

2003.11.28

Network computing Sample questions

1. IP protocol

What is the host network? What are the two main functions of IP? How does IP routing work? What is ICMP? Tell me some ICMP functions! How does IPv6 extend IPv4?

2. UDP, TCP

What is a port? What is the service that UDP provides to protocol users? What is the service that TCP provides to protocol users? Describe the 3-way handshake! Describe the packet flow during normal TCP data transfer! What is the TCP window? How does TCP detect lost packets? Describe what happens when a packet is lost in the TCP stream! What does piggybacking means in TCP context?

3. Sockets

What are the sockets? How is a socket assigned to a protocol? What are the steps of client socket creation? What are the steps of server socket creation? How does server socket work if the socket is bound to a connectionless protocol? How does the server socket work if the socket is bound to a connection-oriented protocol?

4. HTTP

What are the actors that speak HTTP? What are the 6 main parts of a HTTP request/response? What is a HTTP method? Show me an example URL, URI and URN! What are the HTTP headers? Mention some HTTP headers! What are the HTTP status codes? What is HTTP Basic authentication? Show me how Basic authentication works on an example. What is an HTTP proxy? What is the difference between normal HTTP operation and HTTP operation with proxy server?

5. SSL/TLS

What is a symmetric cipher? What is an asymmetric cipher? What is a cryptographically secure hash? Where is TLS in the protocol stack? What are the main services that TLS provides? What is the TLS Record protocol? What is the TLS handshake protocol? Describe the main steps of the TLS handshake protocol (exact packet flow is not required). What is the man-in-the-middle attack? What are the certificates? How are certificates used to defeat the man-in-the-middle attack? How is TLS used with HTTP?

6. Distributed application architectures

What are the main elements of distributed application architectures?

7. Web services

What is XML? What is the XML markup? What is XML namespace? What does it mean that an XML document is valid? How does XML Schema used to validate XML documents? What is the relation of XML Schema to XML documents? (class-instance) What is the function of SOAP? What is the core structure of SOAP? What are the main steps of an RPC call? What are the requirements against SOAP when it is used in RPC scenario? What is encoded SOAP message? What is document-style SOAP message? What is the role of WSDL? What are the main sections of WSDL document? What is the role of UDDI? How are SOAP, WSDL and UDDI used together to realize the web services architecture?

8. CORBA

What is an Object Request Broker (ORB)? How are object methods called over the ORB? What are GIOP and IIOB and why do they exist? What are the main parts of a Request and Reply GIOP messages? What is IDL? Where is IDL used? What is the CosNaming name service?