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Fire Knocks Out Samsung

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In mid-April, 2014, a fire took down Samsung's smart-phone, tablet, and Smart TV services. Its payment services were down. Samsung payment cards could not be accepted by retailers, and cards were rejected by ATMs. It took more than a day for Samsung to completely restore services.

Samsung

Samsung Electronics Co., Ltd., is a South-Korean multinational electronics company headquartered in Suwon, South Korea, a suburb of Seoul, South Korea's capital. It is the flagship of the Samsung Group, South Korea's largest conglomerate company. Samsung Electronics represents 70% of the group's revenues.

Samsung Headquarters
Wikipedia

Samsung Electronics is the world's largest information technology company by revenues. It has assembly plants in 80 countries and employs about 370,000 people. It is the world's largest manufacturer of mobile phones, fueled by the success of its Samsung Galaxy line of smart phones. It is also the world's largest manufacturer of LCD panels and television sets.

The Samsung Group includes seventy-seven other subsidiaries such as Samsung Card, Samsung Life Insurance, Samsung Asset Management, and Samsung Heavy Industries.

Samsung maintains two data centers located in suburban Seoul. Its primary data center is located with its headquarters in Suwon. It's backup data center is located ten miles away in Gwacheon.

The Fire

Around noon on Sunday, April 20, 2014, a fire broke out on the fourth floor of Samsung's backup data center in Gwacheon. The fire started in a UPS system used to keep systems running in the event of a power failure until backup diesel generators could come into service. The fire quickly spread to the upper floors. Fortunately, no one was killed, though one worker was injured by a falling wall.

Samsung quickly shut down the servers in its backup data center to minimize damage, to protect data, and to prevent any leakage of data to unauthorized parties.

Though the fire was in Samsung's backup data center, it took down Samsung's web service, samsung.com, and all of the connectivity to the servers in its Suwon primary data center. Any Samsung

service that depended upon connectivity with its servers was unavailable to users. This included Samsung smart phones and tablets, Samsung Internet phone service, Samsung Smart TV, Samsung BluRay players, the Samsung Apps Mobile Store, and others.

Perhaps the most serious consequence was that access to Samsung's servers that ran its payment card services was cut off. Samsung card customers could not use their payment cards at retailers or at ATMs.

Though mobile services were restored by that evening, it took more than a day for Samsung to restore its payment card services.

The Fire's Impact on Samsung's Primary Data Center

The fire was in Samsung's backup data center in Gwacheon. So why were services interrupted? Would not the primary data center in Suwon continue in operation unaffected?

According to industry reports, Samsung had located its networking infrastructure in its backup data center in Gwacheon. This infrastructure was not replicated between Samsung's primary data center and its backup data center. Users entered the Samsung online systems via the networking systems in Gwacheon and were routed to the production servers in Suwon.

Thus, when the fire damaged the networking infrastructure in Gwacheon, connectivity between the Internet and the production center in Suwon was lost. No user could access the production servers, and the backup servers were down. All online Samsung services were lost. These services could not be restored until the network services were brought back online.

Lessons Learned

The lesson from this disaster is clear. If mission-critical services are to be supported by redundant systems, there must not be any single point-of-failure in the processing infrastructure. In Samsung's case, the networking infrastructure should have been implemented in both data centers. If one data center failed, user traffic would simply be rerouted to the surviving data center.

Acknowledgements

Material for this article was taken from the following sources:

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