Executive Summary:
Telecommuting Analysis of
Regional Winter Storms 2010 & 2011

Purpose 0f this Analysis:

During the winter of 2010 and 2011 the East Coast region experienced multiple snow storms that were potentially disruptive to business. In February 2010 one of these storms extended from Washington DC to New York City, this storm virtually shut down cities in the region for a 24 hour period. Likewise during the winter of 2011 there were multiple storms that extended from Philadelphia to Boston, once again immobilizing transportation in the affected cities during regular business hours. These major storms could truly be defined as "Regional" short term business disruptions.

During these storms many Securities Industry firms used telecommuting (remote access) to perform business functions from home without the necessity of their employees to venture out during unsafe conditions. SIFMA believes these storms demonstrated an effective "exercising" of the securities industries' remote access capabilities. Additionally, it demonstrated the actual infrastructure capabilities of Internet Service Providers during significant regional events. Not only were Securities Industry employees at home but schools were closed resulting in additional heavy usage of Internet.

There has been a long-standing question as to how well the telecommunications infrastructure might handle a large-scale event (i.e., a pandemic) where a significant number of people attempt to telecommute. It has not been possible to design a large enough stress test of the telecom infrastructure to identify at what point communications would begin to bog down. However, these winter storms actually did offer a real-world opportunity to assess how the systems would perform under stress.

Methodology:

A Telecommuting/Winter Storm Survey was performed with SIFMA Business Continuity Committee member firms. Responses were received from 46% of surveyed firms. The conclusions detailed below were developed from answers received in this Survey.

Conclusions:

- The winter storms in 2010 and 2011 were large scale regional events that affected large geographic areas. The total population of home internet users within the affected region was relatively high. According to survey responses financial firm's employees' usage of telecommuting/remote access went from a baseline of just above 10% to nearly 40% during the storms.
- The majority of firms utilize some degree of telecommuting as a component of their business continuity strategies. During the storms their internal remote access infrastructures experiences very high capacity levels but were able to connect users

effectively. Additionally, internal congestion and external latency experienced was relatively low, issues were noted by only 13% of respondents. Business concerns were lower; issues were noted only by 7% of respondents. Thus representing a successful and strong "exercising" of remote infrastructure capabilities.

- Trading and Settlement functions still required onsite staffing. Encouragement of more portable technology solutions for these environments and supportive regulatory guidance can assist in building more diversified recovery options

In Summary:

The winter events of 2010 and 2011 demonstrated the overall effectiveness of Financial Institutions remote access capabilities and the Internet infrastructure to handle a limited duration regional disturbance in high population area. With the exception of Trading and Settlement "Work at home" facilitated respondent firm's capabilities to perform business as usual. Trading and Settlement functions still remain site dependant. Although these storms did not allow the industry to determine a specific point at which the infrastructure might become unworkable, they did offer some evidence that the infrastructure can handle at least 30% employee telecommuting.

Appendix:

The appendix below is a summary of the specific responses from the March 2011 survey of Telecommuting and Winter Storm.

Storm Survey Report

1. Storm Survey   The purpose of this survey is to identify how firms coped during recent storms with "work at home" strategies to determine best practices.   Approximately what percentage of your total workforce worked remotely during the most recent blizzards?

#	Answer		Response	%
1	Less than 10%		5	17%
2	Between 10% and 24%		10	33%
3	Between 25% and 49%		9	30%
4	Between 50% and 74%		5	17%
5	75% or more		1	3%
	Total		30	100%

Statistic	Value
Min Value	1
Max Value	5
Mean	2.57
Variance	1.15
Standard Deviation	1.07
Total Responses	30

2. Approximately what percentage of your total work force typically works remotely on average?

#	Answer		Response	%
1	Less than 10%		22	73%
2	Between 10% and 24%		7	23%
3	Between 25% and 49%		0	0%
4	Between 50% and 74%		1	3%
5	75% or more		0	0%
	Total		30	100%

Statistic	Value
Min Value	1
Max Value	4
Mean	1.33
Variance	0.44
Standard Deviation	0.66
Total Responses	30

3. What was the approximate breakdown by division, regarding percentage of employees working from home during the most recent blizzards?   (Please enter your best estimate for the following divisions).

#	Question	Less than 10%	Between 10% and 24%	Between 25% and 49%	Between 50% and 74%	75% or more	Responses	Mean
6	Front Office	11	11	3	3	0	28	1.93
7	Trading	26	2	0	0	0	28	1.07
8	Operations	12	12	4	1	0	29	1.79
9	Technology	6	9	5	8	1	29	2.62
10	Administration	7	10	5	7	0	29	2.41

Statistic	Front Office	Trading	Operations	Technology	Administration
Min Value	1	1	1	1	1
Max Value	4	2	4	5	4
Mean	1.93	1.07	1.79	2.62	2.41
Variance	0.96	0.07	0.67	1.46	1.25
Standard Deviation	0.98	0.26	0.82	1.21	1.12
Total Responses	28	28	29	29	29

4. Were your employees able to process their normal daily functions remotely?

#	Answer		Response	%
1	Yes		29	97%
2	No		1	3%
	Total		30	100%

Statistic	Value
Min Value	1
Max Value	2
Mean	1.03
Variance	0.03
Standard Deviation	0.18
Total Responses	30

5. If not, what problems were encountered?

Text Response
Logging in Staying logged on Application access Application performance
Not applicable.

Statistic	Value
Total Responses	2

6. Did any of your employees trade from home?

#	Answer		Response	%
1	Yes		4	13%
2	No		26	87%
	Total		30	100%

Statistic	Value
Min Value	1
Max Value	2
Mean	1.87
Variance	0.12
Standard Deviation	0.35
Total Responses	30

7. If so, approximately what percentage?

#	Answer		Response	%
1	Less than 10%		7	78%
2	Between 10% and 24%		1	11%
3	Between 25% and 49%		0	0%
4	Between 50% and 74%		0	0%
5	75% or more		1	11%
	Total		9	100%

Statistic	Value
Min Value	1
Max Value	5
Mean	1.56
Variance	1.78
Standard Deviation	1.33
Total Responses	9

8. Did any of your employees perform clearing and settlement activity from home?

#	Answer		Response	%
1	Yes		15	50%
2	No		15	50%
	Total		30	100%

Statistic	Value
Min Value	1
Max Value	2
Mean	1.50
Variance	0.26
Standard Deviation	0.51
Total Responses	30

9. If so, approximately what percentage?

#	Answer		Response	%
1	Less than 10%		14	78%
2	Between 10% and 24%		3	17%
3	Between 25% and 49%		0	0%
4	Between 50% and 74%		0	0%
5	75% or more		1	6%
	Total		18	100%

Statistic	Value
Min Value	1
Max Value	5
Mean	1.39
Variance	0.96
Standard Deviation	0.98
Total Responses	18

10. Were there any issues caused by latency or degradation of service?

#	Answer		Response	%
1	Yes		4	13%
2	No		26	87%
	Total		30	100%

Statistic	Value
Min Value	1
Max Value	2
Mean	1.87
Variance	0.12
Standard Deviation	0.35
Total Responses	30

11. If yes, please explain:

Text Response
Some folks had very slow response times. Not sure if that was carrier related or our own technology.
Our associates did report occasional network slowness while working from home. Most of these reports were traced to high utilization at the ISP used by the individual associates and were confined to certain neighborhoods. Overall - users were only slightly impacted - network just wasn't as fast as they were used to at the office.
Citrix servers could not handle the overload of users
Application performance
Not applicable.
There was a lack of visibility by loss of multi-screen views (people who normally have three screens only have one at home). There were no latency issues.

Statistic	Value
Total Responses	6

12. Were there any issues caused by lack of proximity to other people/groups?

#	Answer		Response	%
1	Yes		2	7%
2	No		28	93%
	Total		30	100%

Statistic	Value
Min Value	1
Max Value	2
Mean	1.93
Variance	0.06
Standard Deviation	0.25
Total Responses	30

13. If yes, please explain:

Text Response
In most cases, remote work due to the blizzard was for only one day, so proximity was not really an issue.
Not applicable.
Physical sign-offs
Physical signatures required work around to be used (e.g., scanning, faxing)
one day was not an issue

Statistic	Value
Total Responses	5

14. Were there any issues caused by lack of appropriate supervision?

#	Answer		Response	%
1	Yes		0	0%
2	No		29	100%
	Total		29	100%

Statistic	Value
Min Value	2
Max Value	2
Mean	2.00
Variance	0.00
Standard Deviation	0.00
Total Responses	29

15. If yes, please explain:

Text Response
Not applicable.

Statistic	Value
Total Responses	1

16. Were any of your own organization's systems congested during the storm?

#	Answer		Response	%
1	Yes		4	13%
2	No		26	87%
	Total		30	100%

Statistic	Value
Min Value	1
Max Value	2
Mean	1.87
Variance	0.12
Standard Deviation	0.35
Total Responses	30

17. If yes, please explain:

Text Response
Citrix servers could not handle the overload of users
Gateway for logging in
Not applicable.
The remote access capabilities were stretched thin...
Since we are based primarily in the West, with one office in Orlando and one in Boston, we were not affected by this year's East Coast winter storms. However, we are affected annually by heavy winter storms in the Northwest and regularly practice work from home and remote work solutions.
Congested, in that there was 'greater than normal' load. Performance was not impacted noticeably

Statistic	Value
Total Responses	6

18. Especially, were systems primarily dedicated to providing remote access to email or other remote functions congested?

#	Answer		Response	%
1	Yes		3	10%
2	No		27	90%
	Total		30	100%

Statistic	Value
Min Value	1
Max Value	2
Mean	1.90
Variance	0.09
Standard Deviation	0.31
Total Responses	30

19. If yes, please explain:

Text Response
We have capacity for well over 50% of our staff to work remotely.
The Citrix servers were at or near capacity.
Citrix
Not applicable.
Slow response times, some bouncing off and reattaching requiring...
Congested, in that there was 'greater than normal' amount of connections. Performance was not impacted, as our systems engineers have provided the firm with greater capacity than we have demand for during normal operations.

Statistic	Value
Total Responses	6

20. Does your organization have a Virtual Private Network?

#	Answer		Response	%
1	Yes		22	76%
2	No		7	24%
	Total		29	100%

Statistic	Value
Min Value	1
Max Value	2
Mean	1.24
Variance	0.19
Standard Deviation	0.44
Total Responses	29

21. Did you observe congestion on lines between your institution and its ISP(s)?

#	Answer		Response	%
1	Yes		0	0%
2	No		29	100%
	Total		29	100%

Statistic	Value
Min Value	2
Max Value	2
Mean	2.00
Variance	0.00
Standard Deviation	0.00
Total Responses	29

22. If yes, please explain:

Text Response
Not applicable.

Statistic	Value
Total Responses	1

23. Do you have any other observations/issues not previously mentioned above?

Text Response
Once we enroll staff in the Remote Access program we want them to use the capability within a week. We do not want to deal with "rookie" problems during a real situation.
These types of events always end up driving change in our BCP after the fact. There were several teams who had assumed that they could work from home without issue but then when it came down to it their capabilities were limited. It is worth noting that "work from home" is not our primary recovery strategy so it is not tested regularly.
No
None.
Our outbound telephone service experienced problems intermittently. Our Telecom group spoke with the service provider who eventually admitted that it was a problem on their end.
As mentioned previously, since our firm is based primarily in the West, with one office in Orlando and one in Boston, we were not affected by this year's East Coast winter storms. However, we are affected annually by heavy winter storms in the Northwest and regularly practice work from home and remote work solutions.
The firm has limited remote access capability compared to most financial firms.
An alternate to VPN not mentioned is citrixed based computing leveraging internet connectivity. One concern we have during heavy remote internet usage is the reliability of the internet providers.
The storm impacts only required WFH to be used on a single or two-day period. Our greater challenge is for an event that lasts longer than 2 weeks.
Yes, although this Firm does not have a formal telecommuting policy for any of the front office business groups, the technology group did utilize remote for up to half of the staff. There were also hotel rooms reserved for onsite tech support. All other front office, mid-office, and admin business units required staff to be onsite.
most remote workers used remote desktop however currently we do not provide traders with remote desktop capability due to control concerns; traders have access to certain applications in our Citrix farm servers however not all of the trader applications have been "citrix enabled"........working on procedure to enable traders with remote desktop capability in disaster scenarios and then turn off that capability when disaster scenario has ceased

Statistic	Value
Total Responses	11

24. Please enter your contact information in case we need to contact you with any questions: (responses removed)

Statistic	Value
Total Responses	29