



## APPLICATION NOTE

## LEFTHAND SAN/IQ REMOTE COPY

# SAN/iQ Remote Copy PrimeSync - Using a Temporary Management Group for the Initial Copy

## SUMMARY

SAN/iQ Remote Copy is an ideal solution for keeping large amounts of data in sync in multiple sites that are connected by slow WAN links. The incremental nature of Remote Copy makes it a great solution for things like Disaster Recovery, Centralized Backup, Content Distribution, etc. However, when faced with slow WAN links, creating the baseline copy can be prohibitive from a time-to-copy the initial data set. For instance, if a customer has 1TB of data that they desire to keep in sync over a T1, their incremental change may easily fit within the bandwidth capabilities of the T1, however, the initial sync of that data would take over 63 days!

To ease the initial sync issue, LeftHand Networks has introduced an incremental improvement in version 6.5 SAN/iQ Remote Copy called **PrimeSync**. The premise is that the system can now facilitate tiered copies of remote snapshots, or what is technically known as 'computing transitive copy relationships'. In short, a customer can create a temporary storage system that is used to do the initial sync locally over Gigabit Ethernet, is then shipped to the remote site, and then synced to the target system over Gigabit Ethernet. Once the PrimeSync (initial sync point) is created between the two sites, all subsequent snapshot copies are incremental.

## SOLUTION DETAILS

The fundamental enabling technology behind the PrimeSync procedure is to create a temporary, or interim remote copy of the data that is used to create the baseline sync point without copying the baseline data-set across the WAN link. At the most basic level, the copy relationships that get created are as follows:

- Snapshot A is created for the Volume.
- Snapshot A is copied to Snapshot B on a temporary system.
- The temporary system is shipped to the remote location.
- Snapshot B is then copied to Snapshot C on the remote system.

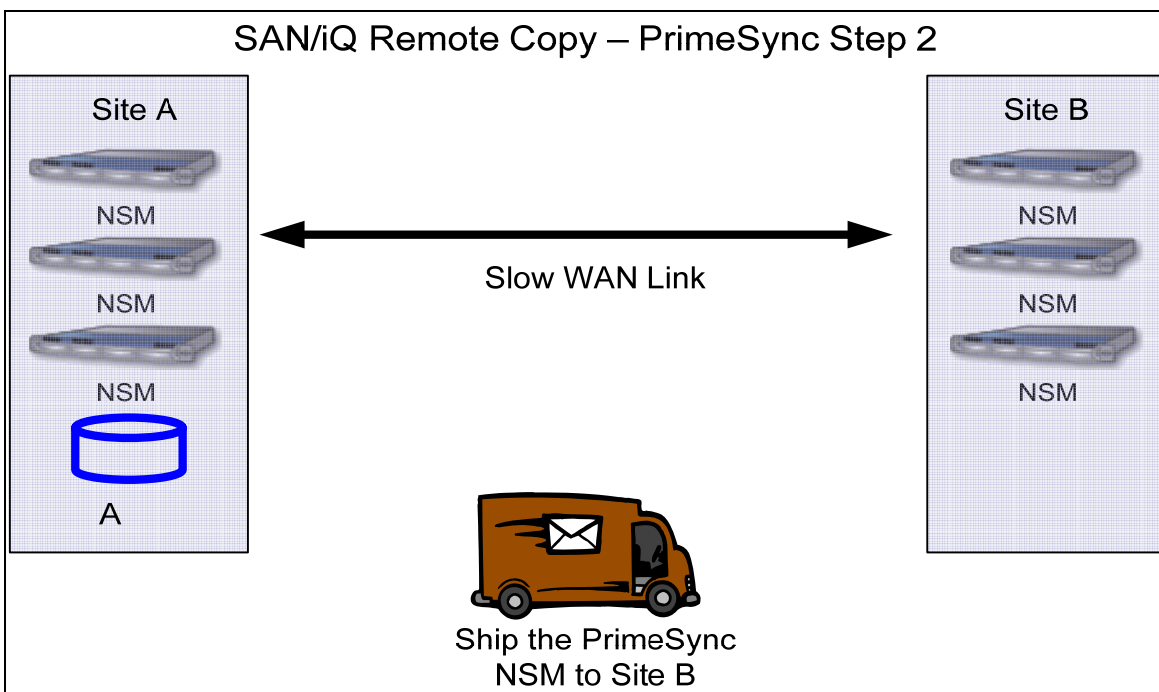
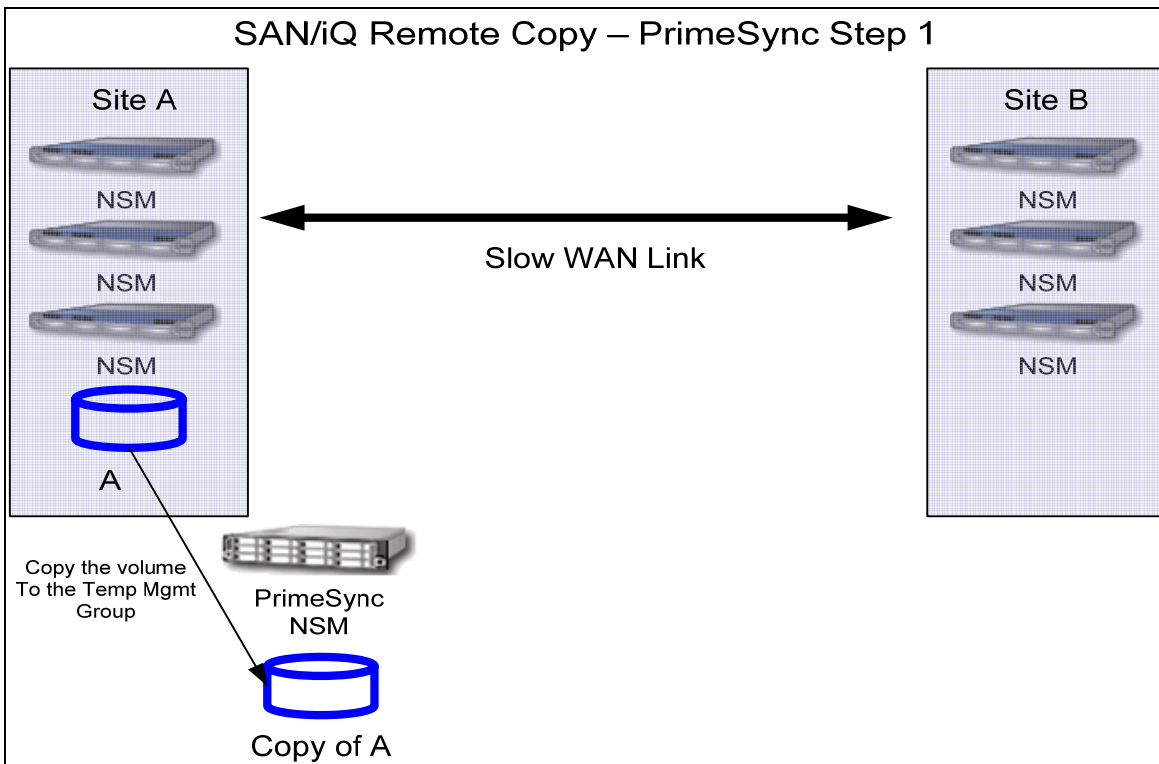
The system understands that since Snapshot B is a copy of Snapshot A and Snapshot C is a copy of Snapshot B, that Snapshot C is actually a copy of Snapshot A. Once this relationship is understood (the baseline), all subsequent remote copies from the primary site (A) to remote site (C) are only incremental.

***“Never under-estimate the bandwidth of an NSM in the back of a truck.”***

The following graphics offer a high-level scope of the steps to create the PrimeSync without actually transferring all the data across the WAN.

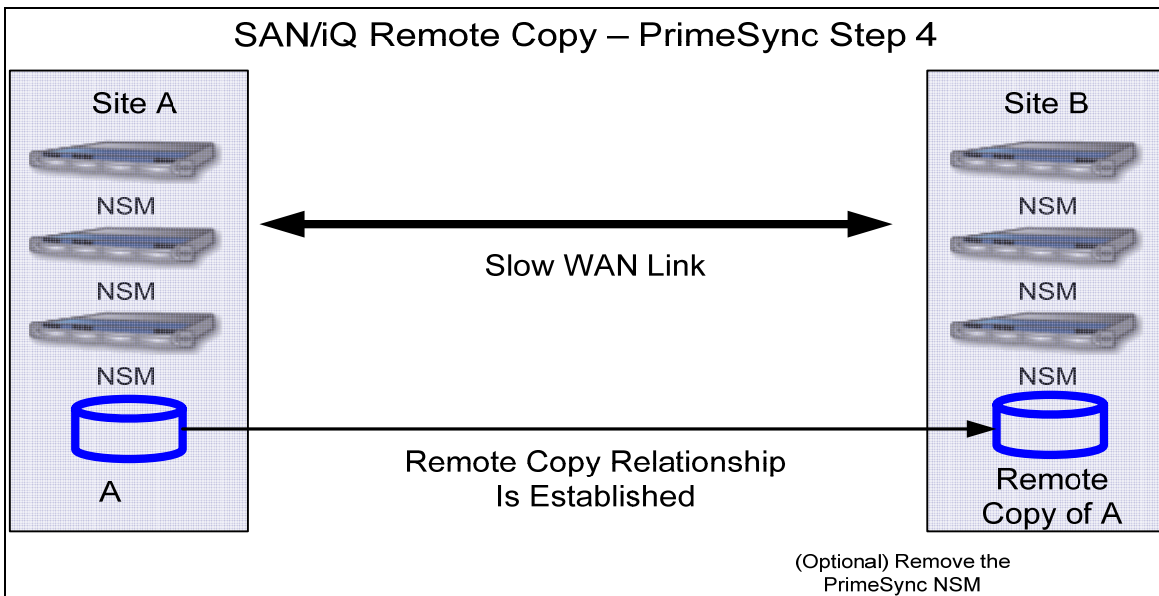
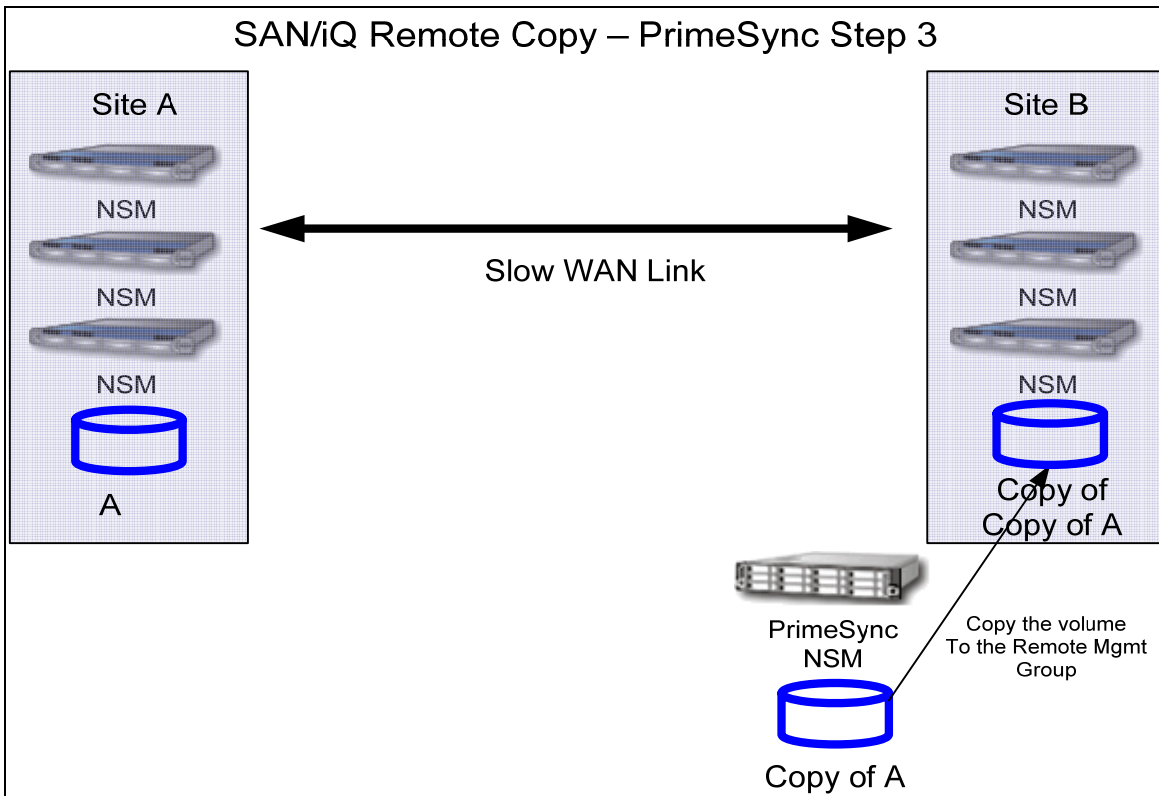


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## SOLUTION REQUIREMENTS

Item	Details
Centralized Management Console Version	6.5 and higher
SAN/iQ Version	6.5 and higher
Remote Copy Version	6.5 and higher
Management Groups	3 minimum
Temporary NSM(s)	1 minimum



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## CONFIGURATION TASKS

As an example, the following tasks would need to be performed to create the PrimeSync snapshot copy from Los Angeles to Chicago without copying all the data across the WAN:

1. Configure the temporary / interim Management Group in Chicago
2. Create the first snapshot copy to the interim Management Group

LeftHand Networks Centralized Management Console

File Find Tasks View Help

The screenshot displays three clusters: Chicago\_Cluster (NSM.4, NSM.5, NSM.6), Temp\_Cluster (NSM.7), and LA\_Cluster (NSM.1, NSM.2, NSM.3). A SourceVolume is connected to SourceSnap in the Chicago cluster, and an InterimVolume is connected to InterimSnap in the Temp cluster. Arrows indicate the replication path from SourceSnap to InterimSnap.

Details	Hosts	Remote Snapshot	Target Information	Volume List Memberships	
Name	SourceSnap	Size	1 TB	Replication Level	2-Way
Created	01/25/2006 10:27:52 PM MST	Hard Threshold	1 TB	Replication Priority	Availability
Cluster	Chicago_Cluster	Soft Threshold	1 TB	Type	Primary
Checksum Data	No	Auto Grow	Auto	Created by Script	No
Status	Normal, (Writable space: None)				
Description					

Tasks ▾



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3. Ship the temporary / interim NSM(s) to LA
4. Create the second snapshot copy from the interim Management Group to the LA Management Group

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Chicago Cluster: NSM.4, NSM.5, NSM.6, SourceVolume, SourceSnap

Interim Cluster: NSM.7, InterimVolume, InterimSnap

LA Cluster: NSM.1, NSM.2, NSM.3, TargetVolume, TargetSnap

Details	Hosts	Remote Snapshot	Target Information	Volume List Memberships	
Name	InterimSnap	Size	250 MB	Replication Level	None
Created	01/25/2006 10:28:14 PM MST	Hard Threshold	0 MB	Replication Priority	Availability
Cluster	Temp_Cluster	Soft Threshold	0 MB	Type	Primary & Remote
Checksum Data	No	Auto Grow	Auto	Created by Script	No
Status	Normal, (Writable space: None)				
Description					
Tasks					



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5. Create the incremental snapshot from Chicago to LA

LeftHand Networks Centralized Management Console

File Find Tasks View Help

The diagram illustrates a replication setup across three clusters: Chicago, Interim, and LA. The Chicago Cluster (NSM.4, NSM.5, NSM.6) contains SourceVolume, IncrementalSnapshot, and SourceSnap. The Interim Cluster (NSM.7) contains InterimVolume and InterimSnap. The LA Cluster (NSM.1, NSM.2, NSM.3) contains TargetVolume, IncrementalSnapshot, and TargetSnap. Arrows indicate data flow from Chicago to Interim and then to LA.

Details	Hosts	Remote Snapshot	Target Information	Volume List Memberships	
Name	IncrementalSnap	Size	1 TB	Replication Level	2-Way
Created	01/25/2006 10:34:40 PM MST	Hard Threshold	1 TB	Replication Priority	Availability
Cluster	Chicago_Cluster	Soft Threshold	1 TB	Type	Primary
Checksum Data	No	Auto Grow	Auto	Created by Script	No
Status	Normal, (Writable space: None)				
Description					

Tasks ▾

6. (Optional) Remove the temporary / interim Management Group