CRISIS MANAGEMENT SUMMARY

Executive Summary

- On the afternoon of Monday, October 24, 2016, a website monitoring service alerted the Marketing Technology team that Orkin.com was unresponsive.
- Prathyusha Ragireddy performed several diagnostic procedures and isolated the issue to the database.
- The database showed an abnormally high number of open connections. The database failed to close connections appropriately, which then overwhelmed the server's ability to route incoming connections.
- This issue was on the server and could not be anticipated.
- Initial repair procedures failed to resolve the issue. Prathysha enlisted Amazon Web Services technical support.
- They rebooted the database instance, successfully closing the problematic connections and resolving the issue.
- All website functionality was restored within one hour of the initial alert.

Isolating the Issue

The website monitoring service, Pingdom, alerted the Marketing Technology team that Orkin.com was unresponsive.

To isolate the issue, the following diagnostic procedures were performed:

1. Attempts to access Orkin.com were made from several devices and networks. These attempts failed, indicating that the issue was not contained to the Rollins network.

   Specific errors can indicate the nature of the issue:

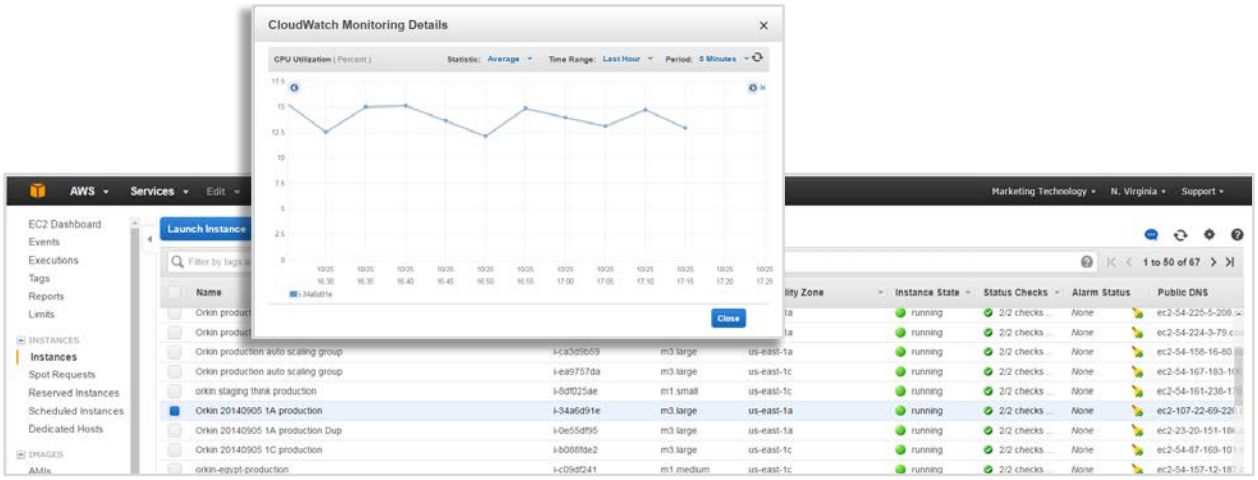
   - 404 Page Not Found
   - 403 Forbidden
   - Excessive load time

   A **404 Not Found** error was displayed, indicating the Nginx servers were unresponsive.

2. The Marketing Technology team viewed the AWS Dashboard to examine the two production website instances.

   Status check logs for the production website instances were reviewed for errors, and CloudWatch metrics were checked for abnormal CPU activity. The associated public DNS was examined.



   These checks indicated that there were no errors in the production website instances.

3. The team rebooted the production website instances. The Nginx servers are automatically rebooted with these instances.

   This reboot method was expected to resolve the issue. It did not - the reason remains unclear.

4. The team used the PuTTY console to examine the public DNS for errors. No errors were found.

5. The team began a check of all applications connected to the production website, and quickly isolated the database server.

6. With the assistance of Amazon Web Services technical support, the database instance was rebooted, which resolved the issue. The Orkin.com website was then online and operational.

Summary of Resolution

When Orkin.com is accessed by a site visitor, the database server opens a connection. When the consumer leaves the site, that connection is closed. That connection can then be used by another site visitor.

The reason for the issue is unknown; however, the database server opened connections for site visitors, but failed to close those connections appropriately.

Eventually, 350 connections remained open, leaving little bandwidth for new site visitors to connect.

For comparison, 15 open connections at a given time is within typical range.

Rebooting the database server instance forced the server to close all open connections, allowing new site traffic.

Mitigation Suggestions

These options may reduce the risk of future outages of this type:

- The cause of this issue is unclear. However, the Marketing Technology team will inspect the MySQL logs and RDS Console for clues to cause.
- Moving the database instances to larger GP2 volumes or EBS volumes may increase database performance overall.
- Migrating database hosting from EC2-Classic to Virtual Private Cloud (VPC) may provide enhanced benefits.

  VPC offers the option of single-tenant hosting, meaning that Orkin.com would not share server space with other AWS tenants.

  VPC does not change private IP addresses, which has caused a considerable effort in the past with the existing EC2-Classic hosting.

The Marketing Technology team is researching these options. Level of effort, cost, and feature sets should be considered during the decision-making process.