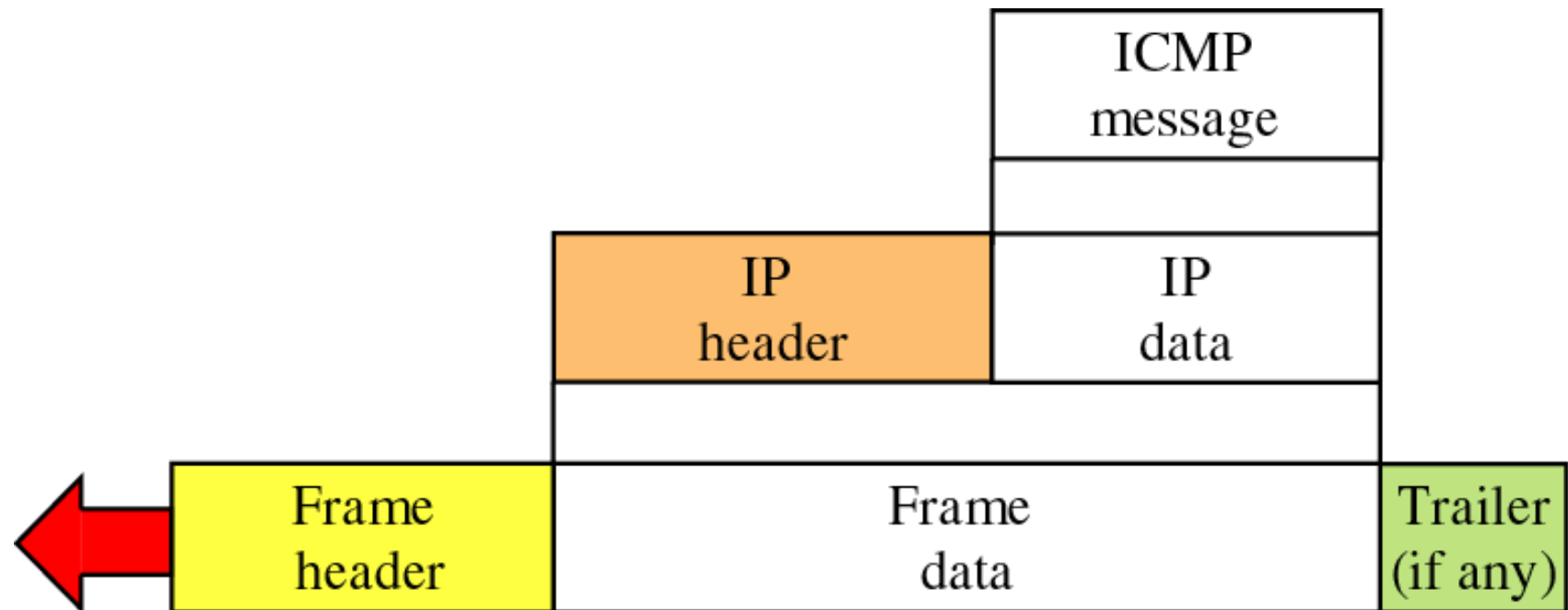


ICMP Packet Encapsulation

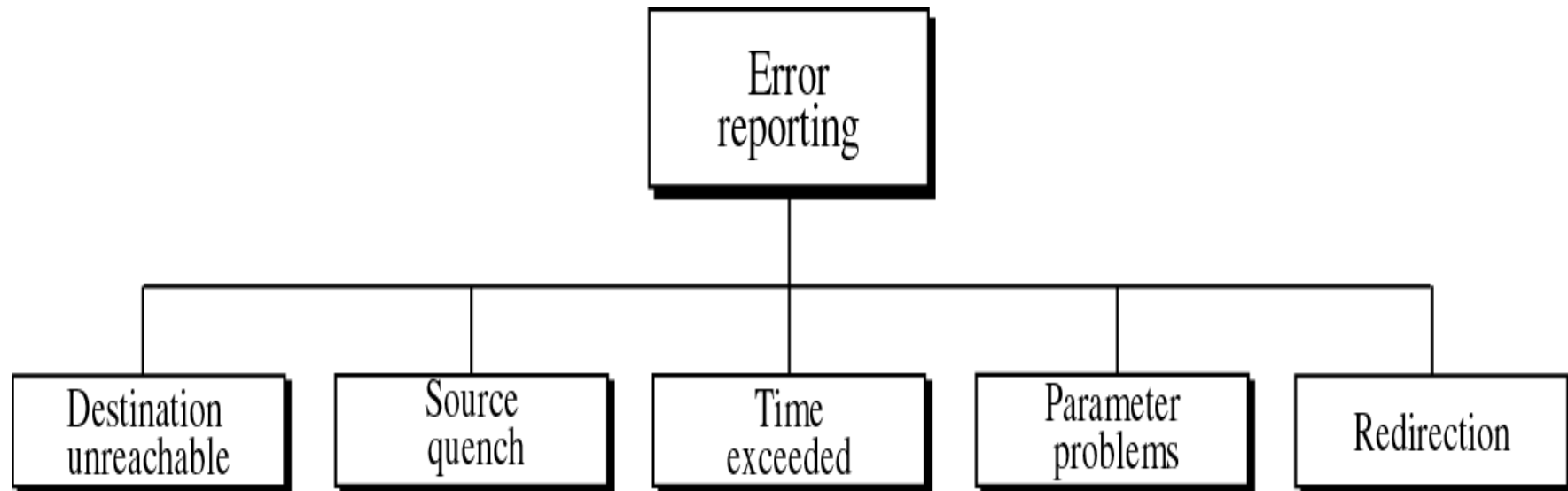


ICMP 구조

- 목적
 - 송신시스템에게 IP 전달에 대한 다양한 메시지를 전달하기 위한 Protocol
- 메시지 종류
 - 오류 보고 메시지 (Error Reporting Message)
 - IP 패킷 처리 도중 발생한 문제 보고
 - 질의 메시지 (Query Message)
 - 다른 호스트로부터 특정 정보 획득
 - 네트워크 문제 진단

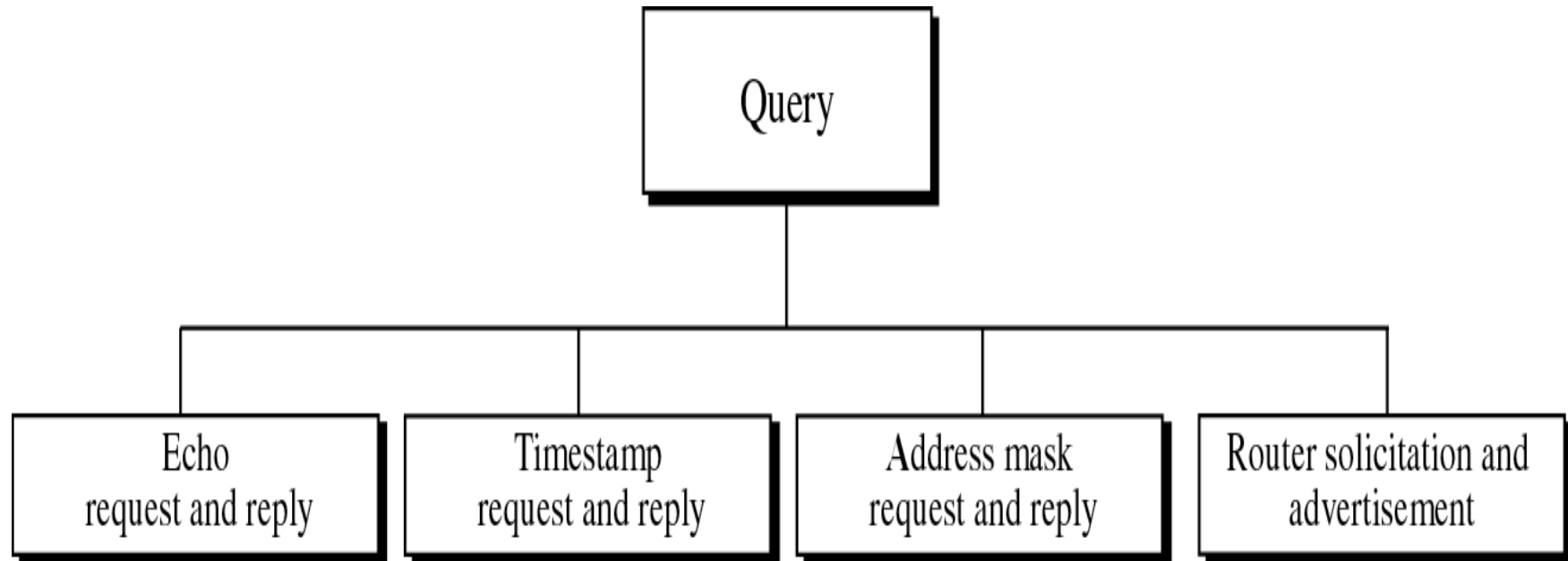
ICMP Message – Error reporting

- IP 패킷 처리 도중 발생한 문제 보고

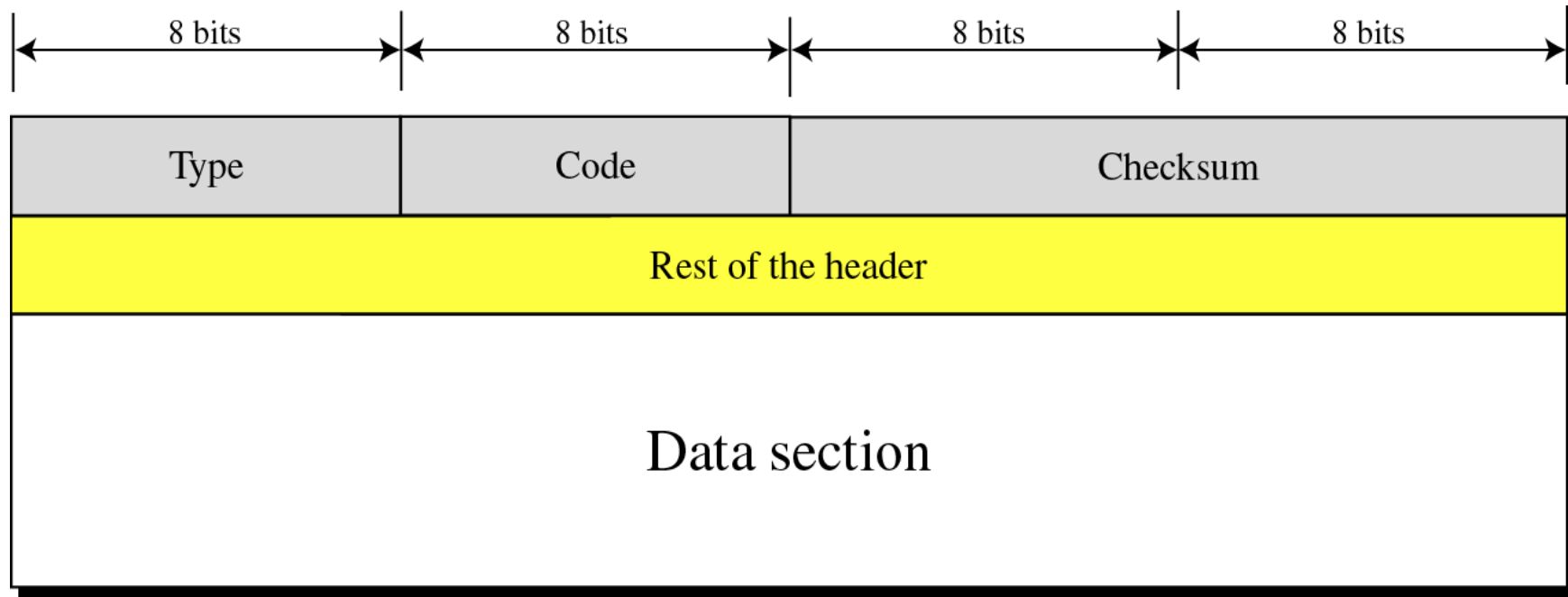


ICMP Message – Query

- 다른 호스트로부터 특정 정보 획득, 네트워크 문제 진단



ICMP Message Format



ICMP Type

Type	ICMP Message
0	Echo Reply
3	Destination Unreachable
4	Source Quench
5	Redirect
8	Echo Request
9	Router Advertisement
10	Router Solicitation
11	Time Exceeded for a datagram

ICMP Type

Type	ICMP Message
12	Parameter problem on a datagram
13	Timestamp Request
14	Timestamp Reply
15	Information Request
16	Information Reply
17	Address Mask Request
18	Address Mask Reply
33	IPv6 위치 조회
34	IPv6 위치 응답

ICMP Code

Type	Code	Description	Query	Error
0	0	Echo Reply (ping reply)	*	
3		Destination unreachable		
	0	Network unreachable - 지정된 Network이 없을 경우 라우터가 생성		*
	1	Host unreachable - 마지막 라우터가 호스트와 통신 불가		*
	2	Protocol unreachable - 목적지 호스트가 생성하며 IP 헤더의 프로토콜 필드로 식별된 상위 프로토콜을 사용할 수 없을 경우		*
	3	Port unreachable - 목적지 호스트가 생성		*
	4	Fragmentation needed for DE = 1 - MTU크기보다 데이터그램이 커서 전달할 수 없을 경우 라우터에서 생성		*
	5	Source Route Failed		*

ICMP Code

Type	Code	Description	Query	Error
3	6	Destination network Unknown		
	7	Destination Host Unknown		*
	8	Source host isolated		*
	9	Destination network Administratively prohibited		*
	10	Destination host Administratively prohibited		*
	11	Network Unreachable for TOS		*
	12	Host unreachable for TOS		*
	13	Communication administratively prohibited by filtering		
	14	Host precedence violation		
	15	Precedence cutoff in effect		

ICMP Code

Type	Code	Description	Query	Error
4	0	Source quench		*
5		Redirect		
	0	Redirect for network		*
	1	Redirect for host		*
	2	Redirect for type of service and network		*
	3	Redirect for type of service and host		*
8	0	Echo request (ping 요청)	*	
9	0	Router advertisement	*	
10	0	Router solicitation	*	

ICMP Code

Type	Code	Description	Query	Error
11		Time exceeded		
	0	Time to live equals 0 during transit		*
	1	Time to live equals 0 during reassembly		*
12		Parameter problem		
	0	IP header bad		*
	1	Required option missing		*