System Architecture and Monitoring

Suppose you have a simple web service setup for serving www.example.com, like:

● nginx node as LB (load balancer)

● php-fpm nodes as application servers

● mysql db servers – db1 as master, db2 as slave

OS – Linux, any distro you like.

Question:

1. How would you organize monitoring and alerting?

a. Which params do you think you need to monitor?

>> There are many parameters to be monitored like Current Connections, Current Requests, Connections Processed, CPU Usage, Memory Usage, Swap Usage, Network Bandwidth, Disk Usage, Load

b. Which tools would you suggest to use for this?

>> Dynatrace , SolarWinds, Manage Engine etc.

2. Propose the solution which would alert the IT team if average response time for PHP-served page www.example.com/checkout-cart is greater than 500 ms?

>>Can be part of custom monitoring in monitoring tool else can be achieved by using some ad-hoc monitoring script in place.

3. Any actions required to make the current system HA (highly available)?

>> Even though master and slave replication is also HA but need to make slave as master in case of master, There are many more tools available or can go for mysql clustering with active-active solutioning for best HA.

Troubleshooting

1. When you login to your mysql production database servers and run “show processlist”, you notice there are a lot of processes running for more than 30 secs. What will you do to resolve the issue?

>>We need to find first whether the processes running more than 30 secs are normal or not by checking the history. If a process meant to run a big query which normally more than 30 secs then ok whereas if its taking unexpected response time then need to work on the indexes if it’s a searh query and may also need to check for whether its insert or delete queries. In most of the cases, we have to wait for the query to complete else can be killed ONLY after user confirmation.

2. You noticed your site is running slower than usual. What could be the possible cause and how can you mitigate the issues?

Hint: Please consider internal and external factors as well

>> Site is slow than usual can be noticed by response time and it depends on many factors like web tier, app tier, DB tier, network, server hardware capacity, type of queries (search/insert/delete) and also depends on architecture like no CDN etc.

3. Assuming the sites are configured to run on nginx as the web server, php-fpm as the application server and uses Cloudflare CDN for the dns. After a production release, the developers complained the sites are not reflecting the latest changes that were just deployed. What could be the cause of that?

>> Need to check the cache on CDN whether its refreshed or not. In most cases, the CDN cache holds the old data and hence modifications fail to reflect.

4. John handles production sites which are running asynchronous email processing by using a queue which is being stored inside redis server. He also set up a queue worker which picks the job from the queue and the email will be sent out by a 3rd party provider (let’s call it gunmail). On a particular day, he noticed that there were no emails being sent out. What things would you advise John to look into?

>> Initially need to check if any email is in queue or not and then need to check if redis queue is full and then after incoming & outgoing mail server configuration and ports status and finally need to check with Vendor.