%	0.33	2.27	0.79	29%
6	IP Community Support Senior Analyst	Receive page two	1	2.27	0.03	0.03	50%	0.05	0.11	0.08	15%
7		Review and sign page two	1	2.27	0.17	0.50	0%	0.50	1.13	0.38	30%
10		Fax to detailer's assistant	1	2.27	0.17	0.25	50%	0.38	0.85	0.38	23%
11		File Page two	1	2.27	0.03	0.13	0%	0.13	0.30	0.08	40%
12	Detailer's Assistant	Enter AQD in service record	1	2.27	0.07	0.17	60%	0.27	0.61	0.15	40%
									296.09	57.00	52%

Assumptions:

Line 3: ALT includes one hour of "murder board" time

Lines 4-12: Number of actions per week is actual (number of completed quals divided by weeks the program has been in force)

Lines 1-4: Number of completions divided by total years.

Line 4: ALT includes at least one hour to sit in on a board as an observer.

Figure 10. Basic Qualification KVA Analysis — To Be

	Cognizance	Subprocess	Nbr of pers	Actions per Week	Actual Work Time	Actual Learning Time	IT %	Total Learning Time	Num.	Den.	ROK
1	Qual Candidate	Electronic signature collection/learning	13	0.94	0.17	0.75	50%	1.13	13.43	1.99	68%
2		Write point paper	13	0.04	3.00	4.00	30%	5.20	2.82	1.63	17%
3		Present point paper	13	0.04	2.00	2.00	30%	2.60	1.41	1.08	13%
4		Attend review board	13	0.01	3.00	3.00	0%	3.00	0.29	0.29	10%
5	Review Board Members	Attend review board	3	0.26	2.00	0.02	0%	0.02	0.01	1.58	0%
6		Rate candidate performance	3	0.26	0.17	0.33	0%	0.33	0.26	0.13	20%
7	IP Community Support Senior Analyst	Receive page two	1	0.26	0.03	0.03	50%	0.05	0.01	0.01	15%
8		Review and sign page two	1	0.26	0.25	1.00	0%	1.00	0.26	0.07	40%
9		Fax detailer's assistant	1	0.26	0.17	0.25	50%	0.38	0.10	0.04	23%
10		File page two	1	0.26	0.03	0.13	0%	0.13	0.04	0.01	40%
11	Detailer's Assistant	Enter AQD in service record	1	0.26	0.07	0.17	60%	0.27	0.07	0.02	40%
									18.7	6.9	27%

Assumptions:

1 week class= 40 hours

Lines 1-4: Number of personnel is number of completions to date divided by 1.5 years

Line 4: Actual learning time for attend review board is the time required to perform one "murder" board.

Lines 5-11: Number of actions per week is actual (number of completed quals divided by weeks the program has been in force)

Line 5: ALT includes three hours of "murder board" time

Figure 11. Intermediate Qualification KVA Analysis — To Be

	Cognizance	Subprocess	Nbr of pers	Actions per Week	Actual Work Time (hrs)	Actual Learning Time (hrs)	IT %	Total Learning Time (hrs)	Num.	Den.	ROK
1	Qual Candidate	Functional Area Qualification collection	42	0.005	3.00	868.00	30%	1128.40	227.85	0.61	3761%
2		Send proof of completion to NWC	42	0.001	0.50	0.25	50%	0.38	0.02	0.03	8%
3	IP Community Support Senior Analyst	Receive page two and proof of completion	1	0.88	0.02	0.05	50%	0.08	0.07	0.01	45%
5	IP Community Support Trng Officer and Analyst	Review page two	2	0.88	0.33	1.00	40%	1.40	2.45	0.58	42%
6		Handoff to Human Capital Mgmt Officer	1	0.88	0.02	0.03	0%	0.03	0.03	0.01	20%
7	Human Capital Management Officer	Review and sign	1	0.88	0.25	0.67	0%	0.67	0.58	0.22	27%
8		Hand off to Analyst	1	0.88	0.02	0.03	0%	0.03	0.03	0.01	20%
9	IP Community Support Senior Analyst	Fax detailer's assistant	1	0.88	0.17	0.25	50%	0.38	0.33	0.15	23%
10		File page two	1	0.88	0.03	0.13	0%	0.13	0.12	0.03	40%
11	Detailer's assistant	Enter AQD in service record	1	0.88	0.07	0.17	60%	0.15	0.34	0.04	90%
									231.81	1.69	1372%

Assumptions:

1 week class= 40 hours learning time

It takes 19 years from IP accession to in-zone O-6 consideration

Line 1-2: Number of personnel is the number of completions to date divided by 1.5 years

Line 5: Review learning time includes time to learn the instruction

Lines 3-11: Number of actions per week is actual (number of completed quals divided by weeks the program has been in force)

Line 1: ALT is the average of the different learning times for each FAQ (see "TimeToComplete" tab)

Line 1: AWT is the average of the times required to get a certificate (exams, etc.)

Figure 12. Advanced Qualification KVA Analysis — To Be

G. RADICAL KVA AND WORKFLOWS

The subsections below illustrate some of the insights gleaned from the analysis of the design of the to-be processes and the design of the radical processes. To reiterate, radical process designs are meant to be far-reaching and ambitious. That is, the changes are meant to be implemented at some point in the future. They must be designed without regard to cost or feasibility to ensure that a truly creative, radical, and unrestricted process can be conceived and hopefully put into action.

1. Basic Radical Process

The Basic Qualification total return on knowledge increased from 52% in the to-be to 54% in the radical. While this is not a staggering improvement, the changes implemented in the radical design reduced the total process execution time by about two hours.

Figure 13 illustrates the radically revised Basic Qualification Workflow. As is clear in the workflow, several steps have been removed or revised.

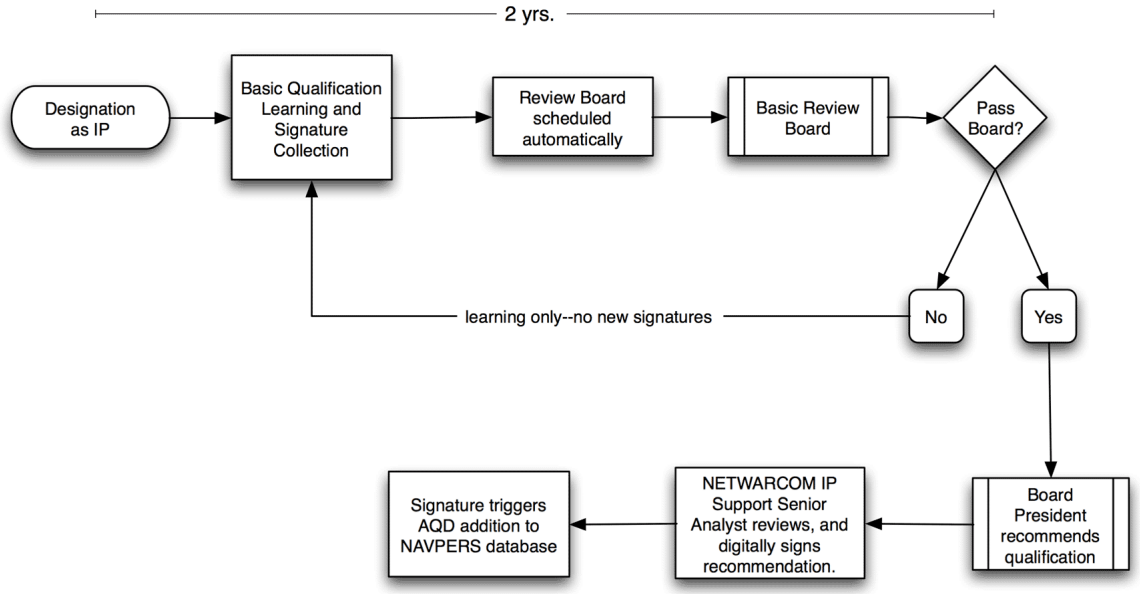

Figure 13. Basic Qualification Workflow — Radical

2. Intermediate Radical Process

The Intermediate Qualification total return on knowledge recovered from its decrease to 27% in the to-be to 37% in the radical, just shy of its original

percentage in the as-is. While the Intermediate Qualification changed materially in the radical design, its knowledge-creating capacity stayed relatively constant.

Figure 14 illustrates the radically revised Intermediate Qualification Workflow. As is clear in the workflow, several steps have been removed or revised.

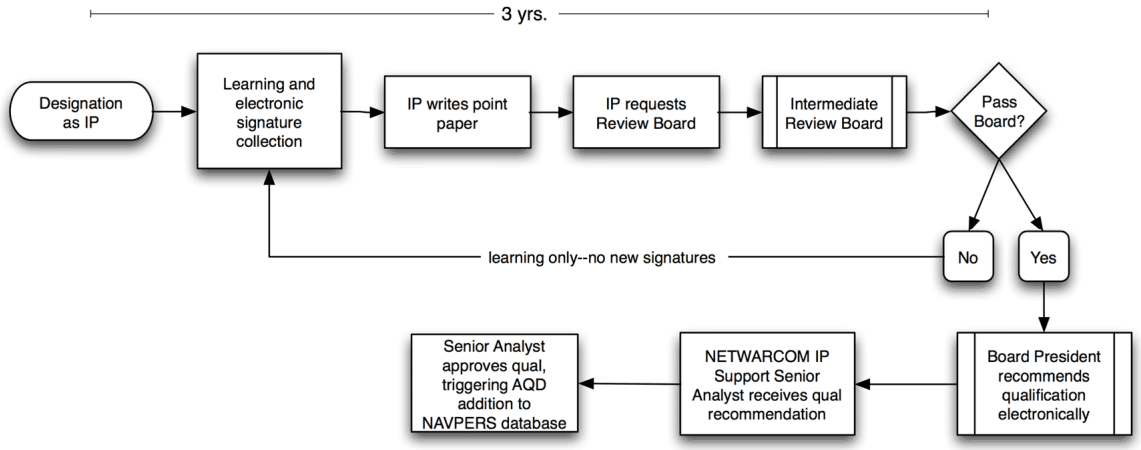

Figure 14. Intermediate Qualification Workflow — Radical

3. Advanced Radical Process

The Advanced Qualification's total return on knowledge increased dramatically from 27% in the to-be to 1518% in the radical. Like in the Intermediate and Basic Qualifications, the addition of a mechanism to automatically trigger the database at Naval Personnel Command to add an AQD to the candidate's service record returned a lot of knowledge to its respective process. This is due, in large part, to the miniscule amount of time required for the process to execute.

Figure 15 illustrates the radically revised Advanced Qualification Workflow. As is clear in the workflow, several steps have been removed or revised.

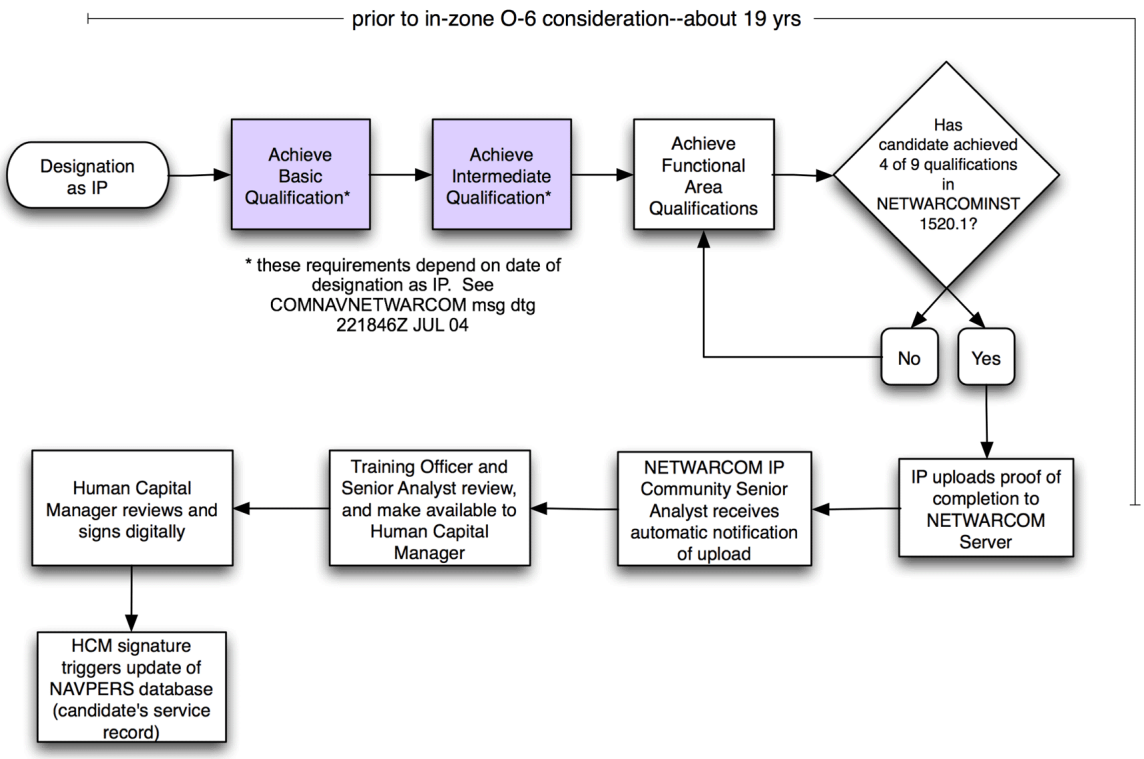

Figure 15. Advanced Qualification Workflow — Radical

	Cognizance	Subprocess	Nbr of pers	Actions per Week	Actual Work Time (hrs)	Actual Learning Time (hrs)	IT %	Total Learning Time (hrs)	Num.	Den.	ROK
1	Qual Candidate	Electronic signature collection / learning	118	2.40	0.17	0.67	50%	1.00	283.65	47.28	60%
2		Attend review board	118	0.01	1.00	1.00	0%	3.00	0.29	0.29	10%
3	Review Board Members	Attend presentation / review board	3	2.27	1.10	1.00	0%	1.00	6.81	7.49	9%
4		Rate performance (website mouseclick)	3	2.27	0.05	0.33	60%	0.53	3.63	0.34	107%
5	IP Community Support Senior Analyst	Review and digitally sign recommendation	1	2.27	0.17	0.75	0%	0.75	1.70	0.38	45%
6		AQD update triggered in service record	1	2.27	0.02	0.25	80%	0.45	1.02	0.04	270%
7		Server maintenance & backups	1	1.00	0.17	4.00	50%	6.00	6.00	0.17	360%
									303.11	55.98	54%

Assumptions:

Line 2: ALT includes one hour of "murder board" time

Lines 3-6: Number of actions per week is actual (number of completed quals divided by weeks the program has been in force)

Line 3: ALT includes at least one hour to sit in on a board as an observer.

Figure 16. Basic Qualification KVA — Radical

	Cognizance	Subprocess	Nbr of pers	Actions per Week	Actual Work Time	Actual Learning Time (hrs)	IT %	Total Learning Time (hrs)	Num.	Den.	ROK
1	Qual Candidate	Electronic signature collection / learning	13	0.94	0.17	0.75	50%	1.13	13.43	1.99	68%
2		Write point paper	13	0.04	3.00	4.00	30%	5.20	2.82	1.63	17%
3		Present point paper	13	0.04	2.00	2.00	30%	2.60	1.41	1.08	13%
4		Attend review board	13	0.01	3.00	3.00	0%	3.00	0.29	0.29	10%
5	Review Board Members	Attend review board	3	0.26	2.00	0.02	0%	0.02	0.01	1.58	0%
6		Rate performance (website mouseclick)	3	0.26	0.17	0.08	0%	0.08	0.07	0.13	5%
7	IP Community Support Senior Analyst	Review and digitally sign recommendation	1	2.27	0.17	0.75	0%	0.75	1.70	0.38	45%
8		Update AQD in NAVPERS database	1	2.27	0.02	0.25	80%	0.45	1.02	0.04	270%
9		Server maintenance & backups	1	1.00	0.17	4.00	50%	6.00	6.00	0.17	360%
									26.7	7.3	37%

Assumptions:

1 week class= 40 hours

Lines 1-4: Number of personnel is number of completions to date divided by 1.5 years

Line 4: Actual learning time is the time required to perform one "murder" board.

Lines 7-8: Number of actions per week is actual (number of completed quals divided by weeks the program has been in force)

Line 5: ALT includes three hours of "murder board" time

Figure 17. Intermediate Qualification KVA — Radical

	Cognizance	Subprocess	Nbr of pers	Actions per Week	Actual Work Time (hrs)	Actual Learning Time (hrs)	IT %	Total Learning Time (hrs)	Num.	Den.	ROK
1	Qual Candidate	Functional Area Qualification collection	42	0.005	3.00	868.00	30%	1128.40	227.85	0.61	3761%
2		Upload proof of completion to NWC server	42	0.005	0.50	0.25	80%	0.45	0.09	0.10	9%
		Automatic notification to Senior Analyst	42	0.005	0.02	0.08	80%	0.15	0.03	0.00	90%
5	IP Community Support Trng Officer and Analyst	Review proof of completion	2	0.88	0.33	1.17	60%	1.87	3.27	0.58	56%
6		Make available to Human Capital Mgr	1	0.88	0.01	0.03	80%	0.06	0.05	0.01	72%
7	Human Capital Management Officer	Review and sign digitally	1	0.88	0.25	0.83	60%	1.33	1.17	0.22	53%
8		Update AQD in NAVPERS database	1	0.88	0.02	0.25	80%	0.45	0.39	0.01	270%
9	IP Community Support Senior Analyst	Server maintenance & backups	1	1.00	0.17	4.00	50%	6.00	6.00	0.17	360%
									232.9	1.5	1518%

Assumptions:

1 week class= 40 hours learning time

It takes 19 years from IP accession to in-zone O-6 consideration

Line 1-3: Number of personnel is the number of completions to date divided by 1.5 years

Line 5: Review learning time includes time to learn the instruction

Lines 5-8: Number of actions per week is actual (number of completed quals divided by weeks the program has been in force)

Line 1: ALT is the average of the different learning times for each FAQ (see "TimeToComplete" tab)

Line 1: AWT is the average of the times required to get a certificate (exams, etc.)

Figure 18. Advanced Qualification KVA — Radical

H. RECOMMENDATIONS

In the play, *King Lear,* the title character said, "You will gain nothing if you invest nothing." That statement is as true in the case of the Electronic Qualbook as it was in *King Lear*. If nothing is done to improve the IP Community's personnel qualification system, no progress will be made toward the admirable goal of Net-Centric Warfare. The IP Community cannot afford to stagnate. Constant improvement must be the steady-state if the Navy is to be victorious in future wars. Therefore, constant improvement is required for the IP Community as well. Web-enabling the Personnel Qualification System is the next step in the long sequence of improvements to come.

Comparison

Figure 19 illustrates the improvements in return on knowledge as a result of the to-be and radical process improvements. Note the negative improvement in the Intermediate Qualification from the as-is to the to-be. That negative improvement is due to the move of the point paper and point paper presentation from the Basic Qualification to the Intermediate Qualification. When the ROK is considered in total, it increased significantly in each phase.

	As Is ROK	To Be ROK	change	Radical ROK	change
Basic Qualification	34%	52%	51.9%	54%	4.2%
Intermediate Qualification	40%	27%	-31.9%	37%	34.4%
Advanced Qualification	1356%	1372%	1.2%	1518%	10.6%
Total	1431%	1451%	1.4%	1609%	10.9%

Figure 19. Comparison of the ROK in each of the qualifications between the as-is, to-be and radical designs.

III. DECISION ANALYSIS

A. COMPARISON OF POSSIBLE SOFTWARE AND HARDWARE SOLUTIONS

There are three basic information technology architectures. They are mainframe architecture, file server architecture and client/server architecture. Between 20 and 50 years ago, when computing was a new technology, information technology architecture was monolithic, based on mainframe computers. Mainframes were exorbitantly expensive, difficult to operate, often unreliable, and required operators with extensive training. What's more, they were unable to share their data or distribute the load of large computing tasks. Today, IT architecture is, invariably, built on some form of a distributed system. "A distributed system is one in which, the components of an information system are distributed to multiple locations in a computer network." (Whitten, Bentley and Dittman 2004, 509) The file server and client/server architectures are forms of distributed systems. However, distributed systems are, themselves, complicated and more difficult to implement than a centralized, monolithic system. So why bother? The most important benefits of a distributed system include:

- They move information and services closer to the customers that need them.
- They consolidate the incredible power resulting from the proliferation of personal computers (PC) across an enterprise. Many of these PCs are only used to a fraction of their processing potential when used alone.
- They are more user-friendly because they use the PC as the user interface processor.
- They are much less expensive than mainframes. (Whitten, Bentley and Dittman 2004, , 510)

The client/server architecture is the most prevalent architecture today. It can be broken down into, at least three components, the 2-tier client/server with distributed presentation, the 2-tier with distributed data, and the n-tier client/server. The term, tier, refers to the layers in a client/server architecture. These layers include:

- Presentation—the actual user interface or presentation of inputs and outputs to the user
- Presentation Logic—the processing that must be done to generate the presentation.
- Application Logic—the processing required to support the actual business application and rules.
- Data Manipulation—the commands and logic required to store and retrieve data to and from the database.
- Data—the actual stored data in a database. (Whitten, Bentley and Dittman 2004, , 510)

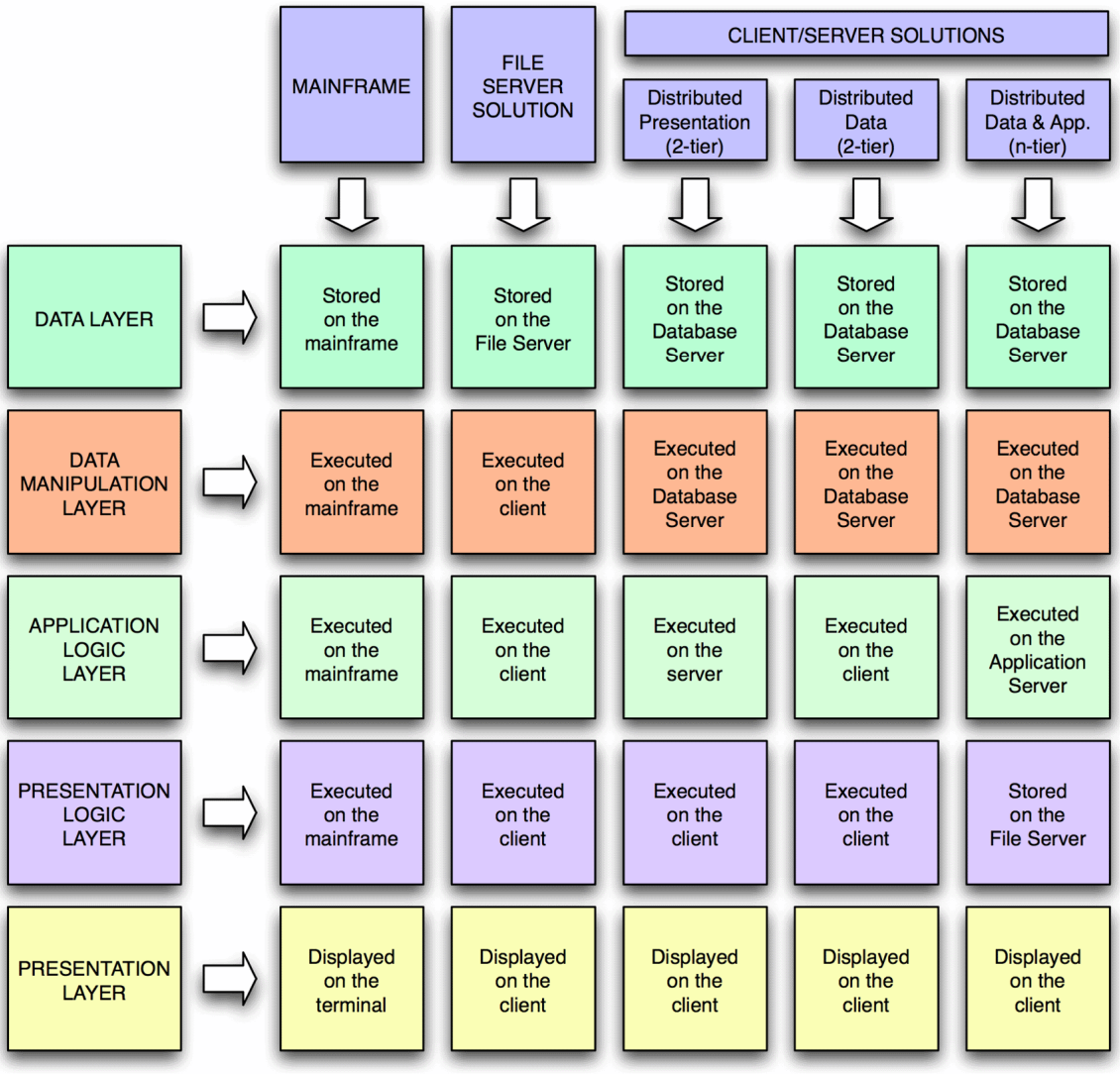

Figure 20. Types of distributed computing and systems (after Whitten, Jeffrey L., et. al., *Systems Analysis and Design Methods,* figure 13-4)

Both the mainframe and the file server architectures are patently inappropriate for a Web-enabled qualbook. By definition, such an application requires a web, a network of computers. Therefore, I will only address the feasibility of two-tier and n-tier client/server architectures.

A client/server system is a solution in which the presentation, presentation logic, application logic, data manipulation, and data layers are distributed between client PCs and one or more servers. (Whitten, Bentley and Dittman 2004, 512) The client PCs may be comprised of desktops, workstations, laptops, thin clients, fat clients, mobile phones, or handheld computers. A server in the client/server model is generally a very capable machine. Sometimes, mainframes play the role of servers. Typically, servers are powerful workstations or rack-mounted computers running operating systems that enable them to act as servers. Often, those operating systems are Windows Server 2003, UNIX, Linux, or Mac OS X Server. Listed below are several different types of servers. Sometimes, different server functionalities reside on the same machine. Often, they are split among different machines.

- Database Server—hosts one or more shared databases (like a file server) but also executes all database commands and services for information systems (unlike a file server). Most database servers host an SQL database engine such as Oracle, Microsoft SQL Server, or IBM Universal Database.
- Transaction Server—hosts services that ultimately ensure that all database updates for a single business transaction succeed or fail as a whole. Examples include IBM CICS, BEA Tuxedo, and Microsoft Transaction Server.
- Application Server—hosts application logic and services for an information system. It must communicated on the front end with the clients (for presentation) and on the back end, with database servers for data access and update.
- Messaging or Groupware Server—hosts services for email, calendaring, and other work group functionality. Examples include Lotus Notes and Microsoft Exchange Server.
- Web Server—hosts Internet or intranet Web sites. It communicates with fat and thin clients by returning to them documents (in formats

such as HTML and data (in formats such as XML). Examples include Microsoft Internet Information Server and Apache HTTP Server. (Whitten, Bentley and Dittman 2004, , 513)

A two-tier client/server architecture can be further delineated by whether it distributes the presentation of the data or the data itself. A distributed presentation system is a solution in which the presentation and presentation logic layers are shifted from the server of a legacy system to reside on the client. (Whitten, Bentley and Dittman 2004, 513) Often, two-tier systems that distribute the presentation of data simply take the text output of legacy mainframe systems and re-present it graphically. For this reason, it is sometimes referred to as "the poor man's client/server." (Whitten, Bentley and Dittman 2004, 513)

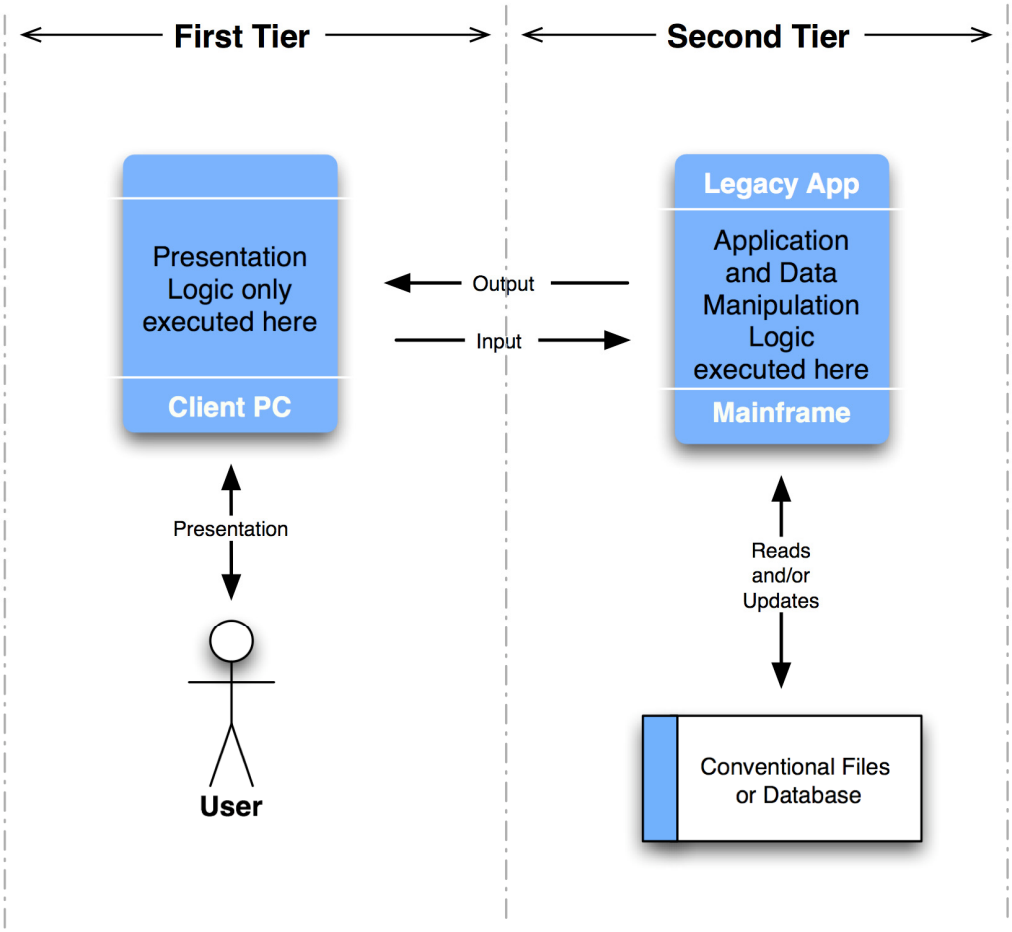

Figure 21. Client/server system: Distributed presentation (after Whitten, Jeffrey L., et. al., *Systems Analysis and Design Methods,* figure 13-7)

With a distributed data system, the data and data manipulation layers remain on the server, but the application logic, presentation logic, and presentation are shifted to the client. It is the simplest form of a true client/server solution.

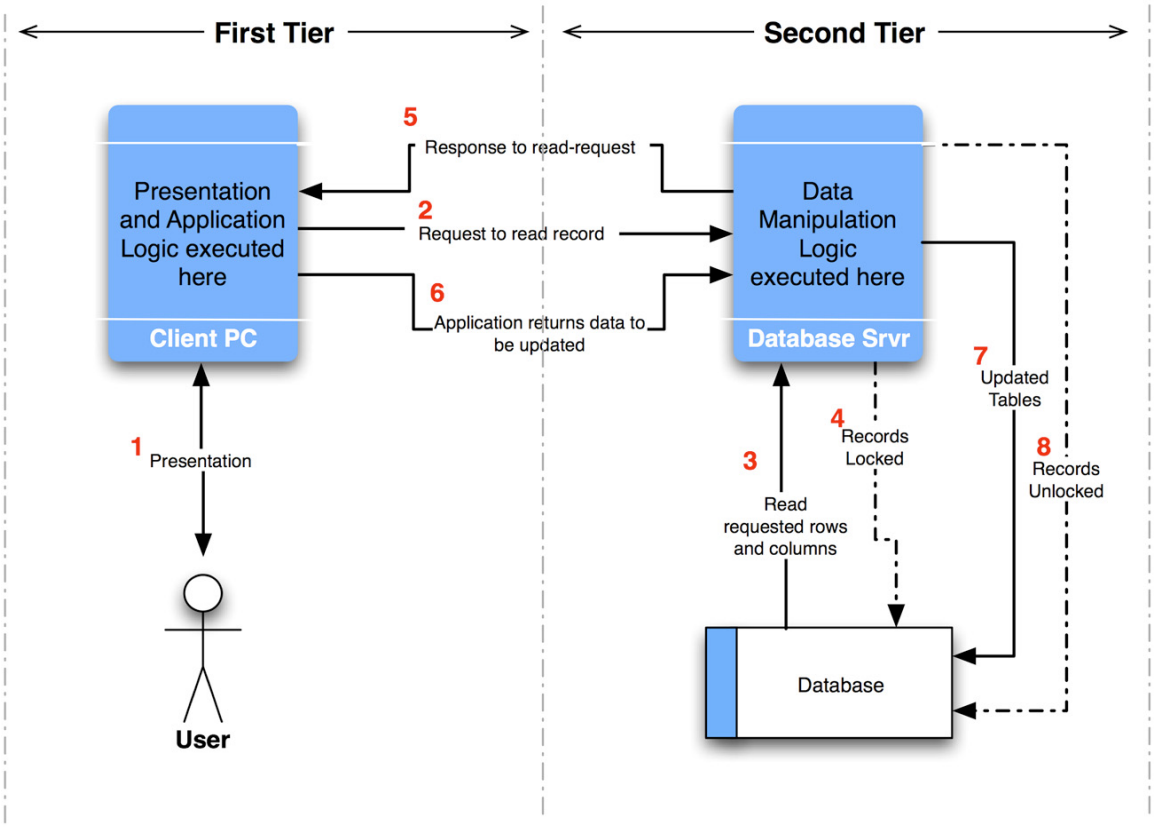

Figure 22. Client/server system: Distributed data (after Whitten, Jeffrey L., et. al., *Systems Analysis and Design Methods,* figure 13-8)

As the number of clients grows, two-tier systems start to perform poorly. These performance problems are related to the inefficiency of executing all of the application logic on the clients. (Whitten, Bentley and Dittman 2004, 516) A three-tier (or n-tier) system places the data and data manipulation on a server that is separate from the application server. The client handles presentation and presentation logic. This results in a more efficient and scalable architecture than would be possible in a two-tier, file server, or mainframe system.

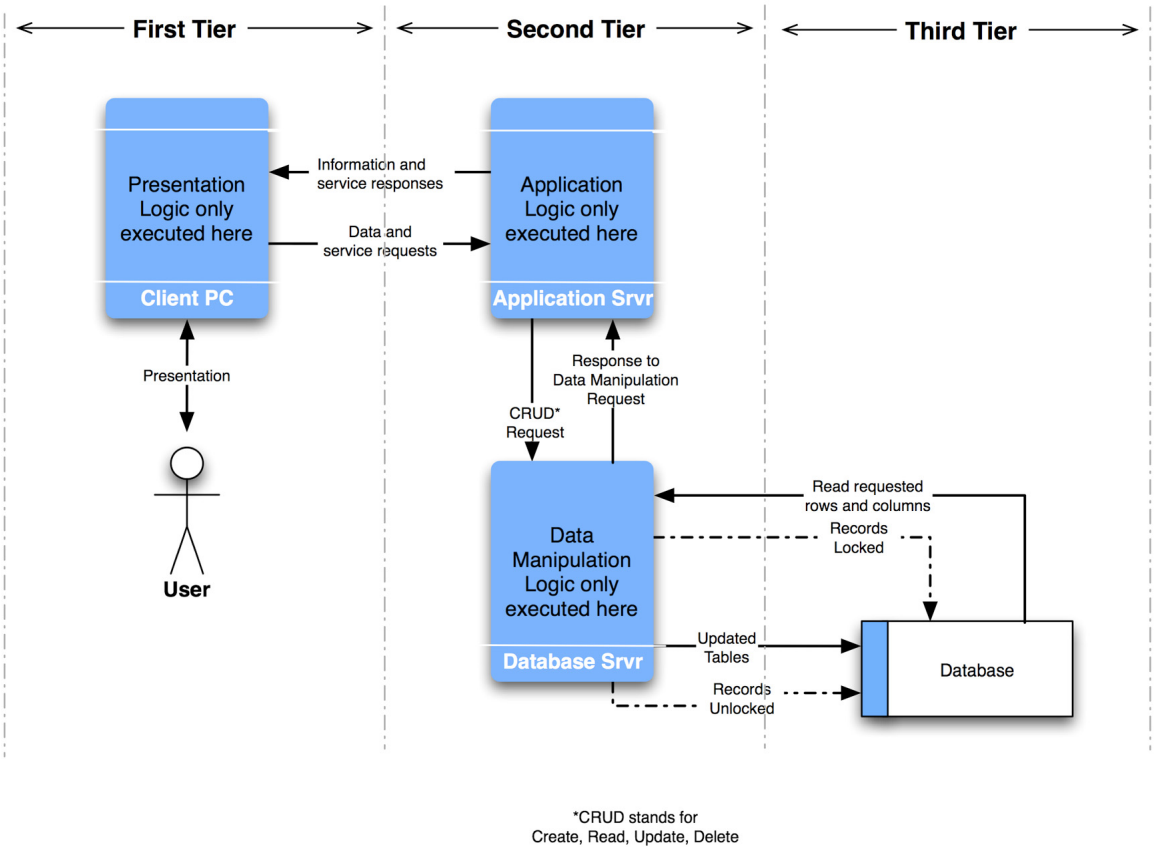

Figure 23. Client/server system: Distributed data and application (three tiers), (after Whitten, Jeffrey L., et. al., *Systems Analysis and Design Methods,* figure 13-9)

Whitten, et. al. (2004), states that the most difficult aspect of the three-tier system is deciding how to partition the network. Partitioning is the act of splitting or duplicating application components across the network. However, Whitten also states that new computer-aided software engineering (CASE) tools are making this task much simpler.

A three-tier system is very beneficial because the clients execute a minimal amount of the business logic, making their configuration very simple. In the case of a Web-based qualbook for IPs, there is no way the administrator of the system could ever get access to all of the clients accessing his system. Even if he could, it would take much too long to configure the 400+ clients. Management of a Web-based qualbook using a two-tier or other architecture would be a nightmare. Therefore, in developing the prototype, a three-tier architecture will be utilized.

Now that the decision to use a three-tier architecture has been made, it is necessary to settle on a specific technological implementation. There are several page scripting and database technologies available. Page scripts are small bits of code embedded in HTML pages that automate the behaviors of a Web page. Page scripts come in two varieties: client-side scripts and server-side scripts.

"Client-side scripting generally refers to the class of computer programs on the Web that are executed client-side, by the user's Web browser, instead of server-side…[Client-side scripts] enable Web pages to have different and changing content depending on user input, environmental conditions (such as the time of day), or other variables." (Wikipedia 2005a) "Server-side scripting is a Web server technology in which a user's request is fulfilled by running a script directly on the Web server to generate dynamic HTML pages. It is usually used to provide interactive Web sites that interface [with] databases or other data stores." (Wikipedia 2005c) The purpose of the Web-enabled qualbook is to provide access to a database of Information Professional qualifications. Therefore, the primary enabling technology to be used in the prototype will consist of scripts embedded in Web pages and executed on the server (server-side).

Of the page scripting technologies, Java Server Pages (JSP), PHP: Hypertext Preprocessor (PHP), Active Server Pages (ASP), Active Server Pages .NET (ASP.NET), and ColdFusion (CF) are the most prevalent. The database technologies are myriad, but the most prevalent are Microsoft Access, Microsoft SQL Server, MySQL, and Oracle 10g. In order to serve the users well, it will be important to make the best choice among these technologies.

1. Java Server Pages

JSP is a part of a software technology developed by Sun Microsystems called Java. Traditionally, in order for software developed on a Windows PC to

run on a Mac, it must be “ported” to the Mac’s computing environment.[2] Often, porting software to different computing environments is expensive and time-consuming. The intent of Java is to enable inexpensive, easy portability for traditional computing environments, as well as emerging computing environments such as handheld computers, digital video recorders, mp3 players, and Web-enabled refrigerators. In the parlance of Sun Microsystems, Java enables “Write Once, Run Anywhere Technology.” Software written in Java is compiled to “byte code.” That byte code is interpretable by the Java Virtual Machine (JVM). There are versions of JVM available for many computing environments. Java Applets are small programs sent to the browser by a Web server. They require JVM to run on a client. JVM, however, is not required in order to display Java Server Pages in a browser.

JSP uses Java Technology to produce Web sites that are independent of browser type, and more importantly, of server type. Proprietary scripting languages, such as ASP, require certain server software, such as Microsoft’s Internet Information Server (which runs only on Windows machines), to run properly. JSP’s greatest benefit is that it runs on any server, as long as that server has Java installed on it. What’s more, a license for Java costs nothing.

As far as performance goes, Dyck (2000) found that JSP was less that a third the speed of ASP and PHP and less than half the speed of ColdFusion. This result was not corroborated by El-Zoghabi, et. al. (2004). They found that JSP (in a tie with ASP.NET) was the best performer among four languages tested (JSP, PHP, ASP, and ASP.NET), but only when it was used in conjunction with Oracle 9i (Oracle 10g is the current version).

2. PHP: Hypertext Preprocessor

PHP succeeds an older product, named PHP/FI. Initially, Rasmus Lerdorf created PHP/FI in 1995, as a simple set of Perl scripts for tracking accesses to his online resume. He named this set of scripts 'Personal Home Page Tools'.

[2] The term computing environment refers to the combination of central processing unit, operating system, available programming languages, and hardware available on a type of computer, be it a Mac, SGI Workstation, mainframe, etc.

He subsequently wrote an implementation of his Personal Home Page Tools in *C* which was able to communicate with databases. He called this implementation Personal Home Page / Forms Interpreter (PHP/FI). (PHP 2003) Since then, PHP has had several version releases. The latest, PHP 5.0 was released in July 2004. Today, several million Web sites have PHP installed on their server. (PHP 2003)

PHP is an open-source page scripting language that was developed with the intent of being fast and easy, yet powerful. PHP can be used on all major operating systems and most major Web servers including Apache (used in Mac OS X as well as others), Microsoft IIS, and Microsoft Personal Web Server (the precursor to IIS), among others. PHP also supports 22 different database technologies as well as those that use the Open Database Connection (ODBC) standard. Such a broad range of interoperability gives the system administrator an incredible number of options when deciding on a hardware/scripting language/database solution.

Because PHP is open-source, there is no charge for using it. When used with MySQL and Apache, which are also open-source, the only cost of providing a Web site comes from hardware and maintenance. While PHP is significantly faster than ASP (see Figure 8) at processing code, it is not faster than JSP or ASP.NET. Its real speed comes in development because developers do not have to bother themselves with low-level, file manipulation code.

3. Active Server Pages

Microsoft ASP began as a public beta in October 1996 as an upgrade to Internet Information Server 2.0. (Lee 2005, 8) It went through several intermediate release versions until its current form, 3.0. ASP uses a scripting language as its underpinnings. Commonly, VBScript is the default scripting language, but it is a relatively simple task to use ASP with JavaScript as well.

ASP is integrated with Microsoft IIS, which comes standard with Windows XP Professional and Windows 2000. So, while PHP can be used with free, open-source operating systems such as the Fedora implementation of Linux,

ASP can only be used with the Windows operating system. Windows XP Professional currently costs about $200. Therefore, while a Web site running Apache and PHP can be implemented for free, the minimum cost for a Web site running ASP is the cost of the Windows operating system. Granted, most new home PCs come with Windows pre-installed, but the same is not true for new servers.

As far as performance goes, ASP is about 5-10% slower on average than other technologies (see Figure 8). The reason for poorer performance can likely be attributed to the fact that it uses VBScript or JavaScript. "Using a scripting language has its flaws; code is interpreted rather than compiled." (Lee 2005, 8) Therefore, central processing unit (CPU) clock cycles must be apportioned to the code interpreter, whereas if the code had already been compiled, no interpreter would be necessary.

4. ASP.NET

In early 2000, Microsoft introduced the new .NET Framework, and together with it, introduced the upgrade of ASP: ASP.NET 1.0. (Lee 2005, 8) It was upgraded since then to 1.1 and 2.0 is scheduled for release in November of 2005. ASP.NET's primary advantage is that developers are not restricted to scripting languages. Instead, they can write their Web applications in fully developed programming languages such as C#, J#, and VB.NET. While using such languages requires training in the use of those languages, it also provides a considerable speed advantage and provides the ability to interface Web applications with legacy stand-alone applications that have been written in the supported languages.

ASP.NET pages use the *.aspx* extension. This is to ensure that ASP.NET is able to run side by side with classic ASP on the same server, which uses the extension *.asp*.

HTTP is stateless, meaning that the server makes no attempt to remember what the user has previously requested. However, when writing a Web application, it is often necessary to ensure that the server remember

previous requests and variables. To enable stateful processing in ASP, it is often necessary to write pages of code. Luckily, over the years, many mechanisms have been developed to simplify this. They include cookies and query strings. ASP.NET accomplishes stateful processing in its runtime,[3] without requiring developers to write extra code.

ASP.NET is only available on computers running the Windows operating system, including Windows 2000 Professional and Server, Windows XP Professional, and Windows Server 2003.

5. ColdFusion

ColdFusion has been around since 1995, when it was first developed by a company called Allaire Corporation. Macromedia, developer of Web design powerhouse, Dreamweaver, acquired Allaire in January of 2001. The merger of the two companies was intended to enable Web developers to design the look of a Web site and the application logic supporting it with an interoperable suite of software products.

Unlike ASP and JSP, ColdFusion is tag-based, rather than script-based. (West and Muck 2004, 1008, 25) Like PHP, however, ColdFusion uses its own tag-based language, designed expressly for Web development. (Page scripting: simpler app servers) As a result, ColdFusion has become exceedingly popular with Web designers who, by their nature, are already quite comfortable with tags.

ColdFusion is just as capable as JSP or ASP and using predefined tags allows a ColdFusion developer to code a page with the same functionality as a JSP or ASP page in much fewer lines of code and much less time. Timothy Dyck (2000) said, "[ColdFusion] provides a rich [application programming interface] combined with the easiest programming language and the best administration, performance monitoring, development and debugging tools we tested."

[3] Runtime refers to when the program is actually executing, or running. Runtime also refers to a runtime library which is a collection of executable software functions in the machine language of the target computer. (from PC Magazine dictionary: http://www.pcmag.com/encyclopedia_term/0,2542,t=runtime+library&i=50734,00.asp)

ColdFusion MX 7 runs on Windows, Linux, and UNIX (including Mac OS X) making it one of the most portable application servers available. ColdFusion Developer Edition is free and is for development purposes only. In order to run it on a production Web server, one must buy the Standard Edition license at a cost of $1,299 per server (up to two CPUs) or the Enterprise Edition license at a cost of $5,999 per server (also up to two CPUs).

6. Microsoft Access

Microsoft Access is one of the most popular relational databases available. It comes as part of Microsoft Office, the *de facto* standard in office productivity suites. It can also be bought separately for $229. Access is a member of a family of file-based databases called Indexed Sequential Access Method (ISAM) databases. (West and Muck 2004, 1008, 34) ISAMs typically create a file on the same server on which your Web application resides. This file can be accessed through a driver without having the database application that created the file installed on the server. Typically, ODBC is the driver that is used to access the file.

Access is powerful enough for a small database on a site with moderate or low traffic. It can hold up to 2 GB per table and can support up to 255 concurrent connections. (West and Muck 2004, 1008, 34) However, 255 connections is a theoretical maximum and one could expect significance performance problems well before reaching 255 connections.

Of greater concern is the fact that the database file resides on the Web server itself. This is dangerous because it makes it that much easier for attackers to get to the database. If the database file itself is not password-protected, as is often the case, it is remarkably easy to steal the information inside it. One can mitigate this problem, however, by placing the database file in a folder on the server with more restrictive permissions than that of the folder containing the Web site's pages. It is also of utmost importance that the

database administrator ensure that the database file is protected with a strong password.[4]

7. Microsoft SQL Server

While Access is simple and inexpensive to develop in, SQL Server is a true database server that uses as its core language, Transact-SQL (T-SQL). T-SQL is Microsoft's proprietary extension to SQL-92 (the ISO standard for SQL, certified in 1992). (Wikipedia 2005b) The first version of Microsoft SQL Server was version 4.2 for OS/2. It was first marketed in 1992 and evolved over the years into its current form, SQL Server 2000, which was released in August of 2000.

SQL Server 2000 is an enterprise-level RDBMS, with robust capabilities such as record locking, stored procedures, triggers, and enhanced security. It can hold a staggering amount of data—1,048, 516 TB, to be exact. The number of simultaneous connections to the database is limited only by the "number of 'software licenses' for connections configured in the operating system." (Simmons 2002, 144, 78) SQL Server 2000 comes in two editions, Enterprise and Standard. Enterprise Edition costs $19,999 for a single processor, while Standard Edition costs $4,999 for a single processor.

8. MySQL 5.0 Server

MySQL is an open-source relational database. It was first released to the public in 1996 and since then, has developed into a very powerful database server. Like its capabilities, MySQL's popularity has grown over the years. Indeed, "MySQL has proven to be a lightning fast and reliable database solution for a growing number of companies such as SGI, ValueClick, Nortel/Insight, Tucows.com, Cisco and many more." (Gesker 2001)

MySQL is available for Windows, Linux, UNIX, Mac OS X and Novell Netware. MySQL also supports advanced features like record locking, triggers, and stored procedures. As an open-source application, MySQL is free to use, adding to its appeal.

[4] A strong password is usually comprised of more than eight characters and is comprised of letters mixed with special characters. Passwords with more characters (greater keyspace), are stronger passwords.

9. Oracle 10g

Oracle produced the first commercial RDBMS in 1979 and the first Web-enabled database in 1997, fueling the current push toward Web-enablement in business and in the military. Oracle 10g is an enterprise RDBMS commonly used by organizations with local or global reach. (Simmons 2002, 144, 75) Proper utilization of an Oracle database usually requires database administrators with extensive training. However, Oracle does offer Oracle 10g in four different editions, Enterprise Edition, Standard Edition One, Standard Edition and Personal Edition. Any number of users can access Enterprise Edition, but it is limited to an astounding 8 exabytes (10^{18} bytes) of data. By comparison, a megabyte is 10^6 bytes. Standard Edition supports up to 1000 users and is limited to 500 GB (a gigabyte equals 10^9 bytes) of data. Standard Edition One supports a maximum of two CPUs while Standard Edition supports a maximum of four CPUs. Personal Edition is limited to development of databases and applications on one workstation.

Oracle 10g Enterprise Edition costs $40,000 per CPU, but Standard Edition costs much less, $15,000 per CPU. However, the Navy has entered into a Blanket Purchase Agreement (BPA) with Oracle that provides Oracle software to all shore-based Navy activities at a 75 to 84 percent discount from the retail price. While the BPA with Oracle reduces the costs of implementing a web-enabled database significantly, those costs are still much more than other options available.

10. Summary

In order to assist in deciding which software/hardware configuration is the best one to fulfill the requirements for a Web-enabled qualbook, it is necessary to first rank, in order of priority, the pertinent decision factors. The factors are:

- Interoperability
- Security
- Cost
- Performance

a. Interoperability

The Navy and Marine Corps have recently begun the transition to the Navy and Marine Corps Intranet (NMCI). NMCI is an enterprise-level initiative to link over 360,000 shore-based computers and servers in a single network with centralized management and configuration control. In order to maintain the network, NMCI has adopted and enforced controls for Web services. New Web sites are treated as applications within NMCI and usually go through the same certification process that NMCI software goes through. In order to ensure interoperability and to streamline accreditation of a new Web-Enabled Qualbook for IPs, it should not require any client-side scripting. Because most of the 360,000 computers across the Navy enterprise will be running a Windows operating system, a new Web-Enabled Qualbook should take advantage of this fact by using ASP or ASP.NET and a Windows-based server. Additionally, it should take advantage of the single sign-on capability of Navy Knowledge Online.

b. Security

Because the Web-Enabled Qualbook could be considered a critical application if fully-implemented and because it could one day grow to serve more communities than the IP community, security should be of utmost concern. Due to the time and space limits placed on this thesis, the security concerns of developing a Web-enabled database will not be explored fully here.

c. Cost

The Navy has an enterprise architecture based on Windows Operating Systems and has already secured Blanket Purchase Agreements with Microsoft and vendors that supply applications for Windows. Additionally, the NMCI contract provides for maintenance of Windows-based servers. Although Linux-based servers may be connected to the NMCI network, qualbook servers should take advantage of the provisions of the NMCI contract and be installed with Windows Server 2003.

However, the database application itself does not necessarily need to be proprietary (expensive) software. The cheapest possible scenario would use a server computer running a Linux operating system, Apache HTTP Server, and MySQL Server with a total software cost of zero dollars. However, the other considerations make this scenario unlikely. See the section entitled, "Selected Solution to be Developed" for the final solution.

d. Performance

Because the Web-Enabled Qualbook could serve as the basis for an enterprise-wide qualbook in the future, performance could one day be an important issue. Therefore, performance of possible solutions must be considered early-on. Figure 8 illustrates the performance of four different scripting technologies when used with four different database technologies.

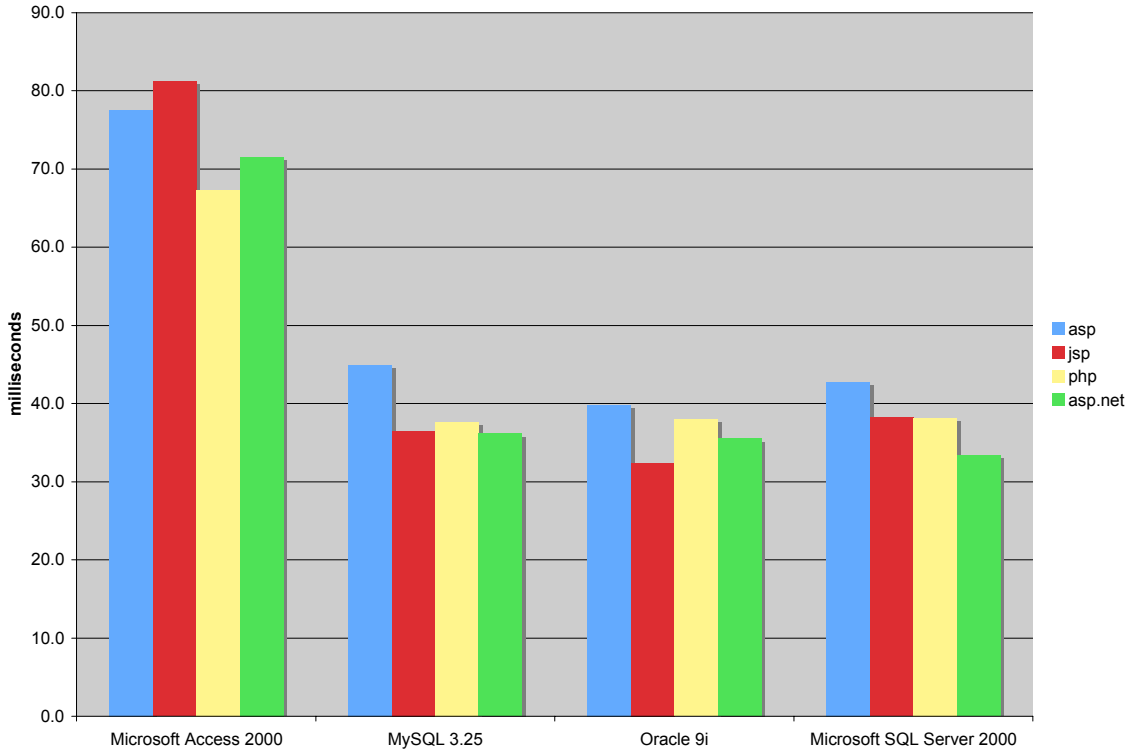

Figure 24. Comparison of scripting language response times when used with different databases (adapted from El Zoghabi, et. al., "Performance Study of Several DBMS Connectivity Using Different Server Scripting Environments," figs. 2-6)

B. SELECTED SOLUTION TO BE DEVELOPED

The author developed the prototype that follows with much help from a fellow IP, LT Greg Taylor and a Saudi student at Naval Postgraduate School, Ma'an Aseeri. We chose a server running IIS because it was the only one available to us. We chose Microsoft Access because it was freely available through NPS' IT department and because we all were familiar with the software. We chose ASP with VBScript because it was available and we already possessed the requisite skills with the software. Because this is a prototype, a demonstration of the technologies and what can be accomplished using them, performance, security, and interoperability did not factor into our decision.

However, enough experience was gained in the building of the prototype and the research that preceded it, that a recommendation can be proffered for the development of a fully operational electronic qualbook. The most important consideration to take into account while choosing a set of technologies is the environments that the end-users will be accessing the qualbook from. The vast majority of computers that navy personnel use run Windows operating systems on Intel or AMD processors. While it is not a good idea to restrict users of an electronic qualbook to Windows machines, doing so when necessary will likely be acceptable to the vast majority of potential users.

Due to the limitations of NMCI and IT-21, the Navy's shipboard computing architecture, any operational electronic qualbook should be fully compatible with those architectures. Microsoft Access is dramatically slower than all of the other options and should not be used for an operational system. A qualbook database implemented in Microsoft SQL Server would be just as fast as one implemented in MySQL or Oracle, but would certainly be compatible with the NMCI and IT-21 environments.

Implementing a database in SQL Server on a machine running Windows and IIS and using ASP as its scripting language presents several security risks, which, on their own, could be the subject of another thesis. However, it is the

opinion of the author that those risks can be adequately mitigated by timely patches and updates.

Interoperability with systems running OSs other than Windows can be achieved by ensuring that no code is executed client-side. If code must be executed on the client machines, interoperability can and should be maintained by executing the instructions in blocks of JSP code.

With all of these things taken into consideration, a future electronic qualbook should be implemented on a Windows-based server that is properly and systematically patched. The database should be implemented in Microsoft SQL Server (again, properly patched) and accessed via IIS on the server with ASP as the scripting language. However, if client-side scripts are to be executed, the scripting language should be JSP.

IV. DATABASE DESIGN AND INTEGRATION

A. DATABASE DESIGN AND INTEGRATION

1. Entities

An entity-relationship model is a common method of describing all of the data for an organization or business area. "The E-R model is expressed in terms of entities in the business environment, the relationships (or associations) among those entities, and the attributes (or properties) of both the entities and their relationships." (Hoffer, Prescott and McFadden 2005, 700) In a relational database such as Access, entities are often referred to as tables. The entities or tables that comprise the qualbook database are listed in Appendix A.

2. Database Schema Design

The E-R model is often expressed in graphical form using an E-R diagram. Figure 9 explains the symbols used in the E-R diagram. Figure 10 shows the E-R diagram for the prototype electronic qualbook.

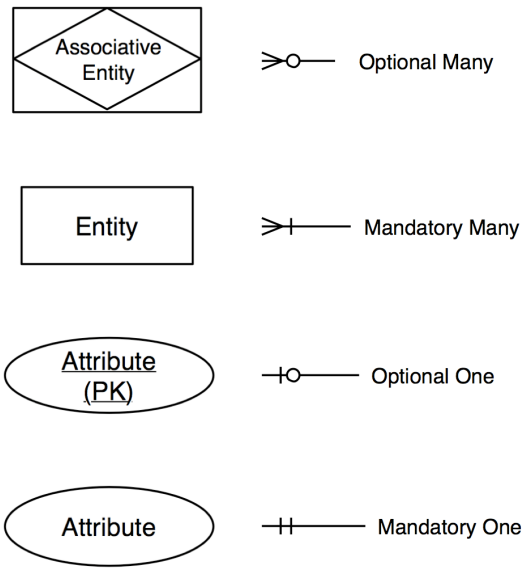

Figure 25. Entity Relationship Diagram Legend

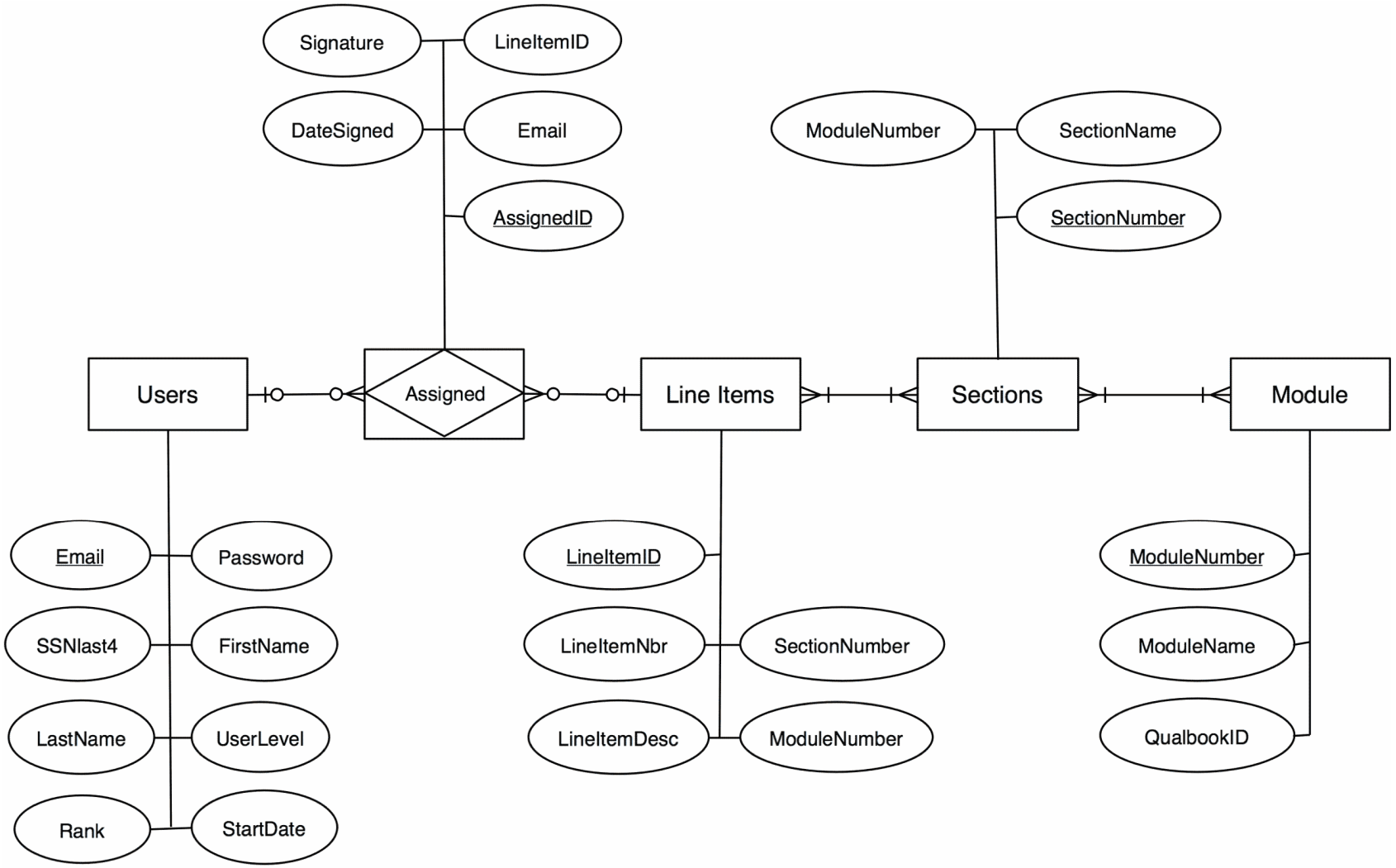

Figure 26. Entity-Relationship Diagram

Microsoft Access models the relationships between its entities differently from the E-R diagram above. In the Microsoft model in Figure 27, entities are represented by tables. Lines link the primary keys and foreign keys in each table. Cardinality is represented by a one or by an infinity symbol (looks like a figure eight on its side). Joins are indicated by an arrowhead.

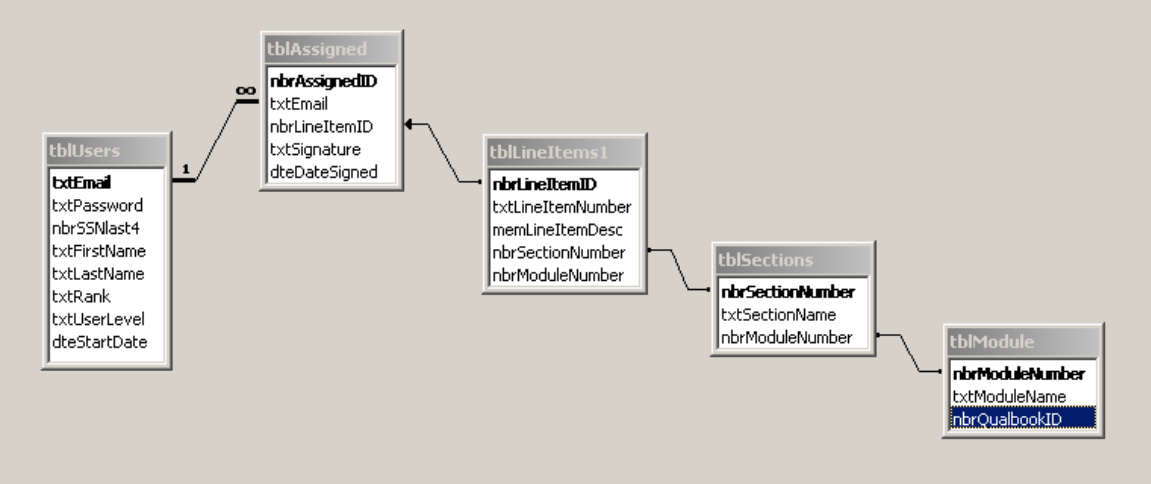

Figure 27. Electronic Qualbook Database Relationships

Figure 27 conveys essentially the same information as Figure 26. It is provided for readers more familiar with the Microsoft Access Relationships mode that the E-R diagram.

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V. CONCLUSION

A. CONCLUSION

The purpose of this thesis was to analyze the potential knowledge value that could be added to the PQS by web-enabling it. Secondarily, the purpose was to develop a prototype web-enabled database as a demonstrator of the technologies available and the potential capabilities of any future implementation. Once the KVA was complete and it could be shown that web-enabling the database is an endeavor that has the potential to make the PQS process more "knowledge-creating," a prototype Electronic Qualbook was developed using Microsoft IIS and ASP with VBScript and a Microsoft Access back-end. Since the goal of the thesis has been fulfilled, the purpose of this chapter is to present some conclusions, recommendations and areas of further research to enhance the Electronic Qualbook and ensure the success of any future operational implementations.

The IP Community (and the rest of the Navy, for that matter) is currently using a paper-based system to qualify its officers. That system is inefficient and presents a single point of failure: the qualbook. If the candidate loses his qualbook, theoretically, he must re-do all of the signatures previously completed.

B. RECOMMENDATIONS

KVA analysis has shown in this thesis that web-enabling the system will make the process more knowledge-creating. Indeed, the total return on knowledge for all three processes increased from 1431% to 1451% and then again from 1451% to 1609%. The more knowledge value added to an organization by a process, the more dominant that organization can be in its particular field. Since the grand strategy for the US military includes the goal of information dominance, web-enabling the qualification process should be researched, planned and undertaken as soon as possible.

Using the lessons inherent in this thesis, other theses, and the knowledge gained through experience, the IP Community should put its intrinsic talents to

work and develop a web-enabled personnel qualification system that is integrated with Navy Knowledge Online and the Five Vector Model, the Navy's new paradigm for personnel management.

C. FUTURE RESEARCH

While this thesis addressed topics such as community background, database design and KVA, there are several issues that should be addressed before commitment of resources to developing an operational electronic qualbook. One of those issues is that of the pragmatics of utilizing the digital signatures on the Common Access Card. In order to ensure the identity and qualification of the Subject Matter Experts signing knowledge line items, any future operational Electronic Qualbook should utilize the digital signatures that all naval personnel have embedded in their military identification cards or Common Access Cards.

Additionally, the extreme limits placed on the bandwidth pipes between the shore and ships at sea, must be eased. If the Navy is really committed to Web-enablement of routine operations, and net-centric warfare, great strides must be made in the bandwidth available to the deckplate sailor. As it is now, that bandwidth is inadequate to support Web-enablement of even the most critical information systems, let alone, second-string systems devoted to personnel and human resource management.

APPENDIX A. ENTITIES

Entity Name: **tblUsers**				
Key	**Attribute**	**Data Type**	**Size**	**Example Instance**
Primary	txtEmail	Text	50 char.	gwen@nodoubt.com
	txtPassword	Text	50 char.	pwd
	nbrSSNlast4	Number	2 bytes	5555
	txtFirstName	Text	50 char.	Gwen
	txtLastName	Text	50 char.	Stefani
	txtRank	Text	50 char.	LCDR
	txtUserLevel	Text	50 char.	Admin
	dteStartDate	Date/Time	8 bytes	12-Dec-2004

Table 1. tblUsers Attributes

Entity Name: **tblAssigned**				
Key	**Attribute**	**Data Type**	**Size**	**Example Instance**
Primary	nbrAssignedID	Number	4 bytes	1
	txtEmail	Text	50 char.	gwen@nodoubt.com
Foreign	nbrLineItemID	Number	4 bytes	55
	txtSignature	Text	50 char.	Gwen Stefani
	dteDateSigned	Date/Time	8 bytes	14-Nov-2001

Table 2. tblAssigned Attributes

Entity Name: **tblLineitems**				
Key	**Attribute**	**Data Type**	**Size**	**Example Instance**
Primary	nbrLineItemID	Number	4 bytes	21
	txtLineItemNumber	Text	50 char.	304.b
	memLineItemDescription	Memo	65,535 char.	How is the maritime picture fused into the COP?
Foreign	nbrSectionNumber	Number	4 bytes	304
	nbrModuleNumber	Number	4 bytes	3

Table 3. tblLineItems Attributes

Entity Name: **tblSections**				
Key	**Attribute**	**Data Type**	**Size**	**Example Instance**
Primary	nbrSectionNumber	Number	4 bytes	401
	txtSectionName	Text	100 char.	Basic Satellite Communications Theory
Foreign	nbrModuleNumber	Number	4 bytes	4

Table 4. tblSections Attributes

Entity Name: **tblModule**				
Key	**Attribute**	**Data Type**	**Size**	**Example Instance**
Primary	nbrModuleNumber	Number	4 bytes	6
	txtModuleName	Text	50 char.	Chief Information Officer
	nbrQualbookID	Number	4 bytes	243

Table 5. tblModule Attributes

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APPENDIX B. SCREENSHOTS

This appendix contains pictures of the IP Electronic Qualbook prototype.

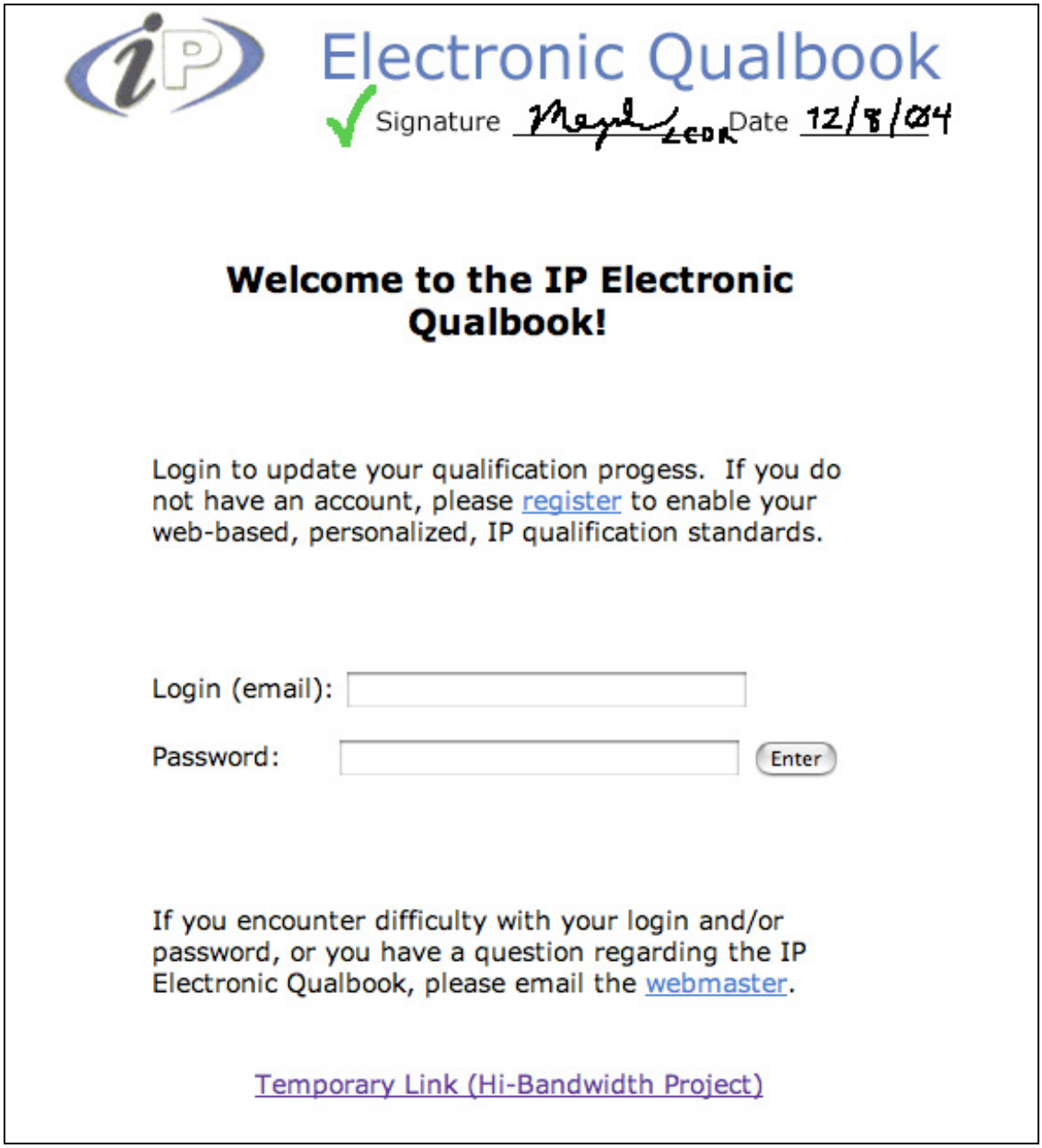

Figure 28. Login Page (Low Bandwidth)

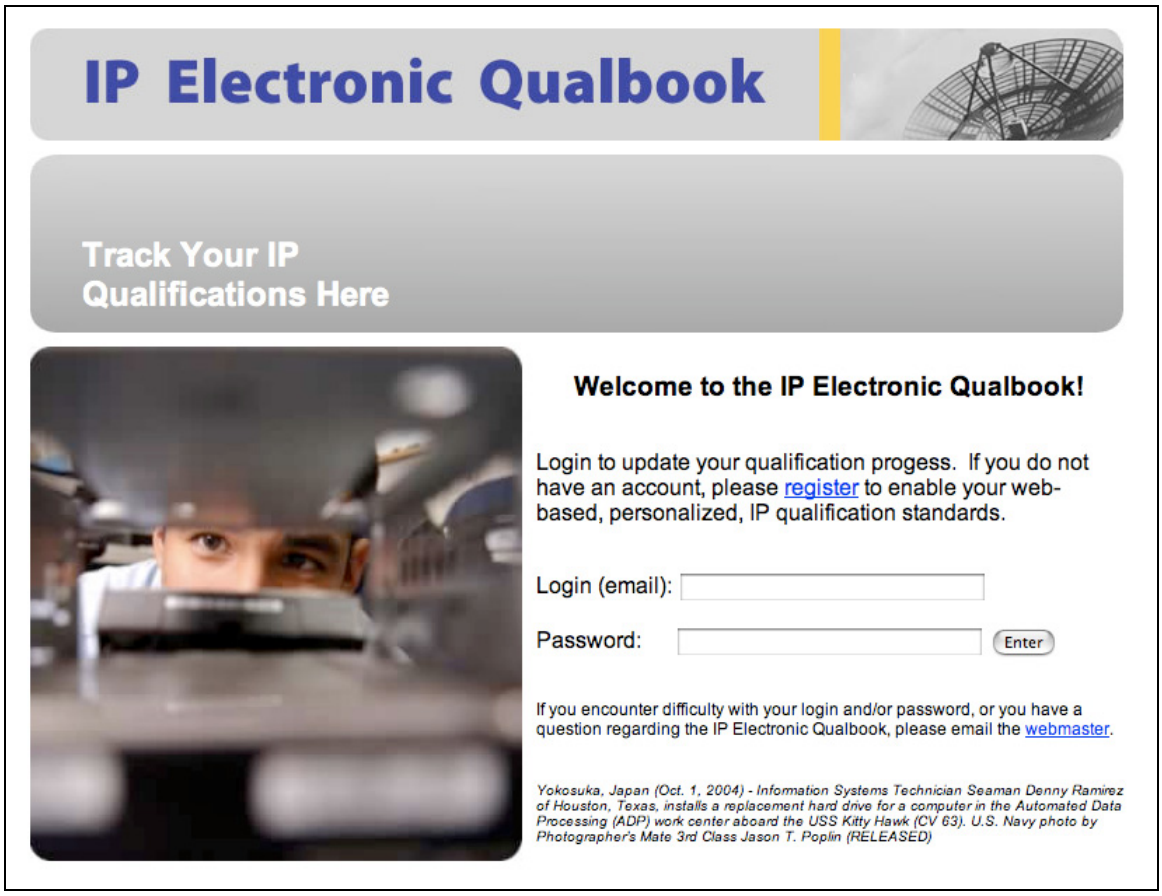

Figure 29. Login Page (High Bandwidth Option)

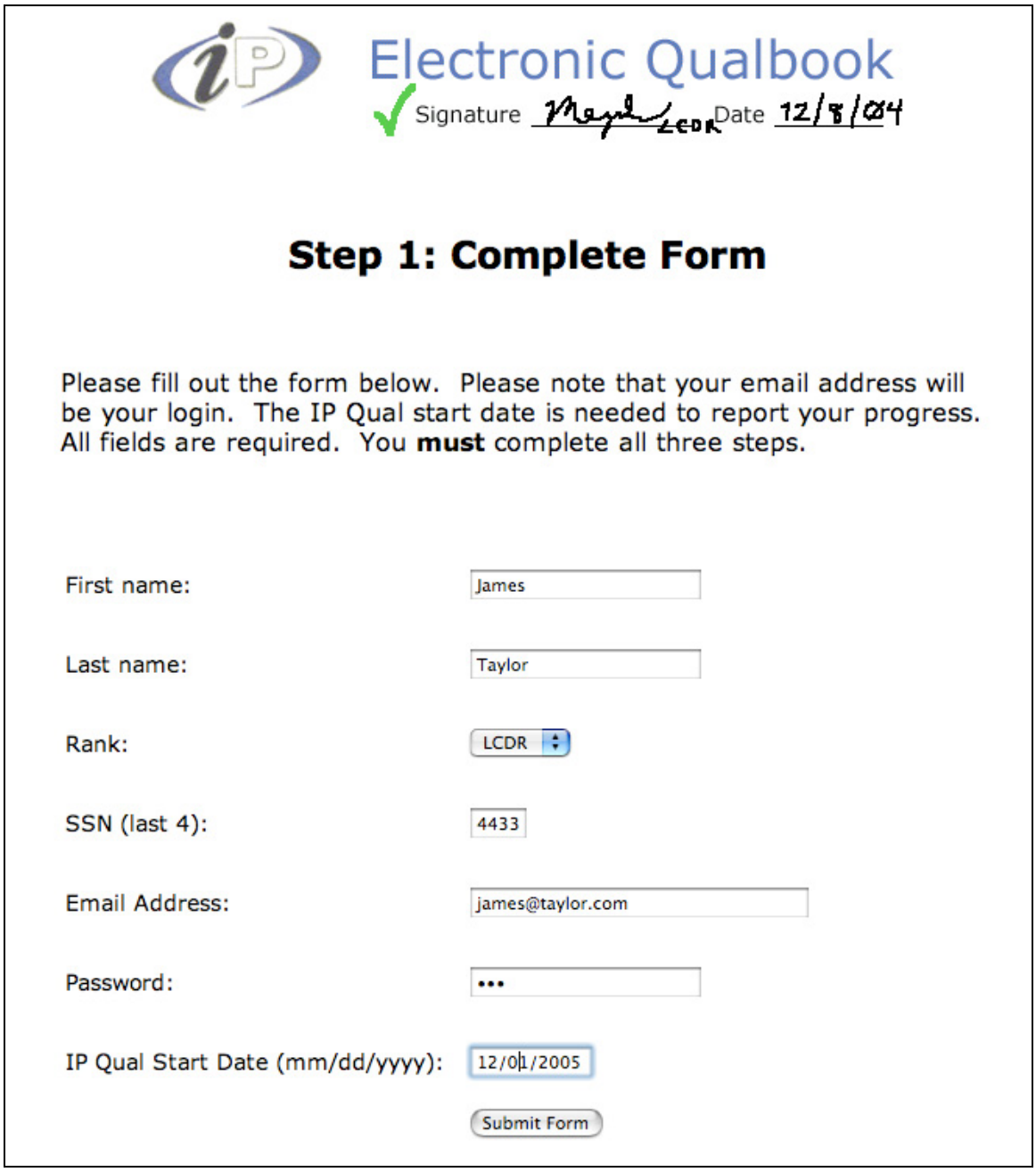

Figure 30. Registration Page

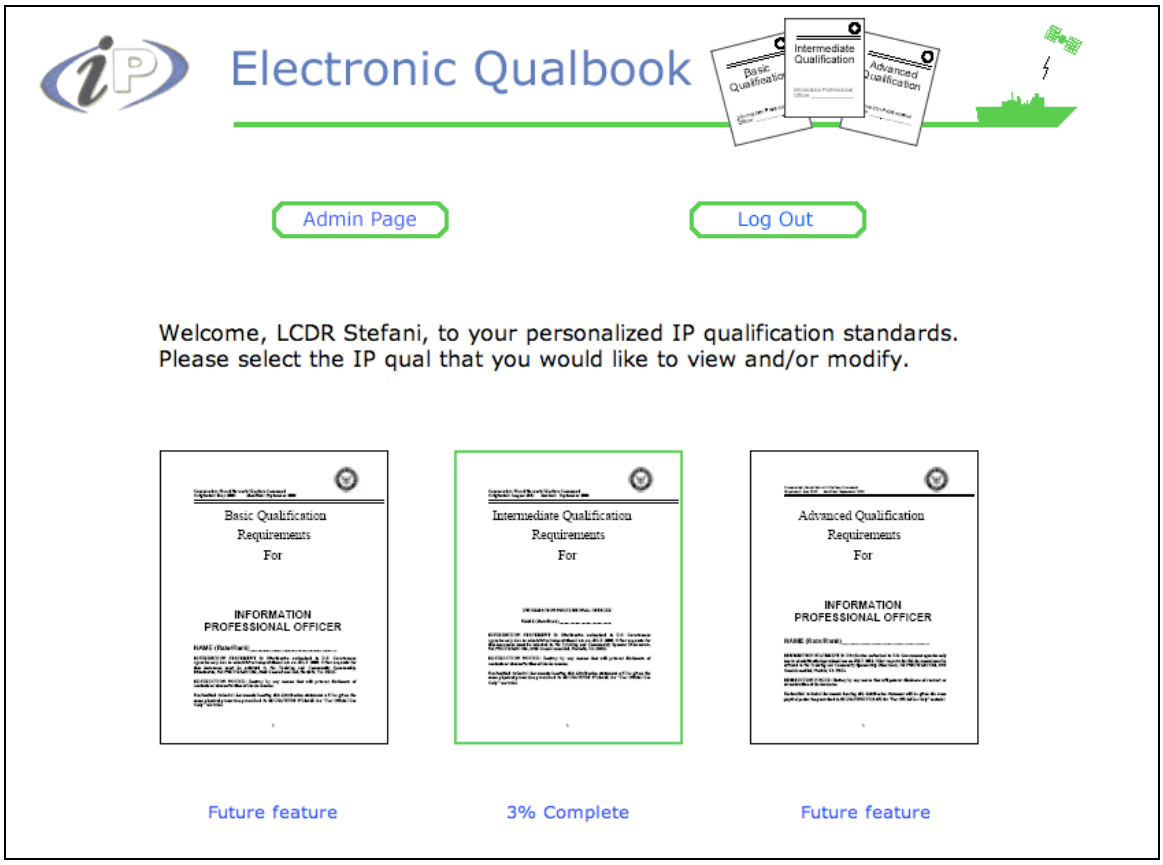

Figure 31. Welcome Page

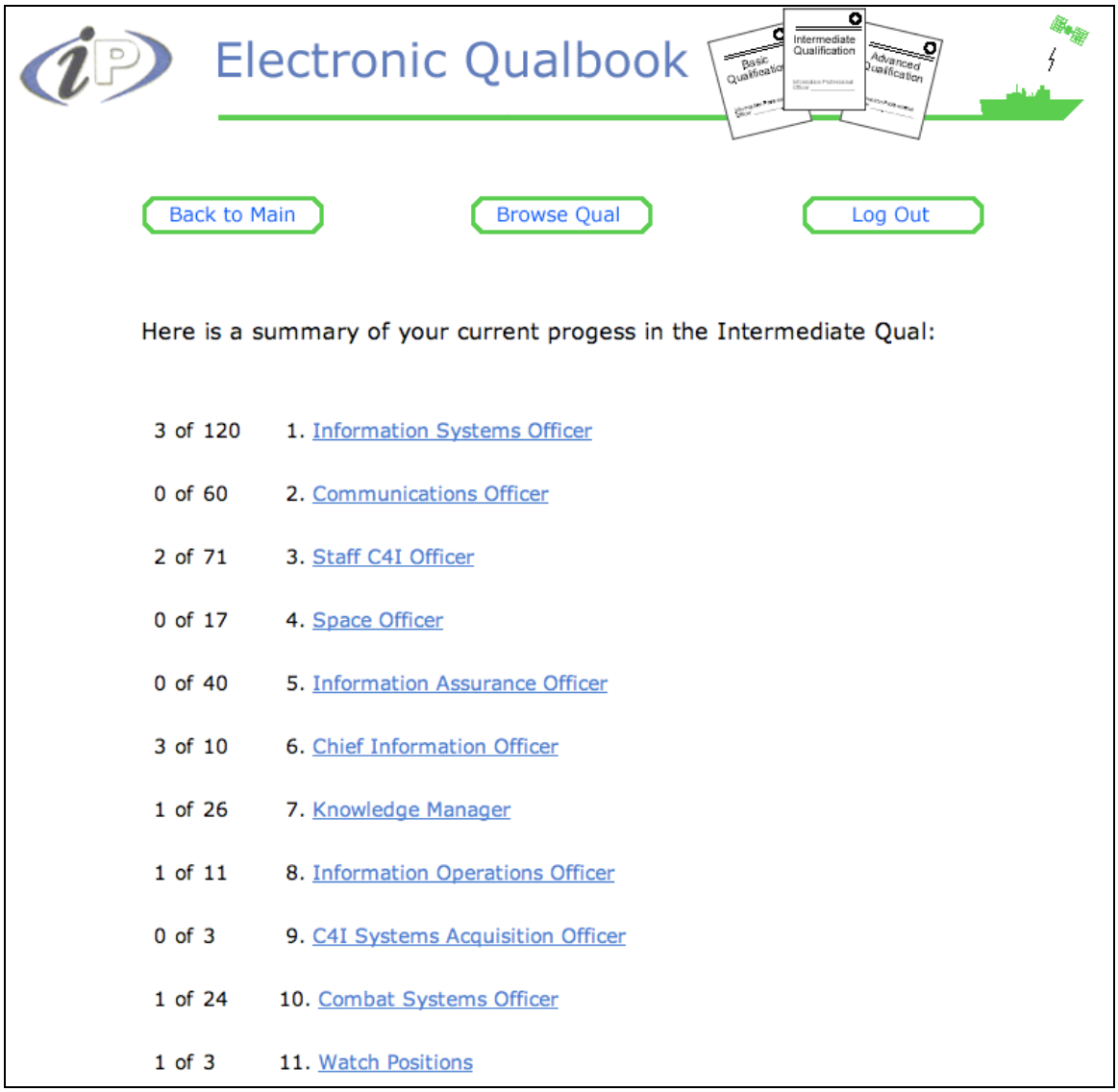

Figure 32. Intermediate Page

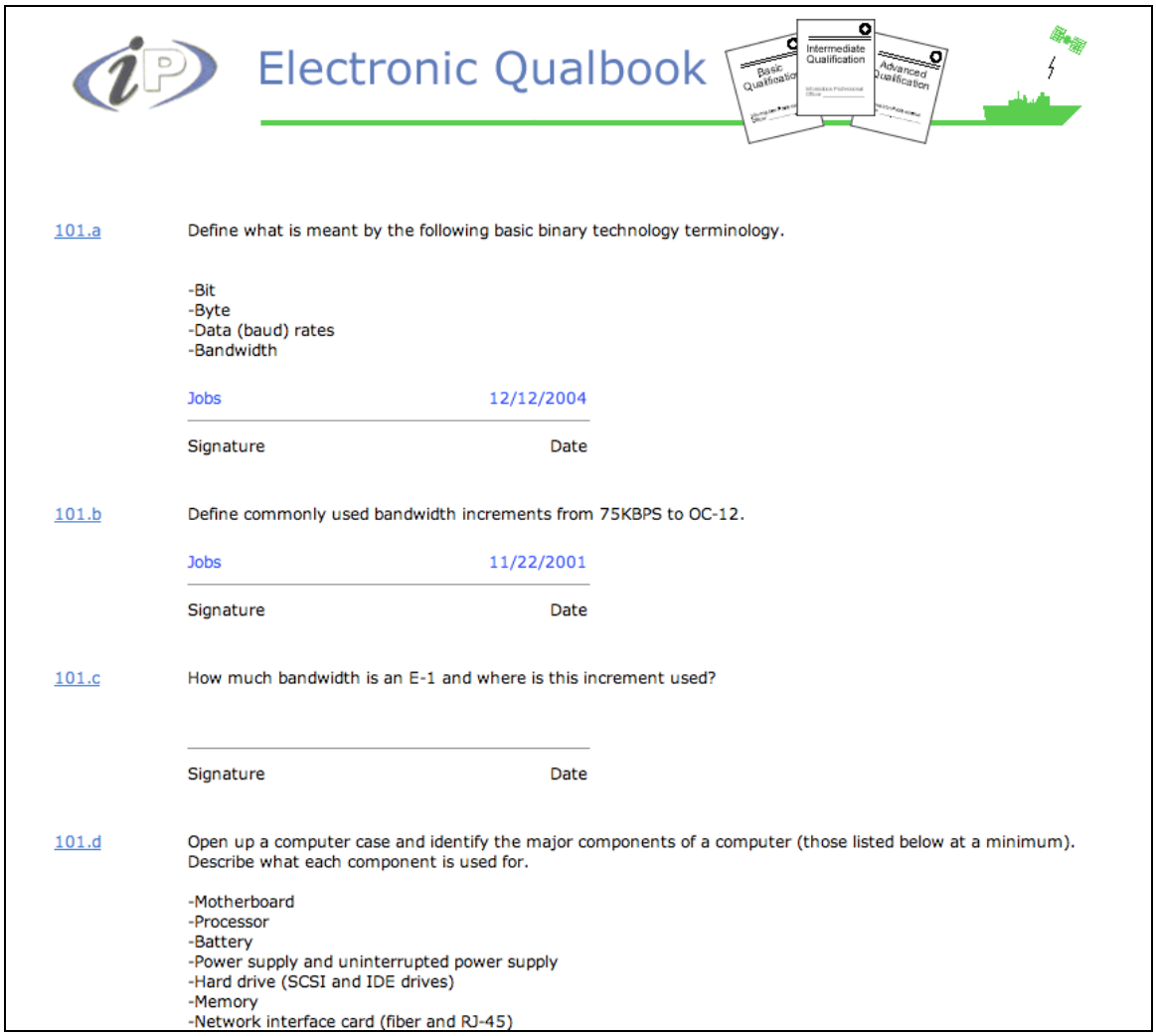

Figure 33. Update Page

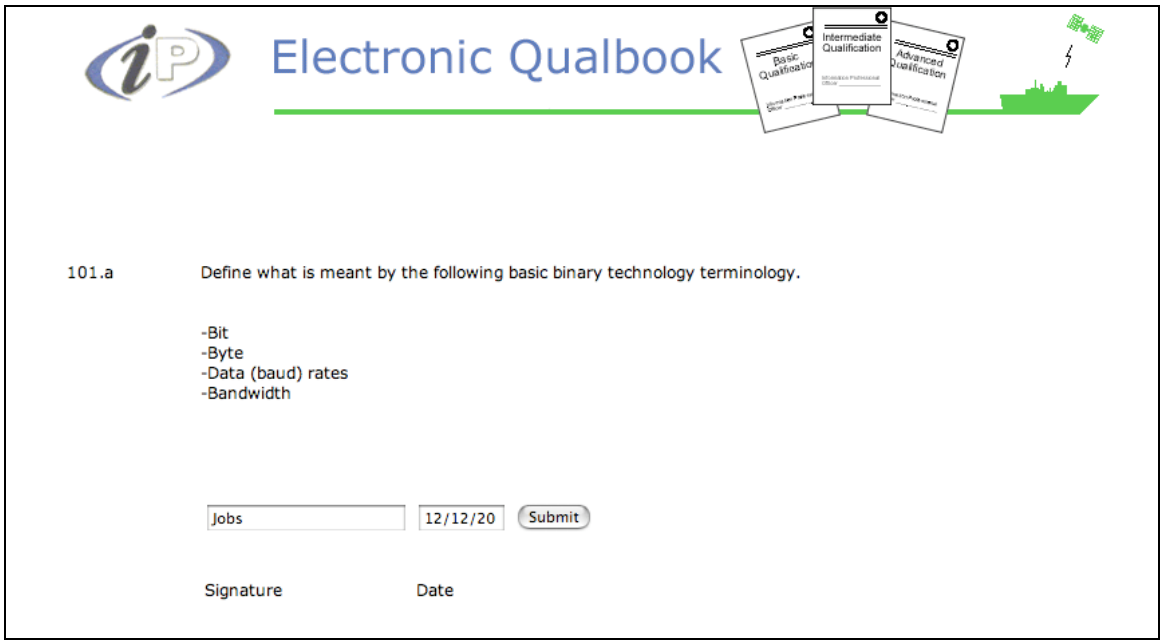

Figure 34. Detail Page

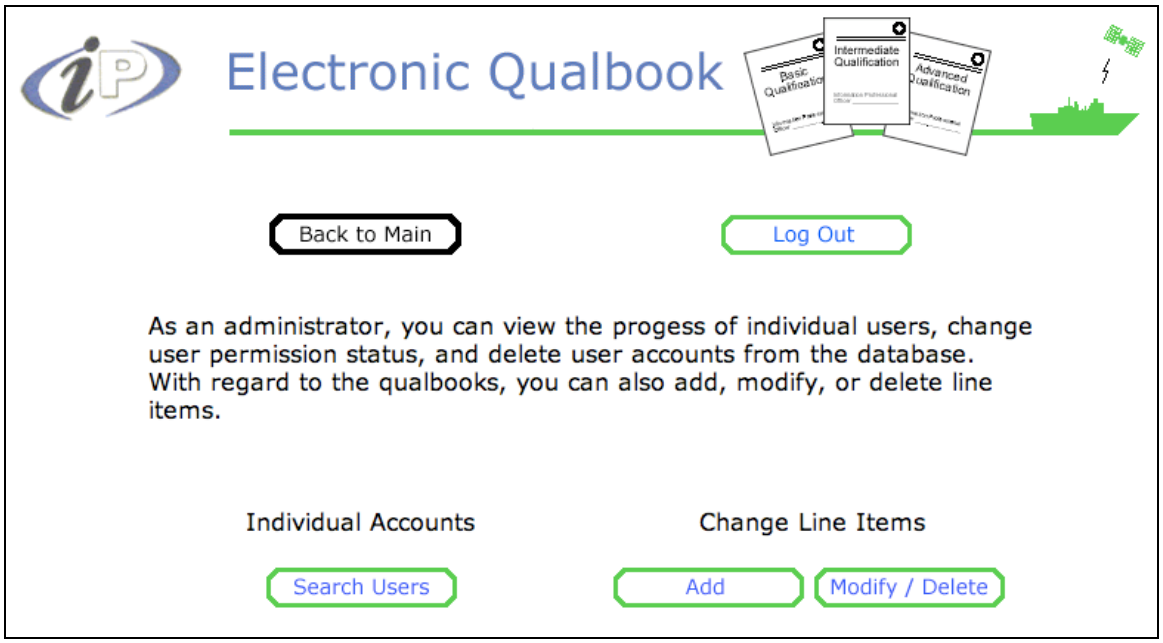

Figure 35. Admin Page

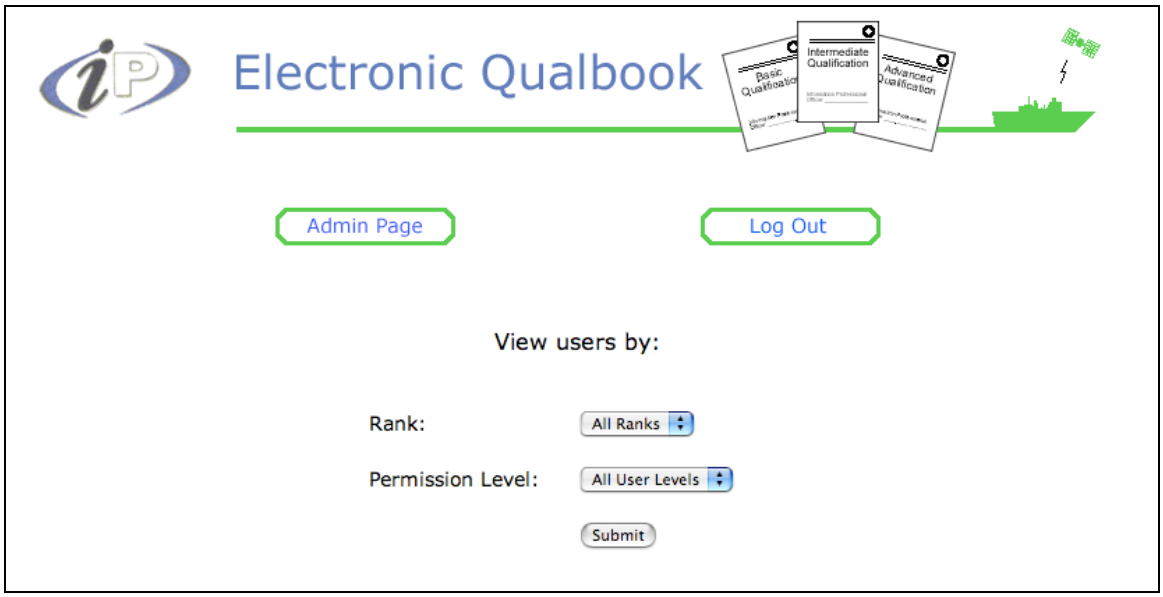

Figure 36. Admin Search Page

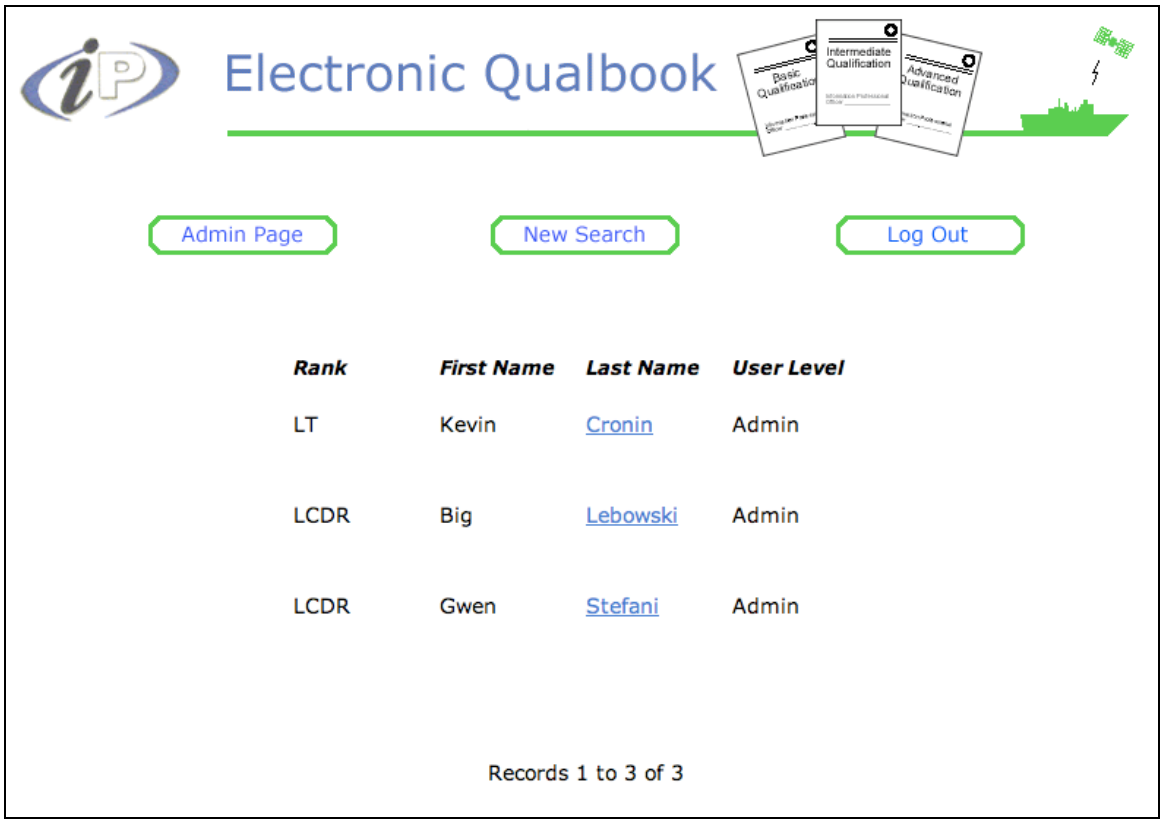

Figure 37. Admin Search Listing

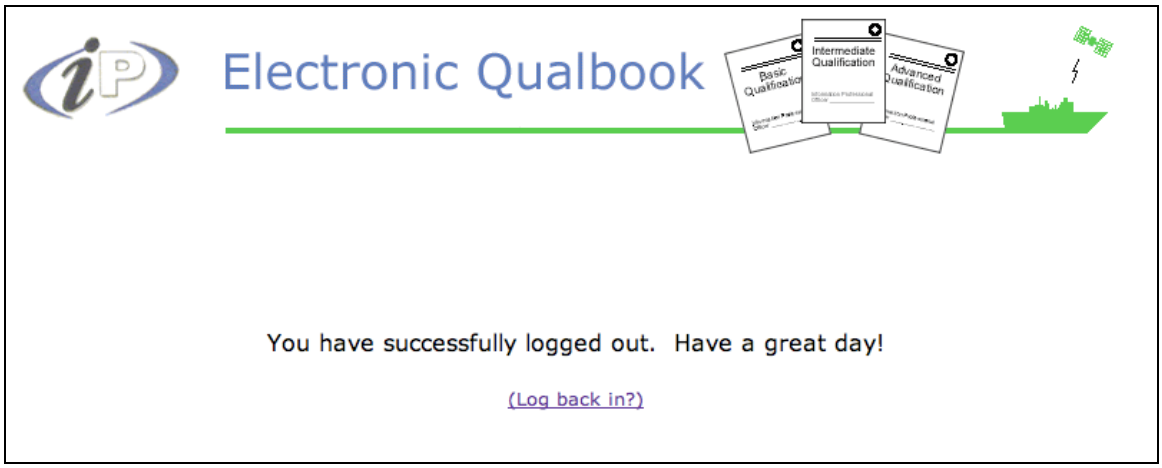

Figure 38. Logoff Page

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APPENDIX C. WEBSITE CODE

This appendix contains the HTML and ASP code for the pages in the Electronic Qualbook website.

A. LOGIN.ASP (FIGURE 28)

```
<%@LANGUAGE="VBSCRIPT"%>
<!--#include file="Connections/connGroup7.asp" -->
<%
' *** Validate request to log in to this site.
MM_LoginAction = Request.ServerVariables("URL")
If Request.QueryString<>"" Then MM_LoginAction = MM_LoginAction +
"?" + Server.HTMLEncode(Request.QueryString)
MM_valUsername=CStr(Request.Form("login"))
If MM_valUsername <> "" Then
  MM_fldUserAuthorization="txtUserLevel"
  MM_redirectLoginSuccess="welcome.asp"
  MM_redirectLoginFailed="login.asp"
  MM_flag="ADODB.Recordset"
  set MM_rsUser = Server.CreateObject(MM_flag)
  MM_rsUser.ActiveConnection = MM_connGroup7_STRING
  MM_rsUser.Source = "SELECT txtEmail, txtPassword"
  If MM_fldUserAuthorization <> "" Then MM_rsUser.Source =
MM_rsUser.Source & "," & MM_fldUserAuthorization
  MM_rsUser.Source = MM_rsUser.Source & " FROM tblUsers WHERE
txtEmail='" & Replace(MM_valUsername,"'","''") &"' AND
txtPassword='" & Replace(Request.Form("password"),"'","''") & "'"
  MM_rsUser.CursorType = 0
  MM_rsUser.CursorLocation = 2
  MM_rsUser.LockType = 3
  MM_rsUser.Open
  If Not MM_rsUser.EOF Or Not MM_rsUser.BOF Then
    ' username and password match - this is a valid user
    Session("MM_Username") = MM_valUsername
    If (MM_fldUserAuthorization <> "") Then
      Session("MM_UserAuthorization") =
CStr(MM_rsUser.Fields.Item(MM_fldUserAuthorization).Value)
    Else
      Session("MM_UserAuthorization") = ""
    End If
    if CStr(Request.QueryString("accessdenied")) <> "" And false
Then
      MM_redirectLoginSuccess =
Request.QueryString("accessdenied")
    End If
    MM_rsUser.Close
    Response.Redirect(MM_redirectLoginSuccess)
  End If
  MM_rsUser.Close
  Response.Redirect(MM_redirectLoginFailed)
End If
%>
```

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-
8859-1">
<title>IP Qualbook: Login</title>
<link href="stylesheet.css" rel="stylesheet" type="text/css" />
<script language="JavaScript" type="text/JavaScript">
<!--
function MM_findObj(n, d) { //v4.01
  var p,i,x;  if(!d) d=document;
if((p=n.indexOf("?"))>0&&parent.frames.length) {
    d=parent.frames[n.substring(p+1)].document;
n=n.substring(0,p);}
  if(!(x=d[n])&&d.all) x=d.all[n]; for
(i=0;!x&&i<d.forms.length;i++) x=d.forms[i][n];
  for(i=0;!x&&d.layers&&i<d.layers.length;i++)
x=MM_findObj(n,d.layers[i].document);
  if(!x && d.getElementById) x=d.getElementById(n); return x;
}

function MM_validateForm() { //v4.0
  var
i,p,q,nm,test,num,min,max,errors='',args=MM_validateForm.argument
s;
  for (i=0; i<(args.length-2); i+=3) { test=args[i+2];
val=MM_findObj(args[i]);
    if (val) { nm=val.name; if ((val=val.value)!="") {
      if (test.indexOf('isEmail')!=-1) { p=val.indexOf('@');
        if (p<1 || p==(val.length-1)) errors+='- '+nm+' must
contain an e-mail address.\n';
      } else if (test!='R') { num = parseFloat(val);
        if (isNaN(val)) errors+='- '+nm+' must contain a
number.\n';
        if (test.indexOf('inRange') != -1) { p=test.indexOf(':');
          min=test.substring(8,p); max=test.substring(p+1);
          if (num<min || max<num) errors+='- '+nm+' must contain
a number between '+min+' and '+max+'.\n';
    } } } else if (test.charAt(0) == 'R') errors += '- '+nm+' is
required.\n'; }
  } if (errors) alert('The following error(s)
occurred:\n'+errors);
  document.MM_returnValue = (errors == '');
}
//-->
</script>
</head>

<body>
<p> </p>
<table width="600" border="0" align="center" cellpadding="0"
cellspacing="0" id="login">

  <tr>
```

```
    <td colspan="6"><div align="center"><img
src="Images/mainbanner.gif" width="500" height="90" alt="Main
Banner"></div></td>
  </tr>
  <tr>
    <td> </td>
    <td width="102"> </td>
    <td width="102"> </td>
    <td width="102"> </td>
    <td width="102"> </td>
    <td> </td>
  </tr>
  <tr>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
  </tr>
  <tr>
    <td> </td>
    <td colspan="4"><h3 align="center"><span
class="style14">Welcome to the IP Electronic
Qualbook!</span></h3></td>
    <td> </td>
  </tr>
  <tr>
    <td width="96"> </td>
    <td colspan="4"> </td>
    <td width="96"> </td>
  </tr>
  <tr>
    <td> </td>
    <td colspan="4"><table width="408" border="0" cellspacing="0"
cellpadding="10">
      <tr>
        <td><p class="style1">Login to update your qualification
progess.  If you do not have an account, please <a
href="register.asp">register</a> to enable your web-based,
personalized, IP qualification standards. </p></td>
      </tr>
    </table>
    </td>
    <td> </td>
  </tr>
  <tr>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
  </tr>
  <tr>
    <td> </td>
```

```
    <td colspan="4"><table width="408" border="0" cellspacing="0"
cellpadding="10">
      <tr>
        <td><form action="<%=MM_LoginAction%>" method="POST"
name="login" id="login">
          <p class="style1">Login (email):
            <input name="login" type="text" id="login" size="30"
maxlength="50">
          </p>
          <p class="style3"><span class="style1">Password:
    
              <input name="password" type="password"
id="password" size="30" maxlength="50">
              <input name="Submit" type="submit" class="style7"
onclick="MM_validateForm('login','','RisEmail','password','','R')
;return document.MM_returnValue" value="Enter" />
          </span>               </p>
          </form></td>
      </tr>
    </table></td>
    <td> </td>
  </tr>
  <tr>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
  </tr>
  <tr>
    <td> </td>
    <td colspan="4"><table width="408" border="0" cellspacing="0"
cellpadding="10">
      <tr>
        <td><p class="style1 style5">If you encounter difficulty
with your login and/or password, or you have a question regarding
the IP Electronic Qualbook, please email the <a
href="#">webmaster</a>.</p></td>
      </tr>
    </table>
    <p align="center" class="style1 style5"><a
href="http://ebiz.nps.navy.mil/Winter2005/Group7/project/ProjectH
I/login.asp">Temporary Link (Hi-Bandwidth Project)</a></p></td>
    <td> </td>
  </tr>
</table>
</body>
</html>
```

B. WELCOME.ASP (FIGURE 31)

```
<%@LANGUAGE="VBSCRIPT"%>
<%
' *** Logout the current user.
```

```
MM_Logout = CStr(Request.ServerVariables("URL")) &
"?MM_Logoutnow=1"
If (CStr(Request("MM_Logoutnow")) = "1") Then
  Session.Contents.Remove("MM_Username")
  Session.Contents.Remove("MM_UserAuthorization")
  MM_logoutRedirectPage = "logoff.htm"
  ' redirect with URL parameters (remove the "MM_Logoutnow" query
param).
  if (MM_logoutRedirectPage = "") Then MM_logoutRedirectPage =
CStr(Request.ServerVariables("URL"))
  If (InStr(1, UC_redirectPage, "?", vbTextCompare) = 0 And
Request.QueryString <> "") Then
    MM_newQS = "?"
    For Each Item In Request.QueryString
      If (Item <> "MM_Logoutnow") Then
        If (Len(MM_newQS) > 1) Then MM_newQS = MM_newQS & "&"
        MM_newQS = MM_newQS & Item & "=" &
Server.URLencode(Request.QueryString(Item))
      End If
    Next
    if (Len(MM_newQS) > 1) Then MM_logoutRedirectPage =
MM_logoutRedirectPage & MM_newQS
  End If
  Response.Redirect(MM_logoutRedirectPage)
End If
%>

<!--#include file="Connections/connGroup7.asp" -->
<%
' *** Restrict Access To Page: Grant or deny access to this page
MM_authorizedUsers="Admin,User"
MM_authFailedURL="login.asp"
MM_grantAccess=false
If Session("MM_Username") <> "" Then
  If (false Or CStr(Session("MM_UserAuthorization"))="") Or _

(InStr(1,MM_authorizedUsers,Session("MM_UserAuthorization"))>=1)
Then
    MM_grantAccess = true
  End If
End If
If Not MM_grantAccess Then
  MM_qsChar = "?"
  If (InStr(1,MM_authFailedURL,"?") >= 1) Then MM_qsChar = "&"
  MM_referrer = Request.ServerVariables("URL")
  if (Len(Request.QueryString()) > 0) Then MM_referrer =
MM_referrer & "?" & Request.QueryString()
  MM_authFailedURL = MM_authFailedURL & MM_qsChar &
"accessdenied=" & Server.URLEncode(MM_referrer)
  Response.Redirect(MM_authFailedURL)
End If
%>
<%
Dim rsloggedin__email
rsloggedin__email = "m@n"
If (Session("MM_Username")      <> "") Then
  rsloggedin__email = Session("MM_Username")
```

```
End If
%>
<%
Dim rsloggedin
Dim rsloggedin_numRows

Set rsloggedin = Server.CreateObject("ADODB.Recordset")
rsloggedin.ActiveConnection = MM_connGroup7_STRING
rsloggedin.Source = "SELECT txtLastName, txtRank  FROM tblUsers
WHERE txtEmail='" + Replace(rsloggedin__email, "'", "''") + "'"
rsloggedin.CursorType = 0
rsloggedin.CursorLocation = 2
rsloggedin.LockType = 1
rsloggedin.Open()

rsloggedin_numRows = 0
%>
<%
Dim rs_complete__user
rs_complete__user = "john@lennon.com"
If (Session("MM_Username")  <> "") Then
  rs_complete__user = Session("MM_Username")
End If
%>
<%
Dim rs_complete
Dim rs_complete_numRows

Set rs_complete = Server.CreateObject("ADODB.Recordset")
rs_complete.ActiveConnection = MM_connGroup7_STRING
rs_complete.Source = "SELECT Count(*)  FROM qryAllLineItems
WHERE txtSignature is not null AND txtEmail='" +
Replace(rs_complete__user, "'", "''") + "';"
rs_complete.CursorType = 0
rs_complete.CursorLocation = 2
rs_complete.LockType = 1
rs_complete.Open()

rs_complete_numRows = 0
%>

<%
dim pcomplete
pcomplete = ((rs_complete.Fields.Item("Expr1000").Value)/385)*100
pcomplete = pcomplete \ 1
%>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-
8859-1" />
<title>IP Qualbook: Welcome</title>
<link href="stylesheet.css" rel="stylesheet" type="text/css" />
<style type="text/css">
<!--
.style12 {color: #3333FF}
```

```
.style13 {color: #3333FF; font-family: Verdana, Arial, Helvetica,
sans-serif; }
a:link {
      color: #000000;
}
a:hover {
      color: #00CC33;
}
a:active {
      color: #00CC33;
}
a:visited {
      color: #000000;
}
-->
</style>
<script language="JavaScript" type="text/JavaScript">
<!--
function MM_swapImgRestore() { //v3.0
  var i,x,a=document.MM_sr;
for(i=0;a&&i<a.length&&(x=a[i])&&x.oSrc;i++) x.src=x.oSrc;
}

function MM_preloadImages() { //v3.0
  var d=document; if(d.images){ if(!d.MM_p) d.MM_p=new Array();
    var i,j=d.MM_p.length,a=MM_preloadImages.arguments; for(i=0;
i<a.length; i++)
    if (a[i].indexOf("#")!=0){ d.MM_p[j]=new Image;
d.MM_p[j++].src=a[i];}}
}

function MM_findObj(n, d) { //v4.01
  var p,i,x;  if(!d) d=document;
if((p=n.indexOf("?"))>0&&parent.frames.length) {
    d=parent.frames[n.substring(p+1)].document;
n=n.substring(0,p);}
  if(!(x=d[n])&&d.all) x=d.all[n]; for
(i=0;!x&&i<d.forms.length;i++) x=d.forms[i][n];
  for(i=0;!x&&d.layers&&i<d.layers.length;i++)
x=MM_findObj(n,d.layers[i].document);
  if(!x && d.getElementById) x=d.getElementById(n); return x;
}

function MM_swapImage() { //v3.0
  var i,j=0,x,a=MM_swapImage.arguments; document.MM_sr=new Array;
for(i=0;i<(a.length-2);i+=3)
   if ((x=MM_findObj(a[i]))!=null){document.MM_sr[j++]=x;
if(!x.oSrc) x.oSrc=x.src; x.src=a[i+2];}
}

function MM_popupMsg(msg) { //v1.0
  alert(msg);
}
//-->
</script>
</head>
```

```
<body
onload="MM_preloadImages('Images/admin_on.gif','Images/logout_on.
gif','Images/basic_qual_coverpage_new_on.gif','Images/intermediat
e_qual_coverpage_new_on.gif','Images/advanced_qual_coverpage_new_
on.gif')">
<table width="800" border="0" align="center" cellpadding="0"
cellspacing="0">
  <tr>
    <td colspan="8"><img src="Images/innerbanner.gif" width="800"
height="100" /></td>
  </tr>
  <tr>
    <td> </td>
    <td colspan="3" rowspan="2">
      <%
      If Request.QueryString("error")="notAdmin" Then
      Response.Write("<p class=""error""> Error! You must have
admin privileges to access Admin Page. <p />")
      End If
      %></td>
    <td width="100"> </td>
    <td width="100"> </td>
    <td width="100"> </td>
    <td> </td>
  </tr>
  <tr>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
  </tr>
  <tr>
    <td width="100"> </td>
    <td colspan="6"><table width="100%"  border="0"
cellspacing="0" cellpadding="0">
      <tr>
        <td><div align="center"><a href="admin.asp"
onmouseout="MM_swapImgRestore()"
onmouseover="MM_swapImage('UpdateButton1','','Images/admin_on.gif
',1)"><img src="Images/admin.gif" name="UpdateButton1"
width="130" height="30" border="0" id="UpdateButton"
/></a></div></td>
        <td> </td>
        <td><div align="center"><a href="<%= MM_Logout %>"
onmouseout="MM_swapImgRestore()"
onmouseover="MM_swapImage('Logout1','','Images/logout_on.gif',1)"
><img src="Images/logout.gif" name="Logout1" width="130"
height="30" border="0" id="Logout" /></a></div></td>
      </tr>
    </table></td>
    <td width="100"> </td>
  </tr>
  <tr>
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    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
  </tr>
  <tr>
    <td> </td>
    <td colspan="6"><h4 class="style3"><span
class="style8">Welcome,
<%=(rsloggedin.Fields.Item("txtRank").Value)%> <%=(rsloggedi
n.Fields.Item("txtLastName").Value)%>, to your personalized IP
qualification standards.  Please select the IP qual that you
would like to view and/or modify. </span></h4></td>
    <td> </td>
  </tr>
  <tr>
    <td> </td>
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    <td> </td>
    <td> </td>
    <td> </td>
  </tr>
  <tr>
    <td> </td>
    <td colspan="6">
      <table width="600" border="0" cellpadding="1"
cellspacing="0" bgcolor="#FFFFFF">
      <tr>
        <td width="167" height="215" bgcolor="#FFFFFF"><a
href="#" onclick="MM_popupMsg('This feature will be enabled at a
later date.')"
onmouseover="MM_swapImage('BasicRollover','','Images/basic_qual_c
overpage_new_on.gif',1)" onmouseout="MM_swapImgRestore()"><img
```

```
src="Images/basic_qual_coverpage_new.gif" name="BasicRollover"
width="167" height="215" border="0" align="bottom"
id="BasicRollover" /></a></td>
        <td> </td>
        <td width="167" height="215" bgcolor="#FFFFFF"><a
href="intermediate.asp" onmouseout="MM_swapImgRestore()"
onmouseover="MM_swapImage('IntermediateRollover','','Images/inter
mediate_qual_coverpage_new_on.gif',1)"><img
src="Images/intermediate_qual_coverpage_new.gif"
name="IntermediateRollover" width="167" height="215" border="0"
align="bottom" id="IntermediateRollover" /></a></td>
        <td> </td>
        <td width="167" height="215" bgcolor="#FFFFFF"><a
href="#" onclick="MM_popupMsg('This feature will be enabled at a
later date.')"
onmouseover="MM_swapImage('AdvancedRollover','','Images/advanced_
qual_coverpage_new_on.gif',1)"
onmouseout="MM_swapImgRestore()"><img
src="Images/advanced_qual_coverpage_new.gif"
name="AdvancedRollover" width="167" height="215" border="0"
align="bottom" id="AdvancedRollover" /></a></td>
      </tr>
    </table></td>
    <td> </td>
  </tr>
  <tr>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
  </tr>
  <tr>
    <td> </td>
    <td colspan="6"><table width="600" border="0" cellspacing="0"
cellpadding="0">
      <tr>
        <td width="167" class="style10"><div align="center"
class="style9 style12">
          <h5>Future feature </h5>
        </div></td>
        <td> </td>
        <td width="167"><div align="center">
          <h5 class="style13">
          <%
              Response.Write(pcomplete)
              %>% Complete </h5>
        </div></td>
        <td> </td>
        <td width="167"><div align="center" class="style11
style12">
          <h5>Future feature </h5>
        </div></td>
      </tr>
```

```
          </table></td>
          <td> </td>
        </tr>
        <tr>
          <td> </td>
          <td> </td>
          <td> </td>
          <td> </td>
          <td> </td>
          <td> </td>
          <td> </td>
          <td> </td>
        </tr>
      </table>
      </body>
      </html>
      <%
      rsloggedin.Close()
      Set rsloggedin = Nothing
      %>
      <%
      rs_complete.Close()
      Set rs_complete = Nothing
      %>
```

C. INTERMEDIATE.ASP (FIGURE 32)

```
      <%@LANGUAGE="VBSCRIPT"%>
      <%
      ' *** Logout the current user.
      MM_Logout      =      CStr(Request.ServerVariables("URL"))      &
"?MM_Logoutnow=1"
      If (CStr(Request("MM_Logoutnow")) = "1") Then
        Session.Contents.Remove("MM_Username")
        Session.Contents.Remove("MM_UserAuthorization")
        MM_logoutRedirectPage = "logoff.htm"
        ' redirect with URL parameters (remove the "MM_Logoutnow" query
param).
        if (MM_logoutRedirectPage = "") Then MM_logoutRedirectPage =
CStr(Request.ServerVariables("URL"))
        If (InStr(1, UC_redirectPage, "?", vbTextCompare) = 0 And
Request.QueryString <> "") Then
          MM_newQS = "?"
          For Each Item In Request.QueryString
            If (Item <> "MM_Logoutnow") Then
              If (Len(MM_newQS) > 1) Then MM_newQS = MM_newQS & "&"
              MM_newQS    =    MM_newQS    &    Item    &    "="    &
Server.URLencode(Request.QueryString(Item))
            End If
          Next
          if   (Len(MM_newQS)   >   1)   Then   MM_logoutRedirectPage   =
MM_logoutRedirectPage & MM_newQS
        End If
        Response.Redirect(MM_logoutRedirectPage)
      End If
      %>
```

```
<!--#include file="Connections/connGroup7.asp" -->
<%
' *** Restrict Access To Page: Grant or deny access to this page
MM_authorizedUsers="Admin,User"
MM_authFailedURL="login.asp"
MM_grantAccess=false
If Session("MM_Username") <> "" Then
  If (false Or CStr(Session("MM_UserAuthorization"))="") Or _

(InStr(1,MM_authorizedUsers,Session("MM_UserAuthorization"))>=1) Then
    MM_grantAccess = true
  End If
End If
If Not MM_grantAccess Then
  MM_qsChar = "?"
  If (InStr(1,MM_authFailedURL,"?") >= 1) Then MM_qsChar = "&"
  MM_referrer = Request.ServerVariables("URL")
  if   (Len(Request.QueryString())   >   0)   Then   MM_referrer   =
MM_referrer & "?" & Request.QueryString()
  MM_authFailedURL    =    MM_authFailedURL    &    MM_qsChar    &
"accessdenied=" & Server.URLEncode(MM_referrer)
  Response.Redirect(MM_authFailedURL)
End If
%>
<%
Dim rs_mod1complete__user
rs_mod1complete__user = "john@lennon.com"
If (Session("MM_Username")  <> "") Then
  rs_mod1complete__user = Session("MM_Username")
End If
%>
<%
Dim rs_mod1complete
Dim rs_mod1complete_numRows

Set rs_mod1complete = Server.CreateObject("ADODB.Recordset")
rs_mod1complete.ActiveConnection = MM_connGroup7_STRING
rs_mod1complete.Source  =  "SELECT  Count(*)   FROM  qryAllLineItems
WHERE    txtSignature    is    not    null    AND    txtEmail='"    +
Replace(rs_mod1complete__user, "'", "''") + "' AND nbrModuleNumber=1;"
rs_mod1complete.CursorType = 0
rs_mod1complete.CursorLocation = 2
rs_mod1complete.LockType = 1
rs_mod1complete.Open()

rs_mod1complete_numRows = 0
%>
<%
Dim rs_mod2complete__user
rs_mod2complete__user = "john@lennon.com"
If (Session("MM_Username")  <> "") Then
  rs_mod2complete__user = Session("MM_Username")
End If
%>
<%
Dim rs_mod2complete
Dim rs_mod2complete_numRows
```

```
      Set rs_mod2complete = Server.CreateObject("ADODB.Recordset")
      rs_mod2complete.ActiveConnection = MM_connGroup7_STRING
      rs_mod2complete.Source = "SELECT Count(*)   FROM qryAllLineItems
WHERE    txtSignature    is    not    null    AND    txtEmail='"    +
Replace(rs_mod2complete__user, "'", "''") + "' AND nbrModuleNumber=2;"
      rs_mod2complete.CursorType = 0
      rs_mod2complete.CursorLocation = 2
      rs_mod2complete.LockType = 1
      rs_mod2complete.Open()

      rs_mod2complete_numRows = 0
      %>
      <%
      Dim rs_mod3complete__user
      rs_mod3complete__user = "m@n"
      If (Session("MM_Username") <> "") Then
        rs_mod3complete__user = Session("MM_Username")
      End If
      %>
      <%
      Dim rs_mod3complete
      Dim rs_mod3complete_numRows

      Set rs_mod3complete = Server.CreateObject("ADODB.Recordset")
      rs_mod3complete.ActiveConnection = MM_connGroup7_STRING
      rs_mod3complete.Source = "SELECT Count(*)   FROM qryAllLineItems
WHERE    txtSignature    is    not    null    AND    txtEmail='"    +
Replace(rs_mod3complete__user, "'", "''") + "' AND nbrModuleNumber=3;"
      rs_mod3complete.CursorType = 0
      rs_mod3complete.CursorLocation = 2
      rs_mod3complete.LockType = 1
      rs_mod3complete.Open()

      rs_mod3complete_numRows = 0
      %>
      <%
      Dim rs_mod4complete__user
      rs_mod4complete__user = "john@lennon.com"
      If (Session("MM_Username")  <> "") Then
        rs_mod4complete__user = Session("MM_Username")
      End If
      %>
      <%
      Dim rs_mod4complete
      Dim rs_mod4complete_numRows

      Set rs_mod4complete = Server.CreateObject("ADODB.Recordset")
      rs_mod4complete.ActiveConnection = MM_connGroup7_STRING
      rs_mod4complete.Source = "SELECT Count(*)   FROM qryAllLineItems
WHERE    txtSignature    is    not    null    AND    txtEmail='"    +
Replace(rs_mod4complete__user, "'", "''") + "' AND nbrModuleNumber=4;"
      rs_mod4complete.CursorType = 0
      rs_mod4complete.CursorLocation = 2
      rs_mod4complete.LockType = 1
      rs_mod4complete.Open()
```

```
      rs_mod4complete_numRows = 0
      %>
      <%
      Dim rs_mod5complete__user
      rs_mod5complete__user = "m@n"
      If (Session("MM_Username") <> "") Then
        rs_mod5complete__user = Session("MM_Username")
      End If
      %>
      <%
      Dim rs_mod5complete
      Dim rs_mod5complete_numRows

      Set rs_mod5complete = Server.CreateObject("ADODB.Recordset")
      rs_mod5complete.ActiveConnection = MM_connGroup7_STRING
      rs_mod5complete.Source = "SELECT Count(*) FROM qryAllLineItems
WHERE    txtSignature    is    not    null    AND    txtEmail='"    +
Replace(rs_mod5complete__user, "'", "''") + "' AND nbrModuleNumber=5;"
      rs_mod5complete.CursorType = 0
      rs_mod5complete.CursorLocation = 2
      rs_mod5complete.LockType = 1
      rs_mod5complete.Open()

      rs_mod5complete_numRows = 0
      %>
      <%
      Dim rs_mod6complete__user
      rs_mod6complete__user = "john@lennon.com"
      If (Session("MM_Username")  <> "") Then
        rs_mod6complete__user = Session("MM_Username")
      End If
      %>
      <%
      Dim rs_mod6complete
      Dim rs_mod6complete_numRows

      Set rs_mod6complete = Server.CreateObject("ADODB.Recordset")
      rs_mod6complete.ActiveConnection = MM_connGroup7_STRING
      rs_mod6complete.Source = "SELECT Count(*) FROM qryAllLineItems
WHERE    txtSignature    is    not    null    AND    txtEmail='"    +
Replace(rs_mod6complete__user, "'", "''") + "' AND nbrModuleNumber=6;"
      rs_mod6complete.CursorType = 0
      rs_mod6complete.CursorLocation = 2
      rs_mod6complete.LockType = 1
      rs_mod6complete.Open()

      rs_mod6complete_numRows = 0
      %>
      <%
      Dim rs_mod7complete__user
      rs_mod7complete__user = "john@lennon.com"
      If (Session("MM_Username")  <> "") Then
        rs_mod7complete__user = Session("MM_Username")
      End If
      %>
      <%
      Dim rs_mod7complete
```

```
      Dim rs_mod7complete_numRows

      Set rs_mod7complete = Server.CreateObject("ADODB.Recordset")
      rs_mod7complete.ActiveConnection = MM_connGroup7_STRING
      rs_mod7complete.Source = "SELECT Count(*)   FROM qryAllLineItems
WHERE    txtSignature    is    not    null    AND    txtEmail='"    +
Replace(rs_mod7complete__user, "'", "''") + "' AND nbrModuleNumber=7;"
      rs_mod7complete.CursorType = 0
      rs_mod7complete.CursorLocation = 2
      rs_mod7complete.LockType = 1
      rs_mod7complete.Open()

      rs_mod7complete_numRows = 0
      %>
      <%
      Dim rs_mod8complete__user
      rs_mod8complete__user = "john@lennon.com"
      If (Session("MM_Username")  <> "") Then
        rs_mod8complete__user = Session("MM_Username")
      End If
      %>
      <%
      Dim rs_mod8complete
      Dim rs_mod8complete_numRows

      Set rs_mod8complete = Server.CreateObject("ADODB.Recordset")
      rs_mod8complete.ActiveConnection = MM_connGroup7_STRING
      rs_mod8complete.Source = "SELECT Count(*)   FROM qryAllLineItems
WHERE    txtSignature    is    not    null    AND    txtEmail='"    +
Replace(rs_mod8complete__user, "'", "''") + "' AND nbrModuleNumber=8;"
      rs_mod8complete.CursorType = 0
      rs_mod8complete.CursorLocation = 2
      rs_mod8complete.LockType = 1
      rs_mod8complete.Open()

      rs_mod8complete_numRows = 0
      %>
      <%
      Dim rs_mod9complete__user
      rs_mod9complete__user = "john@lennon.com"
      If (Session("MM_Username")  <> "") Then
        rs_mod9complete__user = Session("MM_Username")
      End If
      %>
      <%
      Dim rs_mod9complete
      Dim rs_mod9complete_numRows

      Set rs_mod9complete = Server.CreateObject("ADODB.Recordset")
      rs_mod9complete.ActiveConnection = MM_connGroup7_STRING
      rs_mod9complete.Source = "SELECT Count(*)   FROM qryAllLineItems
WHERE    txtSignature    is    not    null    AND    txtEmail='"    +
Replace(rs_mod9complete__user, "'", "''") + "' AND nbrModuleNumber=9;"
      rs_mod9complete.CursorType = 0
      rs_mod9complete.CursorLocation = 2
      rs_mod9complete.LockType = 1
      rs_mod9complete.Open()
```

```
      rs_mod9complete_numRows = 0
      %>
      <%
      Dim rs_mod10complete__user
      rs_mod10complete__user = "john@lennon.com"
      If (Session("MM_Username")  <> "") Then
        rs_mod10complete__user = Session("MM_Username")
      End If
      %>
      <%
      Dim rs_mod10complete
      Dim rs_mod10complete_numRows

      Set rs_mod10complete = Server.CreateObject("ADODB.Recordset")
      rs_mod10complete.ActiveConnection = MM_connGroup7_STRING
      rs_mod10complete.Source = "SELECT Count(*)  FROM qryAllLineItems
WHERE    txtSignature    is    not    null    AND    txtEmail='"    +
Replace(rs_mod10complete__user,     "'",     "''")     +     "'     AND
nbrModuleNumber=10;"
      rs_mod10complete.CursorType = 0
      rs_mod10complete.CursorLocation = 2
      rs_mod10complete.LockType = 1
      rs_mod10complete.Open()

      rs_mod10complete_numRows = 0
      %>
      <%
      Dim rs_mod11complete__user
      rs_mod11complete__user = "john@lennon.com"
      If (Session("MM_Username")  <> "") Then
        rs_mod11complete__user = Session("MM_Username")
      End If
      %>
      <%
      Dim rs_mod11complete
      Dim rs_mod11complete_numRows

      Set rs_mod11complete = Server.CreateObject("ADODB.Recordset")
      rs_mod11complete.ActiveConnection = MM_connGroup7_STRING
      rs_mod11complete.Source = "SELECT Count(*)  FROM qryAllLineItems
WHERE    txtSignature    is    not    null    AND    txtEmail='"    +
Replace(rs_mod11complete__user,     "'",     "''")     +     "'     AND
nbrModuleNumber=11;"
      rs_mod11complete.CursorType = 0
      rs_mod11complete.CursorLocation = 2
      rs_mod11complete.LockType = 1
      rs_mod11complete.Open()

      rs_mod11complete_numRows = 0
      %>

      <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
      <html xmlns="http://www.w3.org/1999/xhtml">
      <head>
```

```
      <meta http-equiv="Content-Type" content="text/html; charset=iso-
8859-1" />
      <title>IP Qualbook: Intermediate Summary</title>
      <script language="JavaScript" type="text/javascript">
      <!--
      function mmLoadMenus() {
        if (window.mm_menu_0304113510_0) return;
        window.mm_menu_0304113510_0 = new Menu("root",48,18,"Verdana,
Arial,                          Helvetica,                          sans-
serif",12,"#000000","#FFFFFF","#FFFFFF","#000000","left","middle",3,0,1
00,-5,7,true,true,true,0,true,true);

mm_menu_0304113510_0.addMenuItem("101","location='update.asp'");

mm_menu_0304113510_0.addMenuItem("102","location='update.asp'");
         mm_menu_0304113510_0.hideOnMouseOut=true;
         mm_menu_0304113510_0.bgColor='#555555';
         mm_menu_0304113510_0.menuBorder=1;
         mm_menu_0304113510_0.menuLiteBgColor='#FFFFFF';
         mm_menu_0304113510_0.menuBorderBgColor='#777777';


window.mm_menu_0304113604_0 = new Menu("root",48,18,"Verdana, Arial,
Helvetica,                                                      sans-
serif",12,"#3333FF","#FFFFFF","#FFFFFF","#000000","left","middle",3,0,1
00,-5,7,true,true,true,0,true,true);

mm_menu_0304113604_0.addMenuItem("101","location='update.asp?SecNbr=101
'");

mm_menu_0304113604_0.addMenuItem("102","location='update.asp?SecNbr=102
'");

mm_menu_0304113604_0.addMenuItem("103","location='update.asp?SecNbr=103
'");

mm_menu_0304113604_0.addMenuItem("104","location='update.asp?SecNbr=104
'");

mm_menu_0304113604_0.addMenuItem("105","location='update.asp?SecNbr=105
'");
         mm_menu_0304113604_0.hideOnMouseOut=true;
         mm_menu_0304113604_0.bgColor='#00CC33';
         mm_menu_0304113604_0.menuBorder=1;
         mm_menu_0304113604_0.menuLiteBgColor='#FFFFFF';
         mm_menu_0304113604_0.menuBorderBgColor='#00CC33';
      window.mm_menu_0305113223_0 = new Menu("root",48,18,"Verdana,
Arial,                          Helvetica,                          sans-
serif",12,"#3333FF","#FFFFFF","#FFFFFF","#000000","left","middle",3,0,1
00,-5,7,true,true,true,0,true,true);

mm_menu_0305113223_0.addMenuItem("201","location='update.asp?SecNbr=201
'");

mm_menu_0305113223_0.addMenuItem("202","location='update.asp?SecNbr=202
'");
```

```
mm_menu_0305113223_0.addMenuItem("203","location='update.asp?SecNbr=203
'");

mm_menu_0305113223_0.addMenuItem("204","location='update.asp?SecNbr=204
'");

mm_menu_0305113223_0.addMenuItem("205","location='update.asp?SecNbr=205
'");

mm_menu_0305113223_0.addMenuItem("206","location='update.asp?SecNbr=206
'");

mm_menu_0305113223_0.addMenuItem("207","location='update.asp?SecNbr=207
'");

mm_menu_0305113223_0.addMenuItem("208","location='update.asp?SecNbr=208
'");

mm_menu_0305113223_0.addMenuItem("209","location='update.asp?SecNbr=209
'");

mm_menu_0305113223_0.addMenuItem("210","location='update.asp?SecNbr=210
'");
         mm_menu_0305113223_0.hideOnMouseOut=true;
         mm_menu_0305113223_0.bgColor='#00CC33';
         mm_menu_0305113223_0.menuBorder=1;
         mm_menu_0305113223_0.menuLiteBgColor='#FFFFFF';
         mm_menu_0305113223_0.menuBorderBgColor='#00CC33';

        window.mm_menu_0305113621_0  =  new  Menu("root",48,18,"Verdana,
Arial,                          Helvetica,                          sans-
serif",12,"#3333FF","#FFFFFF","#FFFFFF","#000000","left","middle",3,0,1
00,-5,7,true,true,true,0,true,true);

mm_menu_0305113621_0.addMenuItem("301","location='update.asp?SecNbr=301
'");

mm_menu_0305113621_0.addMenuItem("302","location='update.asp?SecNbr=302
'");

mm_menu_0305113621_0.addMenuItem("303","location='update.asp?SecNbr=303
'");

mm_menu_0305113621_0.addMenuItem("304","location='update.asp?SecNbr=304
'");

mm_menu_0305113621_0.addMenuItem("305","location='update.asp?SecNbr=305
'");

mm_menu_0305113621_0.addMenuItem("306","location='update.asp?SecNbr=306
'");

mm_menu_0305113621_0.addMenuItem("307","location='update.asp?SecNbr=307
'");
         mm_menu_0305113621_0.hideOnMouseOut=true;
         mm_menu_0305113621_0.bgColor='#00CC33';
```

```
         mm_menu_0305113621_0.menuBorder=1;
         mm_menu_0305113621_0.menuLiteBgColor='#FFFFFF';
         mm_menu_0305113621_0.menuBorderBgColor='#00CC33';

        window.mm_menu_0305113830_0  =  new  Menu("root",48,18,"Verdana,
Arial,                          Helvetica,                          sans-
serif",12,"#3333FF","#FFFFFF","#FFFFFF","#000000","left","middle",3,0,1
00,-5,7,true,true,true,0,true,true);

mm_menu_0305113830_0.addMenuItem("401","location='update.asp?SecNbr=401
'");
         mm_menu_0305113830_0.hideOnMouseOut=true;
         mm_menu_0305113830_0.bgColor='#00CC33';
         mm_menu_0305113830_0.menuBorder=1;
         mm_menu_0305113830_0.menuLiteBgColor='#FFFFFF';
         mm_menu_0305113830_0.menuBorderBgColor='#00CC33';

        window.mm_menu_0305113953_0  =  new  Menu("root",48,18,"Verdana,
Arial,                          Helvetica,                          sans-
serif",12,"#3333FF","#FFFFFF","#FFFFFF","#000000","left","middle",3,0,1
00,-5,7,true,true,true,0,true,true);

mm_menu_0305113953_0.addMenuItem("501","location='update.asp?SecNbr=501
'");
         mm_menu_0305113953_0.hideOnMouseOut=true;
         mm_menu_0305113953_0.bgColor='#00CC33';
         mm_menu_0305113953_0.menuBorder=1;
         mm_menu_0305113953_0.menuLiteBgColor='#FFFFFF';
         mm_menu_0305113953_0.menuBorderBgColor='#00CC33';

        window.mm_menu_0305114102_0  =  new  Menu("root",48,18,"Verdana,
Arial,                          Helvetica,                          sans-
serif",12,"#3333FF","#FFFFFF","#FFFFFF","#000000","left","middle",3,0,1
00,-5,7,true,true,true,0,true,true);

mm_menu_0305114102_0.addMenuItem("601","location='update.asp?SecNbr=601
'");

mm_menu_0305114102_0.addMenuItem("602","location='update.asp?SecNbr=602
'");

mm_menu_0305114102_0.addMenuItem("603","location='update.asp?SecNbr=603
'");
         mm_menu_0305114102_0.hideOnMouseOut=true;
         mm_menu_0305114102_0.bgColor='#00CC33';
         mm_menu_0305114102_0.menuBorder=1;
         mm_menu_0305114102_0.menuLiteBgColor='#FFFFFF';
         mm_menu_0305114102_0.menuBorderBgColor='#00CC33';

        window.mm_menu_0305114308_0  =  new  Menu("root",48,18,"Verdana,
Arial,                          Helvetica,                          sans-
serif",12,"#3333FF","#FFFFFF","#FFFFFF","#000000","left","middle",3,0,1
00,-5,7,true,true,true,0,true,true);

mm_menu_0305114308_0.addMenuItem("701","location='update.asp?SecNbr=701
'");
```

```
mm_menu_0305114308_0.addMenuItem("702","location='update.asp?SecNbr=702
'");

mm_menu_0305114308_0.addMenuItem("703","location='update.asp?SecNbr=703
'");
         mm_menu_0305114308_0.hideOnMouseOut=true;
         mm_menu_0305114308_0.bgColor='#00CC33';
         mm_menu_0305114308_0.menuBorder=1;
         mm_menu_0305114308_0.menuLiteBgColor='#FFFFFF';
         mm_menu_0305114308_0.menuBorderBgColor='#00CC33';

        window.mm_menu_0305114413_0  =  new  Menu("root",48,18,"Verdana,
Arial,                          Helvetica,                          sans-
serif",12,"#3333FF","#FFFFFF","#FFFFFF","#000000","left","middle",3,0,1
00,-5,7,true,true,true,0,true,true);

mm_menu_0305114413_0.addMenuItem("801","location='update.asp?SecNbr=801
'");
         mm_menu_0305114413_0.hideOnMouseOut=true;
         mm_menu_0305114413_0.bgColor='#00CC33';
         mm_menu_0305114413_0.menuBorder=1;
         mm_menu_0305114413_0.menuLiteBgColor='#FFFFFF';
         mm_menu_0305114413_0.menuBorderBgColor='#00CC33';

        window.mm_menu_0305114448_0  =  new  Menu("root",48,18,"Verdana,
Arial,                          Helvetica,                          sans-
serif",12,"#3333FF","#FFFFFF","#FFFFFF","#000000","left","middle",3,0,1
00,-5,7,true,true,true,0,true,true);

mm_menu_0305114448_0.addMenuItem("901","location='update.asp?SecNbr=901
'");
         mm_menu_0305114448_0.hideOnMouseOut=true;
         mm_menu_0305114448_0.bgColor='#00CC33';
         mm_menu_0305114448_0.menuBorder=1;
         mm_menu_0305114448_0.menuLiteBgColor='#FFFFFF';
         mm_menu_0305114448_0.menuBorderBgColor='#00CC33';

        window.mm_menu_0305114519_0  =  new  Menu("root",56,18,"Verdana,
Arial,                          Helvetica,                          sans-
serif",12,"#3333FF","#FFFFFF","#FFFFFF","#000000","left","middle",3,0,1
00,-5,7,true,true,true,0,true,true);

mm_menu_0305114519_0.addMenuItem("1001","location='update.asp?SecNbr=10
01'");

mm_menu_0305114519_0.addMenuItem("1002","location='update.asp?SecNbr=10
02'");

mm_menu_0305114519_0.addMenuItem("1003","location='update.asp?SecNbr=10
03'");

mm_menu_0305114519_0.addMenuItem("1004","location='update.asp?SecNbr=10
04'");
         mm_menu_0305114519_0.hideOnMouseOut=true;
         mm_menu_0305114519_0.bgColor='#00CC33';
         mm_menu_0305114519_0.menuBorder=1;
```

```
        mm_menu_0305114519_0.menuLiteBgColor='#FFFFFF';
        mm_menu_0305114519_0.menuBorderBgColor='#00CC33';

       window.mm_menu_0305114639_0 = new Menu("root",56,18,"Verdana,
Arial,                          Helvetica,                          sans-
serif",12,"#3333FF","#FFFFFF","#FFFFFF","#000000","left","middle",3,0,1
00,-5,7,true,true,true,0,true,true);

mm_menu_0305114639_0.addMenuItem("1101","location='update.asp?SecNbr=11
01'");
        mm_menu_0305114639_0.hideOnMouseOut=true;
        mm_menu_0305114639_0.bgColor='#00CC33';
        mm_menu_0305114639_0.menuBorder=1;
        mm_menu_0305114639_0.menuLiteBgColor='#FFFFFF';
        mm_menu_0305114639_0.menuBorderBgColor='#00CC33';

      mm_menu_0305114639_0.writeMenus();
      } // mmLoadMenus()

      function MM_swapImgRestore() { //v3.0
        var                                    i,x,a=document.MM_sr;
for(i=0;a&&i<a.length&&(x=a[i])&&x.oSrc;i++) x.src=x.oSrc;
      }

      function MM_findObj(n, d) { //v4.01
        var          p,i,x;                    if(!d)          d=document;
if((p=n.indexOf("?"))>0&&parent.frames.length) {
          d=parent.frames[n.substring(p+1)].document;
n=n.substring(0,p);}
        if(!(x=d[n])&&d.all)               x=d.all[n];               for
(i=0;!x&&i<d.forms.length;i++) x=d.forms[i][n];
        for(i=0;!x&&d.layers&&i<d.layers.length;i++)
x=MM_findObj(n,d.layers[i].document);
        if(!x && d.getElementById) x=d.getElementById(n); return x;
      }

      function MM_swapImage() { //v3.0
        var i,j=0,x,a=MM_swapImage.arguments; document.MM_sr=new Array;
for(i=0;i<(a.length-2);i+=3)
         if          ((x=MM_findObj(a[i]))!=null){document.MM_sr[j++]=x;
if(!x.oSrc) x.oSrc=x.src; x.src=a[i+2];}
      }

      function MM_preloadImages() { //v3.0
        var d=document; if(d.images){ if(!d.MM_p) d.MM_p=new Array();
          var  i,j=d.MM_p.length,a=MM_preloadImages.arguments;  for(i=0;
i<a.length; i++)
         if      (a[i].indexOf("#")!=0){      d.MM_p[j]=new      Image;
d.MM_p[j++].src=a[i];}}
      }
      //-->
      </script>
      <link href="stylesheet.css" rel="stylesheet" type="text/css" />
      <script language="JavaScript" src="mm_menu.js"></script>
      <style type="text/css">
      <!--
      a:visited {
```

```
                                                                color: #3366CC;
      }
      -->
      </style></head>

      <body
onload="MM_preloadImages('Images/back_to_main_on.gif','Images/browse_qu
al_on.gif','Images/logout_on.gif')">
      <script language="JavaScript1.2">mmLoadMenus();</script>
      <table  width="800"  border="0"  align="center"  cellpadding="0"
cellspacing="0">
        <tr>
          <td colspan="8"><img src="Images/innerbanner.gif" width="800"
height="100" /></td>
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          <td colspan="6"><div align="center">
            <table    width="100%"        border="0"    cellspacing="0"
cellpadding="0">
              <tr>
                <td><div       align="left"><a       href="welcome.asp"
onmouseout="MM_swapImgRestore()"
onmouseover="MM_swapImage('BackToMain1','','Images/back_to_main_on.gif'
,1)"><img  src="Images/back_to_main.gif"  name="BackToMain1"  width="130"
height="30" border="0" id="BackToMain" /></a></div></td>
                <td> </td>
                <td><div     align="center"><a     href="PDF/IP%20IQ%20-
%2030%20Sep%202004.pdf"                                target="_blank"
onmouseover="MM_swapImage('BrowseQual1','','Images/browse_qual_on.gif',
1)"  onmouseout="MM_swapImgRestore()"><img  src="Images/browse_qual.gif"
name="BrowseQual1"  width="130"  height="30"  border="0"  id="BrowseQual"
/></a></div></td>
                <td> </td>
                <td><div   align="right"><a   href="<%=   MM_Logout   %>"
onmouseout="MM_swapImgRestore()"
onmouseover="MM_swapImage('Logout1','','Images/logout_on.gif',1)"><img
```

```
src="Images/logout.gif"    name="Logout1"    width="130"    height="30"
border="0" id="Logout" /></a></div></td>
              </tr>
            </table>
          </div></td>
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        <tr>
          <td> </td>
          <td colspan="6"><h4>Here is a summary of your current progess
in the Intermediate Qual: </h4></td>
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          <td> </td>
          <td    colspan="6"><table    width="100%"         border="0"
cellspacing="0" cellpadding="0">
              <tr>
                <td><p
align="right"><%=(rs_mod1complete.Fields.Item("Expr1000").Value)%></p><
/td>
                <td><p align="center">of</p></td>
                <td><p>120</p></td>
                <td><p                              class="style11"><span
class="style1"> 1.</span>  <a  href="#"  name="link3"  id="link2"
onmouseover="MM_showMenu(window.mm_menu_0304113604_0,0,15,null,'link3')
" onmouseout="MM_startTimeout();">Information Systems Officer</a>
```

```
                </p></td>
              </tr>
              <tr>
                <td><p
align="right"><%=(rs_mod2complete.Fields.Item("Expr1000").Value)%></p><
/td>
                <td><p align="center">of</p></td>
                <td><p>60</p></td>
                <td><p  class="style11">  <span  class="style1"> 2.
</span><a           href="#"          name="link4"          id="link1"
onmouseover="MM_showMenu(window.mm_menu_0305113223_0,0,15,null,'link4')
" onmouseout="MM_startTimeout();">Communications Officer</a>
                </p></td>
              </tr>
              <tr>
                <td><p
align="right"><%=(rs_mod3complete.Fields.Item("Expr1000").Value)%></p><
/td>
                <td><p align="center">of</p></td>
                <td><p>71</p></td>
                <td><p              class="style11">              <span
class="style1"> 3.</span>   <a   href="#"   name="link5"   id="link5"
onmouseover="MM_showMenu(window.mm_menu_0305113621_0,0,15,null,'link5')
" onmouseout="MM_startTimeout();">Staff C4I Officer</a>
                </p></td>
              </tr>
              <tr>
                <td><p
align="right"><%=(rs_mod4complete.Fields.Item("Expr1000").Value)%></p><
/td>
                <td><p align="center">of</p></td>
                <td><p>17</p></td>
                <td><p              class="style11">              <span
class="style1"> 4.</span>   <a   href="#"   name="link6"   id="link6"
onmouseover="MM_showMenu(window.mm_menu_0305113830_0,0,15,null,'link6')
" onmouseout="MM_startTimeout();">Space Officer</a></p></td>
              </tr>
              <tr>
                <td><p
align="right"><%=(rs_mod5complete.Fields.Item("Expr1000").Value)%></p><
/td>
                <td><p align="center">of</p></td>
                <td><p>40</p></td>
                <td><p              class="style11">              <span
class="style1"> 5.</span>   <a   href="#"   name="link7"   id="link7"
onmouseover="MM_showMenu(window.mm_menu_0305113953_0,0,15,null,'link7')
"         onmouseout="MM_startTimeout();">Information         Assurance
Officer</a></p></td>
              </tr>
              <tr>
                <td><p
align="right"><%=(rs_mod6complete.Fields.Item("Expr1000").Value)%></p><
/td>
                <td><p align="center">of</p></td>
                <td><p>10</p></td>
                <td><p              class="style11">              <span
class="style1"> 6.</span>   <a   href="#"   name="link8"   id="link8"
```

```
onmouseover="MM_showMenu(window.mm_menu_0305114102_0,0,15,null,'link8')
"            onmouseout="MM_startTimeout();">Chief            Information
Officer</a></p></td>
              </tr>
              <tr>
                <td><p
align="right"><%=(rs_mod7complete.Fields.Item("Expr1000").Value)%></p><
/td>
                <td><p align="center">of</p></td>
                <td><p>26</p></td>
                <td><p                                class="style11"><span
class="style1"> 7.</span>  <a  href="#"  name="link9"  id="link9"
onmouseover="MM_showMenu(window.mm_menu_0305114308_0,0,15,null,'link9')
" onmouseout="MM_startTimeout();">Knowledge Manager</a></p></td>
              </tr>
              <tr>
                <td><p
align="right"><%=(rs_mod8complete.Fields.Item("Expr1000").Value)%></p><
/td>
                <td><p align="center">of</p></td>
                <td><p>11</p></td>
                <td><p              class="style11">              <span
class="style1"> 8.</span>  <a  href="#"  name="link10"  id="link10"
onmouseover="MM_showMenu(window.mm_menu_0305114413_0,0,15,null,'link10'
)"  onmouseout="MM_startTimeout();">Information  Operations  Officer</a>
</p></td>
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              <tr>
                <td><p
align="right"><%=(rs_mod9complete.Fields.Item("Expr1000").Value)%></p><
/td>
                <td><p align="center">of</p></td>
                <td><p>3</p></td>
                <td><p                                class="style11"><span
class="style1"> 9.</span>  <a  href="#"  name="link11"  id="link11"
onmouseover="MM_showMenu(window.mm_menu_0305114448_0,0,15,null,'link11'
)"  onmouseout="MM_startTimeout();">C4I  Systems  Acquisition  Officer
</a></p></td>
              </tr>
              <tr>
                <td><p
align="right"><%=(rs_mod10complete.Fields.Item("Expr1000").Value)%></p>
</td>
                <td><p align="center">of</p></td>
                <td><p>24</p></td>
                <td><p class="style11"> <span class="style1">10.</span>
<a             href="#"            name="link12"            id="link12"
onmouseover="MM_showMenu(window.mm_menu_0305114519_0,0,15,null,'link12'
)" onmouseout="MM_startTimeout();">Combat Systems Officer </a></p></td>
              </tr>
              <tr>
                <td><p
align="right"><%=(rs_mod11complete.Fields.Item("Expr1000").Value)%></p>
</td>
                <td><p align="center">of</p></td>
                <td><p>3</p></td>
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                <td><p  class="style11"><span  class="style1">11.</span>
<a             href="#"             name="link13"             id="link13"
onmouseover="MM_showMenu(window.mm_menu_0305114639_0,0,15,null,'link13'
)" onmouseout="MM_startTimeout();">Watch Positions</a> </p></td>
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</table>
</body>
</html>
<%
rs_mod1complete.Close()
Set rs_mod1complete = Nothing
%>
<%
rs_mod2complete.Close()
Set rs_mod2complete = Nothing
%>
<%
rs_mod3complete.Close()
Set rs_mod3complete = Nothing
%>
<%
rs_mod4complete.Close()
Set rs_mod4complete = Nothing
%>
<%
rs_mod5complete.Close()
Set rs_mod5complete = Nothing
%>
<%
rs_mod6complete.Close()
Set rs_mod6complete = Nothing
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<%
rs_mod7complete.Close()
Set rs_mod7complete = Nothing
%>
<%
rs_mod8complete.Close()
Set rs_mod8complete = Nothing
%>
<%
rs_mod9complete.Close()
Set rs_mod9complete = Nothing
%>
<%
rs_mod10complete.Close()
Set rs_mod10complete = Nothing
%>
<%
rs_mod11complete.Close()
Set rs_mod11complete = Nothing
%>
```

D. UPDATE.ASP (FIGURE 33)

```
<%@LANGUAGE="VBSCRIPT"%>
<%
' *** Restrict Access To Page: Grant or deny access to this page
MM_authorizedUsers="Admin,User"
```

```
MM_authFailedURL="login.asp"
MM_grantAccess=false
If Session("MM_Username") <> "" Then
  If (false Or CStr(Session("MM_UserAuthorization"))="") Or _

(InStr(1,MM_authorizedUsers,Session("MM_UserAuthorization"))>=1)
Then
    MM_grantAccess = true
  End If
End If
If Not MM_grantAccess Then
  MM_qsChar = "?"
  If (InStr(1,MM_authFailedURL,"?") >= 1) Then MM_qsChar = "&"
  MM_referrer = Request.ServerVariables("URL")
  if (Len(Request.QueryString()) > 0) Then MM_referrer =
MM_referrer & "?" & Request.QueryString()
  MM_authFailedURL = MM_authFailedURL & MM_qsChar &
"accessdenied=" & Server.URLEncode(MM_referrer)
  Response.Redirect(MM_authFailedURL)
End If
%>
<!--#include file="Connections/connGroup7.asp" -->
<%
Dim rs_LineItems__User
rs_LineItems__User = "john@lennon.com"
If (Session("MM_Username")  <> "") Then
  rs_LineItems__User = Session("MM_Username")
End If
%>
<%
Dim rs_LineItems__SecNbr
rs_LineItems__SecNbr = "101"
If (Request.QueryString("SecNbr") <> "") Then
  rs_LineItems__SecNbr = Request.QueryString("SecNbr")
End If
%>
<%
Dim rs_LineItems
Dim rs_LineItems_numRows

Set rs_LineItems = Server.CreateObject("ADODB.Recordset")
rs_LineItems.ActiveConnection = MM_connGroup7_STRING
rs_LineItems.Source = "SELECT *  FROM qryAllLineItems  WHERE
txtEmail='" + Replace(rs_LineItems__User, "'", "''") + "' AND
nbrSectionNumber=" + Replace(rs_LineItems__SecNbr, "'", "''") + "
ORDER BY txtLineItemNumber"
rs_LineItems.CursorType = 0
rs_LineItems.CursorLocation = 2
rs_LineItems.LockType = 1
rs_LineItems.Open()

rs_LineItems_numRows = 0
%>
<%
Dim rs_AllLIinSection__SecNbr
rs_AllLIinSection__SecNbr = "101"
If (Request.Querystring("SecNbr")  <> "") Then
```

```
  rs_AllLIinSection__SecNbr = Request.Querystring("SecNbr")
End If
%>
<%
Dim Repeat1__numRows
Dim Repeat1__index

Repeat1__numRows = 10
Repeat1__index = 0
rs_LineItems_numRows = rs_LineItems_numRows + Repeat1__numRows
%>
<%
'  *** Recordset Stats, Move To Record, and Go To Record: declare
stats variables

Dim rs_LineItems_total
Dim rs_LineItems_first
Dim rs_LineItems_last

' set the record count
rs_LineItems_total = rs_LineItems.RecordCount

' set the number of rows displayed on this page
If (rs_LineItems_numRows < 0) Then
  rs_LineItems_numRows = rs_LineItems_total
Elseif (rs_LineItems_numRows = 0) Then
  rs_LineItems_numRows = 1
End If

' set the first and last displayed record
rs_LineItems_first = 1
rs_LineItems_last  = rs_LineItems_first + rs_LineItems_numRows -
1

' if we have the correct record count, check the other stats
If (rs_LineItems_total <> -1) Then
  If (rs_LineItems_first > rs_LineItems_total) Then
    rs_LineItems_first = rs_LineItems_total
  End If
  If (rs_LineItems_last > rs_LineItems_total) Then
    rs_LineItems_last = rs_LineItems_total
  End If
  If (rs_LineItems_numRows > rs_LineItems_total) Then
    rs_LineItems_numRows = rs_LineItems_total
  End If
End If
%>
<%
Dim MM_paramName
%>
<%
' *** Move To Record and Go To Record: declare variables

Dim MM_rs
Dim MM_rsCount
Dim MM_size
Dim MM_uniqueCol
```

```
Dim MM_offset
Dim MM_atTotal
Dim MM_paramIsDefined

Dim MM_param
Dim MM_index

Set MM_rs    = rs_LineItems
MM_rsCount   = rs_LineItems_total
MM_size      = rs_LineItems_numRows
MM_uniqueCol = ""
MM_paramName = ""
MM_offset = 0
MM_atTotal = false
MM_paramIsDefined = false
If (MM_paramName <> "") Then
  MM_paramIsDefined = (Request.QueryString(MM_paramName) <> "")
End If
%>
<%
' *** Move To Record: handle 'index' or 'offset' parameter

if (Not MM_paramIsDefined And MM_rsCount <> 0) then

  ' use index parameter if defined, otherwise use offset
parameter
  MM_param = Request.QueryString("index")
  If (MM_param = "") Then
    MM_param = Request.QueryString("offset")
  End If
  If (MM_param <> "") Then
    MM_offset = Int(MM_param)
  End If

  ' if we have a record count, check if we are past the end of
the recordset
  If (MM_rsCount <> -1) Then
    If (MM_offset >= MM_rsCount Or MM_offset = -1) Then  ' past
end or move last
      If ((MM_rsCount Mod MM_size) > 0) Then         ' last page
not a full repeat region
        MM_offset = MM_rsCount - (MM_rsCount Mod MM_size)
      Else
        MM_offset = MM_rsCount - MM_size
      End If
    End If
  End If

  ' move the cursor to the selected record
  MM_index = 0
  While ((Not MM_rs.EOF) And (MM_index < MM_offset Or MM_offset =
-1))
    MM_rs.MoveNext
    MM_index = MM_index + 1
  Wend
  If (MM_rs.EOF) Then
```

```
    MM_offset = MM_index  ' set MM_offset to the last possible
record
  End If

End If
%>
<%
' *** Move To Record: if we dont know the record count, check the
display range

If (MM_rsCount = -1) Then

  ' walk to the end of the display range for this page
  MM_index = MM_offset
  While (Not MM_rs.EOF And (MM_size < 0 Or MM_index < MM_offset +
MM_size))
    MM_rs.MoveNext
    MM_index = MM_index + 1
  Wend

  ' if we walked off the end of the recordset, set MM_rsCount and
MM_size
  If (MM_rs.EOF) Then
    MM_rsCount = MM_index
    If (MM_size < 0 Or MM_size > MM_rsCount) Then
      MM_size = MM_rsCount
    End If
  End If

  ' if we walked off the end, set the offset based on page size
  If (MM_rs.EOF And Not MM_paramIsDefined) Then
    If (MM_offset > MM_rsCount - MM_size Or MM_offset = -1) Then
      If ((MM_rsCount Mod MM_size) > 0) Then
        MM_offset = MM_rsCount - (MM_rsCount Mod MM_size)
      Else
        MM_offset = MM_rsCount - MM_size
      End If
    End If
  End If

  ' reset the cursor to the beginning
  If (MM_rs.CursorType > 0) Then
    MM_rs.MoveFirst
  Else
    MM_rs.Requery
  End If

  ' move the cursor to the selected record
  MM_index = 0
  While (Not MM_rs.EOF And MM_index < MM_offset)
    MM_rs.MoveNext
    MM_index = MM_index + 1
  Wend
End If
%>
<%
' *** Move To Record: update recordset stats
```

```
' set the first and last displayed record
rs_LineItems_first = MM_offset + 1
rs_LineItems_last  = MM_offset + MM_size

If (MM_rsCount <> -1) Then
  If (rs_LineItems_first > MM_rsCount) Then
    rs_LineItems_first = MM_rsCount
  End If
  If (rs_LineItems_last > MM_rsCount) Then
    rs_LineItems_last = MM_rsCount
  End If
End If

' set the boolean used by hide region to check if we are on the
last record
MM_atTotal = (MM_rsCount <> -1 And MM_offset + MM_size >=
MM_rsCount)
%>
<%
' *** Go To Record and Move To Record: create strings for
maintaining URL and Form parameters

Dim MM_keepNone
Dim MM_keepURL
Dim MM_keepForm
Dim MM_keepBoth

Dim MM_removeList
Dim MM_item
Dim MM_nextItem

' create the list of parameters which should not be maintained
MM_removeList = "&index="
If (MM_paramName <> "") Then
  MM_removeList = MM_removeList & "&" & MM_paramName & "="
End If

MM_keepURL=""
MM_keepForm=""
MM_keepBoth=""
MM_keepNone=""

' add the URL parameters to the MM_keepURL string
For Each MM_item In Request.QueryString
  MM_nextItem = "&" & MM_item & "="
  If (InStr(1,MM_removeList,MM_nextItem,1) = 0) Then
    MM_keepURL = MM_keepURL & MM_nextItem &
Server.URLencode(Request.QueryString(MM_item))
  End If
Next

' add the Form variables to the MM_keepForm string
For Each MM_item In Request.Form
  MM_nextItem = "&" & MM_item & "="
  If (InStr(1,MM_removeList,MM_nextItem,1) = 0) Then
```

```
    MM_keepForm = MM_keepForm & MM_nextItem &
Server.URLencode(Request.Form(MM_item))
  End If
Next

' create the Form + URL string and remove the intial '&' from
each of the strings
MM_keepBoth = MM_keepURL & MM_keepForm
If (MM_keepBoth <> "") Then
  MM_keepBoth = Right(MM_keepBoth, Len(MM_keepBoth) - 1)
End If
If (MM_keepURL <> "")  Then
  MM_keepURL  = Right(MM_keepURL, Len(MM_keepURL) - 1)
End If
If (MM_keepForm <> "") Then
  MM_keepForm = Right(MM_keepForm, Len(MM_keepForm) - 1)
End If

' a utility function used for adding additional parameters to
these strings
Function MM_joinChar(firstItem)
  If (firstItem <> "") Then
    MM_joinChar = "&"
  Else
    MM_joinChar = ""
  End If
End Function
%>
<%
' *** Move To Record: set the strings for the first, last, next,
and previous links

Dim MM_keepMove
Dim MM_moveParam
Dim MM_moveFirst
Dim MM_moveLast
Dim MM_moveNext
Dim MM_movePrev

Dim MM_urlStr
Dim MM_paramList
Dim MM_paramIndex
Dim MM_nextParam

MM_keepMove = MM_keepBoth
MM_moveParam = "index"

' if the page has a repeated region, remove 'offset' from the
maintained parameters
If (MM_size > 1) Then
  MM_moveParam = "offset"
  If (MM_keepMove <> "") Then
    MM_paramList = Split(MM_keepMove, "&")
    MM_keepMove = ""
    For MM_paramIndex = 0 To UBound(MM_paramList)
      MM_nextParam = Left(MM_paramList(MM_paramIndex),
InStr(MM_paramList(MM_paramIndex),"=") - 1)
```

```
      If (StrComp(MM_nextParam,MM_moveParam,1) <> 0) Then
        MM_keepMove = MM_keepMove & "&" &
MM_paramList(MM_paramIndex)
      End If
    Next
    If (MM_keepMove <> "") Then
      MM_keepMove = Right(MM_keepMove, Len(MM_keepMove) - 1)
    End If
  End If
End If

' set the strings for the move to links
If (MM_keepMove <> "") Then
  MM_keepMove = Server.HTMLEncode(MM_keepMove) & "&"
End If

MM_urlStr = Request.ServerVariables("URL") & "?" & MM_keepMove &
MM_moveParam & "="

MM_moveFirst = MM_urlStr & "0"
MM_moveLast  = MM_urlStr & "-1"
MM_moveNext  = MM_urlStr & CStr(MM_offset + MM_size)
If (MM_offset - MM_size < 0) Then
  MM_movePrev = MM_urlStr & "0"
Else
  MM_movePrev = MM_urlStr & CStr(MM_offset - MM_size)
End If
%>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html                                          >
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-
8859-1" />
<title>IP Qualbook: Update</title>
<link href="stylesheet.css" rel="stylesheet" type="text/css" />
<style type="text/css">
<!--
.style2 {font-family: Verdana, Arial, Helvetica, sans-serif}
.style5 {font-family: Verdana, Arial, Helvetica, sans-serif;
font-size: 12px; }
.style7 {font-family: Verdana, Arial, Helvetica, sans-serif;
font-size: 14px; }
.style8 {font-size: 12px}
.style9 {color: #3333FF; font-family: Verdana, Arial, Helvetica,
sans-serif; font-size: 12px; }
.style10 {font-family: Verdana, Arial, Helvetica, sans-serif;
color: #3333FF;}
a:visited {
      color: #3366CC;
}
-->
</style>
</head>

<body>
```

```
<table width="800" border="0" align="center" cellpadding="0"
cellspacing="0">
  <tr>
    <td colspan="8"><img src="Images/innerbanner.gif" width="800"
height="100" /></td>
  </tr>
  <tr>
    <td width="72"> </td>
    <td width="75"> </td>
    <td width="144"> </td>
    <td width="144"> </td>
    <td width="144"> </td>
    <td width="144"> </td>
    <td width="56"> </td>
    <td width="73"> </td>
  </tr>
  <tr>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
  </tr>
  <tr>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
  </tr>
  <tr>
    <td colspan="8"><%
While ((Repeat1__numRows <> 0) AND (NOT rs_LineItems.EOF))
%>
<table width="100%"  border="0" cellspacing="0" cellpadding="0">
      <tr>
        <td width="100" align="left" valign="top"><span
class="style2"><span class="style8">
            <a
href="detail.asp?LID=<%=(rs_LineItems.Fields.Item("nbrLineItemID"
).Value)%>"><%=(rs_LineItems.Fields.Item("txtLineItemNumber").Val
ue)%></a></span></span></td>
       <td colspan="6" align="left" valign="top"><span
class="style5"><%=(rs_LineItems.Fields.Item("memLineItemDesc").Va
lue)%></span></td>
        </tr>
      <tr>
        <td width="60"> </td>
        <td colspan="6" align="left"> </td>
        </tr>
      <tr>
```

```
        <td> </td>
        <td colspan="6" align="left" valign="bottom"><table
width="300" border="0" cellspacing="0" cellpadding="0">
          <tr>
            <td width="225"><span
class="style9"><%=(rs_LineItems.Fields.Item("txtSignature").Value
)%></span></td>
            <td width="75" align="right" class="style9"><span
class="style10"><%=(rs_LineItems.Fields.Item("dteDateSigned").Val
ue)%></span></td>
          </tr>
        </table></td>
        </tr>
      <tr>
        <td> </td>
        <td width="300" align="left" valign="bottom"><hr
align="left" width="300" size="1" noshade="noshade" /></td>
        <td colspan="5" align="left"> </td>
      </tr>
      <tr>
        <td> </td>
        <td colspan="6" align="left" valign="bottom"><table
width="300" border="0" cellspacing="0" cellpadding="0">
          <tr>
            <td width="225"><span
class="style5">Signature</span></td>
            <td width="75" align="right"><span class="style7
style8">Date</span></td>
          </tr>
        </table></td>
        </tr>
      <tr>
        <td> </td>
        <td colspan="6" valign="bottom"> </td>
        </tr>
      <tr>
        <td> </td>
        <td colspan="6" valign="bottom"> </td>
      </tr>
    </table>


<%
  Repeat1__index=Repeat1__index+1
  Repeat1__numRows=Repeat1__numRows-1
  rs_LineItems.MoveNext()
Wend
%>
</td>
  </tr>
  <tr>
    <td colspan="8"><table width="400" border="0" align="left"
cellpadding="0" cellspacing="0">
        <tr class="style2">
          <td width="100"><div align="center"></div></td>
          <td width="120"><div align="center">
            <% If MM_offset <> 0 Then %>
```

```
                <A HREF="<%=MM_moveFirst%>">First</A>
                <% End If ' end MM_offset <> 0 %>
      </div></td>
                <td width="120"><div align="center">
                <% If MM_offset <> 0 Then %>
                <A HREF="<%=MM_movePrev%>">Previous</A>
                <% End If ' end MM_offset <> 0 %>
      </div></td>
                <td width="120"><div align="center">
                <% If Not MM_atTotal Then %>
                <A HREF="<%=MM_moveNext%>">Next</A>
                <% End If ' end Not MM_atTotal %>
      </div></td>
                <td width="120"><div align="center">
                <% If Not MM_atTotal Then %>
                <A HREF="<%=MM_moveLast%>">Last</A>
                <% End If ' end Not MM_atTotal %>
      </div></td>
              </tr>
            </table></td>
        </tr>
        <tr>
          <td colspan="8"> </td>
        </tr>
      </table>
      <p> </p>
      </body>
      </html>
      <%
      rs_LineItems.Close()
      Set rs_LineItems = Nothing
      %>
```

E. DETAIL.ASP (FIGURE 34)

```
      <%@LANGUAGE="VBSCRIPT"%>
      <!--#include file="Connections/connGroup7.asp" -->
      <%
      ' *** Restrict Access To Page: Grant or deny access to this page
      MM_authorizedUsers="Admin,User"
      MM_authFailedURL="login.asp"
      MM_grantAccess=false
      If Session("MM_Username") <> "" Then
        If (false Or CStr(Session("MM_UserAuthorization"))="") Or _

(InStr(1,MM_authorizedUsers,Session("MM_UserAuthorization"))>=1) Then
          MM_grantAccess = true
        End If
      End If
      If Not MM_grantAccess Then
        MM_qsChar = "?"
        If (InStr(1,MM_authFailedURL,"?") >= 1) Then MM_qsChar = "&"
        MM_referrer = Request.ServerVariables("URL")
        if   (Len(Request.QueryString())   >   0)   Then   MM_referrer   =
MM_referrer & "?" & Request.QueryString()
```

```
        MM_authFailedURL    =    MM_authFailedURL    &    MM_qsChar    &
"accessdenied=" & Server.URLEncode(MM_referrer)
        Response.Redirect(MM_authFailedURL)
      End If
      %>
      <%
      ' *** Edit Operations: declare variables

      Dim MM_editAction
      Dim MM_abortEdit
      Dim MM_editQuery
      Dim MM_editCmd

      Dim MM_editConnection
      Dim MM_editTable
      Dim MM_editRedirectUrl
      Dim MM_editColumn
      Dim MM_recordId

      Dim MM_fieldsStr
      Dim MM_columnsStr
      Dim MM_fields
      Dim MM_columns
      Dim MM_typeArray
      Dim MM_formVal
      Dim MM_delim
      Dim MM_altVal
      Dim MM_emptyVal
      Dim MM_i

      MM_editAction = CStr(Request.ServerVariables("SCRIPT_NAME"))
      If (Request.QueryString <> "") Then
        MM_editAction      =      MM_editAction      &      "?"      &
Server.HTMLEncode(Request.QueryString)
      End If

      ' boolean to abort record edit
      MM_abortEdit = false

      ' query string to execute
      MM_editQuery = ""
      %>
      <%
      ' *** Update Record: set variables

      If      (CStr(Request("MM_update"))      =      "update"      And
CStr(Request("MM_recordId")) <> "") Then

        MM_editConnection = MM_connGroup7_STRING
        MM_editTable = "tblAssigned"
        MM_editColumn = "nbrAssignedID"
        MM_recordId = "" + Request.Form("MM_recordId") + ""
        MM_editRedirectUrl = "intermediate.asp"
        MM_fieldsStr  = "signature|value|dateSigned|value"
        MM_columnsStr                                                =
"txtSignature|',none,''|dteDateSigned|',none,NULL"
```

```
        ' create the MM_fields and MM_columns arrays
        MM_fields = Split(MM_fieldsStr, "|")
        MM_columns = Split(MM_columnsStr, "|")

        ' set the form values
        For MM_i = LBound(MM_fields) To UBound(MM_fields) Step 2
          MM_fields(MM_i+1) = CStr(Request.Form(MM_fields(MM_i)))
        Next

        ' append the query string to the redirect URL
        If (MM_editRedirectUrl <> "" And Request.QueryString <> "")
Then
          If (InStr(1, MM_editRedirectUrl, "?", vbTextCompare) = 0 And
Request.QueryString <> "") Then
            MM_editRedirectUrl = MM_editRedirectUrl & "?" &
Request.QueryString
          Else
            MM_editRedirectUrl = MM_editRedirectUrl & "&" &
Request.QueryString
          End If
        End If

      End If
      %>
      <%
      ' *** Update Record: construct a sql update statement and execute
it

      If (CStr(Request("MM_update")) <> "" And
CStr(Request("MM_recordId")) <> "") Then

        ' create the sql update statement
        MM_editQuery = "update " & MM_editTable & " set "
        For MM_i = LBound(MM_fields) To UBound(MM_fields) Step 2
          MM_formVal = MM_fields(MM_i+1)
          MM_typeArray = Split(MM_columns(MM_i+1),",")
          MM_delim = MM_typeArray(0)
          If (MM_delim = "none") Then MM_delim = ""
          MM_altVal = MM_typeArray(1)
          If (MM_altVal = "none") Then MM_altVal = ""
          MM_emptyVal = MM_typeArray(2)
          If (MM_emptyVal = "none") Then MM_emptyVal = ""
          If (MM_formVal = "") Then
            MM_formVal = MM_emptyVal
          Else
            If (MM_altVal <> "") Then
              MM_formVal = MM_altVal
            ElseIf (MM_delim = "'") Then  ' escape quotes
              MM_formVal = "'" & Replace(MM_formVal,"'","''") & "'"
            Else
              MM_formVal = MM_delim + MM_formVal + MM_delim
            End If
          End If
          If (MM_i <> LBound(MM_fields)) Then
            MM_editQuery = MM_editQuery & ","
          End If
```

```
          MM_editQuery = MM_editQuery & MM_columns(MM_i) & " = " &
MM_formVal
        Next
        MM_editQuery = MM_editQuery & " where " & MM_editColumn & " = "
& MM_recordId

        If (Not MM_abortEdit) Then
          ' execute the update
          Set MM_editCmd = Server.CreateObject("ADODB.Command")
          MM_editCmd.ActiveConnection = MM_editConnection
          MM_editCmd.CommandText = MM_editQuery
          MM_editCmd.Execute
          MM_editCmd.ActiveConnection.Close

          If (MM_editRedirectUrl <> "") Then
            Response.Redirect(MM_editRedirectUrl)
          End If
        End If

      End If
      %>
      <%
      Dim rs_Update__LID
      rs_Update__LID = "551"
      If (Request.QueryString("LID") <> "") Then
        rs_Update__LID = Request.QueryString("LID")
      End If
      %>
      <%
      Dim rs_Update__User
      rs_Update__User = "m@n"
      If (Session("MM_Username") <> "") Then
        rs_Update__User = Session("MM_Username")
      End If
      %>
      <%
      Dim rs_Update
      Dim rs_Update_numRows

      Set rs_Update = Server.CreateObject("ADODB.Recordset")
      rs_Update.ActiveConnection = MM_connGroup7_STRING
      rs_Update.Source = "SELECT * FROM qryAllLineItems WHERE
tblAssigned.nbrLineItemID=" + Replace(rs_Update__LID, "'", "''") + "
AND txtEmail='" + Replace(rs_Update__User, "'", "''") + "';"
      rs_Update.CursorType = 0
      rs_Update.CursorLocation = 2
      rs_Update.LockType = 1
      rs_Update.Open()

      rs_Update_numRows = 0
      %>
      <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
      <html xmlns="http://www.w3.org/1999/xhtml">
      <head>
      <meta http-equiv="Content-Type" content="text/html; charset=iso-
8859-1" />
```

```
      <title>IP Qualbook: Signature Page</title>
      <link href="stylesheet.css" rel="stylesheet" type="text/css" />
      <script language="JavaScript" type="text/JavaScript">
      <!--
      function MM_findObj(n, d) { //v4.01
        var         p,i,x;                    if(!d)          d=document;
if((p=n.indexOf("?"))>0&&parent.frames.length) {
          d=parent.frames[n.substring(p+1)].document;
n=n.substring(0,p);}
        if(!(x=d[n])&&d.all)               x=d.all[n];               for
(i=0;!x&&i<d.forms.length;i++) x=d.forms[i][n];
        for(i=0;!x&&d.layers&&i<d.layers.length;i++)
x=MM_findObj(n,d.layers[i].document);
        if(!x && d.getElementById) x=d.getElementById(n); return x;
      }

      function MM_validateForm() { //v4.0
        var
i,p,q,nm,test,num,min,max,errors='',args=MM_validateForm.arguments;
        for    (i=0;    i<(args.length-2);    i+=3)    {    test=args[i+2];
val=MM_findObj(args[i]);
          if (val) { nm=val.name; if ((val=val.value)!="") {
            if (test.indexOf('isEmail')!=-1) { p=val.indexOf('@');
              if  (p<1  ||  p==(val.length-1))  errors+='-  '+nm+'  must
contain an e-mail address.\n';
            } else if (test!='R') { num = parseFloat(val);
              if   (isNaN(val))   errors+='-   '+nm+'   must   contain   a
number.\n';
              if (test.indexOf('inRange') != -1) { p=test.indexOf(':');
                min=test.substring(8,p); max=test.substring(p+1);
                if (num<min || max<num) errors+='- '+nm+' must contain
a number between '+min+' and '+max+'.\n';
          } } } else if (test.charAt(0) == 'R') errors += '- '+nm+' is
required.\n'; }
        }     if     (errors)     alert('The     following     error(s)
occurred:\n'+errors);
        document.MM_returnValue = (errors == '');
      }
      //-->
      </script>
      <style type="text/css">
      <!--
      .style1 {font-size: 12px}
      -->
      </style>
      </head>

      <body>
      <table  width="800"  border="0"  align="center"  cellpadding="0"
cellspacing="0">
        <tr>
          <td colspan="8"><img src="Images/innerbanner.gif" width="800"
height="100" /></td>
        </tr>
        <tr>
          <td> </td>
          <td> </td>
```

```
          <td> </td>
          <td> </td>
          <td> </td>
          <td> </td>
          <td> </td>
          <td> </td>
        </tr>
        <tr>
          <td> </td>
          <td> </td>
          <td> </td>
          <td> </td>
          <td> </td>
          <td> </td>
          <td> </td>
          <td> </td>
        </tr>
        <tr>
          <td><p> </p></td>
          <td width="100"><p> </p></td>
          <td width="100"><p> </p></td>
          <td width="100"><p> </p></td>
          <td width="100"><p> </p></td>
          <td width="100"><p> </p></td>
          <td width="100"><p> </p></td>
          <td><p> </p></td>
        </tr>
        <tr>
          <td                  width="100"                  valign="top"><p
class="style1"><%=(rs_Update.Fields.Item("txtLineItemNumber").Value)%><
/p></td>
          <td                                                  colspan="6"><p
class="style1"><%=(rs_Update.Fields.Item("memLineItemDesc").Value)%></p
></td>
          <td width="100"><p> </p></td>
        </tr>
        <tr>
          <td><p> </p></td>
          <td colspan="6"><p class="style3"> </p></td>
          <td><p> </p></td>
        </tr>
        <tr>
          <td><p> </p></td>
          <td><form     name="update"     id="update"     method="POST"
action="<%=MM_editAction%>">
            <table    width="100%"        border="0"    cellspacing="0"
cellpadding="3">
              <tr>
                <td><p>
                  <input   name="signature"   type="text"   id="signature"
tabindex="2"  value="<%=(rs_Update.Fields.Item("txtSignature").Value)%>"
/>
                </p></td>
                <td><p>
                  <input  name="dateSigned"  type="text"  id="dateSigned"
tabindex="3"
```

```
value="<%=(rs_Update.Fields.Item("dteDateSigned").Value)%>"     size="8"
maxlength="8" />
                </p></td>
                <td><p>
                  <input   name="Submit"   type="submit"   tabindex="4"
onclick="MM_validateForm('signature','','R','dateSigned','','R');return
document.MM_returnValue" value="Submit" />
      </p></td>
              </tr>
              <tr>
                <td><p class="style5 style1">Signature</p></td>
                <td><p class="style5 style1">Date</p></td>
                <td><p> </p></td>
              </tr>
            </table>

            <input type="hidden" name="MM_update" value="update">
            <input    type="hidden"    name="MM_recordId"    value="<%=
rs_Update.Fields.Item("nbrAssignedID").Value %>">
          </form></td>
          <td colspan="5"><p> </p></td>
          <td><p> </p></td>
        </tr>
      </table>
      </body>
      </html>
      <%
      rs_Update.Close()
      Set rs_Update = Nothing
      %>
```

F. ADMIN.ASP (FIGURE 35)

```
<%@LANGUAGE="VBSCRIPT"%>
<%
' *** Logout the current user.
MM_Logout = CStr(Request.ServerVariables("URL")) &
"?MM_Logoutnow=1"
If (CStr(Request("MM_Logoutnow")) = "1") Then
  Session.Contents.Remove("MM_Username")
  Session.Contents.Remove("MM_UserAuthorization")
  MM_logoutRedirectPage = "logoff.htm"
  ' redirect with URL parameters (remove the "MM_Logoutnow" query
param).
  if (MM_logoutRedirectPage = "") Then MM_logoutRedirectPage =
CStr(Request.ServerVariables("URL"))
  If (InStr(1, UC_redirectPage, "?", vbTextCompare) = 0 And
Request.QueryString <> "") Then
    MM_newQS = "?"
    For Each Item In Request.QueryString
      If (Item <> "MM_Logoutnow") Then
        If (Len(MM_newQS) > 1) Then MM_newQS = MM_newQS & "&"
        MM_newQS = MM_newQS & Item & "=" &
Server.URLencode(Request.QueryString(Item))
      End If
    Next
```

```
    if (Len(MM_newQS) > 1) Then MM_logoutRedirectPage =
MM_logoutRedirectPage & MM_newQS
  End If
  Response.Redirect(MM_logoutRedirectPage)
End If
%>
<!--#include file="Connections/connGroup7.asp" -->
<%
' *** Restrict Access To Page: Grant or deny access to this page
MM_authorizedUsers="Admin"
MM_authFailedURL="welcome.asp?error=notAdmin"
MM_grantAccess=false
If Session("MM_Username") <> "" Then
  If (false Or CStr(Session("MM_UserAuthorization"))="") Or _

(InStr(1,MM_authorizedUsers,Session("MM_UserAuthorization"))>=1)
Then
    MM_grantAccess = true
  End If
End If
If Not MM_grantAccess Then
  MM_qsChar = "?"
  If (InStr(1,MM_authFailedURL,"?") >= 1) Then MM_qsChar = "&"
  MM_referrer = Request.ServerVariables("URL")
  if (Len(Request.QueryString()) > 0) Then MM_referrer =
MM_referrer & "?" & Request.QueryString()
  MM_authFailedURL = MM_authFailedURL & MM_qsChar &
"accessdenied=" & Server.URLEncode(MM_referrer)
  Response.Redirect(MM_authFailedURL)
End If
%>
<%
Dim rs_mod1complete__user
rs_mod1complete__user = "m@n"
If (Session("MM_Username") <> "") Then
  rs_mod1complete__user = Session("MM_Username")
End If
%>
<%
Dim rs_mod1complete
Dim rs_mod1complete_numRows

Set rs_mod1complete = Server.CreateObject("ADODB.Recordset")
rs_mod1complete.ActiveConnection = MM_connGroup7_STRING
rs_mod1complete.Source = "SELECT Count(*)  FROM qryAllLineItems
WHERE txtSignature is not null AND txtEmail='" +
Replace(rs_mod1complete__user, "'", "''") + "';"
rs_mod1complete.CursorType = 0
rs_mod1complete.CursorLocation = 2
rs_mod1complete.LockType = 1
rs_mod1complete.Open()

rs_mod1complete_numRows = 0
%>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

```
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-
8859-1" />
<title>IP Qualbook: Admin</title>
<script language="JavaScript" type="text/javascript">
<!--
function mmLoadMenus() {
  if (window.mm_menu_0304113510_0) return;
  window.mm_menu_0304113510_0 = new Menu("root",48,18,"Verdana,
Arial, Helvetica, sans-
serif",12,"#000000","#FFFFFF","#FFFFFF","#000000","left","middle"
,3,0,100,-5,7,true,true,true,0,true,true);

mm_menu_0304113510_0.addMenuItem("101","location='update.asp'");

mm_menu_0304113510_0.addMenuItem("102","location='update.asp'");
   mm_menu_0304113510_0.hideOnMouseOut=true;
   mm_menu_0304113510_0.bgColor='#555555';
   mm_menu_0304113510_0.menuBorder=1;
   mm_menu_0304113510_0.menuLiteBgColor='#FFFFFF';
   mm_menu_0304113510_0.menuBorderBgColor='#777777';


  mm_menu_0304113510_0.writeMenus();
} // mmLoadMenus()

function MM_swapImgRestore() { //v3.0
  var i,x,a=document.MM_sr;
for(i=0;a&&i<a.length&&(x=a[i])&&x.oSrc;i++) x.src=x.oSrc;
}

function MM_findObj(n, d) { //v4.01
  var p,i,x;  if(!d) d=document;
if((p=n.indexOf("?"))>0&&parent.frames.length) {
    d=parent.frames[n.substring(p+1)].document;
n=n.substring(0,p);}
  if(!(x=d[n])&&d.all) x=d.all[n]; for
(i=0;!x&&i<d.forms.length;i++) x=d.forms[i][n];
  for(i=0;!x&&d.layers&&i<d.layers.length;i++)
x=MM_findObj(n,d.layers[i].document);
  if(!x && d.getElementById) x=d.getElementById(n); return x;
}

function MM_swapImage() { //v3.0
  var i,j=0,x,a=MM_swapImage.arguments; document.MM_sr=new Array;
for(i=0;i<(a.length-2);i+=3)
   if ((x=MM_findObj(a[i]))!=null){document.MM_sr[j++]=x;
if(!x.oSrc) x.oSrc=x.src; x.src=a[i+2];}
}

function MM_preloadImages() { //v3.0
  var d=document; if(d.images){ if(!d.MM_p) d.MM_p=new Array();
    var i,j=d.MM_p.length,a=MM_preloadImages.arguments; for(i=0;
i<a.length; i++)
    if (a[i].indexOf("#")!=0){ d.MM_p[j]=new Image;
d.MM_p[j++].src=a[i];}}
```

```
}

function MM_popupMsg(msg) { //v1.0
  alert(msg);
}
//-->
</script>
<link href="stylesheet.css" rel="stylesheet" type="text/css" />
<script language="JavaScript" src="mm_menu.js"></script>
<style type="text/css">
<!--
a:link {
      color: #3333ff;
}
a:visited {
      color: #3333ff;
}
a:hover {
      color: #00CC33;
}
a:active {
      color: #00CC33;
}
.style3 {font-family: Verdana, Arial, Helvetica, sans-serif}
-->
</style>
</head>

<body
onload="MM_preloadImages('Images/back_to_main_on.gif','Images/log
out_on.gif','Images/add_on.gif','Images/modify_delete_on.gif','Im
ages/search_users_on.gif')">
<script language="JavaScript1.2">mmLoadMenus();</script>
<table width="800" border="0" align="center" cellpadding="0"
cellspacing="0">
  <tr>
    <td colspan="8"><img src="Images/innerbanner.gif" width="800"
height="100" /></td>
  </tr>
  <tr>
    <td> </td>
    <td> </td>
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    <td> </td>
```

```
    <td> </td>
  </tr>
  <tr>
    <td> </td>
    <td colspan="6"><div align="center">
      <table width="100%"  border="0" cellspacing="0"
cellpadding="0">
        <tr>
          <td><div align="center"><a href="welcome.asp"
onmouseout="MM_swapImgRestore()"
onmouseover="MM_swapImage('BackToMain1','','Images/back_to_main_o
n.gif',1)"><img src="Images/back_to_main.gif" name="BackToMain1"
width="130" height="30" border="0" id="BackToMain"
/></a></div></td>
          <td> </td>
          <td><div align="center"><a href="<%= MM_Logout %>"
onmouseout="MM_swapImgRestore()"
onmouseover="MM_swapImage('Logout1','','Images/logout_on.gif',1)"
><img src="Images/logout.gif" name="Logout1" width="130"
height="30" border="0" id="Logout" /></a></div></td>
        </tr>
      </table>
    </div></td>
    <td> </td>
  </tr>
  <tr>
    <td> </td>
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    <td width="100"> </td>
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    <td width="100"> </td>
    <td width="100"> </td>
  </tr>
  <tr>
    <td> </td>
    <td colspan="6"><span class="style3">As an administrator, you
can view the progess of individual users, change user permission
status, and delete user accounts from the database.  With
regard to the qualbooks, you can also  add, modify, or delete
line items. </span></td>
    <td> </td>
  </tr>
  <tr>
    <td> </td>
    <td> </td>
```

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    <td> </td>
    <td> </td>
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    <td> </td>
  </tr>
  <tr>
    <td> </td>
    <td colspan="6"><table width="100%"  border="0"
cellspacing="0" cellpadding="0">
      <tr>
        <td><h4 align="center">Individual Accounts </h4></td>
        <td width="2%"> </td>
        <td colspan="3"><h4 align="center">Change Line Items
</h4></td>
      </tr>
      <tr>
        <td><div align="center"><a href="admin_search.asp"
onmouseout="MM_swapImgRestore()"
onmouseover="MM_swapImage('RolloverSearch','','Images/search_user
s_on.gif',1)"><img src="Images/search_users.gif"
name="RolloverSearch" width="130" height="30" border="0"
id="RolloverSearch" /></a></div></td>
        <td> </td>
        <td width="24%"><div align="right"><a href="#"
onclick="MM_popupMsg('This feature will be enabled later.')"
onmouseover="MM_swapImage('RolloverAdd','','Images/add_on.gif',1)
" onmouseout="MM_swapImgRestore()"><img src="Images/add.gif"
name="RolloverAdd" width="130" height="30" border="0"
id="RolloverAdd" /></a></div></td>
        <td width="1%"> </td>
        <td width="25%"><div align="left"><a href="#"
onclick="MM_popupMsg('This feature will be enabled later.')"
onmouseover="MM_swapImage('RolloverModifyDelete','','Images/modif
y_delete_on.gif',1)" onmouseout="MM_swapImgRestore()"><img
src="Images/modify_delete.gif" name="RolloverModifyDelete"
width="130" height="30" border="0" id="RolloverModifyDelete"
/></a></div></td>
      </tr>
    </table></td>
    <td> </td>
  </tr>
</table>
</body>
</html>
<%
```

```
rs_mod1complete.Close()
Set rs_mod1complete = Nothing
%>
```

G. ADMIN_SEARCH.ASP (FIGURE 36)

```
<%@LANGUAGE="VBSCRIPT"%>
<%
' *** Logout the current user.
MM_Logout = CStr(Request.ServerVariables("URL")) &
"?MM_Logoutnow=1"
If (CStr(Request("MM_Logoutnow")) = "1") Then
  Session.Contents.Remove("MM_Username")
  Session.Contents.Remove("MM_UserAuthorization")
  MM_logoutRedirectPage = "logoff.htm"
  ' redirect with URL parameters (remove the "MM_Logoutnow" query
param).
  if (MM_logoutRedirectPage = "") Then MM_logoutRedirectPage =
CStr(Request.ServerVariables("URL"))
  If (InStr(1, UC_redirectPage, "?", vbTextCompare) = 0 And
Request.QueryString <> "") Then
    MM_newQS = "?"
    For Each Item In Request.QueryString
      If (Item <> "MM_Logoutnow") Then
        If (Len(MM_newQS) > 1) Then MM_newQS = MM_newQS & "&"
        MM_newQS = MM_newQS & Item & "=" &
Server.URLencode(Request.QueryString(Item))
      End If
    Next
    if (Len(MM_newQS) > 1) Then MM_logoutRedirectPage =
MM_logoutRedirectPage & MM_newQS
  End If
  Response.Redirect(MM_logoutRedirectPage)
End If
%>
<%
' *** Restrict Access To Page: Grant or deny access to this page
MM_authorizedUsers="Admin"
MM_authFailedURL="welcome.asp"
MM_grantAccess=false
If Session("MM_Username") <> "" Then
  If (false Or CStr(Session("MM_UserAuthorization"))="") Or _

(InStr(1,MM_authorizedUsers,Session("MM_UserAuthorization"))>=1)
Then
    MM_grantAccess = true
  End If
End If
If Not MM_grantAccess Then
  MM_qsChar = "?"
  If (InStr(1,MM_authFailedURL,"?") >= 1) Then MM_qsChar = "&"
  MM_referrer = Request.ServerVariables("URL")
  if (Len(Request.QueryString()) > 0) Then MM_referrer =
MM_referrer & "?" & Request.QueryString()
  MM_authFailedURL = MM_authFailedURL & MM_qsChar &
"accessdenied=" & Server.URLEncode(MM_referrer)
  Response.Redirect(MM_authFailedURL)
```

```
End If
%>
<%
'dim percentComplete
'percentComplete=(rs_completedCount.Fields.Item("Expr1000").Value
/rs_LineItemCount.Fields.Item("Expr1").Value)*100
'percentComplete=percentComplete\1
'%>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-
8859-1" />
<title>IP Qualbook: Search</title>
<link href="stylesheet.css" rel="stylesheet" type="text/css" />
<script language="JavaScript" type="text/JavaScript">
<!--
function MM_swapImgRestore() { //v3.0
  var i,x,a=document.MM_sr;
for(i=0;a&&i<a.length&&(x=a[i])&&x.oSrc;i++) x.src=x.oSrc;
}

function MM_preloadImages() { //v3.0
  var d=document; if(d.images){ if(!d.MM_p) d.MM_p=new Array();
    var i,j=d.MM_p.length,a=MM_preloadImages.arguments; for(i=0;
i<a.length; i++)
    if (a[i].indexOf("#")!=0){ d.MM_p[j]=new Image;
d.MM_p[j++].src=a[i];}}
}

function MM_findObj(n, d) { //v4.01
  var p,i,x;  if(!d) d=document;
if((p=n.indexOf("?"))>0&&parent.frames.length) {
    d=parent.frames[n.substring(p+1)].document;
n=n.substring(0,p);}
  if(!(x=d[n])&&d.all) x=d.all[n]; for
(i=0;!x&&i<d.forms.length;i++) x=d.forms[i][n];
  for(i=0;!x&&d.layers&&i<d.layers.length;i++)
x=MM_findObj(n,d.layers[i].document);
  if(!x && d.getElementById) x=d.getElementById(n); return x;
}

function MM_swapImage() { //v3.0
  var i,j=0,x,a=MM_swapImage.arguments; document.MM_sr=new Array;
for(i=0;i<(a.length-2);i+=3)
   if ((x=MM_findObj(a[i]))!=null){document.MM_sr[j++]=x;
if(!x.oSrc) x.oSrc=x.src; x.src=a[i+2];}
}
//-->
</script>
<style type="text/css">
<!--
.style1 {font-family: Verdana, Arial, Helvetica, sans-serif;
font-size: 14px}
.style2 {font-size: 12px}
.style3 {font-size: 14px}
```

```
-->
</style>
</head>

<body
onload="MM_preloadImages('Images/admin_on.gif','Images/logout_on.
gif')">
<table width="800" border="0" align="center" cellpadding="0"
cellspacing="0">
  <tr>
    <td colspan="8"><img src="Images/innerbanner.gif" width="800"
height="100" /></td>
  </tr>
  <tr>
    <td> </td>
    <td width="100"> </td>
    <td width="100"> </td>
    <td width="100"> </td>
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    <td> </td>
    <td> </td>
  </tr>
  <tr>
    <td width="100"> </td>
    <td colspan="6"><table width="100%"  border="0"
cellspacing="0" cellpadding="0">
      <tr>
        <td><div align="center"><a href="admin.asp"
onmouseout="MM_swapImgRestore()"
onmouseover="MM_swapImage('UpdateButton1','','Images/admin_on.gif
',1)"><img src="Images/admin.gif" name="UpdateButton1"
width="130" height="30" border="0" id="UpdateButton"
/></a></div></td>
        <td> </td>
        <td><div align="center"><a href="<%= MM_Logout %>"
onmouseout="MM_swapImgRestore()"
onmouseover="MM_swapImage('Logout1','','Images/logout_on.gif',1)"
><img src="Images/logout.gif" name="Logout1" width="130"
height="30" border="0" id="Logout" /></a></div></td>
      </tr>
    </table></td>
    <td width="100"> </td>
  </tr>
  <tr>
    <td> </td>
    <td colspan="6"> </td>
```

```
    <td> </td>
  </tr>
  <tr>
    <td> </td>
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    <td> </td>
    <td> </td>
    <td> </td>
  </tr>
  <tr>
    <td> </td>
    <td colspan="6"><h4 align="center">View users by: </h4>
</td>
    <td> </td>
  </tr>
  <tr>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
  </tr>
  <tr>
    <td> </td>
    <td colspan="6"><form name="form2" id="form2" method="get"
action="admin_search_listing.asp?Rank=<%=Request.Form("Rank")%>&U
serLevel=<%=Request.Form("Permission")%>">
        <table width="300"  border="0" align="center"
cellpadding="0" cellspacing="0">
          <tr>
            <td width="150" class="style1">Rank:</td>
            <td><select name="Rank" class="style1" id="Rank">
              <option value="%" selected="selected">All
Ranks</option>
              <option value="ENS">ENS</option>
              <option value="LTJG">LTJG</option>
              <option value="LT">LT</option>
              <option value="LCDR">LCDR</option>
              <option value="CDR">CDR</option>
              <option value="CAPT">CAPT</option>
              <option value="RDML">RDML</option>
              <option value="RADM">RADM</option>
              <option value="ADM">ADM</option>

</select></td>
          </tr>
          <tr>
            <td><span class="style2"></span></td>
            <td> </td>
          </tr>
          <tr>
```

```
            <td class="style1">Permission Level:</td>
            <td><select name="Permission" class="style1"
id="Permission">
              <option value="%" selected="selected">All User
Levels</option>
              <option value="Admin">Admin</option>
              <option value="User">User</option>

</select></td>
          </tr>
          <tr>
            <td class="style12 style1 style2"> </td>
            <td> </td>
          </tr>
          <tr>
            <td class="style12"> </td>
            <td><input name="Submit" type="submit" class="style1"
value="Submit" /></td>
          </tr>
        </table>
    </form></td>
    <td> </td>
  </tr>
</table>
<p> </p>
<p align="center"> </p>
</body>
</html>
```

H. LOGOFF.HTM (FIGURE 38)

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-
8859-1" />
<title>IP Qualbook: Goodbye!</title>
<link href="stylesheet.css" rel="stylesheet" type="text/css" />
</head>

<body>
<table width="800" border="0" align="center" cellpadding="0"
cellspacing="0">
  <tr>
    <td colspan="8"><img src="Images/innerbanner.gif" width="800"
height="100" /></td>
  </tr>
  <tr>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
    <td> </td>
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          <td> </td>
        </tr>
        <tr>
          <td width="100"> </td>
          <td width="100"> </td>
          <td width="100"> </td>
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          <td width="100"> </td>
          <td width="100"> </td>
          <td width="100"> </td>
          <td width="100"> </td>
        </tr>
        <tr>
          <td> </td>
          <td colspan="6"><p align="left" class="style3"> </p>
            <p align="left" class="style3"> </p>
            <h4  align="center"  class="style3">You  have  successfully
logged out.  Have a great day!</h4>
            <h5 align="center" class="style3"> <a href="login.asp">(Log
back in?)</a></h5></td>
          <td> </td>
        </tr>
        <tr>
          <td> </td>
          <td> </td>
          <td> </td>
          <td> </td>
          <td> </td>
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          <td colspan="6">     </td>
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        </tr>
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        </tr>
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  <tr>
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    <td> </td>
  </tr>
</table>
</body>
</html>
```

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