Introduction to Cloud Computing

-Eli the Computer Guy

1. How does Eli define Cloud Computing?

An overall philosophy and design concept that tries to separate applications from the operating systems from the hardware that runs everything.

2. According to Eli, what does virtual computing do? Why is this advantageous?

Puts the operating system in its own little container running on hardware. This way, if something fails on hardware, the instance of that operating system can migrate to another server without loss of service.

3. How does Eli relate virtual computing to cloud computing?

Virtual computing is a component of cloud computing, but cloud computing is far more than simple VMs.

4. In a cloud context, what is clustering?

Setting up multiple different servers with operating systems and an application that supports clustering so that the servers communicate and share information and computing resources.

5. What major application does Eli cite as being particularly friendly to clustering?

Database applications, Microsoft Active Directory

6. What happens when an individual server in a cluster fails?

The cluster realizes that the server has failed and does not send users to that server.

7. In a cluster context, what is replication?

When the different databases talk to each other and exchange/copy information.

8. What does a terminal server do?

Allows terminal services clients to get little slivers of time from the processor on the server.

9. What do we call the devices that terminal servers provide services to?

Thin clients

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10. What are application servers? How do they differ from terminal servers?

The application is hosted on the server and accessed by users through thin clients. Application services are installed on terminal servers.

11. Eli cites two ways to do virtualization. What are they? When would you employ either one?

Client Installed Virtualization Software—you install a normal operating system, and then install virtualization client software that allows you to install another operating system (instance) on top of the original one.
Hypervisor Software—like an operating system that you install on the hardware that you want to run virtual computers on.

12. What is the name of the free open source virtualization software?

VirtualBox

13. Can you, without any other software, directly manage a hypervisor?

No, you have to use a piece of management software (vSphere) to administer the virtual computers

14. Amazon's EC2 environment was an early example of cloud computing. Describe the service and explain why an organization may find it compatible.

Allows users to create and use a server instance on Amazon's hardware and pay only for what they used. An organization may find it compatible because it allows them to use off-premise hosting for services or applications.

15. What is a hosted instance?

A virtual environment hosted on someone else's hardware; paid for based upon whatever services you use.

16. What is an edge server? Why are they significant?

Multiple servers connected to the main server where all of the virtual images are hosted. Increases performance because connecting to the main server results in speed degradation over distances.

17. What is dynamic bit rate switching? How can it impact your cloud computing billing?

There are four or five copies of videos, etc. used, and you connect to a copy based on speed. If the user's speed is fluctuating, it can end up in the downloading of multiple copies, each of which costs money.

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18. What is the difference between a hosted instance and a hosted solution?

Hosted solutions are Applications/Services hosted by a company that provides a service, where you rent the services as you need them. They are different in that a hosted instance is merely a virtual environment, whereas hosted solutions provide services through user interfaces, applications, etc.

19. Compare and contrast public and a private clouds.

Public—all cloud computing infrastructure is on the web where basically anyone can get access to it.
Private—using the same technologies in your own server room without using services on the web.