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Australia's Telstra Downed by Fat Finger

March 2016

A human error resulted in about 10% of the customers of Australia's telecommunications company Telstra losing all mobile, home phone, and digital services in February 2016. Services were not restored for four hours. As we have mentioned in the Digest several times, the outage emphasizes the fact that critical human actions always should be undertaken by two people – one to do and one to check.



Telstra



Telstra Corporation Limited is Australia's largest telecommunications and media company. It provides voice, mobile, and Internet services as well as pay television and other entertainment products. It builds and operates the telecommunications networks used to deliver these services. Its name, "Telstra," is derived from the words Telecommunications Australia.

Telstra serves about 17 million business and individual customers throughout Australia – over 70% of Australia's population.

The Telstra Network

The Telstra network provides 2G, 3G, and 4G mobile services as well as ADSL¹ and landline home-telephone services. Customers are connected to its network via ten major connection points called "nodes." Every customer connects to one of the nodes in the network. The nodes host all of the hardware necessary to provide Telstra's voice and data services. They connect customers to Telstra's nationwide digital and voice networks.

The nodes are engineered to provide a great deal of redundancy. Should a few nodes go offline, the remaining nodes can continue to operate as normal and provide all Telstra customers with ongoing network services. Under normal circumstances, three or four nodes can be offline for maintenance; and there will be no impact on Telstra's telecommunication services.

A Minor Maintenance Procedure Gone Wrong

That is, until noon on February 9, 2016. One of the nodes in the Telstra network was not performing correctly, though the fault was not critical. A Telstra engineer took the node down for maintenance, but he failed to follow the correct procedure for rerouting traffic. Rather than transferring the customers connected to that node to other nodes in the network, he reconnected them to the malfunctioning node. Unfortunately, there was not a second person monitoring his actions to ensure that he did not make a mistake.

¹ Asymmetric digital subscriber line (ADSL) is a type of digital subscriber line technology that enables faster data transmission over copper telephone lines than a conventional voice-band modem can provide.

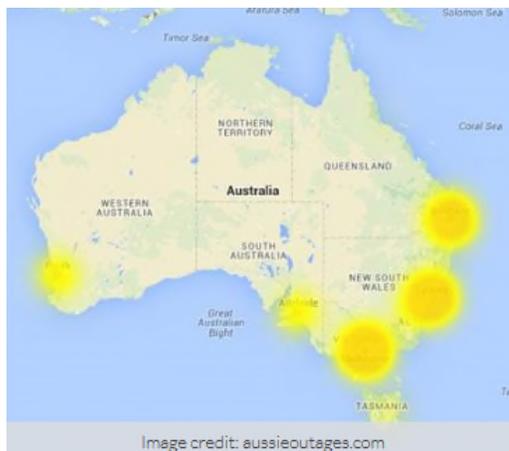
Suddenly, 10% of Telstra's customers – about 1.5 million businesses and individuals – were without mobile service or home telephone service. They could not access their data. They could not make calls, browse the Internet, or check social media.

Customers Without Communication Capability for Hours

The outages mainly affected Australia's largest cities, including Sydney, Brisbane, Perth, Adelaide, Hobart (the capital of Australia's southern island state of Tasmania), and large regions around Sydney, Melbourne, and in the state of Queensland.

The problems were compounded by the fact that outdated information was being shown on Telstra's service status page due to overwhelming demand.

Service started to be restored around 2 PM, but it wasn't completely restored until after 4 PM, leaving many businesses and individuals without communication capability for up to four hours.



Two Days Later – A Second Outage

Adding insult to injury, just two days later, Telstra suffered a second outage. Although not fat-finger related, the outage impacted hundreds of websites hosted by Bluehost, HostGator, and HostMonitor. Affected businesses lost access not only to their own email accounts but also to their online customers and other users.

Telstra blamed the outage on offshore sections of the Internet. However, a U.S.-based host provider said the problem was at Telstra's end.

Summary

Fortunately, those customers that were affected by the fat finger outage still were able to contact emergency services.

Telstra offered a free day of digital access to all customers as an apology. The company may be responsible for covering the costs of customers who suffered financially due to the outage. Estimates place the cost of compensation in the millions of Australian dollars.

Telstra constantly stresses in its marketing messages the size and dependability of its network. However, it is clear that Telstra's network is as prone to failure as any other network.

This outage is an example of a point that we continually make in the Availability Digest.² Redundancy is the basis of reliability. But humans need redundancy also. If an operation represents a possible single point of failure, two people should be involved in the undertaking – one to perform the operation and the other to verify that the operation is performed properly. If Telstra had employed human redundancy in the fat finger case, the error would have been caught and corrected before 1.5 million customers suffered.

² Help! My Data Center is Down! – Part 7: Lessons Learned, *Availability Digest*, April 2012. http://www.availabilitydigest.com/public_articles/0704/data_center_outages-lessons.pdf
Triple Human Whammy – NYSE, UA, WSJ, *Availability Digest*, July 2015. http://www.availabilitydigest.com/public_articles/1007/human_whammy.pdf

Telstra's level of redundancy was questioned by another incident that occurred a few years earlier. A massive fire in Telstra's Warrnambool exchange in 2012 knocked out several important services, including ATMs. More than 100,000 people were affected, and the outage cost the community more than A\$400,000 per day for twenty days. Those affected were vocal in their criticism of Telstra for not having the system redundancy that would have allowed a quick recovery of services.

Acknowledgements

Material for this article was taken from the following sources:

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Telstra blames major network outage on human error, *Datacenter Dynamics*; February 10, 2016.

Telstra outage: manager connected customers to faulty node in 'embarrassing error', *The Sydney Morning Herald*; February 10, 2016.

Telstra hit by second outage in two days, *news.com.au*; February 11, 2016.

Telstra outage shows customers pay extra for false peace of mind, *Financial Review*; February 15, 2016.

Telstra, *Wikipedia*.