

Designing Highly Resilient Financial Services Applications

With many firms accelerating public cloud adoption, it's imperative that application resilience is maintained and, where possible, exceeds what firms can achieve when hosting critical business applications in their own data centers.

– JEFFREY QUINN, Executive Director of IT Architecture

WHAT WE DID

AWS and DTCC partnered to create a public cloud prototype that would realize resiliency principles using a simulated business process for critical business applications. This work aimed to deliver a framework, a set of best practices, and a reference implementation for resilient applications informed by common requirements in the financial services industry.

WHY IT'S IMPORTANT

Cloud adoption is accelerating across the industry, driving efficiency and rapidly responding to evolving business needs. DTCC, as a critical infrastructure and service provider for the global capital markets, follows stringent out-of-region disaster recovery and resumption requirements for all critical services.

The paper focuses on how firms can apply DTCC's resilience principles to real world, mission critical systems to achieve a more continuous state of readiness for a disaster even. The paper is a deep dive into the strategy and approach for delivering resilient cloud applications, and includes both specific architectural guidance to help clients increase the resilience of their applications, and a sample reference implementation of a critical business application prototype, using resiliency features implemented with AWS services.

COLLABORATION SUCCESS

DTCC and AWS created a fully functional prototype that adheres to DTCC's requirements. The solution consists of two

reference applications that can rotate and/or recover across regions independent of each other. A reconciliation and replay process was able to recover all simulated data lost during the recovery process.

TRY IT OUT

Sample code was created to prove application high availability and automated disaster recovery across AWS regions. The code and documentation are available open source for firms to use as a framework when designing their own resilient applications and systems.

THE BOTTOM LINE

Application resiliency is not dependent on a single component or technology feature, but rather on the composite solution of all services, technologies, and code. Leveraging an application design composed of repeatable patterns that meet targeted resiliency and testing requirements, and measures results as an end-to-end solution, enables standardization across the environment.

To prepare for unplanned failure events, capabilities should be developed that reconcile data within an application and between applications. Whenever possible, replay transactions to achieve a known good state. Finally, it is important to practice. Since runbooks are automated, exercising them often will make the decision to invoke a recovery process a simpler one.

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