Distributed system failure types

Experience, Failure

Distributed Systems A distributed system is a computer system that consists of a collection of computers that share certain characteristics. The first characteristic that these computers share is the use of a common network. Another trait of this system is the computers share software that enables the computers to coordinate their activities, often across large distances. The sharing of system resources is another characteristic of distributed systems and those resources are usually available from an integrated computing facility. Fault Tolerance

In a distributed system, fault tolerance is something that needs to be taken into account to prevent catastophic situations and data loss. Fault olerance is simply the ability of a system to continue operating in the event of undesired changes to the externalenvironmentor internal structure of the system occurs. Types offailureThere are several key types of failure related to distributed systems. The first of these is hardware failure. Hardware failure refers to the failure of any single component within the system. The second type of failure within a distributed system is network failure.

Network failure is the failure of any single link within the entire distirbuted system network. The third type of failure within a distributed system is application failure. Application failure occurs when an application stops working or fails to operate correctly within a distributed system. The last type of failure in a distributed system is the failure of synchronization. The type of failure occurs when data on different point of the system are not synchronized correctly. Hardware Failure Within a distributed system there are many different types of hardware.

If any one of the hardware components within a distributed system should fail, the failure could affect the distributed system as a whole. Taken in the most literal sense, individual keyboards, mice, monitors, and computers are all hardware and failure of any one of those would affect the distributed system because it could cause a single node to be unavailable for use. This is an example of failure that has a very minimal impact on the performance of the overall system. On the flip side of that, the failure of a server within the distributed system would have a tremendous affect on the performance of the system as a whole.

Fault tolerance requires the distibuted system to have redundant hardware capabilities so that no single component could fail and have a detrimental effect on the system. Network Failure One of the key characteristics of a distributed system is the use of a network as a common link to share applications, data, and resources. As with hardware failures, network failures can occur on different scales. One example of a network failure would be the loss of a wireless access point in a location where there is no capacity for a wired connection.

Loss of wireless connectivity could potentailly affect many users depending on the situation. Another example of a network failue would be the loss of a router. The loss of a router on a large network would have a negative impact on all users and equipment connected to it. Fault tolerance would require redundant routes to allows users to maintain their connection in the case of a failed router and the availability of wired connections or duplicate wireless access points, in the case of the failure of a single wireless access point.

http://www. answers. com/topic/fault-tolerant http://www. answers. com/topic/distributed-system