عنوان مقاله:

The Impacts of Dynamic Failures on the Resilience and Fragility of P2P Networks

محل انتشار:

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خلاصه مقاله:

The concept of resilience in a P2P network refers to its ability in enduring the targeted attacks and random failures. Increasing threats of hackers andattacks and router malfunction in today's P2P networks ends to an extended range of study. This paper studies and evaluates the resilience of structured P2P systems,by studying the isolation probability under different network topologies and various workload distributions. The examined P2P network topologies include Chord,CAN, Hypergrid and PRU. To have a better understanding, we also compare the mentioned above networks with (p,g) as a real-life network and Erdös-Rényi (ER) as a random graph network . We are going to analyze the dynamic behavior of such networks in whichnodes/users may become faulty or affected by attacks after periods of time denoted by a random variable (lifetime) which follows a probability distribution. Our considered distributions are Pareto, Erlang, Weibull, Exponential and Normal. The resilience and fragility of the networks is simulated under different network conditions. Results obtained through simulation reveal that compared to the other networks, regular graphs are more resilient and can remain connected even in the presence of simultaneous faults .and failures

کلمات کلیدی:

P2P networks, Network resilience, Lifetime distribution node failure, Isolation probability, Dynamic failures