

## Web infrastructure design

### Task 2: Secured and monitored web infrastructure.

#### Explanations

**For every additional element, why are adding it:** three new components have added, a firewall for each server to protect them from being attacked and exploited, SSL certificate to server www.foobar.com over HTTPS and three monitoring clients that will collect logs and send them to our data collector Sumologic or other monitoring services.

**What are firewalls for:** is a network security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules. It basically establishes a barrier between a trusted network and an untrusted network.

**Why is the traffic served over HTTPS:** because is more secure. HTTPS uses the secure port 443, which encrypts outgoing information using Transfer Layer Security (TLS). Regular HTTP uses port 80, which sends information via plain text.

**What monitoring is used for:** detect and diagnose any web application performance issues proactively.

**How the monitoring tool is collecting data:** it collects logs of the application server, MySQL Database and Nginx web server. A log in a computing context is the automatically produced and time-stamped documentation of events relevant to a particular system.

**Explain what to do if you want to monitor your web server QPS:** one web server handles 1K queries per second (QPS), I would basically monitor it from the network and application level.

#### Issues

**Why terminating SSL at the load balancer level is an issue:** because decryption is resource and CPU intensive. Placing the decryption burden on the load balancer enables the server to spend processing power on application tasks.

**Why having only one MySQL server capable of accepting writes is an issue:** because once it is down it means no data can be added or updated meaning some features of the application won't work.

**Why having servers with all the same components (database, web server and application server) might be a problem:** because once you have a bug in one of the components in one of the servers then the bug will be valid in the other servers.