



| z/TPF V1.1

TPF Users Group - Fall 2009 HTTP Client and SOAP Consumer Enhancements *Direction*

Aleksandr Krymer
SOA Subcommittee

AIM Enterprise Platform Software
IBM z/Transaction Processing Facility Enterprise Edition 1.1.0

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Agenda

- **HTTP Sub-second Timeout**
- **HTTP Client Daemon**
- **Asynchronous Requests**
- **Shared HTTP Sessions**
- **SOAP Consumer Enhancements**

How Will These Enhancements Be Incorporated Into z/TPF?

- **HTTP enhancements will be built on z/TPF's HTTP Client Support**
 - APAR PJ32013 (PUT 4)
 - libCURL library -- APAR PJ32052

How Will These Enhancements Be Incorporated Into z/TPF?

- **SOAP consumer enhancements will be built on z/TPF's SOAP Consumer Support**
 - APAR PJ35511 (PUT 6)

How Fast Can I Timeout?

- **Enhancements are planned to provide sub-second timeouts**
- **HTTP Client and SOAP Consumer Support would be able handle millisecond granularity**
 - Currently they support only second granularity

What Is Asynchronous HTTP Support?

- **The goal is to allow applications to request that an HTTP response message be processed by a new ECB.**
- **Once an HTTP request is scheduled to be sent, control will be returned immediately to the calling application**

Why Do I Need Asynchronous HTTP Support?

- **Applications can leverage HTTP client support without blocking for the request to be sent or for the response to be received**
- **This allows applications to proceed with other processing**
- **Applications can also exit their ECBs to free system resources**

How Do I Make An Asynchronous HTTP Request?

Direction

- **Support will be built into the existing HTTP Client APIs**
 - tpf_httpPerform
 - tpf_httpPerform1

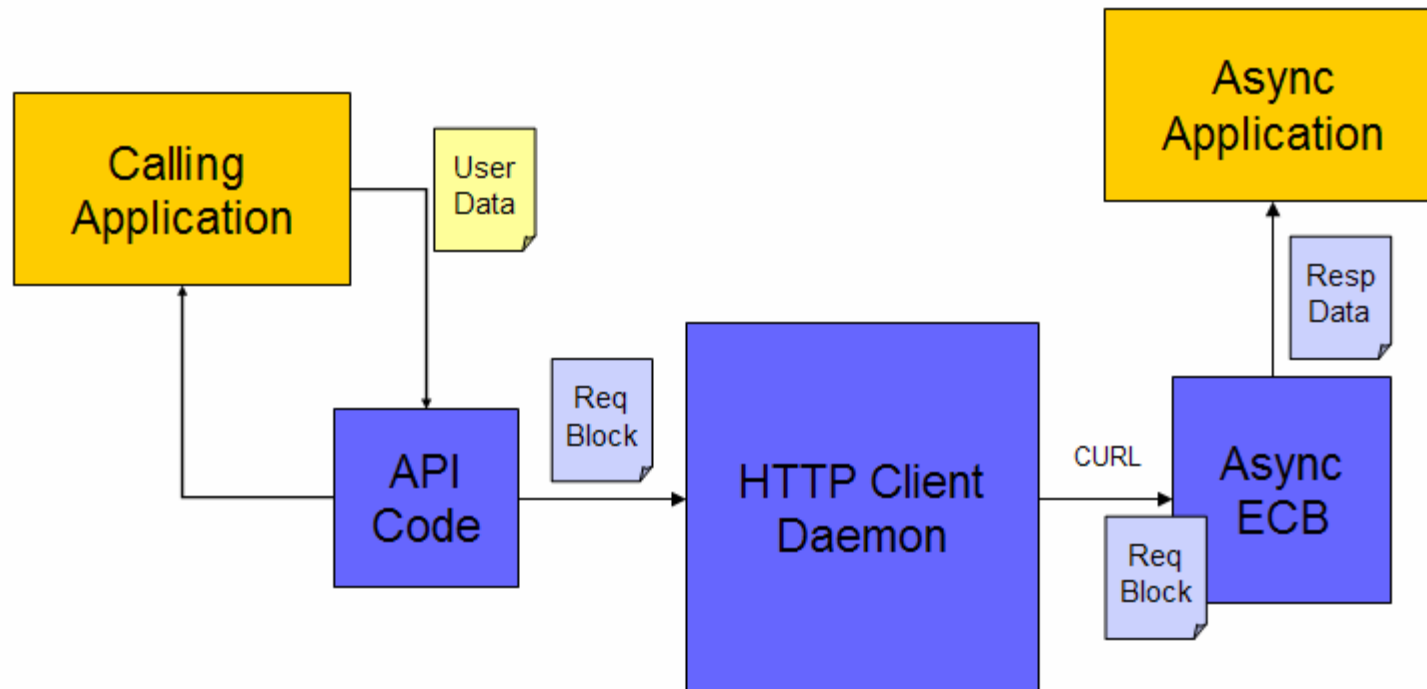
What Happens When I Make An Asynchronous HTTP Request?

Direction

- 1. The request is sent to the HTTP client daemon which submits the HTTP request on behalf of the application**
- 2. Control is return to the application once the daemon has successfully scheduled the HTTP request**
- 3. The daemon will poll the HTTP session for a response**
- 4. Once the response is received or the request times out, the daemon will created a new ECB and enter the program the application specified to gain control**

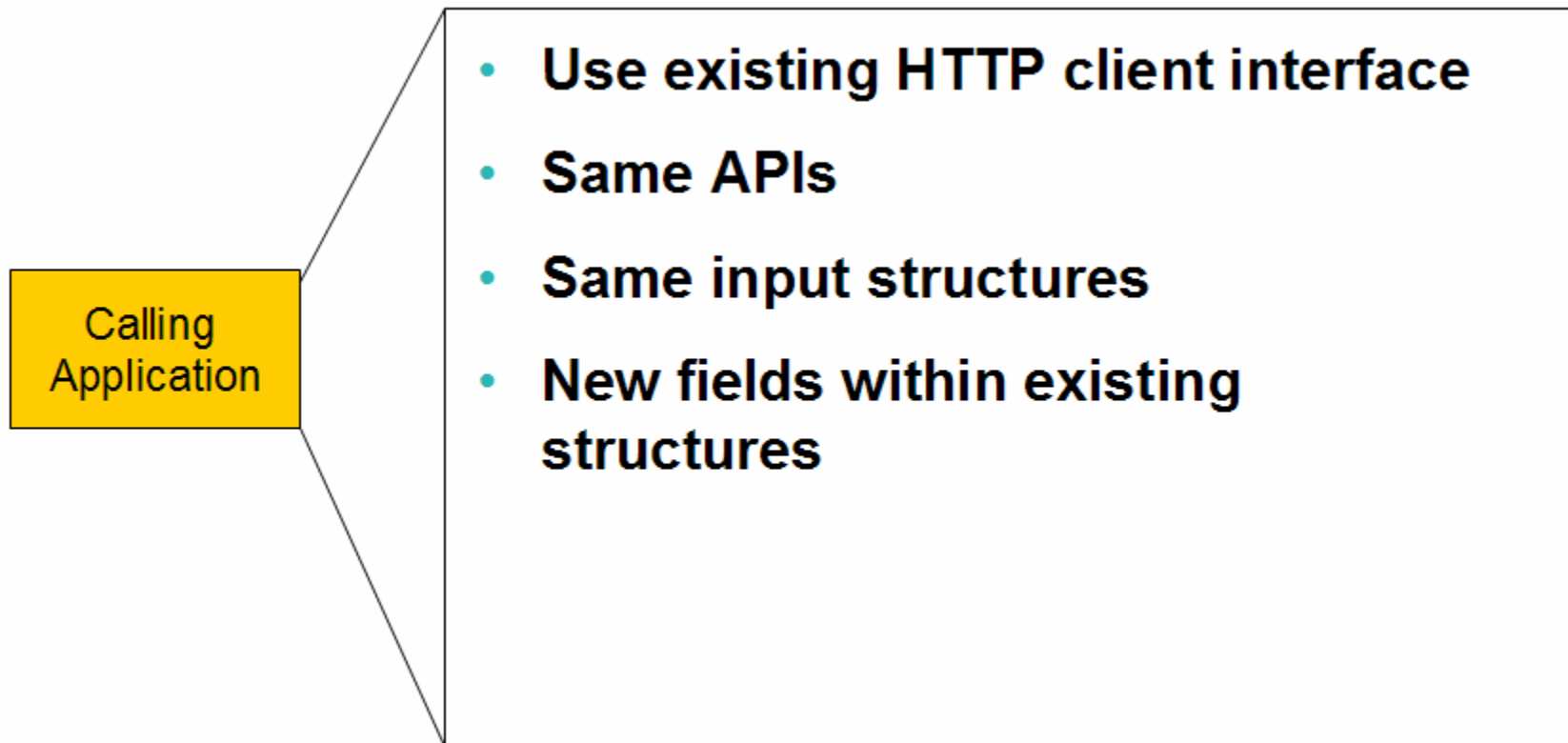
Application Flow – Asynchronous Case

Direction



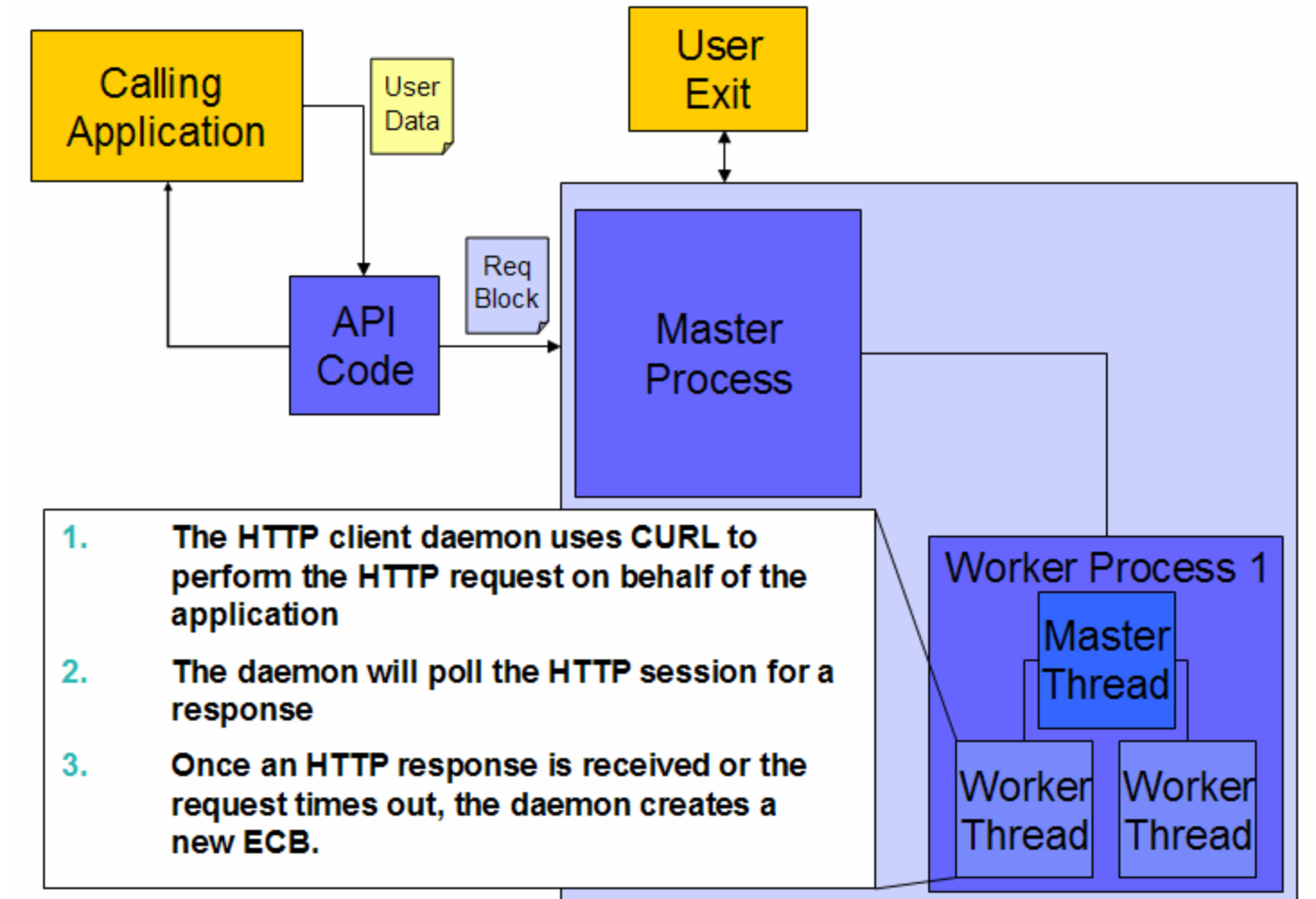
Application Flow – Asynchronous Case

Direction



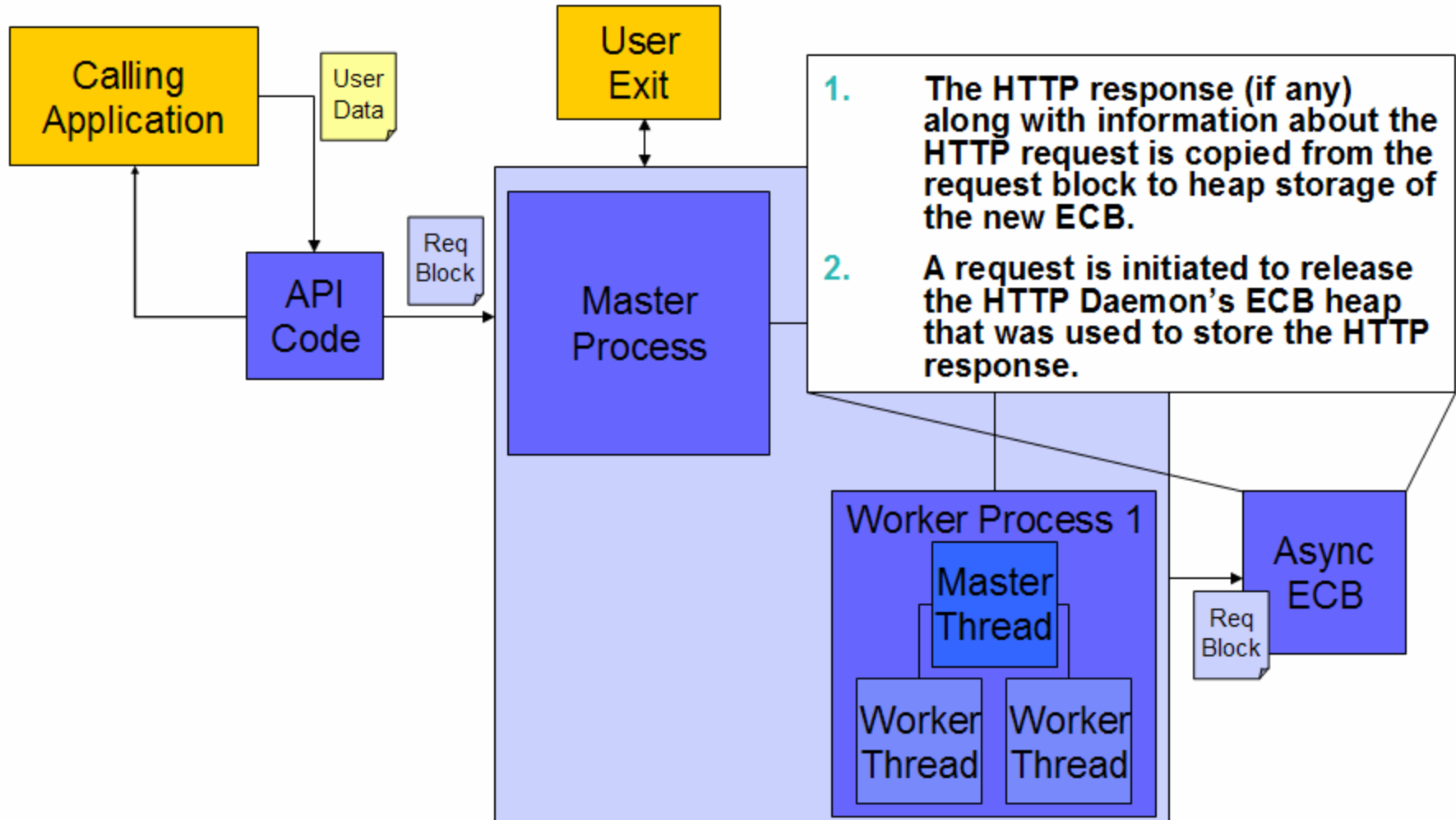
Application Flow

Direction

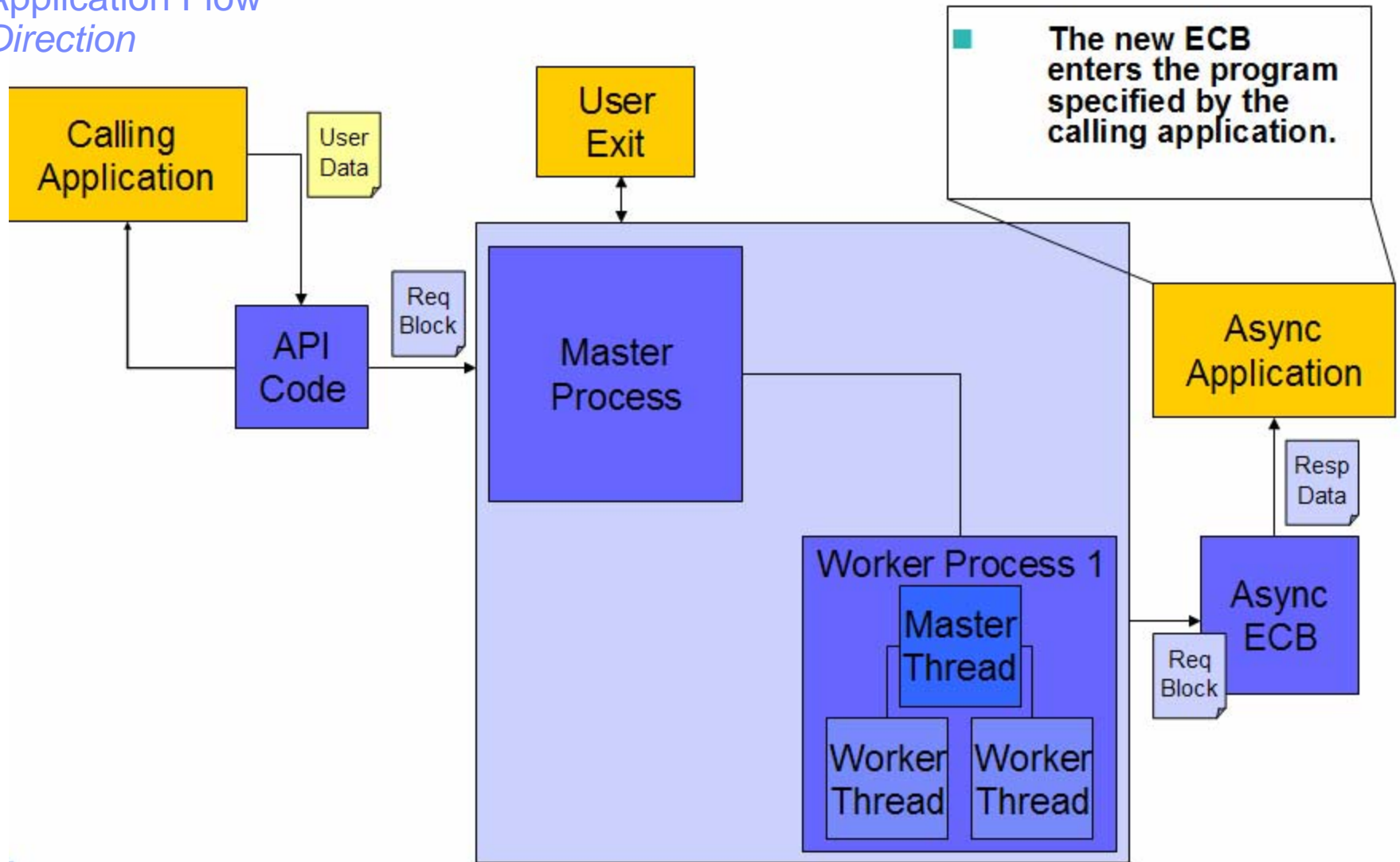


Application Flow

Direction



Application Flow
Direction



What Is Shared HTTP Session Support?

Direction

- **Ability to create an HTTP session with a persistent connection to a remote destination.**
- **This HTTP session is tied to an HTTP client daemon ECB (process) rather than an application's ECB (process)**
- **This allows the HTTP session to be used by multiple ECBs (processes).**

Why Do I Need Shared HTTP Sessions?

- **Currently, an HTTP session is tied to a single ECB (process). If HTTP requests to the same destination are made by multiple ECBs (processes) each ECB (process) will have to establish an HTTP connection to that destination.**
- **This creates overhead by repeatedly starting and ending TCP/IP sessions for a single request/reply. The use of HTTPS dramatically increases this overhead due to SSL handshakes.**

How Do I Define a Shared HTTP Session?

Direction

- **A mechanism to define a list of destinations for which the daemon will maintain a persistent connection**
- **Ability to specify the maximum number of connections to establish to each destination in the list**
- **Ability to pre-establish shared HTTP sessions**
 - Specify a list of destinations that the daemon should establish connections to prior to application usage

How Do I Use A Shared HTTP Session?

Direction

- **Support for this feature will also be built into the existing HTTP Client APIs**
 - tpf_httpPerform
 - tpf_httpPerform1
- **Support will be transparent to the application**
 - Application changes = **NONE**

What Happens When I Use A Shared HTTP Session?

Direction

- 1. The request is sent to the HTTP client daemon which does one of the following:**
 - Searches for an existing shared HTTP connection to the requested remote destination
 - Creates an HTTP session with a persistent connection to the remote destination
- 2. The daemon submits the HTTP request on behalf of the application**
- 3. Control is return to the application based on whether the request was synchronous or asynchronous**

What About SOAP Consumer Support?

Direction

- **Sub-second timeout**
 - Selectable via an API (tpf_soapInvokeService)
 - Enabled for the following transports:
 - WebSphere MQ
 - HTTP
 - TPF-to-TPF
- **Ability to use shared sessions for SOAP over HTTP.**
 - Selectable via:
 - Deployment descriptor
 - API (tpf_soapSetOpts)
- **True asynchronous response handling for SOAP over HTTP**
 - Selectable via an API (tpf_soapInvokeService)

What Changes Are Needed To My Existing Asynchronous SOAP Consumer Application To Use a TRUE Asynchronous HTTP Transport?

Direction

- **NONE**

Questions/Feedback

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