Task 3

Scale on-premise system infrastructure to the cloud

Evaluating options to run software

Here is the background information on your task

The infrastructure of a large system can be a big investment, especially if heavy usage is expected. When software is used only by the company's own personnel, it might be easy to estimate how much computing power is needed. But what if you provide software to anyone who wishes to use it, and have no idea how popular your software will be? How many servers do you need to buy when you don't know if you will have only 100 users next year, or 100 000 users?

In this kind of scenario, there is an option of running software in the cloud. Running in the cloud means that software can be run without owning any hardware, but the hardware can instead be leased from a cloud service provider. The physical hardware is somewhere else, and you don't need to worry about the maintenance or servers. You just use it as much as you need, and you pay for what you have used. This is called IaaS, as in infrastructure as a service. You can make changes to the amount of hardware you use at any time, so you can adjust the computing power according to how much your software is using.

Cloud providers also offer other, more advanced services, than just plain hardware. This is called PaaS, as in platform as a service. For example, databases can be uses as a service, where the user of the database doesn't have to install the database or do any maintenance on it, but the cloud provider takes care of all this.

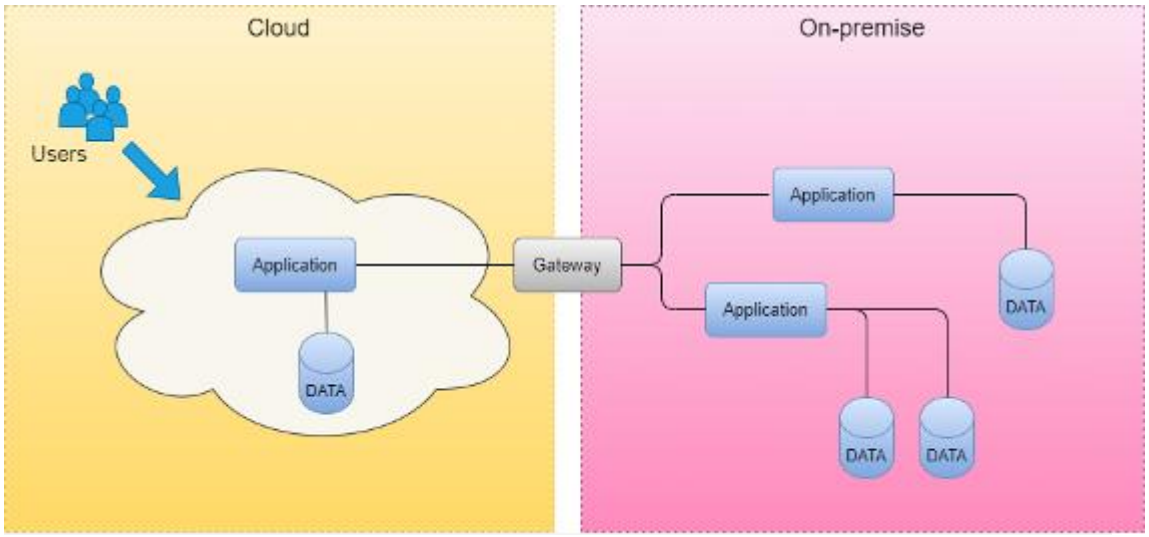
Here is your task

Digital Healthcare has their own servers, which are running in a dedicated room at their own office and are maintained by their own team.

They need to buy new machines but are unsure how much they should invest to be able to serve future customers. Digital Healthcare is asking you to help them understand what options they have. They want to be able to serve all potential customers, but at the same time keep costs reasonable.

Resources to help you with the task

You have a sketch to help you discuss with Digital Healthcare:

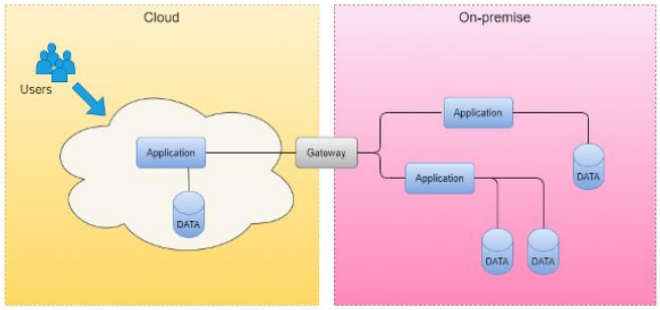


Start your task

You may only credit this task to your CV if you make a genuine attempt at the work.

Practice or learning attempt:

Q 1/4: Which of these would be a valid reason for Digital Healthcare to start using cloud?

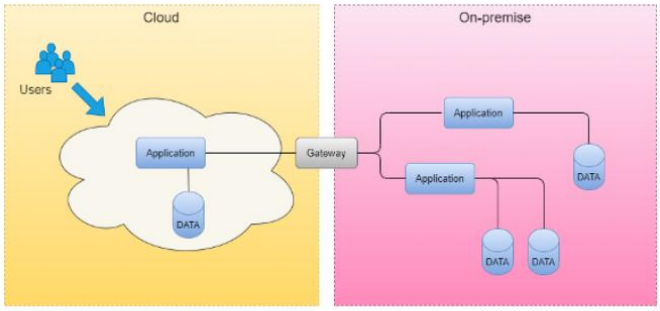


Digital Healthcare is worried about server costs, and using cloud helps to lower the costs.

Digital Healthcare plans to experiment on a new type of service and is unsure if that service will ever be useful in production.

Cloud sounds good, and Digital Healthcare wishes to attract more customers using hype technologies.

Q 2/4: The picture shows one option of using cloud. What is the described setup?

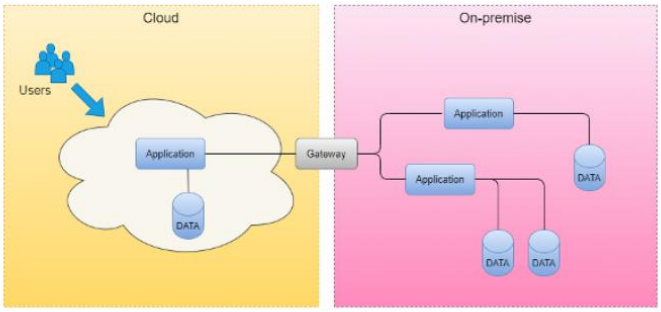


All servers of Digital Healthcare would be copied to the cloud through the Cloud Gateway.

The system is running partly in the cloud and partly on servers owned by Digital Healthcare.

The application in the cloud serves all users. Special users can also login to the gateway to use applications that are running on Digital Healthcare's existing servers.

Q 3/4: Digital Healthcare wants to know if the database they need in the cloud, should be IaaS or PaaS. How would you describe the difference to them?

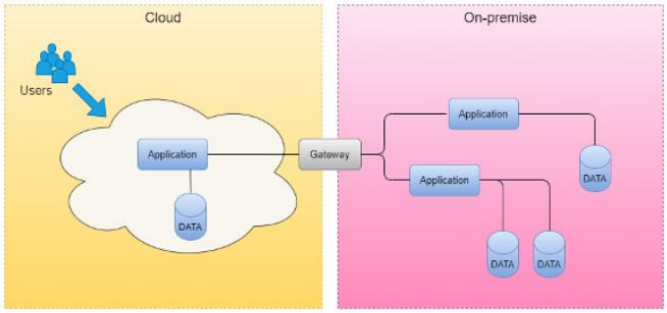


With IaaS you install the database software yourself and with PaaS it is installed for you.

With PaaS you need to do less yourselves, but IaaS is much cheaper to use, and this is why it generally should be used.

With IaaS you have to choose from a limited selection of different databases, with PaaS you can have any database you need.

Q 4/4: What kind of recommendation do you make for Digital Healthcare, when they ask how they should choose their cloud service provider?



All the major service providers are equally good.

Check the hourly rate for one virtual machine, for each provider, and choose the cheapest one.

Check which provider has a location near your customers and inspect if they provide all the services you plan to use.