

# SR-MPLS over IP

draft-xu-mpls-sr-over-ip-00.txt

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# Success!

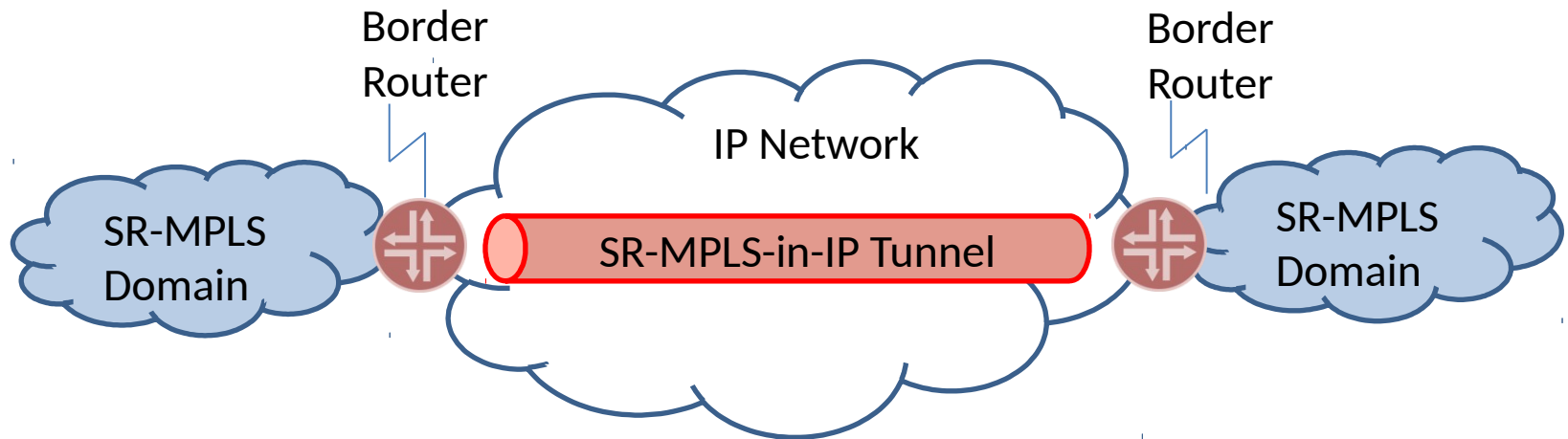
- We managed to merge
  - draft-xu-mpls-unified-source-routing-instruction
  - draft-bryant-mpls-unified-ip-sr
- Thanks
  - Robin Li really made this happen
- Sorry
  - We are limited to 6 front page authors
  - Not every one can be on the front page
    - We focused on those who wrote most text
  - This is the IETF and we hope the draft will be the product of the working group

# Overview of Objectives

1. Tunnel SR-MPLS over an IP network
  - To connect two SR-MPLS networks (e.g., data centres)
2. Enable SR in legacy networks by tactically introducing SR-capable nodes at strategic points in the network
3. It is not a specific objective, but the approach is IPv4/v6 neutral.

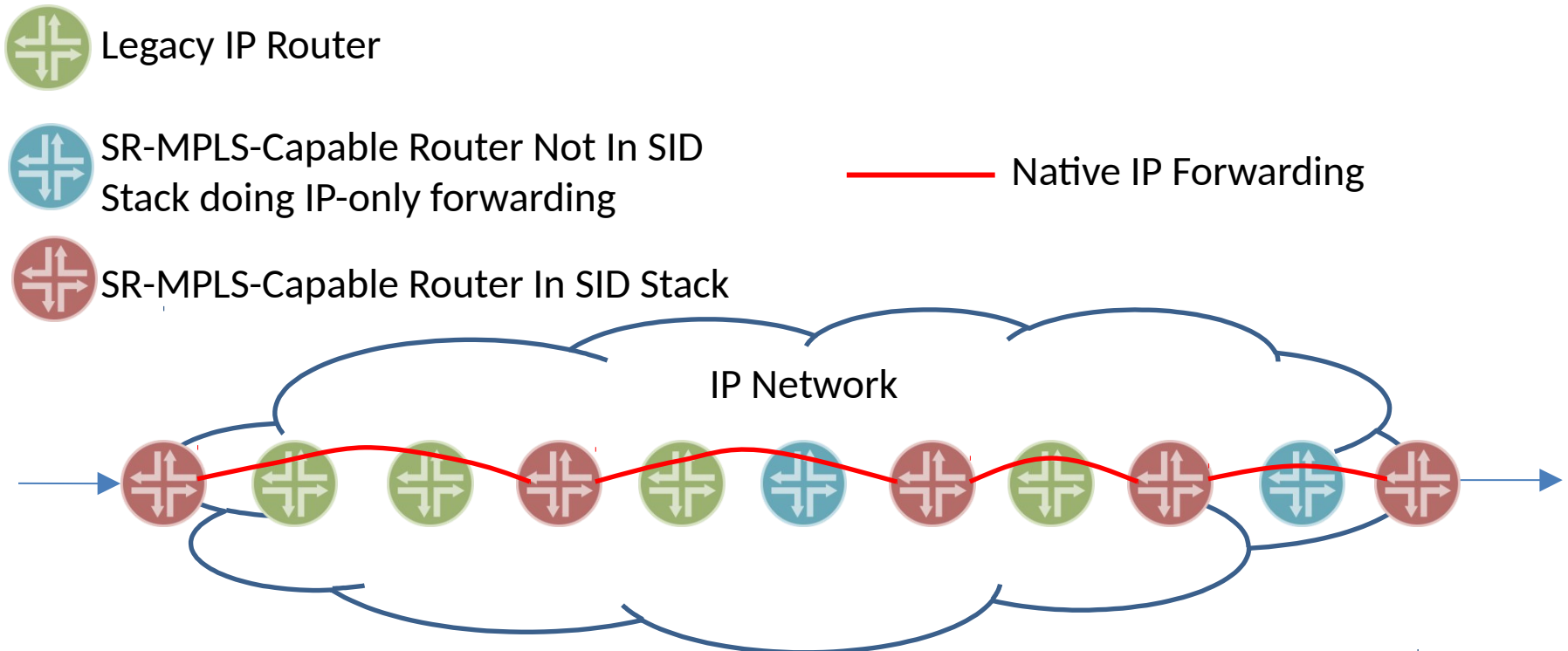
# Use Case 1 : Domain Interconnection

- Connect islands of SR-MPLS nodes
  - Such as data center sites
- Incremental deployment of SR-MPLS by tunneling across parts of a network that are not SR-MPLS enabled



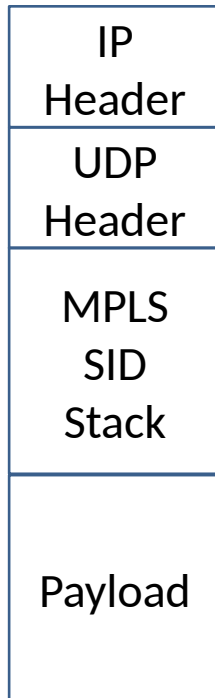
## Use Case 2 : Enable SR-MPLS Within an IP Network

- Provide a transition technology that enables SR in an IPv4 and/or IPv6 network where many routers have not yet been upgraded to have SRv6 capabilities



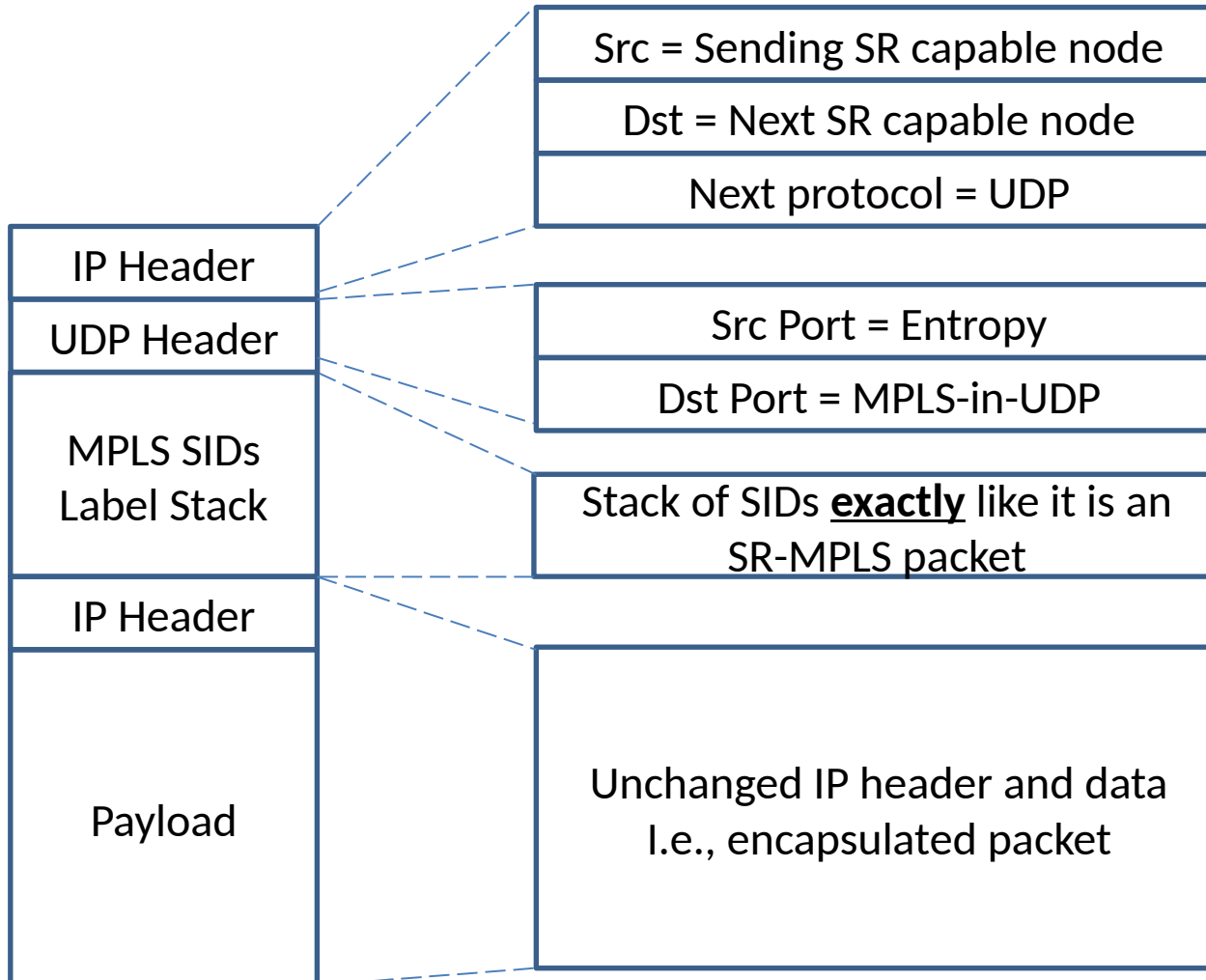
# Technical Overview

- Take MPLS-over-UDP encapsulation [RFC 7510] as an example:

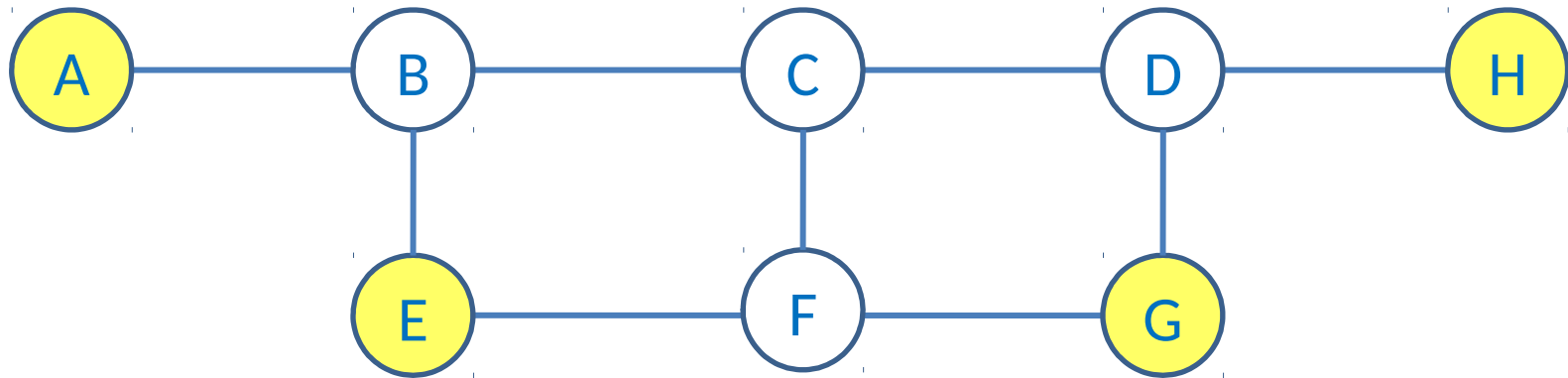


- Encapsulate an SR-MPLS SID stack in UDP in IP
- Address packet to next SR-MPLS-capable node in the SR path (top SID)
- UDP destination port indicates “MPLS below”
- UDP source port provides entropy if needed

# A Little More Detail



# Packet Forwarding Example With PHP



IP(A-->E)
UDP
L(G)
L(H)
Packet



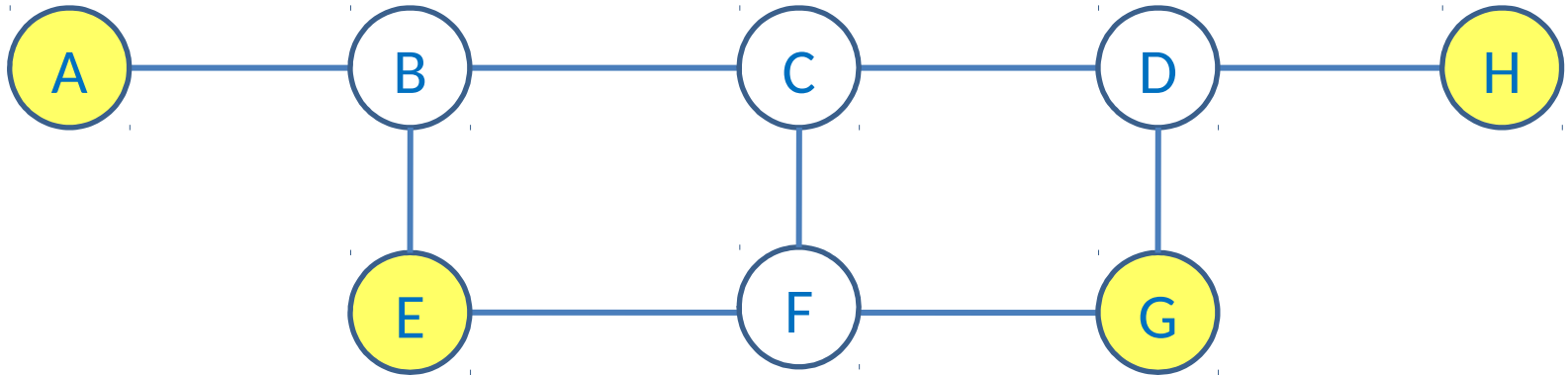
IP(E-->G)
UDP
L(H)
Packet



IP(G-->H)
UDP
Explicit Null
Packet



# Packet Forwarding Example Without PHP



IP(A-->E)
UDP
L(E)
L(G)
L(H)
Packet



IP(E-->G)
UDP
L(G)
L(H)
Packet



IP(G-->H)
UDP
L(H)
Packet

# Control Plane Work

- Control plane work may be needed
  - SID advertisements are just like for SR-MPLS
    - IGP or BGP advertises
      - Address of node or link
      - Associated SID
    - All SID types are supported
  - Need to add advertisements in routing protocol to specify
    - Encapsulation Type
    - PHP behaviour
- We think this should be in separate documents
  - Move discussion to the context of those documents

# Next Step

- WG adoption?