Game days – Database scaling challenge

GameDays

A "GameDay" is an exercise designed to simulate real-world scenarios and test the response and resilience of your infrastructure and team.

In the context of AWS, a workload can involve for example EC2 and RDS instances. The GameDay could simulate various scenarios to assess how well your team responds to incidents and maintains system availability.

Here's an example of a GameDay scenario:

Scenario: Database Scaling Challenge

Objective: Test the team's ability to handle sudden traffic spikes and scale RDS and EC2 instances accordingly.

Setup:

Application Stack: Set up a web application that uses an RDS (Relational Database Service) instance for data storage and EC2 instances for hosting the application.

Monitoring: Implement monitoring and alerting using AWS CloudWatch to track metrics such as CPU utilization, memory usage, and database connections.

Load Generation: Simulate traffic spikes using load testing tools or scripts to generate a sudden increase in user requests.

GameDay Steps:

1. **Incident Trigger:** Start the GameDay by triggering an alert for high database CPU utilization due to increased traffic.

2. I**ncident Response:** The incident response team, following the incident management plan, acknowledges the alert and starts investigating the cause of the high CPU usage.
3. **Scaling RDS:** As the traffic continues to increase, the team decides to scale the RDS instance vertically (allocate more resources) to handle the load. This can be done using RDS instance modifications.
4. **Scaling EC2:** If the RDS scaling isn't sufficient, the team also decides to scale the EC2 instances hosting the application to distribute the load. This can involve launching additional instances and setting up a load balancer.
5. **Testing:** Once the scaling is in progress, the team monitors the metrics to ensure that the changes are having the desired effect. They also conduct load testing to validate the system's performance under the increased load.
6. **Rollback Plan:** In case the scaling doesn't resolve the issue or causes unexpected problems, the team should have a rollback plan to revert to the previous state.
7. **Communication:** Throughout the GameDay, the team practices effective communication, updating stakeholders on the incident, its progress, and the steps being taken.
8. **Debrief and Analysis:** After the GameDay exercise, hold a debriefing session to discuss what went well, what challenges were faced, and what improvements can be made to the incident response plan, scaling procedures, and monitoring/alerting setup.

Key Takeaways:

- Assess the team's ability to identify and respond to resource constraints and performance issues in real-time.
- Test the effectiveness of automated scaling mechanisms for both RDS and EC2 instances.
- Evaluate communication and collaboration within the incident response team during high-pressure situations.
- Identify areas for improvement in the incident response plan, monitoring setup, and scalability strategies.
- GameDays are excellent opportunities to enhance the skills and preparedness of your team, as well as to validate the architecture and processes you have in place for handling incidents and maintaining the resilience of your AWS infrastructure involving EC2 and RDS instances.