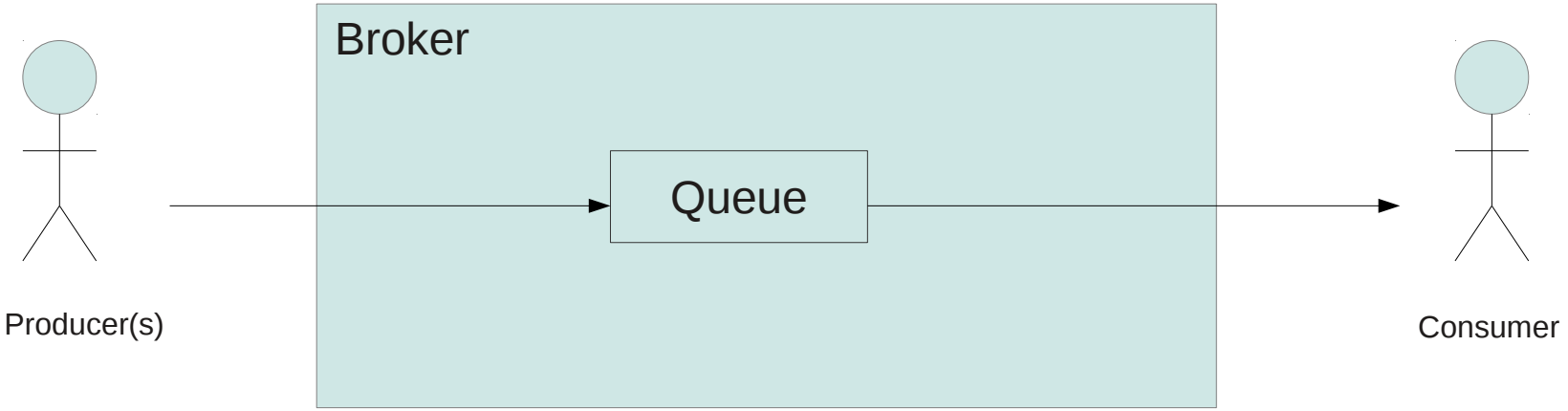
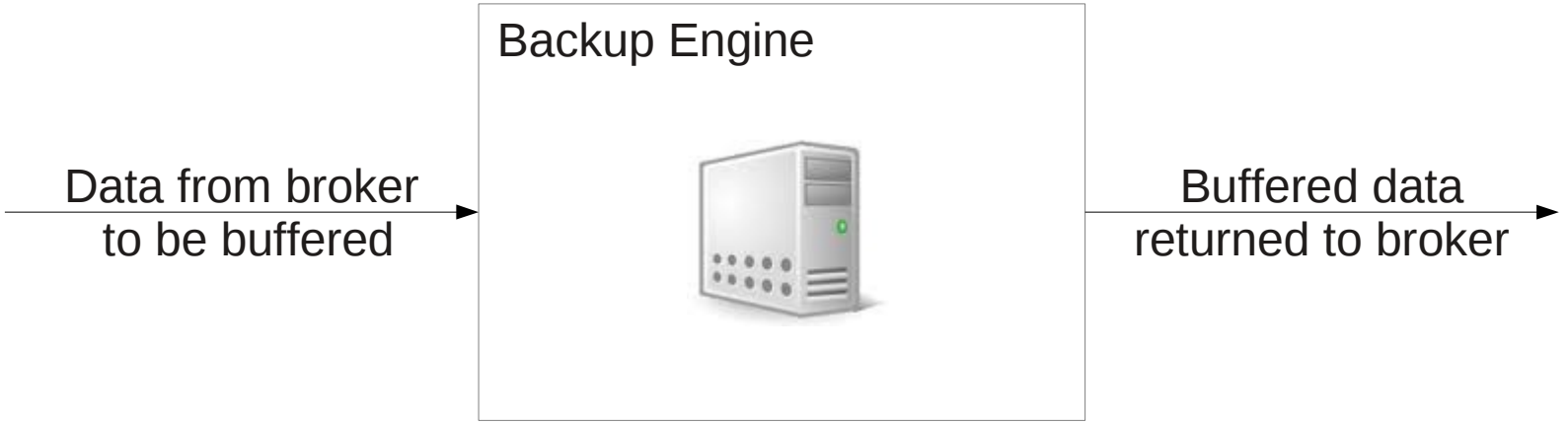
# Queue Redirect : Use Case




- Producers generate real time, broadcast data and cannot be flow controlled.
- Consumer queue is normally fed by many Producers, Exchanges, and Bindings.
- Broker has finite resources that are insufficient for buffering consumer data for one day.

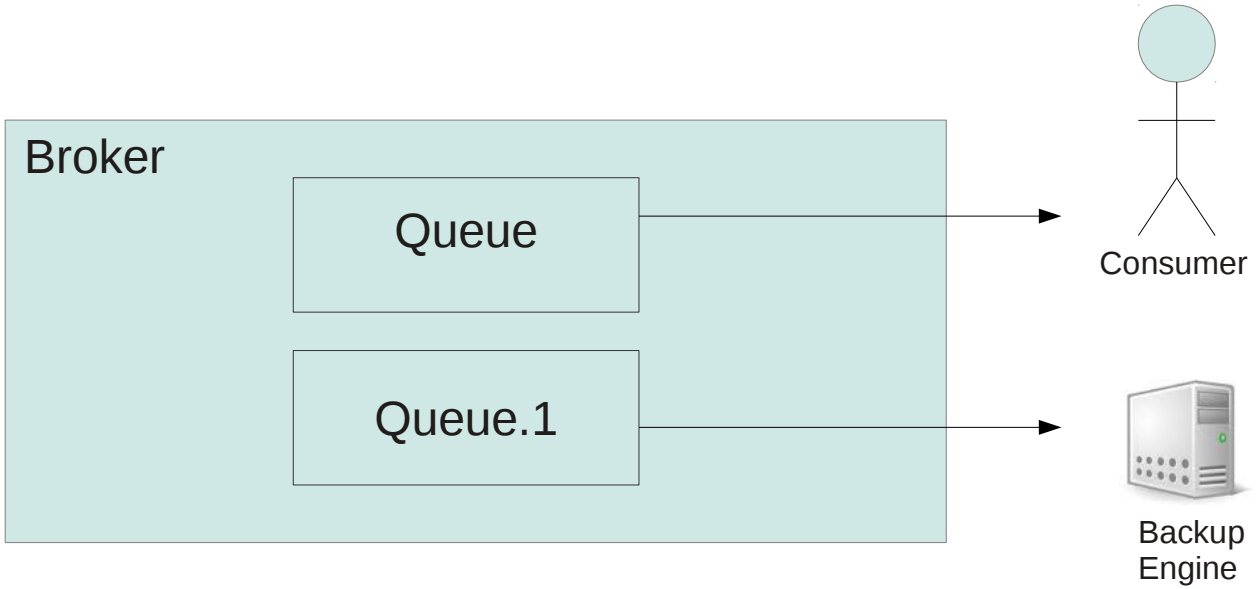
- What to do when the consumer stops consuming? The answer outlined in this document is a Queue Redirect.

# Queue Redirect Concept – Backup Engine



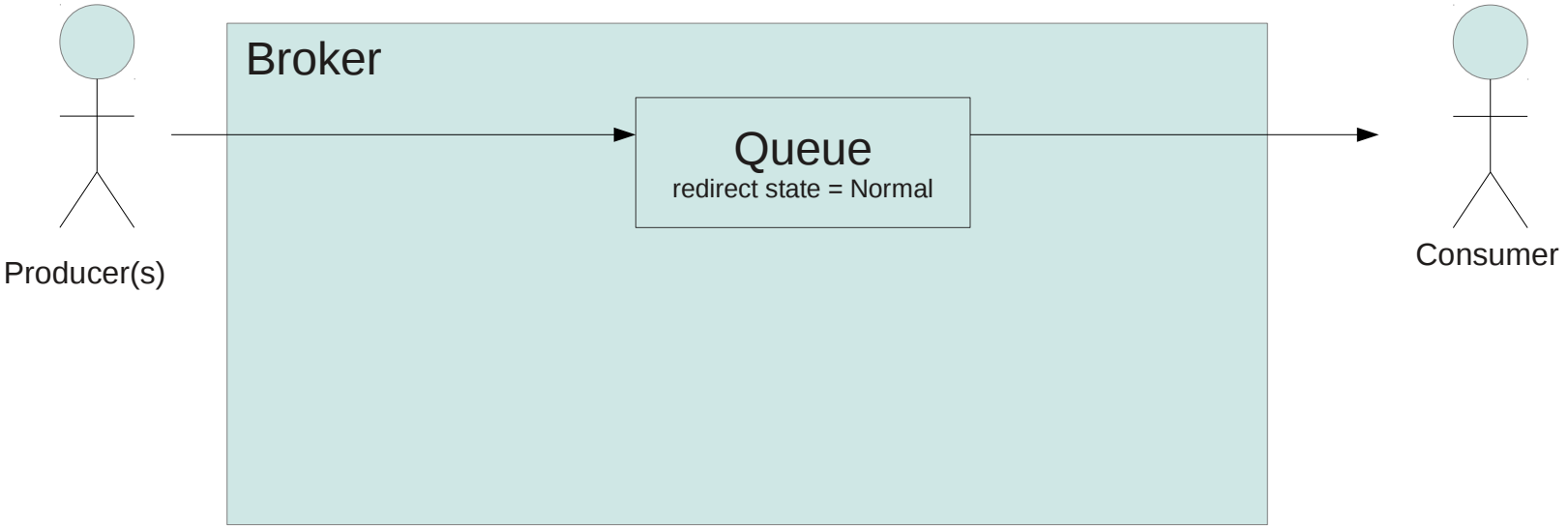

- Adequate storage to buffer data for one day in memory or on disk.
- Communicates with broker using normal Messaging client connections.
- Capable of consuming Consumer data faster than it is produced.
- Deployed “near” the broker so that connectivity is not an issue.

# Queue Redirect Concept – Backup Queues



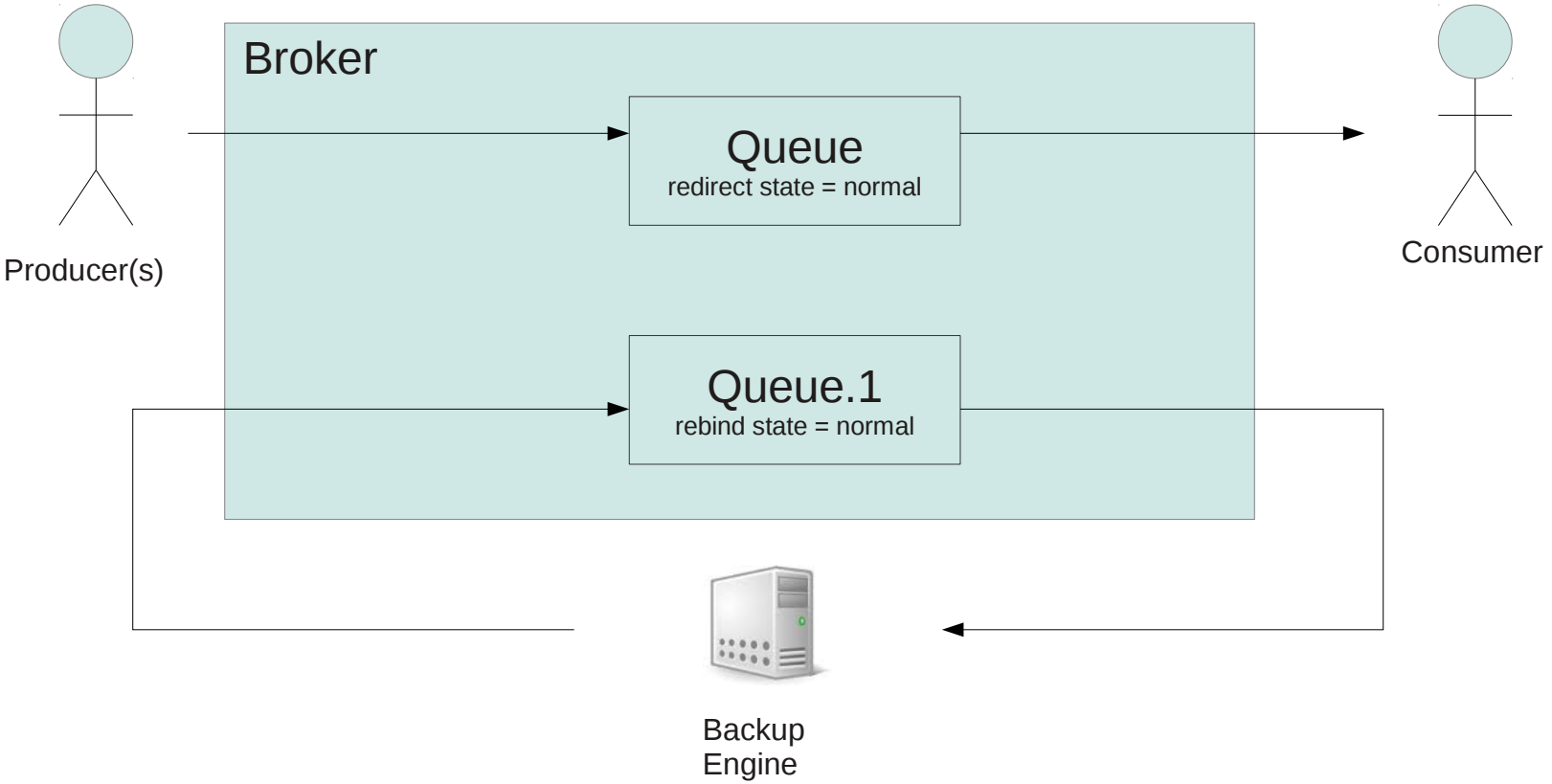

- Consumers remain connected only to the original Queue
- A single backup queue is declared and consumed by Redirect Backup Engines.
- Backup queues are created with normal queue creation syntax and rules.

# Redirect Process – Step 1



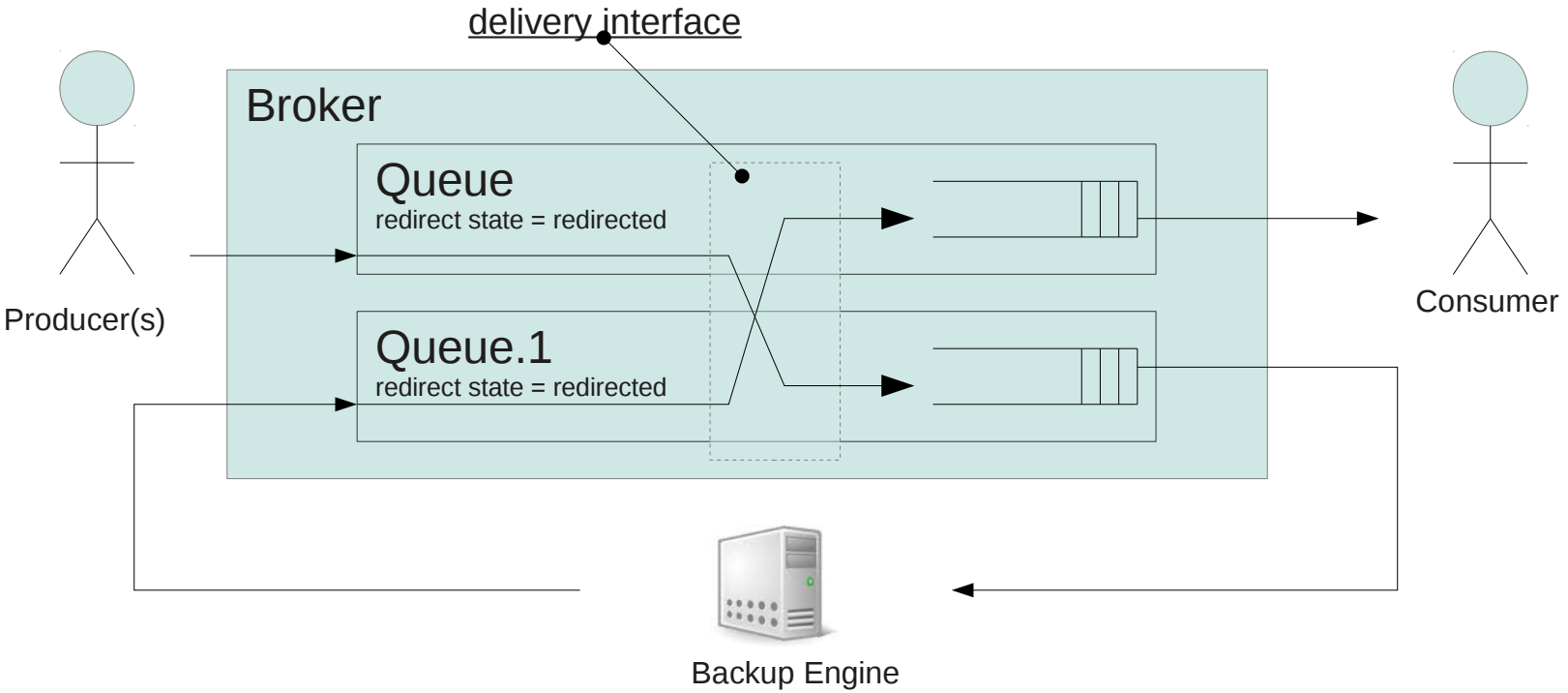

- This is the normal setup.
- Multiple producers, exchanges, and bindings allow for messages to be queued for the Consumer.

# Redirect Process – Step 2




- The Backup Engine declares the Backup Queue *Queue.1*.
- The Backup Engine opens a Sender and a Receiver to the backup queue Queue.1
- The Backup Engine waits for an event that indicates that the Consumer queue has crossed a resource threshold and that the Queue Redirect should take occur.

# Redirect Process – Step 3




- The Backup Engine executes the Queue.Redirect method naming Queue as the source queue and Queue.1 as the target queue.
- Internally the two queues ***swap their delivery targets*.**
- Messages sent to Queue are placed into Queue.1's message queue and messages sent to Queue.1 are placed into Queue's message queue.
- From the original Producer and Consumer's point of view there is no change to the system behavior. Exchanges, bindings, and messages come and go as usual.
- The Backup Engine is inserted Queue's data path atomically.
- Redirected data from Queue arrives at the Backup Engine through the Receiver on Queue.1. Buffered data from the Backup Engine is delivered to the Consumer through the Sender on Queue.1.

# Redirect Process – Outstanding Issues

- This process can be started and stopped with a single management method:
  Redirect(string sourceQueue, string targetQueue)

  Specify two queue names to create a redirected queue pair. Specify only the source queue to destroy a redirected pair.

- The customer interested in this feature is able to do without a scheme to destroy the redirected queue pair. That said it is possible to destroy the redirection with some cooperation from the Backup Engine and some extra locking in the deliver interface.

- This proposal shows only one backup target queue. With some additions the backup could be effected across multiple backup target queues.

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