

Backup Tiers					
Description	Most Current Recovery Point	Most Distant Recovery Point	Available Recovery Points	Suggested Use Case (deviations need to be justified)	Annual Cost /GB Primary Data
Regular data (all data other than database data)					
Tier 1 - Daily Backup to different site than primary data	Time of Previous days backup	Past 32 days	Time of daily backup	Production	\$0.21
Tier 2 - Daily Backup to different site than primary data	Time of Previous days backup	Past 8 days	Time of daily backup	Dev/Test	\$0.10
Database data (Oracle and SQL Server)					
Tier 1 - Daily Backup to different site than primary data	maximum of 60 minutes in past	Past 32 days	any point in time	Production	\$0.81
Tier 2 - Daily Backup to different site than primary data	maximum of 60 minutes in past	Past 8 days	any point in time	Dev/Test	\$0.41
Options - need to be justified when requested					
Long Term Backups to different site than backup data (same site as primary data)	Time of Previous Months backup	Past 12 months	Time of monthly backup	File Servers, data where past state is important	\$2.72
Remote Copy of long term backup stored minimum 500kms from CoW data centers	Time of Previous Months backup	Past 12 months	Time of monthly backup	Highly valuable data that would not be re-creatable	\$9.58

Notes
1) Tier 2 provides a smaller recovery window than most current TSM environments
2) Standard tiers provide a single copy of backup data - restore capability could be impacted if data centre hosting backup data is lost or backup data experiences a corruption - current TSM backups provides a copy of backup data in each data centre
3) Long Term Backup option is new (other than Exchange, Database and File Servers) -significant extra cost and backup processing if it is selected for a large amount of data -currently using tape but may be deployed on disk in the future (based on cost and functionality) - costs modeled on use of disk
4) All backups are incremental (other than Long Term Backups)
5) Costs are based on incremental disk costs with estimated data change rates and data compression (with acquisition half way through usable life of storage infrastructure. Remote Copy costs are based on Amazon Cloud storage.
6) Any backups that reside on tape will be duplicated (due to media risk with tape)
7) Need to review long term data restoration capabilities and requirements with clients so right option is selected (right level of protection based on the type of data)
8) Exchange and file servers will use Tier 1 with Long Term Backup Option
9) Many applications have inherent versioning or restore capabilities that can compliment backup approach (eg database point in time recovery, SharePoint versioning, file server shadow copy). These application capabilities do not provide any protection if the event of data loss at an infrastructure level (eg disk corruption)

Scenario	Scenario Description	Tier 2	Tier 1	Long Term Backup	Remote Copy	Not Possible	Recovery Time
1	Single system experiences database logical corruption requiring restore (10GB) from 30 minutes ago					1	2 Hours
2	Single system experiences database logical corruption requiring restore (10GB) from 4 hours ago	x					2 Hours
3	Single system experiences database logical corruption requiring restore (10GB) from yesterday	x					2 Hours
4	Single system experiences database data issue requiring restore (10GB) from 3 months ago			2			4 Hours
5	Single system experiences operating system level corruption requiring restore from 30 minutes ago					x	
6	Single system experiences operating system level corruption requiring restore from 4 hours ago					x	
7	Single system experiences operating system level corruption requiring restore from yesterday	x					4 Hours
8	Single system experiences operating system level corruption requiring restore from 3 months ago			2			4 Hours +
9	Single user requiring restore of lost file(s) from file server from 30 minutes ago					3	1 Hour
10	Single user requiring restore of lost file(s) from file server from 4 hours ago					3	1 Hour
11	Single user requiring restore of lost file(s) from file server from yesterday	x					2 Hours
12	Single user requiring restore of lost file(s) from file server from 3 months ago			x			2 Hours +
13	Storage subsystem loss requiring restore of multiple systems from 30 minutes ago					x	
14	Storage subsystem loss requiring restore of multiple systems from 4 hours ago					4	Weeks
15	Storage subsystem loss requiring restore of multiple systems from yesterday	x					Weeks
16	Storage subsystem loss requiring restore of multiple systems from 3 months ago			x			Weeks
17	Data Centre loss requiring restore of multiple systems from 30 minutes ago					x	
18	Data Centre loss requiring restore of multiple systems from 4 hours ago					4	Weeks+
19	Data Centre loss requiring restore of multiple systems from yesterday	x					Weeks+
20	Data Centre loss requiring restore of multiple systems from 3 months ago			x			Weeks+
21	Data Centre loss (for backup data) and single system experiences operating system level corruption requiring restore from 30 minutes ago					x	
22	Data Centre loss (for backup data) and single system experiences operating system level corruption requiring restore from 4 hours ago					x	
23	Data Centre loss (for backup data) and single system experiences operating system level corruption requiring restore from yesterday					x	
24	Data Centre loss (for backup data) and single system experiences operating system level corruption requiring restore from 3 months ago			2			4 Hours +
25	Error detected in backups and single system experiences operating system level corruption requiring restore from 30 minutes ago					x	
26	Error detected in backups and single system experiences operating system level corruption requiring restore from 4 hours ago					x	
27	Error detected in backups and single system experiences operating system level corruption requiring restore from yesterday					x	
28	Error detected in backups and single system experiences operating system level corruption requiring restore from 3 months ago			2,5			Weeks
29	Loss of both data centers requiring restore of multiple systems from 30 minutes ago					x	
30	Loss of both data centers requiring restore of multiple systems from 4 hours ago					x	
31	Loss of both data centers requiring restore of multiple systems from yesterday					x	
32	Loss of both data centers requiring restore of multiple systems from 3 months ago				2		Months
	Notes						
	impacted (not a backup function)						
	2 - Restore has to be from one of the monthly backups - cannot restore from any period between the monthly backups						
	3 - Can be performed utilizing file server shadow copy capabilities if configured and if file server storage is available (not a backup function)						
	4 - Would be possible for database data only						
	5 - Would be possible if long term backup does not have backup error						