

# Backward Notification (BN) PAR scope

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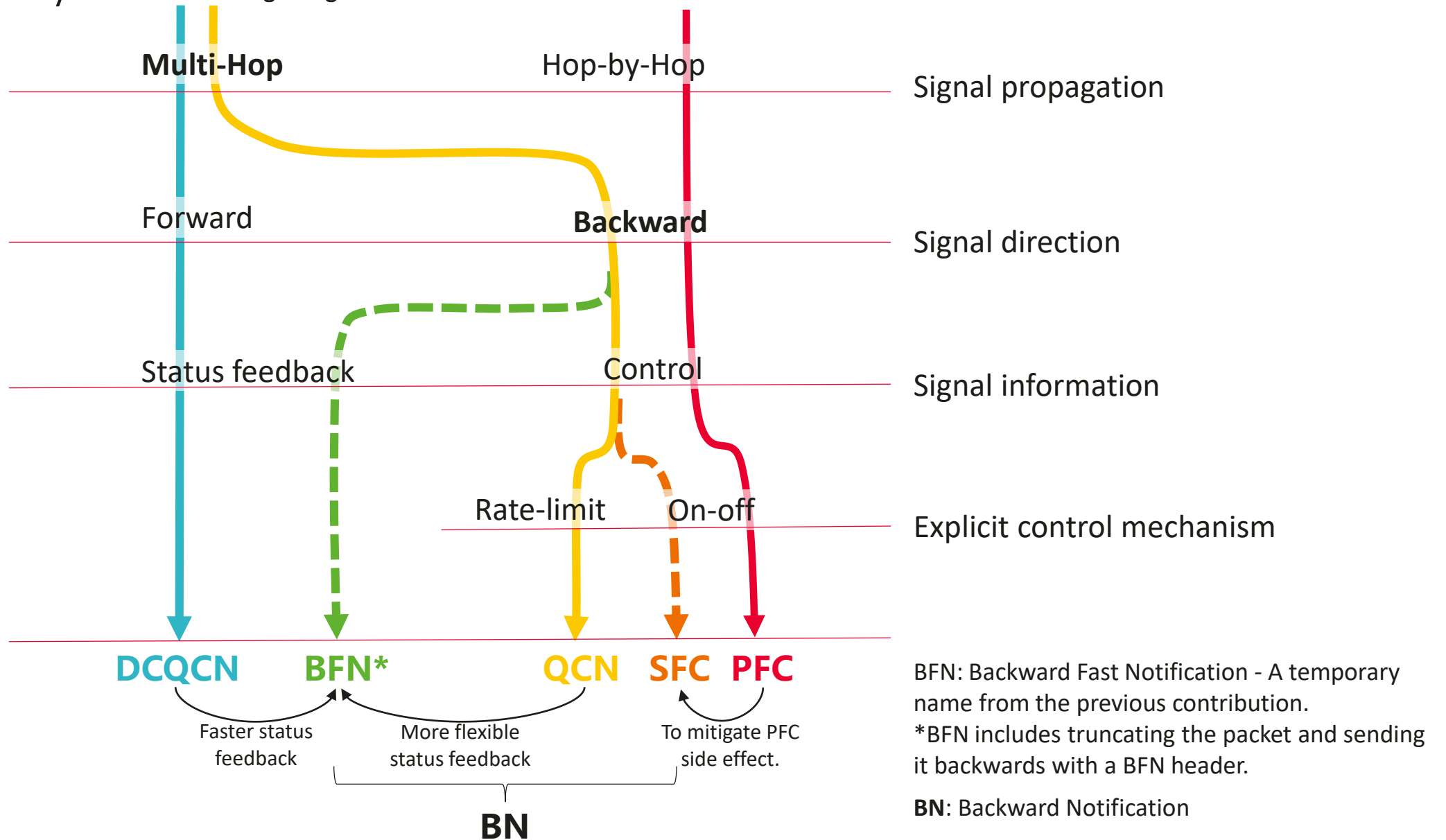
# Goal: align on scope boundaries

- Proposed scope discussion
- Proposed draft PAR and CSD discussion
  
- Previous presentations (BN characteristics, taxonomy, use cases, and industry practices)
  - <https://www.ieee802.org/1/files/public/docs2026/new-chen-bn-0326-v02.pdf>
  - <https://www.ieee802.org/1/files/public/docs2026/dw-chen-cc-deepdive-sfc-considerations-0126-v02.pdf>

## NOT TODAY

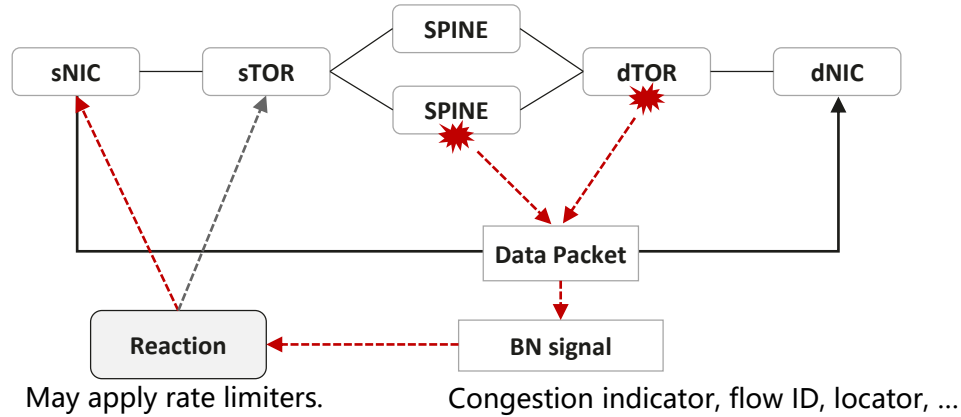
- Bridge and end-station specific procedures and state machines
- Message format
- Managed object details
- Specific algorithms

Taxonomy: BN focuses on signaling network conditions toward the source of transmission in data center networks.

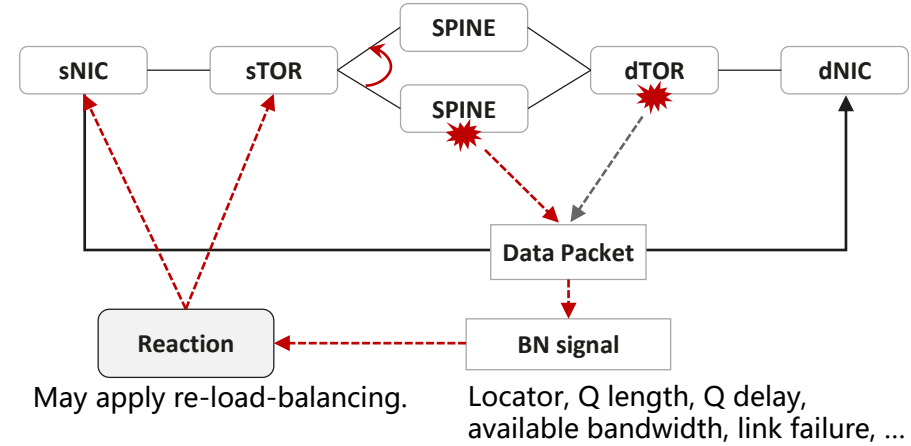


# BN use cases: conveying information to enable rapid response for congestion management, path re-balancing, and failure recovery.

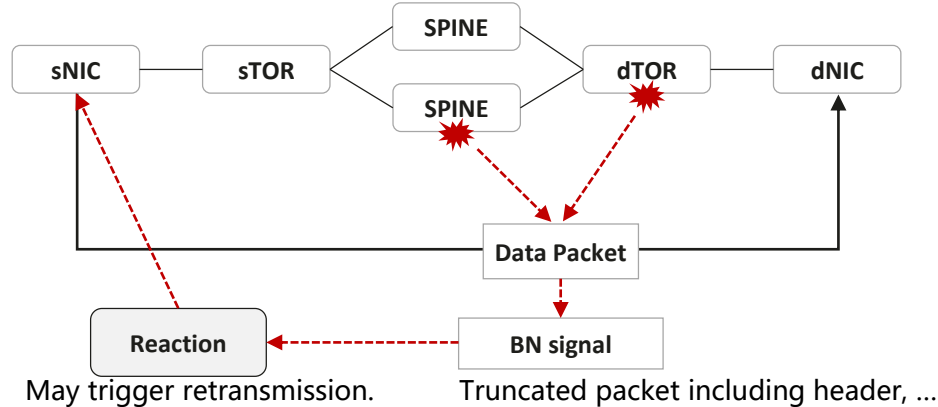
## Use case: Congestion Notification



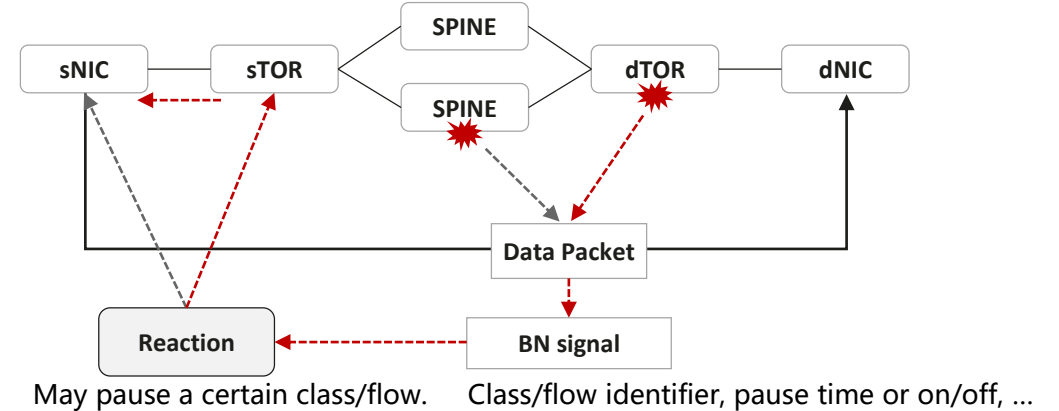
## Use case: network state information



## Use case: packet-related information



## Use case: source flow control



# Architecture model:

describing how notifications are triggered, constructed, and forwarded through Bridges, as well as a service interface for exposing notifications above the link layer.

## 4、 BN service interface

BN signals are exposed at the L2 layer via a defined service interface. This allows upper-layer mechanisms (e.g., UEC PCM, RoCE CC, re-load balancing) to consume BN signals without knowledge of BN encapsulation internals.



## 3、 BN signal forwarding

BN message destination is derived from the original data packet's source address. No additional path state required — the ingress bridge uses the source L2/L3 address to route the BN signal back toward the sender.



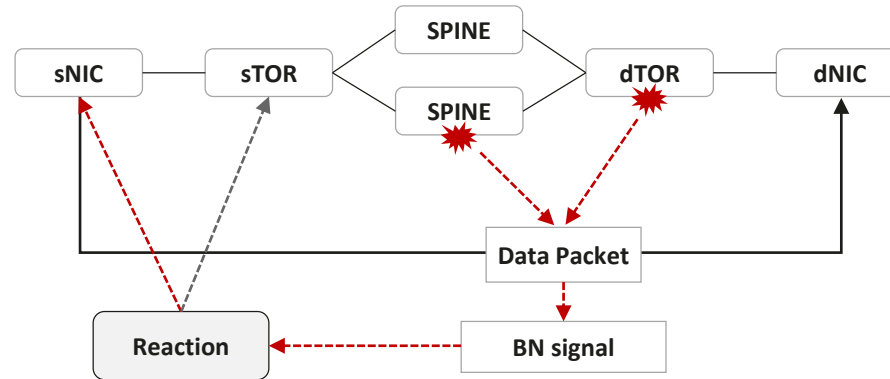
## 2、 BN signals

- Address.
- Signal type.
- Signal value: network conditions.
- Other: original truncated packet, additional information such as congestion location, timestamp, etc.

## 1、 BN trigger mechanisms

A bridge that detects a qualified condition.

- Queue / buffer threshold-based conditions.
- Packet events, e.g., ECN, drop, trim.
- Link / network state changes, e.g., degradation, failure, and other thresholds.
- Throttling mechanism.



# Proposed scope - Backward Notification

- Proposed PAR scope
  - This standard specifies procedures and managed objects, including a YANG data model, for signaling network conditions toward the source of transmission in data center networks. The notification mechanism conveys information to higher-layer entities to enable rapid response for congestion management, path rebalancing, and failure recovery. This standard defines an architectural model describing how notifications are triggered, constructed, and forwarded through Bridges, as well as a service interface for exposing notifications above the link layer. Provisions are included to ensure backward compatibility with IEEE Std 802.1Q..
- The whole draft PAR and CSD are to be presented separately.

## IN SCOPE

- ✓ Architecture and operational model
- ✓ Trigger conditions and bridge-side procedures
- ✓ BN message format
- ✓ Forwarding and relay of BN messages through Bridges
- ✓ L2 service interface for exposing signals
- ✓ Managed objects and YANG data models

## OUT OF SCOPE

- Congestion control algorithms (sender-side)
- Specific reaction policies at end stations
- Application-layer use of BN information
- New queuing or per-flow state in Bridges
- Mandated reaction behavior

Discuss