

CNS Product Requirements

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Overview

This document specifies the high-level requirements for CNS that all stakeholders can agree upon.

Functional Requirements

- Implement all actions in the Amazon SNS spec.
- HTTP based protocol (as specified by Amazon SNS).
- Guaranteed delivery of all messages at least once.
- Redelivery of messages to faulty endpoints according to configurable retry policy (per topic or per subscriber).
- Optional throttling of message publishing according to configurable throttling policy (per topic or per subscriber).

Delivery Latency Requirements

The latency depends on factors like number of subscribers for a topic and the response time of endpoints. Given less than 500 subscribers and assuming endpoint response time less than 50ms, messages should be published to endpoints within ~1sec in 95% of cases within a data-center.

Availability Requirements

For all the below requirements it is useful to note that we are only as available as our Cassandra cluster.

- System needs to be highly available and will be deployed across multiple data centers.
- No message loss in the event of node or data center failure.
- In case of a data center failure, all messages need to become available in another data center from where they will be published to their respective endpoints.

Usage Pattern

- In normal mode of operation, message publishers and endpoints of a topic are co-located in the same data center.
- In case of a data center failure, all messages need to become available in another data center from where they will be published to their respective endpoints.

Scalability Requirements

- Unlimited number of topics / subscribers / publishers.
- Horizontally scalable. Adding more API and Cassandra nodes should increase throughput and capacity as linearly as feasible.

Security Requirements

For the first version of CNS we are not planning on implementing permissions from the Amazon SNS spec. We may elect to add permissions in a future product release.

Client Usage Recommendation

Clients should be prepared to occasionally receive duplicate or out of order messages.