Linux is the dominant operating system of most cloud providers, and many enterprises have mission-critical applications that run on Linux. The applications running in these environments can be on bare metal systems, virtual machines, and containers.

All of these use cases have Linux-based applications that need to be highly available and protected from disaster. The problem is that providing these solutions requires a proprietary storage system with built-in High Availability (HA) and replication. Linux administrators need a software-only solution that is simple to set up and works with a variety of software and architecture designs. While newer solutions like CEPH can work, a full-scale CEPH installation is complicated and beyond the requirements of most organizations.

**THE VALUE OF SOFTWARE-ONLY HA AND DISASTER RECOVERY (DR)**

The primary value of a software-only HA and DR solution is the flexibility that it provides. Administrators can mirror or replicate data from any volume to any location, including the cloud. This flexibility is especially important for Linux administrators since being adaptable is a core tenet of their architectures.
THE VALUE OF SOFTWARE-ONLY HA AND DISASTER RECOVERY (DR)

Without the flexibility of software-only HA and DR, administrators are forced to use proprietary storage hardware solutions. These often have HA and DR built-in but must perform these functions to a similar system from the same manufacturer. The new emerging alternative is to use Software Defined Storage (SDS) solutions made for Linux to address HA and DR. CEPH is an example where the packages provide the HA and DR functionality but are complicated to set up, and useful only for relatively large installations.

Beyond flexibility, software-only HA and DR solutions provide greater resilience. Replication can occur from one Linux server, virtual machine or container to another; shared storage is not a requirement. Hardware-only HA and DR solutions can typically only replicate between storage systems. The hardware, and the customer’s budget, limits the number of replicas it can create.

THE LINBIT ALTERNATIVE

LINBIT provides a software solution called DRBD. It is a software-only HA and DR solution designed specifically for Linux. DRBD has been available for more than a decade and present in the Linux kernel for many years. It has almost 1.7 million downloads! DRBD can seamlessly copy data as it changes from one Linux volume up to 31 other volumes. Since the DRBD target can be any other Linux block device, the cost to set up a simple replication strategy to achieve basic HA is very cost-effective. This makes DRBD attractive to medium-sized data centers or enterprises that may only have limited deployments of Linux.

LINBIT builds on their core open-source DRBD solution, which provides synchronous mirroring between two storage volumes, on different servers.

LINBIT DRBD Proxy adds asynchronous replication capabilities to DRBD, enabling true disaster recovery. The software also supports one-to-many replication, with as many as 31 targets. Armed with DRBD and DRBD Proxy, an organization could synchronously mirror a copy of data to another on-premises server. It could then asynchronously replicate data to a remote site within the region and then again to another site on the other side of the world. Ordinarily, the cost of this type of protection, with turnkey hardware solutions, would make it impractical for most organizations to provide, but DRBD makes it possible.

DRBD is capable of creating or removing volumes and taking snapshots of that particular volume. It also supports consistency groups, so an application spread across multiple volumes will have its data captured consistently. LINBIT’s SDS solution adds the ability to create storage pools and locates the best place to provision storage. It also provides the ability to select “fast” or “slow” storage.
The first requirement of most Linux environments as they scale is for IT to provide HA and DR for applications as they come on-board. For many IT planners, moving to Linux or a Linux VM/container environment is the first step to IT modernization. Consequently, IT planners need to consider carefully, how they will implement HA and DR solutions.

Instead of being locked into the methods of the past, they should consider a more open, storage neutral solution that will increase flexibility while driving down costs.
Storage Switzerland is an analyst firm focused on the storage, virtualization and cloud marketplaces. Our goal is to educate IT Professionals on the various technologies and techniques available to help their applications scale further, perform better and be better protected. The results of this research can be found in the articles, videos, webinars, product analysis and case studies on our website storageswiss.com

LINBIT is the force behind DRBD and the de facto open standard for High Availability (HA) software for enterprise and cloud computing. The LINBIT DRBD software is deployed in millions of mission-critical environments worldwide to provide High Availability (HA), Geo Clustering for Disaster Recovery (DR), and Software Defined Storage (SDS) for OpenStack and OpenNebula based clouds. LINBIT is Keeping the Digital World Running.

George Crump is President and Founder of Storage Switzerland. With over 25 years of experience designing storage solutions for data centers across the US, he has seen the birth of such technologies as RAID, NAS and SAN. Prior to founding Storage Switzerland he was CTO at one the nation’s largest storage integrators where he was in charge of technology testing, integration and product selection.