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School for Professional Studies Graduate Programs
Final Project/Thesis

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Regis University
School for Professional Studies

Master of Science
In
Computer Information Technology

Twenty-First Century Ticketing

Ron E. Hamilton

April 24, 2006

Acknowledgements

I'd like to thank my mom for pushing me to finish, my sister for editing and my girlfriend for putting up with me.

Abstract

There has been a dramatic increase in show ticket sales on the Internet from 1999 to 2006. This shift has enabled box offices to step away from traditional means of distribution. In many cases, the ticketing system was tied to distribution. If a box office wanted to change ticketing systems, they would lose their distribution channels. Increased Internet sales have fueled the rise of independent ticket sellers as well as new ticketing software companies.

AnyShowTicket.com is a ticket broker that has captured the market for selling show tickets for third-party venues in its city. They handle Internet and call center orders. Typically a third-party box office gives ticket brokers a certain number of seats without assigning specific seat locations. This is known as a block of seats. When the third-party box office enters the order in their system, the seats become assigned to the customer. Many times a box office and its brokers do not communicate effectively and a box office will sell more than it is supposed to or the broker will do the same, causing a show to over-sell. In an effort to reduce this occurrence, most box offices will stop broker sales when they think they are close to selling out or up to eight hours prior to the performance, whichever comes first.

The current order fulfillment process is mostly manual, starting with the initial order placement through the customer pickup from the third-party venue's box office. If the order process could be streamlined by giving AnyShowTicket.com direct access to the third-party box office ticketing systems, it would relieve the need for employees to handle the order multiple times. Box office employees would no longer need to re-enter customer orders and AnyShowTicket.com employees would not need to handle an order confirmation fax. Streamlining the process would also greatly reduce the risk of over-selling the show by allowing AnyShowTicket.com to sell actual seats out of the box office system instead of selling from an assigned block of seats. This could mean that third-party box offices would allow AnyShowTicket.com to continue selling tickets up until show time which could increase AnyShowTicket.com's ticket sales.

AnyShowTicket.com decided to partner with a new ticketing software company so it could provide a total ticketing solution to third-party box offices. The software package is scalable which makes it a reasonable solution for someone with a small box office and a single venue as well as for someone with multiple box offices and multiple venues. Once the software is in use at a third-party box office, AnyShowTicket.com will be able to make sales directly from their call center or on-line. This will be a great benefit to both AnyShowTicket.com and all the third-party box offices that install the

ticketing system. The ultimate goal is to install the software in as many box offices as possible.

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Chapter 1 - Introduction

Problem Statement

AnyShowTicket.com's business, among other things, is selling show tickets for multiple third-party venues. The problem is that most of the process for creating a customer order and entering it into the individual, third-party box office systems is manual. Most of the venues are running on antiquated ticketing systems created over a decade ago, and many are running on proprietary hardware.

Currently the order fulfillment process is cumbersome and is mostly manual (see Figure 1). A customer buys a ticket online or over the phone from AnyShowTicket.com and it is entered in a database. A fax must be generated to the third-party venue's box office for each individual purchase, the reservation is manually keyed into the box office system then a confirmation fax is sent back. One of AnyShowTicket.com's administrators will add the box office confirmation number to the customer's original order, then file the faxed hard copy.

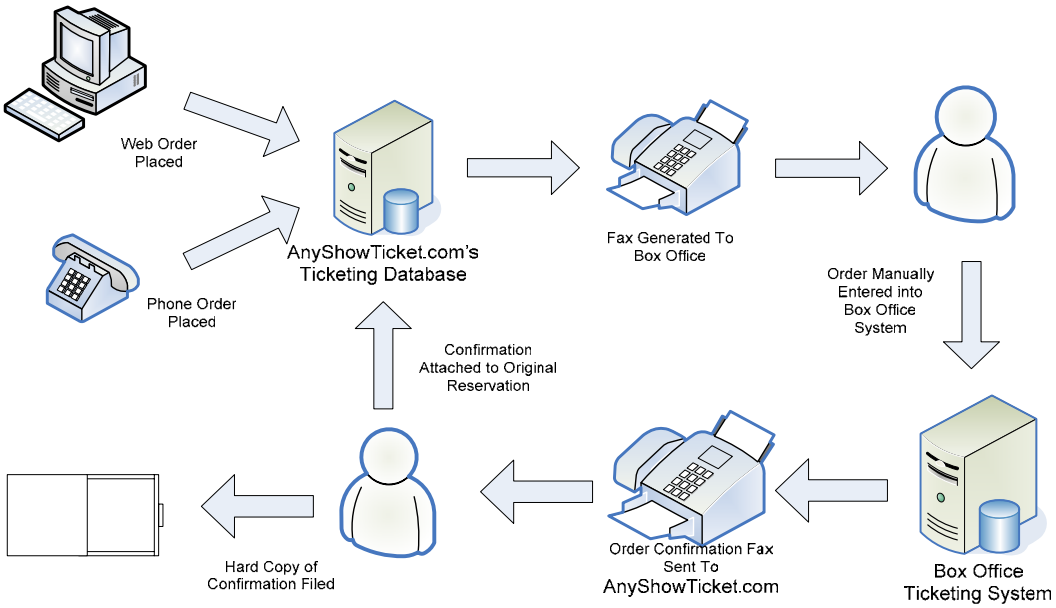

Figure 1: Current Ticketing Order Fulfillment Process

The customer must stop at the venue's box office to pick up their tickets. It may take hours for the order to be entered into the box office system, which can mean multiple customer visits to the box office to pick up their tickets. This can cause longer box office lines, resulting in customer frustration and stress for the box office employees. Billing from each venue is similarly challenging.

Most venues using a ticket broker have the same manual process. The older ticketing systems either do not have a method to allow third-party software to interface with their software or they don't allow it. Some venues have the ability to give brokers an access point to sell their tickets from other locations, but that means the brokers are dealing with multiple ticketing systems.

AnyShowTicket.com decided to streamline the order process by installing a new box office system in as many venues as possible. This project will be limited in scope to choosing a box office system and demonstrating a typical box office install. The system will have an API (Application programing Interface) that allows AnyShowTicket.com's website and call center to place orders directly into the box office system, eliminating the need to fax and manually re-key the orders into the system. The system will have clear, concise reporting, accessible by AnyShowTicket.com's accounting department which will allow easy payment to those venues.

Barriers

AnyShowTicket.com faces one major barrier. It must convince the venues to switch from their existing ticketing system to this new one. Most venues have multi-year contracts with their existing vendors and will not replace the system until the contract is up for renewal. Many venues, though not entirely happy with their existing system, are resistant to change. They know how their existing system works, its strengths and weaknesses, and how the reporting is done. A venue must devote time and money for researching new systems. It is likely that a new system will cost more than the old one and will possibly require investment for new hardware. The venue must be willing to gamble that these investments will pay off in the long run.

Alternatives

AnyShowTicket.com will probably not be able to install their box office system in all of their clients' box offices. What else can be done to ease the order fulfillment process? It may be possible to API into other ticketing systems. AnyShowTicket.com could also be given blocks of assigned seats and provide print-at-home tickets to their customers. These alternative options will be investigated.

Scope

This project will not streamline the order fulfillment process for all venues. It will discuss the methodology involved in converting from a tedious, manual process to an automated one. It will attempt to show a typical conversion, leading through the decision process, system design, installation and maintenance. This project will not detail proposal submissions or contract negotiations.

Statement

AnyShowTicket.com is not the actual name of the company. The name has been changed due to legality reasons.

Definition of Terms

1. **Hold** – This refers to a seat being removed from open availability - not for purchase by the public. There are numerous types of holds defined by

individual venues. Typical holds are casino, house, producer, theater manager and killed (not available to anyone). Also known as an Allocation.

2. **Application Programing Interface (API)** – A set of routines and protocols that allow a programmer to develop applications that can communicate with a program, by making predefined calls that pull and push data or information[1].
3. **Request for Information (RFI)** – A document sent to elicit information from a vendor on a service offered or an application's capabilities.
4. **Graphical User Interface (GUI)** – Icons, images and windows combine to allow a user to manipulate (or interface with) computer applications. It offers the user more than plain text as a communications means[2].
5. **Point of Sale (POS)** – A location where tickets or merchandise can be sold to customers or the computer system used for such sales.
6. **Quality Assurance (QA)** – The team or department responsible for verifying the system or software is working as expected. They report any errors or odd behavior to the development team.
7. **Bug** – System or software error or unexpected behavior.
8. **Network Diagram** – Picture depicting all the communication components and their connections.
9. **T1 (Telecommunications Line 1)** – A physical communications line that is capable of 1.544 Mbit/s.

[1] 'Application Programming Interface'
[2] 'Graphical User Interface'

10. **Go-live Date** – The date a system must be operational and available for use.
11. **Green Screen** – Monitor used for computers that originally supported a ‘text only’ display – no graphics.

Chapter 2 - Review of Literature/Research

Most of the research for this project was done first hand by attending International Ticketing Association's (INTIX) ticketing conferences, reviewing RFI's (Request for Information), viewing ticketing system demonstrations, conversing with ticketing personnel, and visiting numerous box offices in the area and around the country. Viewing the box offices during normal business hours is essential research when looking for a new ticketing system. In depth online research was done as well.

Many venues are using older ticketing systems that are difficult to learn. They run on proprietary hardware and do not give them access to the marketing data they desire. The system is usually stable and can handle a lot of traffic, but is inflexible.

Most of the older systems do not have a GUI (Graphical User Interface). They require show or event codes to be entered to book tickets. Something like 'sell order ERDM0204/A4' could be the command entered on a green screen (text only) to purchase 4 of the best seats available for an Event at Red Rocks Amphitheatre called Dave Mathews. This system is quick, but not very intuitive. If the cashier doesn't know the syntax of the command or the event code, they will not be able to sell tickets to the event.

Figure 2: Typical 'Green Screen' Monitor (IBM 5151 with IBM 5150 PC)[3]

Since its inception in 1978, Ticketmaster has grown into a dominant force in the ticketing industry[4]. They provide the ticketing system, marketing and a huge distribution channel for their clients. It was extremely difficult for a new company to develop and sell a ticketing system because that would mean competing with Ticketmaster. Ticketmaster has not changed their system much over the years. It has relied on the fact that it was dominant in the industry. If a venue opted to build its own system or use a small ticketing software company, they would lose their distribution channel.

[3] 'Green Screen'
[4] Abouttmcs.com

Since Internet sales have increased so much since 1999, Ticketmaster's brick and mortar retail outlets are not needed as much. The Internet has given smaller ticketing software companies a chance to develop. Venues that strayed from Ticketmaster could sell online, maintaining an alternative distribution engine.

These newer systems harness the power of a GUI. They are much easier to learn and use. In some cases, the GUI makes it so easy that the cashier may start working without any prior training. This is beneficial to all involved because it means even if the change from the legacy system to the new one is overnight, cashiers can learn on the job when necessary.

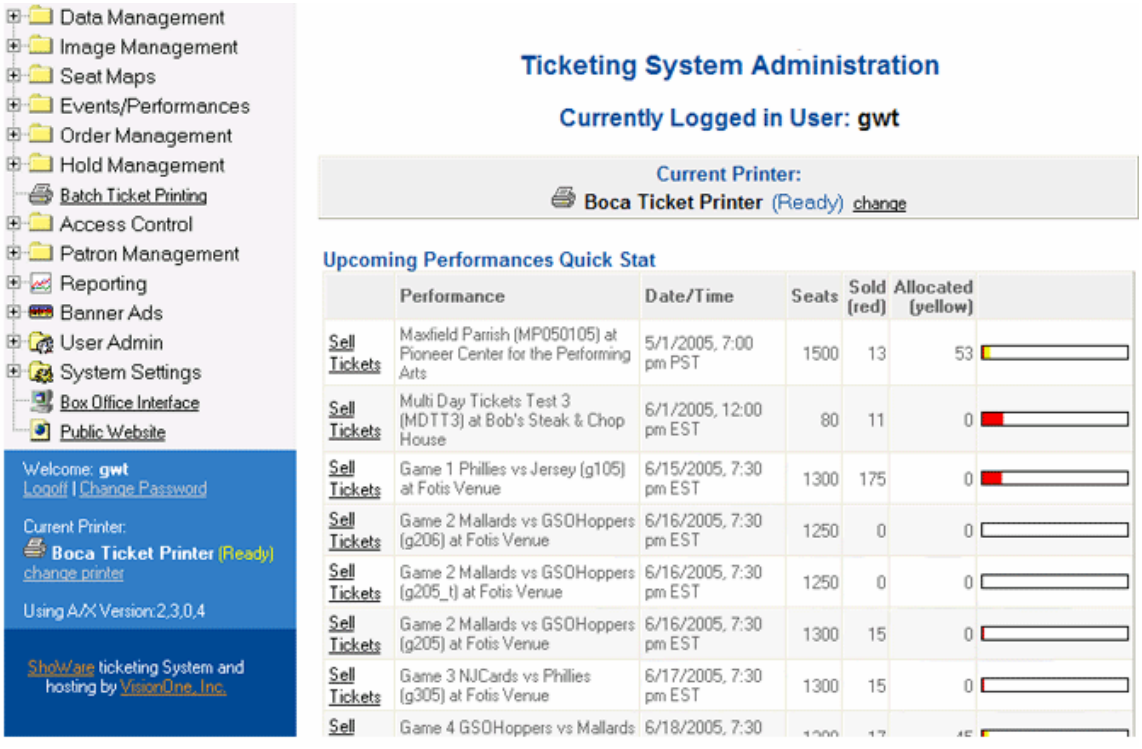

Figure 3: Typical GUI System Management Console

Many of the newer systems can show color-coded seat maps of the entire venue so the user can visually see the status every seat. This allows agents to quickly find the best available seats for their customer and helps them decide if they should release held seats. Most venues release seats that have been held for comps when they get closer to selling out the event.

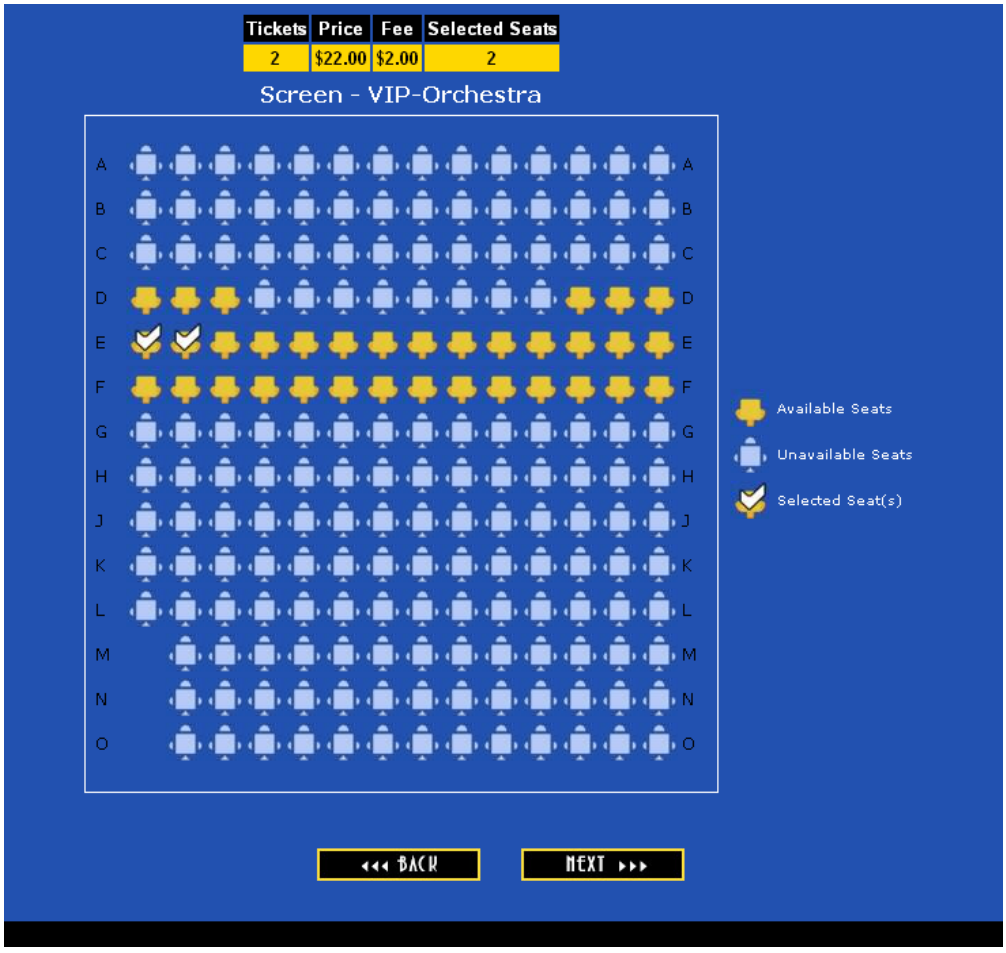

Figure 4: Typical Seat Map Available on Graphical Ticketing Software Applications

In 1999, Ticketmaster was responsible for selling roughly 70 million tickets a year through its retail locations, call center and online with only 3 percent of

that being online[5]. Since then, sales have been shifting from physical locations to online purchases, giving venues the opportunity to market their own tickets online. They could reach as many or more people using the Internet for sales as the brick-and-mortar stores. That gave them the ability to separate the ticketing system from the marketing engine, allowing smaller ticketing software companies to compete primarily on the software level. These smaller companies began targeting specific markets to get their foot in the door – performing arts theatres, sports arenas, movie theaters or local 'mom and pop' venues.

This project will help AnyShowTicket.com and the venues they work with by streamlining the ticket selling and order fulfillment processes. It will also contribute to the field by serving as a guide to any venue looking for a new ticketing system. It should give them valuable information on researching, choosing and installing a new ticketing system. A detailed Request for Information was created and has been included in this project for use by any venue looking for a box office solution.

[5] Chamblis

Chapter 3 – Project Methodology

Phase I - Systems Analysis and Needs Determination

An assumption is made that every box office must sell tickets. Most of these box offices use some type of computerized ticketing system. If the box office is currently using another system, the users generally know what is frustrating them on a daily basis. They can easily come up with a list of items that they would want the new system to do. They must also remember to come up with another list that has all the key items the current system CAN do and be sure the next potential system can accomplish those tasks as well.

A new box office (not currently using a system) must determine a list from scratch. It is a good idea for them to visit a few existing box offices, watch their operations, and question the cashiers, box office managers and accountants to see how well their system works and what they would change if they could. The key is fleshing out all the needs, wants and desires and determining what is a 'must have' vs. 'can live without.' It's also important to look at the type of box office for which the software is being purchased – performing arts, sports arena, movie theater, etc. Each of these has different ticketing needs.

AnyShowTicket.com was not running a box office when they were looking for a ticketing system partner. They were experienced with selling tickets for multiple venues, but running a box office was a new venture for them. They

really fell into the second category and had to come up with a list of items they wanted the system to do without much knowledge of existing systems. They knew they would want the system to be flexible and work for small and large venues, general admission and reserved, tie into other systems (credit card, Hotel Management, Accounting, etc.). They wanted a system that had every bell and whistle, but could be scaled back for smaller venues with tighter budgets.

These initial lists of requirements were used to create the RFI, which gathers information from potential software vendors. *(See appendix A for sample RFI.)* It contains questions to determine if the system can perform the desired tasks, including everything the system must do as well as other desired features that might not be necessary.

Software Company's Background

The RFI has questions about the software company's background. Many vendors are relatively new and may not have the experience of the mainstays in the ticketing industry. Smaller, newer companies are more likely to go out of business and may not be around to support or enhance their product, forcing the box offices to live with what they have or switch systems again. Alternatively, smaller companies may develop their software rapidly, making software changes and adding functionality to suit the needs of their clients. Larger companies may not pay enough attention to smaller

box office needs, choosing to focus on their clients who pay more money. AnyShowTicket.com wanted a smaller company who would be willing to work with them to improve or enhance the product when requests were made.

Software Functionality

Software functionality is an integral part of the RFI. If the software does not do what is needed, nothing else matters. AnyShowTicket.com decided they wanted the best software package available. The assumption was made that any system can print a ticket. They demanded the software be flexible enough that it could interface with credit card processors, property management systems, accounting, security systems and any other third-party system on the market. It had to take reservations, perform over-the-counter and Internet sales.

Training and Support

What kind of training and support is provided? AnyShowTicket.com desired extensive training on all system functionality. They wanted to be able to use the system and train others to use the system. They would also need to be trained how to perform installs and support their clients. The software provider must provide support 24 hours a day, 365 days of the year. System uptime was important to AnyShowTicket.com. They would purchase and maintain the required hardware but had to be sure the software was solid.

They requested uptime statistics and questioned potential partners about any system crashes.

Hardware Requirements

The RFI also addressed hardware requirements. AnyShowTicket.com wanted a ticketing solution that would be scalable that could run on a single, stand-alone computer or multiple, redundant servers for and enterprise solution. This would give them the ability to provide the best solution for each new client.

One of the reasons AnyShowTicket.com chose its partner is because it gave them the option to run the systems in-house (preferable) or at the venue location. AnyShowTicket.com would prefer to house the servers in their data center because it gives them more control over the physical environment. It is difficult to guarantee up-time when you do not have physical control over the environment. If the system is housed at the venue location, it creates the potential to 'point fingers' or blame others for system problems. If the system goes down, it could be the software, network, memory, disk space, etc. causing the problem. If AnyShowTicket.com controls all of that, then it is up to their technical teams to work together to determine a solution. The teams have a history of working well together to ensure the system(s) become operational as quickly as possible.

The ticketing software can be housed at remote locations and other venues. This provides flexibility when submitting a proposal. Some venues will demand that the software be installed on servers located on-site. AnyShowTicket.com has this option with the software that they chose.

Phase II - Sales Cycle

As a provider of box office solutions, it is important to contact all existing box offices to let them know you are interested in providing them a solution. All of AnyShowTicket.com's box offices should be aware of them due to the faxed orders on a regular basis. AnyShowTicket.com needs to make it known that they have a box office solution that will meet the box office needs as well as offload the additional work of keying orders manually into their system.

System Demonstration

A demonstration of the system's abilities is important. AnyShowTicket.com makes it as easy as possible for a potential client to see a demonstration by inviting the client to the office or taking the demonstration to their location. During the demonstration, AnyShowTicket.com will show the main features and highlight the system's ease of use. A typical demo will feature ticket sales, reservations, the scheduling of a show and relevant reporting. Questions are encouraged during the demo.

Prior to or during the demonstration, it is a good idea to determine the client's fears of moving to a new system as well as their problems with their existing system. If one can determine these fears prior to the demo, then the demo can include items relevant to easing them. Many times reporting is a key fear. They are used to looking at ticket sales, billing or revenue in a certain way and want to ensure they can still get the same information from the new system. Some want to verify that the system can limit the use of discounts or coupons to certain shows. Others want to see how difficult it is to schedule events. It always helps to ease their fears if they can see the system perform those tasks.

During the demonstration, AnyShowTicket.com will begin to gather needs of the box office. They will determine how many venues, shows, point of sale locations and show room capacity to get a general idea of how much work will be involved. This will assist in estimating the duration of an install.

Phase III – Client Analysis

If the potential client is interested in a quote, a questionnaire is given to them. The questionnaire *(Appendix B)* will request detailed information on their system needs. This questionnaire is used to determine the amount of effort involved in installing the system as well as to gauge the appropriate cost to the client. AnyShowTicket.com generally offers a 'per-ticket' payment method which works well for those not willing to lay out the capital expense

for a system. Included with the per-ticket cost is usually the offer to staff the box office and call center as well as market the events.

AnyShowTicket.com must determine how much the client wants and what they are willing to pay. They are flexible with everything offered and strive to create a solution that best fits the client's needs. They can provide all the hardware (servers & Point-of-Sale), software, staffing, call center and marketing. Alternatively, the offer can be stripped down and only offer a small bundle of ticketing software.

Numerous items must be considered to provide an accurate quote to the perspective client. The amount of concurrent user licenses, number of Point-of-Sale stations, what hardware is provided and time necessary for configuration and support. Obviously, the estimated number of tickets sold per year is the key element in the pricing strategy when charging an amount per ticket. Most box offices will inflate their numbers so it is important that a minimum number be put in a contract to ensure that all expenses are covered.

Once this information is collected, a proposal is generated for the client. When the proposal is accepted, a contract is generated, reviewed and revised by both parties. Upon completion of a signed contract, the system design begins.

Phase IV – System Design and Construction

The new client is given a System Design Questionnaire that should be filled out prior to beginning system design *(Appendix C)*. The questionnaire is designed to illicit the basics of their operation. When filled out properly, it should contain all venue, show and ticket information. It should also have all discounts, payments, delivery methods and user information.

Once the completed questionnaire is received, a project plan for the box office install is developed. This includes ordering hardware, system design, quality assurance, hiring personnel and training.

The system is setup using all the information gathered from the questionnaire. Venues and seat plans are created. Shows are scheduled and test transactions are completed. The client is invited to see their new system operate and view the reports generated.

It is important to have the box office management as well as the accounting team review the system for functionality and reporting. Many times the accounting team will demand more detailed reporting of certain items and the system will need to be reworked a bit. For example, the system may be configured with a single ‘Complementary’ ticket. The accounting team may need those tickets broken out to show ‘Hotel Comp,’ ‘Producer Comp,’ ‘Donation Comp,’ etc.

It is a lot easier if these issues are discovered and changes made prior to the launch date. The system will be modified based on client feedback to produce a product that moves on to the testing stage.

During the design phase, the system components are decided upon and a network diagram is created. This is greatly dependent on the solution accepted by the new client. The most common solution is the hosted system. This is where AnyShowTicket.com houses the servers and has some type of network between their data center and the client's box office.

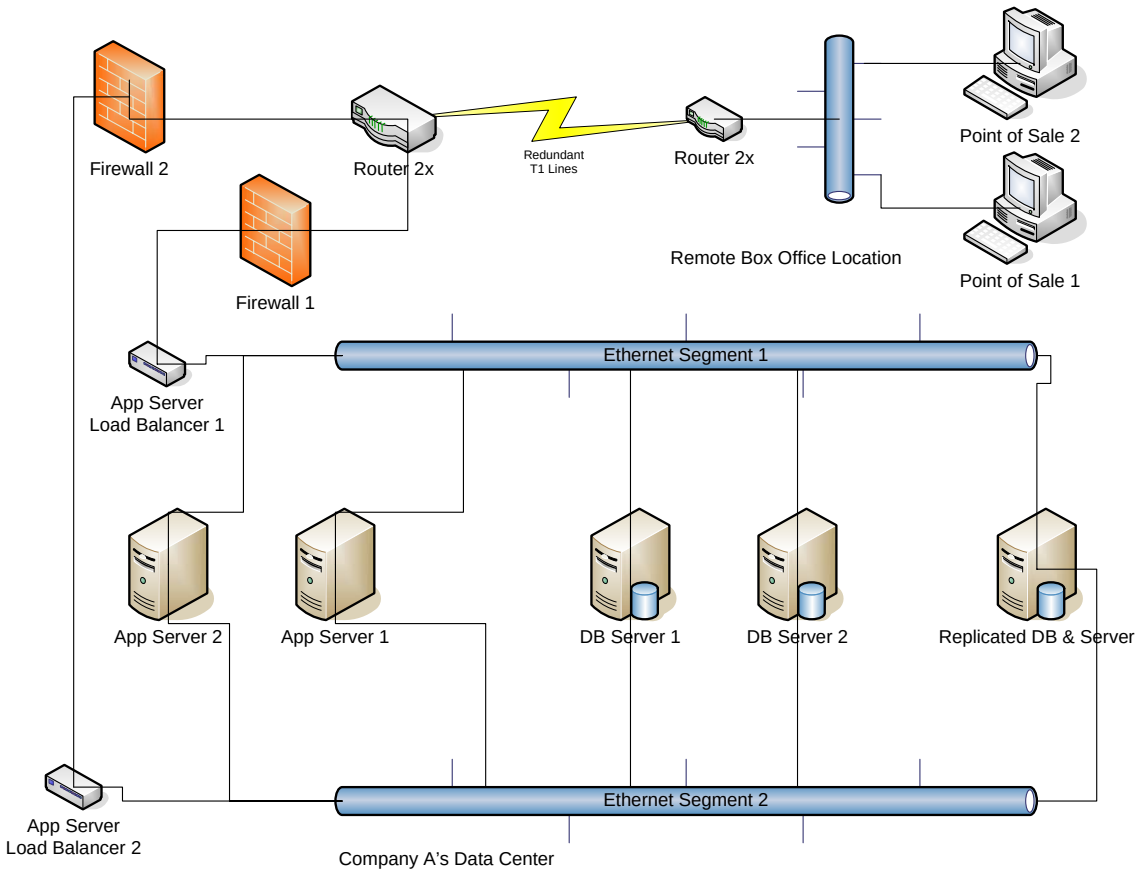

Figure 5: Typical Network Diagram

Another option is to host the servers on-site. This requires additional capital expenditure, as they must then invest in equipment that would normally be provided to them. They must also have the staff to support the additional hardware and network required to run the ticketing system.

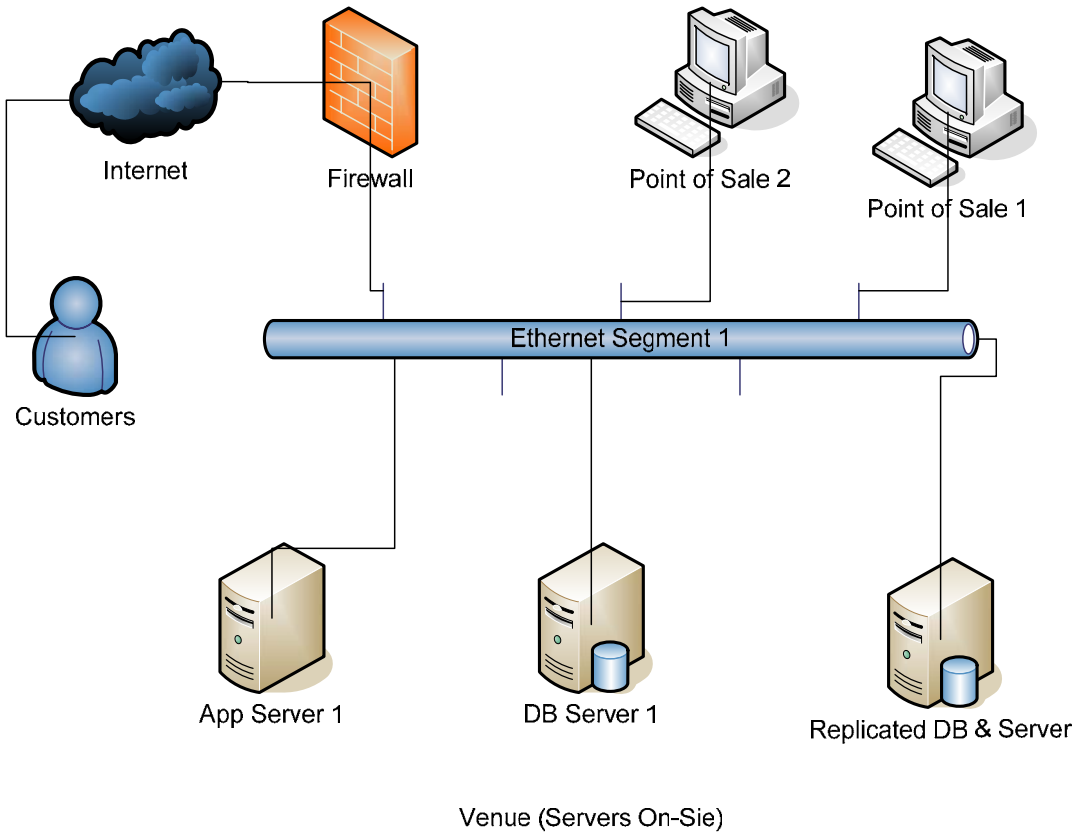

Figure 6: Network Diagram - servers housed at the venue

Phase V – Testing

Throughout the design and construction phase of the project, the system is tested. Once the system appears to be working properly in the development environment and the client has approved the functionality, the database is

moved to the stage environment. The stage and production environments have identical hardware components, enabling a true system test.

The development team will review the system – setting up shows, completing purchases, etc. – and will strive to touch all configured items in the system. Final adjustments will be made upon completion of the tests and the system will be given to the Quality Assurance department. The Quality Assurance team will run the system through a test plan. There are many items that carry over from one installation to another, but the system is extremely configurable. This means the test plan must be adjusted with each new configuration.

Phase VI – Implementation

Once the Quality Assurance tests are complete, the database is moved to the production servers. The application is installed on the application servers. Functionality is tested and depending on the amount of legacy orders, they are usually entered manually into the system. This provides a valuable training session for the cashiers and supervisors. It is also a good way to perform further verification of the system setup. When processing actual customer orders, it is quickly determined if there are missing tickets or payment types or if system permissions are not setup properly.

Automating the legacy data conversion can be done, but would prove difficult. Since there are numerous systems out there, almost every install would require a custom script to pull data from the existing system and insert it into the new system. Legacy data might only be provided as a hard copy. This adds another level of difficulty as the reports would need to be scanned in and OCR (Optical Character Recognition) would need to be used to convert the image to text. A script could be created to pull the information from the new text file and input the data into the new system.

The software is flexible enough to run on a small laptop computer running Microsoft Windows 98 or newer or on redundant, multiple processor servers. AnyShowTicket.com's installations will be setup with a minimum of two application servers and two database servers for redundancy. When there is a line of people at the box office, waiting to purchase or pick up tickets and the show is going to start in 30 minutes, you do NOT want to have the system go down.

Redundancy is important for maintaining uptime, not only for the critical 30 – 60 minutes prior to the show, but also during scheduled maintenance. If a redundant architecture is employed, the traffic can be directed to one set of servers while the other set undergoes maintenance or upgrades. It also provides a fallback if the upgrade fails. Traffic can continue to be directed to the non-upgraded systems until a rollback is complete.

Network communications are installed and tested. The system can run over any Internet connection but for speed and reliability, redundant T1 lines are the preferred communication path to the servers. To date, communications for the box offices have been via redundant, dedicated, point-to-point T1 lines. Back office, reporting and call center can connect using any existing Internet connection over https. This allows box office managers and others to run reports or make system changes from anywhere with an Internet connection. Most of the older systems do not have this functionality.

The database and application servers are located in AnyShowTicket.com's data center. A reliable network is necessary to keep the box offices operational. Once the system is operational, the network lines are monitored to ensure availability. Many times the local area network cannot be tested until the predecessor's equipment has been removed.

The on-site installation usually happens over night, once the box office(s) are closed. All the older hardware must be removed prior to the new equipment moving in. All Point of Sale stations are installed in the box offices, including PC's, monitors, credit card swipes and printers. The systems are powered up and tested for functionality. By this time, the system has been tested numerous times so a single transaction with a credit card followed by a

refund is a sufficient test of functionality. This will test the PC, printer, credit card reader and network communications.

Phase VII – Maintenance

System maintenance includes general assistance with the application (adding discounts, tickets, events and venues), troubleshooting, fixing issues and rolling out upgrades. Depending on the complexity of the system, it usually takes three to nine months to get everyone up to speed on the new system and fix any initial issues. During that time, clients will need additional assistance with system maintenance and daily activities.

Troubleshooting is integral to system maintenance. Support staff must know how to research issues in the system. Most issues occur when a cashier uses the system incorrectly. They may be using the wrong payment type or entering an incorrect coupon in the system. The system tracks user activity, so it is fairly easy to research the issues and correct the problem. There are numerous system logs that can be reviewed when it appears that the system performed inappropriately. Occasionally ‘bugs’ are discovered and the developers must create a fix and, depending on the complexity, an upgrade may be rolled out.

Chapter 4 – Project History

Sales Cycle

This project began with a long sales cycle. AnyShowTicket.com responded to a RFP from an interested venue. About five months went by with numerous system demonstrations given to all those involved in the system selection process. Finally a proposal was requested by the venue.

System Development

After a couple of weeks of negotiations, a deal was struck and system development began. The contract with their existing box office provider would expire in 45 days. The system had to be fully configured and operational by then. There was no flexibility. This was AnyShowTicket.com's first big ticketing system install. A project plan had to be created from scratch. Detailed information on their five different shows in three venues had to be collected.

During the six weeks prior to the go-live date, the hardware was ordered, received, installed and tested. Venue information was gathered and the system was configured. The system was installed and tested over night. The box offices all opened at their regularly scheduled times and the system worked as designed.

The project was managed by a project manager. A general project plan was created and discussed during weekly meetings. As the go-live date approached, the meetings increased to twice a week, then daily. The overall project plan was too vague to be useful for the software configuration. A task list was created detailing all that had to be done to the system, and included priorities and the responsible parties. This list was crucial in ensuring all items were addressed.

The three box offices and the call center were all operational on the go-live date. Tensions were high on opening day as system adjustments were made as needed. Theater managers re-seated customers with duplicated tickets and some customer reservations were not found in the system. With such a short development and installation timeframe and with some inaccurate information from the client and their existing box office, opening day was a bit bumpy. But overall, the project was deemed a success.

The project officially ended a couple of days after the install date, but should not have ended until the venue was more self sufficient. AnyShowTicket.com's team assisted the venue supervisors daily for a couple of weeks until all major items were addressed and they felt comfortable on their own.

Milestones:

1. The creation of a RFI that gathers valuable information from a ticketing software vendor should help narrow down the system choices to a handful.
2. Developing a questionnaire elicits the answers necessary to create a proposal.
3. Coming to an agreement on terms. The proposal must be agreed upon prior to any work starting on the system.
4. Completing the system configuration. The system is useless if it hasn't been configured properly. Every venue, event, ticket, payment, tax, discount, etc. must be setup and verified for accuracy prior to going live.

Changes to the Project Plan

The project met the goals for streamlining the ticket order fulfillment process for this property. AnyShowTicket.com can enter orders directly into this property's system, eliminating the need for faxing orders, re-keying orders and faxing confirmations back. Other properties are already in various stages of the sales cycle. Once the system is installed at those properties, they too will enjoy the benefits of streamlined order fulfillment.

Communication was poor from the client to AnyShowTicket.com. AnyShowTicket.com would wait days for the client to deliver requested information. Many times the information was incomplete, inaccurate and

conflicting with previously received documentation. This was ongoing throughout the project.

AnyShowTicket.com would receive the information, begin to configure the system accordingly and discover the documentation was not correct. This caused a lot of unnecessary duplication of efforts. The client was not always to blame. Sometimes they were dependant on the existing box office system for information. The reports provided from the system were not timely or accurate.

The actual installation was completed almost without incident. The T1's were installed and tested days prior to the installation. All legacy systems were removed quickly, allowing our team to install the new equipment without delay.

One major concern was that the application would not start up on the individual Point of Sale stations. All systems were tested successfully at the office prior to the install, and worked in the call center as well. After some troubleshooting, it was determined that the monitors were causing the problem. They had a credit card reader on them. The system had been mistakenly setup with another type of credit card reader so it would crash whenever the other credit card reader was attached. Once that was corrected, all systems were run through some basic tests and passed.

The system is currently in use by AnyShowTicket.com's client. The client is happy with the overall functionality and ease of use. They made a few requests that have since been implemented during a system upgrade, including allowing a show producer to logon to the system and run reports, but only give them access to their own show. Tickets with discounts or coupons applied are now printed with the discount on them so in the event of a refund or cancellation, the cashier can easily see what discount was applied.

The new system is saving the client time and money. The transaction time for cashiers has been decreased significantly, which has drastically cut down lines at the box office. They also do not have faxed orders coming from AnyShowTicket.com as they can enter orders directly into the system.

The API for AnyShowTicket.com's application to pull inventory from the box office system was delayed due to time constraints and other projects taking priority. AnyShowTicket.com now has their original system that handles orders for all their other clients and this new system that only handles one property. As more box offices begin using this system, the agents will need to open a new browser window for each property. This can become challenging for the call center agents to manage. As part of a new project,

AnyShowTicket.com is now developing an interface so the original system can interface with the new system using an API.

Once this is done, call center agents will be able to use AnyShowTicket.com's original system to purchase tickets from the new system. As more box offices install the box office system, AnyShowTicket.com's original program can pull inventory from those systems. That means the agent can logon to one system and use one browser window to place all their orders. This should be completed in the next two months.

Chapter 5 – Conclusion, Lessons Learned and Next Evolution of the Project

Lessons Learned

One important lesson learned from this project is that a company's business development and sales teams will promise the world to win new clients. They may promise incredible functionality in an unreasonable timeframe. They may be strong willed and gloss over the technical details. On the other hand, the company's service delivery team will lean towards promising limited functionality in an extended timeframe.

A successful company will find a balance between the two. The business development team needs to understand that they will have an unhappy client if the delivery side doesn't have enough time to develop everything promised. Sometimes the client must be backed up a bit. You can give them some functionality immediately with more functionality to follow.

This project was rushed. The week before the go-live date, it was discovered that the system couldn't calculate costs and associated taxes with packaged items. The ticket cost for one of the shows had to include the cost of food, beverage, gratuity, sales tax and an entertainment tax. This additional functionality had to be developed, tested and rolled into production in a week.

The ideal way to install a system is to completely configure the software on a development system, test it out, show the client, verify reporting needs are met, make changes if necessary and roll it out to a stage environment, then to production.

The ticketing team worked 15- to 20-hour days for the two weeks prior to the install and barely had the system up by the time it went live. As a result, the first day of operation was stressful for all involved. The cashiers and supervisors did not have sufficient training on all system functionality. Support was stretched thin – assisting with sales, entering reservations that were missed, adding discounts as customers arrived with new coupons, adding holds to seats, explaining to theater managers why the artists' seats have been sold to customers because of a lack of communication. Some seats that should have been killed (not allowed to be sold) were sold and the customers had to be moved. Many seats were duplicated because the previous ticketing provider continued to sell seats on the Internet after they should have been shut down.

There were a number of changes that had to be made after a week of operation. The reporting did not detail various types of complimentary tickets, so new tickets had to be added to the system. Different seats are held for different purposes – artist, promoter, house, broker, killed, etc. Only certain people are allowed to sell tickets from each of those blocks; but that

was never communicated to AnyShowTicket.com. This meant that some system changes would be necessary after less than a week in operation.

The cashiers and supervisors who were just grasping how to perform their job had a number of changes that they would need to learn. This can be extremely frustrating, especially for cashiers who have the added stress of facing a customer who may become agitated or even yell at them. This also creates mistakes which compound the difficulty of accounting for the tickets sold and money received.

Not all of the difficulty was due to the short timeframe. Much of it had to do with the difficulty of getting accurate information to configure the system. Seat maps were incorrect, held seats were not all included, discount information was close to impossible to obtain and user permissions were never solidified. If there were better worksheets for clients to fill out and the importance of the completeness and accuracy of the returned worksheets was stressed, the initial install may have been more successful.

Another lesson learned is that a good project manager (PM) is a valuable asset. A good PM will gather all the requirements, inputs and outputs; develop a timeline with deliverables; and help to ensure that the project stays focused. The PM will communicate with all parties involved and verify that they have all necessary resources secured.

Should this project be started from scratch, it would be a good idea sit down with each individual ‘player’ in the project and discuss in detail what needs to be done to complete the project. Key milestones should be determined and notated on the project plan. This would help to determine where additional resources may be necessary.

The questionnaire in Appendix B has been fleshed out to assist in streamlining future projects. It will help AnyShowTicket.com better gauge parts of the software package the client will want and how complex the system will be to setup. This assists in determining pricing and necessary resources for configuration and installation of the system.

During the setup of the system, it was extremely difficult to gather all the necessary information to setup the system. The questionnaire in Appendix C was created after this project was completed. It was difficult to configure the system without all the information that this questionnaire would provide. This questionnaire will help obtain all the necessary configuration information for all future projects.

A resource should be dedicated to tying up the loose ends. A box office installation inevitably has a number of items that must be addressed – but that don’t fit into anyone’s role at AnyShowTicket.com. These items can

include cash handling procedures, armored car procurement, safe purchasing, purchasing employee uniforms and cleaning previous employee's uniforms.

Next Evolution

AnyShowTicket.com is planning on expanding this project into numerous other box offices. Each new install should be able to draw on past experience. They are also developing a system that will use an API to connect multiple systems to the ticketing systems installed in these box offices. Their call center and websites will be able to tie directly into the ticketing inventory in the box office systems.

Conclusion

AnyShowTicket.com chose to go with a system that was already developed. This granted earlier entry into the market and allowed the programmers to stay focused on other core competencies. Numerous multi-year contracts were coming to an end over the next couple of years so AnyShowTicket.com had to move quickly if they wanted to capture the business. The partner chosen delivered a system with four years of development behind it and support with over sixty years of combined ticketing experience.

The box offices around town tend to follow others' leads. If one box office chooses a new ticketing system, many others may follow suit and choose the

same system. If AnyShowTicket.com wanted any part of ticketing, they would need to be selected by someone quickly.

The downside is that AnyShowTicket.com does not have full control over the design and development of the software. They must rely on their partners to come up with solutions and make changes to the system's functionality. This proved difficult in the beginning. AnyShowTicket.com's partner had their own priorities and did not seem responsive to initial requests for system changes. It appeared as though they did not want to work with AnyShowTicket.com to create a better product. As time has passed, it became apparent to the partner that AnyShowTicket.com has a great deal of insight to the venues' needs. The partner has more recently been fully supportive of change requests, knowing that more venues will choose their product with the suggested enhancements.

Currently, AnyShowTicket.com's call center must use two applications to enter orders for show tickets. They use their partner's application to enter orders for box offices using the new ticketing system and a home grown call center application for the rest of the venues. The second phase of this project will involve adding functionality to AnyShowTicket.com's existing call center application, allowing it to pull inventory (tickets) directly from the box office systems.

The call center application will use an API to communicate with the box office system. Within the application, it will be almost transparent to the call center user. They will see show availability, but will not know if the inventory is being pulled from the home grown system or a new box office system. The only difference is that for some venues, print-at-home tickets may be offered as an alternative to collecting at the box office. If the inventory is pulled directly from the box office system, a fax will not be generated and the order will not need to be manually re-keyed into the system. This will cut down the amount of training necessary for the call center employees as they will only need to learn one system. It will also eliminate confusion on which system to use for which show.

AnyShowTicket.com will continue selling this box office system to its partners. With each new install, duplication of manual efforts will be reduced, time will be saved and customer satisfaction will rise. Each venue will enjoy a new ticketing system with incredible functionality that is easy to manage.

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Appendix A

SAMPLE REQUEST FOR INFORMATION

TICKETING SYSTEM

INTRODUCTION

Purpose

Company XYZ is looking for a ticketing system to satisfy their ticketing needs for two venues. This Request for Information (RFI) is designed to gather information about software vendors and the ticketing systems they offer.

Submissions

Vendor RFI responses must be received by 5:00pm MST, Monday, Dec 5, 2005. Please fill out as completely and accurately as possible. Upon receipt and acceptance of the RFI, Company XYZ may request a demonstration of the system as well as a site visit to a similar installation of your product.

COMPANY BACKGROUND

1. Contact Information
    a. Company name
    b. Contact name
    c. Address (include any remote locations)

   d. Phone number
   e. Website

2. Company background
   a. When was company founded?
   b. Employee backgrounds?
   c. How many employees support current installs?
   d. How many developers?
   e. When was the first install?
   f. How many installs?

3. List client contact information for existing, similar-sized installs.
4. Provide a brief description of the software functionality and capability.
5. Provide a brief description of required hardware.
6. What documentation and training is provided, both initially and ongoing?

QUESTIONNAIRE

1. Software Product Information

   a. Describe the key features of the software.
   b. How often are upgrades done (incremental and full)?
   c. Are upgrades completed centrally or dispersed?
   d. What are all the current modules offered?
   e. What third-party software is required?
   f. How long does an average install take?
   g. What interfaces do you offer (credit card, hotel, accounting, etc.)?

h. Are all software upgrade costs (custom programming, installation, training, etc.) included in support fees?
i. Does the software require a thick client?
j. Is the software web-based?
k. Is it accessible over the Internet?
l. Can the system handle web sales?
m. What languages does your software support?
n. Will you perform legacy data conversion?

2. Support Information

a. Is support available 24 hours a day, 7 days a week?
b. What is the annual cost of support?
c. Should we deem it necessary, will you provide on-site support?
d. Is that included in the support fees? If not, what is the associated cost?
e. Will you provide custom programming? What is the associated cost?
f. Are upgrades included in the support cost?
g. What is your Quality Assurance process?
h. Does your company handle every aspect of the install and configuration?
i. Does your company handle all configuration changes or will we have access to that?

3. Training

a. What training is offered for users?

b. Where is training done?

c. How large are the classes?

d. What is the instructor-to-student ratio?

e. Is there separate training for cashiers, management and accounting?

f. Is there ongoing training for new employees?

g. Will you provide a training system for us to train new employees?

h. What documentation is provided?

i. How often is documentation updated?

4. Technical Information

a. What is the necessary/recommended hardware for the system to operate (include servers, network gear, Point of Sale)?

b. What peripheral hardware is supported (printers, magnetic card readers, bar code scanners, etc.)?

c. On what operating systems does the software run?

d. What are the network requirements?

e. What network protocols are supported (TCP/IP, SNA, etc.)?

f. Is the software a thin-client or thick-client?

g. Is thin-client hardware supported? Which make and models?

h. Does the system use a DBMS (Database Management System)? Which one?

i. Is all customer data encrypted? How?

j. What are the password policies on the system?

k. How is access granted to various users (cashiers, supervisors, accountants, etc.)? Is any of it user definable?
l. Does the system require any daily or other regularly scheduled downtime (for backups, maintenance, etc.)?
m. What kinds of safeguards are implemented to reduce unplanned downtime? (clustered or mirrored systems, other redundant hardware, etc.)
n. Does the system interface with other systems (Hotel Management Systems, Accounting, etc.)?
o. Can the systems be monitored to warn if they go down? How?
p. How long can data (customer information and transactions) be stored?
q. What third-party software is required for use with the ticketing system?
r. What third-party software is recommended?
s. What technical qualifications are needed for our personnel to maintain the system?

Appendix B

Ticketing Solutions Questionnaire

1. Venue information:
    a. How many Point-of-Sale locations do you have?
    b. How many showrooms or theatres do you have?
    c. How many seats are in each?
    d. Are they assigned seating or general admission?
    e. How many total tickets do you sell in a year?
    f. What is the peak demand; volume of tickets and transactions in a single hour, single day?
    g. What is the percentage of total tickets sold via all distribution channels; Call Center, Box Office, Internet?
    h. What is the break down of tickets
        - Sold
        - Comp
        - Discounted
        - Employee
        - Broker
        - Ride tickets

    i. How many concurrent users for each of the following applications:
        - POS
        - Phone room

- Management
- Reporting

2. What interfaces are you currently using:

   a. Credit Card

   b. Current Processor and/or solution provider

   c. Single Processor for all card types, or Multiple Processors? If multiple, list all and which card types are processed via which processor.

   d. Host Capture or Batch Settlement

   e. Check Verification

   f. Debit Cards

   g. Signature Capture

   h. Property Management

   i. Room Charge

   j. Inter-company

   k. Direct Bill

   l. Financials

   m. General Ledger

   n. Accounts Payable

   o. Accounts Receivable

   p. Casino/loyalty

   q. Miscellaneous interfaces: (i.e. broker, AOL box office, etc.)

3. Hardware:

a. What POS hardware do you currently have installed?
b. Will the existing hardware crossover to the new installation?
c. Will you purchase additional required equipment?
d. Will you purchase database servers or use hosted servers?
e. How many kiosks will be sufficient for your needs?

4. Training:
    a. How many people will need to be trained on the ticketing platform?
    b. How many people will need to be trained at a management level?

5. Data Conversion:
    a. What is the legacy system?
    b. What data do you want to convert? (i.e. current reservations, historical data, customer information, etc.)
    c. Data timeframe: past/future

6. Data Warehousing:
    a. What data format would we export our data to?
    b. What is the frequency that you would like the data updated?

7. Hardware and infrastructure:
    a. What is your current network environment? (Network and Cable Type, preferred protocol)
    b. Access control – (print at home, wireless)

c. How many different points of access will be using scanning devices?
d. How many entrances will there be for each point?
e. Who will be hosting the web server?
f. How will they access the ticketing system?
g. Kiosk networking access

Appendix C
System Design Questionnaire

1. Provide a seat map for all venues. Include the following:
    a. Seat holds or allocations (hotel, theater manager, producer, casino, ADA, killed, etc.)
    b. Row and Seat numbering
    c. Multiple seating configurations
2. Show schedule – List of shows, dates and times.
3. Ticket List - Define Tickets (per event). (For additional space, use provided spreadsheet)

Ticket Name	Show	Regular Price		Comp?	Valid in Section(s)	Valid Day of Week	Discount Allowed?	Svc.Chrg. Applied?
		Printed	Reported	(Yes/No)				

Table 1: Ticket List

4. Discount List – Define Discounts/Coupons (For additional space, use provided spreadsheet)

Discount Name	Discount Code	Discount Amount ($/%)		Valid Show(s)	Max # of Tix Discounted?	Valid Days of Week		Expires?
		$ Value Or	% Amount			Show Days?	Sale Days?	

Table 2: Discount List

5. What are the allowed payments? (credit card, check, room charge, bill back, etc.)
6. What are the service charges for each point of sale? (box office, call center, Internet, etc.) (Per Ticket, Per Transaction?)
7. What are the delivery methods and associated charges?
8. List the users of the system and associated user class. Typical classes are cashier, supervisor, manager, accounting. Each class has associated privileges.
9. Please provide samples of every ticket currently on sale.