

Zend_Cloud_Queue - Wil Sinclair

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Zend Framework: Zend_Cloud_Queue Component Proposal

Proposed Component Name	Zend_Cloud_Queue
Developer Notes	http://framework.zend.com/wiki/display/ZFDEV/Zend_Cloud_Queue
Proposers	Wil Sinclair
Zend Liaison	TBD
Revision	0.1 -22 September 2009: Initial Draft. (wiki revision: 7)

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1. Overview

Zend_Cloud_Queue is a component in the Simple Cloud API that provides a common API for cloud application queue services, such as Amazon SQS and Windows Azure Queue Storage. The design goals of this API include simplicity, portability across cloud queue services, stability, and extensibility for future expansion.

2. References

- [Simple Cloud API](#)
- [Amazon SQS](#)
- [Windows Azure Queue Storage](#)

3. Component Requirements, Constraints, and Acceptance Criteria

- This component **must** support creating queues.
- This component **must** support deleting queues.
- This component **must** support listing all queues associated with an account.
- This component **should** support fetching metadata for queues.

- It would be **nice** if this component supported storing metadata for queues.
- This component **must** support sending individual messages to a queue.
- This component **must** support receiving one message from queues with a visibility timeout.
- This component **should** support receiving more than one message from queues with a visibility timeout.
- This component **must** support deleting messages from queues.
- It would be **nice** if this component supported peeking messages.

4. Dependencies on Other Framework Components

- Zend_Exception
- Cloud queue client libraries under the Zend_Service namespace.

5. Theory of Operation

Although there are some differences in the queue APIs offered by cloud vendors, there is a set of common runtime operations that can be supported in one API. Note that unique value-add offerings such as peeking messages in Azure's API are not must-have features.

The API follows a more 'functional' model, as opposed to an OOP paradigm, to more easily model services available via RESTful, SOAP, and RPC interfaces. Such an API will also negligibly affect performance, while allowing users to build their own object-oriented data access libraries on top of the simple methods it exposes.

This proposal covers only components implemented for Zend Framework, but these interfaces and classes have been designed to be implementable in other languages and/or package structures.

6. Milestones / Tasks

- Milestone 1: [DONE] Simple Cloud API project launched.
- Milestone 2: Community review sufficient to submit proposal for recommendation.
- Milestone 3: Implement API and adapters in Zend Framework trunk.
- Milestone 4: Document API.
- Milestone 5: Address issues as necessary for production release.

7. Class Index

- Zend_Cloud_QueueService
- Zend_Cloud_Queue_Factory
- Zend_Cloud_Queue_Exception

8. Use Cases

UC-01 - Get instance of adapter

1. Call static method on factory class
2. Use it 😊

UC-02 - Create queue

1. UC-01 - Get instance of adapter
2. Call create queue with name
3. Store queue ID for later use if necessary

UC-03 - Delete queue

1. UC-01 - Get instance of adapter
2. Call delete queue with queue ID

UC-04 - List queues for account

1. UC-01 - Get instance of adapter
2. Call list queues

UC-05 - Fetch queue metadata

1. UC-01 - Get instance of adapter
2. Call fetch queue metadata with queue ID

UC-06 - Send message

1. UC-01 - Get instance of adapter
2. Call send message with queue ID
3. Store message ID if necessary

UC-07 - Receive messages

1. UC-01 - Get instance of adapter
2. Call receive messages with queue ID
 - a. Provide visibility timeout to override default

UC-07 - Delete message

1. UC-01 - Get instance of adapter
2. Call delete message with queue ID and message ID

9. Class Skeletons

```
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 *
 * @category    Zend
```

```

* @package      Zend_Cloud
* @copyright    Copyright (c) 2005-2009 Zend Technologies USA Inc. (http://www.zend.com)
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*/

/**
 * Common interface for queue services in the cloud. This interface supports
 * most queue services and provides some flexibility for vendor-specific
 * features and requirements via an optional $options array in each method
 * signature. Classes implementing this interface should implement URI
 * construction for queues from the parameters given in each method and the
 * account data passed in to the constructor. Classes implementing this
 * interface are also responsible for security; access control isn't currently
 * supported in this interface, although we are considering access control
 * support in future versions of the interface.
 *
 * @category     Zend
 * @package      Zend_Cloud
 * @copyright    Copyright (c) 2005-2009 Zend Technologies USA Inc. (http://www.zend.com)
 * @license      http://framework.zend.com/license/new-bsd      New BSD License
 */
interface Zend_Cloud_QueueService
{
    /**
     * Create a queue. Returns the ID of the created queue (typically the URL).
     * It may take some time to create the queue. Check your vendor's
     * documentation for details.
     *
     * @param string $name
     * @param array $options
     * @return string Queue ID (typically URL)
     */
    public function createQueue($name, $options = null);

    /**
     * Delete a queue. All messages in the queue will also be deleted.
     *
     * @param string $queueId
     * @param array $options
     * @return boolean true if successful, false otherwise
     */
    public function deleteQueue($queueId, $options = null);

    /**
     * List all queues.
     *
     * @param array $options
     * @return array Queue IDs
     */
    public function listQueues($options = null);

    /**
     * Get a key/value array of metadata for the given queue.
     *
     * @param string $queueId
     * @param array $options
     * @return array
     */
    public function fetchQueueMetadata($queueId, $options = null);

    /**
     * Store a key/value array of metadata for the specified queue.
     * WARNING: This operation overwrites any metadata that is located at
     * $destinationPath. Some adapters may not support this method.
     *
     * @param array $metadata
     * @param string $queueId
     * @param array $options
     * @return void
     */
}

```

```

public function storeQueueMetadata($metadata, $queueId, $options = null);

/**
 * Send a message to the specified queue.
 *
 * @param string $message
 * @param string $queueId
 * @param array $options
 * @return string Message ID
 */
public function sendMessage($message, $queueId, $options = null);

/**
 * Recieve at most $max messages from the specified queue and return the
 * message IDs for messages recieved.
 *
 * @param string $queueId
 * @param int $max
 * @param array $options
 * @return array
 */
public function recieveMessages($queueId, $max = 1, $options = null);

/**
 * Delete the specified message from the specified queue.
 *
 * @param string $messageId
 * @param string $queueId
 * @param array $options
 * @return void
 */
public function deleteMessage($messageId, $queueId, $options = null);

/**
 * Peek at the specified message from the specified queue.
 * WARNING: This operation may block other receivers from recieving the
 * message until the message is released from the peeker for services
 * that do not natively support message peeking. This may impact
 * performance and/or introduce concurrency issues in your applications.
 * Check your cloud vendor's documentation for more details.
 *
 * @param string $messageId
 * @param string $queueId
 * @param array $options
 * @return string Message body
 */
public function peekMessage($messageId, $queueId, $options = null);
}

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 * obtain it through the world-wide-web, please send an email
 * to license@zend.com so we can send you a copy immediately.
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 * @package Zend_Cloud_Queue
 * @copyright Copyright (c) 2005-2008 Zend Technologies USA Inc. (http://www.zend.com)
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 */
abstract class Zend_Cloud_Queue_Factory
{
    const QUEUE_ADAPTER_KEY = 'queue_adapter';

```

```
    public static function getAdapter($options = array());
}

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 */
```

```
 */  
class Zend_Cloud_Queue_Exception extends Zend_Cloud_Exception  
{
```

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```