

# Routing Path Management in hybrid software defined networking environments

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# Protocols

- Routing path technologies (protocols)
  - VLAN
  - Q-in-Q
  - MAC-in-MAC
  - Multiprotocol Label Switching (MPLS)
  - VXLAN
  - etc.

# Challenges with Layer 2 Protocols

- Challenges
  - Broadcast
  - Multicast addresses
  - Without using tunnels
- Solutions
  - Devising some basic OpenFlow rules
  - Developing some custom modules for the controller

# Classes (1)

- Class1: additional tag(s) based
  - Provide seldom bits to markup
  - Path oriented
  - Predefined paths
  - Packet -> Tag(s) -> Path
  - VLAN, Q-in-Q, MPLS, and etc.

# Classes (2)

- Class2: modifying existing fields.
  - No need external protocols support
  - Packet collision
  - Modify every packets twice or more
  - MAC, MAC-in-MAC, and etc.