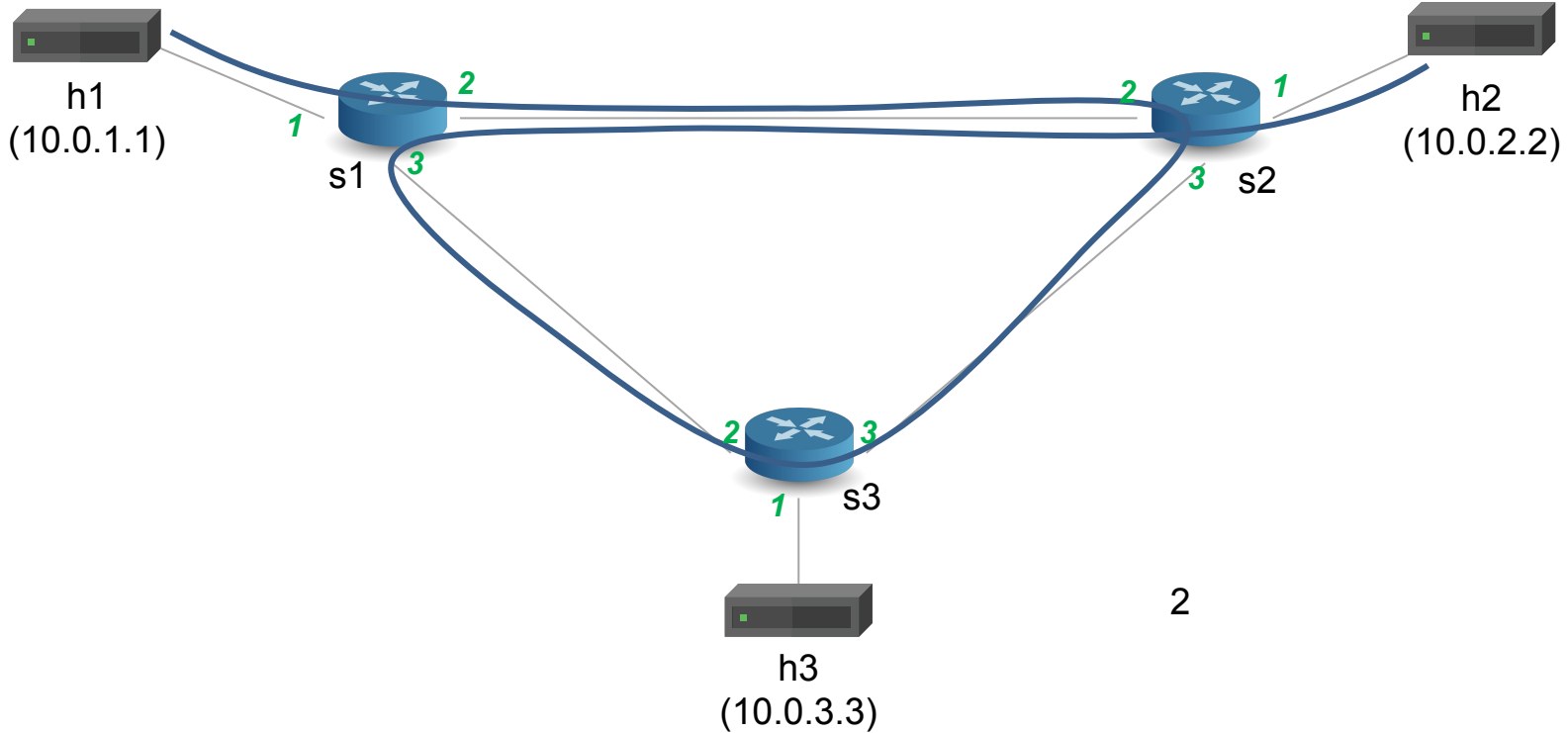


Lab 4: Advanced Data Structures



Source Routing

2,3,2,2,1, {payload}



Source Routing: Packet Format

```
#define MAX_HOPS 9

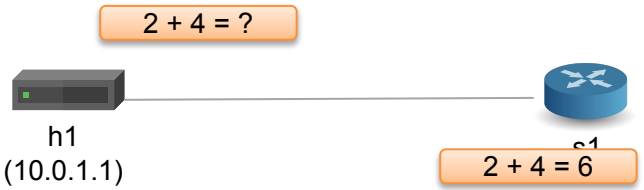
const bit<16> TYPE_IPV4 = 0x800;
const bit<16> TYPE_SRCROUTING = 0x1234;
header srcRoute_t {
    bit<1>    bos;
    bit<15>   port;
}

struct headers {
    ethernet_t      ethernet;
    srcRoute_t[MAX_HOPS] srcRoutes;
    ipv4_t          ipv4;
}
```

- **Parse source routes only if etherType is 0x1234**
- **The special value bos == 1 indicates the “bottom of stack”**
- **Forward packets using source routes, and also decrement IPv4 TTL**
- **Drop the packet if source routes are not valid**



Calculator



Calculator: Packet Format

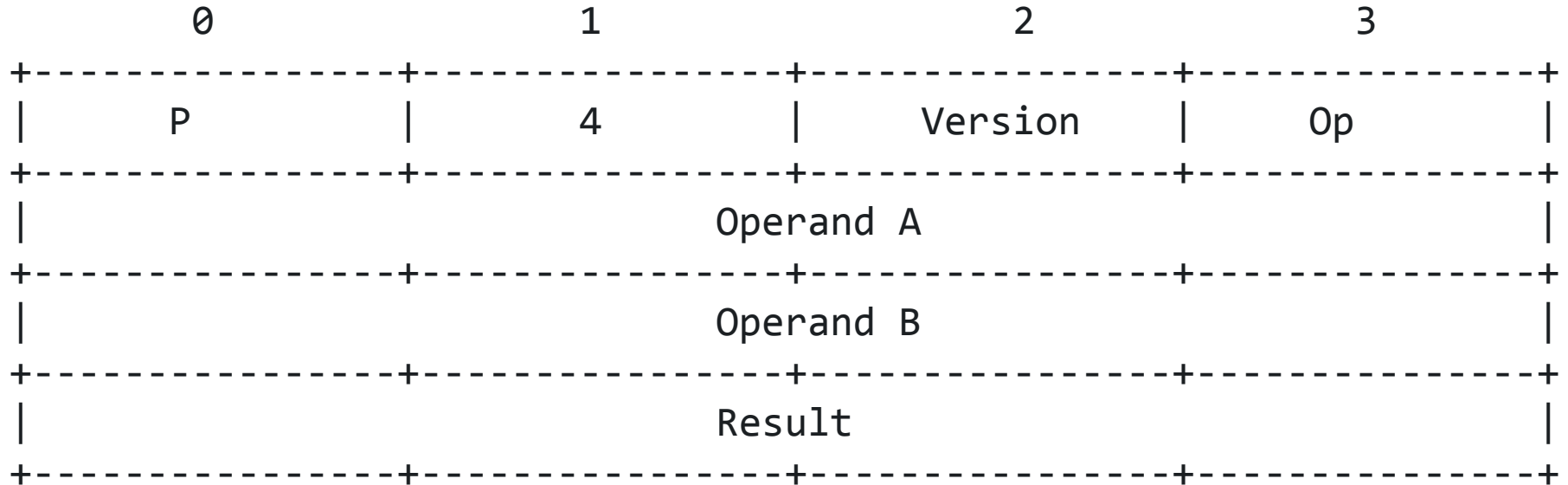


Table Initializers

```
table tbl {  
  key = { hdr.h.f : exact }  
  actions = { a1; a2; a3 }  
  entries = {  
    { 0x01 } : a1(1);  
    { 0x02 } : a1(2);  
    { _ } : NoAction();  
  }  
}
```

Can initialize tables with constant entries

Must fully specify the value of all action data, including values that are normally supplied by the control-plane

Hint: for the calculator, use a table that matches on the op-code

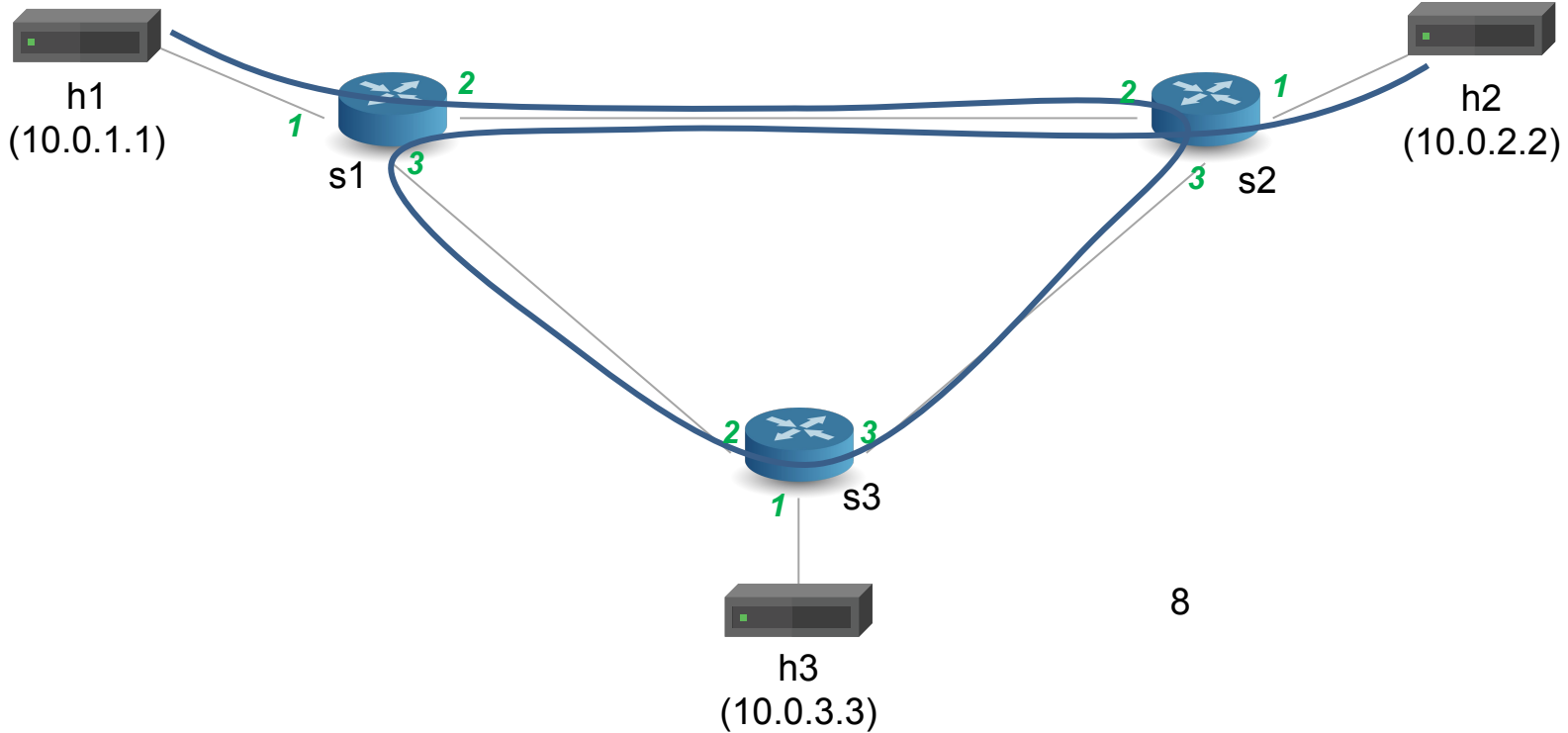


Lab 4: Advanced Data Structures



Source Routing

2,3,2,2,1, {payload}



Source Routing: Packet Format

```
#define MAX_HOPS 9

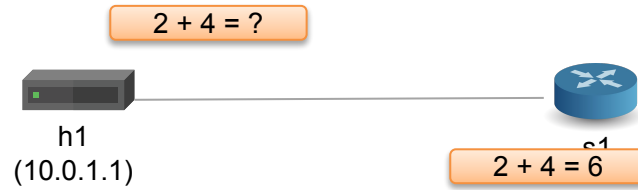
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const bit<16> TYPE_SRCROUTING = 0x1234;
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    bit<1>    bos;
    bit<15>   port;
}

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Calculator



Calculator: Packet Format

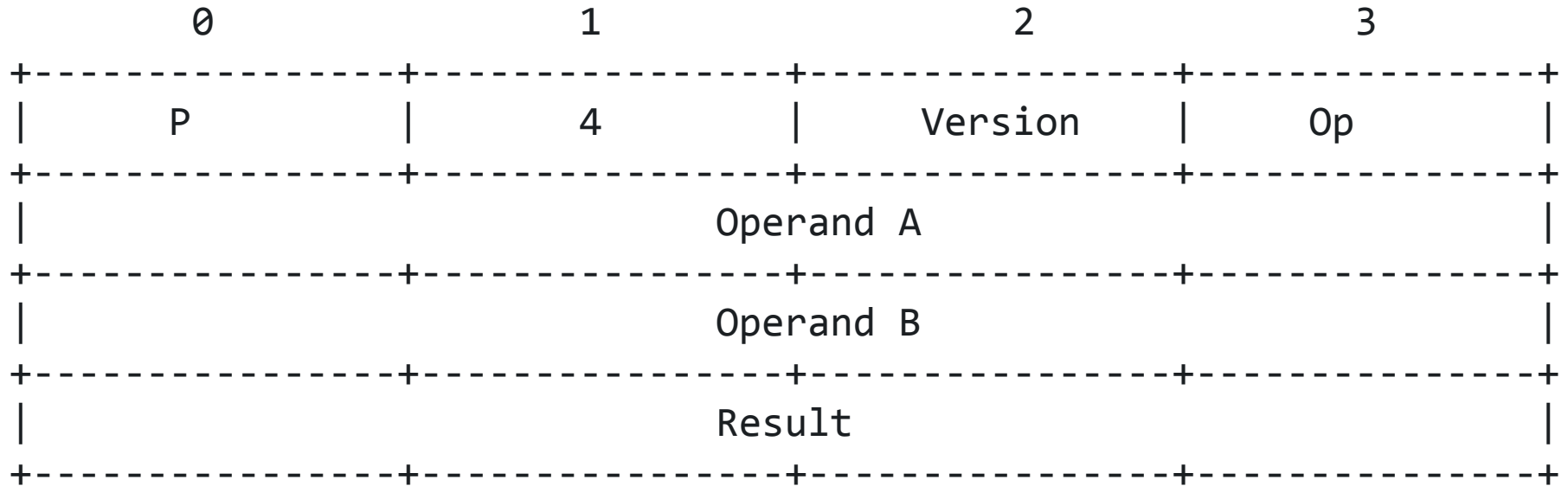


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