Antifragile and Cynefin Paper

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This paper explores two articles: "The Antifragile Organization" and "A Leader's Framework for Decision Making" and their similarities. At the end, the previous knowledge is applied to analyze the Amazon Disruption event that happened on February 28th, 2017.

I. High Level Concepts in "A Leader's Framework for Decision Making" Paper

According to Snowden et al. (2007), using Cynefin framework, leaders can categorize and sort issues into five categories: obvious, complicated, complex, chaotic and disordered, based on the nature of their cause and effect relationship. Disordered is applied to problems that do not belong to the other four. Depending on the kind of problems, leaders can understand context and change their approach to solutions as well as management style to match the situations. One of the most important things when using this framework is to avoid putting problem in the wrong category such as labelling complex, complicated issues as simple. Second, leaders should be more open to innovative ideas from nonexperts in complicated problems. For complex problems, leaders should be experimental and allow solutions to emerge. In the last category, leaders need to take quick action to fix chaotic situations while providing opportunities for innovation.

II. High Level Concepts in "The Antifragile Organization" Paper

In "The Antifragile Organization" paper, Tseitlin (2013) focuses and advocates failure induction to make software systems more resilient and robust. Netflix's approach to induce failure is used as an example throughout the paper. Netflix carries out failure induction at different levels of impact to their live systems through the use of manual to automated failure-inducing tools (i.e. GameDays, the Simian Army). This transforms uncertainty into certainty as failure is caused on purposed. Meanwhile, measures are taken to monitor change and undo the failure when needed. In addition, problems with systems are discovered and changes are

implemented for system to fail safely or even prevent similar future failures. The transition from being passive to active also comes with better practices to monitor system behavior, user experience and track changes for future retrieval. Last but not least, a blameless culture where failure is encouraged to happen, be fixed and learned from as well as the combination of development and operation into one engineer role further the success of failure induction and building an antifragile organization.

III. Similarities Between Papers

These are the similarities between the two articles. First, they assume that complex situations and problems will always happen and in unpredictable ways. Real-life situations when something goes wrong or software failure is inevitable. Second, both authors agree on experimenting and constant monitoring for changes to adapt to new environments. Last but not least, they advocate for a shift in mindset to being open to change because it allows innovative solutions to be found while organizations or software systems become stronger and more resilient.

IV. Amazon Analysis

Amazon Disruption incident in 2017 happened due to a variety of reasons. First, the lack of input checking resulted in the removal of more than expected number of servers. This removal then made two out of three subsystems (index and placement) for S3 billing process unavailable and slowed down S3 billing system's progress. Second, individual service status for customers to view in AWS Service Health Dashboard was not updated due to its dependency on S3. Third, remove and replace capacity was applied everywhere else in the system beside index and placement subsystems which have not been restarted for years. This leads to the subsystems taking an extended amount of time to recover.

There is a number of software management changes that can prevent similar future events or minimize their impacts. First, safety checks can be implemented to prevent future wrong input and command from being executed if the input cause the system and subsystems to perform below minimum required level. In addition, monitoring tools can be used to recognize failure and stop further actions that destabilize system. Finally, dependencies need to be addressed (Amazon applies partitioning to subsystems that were down) to isolate unavailable system(s) and prevent it from affecting other aspects (i.e. The SHD).

References

D. J. Snowden and M. E. Boone, “A Leader’s Framework for Decision Making”. Harv. Bus. Rev., vol. 85, no. 11, pp. 68–76, 2007.

Tseitlin, A. (2013). The antifragile organizations. Communications of the ACM, 56(8), 40–44. doi:10.1145/2492007.2492022