PHP Case Study on IBM i

Alan Seiden
Specialist, PHP on IBM i
aseiden@sbsusa.com

New York PHP Community and User Group (NY-PHP)
February 23, 2010
IBM Business Partner
- Provides hardware, software development, consulting for IBM i
- Developer of web apps on i since 1996
- Based in Ramsey, New Jersey

Zend ("the PHP company") partner
- Zend brought PHP to IBM i in 2006
- We offer Zend’s training and software to complement our own consulting/development services
Alan Seiden

PHP on IBM i Developer / Consultant / Mentor

• Contributor to IBM’s Redbook *PHP: Zend Core for i5/OS*
• First IBM i developer certified in Zend Framework
• Developer of IBM/COMMON’s “Best Web Solution” of 2009

Contact: aseiden@sbsusa.com or 201-327-9400
Blog/articles: alanseiden.com
What we’ll discuss today

- PHP review
- Update on Zend Server (new PHP install for i)
- Case study: re-imagine green screens as web
- Tips and techniques
- Answer any PHP questions
PHP’s growth as web dev language (as of 2007)

- 34% of the internet runs on PHP
- 37% growth in PHP developers

- Rasmus Lerdorf introduces PHP/FC
- Zeev Suraski & Andi Gutmans lead the development of PHP 3
- 1M Internet domains
- Zend Engine
- Zend Founded
- PHP 4 Released
- PHP 5.0 (XML, SOAP, OOP) Zend Studio
- PHP Proliferation
- Yahoo! Standardizes on PHP
- IBM, Oracle endorse PHP
- Zend Framework & Eclipse project (PDT) announced; i5/OS support
- ZF and PDT released, PHP 4 EOL announced
- PHP Internet Domains
- PHP Proliferation
- 37% growth in PHP developers
- 34% of the internet runs on PHP

Alan Seiden, Strategic Business Systems
Who uses PHP?

- Yahoo, eBay, Wikipedia, Facebook
- Open source developers – 10,000+ projects
- Strong community worldwide
- 7 million+ developers
- Growing community of IBM i shops
Reasons for PHP’s success

• Easy way to get data to Web
  ▪ Generates ordinary HTML, viewable in any browser

• Cross-platform: also runs on Windows, Linux, any mainstream OS

• Open source
  ▪ Managed by Zend, “the PHP company”
  ▪ Contributors from community and corporations
Free, open source apps (fine on IBM i)

- WordPress blog/CMS
- MediaWiki (Wikipedia)
- ZenCart e-Commerce
- Bug Tracking/Helpdesk (Mantis400.com)
- Sugar CRM
PHP on i—a short history

• 2004: i5php.net
  ▪ Unofficial PHP binary for “i” available online

• 2005: IBM and Zend got together

• 2006: Zend Core for i5/OS
  ▪ Official release with help from IBM
  ▪ Professional technical support from Zend

• 2007: Zend Studio: IDE/code editor
• 2007: Zend Platform: performance booster and code tracer/monitor

• 2008: Zend Framework supports “i” variant of db2

• 2009: Zend Server Beta for “i”
  ▪ Combines the best of Core and Platform…watch for GA
**Runs completely on your good old “i”**
- Uses IBM’s native Apache web server
- Backed by IBM, shipped with v5r4 and beyond
- Connects directly to db2 database

**Light on its feet**
- Efficient—runs well out of the box
- Create useful functionality quickly; start small and grow
  - Plenty of room for sophistication in larger apps
i5 Toolkit is included

• i5 Toolkit lets you:
  ▪ re-use your RPG logic
  ▪ call commands
  ▪ access data areas and other resources

• Documentation

• Samples
  ▪ http://files.zend.com/help/Zend-Core-i5/program_samples.htm
i5 Toolkit functions to call CL/RPG

• **i5_connect(server, user, password, options)**
  - $conn = i5_connect("1.2.3.4", "MYUSER", "MYPWD");

• **i5_command(command, inputs, outputs)**
  - Good for commands/programs with no parameters
  - E.g. i5_command("call LIB_NAME/PROGRAM_NAME")

• **i5_program_prepare(name, description)**
  - Sets up parameter names and data types

• **i5_program_call(program, params, retvals)**
  - Calls program with parameter values
bool i5_program_call(resource program,
                      array params[,,
                      array retvals])

• **Program**: resource opened by i5_program_prepare

• **Params**: array of key => value pairs
  - Key: name of parameter
    - Named according to description given in “prepare”
  - Value: value of input parameter

• **Retvals**: array of key => value pairs
  - Key: name of output parameter
    - Again, named according to description given in “prepare”
  - Value: name of PHP variable to receive the output parameter
Reminder: how to install PHP
Install Zend Core (free)

• **Check the requirements/release notes**
    - Scroll down to Zend Core for i5/OS v2.6
  - i5/OS V5R4, v6.1
  - PASE, Qshell, recent cumulative PTF package, more

• **Get FREE Zend Core for i5/OS**
  - Preloaded as licensed program or
    - Free account required
    - Look for “Zend Core for i5/OS V2.6”
  - Choose Windows-based installer or *SAVF

• **Install on your i5**
  - If you need MySQL, can select it, too
  - Start Zend Core: GO ZENDCORE/ZCMENU, Option 5 then 1
Apache PHP jobs run in ZEND

- Look in Zend subsystem for Apache/PHP jobs
Zend Studio for Eclipse, IBM i Edition

• Better IDE than “Notepad”

• Free for IBM i customers
  ▪ Look for “IBM i Edition”

• Alerts you to any syntax errors or other mistakes; offers interactive debugging and code completion (similar to how green screens provide an F4 prompt)

• For good performance, your PC needs 2GB RAM
Zend Platform (optional)

Provides caching (fast!), debugging and event tracking, integration with Zend Studio (IDE)

Dashboard

<table>
<thead>
<tr>
<th>Id</th>
<th>Event</th>
<th>Count</th>
<th>Last Occurrence</th>
<th>Location</th>
<th>URL</th>
<th>Severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>Slow Script Execution (Absolute)</td>
<td>329</td>
<td>07 Apr 2009 20:42:05</td>
<td>localhost</td>
<td>.../QuickOrder</td>
<td>Moderate</td>
</tr>
<tr>
<td>9</td>
<td>Slow Script Execution (Absolute)</td>
<td>234</td>
<td>07 Apr 2009 19:47:51</td>
<td>localhost</td>
<td>.../index.php</td>
<td>Moderate</td>
</tr>
<tr>
<td>32</td>
<td>Slow Script Execution (Absolute)</td>
<td>153</td>
<td>07 Apr 2009 18:41:58</td>
<td>localhost</td>
<td>.../chard+napa+750</td>
<td>Severe</td>
</tr>
<tr>
<td>33</td>
<td>PHP Error</td>
<td>16</td>
<td>07 Apr 2009 16:28:24</td>
<td>localhost</td>
<td>.../5531043</td>
<td>Moderate</td>
</tr>
<tr>
<td>47</td>
<td>PHP Error</td>
<td>304</td>
<td>07 Apr 2009 16:28:59</td>
<td>localhost</td>
<td>.../advancedsearch</td>
<td>Moderate</td>
</tr>
</tbody>
</table>
Zend Platform: detail

Drill down to find the cause of performance lags or errors
Zend Server...sneak peek
Zend Server for IBM i

• Next generation of PHP stack for IBM i
• Best of both Zend Core and Zend Platform
• Single Licensed Program Installation
• Two levels
  ▪ Zend Server for IBM i Community Edition
    • Available at no charge per IBM partnership
    • Includes “Optimizer+” that speeds up code
  ▪ Zend Server for IBM i
    • Subscription available from Zend
    • High value extra features
    • Higher Support SLAs
Zend Server Installation

- **Current installation is beta**

- **Fast CGI built by IBM requires PTF’s**
  - Current group for 57nnDG1 – IBM HTTP Server for i5/OS
  - V5R4
    - PASE – SI36004
    - HTTP – SI36026
  - i6.1
    - PASE – SI36005
    - HTTP – SI36027
Zend Server Administration

- Single interface for “Core” and “Platform” controls

- Apache changes
  - Single server (YAY!)
    - PASE server eliminated
  - IBM HTTP Server Powered by Apache
    - PHP implemented using Fast CGI developed by IBM
  - Restart button saves round trip to green screen!
Zend Server’s Interface

Recent Events

<table>
<thead>
<tr>
<th>Id</th>
<th>Generated by Rule</th>
<th>Count</th>
<th>Last Occ.</th>
<th>Severity</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>000001</td>
<td>Slow Query Execution</td>
<td>1</td>
<td>05-Jan-22</td>
<td>Critical</td>
<td>db2_exec</td>
</tr>
</tbody>
</table>
| 000002 | Slow Request Execution (Absolute)   | 1     | 05-Jan-22 | Critical | http://192.168.15.203:100\xxx\customers\partner\roadshow\zend\dlist1
| 000003 | PHP Error                           | 4     | 05-Jan-22 | Warning  | http://192.168.15.203:100\xxx\customers\partner\roadshow\zend\dlist1
| 000004 | PHP Error                           | 7     | 05-Jan-22 | Warning  | http://192.168.15.203:100\xxx\customers\partner\roadshow\zend\dlist1
| 000005 | PHP Error                           | 7     | 05-Jan-22 | Warning  | http://192.168.15.203:100\xxx\customers\partner\roadshow\zend\dlist1

System Overview

- PHP Version: 5.2.11
- Zend Framework Version: 1.9.6

Zend Server
- Zend Code Tracing: ON
- Zend Data Cache: ON
- Zend Debugger: ON
- Zend Guard Loader: OFF
- Zend Java Bridge: OFF
- Zend Job Queue: ON
- Zend Monitor: ON
- Zend Optimizer+: ON
- Zend Page Cache: ON

Tasks

Learn how to start with Zend Server and PHP
Configure Zend Server Extensions

Your license will expire in 29 days. Click here to update your license.

Alan Seiden, Strategic Business Systems
Review: PHP basics on i
Review of PHP basics: Step 1

• **Learn some basic HTML**
  - Try http://w3schools.com/html
  - Tables (<table>,<tr>,<td>) useful for business data
  - “View Source” in browser to borrow bits of HTML

• **Optional: learn as needed**
  - Javascript
    • Adds dynamic functionality to pages
  - Cascading style sheets (CSS)
    • Modern way to specify colors, fonts, and other attributes of how a site looks
Step 2: Try a simple PHP script

- PHP scripts are text files that reside in the IFS
- Save script in /www/zendcore/htdocs/helloworld.php
- Run in browser URL:  
  http://i5system:89/helloworld.php

```php
<?php
    // simple script to test PHP
    echo "Hello, world!";
?
```
“Hello, world!” in browser

• The output of helloworld.php

Hello, world!
Step 3: Access db2

• Example:
  ▪ Connect to db2 on i
  ▪ Select records from a db2 table
  ▪ Load the records in an HTML table
  ▪ Display the output

Customer list for a company

<table>
<thead>
<tr>
<th>Customer Number</th>
<th>Customer Name</th>
<th>Address Line 1</th>
<th>Address Line 2</th>
<th>City</th>
<th>State</th>
<th>Zip Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jimmy Buffet</td>
<td>5555 Candy Lane</td>
<td>Apt. 2</td>
<td>Chicago</td>
<td>IL</td>
<td>60694</td>
</tr>
<tr>
<td>2</td>
<td>Sherlock Holmes</td>
<td>221 Baker Street</td>
<td>Apt. B</td>
<td>London</td>
<td>EN</td>
<td>22101</td>
</tr>
<tr>
<td>3</td>
<td>Gregory House</td>
<td>221 Baker Street</td>
<td>Unit B</td>
<td>Newark</td>
<td>NJ</td>
<td>07114</td>
</tr>
<tr>
<td>4</td>
<td>Dexter Morgan</td>
<td>666 Collins St</td>
<td>Apt 13</td>
<td>Miami Beach</td>
<td>FL</td>
<td>33109</td>
</tr>
<tr>
<td>5</td>
<td>Mary Shannon</td>
<td>200 Laredo Dr</td>
<td></td>
<td>Albuquerque</td>
<td>NM</td>
<td>87104</td>
</tr>
</tbody>
</table>
Connection to DB2 for i

- Need three things (OK to leave blank for default):
  - Database name
  - User ID
  - Password

```php
// Standard DB connection to DB2...
$conn = '*LOCAL'; $name = ''; $pwd = '';

$i5link = db2_connect($conn, $name, $pwd);
if (!$i5link)
    echo 'Connection failed: '.db2_stmt_error().' : '.db2_stmt_errormsg();

$sql = "SELECT * from prodlib.customer";

$stmt = db2_exec($i5link,$sql)
or die("Failed query:".db2_stmt_error().'"."'.db2_stmt_errormsg());
?>
```
Reading data

Loop through record set

```php
<h1> Customer list for a company </h1>
<br>
<table border="10" bordercolor="blue" tbody bgcolor="DEB887">
    <tr>
        <td>Customer Number</td>
        <td>Customer Name</td>
        <td>Address Line 1</td>
        <td>Address Line 2</td>
        <td>City</td>
        <td>State</td>
        <td>Zip Code</td>
    </tr>
    <tr>
        <?php
        echo "<td> $row['CUSTNUM'] </td>
        <td> $row['CUSTNAME'] </td>
        <td> $row['CUSTADDR1'] </td>
        <td> $row['CUSTADDR2'] </td>
        <td> $row['CUSTCITY'] </td>
        <td> $row['CUSTSTATE'] </td>
        <td> $row['CUSTZIP'] </td>";
    }
    echo ' </table > ';
    db2_close($i5link);

?>
```
Resources

• My basic PHP presentation: http://www.sbsusa.com/php/

• Support: Zend Core includes one year of “silver” support

• Forums and lists
  ▪ forums.zend.com (look for IBM i forums)
  ▪ lists.nyphp.org (general PHP questions)

• Books (online and print)
  ▪ Zend Core for i5/OS Redbook
  ▪ PHP on IBM i book by Jeff Olen & Kevin Schroeder (MC Press)

• PHP User Groups
  ▪ nyphp.org, liphp.org
That age-old issue

• “New users don’t like the green screens”

• “We need to open up our apps/data to the outside, safely, and with a GUI”

• But we don’t want to lose our investment in RPG code

• We still want stability…and to run on the “i”!!
First thought: automatic webfacing

• **Tools such as NewLook do it fast, but:**
  - Often require java or plug-ins for browser
  - Users know they’re not true web apps
  - Still green screens in disguise

• **Zend has “5250 Bridge” for PHP**
  - Pulls 5250 data stream into a PHP app
  - Shows promise but:
    - Not automatic
    - Slow

• **These solutions serve a purpose but don’t get you something new**
Next thought: approach for true web apps

- I used it with my team at SBS for the first time in 2002 (before PHP on i)

- A smart ‘i’ friend of mine just came up with the same approach independently

- It’s time to talk about it

- All it needs is a catchy name
Magic formula

- **PHP calls RPG with a unique session id and other key values**
  - RPG looks up data, does calculations, validation

- **Returns data and error messages in work file(s)**
  - Redirect output to a file instead of the screen

- **PHP reads the work file using SQL, outputs data on page**

- **It is worth the effort if your RPG is complex and valuable**
Flow of PHP/RPG

- **PHP controls the flow**
  - Receive input from browser
  - Zero-pad numeric fields
  - Write records (if any) to work file(s)
  - Call appropriate RPG(s)
- **RPG processes, calculates, validates**
  - Writes results to work files(s)
  - Returns status flag to PHP
- **PHP reads work file(s) and shows any validation results and data**
Parameter list of updated RPG

0008.00 H* PARAMETERS : SEQ    - (*CHAR 11) - transaction sequence #
0009.00 H*              SESS    - (*CHAR 25) - session key
0010.00 H*              FLAG    - (*CHAR 1) - Success Flag (Y/N)
0011.00 H*                        Y = ... Processed Normally
0012.00 H*                        N = Not Processed Normally (validation error)

0137.00 C *ENTRY          PLIST
0138.00 C PARM            SEQ    11
0139.00 C PARM            SESS   25
0140.00 C PARM            FLAG   1
Work files to get validation messages from RPG

- **Transaction work file containing data**
  
  Transaction sequence 284  
  Order Number 332  
  Sales Rep 105  
  Dollar total 100.35  
  Validation Request 2951  
  Validation Group 1

- **Validation log file containing validation errors and so on**
  
  - “group” is used like: group 1 = header  
  - Each detail line can have its own group of messages.  
    - group 2 = a detail line, group 3 another detail line. ctc.

  Validation Request 3673  
  Validation Group 1  
  Validation Unique 2951  
  Message Id VOR4039  
  Message Severity 60  
  Message Text Invalid model year/exterior/interior combination.
Use MONMSG

- Avoid any possibility of a crash in RPG/CL
  - If an RPG/CL does not complete, it won’t return control
  - Web page will “hang” till it times out

- Use MONMSG in CL; provide a return flag to tell PHP that an error occurred

- You could even email yourself the error message

- This technique will avoid head-scratching while you test, change file layouts, etc.!
Tip: Encapsulate i5 calls

// PARTIAL CODE from our SBS_i5 "class" (grouping of functions)

$_outputParms = array();

public function callProgram($programName, $description, $parmsIn) {
    // for programName, library is optional, e.g. MYLIB/MYPROG.
    // if successful, fill the outputParms array with output values
    $pgm = i5_program_prepare($programName, $description);

    // get field names (keys) from description array.
    $parmNames = array_keys($description);
    // generate output parm array from them.
    foreach($parmNames as $parmName) {
        $parmsOut[strtoupper($parmName)] = strtoupper($parmName); // looks like
        "AMOUNT"=>"AMOUNT"
    }

    $ret = i5_program_call($pgm, $parmsIn, $parmsOut);
    // create array of key=>value pairs from the variables created on i5_program_call
    $this->_outputParms = compact($parmsOut);
}

public function getOutputParms() {
    // return outputParms, an array.
    return $this->_outputParms;
}
Now call the encapsulated i5 function

// In your mainline code:
$programToCall = "MYPROGRAM";
$description = array("SESS" => array(
    "Name" => "SESS",
    "IO" => I5_INOUT,
    "Type" => I5_TYPE_CHAR,
    "Length" => "25"),
    "SEQ" => array( // and so on…

    // create array of input values
    $parmsIn = array('SESS' => $sessionKey,
                      'SEQ' => $zeroPaddedSequence,
                      'FLAG' => $actionFlag);

    // “callProgram” handles prepare and call.
    $i5Call = new SBS_i5();
    $success = $i5Call->callProgram($programToCall, $description, $parmsIn);
    if ($success === false) {
        throw new Exception('Could not call program.');
    }
    // if we got this far, program ran successfully.
    $returnValues = $i5Call->getOutputParms();

    // validatedOK is true if FLAG = Y.
    $validatedOk = (($returnValues['FLAG'] == 'Y') ? true : false);
Order Entry Case Study #1
Medrano Express: four into one
Screen #1, Order header

Minnesota

Invoice #: 00000001-01
Invoice Posted
Order Date: 12/15/08

Bill To... 2223492 (F4=Search)
CALDERON RIVERA, MARGARITA
754 26TH ST

Ship To FAMILIA
Name... CALDERON RIVAS, ELSA MARINA
Addr1.. BARRIO LAS CRUCITAS
Addr2..
Addr3..

EAST MOLINE
IL 61244-1864

City... SANTA CRUZ DE YOJOA
Region. CORTES
Country HONDURAS
Phone... 504-466-59412

Dealer. GUAMAR LA GUADALUPANA
Empty Box Delivery Date.. 12/15/08
Delv.Time.

Reference#
(F4=Search)

Request Pickup Date... 1/02/09
Pickup Time 0

ESTA CAJA SE RECOJERA POR FEDEX

Request Ship Date... 1/05/09

Zone./ Branch ............ GUAMAR / 65

Enter=Continue F4=Search F12=Previous F20=Override Zone F22=Change Ship-To
### Screen #2, Order detail

<table>
<thead>
<tr>
<th>Order Inquiry</th>
<th>Entered By</th>
<th>YVONNES/Minneap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region</td>
<td>MN</td>
<td>Minnesota</td>
</tr>
<tr>
<td>Bill To</td>
<td>CALDERON RIVERA, MARGARITA</td>
<td></td>
</tr>
<tr>
<td>Ship To</td>
<td>CALDERON RIVAS, ELSA MARINA</td>
<td></td>
</tr>
<tr>
<td>Country</td>
<td>504 HONDURAS</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Qty</th>
<th>Qty</th>
<th>Item/Desc</th>
<th>Weight</th>
<th>Price</th>
<th>Insure$</th>
<th>Fee</th>
<th>Charges</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>22</td>
<td>0</td>
<td>165.00</td>
<td>15.00</td>
<td>.00</td>
<td>.00</td>
<td>180.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;X22&quot;&quot;X22&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Invoice

- **Invoice Date/By.** 12/15/08  YVONNES
- **Package Scanned.** 1/08/09  YALITZAF
- **Invoice Posted...** 1/08/09  YALITZAF

---

**Order Total.** 180.00
**Invoice 01 Total.** 180.00

---

Enter=Accept  F1=New Box  F2=Other Charges  F7=Summary  F24=More Keys
Screen #3, Content package from detail

(Option 4 from order header)

<table>
<thead>
<tr>
<th>Invoice#.</th>
<th>00112345678 - 1</th>
<th>Package Contents</th>
<th>JESSIE</th>
<th>2/02/10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line#....</td>
<td>0001 22&quot;X22&quot;X22&quot;</td>
<td>Dist Branch......</td>
<td>Honduras (50400/516-279-5205)</td>
<td></td>
</tr>
<tr>
<td>Total# of Pkgs.....</td>
<td>1</td>
<td>Delivered by......</td>
<td>FERNANDO ARGUIJ</td>
<td></td>
</tr>
<tr>
<td>Declared Value(Ins)</td>
<td>500</td>
<td>Delivery Date.....</td>
<td>2/01/09</td>
<td></td>
</tr>
<tr>
<td>Insurance Charges..</td>
<td>15.00</td>
<td>Delivery signed by</td>
<td>ELSA MARINA CALDERON</td>
<td></td>
</tr>
</tbody>
</table>

Declared

<table>
<thead>
<tr>
<th>Pkg#</th>
<th>Package Content/Detail Descriptions</th>
<th>Weight</th>
<th>Customs#</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ZAPATOS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ROPA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CAMARA DE VIDEO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PAÑALES DESECHABLES</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Enter=Accept  F2=Print  F12=Previous
### Screen #4, Notes from order detail

**F9 key launches this**

<table>
<thead>
<tr>
<th>Date</th>
<th>Notes</th>
<th>Created By</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/15/08</td>
<td>Invoice scheduled for P/U on 12/15/08 by YVONNES.</td>
<td>SYSTEM</td>
</tr>
<tr>
<td>12/15/08</td>
<td>Package Content entered/updated by YVONNES.</td>
<td>SYSTEM</td>
</tr>
<tr>
<td>12/16/08</td>
<td>Zone changed from LAPA AZM to GUAM AR by YALITZAF.</td>
<td>SYSTEM</td>
</tr>
<tr>
<td>1/04/09</td>
<td>Dealer changed from LAPA AZM to GUAM AR by YVONNES.</td>
<td>SYSTEM</td>
</tr>
<tr>
<td>1/04/09</td>
<td>Invoice 00192913-01 printed by YVONNES.</td>
<td>SYSTEM</td>
</tr>
<tr>
<td>1/04/09</td>
<td>Label 00192913-01 printed by YVONNES.</td>
<td>SYSTEM</td>
</tr>
<tr>
<td>2=Edit</td>
<td>4=Delete</td>
<td></td>
</tr>
</tbody>
</table>

Add Notes

---

days

Enter=Continue  F3=Exit
Web page combines all 4 “green screens”
How do we fit all that on one page?

- **Vertical scrolling**
- **Contrasting fonts and colors**
One PHP script, four RPG programs

• Call each RPG; it fills a work file with data to read
• Repeat 4x!
• “header” RPG returns useful information for calling “detail” RPG, etc.
• Show results in one PHP “view”

• (Thanks to Jessie Clark)
Order Entry Case Study #2
## Allied Beverage Group

### Product Catalog

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
<th>Size</th>
<th>Pack</th>
<th>Qty</th>
<th>Add Items</th>
<th>Price</th>
<th>Inventory</th>
<th>$ Best Buy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acadia Chardonnay A By Agapia</td>
<td>5607061</td>
<td>375 ML</td>
<td>12</td>
<td>3</td>
<td>cases</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cakebread Cellars Chardonnay Napa Valley 07</td>
<td>7433005</td>
<td>375 ML</td>
<td>12</td>
<td>1</td>
<td>bottles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grgich Hills Cellar Chardonnay</td>
<td>5544265</td>
<td>375 ML</td>
<td>12</td>
<td></td>
<td>cases</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Levedi Chardonnay Red Hen 06</td>
<td>4591060</td>
<td>375 ML</td>
<td>12</td>
<td></td>
<td>cases</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marenskale Chardonnay Starmont 07</td>
<td>4231069</td>
<td>375 ML</td>
<td>12</td>
<td></td>
<td>cases</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schramsberg Blanc de Blanc</td>
<td>4056064</td>
<td>375 ML</td>
<td>12</td>
<td></td>
<td>cases</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

*Alan Seiden, Strategic Business Systems*
Original 5250-mode order entry process

- Aimed at expert customer service users
- Sales reps accessed it using Jadvantage java applet in browser
  - Better than nothing
  - S-l-o-w
  - Forced reps to have expert knowledge of system
- Dicey wireless signals on the road = lost sessions
- RPG did important work but was too complex to make major changes to
ORDER ENTRY

SALESMAN   CUST #   PHONE #

..................   ..................   ..................

COMMENTS  

..................  

YOUR RETURN TO NUMBER  LOCATION  DELIVERY DATE  BILL&HOLD  "Y"=YES

ENTER A "Y" FOR ALL GIFT

Enter A 33 to Make Order A Sales P/U From Carlstadt

Enter A "M" to force A Mount Laurel Only Invoice

07/018
Intro with error message (customer)

ORDER ENTRY

SALESMAN  CUST #  PHONE #
105        . . . . . . . . . . .

COMMENTS . . . . . . . . . . . . . .

INVALID CUSTOMER NUMBER

YOUR RETURN TO NUMBER 01  LOCATION 05  DELIVERY DATE  BILL&HOLD  "Y"=YES

ENTER A "Y" FOR ALL GIFT

Enter A 33 to Make Order A Sales P/U From Carlstadt

Enter A "M" to force A Mount Laurel Only Invoice
Intro with error message (“return to number”)
Main screen

<table>
<thead>
<tr>
<th>LH</th>
<th>ORD</th>
<th>PROD</th>
<th>#</th>
<th>DESCRIPTION</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<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>
</tr>
<tr>
<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>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LH</th>
<th>ORD</th>
<th>PROD</th>
<th>#</th>
<th>DESCRIPTION</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<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>
</tr>
<tr>
<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>
</tr>
</tbody>
</table>

- **COLUMBIA PK LIQ INC.**
- **INC.**
- **734**
- **014315**
- **105**
- **ANGEL WONG**
- **05**
- **CARLSTADT**
- **SHOPRITE N BERGEN**
- **201-865-2033**
- **3131 KENNEDY BLVD**
- **.00**
- **C**
- **BKPR PH:**
- **201**
- **558 9500**
- **TWHF**
- **NORTH BERGEN**
- **NJ**
- **07049**
- **C.O.D.**
- **B**
- ****
- **26**
- ****
Search for a product by description

<table>
<thead>
<tr>
<th>L#</th>
<th>ORD</th>
<th>PROD #</th>
<th>DESCRIPTION</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>L#</th>
<th>ORD</th>
<th>PROD #</th>
<th>DESCRIPTION</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>QTY</th>
<th>TYP</th>
<th>PR</th>
<th>ALP</th>
<th>ROSE</th>
<th>L#</th>
<th>RTN</th>
<th>D</th>
<th>INS</th>
<th>D</th>
<th>QQ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

24/033
Select a product
Big blinking error message
What Allied wanted in web-based order entry

• **Good for sales reps and customers**
  - Keep speed while making easier for newcomers
  - Reps can copy from past orders
  - Lots of information at fingertips (fewer clicks)

• **Users can save drafts of orders**
  - We use the old RPG logic, but we’re not tied to it

• **No problem if temporarily disconnected**
  - Stateless web connection can easily resume later

• **Overcome 90-item limit**
  - So we didn’t have to treat that as an error
  - Internally we split order into 90-item bunches and sent multiple orders to RPG
Web ordering intro page
Web with account type/search box
Web Mode #1: Quick Order Entry

![Order Entry Screen]

- **Product Code**: E118020
- **Description**: Kourtaki Rose Table (1.5 L/B)
- **Status**: Product Not Found

Error Message: **This product cannot be ordered - This is not a valid product.**
### Search Results

#### Advanced Search

Search for items: [Search]

With bottle price: [optional]

**Search**

---

### Results for Keywords: ROSE Minimum bottle price: 10 Maximum bottle price: 15

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
<th>Size</th>
<th>Pack</th>
<th>Qty</th>
<th>Cs/Bt</th>
<th>Add Items</th>
<th>Price</th>
<th>Inventory</th>
<th>Vintage</th>
<th>Info</th>
<th>$ Best Buy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kourtakis Rose Red</td>
<td>5118020</td>
<td>1.5 Lt</td>
<td>6</td>
<td></td>
<td></td>
<td>cases</td>
<td>59.96</td>
<td>18.62</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lacat Beaui Rose 0850</td>
<td>5384242</td>
<td>750 ML</td>
<td>6</td>
<td></td>
<td>cases</td>
<td>Add</td>
<td>85.96</td>
<td>18.62</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volteo Gamacha 08</td>
<td>5277440</td>
<td>750 ML</td>
<td>12</td>
<td></td>
<td>cases</td>
<td>Add</td>
<td>119.30</td>
<td>18.29</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Camella Prosecco Di Conigliano</td>
<td>9311540</td>
<td>750 ML</td>
<td>12</td>
<td></td>
<td>cases</td>
<td>Add</td>
<td>119.30</td>
<td>18.29</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Luis Felipe Edwards Rose 0962</td>
<td>5620940</td>
<td>750 ML</td>
<td>12</td>
<td></td>
<td>cases</td>
<td>Add</td>
<td>109.90</td>
<td>18.69</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calmorton Luna Di Luna Premium Pink Merlot</td>
<td>4144800</td>
<td>187 ML</td>
<td>6</td>
<td></td>
<td>cases</td>
<td>Add</td>
<td>109.90</td>
<td>18.74</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Web Mode #2: Standard Order Entry

---

Build Order - Mozilla Firefox

Welcome,
Angel Wong #105

Home > Orders > Build Order

CENTANNI INC (012213)

DBA CENTANNI INC
11-35 RIVER ROAD, NORTH ARLINGTON NJ, 07032
Phone: 201-246-0100
Messages: (none)

PRICING MONTH: February 2010
On Premise Terms: NET
Total List: $207.84
Total Disc: $0.00
Est Total Net: $ 207.84
Cases: 7 Bottles: 0

Ship From: NORTH
Delivery Date: next available [?](days: H)
Mode: Standard

Comments (optional):

Add a product:

<table>
<thead>
<tr>
<th>Qty</th>
<th>Code</th>
<th>Description</th>
<th>$ List</th>
<th>$ Disc</th>
<th>$ Net</th>
<th>$ Ext</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>118020</td>
<td>KOURTAKI ROSE TABLE (1.5 L/6)</td>
<td>$118.00</td>
<td>$0.00</td>
<td>$118.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>3</td>
<td>0222222</td>
<td>PRODUCT NOT FOUND</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

This product cannot be ordered - This is not a valid product.

(system msg: WP00041)

Customer Service North: (800) 272-1323  South: (800) 841-1948
© Copyright Allied Beverage Group LLC. All Rights Reserved.
AJAX technology (javascript) loads dynamic info
Usability tips
Check error messages for user friendliness

- Don’t assume users are experts

- Old style
  - “CODE NOT ON FILE”

- New style
  - “We’re sorry, but the warranty code you entered was not valid.”
  - (Better: provide a lookup to avoid errors)

- Old style
  - “WARNING-LIMIT EXCEEDED”

- New style
  - “You entered more than the maximum number of line items (100).”
  - (Better: find a way to allow more items, perhaps by calling the old RPG program once for each 100 you need to process.)
Graphical appeal = usability and “sizzle”

• Need HTML skills or know someone who does

• Use corporate logos or graphics

• Photoshop, Snagit, or other graphic programs

• Borrow from sites that you like
  ▪ Use “View Source” command in browser

• Match colors for instant professional look
  ▪ See next slide for a tip
Colorzilla for Firefox


1. Click "eye dropper"
2. Hover mouse/cross-hairs over color you want
3. See color codes
Now it’s your turn
Questions? And more at TGIF

Alan Seiden  
aseiden@sbsusa.com or 201-327-9400

To receive free PHP/i tips by email, write to aseiden@sbsusa.com with subject: “PHP tips.”