Figure 1 - Resiliency Objectives

Availability is calculated using Mean Time Between Failures (MTBF) and Mean Time to Recover (MTTR):

$$Availability = \frac{Available\ for\ Use\ Time}{Total\ Time} = \frac{MTBF}{MTBF + MTTR}$$

This approach is often referred to as “nines”, where a 99.9% availability target is referred to as “three nines”.

For your workload, it may be easier to count successful and failed requests instead of using a time-based approach. In this case, the following calculation can be used:

$$Availability = \frac{Successful\ Responses}{Valid\ Requests}$$

Disaster recovery focuses on disaster events, whereas availability focuses on more common disruptions of smaller scale such as component failures, network issues, software bugs, and load spikes. The objective of disaster recovery is business continuity, whereas availability concerns maximizing the time that a workload is available to perform its intended business functionality. Both should be part of your resiliency strategy.

Are you Well-Architected?

The AWS Well-Architected Framework helps you understand the pros and cons of the decisions you make when building systems in the cloud. The six pillars of the Framework allow you to learn architectural best practices for designing and operating reliable, secure, efficient, cost-effective, and sustainable systems. Using the AWS Well-Architected Tool, available at no charge in the AWS Management Console, you can review your workloads against these best practices by answering a set of questions for each pillar.

The concepts covered in this whitepaper expand on the best practices contained in the Reliability Pillar whitepaper, specifically question REL 13, “How do you plan for disaster recovery (DR)?”. After implementing the practices in this whitepaper, be sure to review (or re-review) your workload using the AWS Well-Architected Tool.