

1 Problem

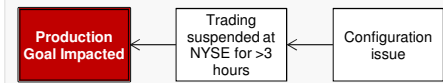
What	Problem(s)	New York Stock Exchange Outage
When	Date	July 8, 2015
	Time	See timeline
	Different, unusual, unique	Two other outages at nearly the same time
Where	Facility, site	New York Stock Exchange
	Task being performed	Software upgrade

Impact to the Goals		
Safety	None	
Environmental	None	
Customer Service	Customers still able to trade	
Regulatory	SEC/ political investigation	
Production/ Schedule	Trading suspended at NYSE for >3 hours	
Property/ Equipment	?	
Labor/ Time	Response, repairs	

Frequency	Flash freeze on Nasdaq in 2013 that lasted 3 hours; 2001 NYSE trading suspension resulted from computer upgrade
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2 Analysis

Basic Level Cause Map - Start with simple Why questions.



Basic Cause-and-Effect

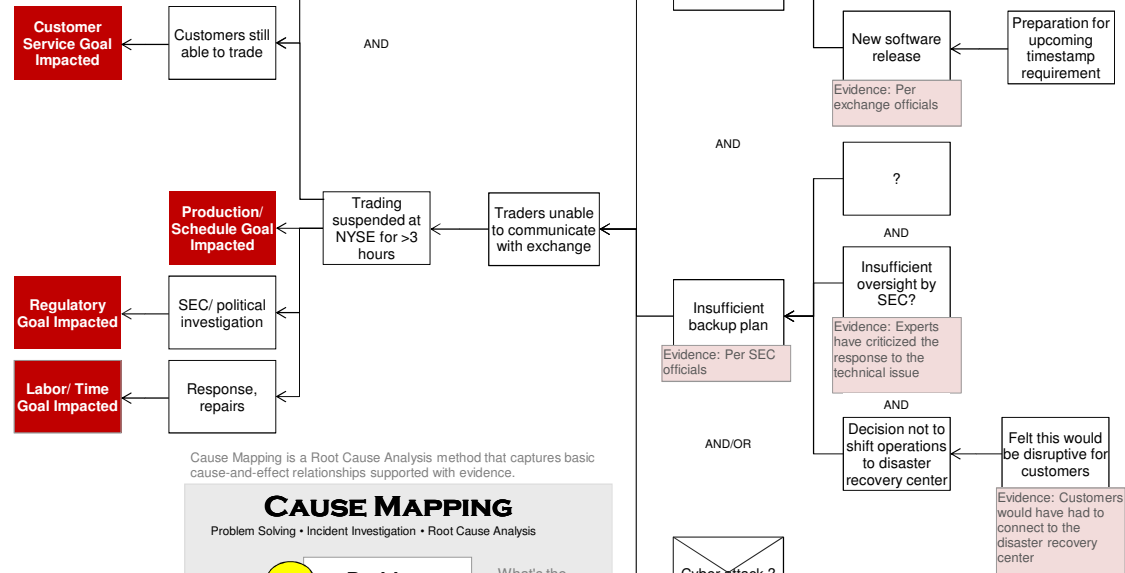
According to the NYSE president, "the root cause was determined to be a configuration issue." This still leaves many questions unanswered.

Timeline

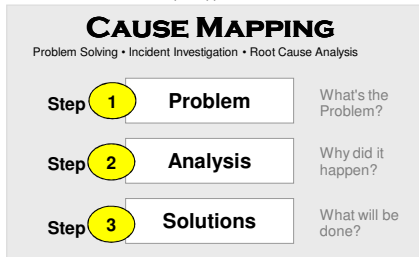
Date	Time	Description
July 7, 2015		NYSE began upgrading systems for timestamp requirement
July 8, 2015	7:00 AM	Traders started to connect to the system Traders had difficulty connecting to NYSE systems Connections between NYSE and traders' computers updated
	9:30 AM	Market opens Communications issues worsened
	11:09 AM	NYSE issued notice it was investigating technical problems
	11:32 AM	NYSE suspend trading on the floor Trading shifted to other exchanges Outstanding orders canceled Systems restarted
	3:05 PM	Trading shifted to backup units
	3:10 PM	Trading of smaller company stocks resumes NYSE primary listings resumed

More Detailed Cause Map

Add detail as information becomes available.



Cause Mapping is a Root Cause Analysis method that captures basic cause-and-effect relationships supported with evidence.



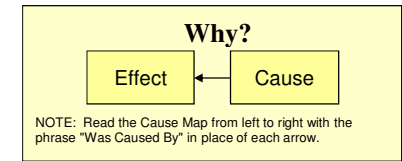
TRADING SUSPENDED ON NYSE

Cause Map

Customer trading transferred seamlessly to other exchanges

"We found what was wrong and we fixed what was wrong and we have no evidence whatsoever to suspect that it was external. Tonight and overnight starts the investigation of what exactly we need to change. Do we need to change those protocols? Absolutely. Exactly what those changes are I'm not prepared to say."
- NYSE president Tom Farley

"This kind of stuff is inevitable. But if it's inevitable, that means you can plan for it. What confidence are we going to have that this isn't going to happen anymore, or that what did happen was handled as good as anyone could have expected?"
- Harvey Pitt, Securities and Exchange Commission (SEC) Chairman 2001 to 2003



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