



TPF Users Group Fall 2007

z/TPF Recent SOA Deliverables
and Future Direction

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AIM Enterprise Platform Software

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Agenda

- z/TPF PUT 4 deliverables:
 - HTTP Client
 - Enhancements for SOAP provider support
 - Tooling for Web services development
- Possible z/TPF deliverables:
 - Apache 2.2 HTTP server
 - SOAP consumer support
 - PHP: Hypertext Preprocess (PHP)
 - OpenLDAP
- Request for new requirements

HTTP Client

- Available on z/TPF PUT 4
 - PJ32013: z/TPF product APAR
 - PJ32052: libcurl open source APAR downloadable at University of Illinois Web site
- Addresses TPFUG requirement DS01006
- Overview of support:
 - Applications can initiate hypertext transfer protocol (HTTP) requests from z/TPF to remote HTTP servers
 - Optionally, secure HTTP connections (HTTPS) can be established over Secure Sockets Layer (SSL) or Transport Layer Security (TLS)
 - 5 new z/TPF-unique application programming interfaces (APIs)
- Current uses for support:
 - Use GET/POST/PUT verbs to interact with HTTP servers
 - Representational State Transfer (REST) Web services

Enhancements for SOAP provider support

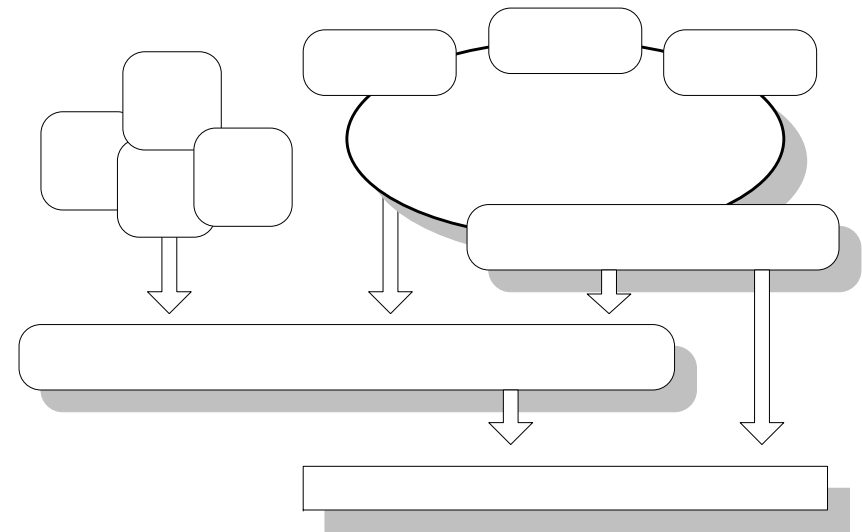
- Available on z/TPF PUT 4 (PJ32215)
- Web services deployment mechanism
 - Deployment descriptor defines processing attributes for each Web service (e.g., “wrapper” program)
 - ZWSAT command: Deploy, undeploy, and display Web service resources
- SOAP message handler infrastructure
 - Programs for extending one or more provider Web services
 - Used to implement standard SOAP features (WS-*) or user-specific extensions
- Web Services Interoperability Organization (WS-I) conformance checking
 - Basic Profile 1.1
 - Simple SOAP Binding Profile 1.0
- SOAP bridge support
 - 6 z/TPF-unique APIs for use in wrapper program for routing input messages to and receiving response messages from traditional z/TPF applications

Tooling for Web services development

- Available on TPF Toolkit 3.2.3
- Web Tools Platform (WTP) Eclipse plug-in integrated in TPF Toolkit:
 - XML editor
 - WSDL editor
 - WSIL creation wizard
 - Publish WSDL documents to UDDI registry
 - Web services explorer (SOAP client for testing)
- Tooling specific to z/TPF added to TPF Toolkit:
 - Deployment descriptor creation wizard
 - Wrapper template creation wizard
 - Remote systems explorer (RSE) interface to ZWSAT command

Apache 2.2 HTTP server

- Possible z/TPF deliverable
- Apache 1.3 HTTP server is in maintenance-only mode, with new development going into Apache 2.2
- Native support for secure HTTP (HTTPS) via `mod_ssl`
- Completely new architecture from Apache 1.3
 - *User-selected multi-processing module (MPM)*: responsible for binding to network ports, accepting requests, and dispatching children to handle requests
 - *Apache portable runtime (APR)*: provides an API to which Apache developers can code and be assured of predictable behavior regardless of the platform on which the server is running



SOAP consumer support

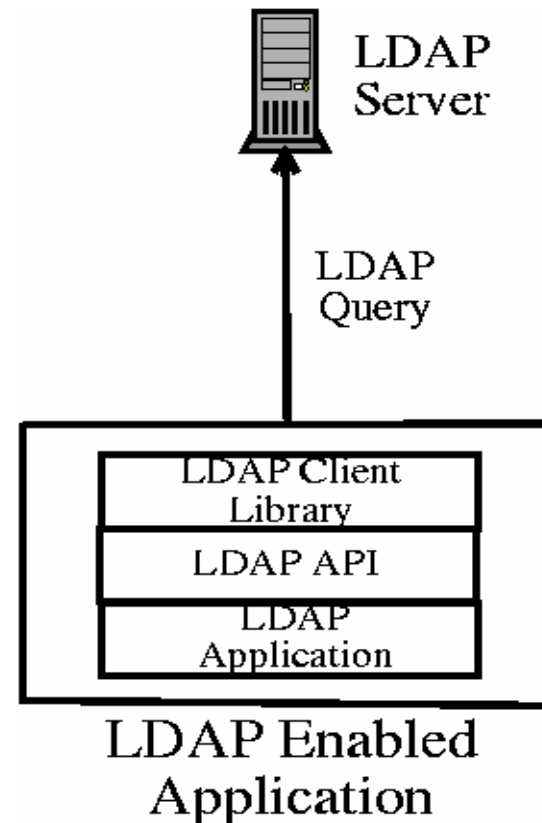
- Possible z/TPF deliverable
- Build upon the Web services infrastructure introduced with PUT 4:
 - Deployment descriptors for consumer Web services – no dynamic discovery of services
 - Two paradigms for sending SOAP requests:
 - Application can build complete SOAP request and hand off to SOAP handler for routing only
 - Application can pass input parameters to SOAP handler, which will invoke “stub” that is responsible for building SOAP request, and parsing SOAP response
 - SOAP message handler invocation before sending requests and upon receiving responses
 - Supported routing mechanisms: HTTP, WebSphere MQSeries, “internal” to z/TPF complex
 - Blocking vs. non-blocking API
- Additional tooling in TPF Toolkit:
 - Deployment descriptor creation wizard
 - Stub template creation wizard

PHP: Hypertext Preprocessor (PHP)

- Possible z/TPF deliverable
- One of the most popular and widely used open source scripting languages in the marketplace
- Highly extensible:
 - Over 75 extensions come bundled with the download, although some require 3rd party libraries that do not exist on z/TPF
 - Over 100 additional extensions available at the PHP Extension Community Library (PECL) website
- PHP on z/TPF could be used for several reasons:
 - Command line scripting
 - Utility scripts
 - File system maintenance scripts
 - Server-side scripting in conjunction with Apache 2.2
 - Common gateway interface (CGI) scripts
 - Implementing RESTful Web services

OpenLDAP

- Possible z/TPF deliverable
- Open source implementation of Lightweight Directory Access Protocol (LDAP)
 - LDAP standalone daemon (`slapd`)
 - LDAP replication daemon (`slurpd`)
 - LDAP client library
 - LDAP command line utilities
- LDAP directories are common components in user authentication and authorization mechanisms
- Ability to access remote LDAP directories from z/TPF
- Ability to have LDAP directory natively on z/TPF
 - Network accessible
 - Locally accessible via LDAP client library



Request for new requirements

- Non-blocking or asynchronous HTTP client
 - Is this needed outside the scope of a SOAP consumer API?
- SOAP intermediary support
 - Requires WS-Addressing
- WS-*
- Which of these specifications would be most useful for your systems?
- SOA “appliances”
 - IBM WebSphere DataPower SOA appliance can act as a front-end and provide additional functionality that is not available natively
 - WS-Security
- XML validating parser/scanner for use by SOAP handler
 - Is this something that would be used in production, or really only as part of a test system?
- Production environment management and monitoring of Web services

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