The RBridge Channel Protocol

• A way to send typed messages between TRILL Switches. Specified in draft-ietf-trill-rbridge-channel which is a Proposed Standard.
  – Can also be used between end stations and a TRILL switch on the same link: Native RBridge Channel Messages

• Used as the way to envelope BFD (Bi-directional Forwarding Detection, RFC 5880) between TRILL Switches: draft-ietf-trill-rbridge-bfd which is a Proposed Standard.
The RBridge Channel Protocol

- RBridge Channel messages between TRILL switches look like TRILL Data packets.

- Native RBridge Channel messages don’t have a TRILL Header.

[Diagram showing the structure of RBridge Channel messages and their component headers.]
What’s Missing?

1. A way to tunnel standard payloads such as RBridge Channel messages, native frames, TRILL Data packets, etc.

2. Security features.

3. A way to send an RBridge Channel message between an end station and a TRILL switch not on the same link or between two end stations not on the same link.
Channel Tunnel Message Format

- Link Header
- TRILL Header
- RBridge Channel Header
- Type Specific Payload
- Link Trailer

Channel Tunnel Type

- 2 bytes Fixed Size Control Fields including Tunneled Payload Type
- Optional Edge Forwarding Info
- Optional Security Info
- Tunneled Payload
Tunneling

• Channel Tunnel messages have a payload type field. Current draft has values for:
  – Null
  – RBridge Channel Message
  – TRILL Data Packet
  – TRILL IS-IS Packet
  – Ethernet Frame
Security

- Security
  - The current RBridge Channel Message does not provide any security features even though the payload can be a “control message”. (BFD has its own authentication.)
  - The Rbridge Channel Tunnel will be able to provide authentication and encryption if desired.
Edge Forwarding

• Assuming coöperating TRILL switch(es) on the links with the end station(s) involved, provides a standard way to send an RBridge Channel message between:
  – An end station and a TRILL switch both in the same campus but not on the same link.
  – Two end stations in the same campus but not on the same link.

• Sender must be aware of what is going on and know the destinations nickname (for an Rbridge) or MAC address (for an end station).
Edge Forwarding

Native RBridge Channel Message

RBridge Channel Message

RB1

RB5

RB9

ES1

ES9

RBridge Channel Tunnel
Security Considerations

• The Channel Tunnel Protocol is potentially dangerous.
  – Tunneled payloads, if blindly de-capsulated and processed, could wreck havoc.
  – This is somewhat mitigated by the ability to authenticate Channel Tunnel messages.

• The draft recommends being conservative in what you accept and requiring authentication where appropriate.