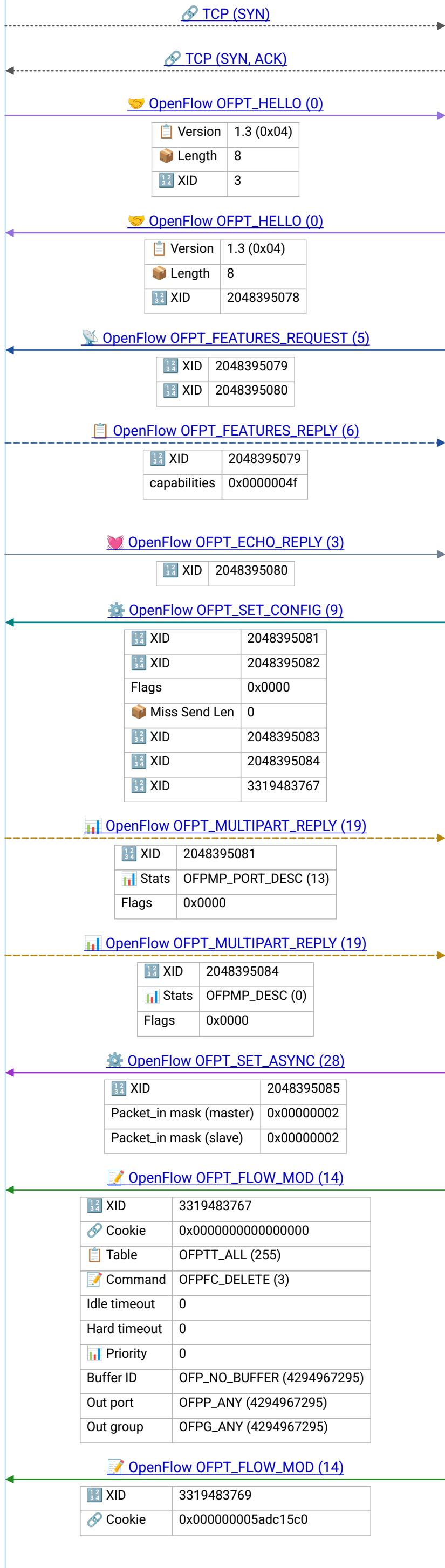


openflow_ovs_init_complex.pcapng



Frame 1 | 2021-01-02T21:50:51.75814Z

Frame 2 | 2021-01-02T21:50:51.770869Z

OpenFlow HELLO – controller and switch exchange version negotiation; both sides advertise supported OpenFlow versions; highest common version is selected

OpenFlow HELLO – controller and switch exchange version negotiation; both sides advertise supported OpenFlow versions; highest common version is selected

Frame 7 | 2021-01-02T21:50:51.788882Z

FEATURES_REPLY – switch reports its datapath ID (unique identifier), number of flow tables, buffer capacity, and capabilities (flow stats, table stats, port stats, group stats)

Frame 11 | 2021-01-02T21:50:51.790015Z

Frame 14 | 2021-01-02T21:50:51.806505Z

Frame 15 | 2021-01-02T21:50:51.807402Z

Frame 16 | 2021-01-02T21:50:51.807519Z

Frame 19 | 2021-01-02T21:50:51.826519Z

FLOW_MOD – controller installs/modifies/deletes flow entries in switch tables; match fields define which packets to match, actions define what to do (forward, drop, modify headers)

Table	4
Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
Priority	8240
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0

 [OpenFlow OFPT_FLOW_MOD \(14\)](#)

XID	3319483770
Cookie	0x000000005adc15c0
Table	4
Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
Priority	8240
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0

 [OpenFlow OFPT_FLOW_MOD \(14\)](#)

XID	3319483771
Cookie	0x000000005adc15c0
Table	4
Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
Priority	8240
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0

 [OpenFlow OFPT_FLOW_MOD \(14\)](#)

XID	3319483772
Cookie	0x000000005adc15c0
Table	4
Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
Priority	8236
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0

 [OpenFlow OFPT_FLOW_MOD \(14\)](#)

XID	3319483773
Cookie	0x000000005adc15c0
Table	4
Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
Priority	8216
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0

 [OpenFlow OFPT_FLOW_MOD \(14\)](#)






XID	3319483774
Cookie	0x000000005adc15c0
Table	4
Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
Priority	8216
Buffer ID	OFF_NO_BUFFER (4294967295)

OVS Switch C






SDN Controller

Out port	0
Out group	0





 [OpenFlow OFPT_FLOW_MOD \(14\)](#)

 XID	3319483775
 Cookie	0x000000005adc15c0
 Table	4
 Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
 Priority	8208
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0






 [OpenFlow OFPT_FLOW_MOD \(14\)](#)

 XID	3319483776
 Cookie	0x000000005adc15c0
 Table	4
 Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
 Priority	8192
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0






 [OpenFlow OFPT_FLOW_MOD \(14\)](#)

 XID	3319483777
 Cookie	0x000000005adc15c0
 Table	4
 Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
 Priority	0
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0




 [OpenFlow OFPT_FLOW_MOD \(14\)](#)



 XID	3319483778
 Cookie	0x000000005adc15c0
 Table	3
 Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
 Priority	0
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0

 [OpenFlow OFPT_FLOW_MOD \(14\)](#)






 XID	3319483779
 Cookie	0x000000005adc15c0
 Table	2
 Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
 Priority	20490
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0

 [OpenFlow OFPT_FLOW_MOD \(14\)](#)






 XID	3319483780
 Cookie	0x000000005adc15c0
 Table	2

 Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
 Priority	20480
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0






 OpenFlow OFPT_FLOW_MOD (14)

 XID	3319483781
 Cookie	0x000000005adc15c0
 Table	2
 Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
 Priority	20480
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0






 OpenFlow OFPT_FLOW_MOD (14)

 XID	3319483782
 Cookie	0x000000005adc15c0
 Table	2
 Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
 Priority	4096
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0






 OpenFlow OFPT_FLOW_MOD (14)


 XID	3319483783
 Cookie	0x000000005adc15c0
 Table	2
 Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
 Priority	0
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0

 OpenFlow OFPT_FLOW_MOD (14)

 XID	2048395086
 Cookie	0x000000005adc15c0
 Table	1
 Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
 Priority	4096
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0






 OpenFlow OFPT_FLOW_MOD (14)

 XID	2048395087
 Cookie	0x000000005adc15c0
 Table	1
 Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
 Priority	4096
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0






 FLOW_MOD – controller installs/modifies/deletes flow entries in switch tables; match fields define which packets to match, actions define what to do (forward, drop, modify headers)

Out group	0
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

 [OpenFlow OFPT_FLOW_MOD \(14\)](#)

 XID	3319483786
 Cookie	0x000000005adc15c0
 Table	1
 Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
 Priority	0
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0






 [OpenFlow OFPT_FLOW_MOD \(14\)](#)

 XID	2048395088
 Cookie	0x000000005adc15c0
 Table	0
 Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
 Priority	20480
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0






 [OpenFlow OFPT_FLOW_MOD \(14\)](#)

 XID	3319483788
 Cookie	0x000000005adc15c0
 Table	0
 Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
 Priority	20480
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0





 [OpenFlow OFPT_FLOW_MOD \(14\)](#)

 XID	2048395089
 Cookie	0x000000005adc15c0
 Table	0
 Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
 Priority	20479
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0

 [OpenFlow OFPT_FLOW_MOD \(14\)](#)

 XID	2048395090
 Cookie	0x000000005adc15c0
 Table	0
 Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	0
 Priority	20478
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0

 [OpenFlow OFPT_FLOW_MOD \(14\)](#)

 XID	3319483791
 Cookie	0x000000005adc15c0
 Table	0
 Command	OFFFC_ADD (0)

OVS Switch C

SDN Controller

Idle timeout	0
Hard timeout	0
Priority	0
Buffer ID	OFP_NO_BUFFER (4294967295)
Out port	0
Out group	0

OpenFlow OFPT_PACKET_IN (10)

XID	0
Buffer ID	256
Length	94
Reason	OFPR_ACTION (1)
Table	2

OpenFlow OFPT_PACKET_IN (10)

XID	0
Buffer ID	257
Length	98
Reason	OFPR_ACTION (1)
Table	2

OpenFlow OFPT_PACKET_IN (10)

XID	0
Buffer ID	258
Length	86
Reason	OFPR_ACTION (1)
Table	2

OpenFlow OFPT_PACKET_IN (10)

XID	0
Buffer ID	259
Length	98
Reason	OFPR_ACTION (1)
Table	2

OpenFlow OFPT_PACKET_IN (10)

XID	0
Buffer ID	260
Length	86
Reason	OFPR_ACTION (1)
Table	2

OpenFlow OFPT_PACKET_IN (10)

XID	0
Buffer ID	261
Length	206
Reason	OFPR_ACTION (1)
Table	2

OpenFlow OFPT_PACKET_IN (10)

XID	0
Buffer ID	262
Length	126
Reason	OFPR_ACTION (1)
Table	2

OpenFlow OFPT_PACKET_IN (10)

XID	0
Buffer ID	263
Length	86
Reason	OFPR_ACTION (1)
Table	2

OpenFlow OFPT_PACKET_IN (10)

XID	0
Buffer ID	264
Length	102

💡 PACKET_IN – switch sends unmatched packet to controller for decision; reason: no matching flow (table-miss), explicit action, or TTL expiry; controller responds with PACKET_OUT or FLOW_MOD

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OVS Switch C

SDN Controller

Reason	OFPR_ACTION (1)
Table	2

OpenFlow OFPT_PACKET_IN (10)

XID	0
Buffer ID	265
Length	86
Reason	OFPR_ACTION (1)
Table	2

OpenFlow OFPT_PACKET_IN (10)

XID	0
Buffer ID	266
Length	86
Reason	OFPR_ACTION (1)
Table	2

OpenFlow OFPT_PACKET_IN (10)

XID	0
Buffer ID	267
Length	102
Reason	OFPR_ACTION (1)
Table	2

OpenFlow OFPT_FLOW_MOD (14)

XID	3319483793
Cookie	0x000000005adc15c0
Table	3
Command	OFFFC_ADD (0)
Idle timeout	433
Hard timeout	0
Priority	8192
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0

OpenFlow OFPT_FLOW_MOD (14)

XID	3319483794
Cookie	0x000000005adc15c0
Table	2
Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	283
Priority	8191
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0

OpenFlow OFPT_FLOW_MOD (14)

XID	3319483799
Cookie	0x000000005adc15c0
Table	3
Command	OFFFC_ADD (0)
Idle timeout	445
Hard timeout	0
Priority	8192
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0

OpenFlow OFPT_FLOW_MOD (14)

XID	3319483800
Cookie	0x000000005adc15c0
Table	2
Command	OFFFC_ADD (0)
Idle timeout	0
Hard timeout	295

💡 PACKET_IN – switch sends unmatched packet to controller for decision; reason: no matching flow (table-miss), explicit action, or TTL expiry; controller responds with PACKET_OUT or FLOW_MOD

💡 PACKET_IN – switch sends unmatched packet to controller for decision; reason: no matching flow (table-miss), explicit action, or TTL expiry; controller responds with PACKET_OUT or FLOW_MOD

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💡 FLOW_MOD – controller installs/modifies/deletes flow entries in switch tables; match fields define which packets to match, actions define what to do (forward, drop, modify headers)

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 OVS Switch C

 SDN Controller

Priority	8191
Buffer ID	OFF_NO_BUFFER (4294967295)
Out port	0
Out group	0

