

思考题答案

1、查看不包含高层数据的短TCP数据包，查看它发往哪？不携带高层数据的数据包有用吗？

答：HTTP请求中发往接收主机的不携带HTTP报头的数据包，它通常发往目的主机的传输层，是TCP实体，例如ACK包等，它通常是为了控制连接的状态。

- The packet is destined to the TCP protocol entity of the receiving computer, not to the application that implements HTTP. It is a control packet exchanged between TCP peers to manage their connection state.

2、在经典的分层模型中，低层字段包装到高层数据包外面，成为一条新消息。但这并非总是如此，Web响应（一个包含HTTP标头和HTTP有效负载的HTTP消息）可能被转换为多个较低层的消息（即多个TCP数据包）。假设你为Web响应的第一个和最后一个TCP数据包绘制了数据包结构，那么该结构与经典分层模型有什么不同？

答：在该结构中，只有第一张图会在数据包内有一个HTTP头（除非HTTP报头非常长）。第二张图将有HTTP有效载荷数据，但没有HTTP头。

- Only the first drawing will have an HTTP header inside the packet (unless the HTTP header is extremely long). The second drawing will have HTTP payload data but no HTTP header.

3、在上述经典分层模型中，低层字段包装到高层数据包外面，如果较低层添加加密，此模型将如何更改？

答：在加密的情况下，低层协议层将重写其主体中的有效载荷以及附加其头。在这种情况下，当数据包在网络上时，上层协议的内部结构将不再可见；当接收的对等协议对消息进行解密时，它将对接收方可见。

- With encryption, the lower protocol layer will rewrite the payload in its body as well as append its header. In this case, the internal structure of the higher protocols will no longer be visible while the packet is on the network; it will be revealed when the receiving peer protocol decrypts the message.

4、在上述经典分层模型中，低层字段包装到高层数据包外面，如果较低的层添加压缩，此模型将如何更改？

答：在压缩的情况下，下层协议层会在其主体中重写有效载荷，并附加其头。由于是压缩，重写后的有效载荷将（通常）比原始有效载荷短。与加密的情况一样，当数据包在网络上时，上层协议的内部结构将不再可见；当接收的对等协议对消息进行解压缩时，它将对接收方可见。

- With compression, the lower protocol layer will rewrite the payload in its body as well as append its header. Since it is compression, the rewritten payload will (normally) be shorter than the original payload. As with the case of encryption, the internal structure of the higher protocols will no longer be visible while the packet is on the network; it will be revealed when the receiving peer protocol decrypts the message.