TDC 372

Homework #3

Due by Friday, May 27, 2016 11:59 pm.

50 points

1) (5 points) What is the difference between Shared Server Hosting and Virtual Private Server Hosting?

2) (5 points) What is the difference between a public cloud and a private cloud service? Why would an organization choose private cloud over public cloud?

3) (5 points) Explain why a Content Delivery Network (CDN) can provide smaller access delays to web content vs. Dedicated Server Hosting.

4) (5 points) iSCSI and FCIP are two difference storage networking protocol stacks that provide access to storage anywhere in the world over TCP/IP networks. What is a difference between them? Why would you use one rather than the other?

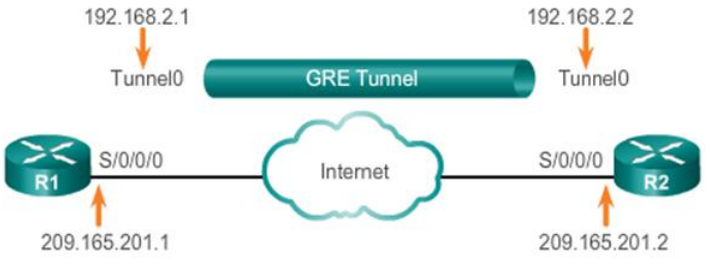
5) Bill and Sam are using Public Key encryption. Bill's public and private keys are named Bill-Pub and Bill-Priv. Sam's public and private keys are named Sam-Pub and Sam-Priv.

   a. (5 points) Assume Bill is sending encrypted data to Sam. What key (out of the 4 keys listed above) does Bill use to encrypt the data? What key does Sam use to decrypt the data?

   b. (5 points) Now assume Bill is putting digital signatures on his messages to Sam to prove his identity (authentication). He does this by encrypting the HMAC hash code at the end of the message. What key does Bill use to encrypt this HMAC code? What key does Sam use to decrypt the encrypted HMAC code that he receives?

6) (5 points) Name one advantage to using an SSL Remote Access VPN compared to an IPSEC Remote Access VPN.

7) (5 points) Name one advantage of using an IPSEC Remote Access VPN compared to an SSL Remote Access VPN.



8) Consider the diagram above, from the class notes, that shows IP addresses for a GRE tunnel established between R1 and R2. A user now sends a TCP SYN packet across this tunnel from left to right. Assuming PPP is used on inter-router links, then this packet will have the 5 headers shown below as it passes between routers in the Internet cloud.

a. (5 points) Write the numbers “1” through “5” in the blanks to show the order that these headers are received by each Internet cloud router, where “1” marks the first header of this packet received and “5” marks the last header received.

   i. ____ GRE header
   ii. ____ IPv4 header with (Src=192.168.2.1, Dst=192.168.2.2)
   iii. ____ PPP header
   iv. ____ TCP header
   v. ____ IPv4 header with (Src=290.165.201.1, Dst=209.165.201.2)

b. (5 points) Each of the 2 IPv4 headers in this packet has a Protocol field.

   i. What is the numerical value of the Protocol field in the IPv4 (Src=192.168.2.1, Dst=192.168.2.2) header?

   ii. What is the numerical value of the Protocol field in the IPv4 (Src=290.165.201.1, Dst=209.165.201.2) header?