The PHP Company

zend

PHP on IBM i: What's New with Zend Server for IBM i

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Announcing zend Server 6 for IBM i

Mobile and web modernization for IBM i apps

i for Business

Learn More

Audience

- Used PHP somewhere else

- New to Zend PHP

- Looking to understand the strategic direction

- Need an update on "the" PHP stack for IBM i

- Anyone who does not believe third party vendors ARE investing in this space...

Agenda

- Review the IBM relationship

- Editions & features

- Technical Overview

- Product Installation

- Basic Edition Features

- Toolkit update

- Features of professional & enterprise edition

What's New with Zend Server

www.zend.com

IBM Relationship

IBM Relationship History

- Zend is an IBM strategic business partner

- IBM selected Zend to bring PHP to IBM i in 2005

- Beta, then Core, then Platform now Server

- Thousands of downloads from Zend.com

- Zend Server 5 is part of IBM i6.1 & i7.1 (distribution media)

- Zend Server 6 will become part of the distribution, soon

- Most current products are always available at Zend.com

zend Server   *Mobile and Web Application Platform*

IBM Relationship FAQ's

- **What do we get?**

  - ▸ Zend Server Basic (Formerly Community Edition)

  - ▸ Zend Studio (Licensed for IBM only!)

  - ▸ 1 year web support and updates (email/web 72 hour response)

  - ▸ Phone support & improved SLA available from Zend at a charge

- **What happens after 1 year?**

  - ▸ Products will still run as perpetual license

  - ▸ Updates and support can be purchased from Zend

  - ▸ Without extended support, there is forum support

What's New with Zend Server

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Editions & features

Service level (basic for only 1 year)

	zend Server **Basic Edition**	zend Server **Professional Edition**	zend Server **Enterprise Edition**
Support & Security Fixes **See complete SLA**			
Support via…	**Web Tickets**	**Phone (business hours)**	**Phone (24x7x365)**
P1 response time	**2 business days**	**6 business hours**	**2 business hours**
Security hotfixes	✓	✓	✓
PHP support	✓	✓	✓
Zend Framework support	✓	✓	✓
Long Term Support (LTS)		✓	✓
Custom PHP & ZF bug fixes			✓

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Different levels have different features

	zend Server **Basic Edition**	zend Server **Professional Edition**	zend Server **Enterprise Edition**
Overview			
» Support & Security Fixes	◔	◑	●
» Performance & Scalability	◔	●	●
» Configuration & Deployment	◔	●	●
» Monitoring & Root-Cause Analysis	◔	◑	●
» Enterprise Integration	◔	◒	●
» Development Tools & Runtime	◕	●	●

Service Levels

	Basic Edition (First Year)	Professional Edition	Enterprise Edition
Support Hours	Business Hours	Business Hours	24x7x365
Phone Support	✖	✔	✔
Web Support	✔	✔	✔
Forums/Knowledgebase	✔	✔	✔
Extended PHP Version Support	✖	12 Months	18 Months
Number of Cases	N/A	Unlimited	Unlimited
PHP Security Hot Fixes	✔	✔	✔
PHP Critical Hot Fixes	✖	✔	✔
Remote Diagnosis	✖	✔	✔
PHP Runtime/Engine Customer Requested Fixes	✖	✖	✔
Zend Framework Customer Requested Fixes	✖	✖	✔
Authorized Customer Support Contacts	1	2	Unlimited
P1 Phone Initial Response Time	None	6 Business Hours	2 Hours, 24x7x365
P2 Initial Response Time	1 Business Day	1 Business Day	1 Business Day
P3-P5 Initial Response Time	5 Business Days	2 Business Days	1 Business Day

Zend Server 6.2 for IBM i

Key Features

- ▸ Shipping with IBM i 6.1 & 7.1

- ▸ New Open Source Toolkit   ***GA***

- ▸ Performance enhancements

- ▸ PHP 5.3, 5.4

- ▸ Zend Framework 1 & 2

- ▸ Application Deployment

- ▸ Audit features

- ▸ PTF Update as well as full package
  - • Hotfix 1 for PHP Vulnerability!!!

PHP Version 5.4.21
Zend Server Version: 6.2.0
Zend Framework: 1.12.3, 2.2.5
Zend Server Gateway: 0.9.1
IBMi Toolkit: 1.5.0
Build: 77591

Zend Server 6.3 for IBM i (EOM)

Key Features

▸ New Open Source Toolkit Library

▸ Performance enhancements

▸ PHP 5.3, PHP 5.4, PHP 5.5.7

▸ Last PHP 5.3 support

▸ Guide pages - Package distribution

- Joomla, Drupal, WordPress

- Magento

- phpMyAdmin

What's New with Zend Server

www.zend.com

Technical overview

What Is Zend Server?

- **Production quality PHP stack**

  ▸ PHP, ZF2, DB connectivity, debugging extensions, and much more

- **Three Editions**

  ▸ Basic Edition – Included with IBM SWMA,

  ▸ Enjoy Professional & Enterprise features for 7 days, upgrade to 28

- **Application monitoring and diagnostics (integrated with Zend Studio)**

- **Multi-level performance enhancement capabilities**

- **Easy and quick installation w/Software updates and security hot fixes**
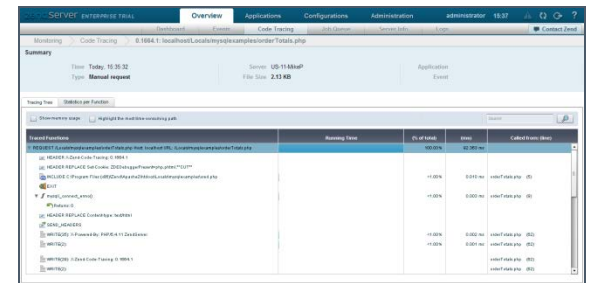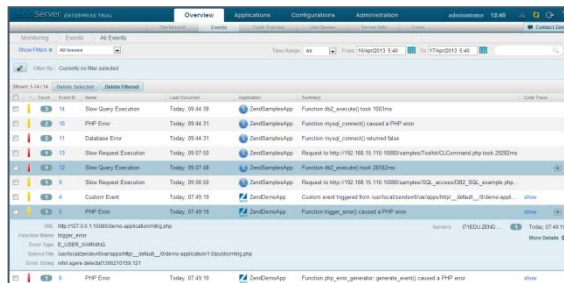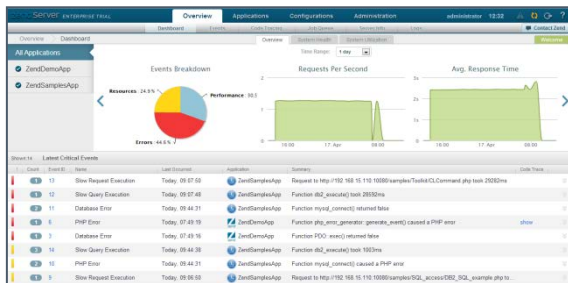
Zend Server Under the Covers

IBM i

ILE Apache:10080

i/OS

PASE

- Default configuration FastCGI

URL Request

HTML

HTTP:10080 Server (FastCGI)

PHP CGI

Zend Server

PHP file

*PGM

CMD

DB2 UDB

MySQL, Oracle, MS SQL Server
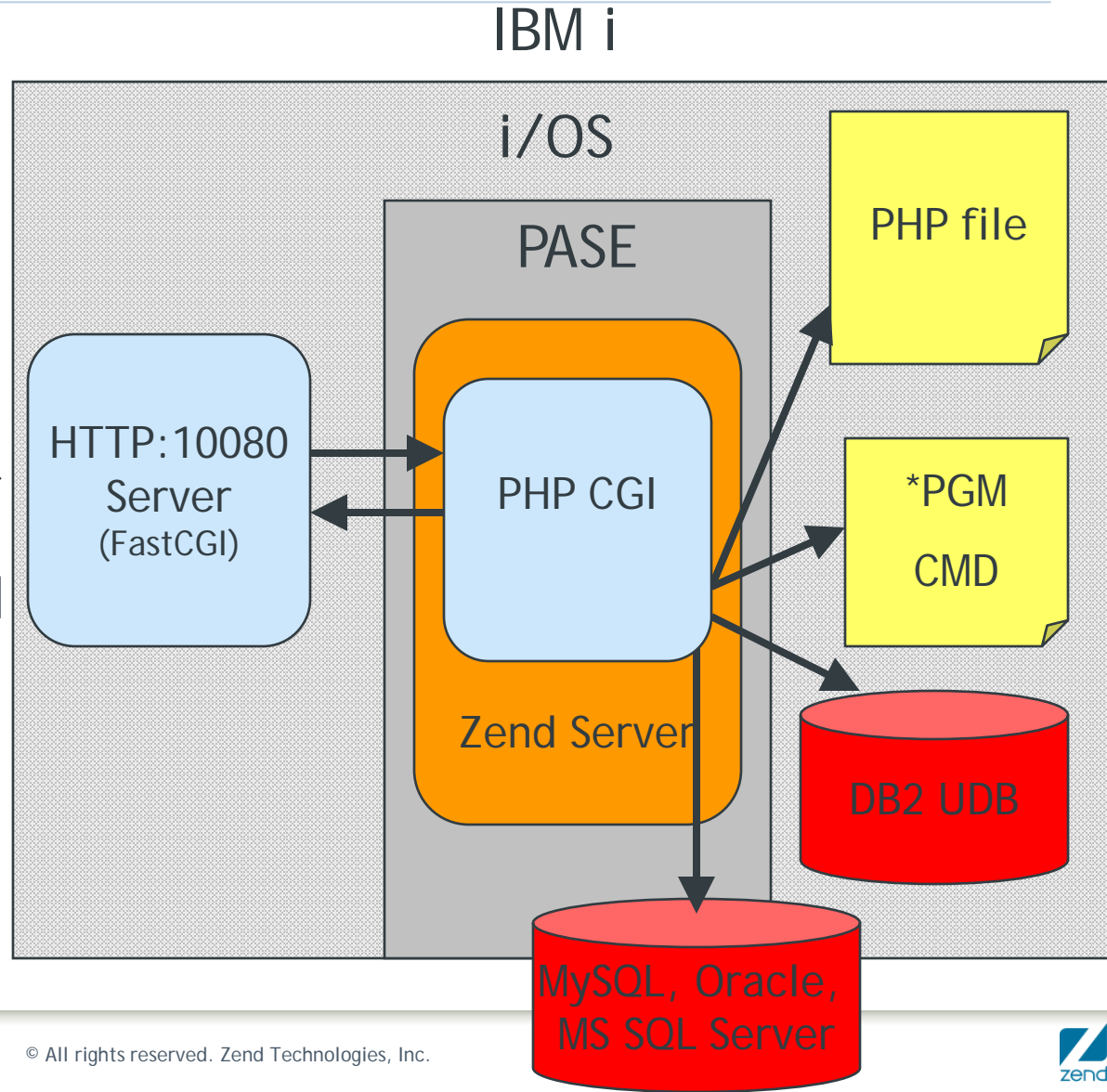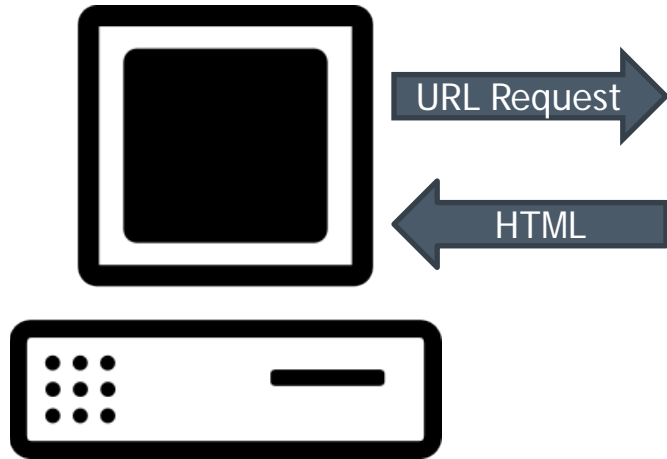
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Zend Server for IBM i

www.zend.com

Installation

Zend Server Installation requirements

- Can install PHP 5.3 or 5.4 (Select PHP 5.4, see www.php.net)

- Save File available at Zend.com, FTP to IBM i

- Updated Fast CGI built by IBM requires PTFs

  ▸ Best get current group for 57nnDG1 – IBM HTTP Server for IBM i

  ▸ http://www-912.ibm.com/s_dir/sline003.nsf/GroupPTFs?OpenView&view=GroupPTFs

- OS Version

  ▸ i6.1 + Zend Server 6

  ▸ V5R4 – Zend continuing support of Zend Server 5.6 (No ZS6!)

    • Zend Server 5.6 is EOL by March 2014!!! Plan your migration soon!

  ▸ V5R3 – No support

Zend Server 5.x Users

- Must install Zend Server 6 side by side with 5.x

- Uses new directories

    ▸ Copy your scripts to new directories, or

    ▸ Use paths in /usr/local and change include path/doc root

- Uses different port 10080 rather than 10088

- Once successfully on Zend Server 6

    ▸ Remove Zend Server 5.6 – DLTLICPGM (GO LICPGM, Option 12)

File locations

- **Default Document Root**

  ▶ /www/zendsvr6/htdocs

- **Zend Installation Directories**

  ▶ /usr/local/zendsvr6

- **Zend Framework**

  ▶ /usr/local/zendsvr6/share/ZendFramework2

- **PHP binaries (CLI and more)**

  ▶ /usr/local/zendsvr6/bin

- **Deployed application root**

  ▶ /usr/local/zendsvr6/var/apps/http/__default__/0/

Apache technology options

- Web User

  ▸ QTMHHTTP

- Initial port

  ▸ 10080

- Admin Interface

  ▸ http://yourIBMiNameHere:10081/ZendServer

- WebAPI

  ▸ http://yourIBMiNameHere:10083/ZendServer

- Netstat tells all!
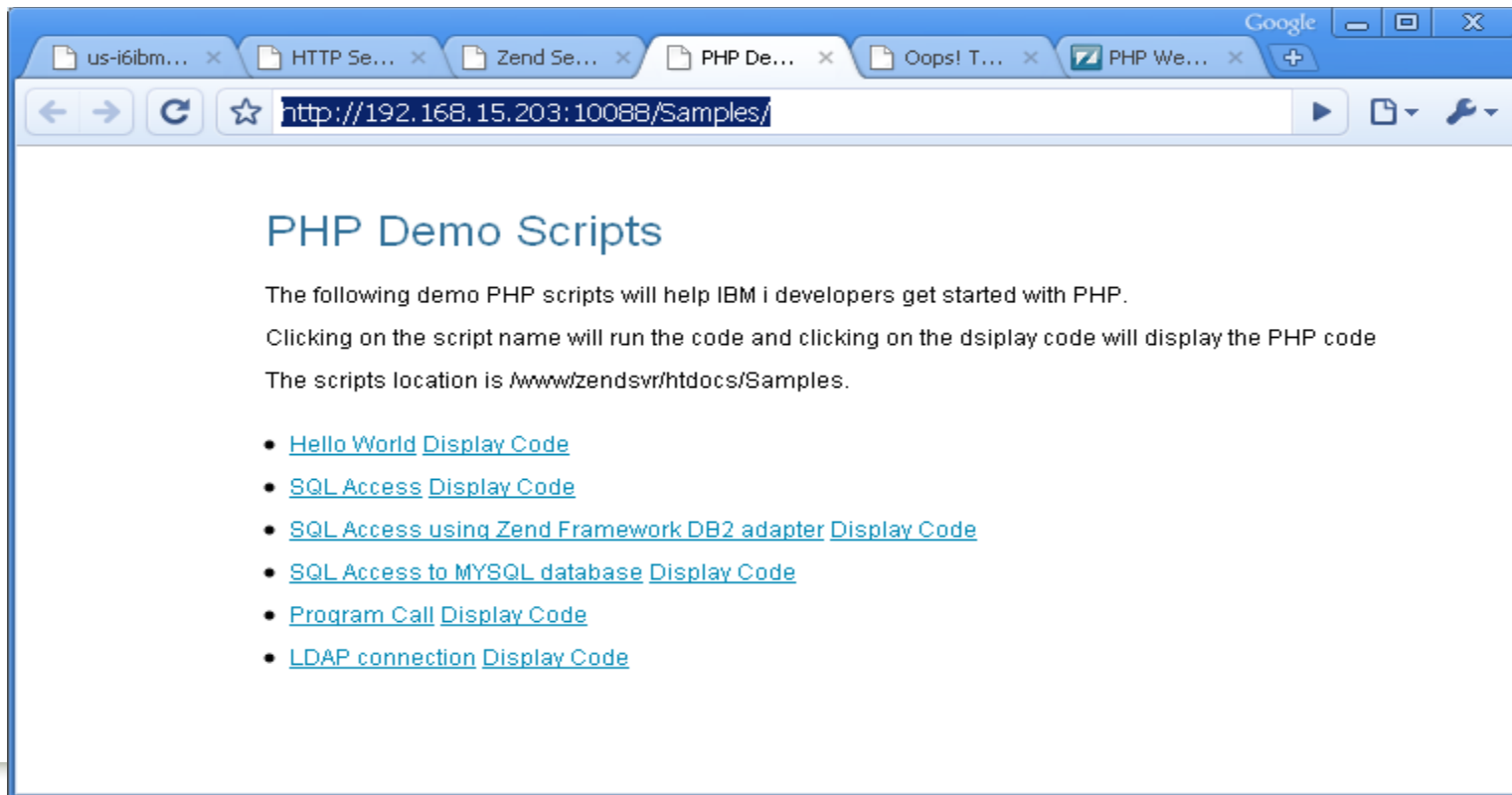
Update process

- User controlled PTF

- PTF available from Zend

- Updates appear in notification center
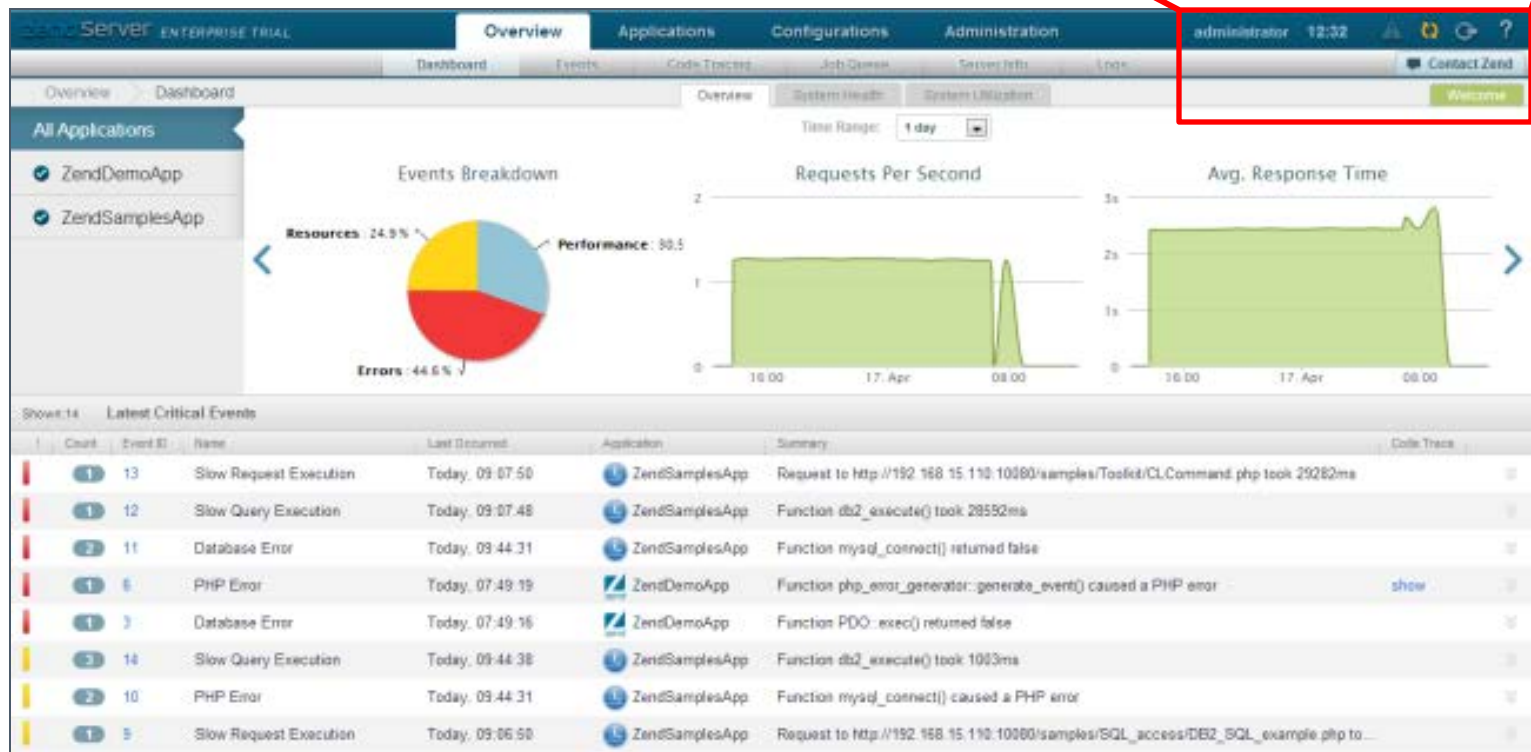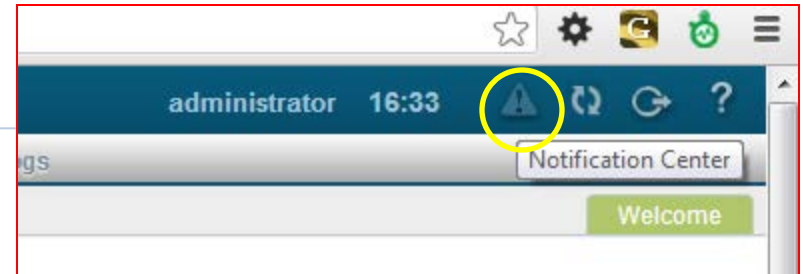
Sample scripts

- Deploy sample scripts

  ▸ http://yourIBMiName:10080/Samples/

- Basic concepts

Zend Server for IBM i

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Features available in all versions

Leverage investments in existing technology

- Call High level language programs via Open Source Toolkit

  - ▸ RPG

  - ▸ COBOL

  - ▸ CL programs

  - ▸ C based API's

- Access native IBM i resources

  - ▸ Data Area

  - ▸ Data Queue

  - ▸ Spooled files

Optimizer+

Eliminates what's not needed

▸ Opcode cache

- Caches the PHP bytecode in RAM

- Significantly reduces disk access

▸ Opcode optimizer

- Optimizes certain code fragments to improve execution speed

Now part of the free Community Edition package

Data Caching

Provides a set of API functions for caching data items

▸ DB query results, web service calls, complex or hard-to-get data

▸ Output elements

▸ Allows skipping slow PHP code chunks

▸ Shared memory and Disk storage backends

▸ Data can be grouped using namespaces

▸ APC user cache compatibility layer

▸ Zend Framework Zend_Cache_Backend adapters

Application Deployment

Build package in Zend Studio (or download from somewhere)

▸ Deploy to ANY Zend Server

▸ Include in build

- Pre-requisites

- Tables

• **Roll back with Enterprise license.**

Zend Server Update

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Open Source Toolkit

XML Service

- Cross platform

- Language agnostic

- Basic plumbing for all open source languages
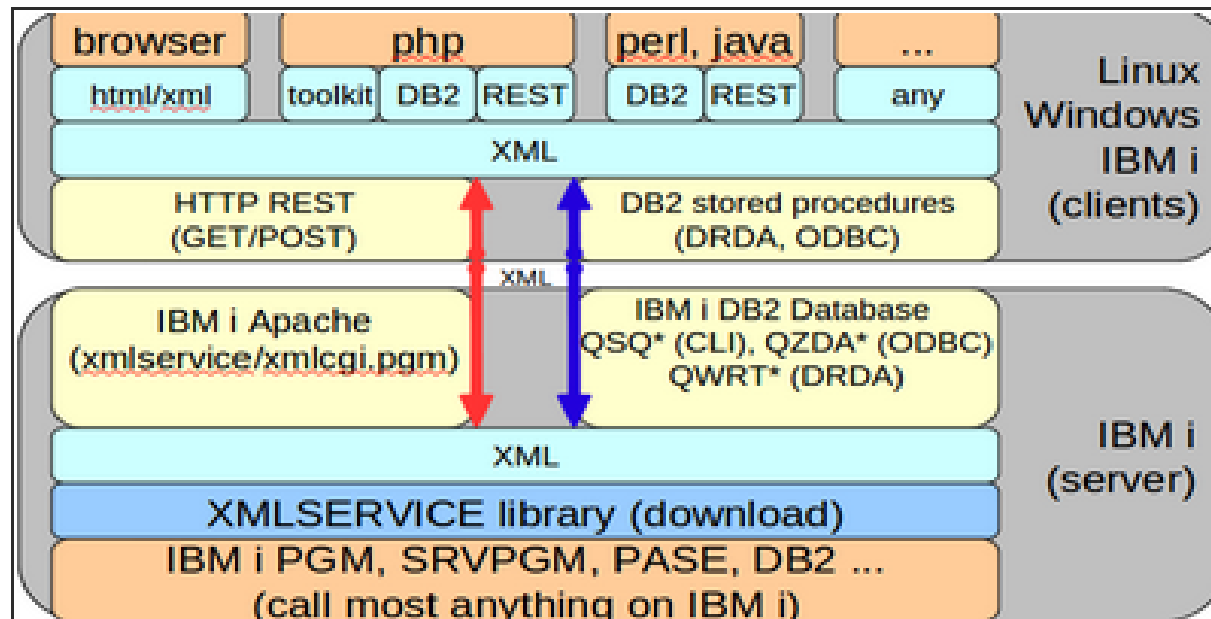
XML Service

- IBM has open sourced XMLService.

- Second Open Source project on IBM i.

- Made up of RPG, CL and DB2 stored procedures (SQL)

- Tony Cairns, IBM Rochester

Toolkit Project Management

- Get requests to Alan

- In process of migrating to GiT

- Distribution in 6.3 as library

- Included with Linux/Windows distro

- Alan Seiden, SBS & alanseiden.com

Source Code on YiPs…for now…

- http://youngiprofessionals.com/

Now the program call

- Set parameters based on function

  ▸ Call program

  ▸ Output results

I/O   Length   Comment   Var name   Init val
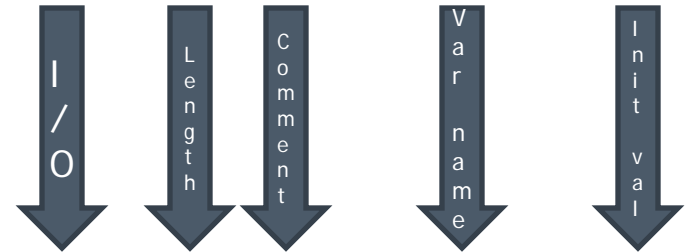
```
37  $param[] = $ToolkitServiceObj->AddParameterChar('both', 10,'CODE', 'CODE', $code);
38  $param[] = $ToolkitServiceObj->AddParameterChar('both', 10,'DESC', 'DESC', $desc);
39
40  $result = $ToolkitServiceObj->PgmCall("COMMONPGM", "ZENDSVR", $param, null, null);
41
42  if($result){
43      showTable( $result['io_param']);
44  }
45  else
46      echo "Execution failed.";
```

Documentation has been updated!

- http://www.zend.com/en/resources/zend-documentation/

Current version

- **Zend Server 6 includes**

  ▸ PHP Toolkit version 1.5.0

  - Data Area support

  - Better error reporting (access to CPF)

  - changeCurrentUser method

  ▸ XML Service version 1.7.8

  - More and more performance improvements

    – Stateless

    – Private connections, etc.

Zend Server 6 for IBM i

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What's new in PHP?

PHP is a moving target

- **Deprecation cycle**

  - 2 releases then gone

  - Important to stay current

  - Update pages at php.net

    - http://www.php.net/manual/en/migration53.new-features.php

    - http://www.php.net/manual/en/migration54.new-features.php

    - http://www.php.net/manual/en/migration55.new-features.php

PHP 5.3 – June 2009

- Seems like it only just arrived

  ▸ Community in process of sunsetting

- Major enhancements

  ▸ Namespaces

    • Like activation groups for OO-PHP

  ▸ Date Time object

    • Incredible support for manipulating dates

  ▸ Mail function supports logging (ahem, Mr. Snowden)

PHP 5.3 - Continued

- Date Time Object

  ‣ $date = new DateTime();

  ‣ echo $date->format('l, F jS, Y');

    - output: Thursday, May 28th, 2009

  ‣ $date = new DateTime('next Thursday');

  ‣ echo $date->format('l, F jS, Y');

    - Output: Thursday, June 4th, 2009

PHP 5.4 – March 2012

- Support for OO-PHP Traits

- Short syntax for array processing

  - *$a = [1, 2, 3, 4];*

  - *$a = ['one' => 1, 'two' => 2, 'three' => 3, 'four' => 4];*

- Closures now support $this

- Session extension track file upload process

- <?= always available regardless of php.ini setting

PHP 5.5 – June 2013

- Generators

- Finally keyword added to try-catch block

- New and easier Password Hashing API

- List support in Foreach

  ‣ foreach ($array as list($a, $b))

- Array and String dereferencing

- Opcache extension added

- Apache 2.4 for Windows (Ubuntu)

- Improvements to GD extension

Deprecation

- PHP5.3
  - ▸ Magic quotes
  - ▸ Ereg()*
  - ▸ Call time pass by reference
  - ▸ Many, many more...
- PHP5.4
  - ▸ Mcrypt_generic_end()
  - ▸ Mysql_list_dbs()
- PHP5.5
  - ▸ Original MySQL extension is now deprecated (Procedural)
  - ▸ Preg_replace() /e

Zend Server 6 for IBM i

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Professional & Enterprise Edition Features

Application Monitoring

Zend Server Monitor will watch your application for:

- ▸ PHP Errors (including warnings, notices, uncaught exceptions…)

- ▸ Failing functions (user-defined or internal)

- ▸ Failing DB queries

- ▸ Slow functions (user-defined or internal) or DB queries

- ▸ Slow request executions

- ▸ High memory consumption

- ▸ Errors reported by Zend Server components

When an issue is detected, Zend Server reports an event and takes the "Dump" every time!

But wait, there's more!

- **Rules by application**

    ▸ Give Important applications higher settings

    ▸ Event notification

- **Zend Server support only one instance per LPAR**

- **If you can only have one LPAR define app as production**

    ▸ http://myserver:10088/prod/accounting

- **And define another as Development**

    ▸ http://myserver:10088/dev/accounting

- **And now you can separate the rules!!!**

zend**Server** *ENTERPRISE*   Overview | **Applications** | Configurations | Administration   administrator 16:49

Apps | Monitoring Rules | Caching Rules | Job Rules

Applications > Applications List

Shown:2 Deploy Application Define Application Define Default Server

!	Name	Version	Type	Messages	Base URL	Actions
✓	ZendSamplesApp	1.0			http://<default-server>:10080/samples	
✓	ZendDemoApp	1.0			http://<default-server>:10080/demo-application	

Page Caching

Don't execute a single line of PHP if you don't have to

▸ Caches entire HTTP response

▸ Configured from UI, no code changes required

▸ Live / cached decision is based on request or session parameters

▸ Variants can be created based on request or session parameters

Page Caching

Zend Server 6 for IBM i

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Code Tracing

Code Tracing Supported Workflows

- Monitoring workflow:

  ▸ When a monitoring event is created, the associated trace data of the specific request is captured

  ▸ Trace data is attached and associated to the monitoring event

- Manual tests/functional workflow:

  ▸ Manually through the GUI or from a browser by adding a parameter to the request

- Production workflow

  ▸ Can be activated automatically in case of a Zend Monitoring event, for example a PHP error, a slow execution or high memory usage

Code Tracing Enhancements since last demo

- We are working this stuff pretty hard ☺

- Toggle Critical path display

- Toggle Memory display

- Arguments display

Zend Server 5: Technical Overview

www.zend.com

Job Queue

Job Queue allows you to…

- Put certain tasks into a separate execution queue
  - ▸ Off-load to new process (or defer to a later time)
  - ▸ Off-load to a different server
- Execute certain tasks at a specified time
  - ▸ Distribute processing load to off-hours
- Execute certain tasks periodically
- While..
  - ▸ Maximizing reuse of existing infrastructure & code
  - ▸ Making sure nothing falls between the cracks
  - ▸ Doing it all from a PHP API

Creating Jobs

- Jobs are created using the *createHttpJob()* method

```php
$queue = new ZendJobQueue();
$queue->createHttpJob(
    'http://backend.local/jobs/somejob.php');
```

- Pass parameters

  ▸ Simple ones, via query string *$_GET*

  ▸ Complex ones, as an associative array of key => value pairs

- Set job options

  ▸ Name, priority, schedule, etc.

  ▸ Create deferred or recurring jobs

- Or... create from the UI

Resources

- Recorded Webinars

  ▸ http://www.zend.com/en/resources/webinars/i5-os

- Zend Server for IBM i main page, link to downloads

  ▸ http://www.zend.com/en/products/server/zend-server-ibm-i

- Zend Server manual:

  ▸ PDF: http://www.zend.com/topics/Zend-Server-5-for-IBMi-Reference-Manual.pdf

  ▸ Online: http://files.zend.com/help/Zend-Server-5/zend-server.htm#installation_guide.htm

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More information coming soon.

• Visit http://europe.zendcon.com or http://www.zendcon.com

• follow @Zendcon or @Zendcon_Europe on Twitter.

• All day track for IBM i & IBM i performance tuning workshop by Alan & Mike

Thank you & Q&A

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