Essentials
about
Disaster Recovery (abbreviated **DR**)
with
Relax-and-Recover (abbreviated **ReaR**)

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Why DR with ReaR matters

Relax-and-Recover is currently used in particular by business/enterprise users for disaster recovery on thousands and thousands of various systems.

Topics

What does disaster recovery mean ?

How does disaster recovery work ?

What disaster recovery is not meant to do

What is Relax-and-Recover ?

How does Relax-and-Recover work ?

How to set up Relax-and-Recover

Relax-and-Recover advantages/disadvantages

Relax-and-Recover limitations

Bottom line

What does disaster recovery mean ?

- system got destroyed
  - messed up essential files (rm -rf /lib*), file systems, disks,...
  - broken hardware (partially or completely)
- disaster recovery means reinstalling from scratch
  - on same hardware
  - on fully compatible replacement hardware
- more than restoring files (more than backup)
  1. prepare hard disk (storage)
  2. restore files (from backup)
  3. install boot loader

How does disaster recovery work ?

- while system is up and running
  - save the system's payload: create backup of the files
  - prepare reinstalling from scratch: create recovery system
    - recovery system = recovery installation system + recovery installer
- after system was destroyed
  - boot recovery installation system (on replacement hardware)
  - run recovery installer to reinstall system from scratch
    1. prepare storage (disk partitioning, file systems, mount points)
    2. store the system's payload (i.e. install files: e.g. restore a backup)
    3. install boot loader

    in this text “installation” and “installing” mean those three steps and
    “installer” means a program that essentially performs those three steps

What DR is not meant to do

- no system configuration
  - recovery installer reinstalls system as it was before
    1. disk partitions, file systems, mount points as they were before
    2. configuration files as they were before (restored from backup)
    3. boot loader as it was before
  - except very limited adaptions by recovery installer
    - some hardware specific adaptions (e.g. UUID in /etc/fstab)
- no system migration
  - no different hardware (or different kind of virtual machine)
  - no different architecture (or bitness or BIOS versus UEFI)
- no competition with configuration or migration tools

What is Relax-and-Recover ?

- disaster recovery framework
  - no disaster recovery solution that "just works"
- complements backup
  - backup via external software that is only called by ReaR
    - ReaR supports “tar” and various third party backup software
- for experienced users (system administrators)
  - command line tool “rear” + config file (no GUI)
- pure bash scripts (nothing binary)
  - bash is the native language for system administration
- meant to be adapted and enhanced as needed

How does Relax-and-Recover work ?

- while system is up and running
  - set up ReaR: edit /etc/rear/local.conf (cf. next slide)
  - run ReaR recovery system builder: **rear -d -D mkbackup**
    - makes recovery installation system + recovery installer (ISO image)
      - the resulting **recovery system is specific for one particular system**
    - calls external tool to backup files (by default a “tar.gz” on NFS)
- after system was destroyed
  - boot recovery installation system (on compatible hardware)
  - run recovery installer: **rear -d -D recover**
    1. prepares storage: partitioning, file systems, mount points
    2. stores the payload: calls external tool to restore files (by default “tar”)
    3. installs boot loader

How to set up Relax-and-Recover

- how to do the recovery process
  - /etc/rear/local.conf (e.g. how to make backup and ISO image)
    - examples: /usr/share/rear/conf/examples/*.conf
    - defaults: /usr/share/rear/conf/default.conf
- what to recreate (e.g. partitioning, file systems,...)
  - partially via /etc/rear/local.conf (e.g. what to exclude)
  - partially by editing the scripts (e.g. new stuff to include)
- what the recovery process actually does
  - editing the scripts
    - adapt how the recovery system gets generated
    - adapt what the recovery installer actually does

Relax-and-Recover advantages

but each becomes a disadvantage from another point of view

generic (all of ReaR is pure bash scripts)

- can be relatively easily adapted and enhanced by the user
- but often the scripts must be adapted and enhanced
  - ReaR updates (e.g. package updates) may overwrite adapted scripts

small (system specific generated recovery system)

- but hopeless when ReaR installation system fails to boot

fast (system specific working recovery installer)

- ReaR installer directly runs low-level tools (parted, mkfs,...)
- but when it fails it is a dead end for unexperienced users
  - one-time band-aid fixes relatively easily possible for experienced users
    - ReaR installer scripts can be adapted from within the ReaR installation system

Relax-and-Recover limitations

There is no such thing as a disaster recovery solution that "just works".

- limited to what the ReaR recovery system can do
  - ReaR installation system and SUSE inst-sys totally different
    - ReaR installation system may fail to boot where SUSE inst-sys had worked
  - ReaR installer and SUSE installer (Auto)YaST totally different
    - ReaR installer may fail where SUSE installer had worked
    - ReaR installer may reinstall with (possibly subtle but severe) differences
- cope with Relax-and-Recover limitations
  - verify installation by ReaR works and results what is intended
  - do actual productive deployment by ReaR (proves the former)
  - be prepared for manual intervention (know your system)
    - know how to install directly with low-level tools (parted, mkfs,...)

Bottom line

What matters in the end

Regardless how a system was installed and

regardless what is used for disaster recovery

eventually

a disaster recovery installation

will be the final system installation.

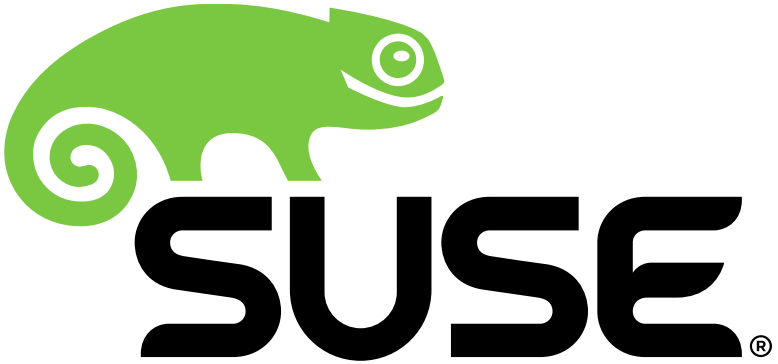
The final installer is the disaster recovery installer.

As a general public accessible entry point
visit the openSUSE Wiki page

SDB:Disaster Recovery

http://en.opensuse.org/SDB:Disaster_Recovery

Thank you.



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