Techniques involving replication of storage are described. A representative technique includes apparatuses and methods for receiving replicated virtual storage of a replicated virtual machine including at least a replicated base virtual disk that substantially corresponds to a primary base virtual disk to be replicated. Copies of differencing disks or other forms of virtual storage updates are received at a recovery site each of the differencing disks being associated with the primary base virtual disk as descendents thereof. The received copies of the differencing disks are arranged relative to the replicated base virtual disk corresponding to the manner in which the differencing disks were arranged relative to the primary base virtual disk thereby maintaining the data view of the replicated virtual machine in synchronization with the virtual machine at the primary site.