2010 UC Larry L. Sautter Award for Innovation in Information Technology

University of California, San Diego – MyMeetings and Hosted Events (MyEvents)

I.   TITLE

MyEvents: *Using New Technology to Simplify an Old Process*

II.   SUBMITTER'S CONTACT INFORMATION

Faye E. McCullough
Director Disbursements and Travel
Business and Financial Services, UCSD
mccullof@ucsd.edu
(858) 534 9743

III.   PROJECT LEADERS AND TEAM MEMBERS

A. Project Leads
·   Faye McCullough, Project Team Leader
·   Tim Morse, Developer, Programmer, and Technical Lead

B. Campus Project Team Members
·   Dawn Buttrell
·   Andy Koudriavtsev
·   Denise Lewis
·   Dawn Mcdevitt
·   Kyle Nakanishi
·   Steve Ross
·   Lashon Smith

C. User Interface
·   Nathan Black

IV.   SUMMARY

MyMeetings and Hosted Events (MyEvents) is a powerful web application that simplifies the processing of over 25,000 entertainment 'type' expenses annually. MyEvents is conveniently accessed via UCSD's business portal, Blink, http://blink.ucsd.edu , using single sign-on for authentication. A common authorization system, MyApprovals, http://blink.ucsd.edu/technology/help-desk/applications/myservices/myapprovals.html is used for workflow and approvals. MyEvents integrates seamlessly with the enterprise financial system via web services to generate financial entries including payments. Novices benefit from current just-in-time guidelines yet power users are accommodated with built-in efficiencies. MyEvents has the capacity for documents to be attached electronically eliminating paper and along with reducing processing time and out-of-compliance transactions, provides substantial savings.

Overview: *MyMeetings and Hosted Events Overview*
 http://blink.ucsd.edu/travel/expenses-reimbursements/reporting/myevents

MyEvents replaced: *Requesting Reimbursement for Entertainment Expenses (Paper Form)* http://blink.ucsd.edu/travel/event-hosting/paying-online/paper.html

2010 UC Larry L. Sautter Award for Innovation in Information Technology

University of California, San Diego – MyMeetings and Hosted Events (MyEvents)

V.   PROJECT DESCRIPTION

A. Background

The past few years presented the ultimate challenge for managing administrative responsibilities with fewer resources, greater workloads, and higher standards for accountability. At UCSD, a campus committee evaluated mission critical business processes to determine if rapid improvements could deliver time and money savings for users and process owners.   Over 100 ideas were vetted and 6 were chosen to move forward based on potential overall benefit. Teams were charged to execute the goals for the selected ideas including the team that designed and implemented MyEvents.

B. Introduction

There are times when providing hospitality is necessary to support UC's mission. The expression 'entertainment' has been used traditionally to describe expenditures for meals, light refreshments, tickets to venues, and other select activities within the scope of UC policy, Expenditures for Business Meetings, Entertainment, and Other Occasions , http://www.ucop.edu/ucophome/policies/bfb/bus79.pdf.   The policy applies to activities for academic and staff employees, students, donors, guests, visitors, prospective employees, colleagues, and volunteers encompassing official business entertainment, administrative meetings; and employee morale, fund raising, and student programmatic functions and occasions.

These transactions are wide-ranging from being low to very high risk requiring that approving authorities exercise careful judgment in reviewing them for reasonableness, appropriateness, business purpose, benefit, and cost effectiveness; and compliance to policy and accordance with the best use of public funds. Conditional on individual circumstances, expenses must conform to IRS regulations, UC and agency fund restrictions, allowable amounts, acceptable activities, and many other decisive factors.

Paper forms, documentation requirements, suitable justifications, policies, scope of business purposes, and high volume of transactions all contributed to the conventional process being unwieldy. Project objectives were to simplify the process by developing an intuitive approach to identify and apply requisite policy, provide ways to attach and view documents, satisfy the need for multiple payment options, enhance accountability, and integrate with a common user interface for usability and aesthetics. One can see why managing and accounting for these expenses was daunting for campus administrators and with so many hurdles and grey areas to surmount, the attainment of the proposed objectives was not a straightforward task.

C. MyEvents Highlights

MyEvents tackled the administrative and procedural challenges from the users and process owner's perspectives by thinking outside-the-box to take advantage of existing technology and most importantly to utilize innovative technology.

2010 UC Larry L. Sautter Award for Innovation in Information Technology

University of California, San Diego – MyMeetings and Hosted Events (MyEvents)

### 1) *Providing an Intuitive Processing Path*

MyEvents provides an intuitive experience prompting novice users through the principal hurdles which are just getting started and knowing the relevant policy to apply. MyEvents accomplishes these challenges by displaying a menu with several options. In the below example, a *click* on **See categories** drills down to the various types of HOSTING. When one has *clicked* on HOSTING, the bulleted point is expanded to display the selections for HOSTING.   With another *click* on **See examples**, the user can view pertinent examples to help them to decide if they are in the right place:
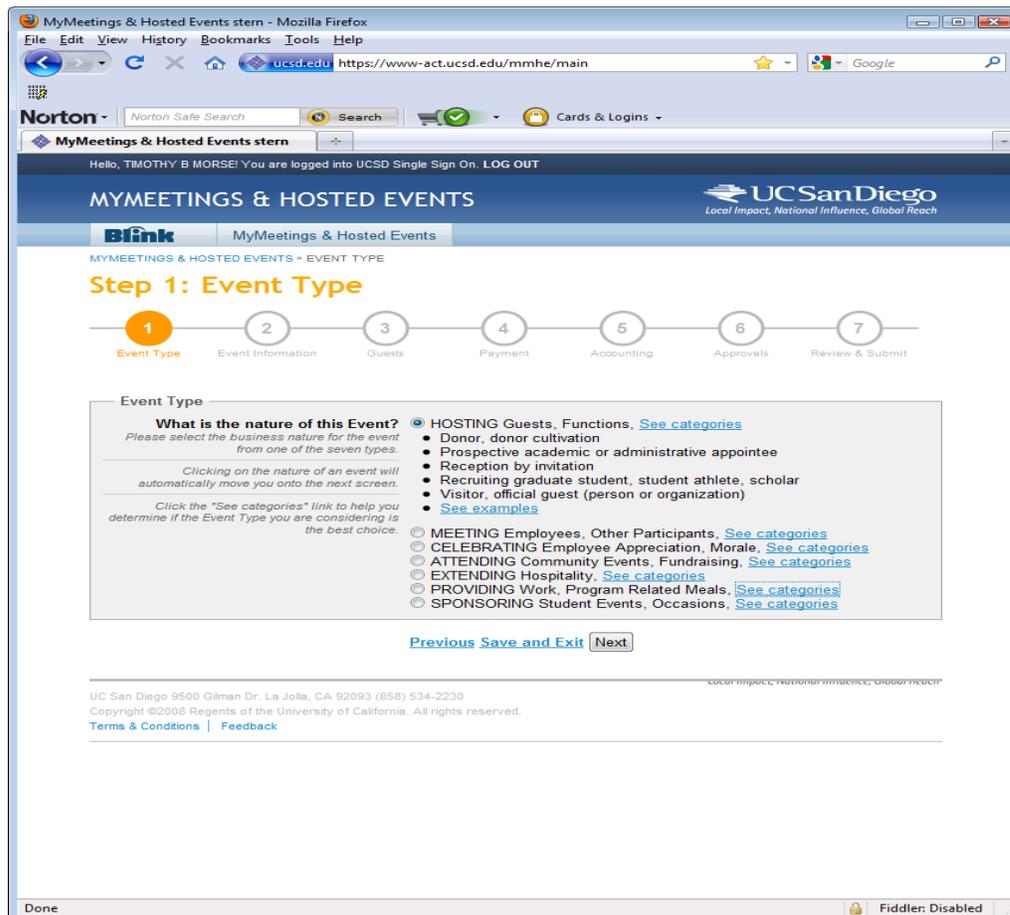
However, as soon as a user is familiar with policy and knows the major categories, a *click* gets them straight through to the next step.

Once a user has either been guided to or selected the nature of the event , a processing path is established that branches off into the proper direction by iteratively asking key questions and then based the response to each question, provides specialized guidance. For example, if HOSTING is the chosen processing path, the user will view:
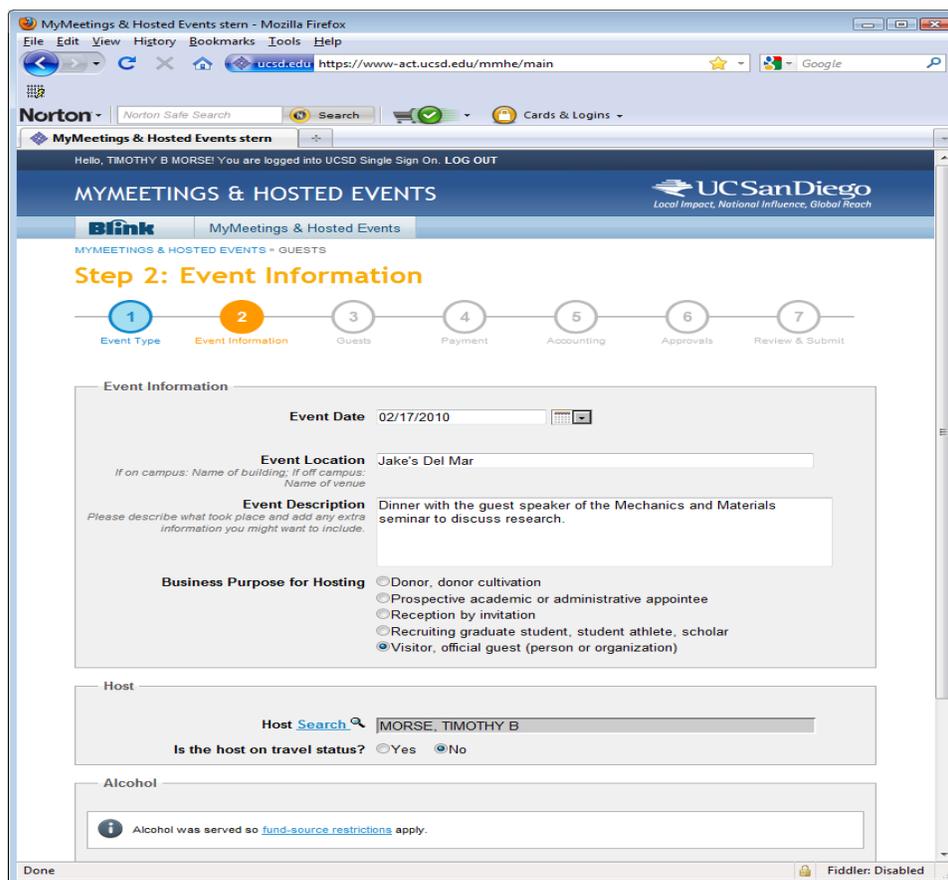
2) Stepping through the Policy

Once a user has landed on a processing path for example, a <u>meeting</u> vs. a <u>hosted</u> event; MyEvents as illustrated in the above **Step 1: Event Type** and **Step 2: Event Information**, corresponding guidance is provided on Blink such as:

Meetings and Entertainment: Overview
  http://blink.ucsd.edu/travel/entertainment/overview

Use of Alcoholic Beverages for a UCSD-Sponsored Event or Meeting
  http://blink.ucsd.edu/travel/entertainment/overview/university-hosted/alcohol.html

As one navigates through the MyEvents' steps that were named to support the campus nomenclature: **Step 3: Guests**, **Step 4: Payments**, **Step 5: Accounting**, **Step 6: Approvals**, and **Step 7: Review and Submit**, minimal yes/no questions display. Responses to these questions provide further guidance as to the type of justification and explanation that is required based on the circumstances of the event.

A user's response to a question such as 'yes' to "Were all attendees UCSD Employees?" will have the application move them forward to the next sequential step. In this case, if the response is 'no', MyEvents will move the user to the staging of the next

tactical question (s) until the major policy requirements are satisfied. If 'no' is selected, the user will see an extra question display, to further identify participants as spouses/partners as an example. A feature of MyEvents is that information is requested in a logical sequence as in the below illustration where a user has entered the number of participants as it makes sense to ask the question at this stage in the process (the number of participants will later be used to calculate per person costs):

### 3) Attaching and Viewing Documentation

MyEvents prompts users for documents to be attached as required by the nature and circumstances of the event including:

- Receipts
- Guest lists
- Approved forms (such as for serving alcoholic beverages on UCSD properties)
- Transmittal letters

The preferred method for attaching documentation is a PDF directly to MyEvents. If users do not have a scanner to generate a PDF, documentation is faxed-in to a temporary file. UCSD Travel creates a PDF attaching the documentation to the application ensuring that all documentation is consistent for archival purposes.   Users can also choose to enter information directly into MyEvents for the guest list. All options eliminate paper and reduce turnaround times. Uploaded documents reside on the server file repository and are viewable by the person creating the attachment and those in the approval hierarchy for the event. Preparers and approvers can route and allow a review of a document by a designated person via the MyApprovals review process.

4) *Calculating Amounts and Validating Fund Sources*

UC policy establishes thresholds for the maximum allowable per person amount for entertainment 'type' expenses based on the category (such as a lunch) of meal/light refreshment. As data is entered into MyEvents, such as fund source and number of participants, the application performs the calculations and verifications.   Special considerations as with the acquisition of alcoholic beverages, employee morale events, and when receipts are required characterize a few of the inherent validations where MyEvents requests a specific explanation and/or documentation. Certain conditions as defined within the policy as well as other circumstances might require additional validation by a person with the delegated authority and this is handled as part of the approval process. In the following illustration, you can see where the cost person is being calculated (if this amount exceeds the allowable amount, the user will receive approval instructions when they land on the appropriate step):
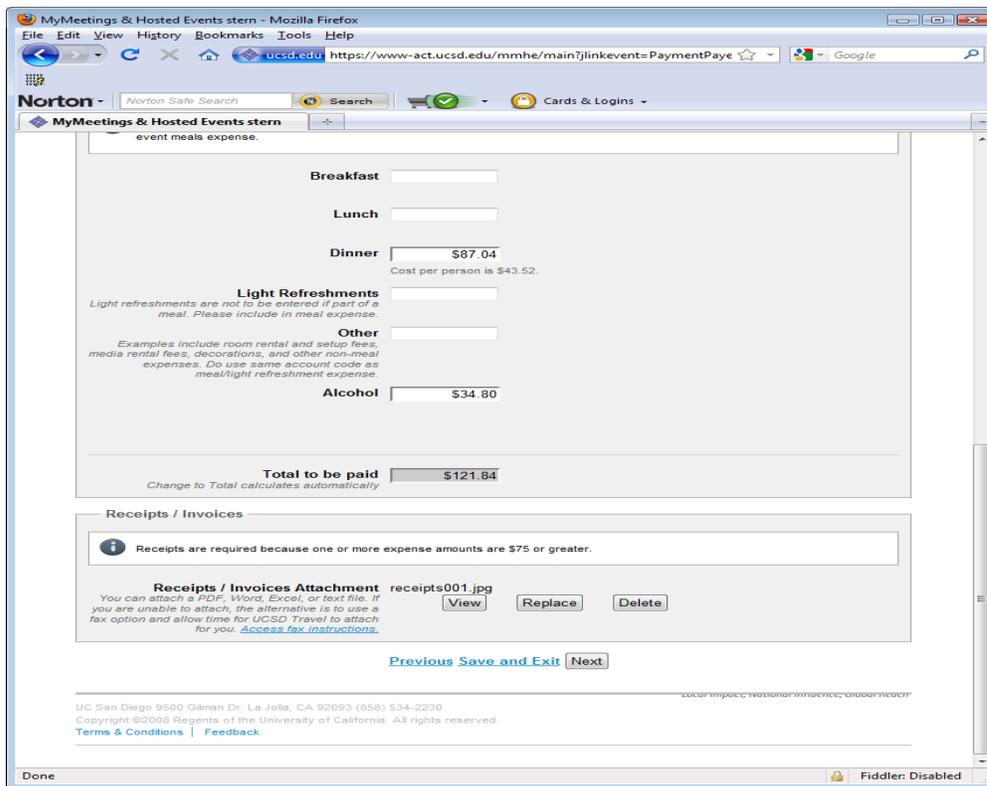
Again, a complement of customized guidelines is accessible on Blink:

Entertainment: Maximum Meal Expenses
  http://blink.ucsd.edu/travel/event-hosting/entertainment/meal-expenses.html

Entertainment: Fund-Source Restrictions
 http://blink.ucsd.edu/travel/event-hosting/approval/restrictions.html

5) *Paying and Accounting for Expenses*

Payment methods include reimbursements to persons and payments to third parties. Options are available for issuing checks, direct deposit, and soon to come, straight through payments by UCSD to an employee's corporate travel card. Links within MyEvents deliver details such as with the Direct Deposit Overview: http://blink.ucsd.edu/buy-pay/payment-methods/direct-deposit :

The next picture is a view of the payee record (which is looked-up in real time from the enterprise financial system) for a reimbursement noting that if the payee is set up with direct deposit, MyEvents provides this detail and defaults in the proper information at **Step 4: Payment**. Users are promted to add messages for the payee that either print out on the check remittance advice or as email message with a direct deposit:
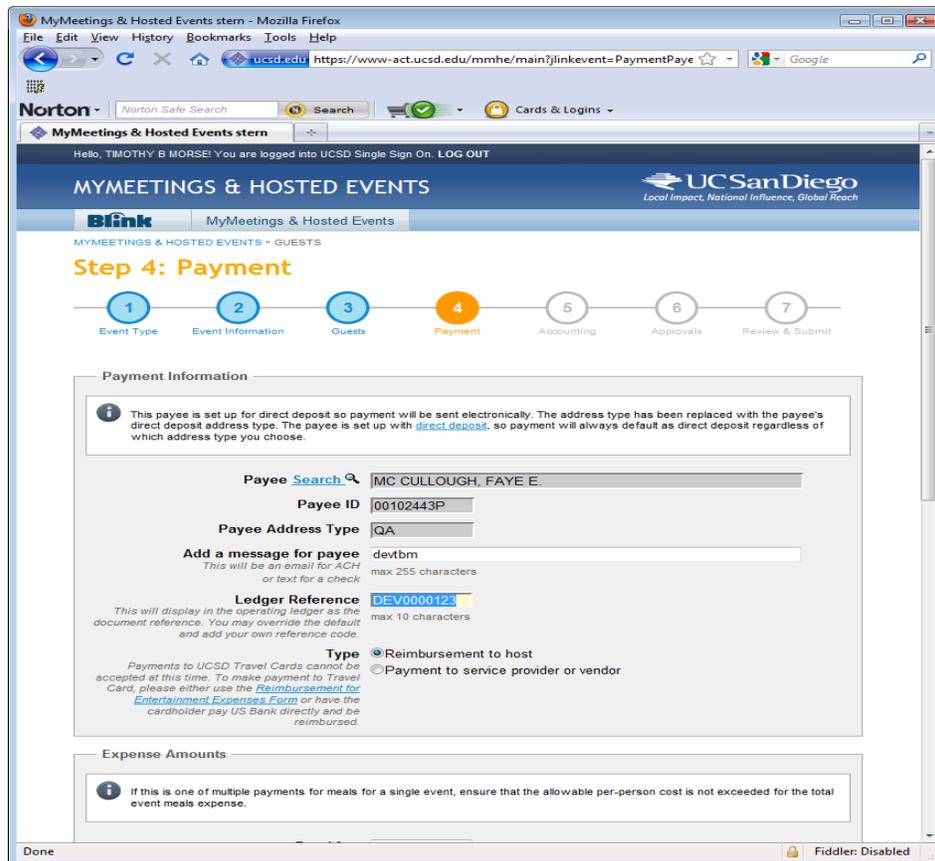
Accounting distributions are automatically validated against the financial systems' most current chart of accounts for accurateness. The requisite classification of an expense (object code) is accessible from a drop down menu:

6) Approving and Routing

Transactions potentially require multiple levels of approvals as well as delegations of authority from fund manager to the Chancellor.

MyEvents uses MyApprovals to provide intelligent routing for multiple levels of approvals for a range of policy requirements including the final audit and approval by Travel staff:
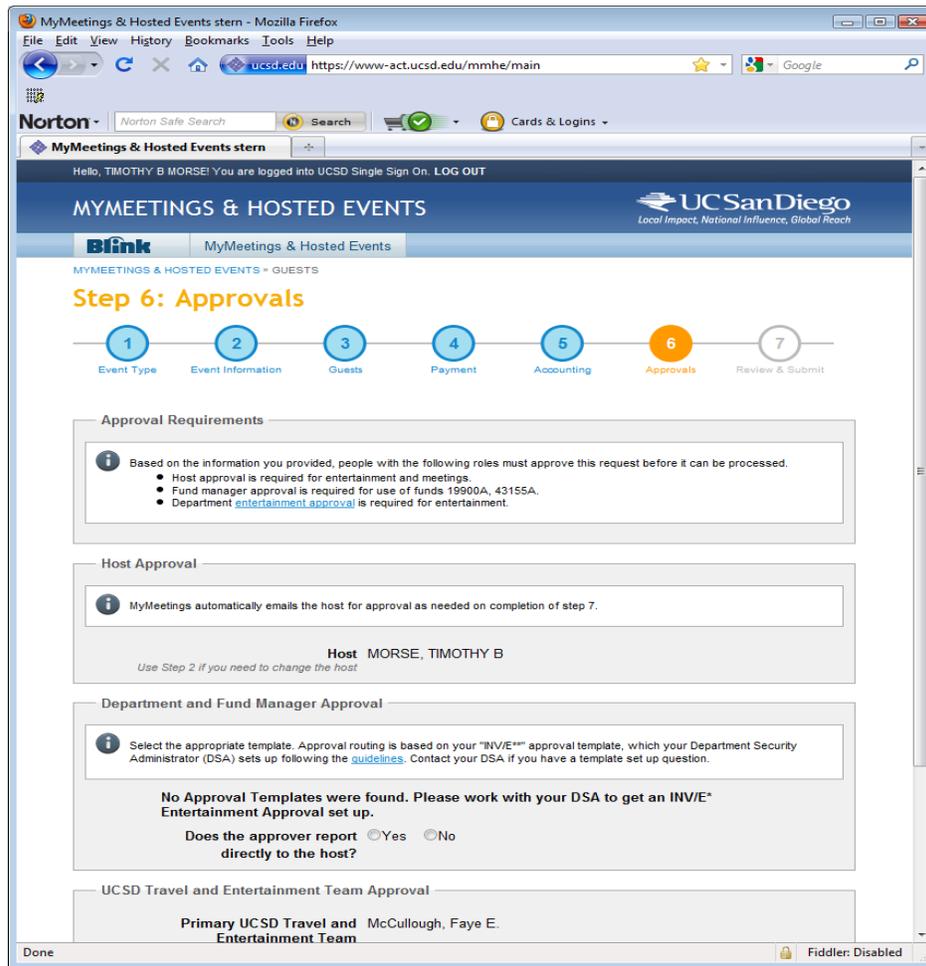
7) Applying Security

Initial user authentication to the enterprise financial system for MyEvents is provided by UCSD's Single Sign On. Additionally, there are three levels of security.

Application Level Security identifies who can log-in to MyEvents and allows for users to access payee look-up information for employees, affiliate employees, and vendors utilizing UCSD's FinancialLink facility in AccessLink (administrative tool supported by the enterprise financial system). For the user to be permitted to create a new MyEvent request, they must be defined at the designated level of a financial system template hierarchy and have the proper approval template in place. If the user is an approver, they only need to be one of the users' defined on the approval template.

Approval Level Security defines who can approve MyEvent requests and there are several statuses based on the selections made previously during the creation of the request and include:

- o Host
- o Fund manager
- o Delegated authority to approve UC entertainment
- o Vice Chancellor
- o Chancellor
- o UCSD Travel (central travel office staff)

MyEvents supports a complex approval policy (Approving Entertainment
http://blink.ucsd.edu/travel/event-hosting/approval) and Meetings and Entertainment:
Special Entertainment http://blink.ucsd.edu/travel/entertainment/overview/special by
guiding users to the appropriate approvals for the event.

Document Storage and Retrieval Level Security authorizes who can view the various
files stored as supporting documentation.   As there is a potential for personally
identifiable information (PII) to be included on documents, a security plan was submitted
and approved by UCSD's Director of IT Security to ensure that the approaches used by
MyEvents to authentication and authorization within the application were secure.

8) Ensuring Usability

Usability is supported by uncluttered pages, straightforward navigation, and consistent
look and feel. MyEvents is integrated into Blink and shares a common user interface
with other business applications. A unique feature that contributes to the overall
usability of MyEvents is the administrative tool set that includes a document restart and
search options for events for users; and management tools for process owners (only
process owners can view the Team Utilities) as displayed on the **Welcome** page:
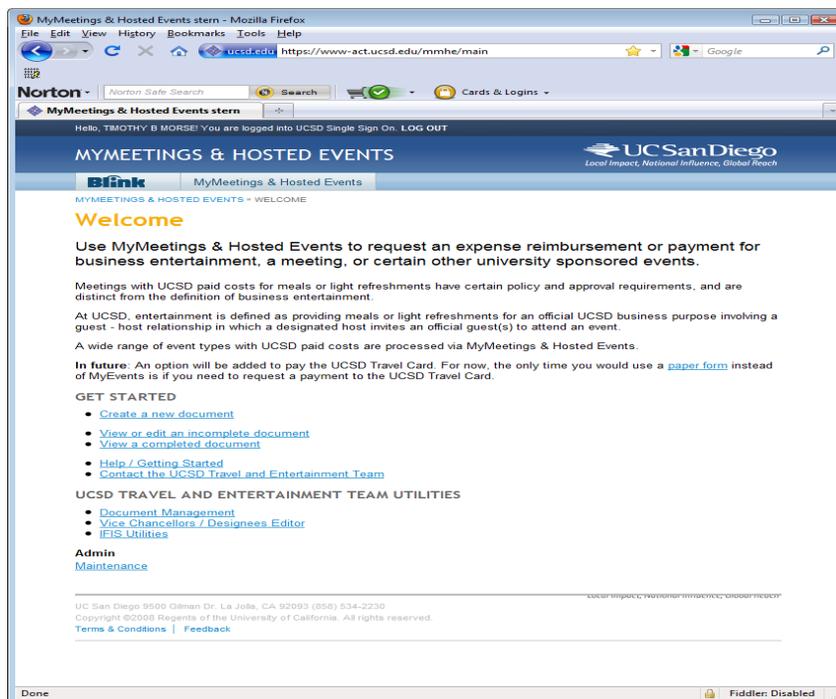
9) Maintaining Internal Controls

Internal controls must address work and authority flows, users, and information systems to allow for a process to accomplish specific objectives. It is a way by which resources are directed, monitored, and measured, and plays an important role in reducing risk by deterring out-of-policy situations as well as protecting resources and reputation. As summarized in the previous highlights for MyEvents, the internal control objectives relate to the reliability of technology supporting a mission critical process, upholding compliance with policies and regulations, and ensuring that payments are justifiable. Through-out the MyEvents processing cycle, controls are in place to mitigate risk including validations for use of specific fund sources and for applying UC policy restrictions. The approval process requires that the user at each level agree to a MyEvents approval affirmation as to the accuracy and appropriateness of the event. MyEvents provides approving authorities with the detail necessary for reviewing expenditures for reasonableness, suitability, benefit, and cost effectiveness, compliance to UC policy, and accordance with the best use of public funds.

V. INFORMATION TECHNOLOGY

A. Conventional

1) Unix Solaris and Sun Java(TM) System Web Server v6.1

MyEvents is written primarily in Java as a J2EE web application hosted by a web farm of 6 Unix Solaris machines running the Sun Java (TM) System Web Server.

2) Customer Information Control System (CICS)Transaction Server v3.3

CICS is a transaction server that runs primarily on IBM mainframe systems under a zSeries/Operating System. MyEvents posts Extensible Markup Language (XML) Simple Object Access Protocol (SOAP) Invoice objects over Hyper Transfer Protocol (HTTP) to this server. When the transaction server receives the invoice creation (see VI. B. 1) request from MyEvents, it runs numerous business logic checks through the existing legacy COBOL applications to validate. If the invoice passes validation, it is inserted into the financial systems' operating ledger and a payment is issued.

3) IBM DB2 Database

MyEvents uses the IBM DB2 v8.2.7 database for data storage on UNIX and IBM DB2 v7.0 on the mainframe. Disk storage requirements are approximately 111 megabytes per year increasing to 205 megabytes per year after 10 years.

B. Innovative

MyEvents uses the most up-to-date web service technologies to communicate with the legacy mainframe tier of business logic and transaction processing.

1) IBM Rational Developer

During the development cycle, the IBM Rational Developer was used to define an Invoice Web Service Definition Language (WSDL) file. This Invoice WSDL file was then processed through Apache CXF to create Java client stubs to be used to make remote procedure calls to the Invoice processors on the mainframe CICS Transaction Server at runtime. While the Invoice objects look like local objects on the UNIX side, they are in fact 'virtual objects' that actually live on the mainframe side.

2) jQuery JavaScript Library v1.3.2

jQuery is a JavaScript Library that simplifies dynamic HTML document traversing, event handling, animating, and Ajax interactions for rapid web development.   MyEvents uses jQuery to dynamically change the web application interface based on user responses. For example, if the user enters a reimbursement request that is greater than a specific amount, then a receipt upload request dynamically appears on the screen. This approach to application design enables MyEvents to make fewer calls to the server.

3) Apache CXF v2.1.2

This is the open source services framework that helps build and develop services using front-end application programming interfaces (APIs), like JAX-WS and JAX-RS. These services speak to a variety of protocols such as SOAP, XML/HTTP, Representational State Transfer (REST)ful HTTP, and CORBA working over a variety of transports such as HTTP, Java Message Service (JMS), and Java Business Integration (JBI). MyEvents uses the Apache CXF wsdl2java utility to take the COBOL invoice WSDL document and generate fully annotated Java code from which to implement UNIX client service calls to the legacy mainframe accounts payable process.   This real time approach to the payment record creation prevents the need for a nightly batch process and provides expedient reimbursements and payments.

4) IBM Rational Developer for System z (RDz)

The RDz generates the XML and the WSDL to provide the communication channel between the mainframe based COBOL applications and the consuming UNIX based Java web application front-end. XML Services for the Enterprise tools facilitates adapting COBOL-based business applications to become web services so that they can process and produce XML messages. For example, this interface is to a called application that allows an Internet user to access an existing CICS or IP Multimedia Subsystem (IMS).   The tools help to embed a COBOL application in a larger system that uses XML for data interchange.

The Web Services Enablement wizard allows you to generate a new web service interface. Typically, this is called a 'bottom-up' approach as the existing COBOL application is at the 'bottom' of the new web services creation process. Formerly, this approach was called XML Enablement wizard. The XML to COBOL mapping tools allow for mapping an existing web service interface or an XML data definition to the existing

COBOL program. Typically, this is called a 'meet-in-the-middle' approach, as the existing web services definition 'meets' or 'maps' to the existing COBOL interface.   MyEvents uses RDz to develop COBOL payment record web services with the inputs and outputs being first defined in a COBOL copybook.

C. Application Map

The following application map provides an overview of how the conventional and innovative technologies were utilized for MyEvents:
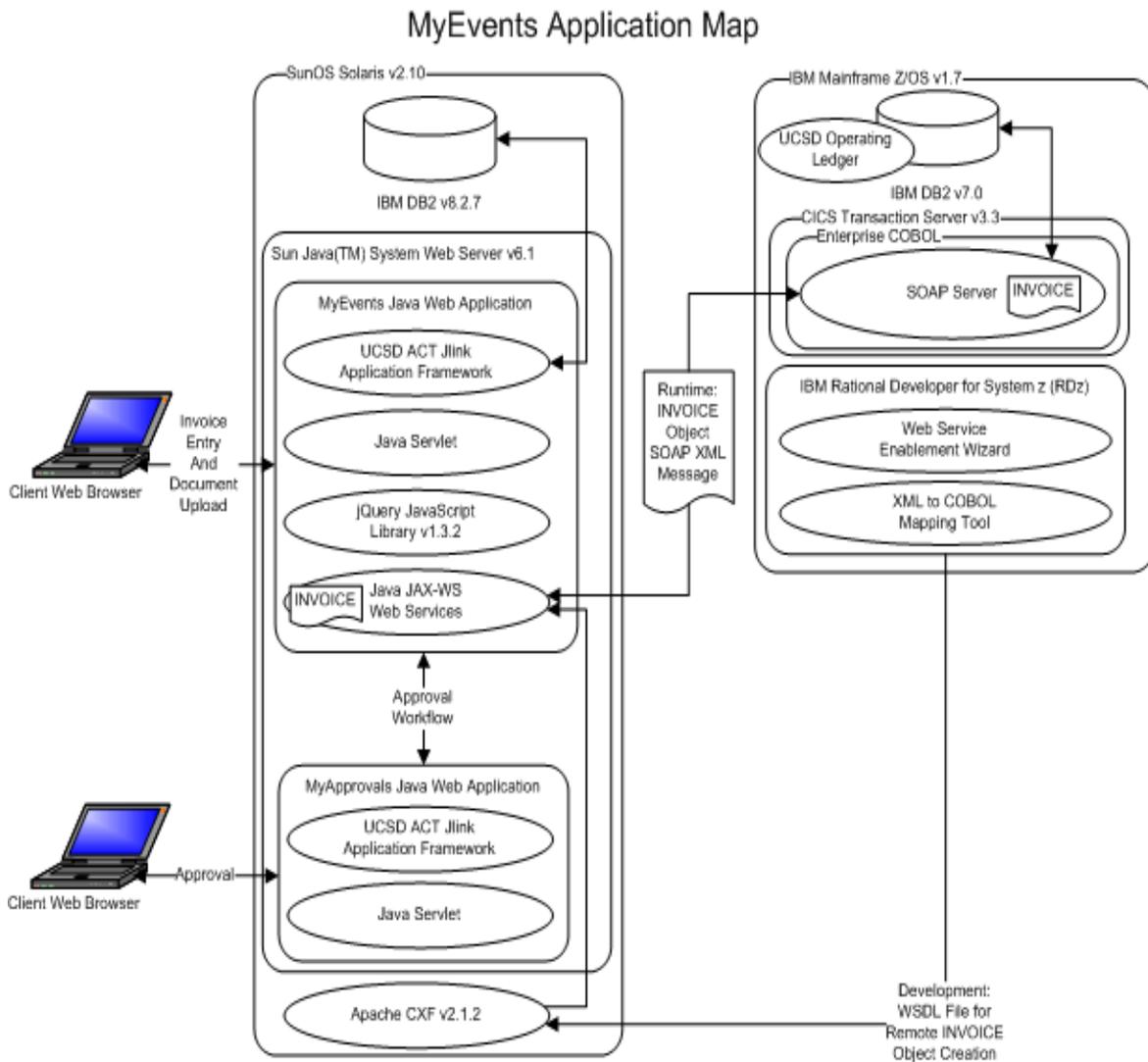
MyEvents Application Map

D. Infrastructure

1) Documentation and Archival

The attaching of documentation is an indispensable feature of MyEvents for eliminating paper and allowing for supporting documentation to be archived with the original transaction which along with the audit trail for MyApprovals, is stored on disk. The technology used to push the documents to the server is an HTTP Request which pushes the file to the server and is written as a Java Web Application.   Users attach receipts and other required documentation to the payment request by uploading them to the server through the application. Disk storage for these uploaded documents is approximately 15 gigabytes annually year increasing to 27 gigabytes after 10 years.

2) MyApprovals Workflow Engine

MyApprovals was developed as a Java web application and is used by MyEvents to route transacations through an approval workflow and to compile a chronological audit trail.   MyEvents derives the list of approvers for an individual request based on the user's responses to questions within MyEvents. This dynamic approach to creating the approval workflow takes the research work out of the previous paper based approval routing method, shows users what levels of approval are required, and validates that the approval authority has the proper delegation (s). The audit trail for MyApprovals is stored on disk. The technology used to push the documents to the server is a HTTP Request which pushes the file to the server and is written as a Java Web Application.

VII.   IMPLEMENTATION TIMEFRAME
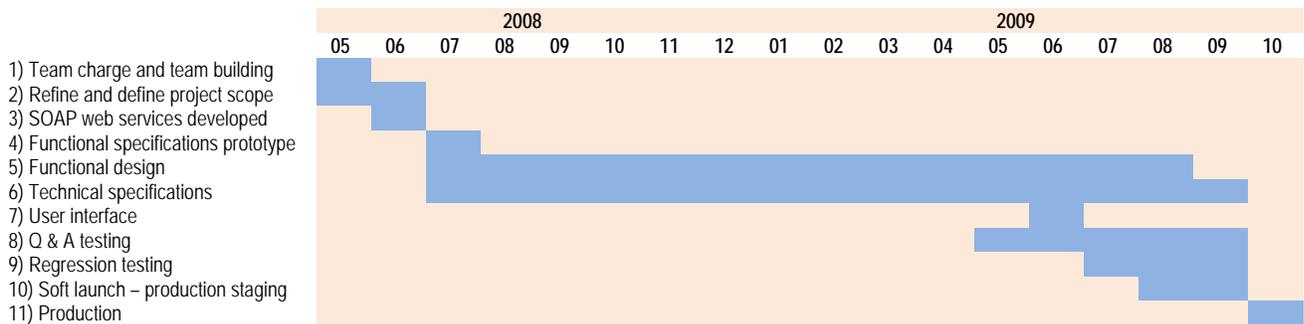
VIII.   OBJECTIVE CUSTOMER SATISFACTION DATA

"Much faster than the old paper forms; a vast improvement, I've been very satisfied this past year using it for reconciling entertainment.   It's terrific!" Deborah Magnuson, Administrative Assistant, Medicine

"User friendly screens to input information" Myra A. Kosak, Administrative Assistant, Chemistry/Biochemistry

"What I like best… "Not requiring paper" Anonymous, multiple occurrences from a point of service survey

"This is great, the ability to upload attachments means I don't have to keep and send paper." Martha Barry, Administrative Assistance, Office of Post Awards and Financial Services

"This is really good. Seems user friendly." James Koga, Fund Manager, Physics

"MyEvents seems easy to use and tells you what you need." Mary Lou Manuel, Administrative Assistant, Controller's Office

"MyEvents request arrive in our online approval queue with the required documentation attached, and department approvals recorded, making it very efficient to review and complete each request. Before MyEvents follow-up on incomplete requests took a lot of time and consultation with requestors." UCSD Travel – Operations Team

"I like the way MyEvents only asks each user questions that apply to his/her situation, alerts the user to policy and approval requirements, and for preparers and approvers each request includes a real-time view of who approved and when." Monique Tokuhara, Administrative Specialist, Geisel Library

"HURRAY!! This will save me so much time. Thanks so much for this nifty idea and speedy reply!" Mary Hibbert, Administrative Assistant, Nephrology Programs

"Thanks so much, That is wonderful news and we will start encouraging all of our entertainment preparers to use MyEvents." Shanley Miller, Financial Manager, Chemistry and Biochemistry

"I like (the) MyEvents it's very accommodating bravo you guys!!" Theresa Blankenship, Administrative Specialist, Anthropology

"My Events is great - very easy to use - love it!" Susan King, Business Operations, Environmental Health and Safety

"MyEvents improves internal controls by requiring the user to enter information and attach documentation which was not easily obtained under the previous entertainment claim processing. Validity checks and input masks greatly improve accuracy of the data received. The user sees immediate guidance if input criteria is invalid or incomplete. MyEvents lets the user know exactly what is required during the claim process, making the user accountable for supplying the correct information.   Built-in approval workflow in MyEvents also improves internal controls. For example, a claim for special entertainment is routed for review and approval by the person with specifically delegated authority and the approver's action and comments are preserved in the online audit history. During the MyEvents approval process, the user at each level (preparer, host, fund manager, entertainment approver) agrees to a MyEvents approval statement which is specific to that user's role." Heather Vinograd, Internal Control Accountant, UCSD Disbursements and Travel