First Steps with Relax-and-Recover (abbreviated ReaR)

Understand how ReaR works by running it yourself

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What this workshop is about

To get some initial basic understanding how Relax-and-Recover works you will use it yourself on two virtual machines on your laptop.
Topics

Preconditions
Install Relax-and-Recover
Configure Relax-and-Recover
Run “rear mkbackup”
Run “rear recover”
Preconditions

An NFS server runs on the laptop

- It exports a directory in "rw" mode
  (in the following text “/nfs" is used as name for that directory)

Two simple virtual machines run on the laptop

- x86/x86_64 with BIOS (no UEFI)
- Hardware virtualization (no paravirtualization)
- A single virtual 20GB harddisk (IDE disk)
- A usual virtual CDROM drive (IDE CDROM)
- A single usual virtual network interface card
  (no special driver/firmware)
Preconditions (cont.)

The first virtual machine

A small and simple Linux system is running
   Installed in a single ext3/ext4 filesystem
   Using GRUB/GRUB2 as bootloader

It can access the NFS server that runs on the laptop
   mount -v -t nfs [-o nfsvers=3,nolock] 192.168.100.1:/nfs /mnt

The second virtual machine

Identical “hardware” as the first virtual machine
   BIOS, same kind of 20GB harddisk, CDROM, same NIC
   “Empty” (without an operating system)
Install Relax-and-Recover

Install from GitHub

```bash
git clone https://github.com/rear/rear.git ; cd rear
```

Copy an existing directory

```bash
mkdir rear ; scp -r root@192.168.100.1:/rear/* rear ; cd rear
```

(recursive scp copies symlinks as regular duplicated files)

Get a RPM package

From the openSUSE Build Service

```
http://download.opensuse.org/repositories/Archiving:/Backup:/Rear/
```

From a Linux distribution

E.g. Fedora: `yum install rear`
Install Relax-and-Recover (cont. 1)

Needed other software to run ReaR (excerpts)

SUSE

zypper install lsb-release

Fedora

yum install genisoimage

(at least on Fedora 25 server)

Ubuntu

sudo apt-get install nfs-common

sudo apt-get install syslinux-common

sudo apt-get install isolinux
Install Relax-and-Recover (cont. 2)

Other prerequisite requirements to run ReaR (excerpts)

SUSE

echo "OS_VENDOR=SUSE_LINUX" > etc/rear/os.conf

echo "OS_VERSION=12" >> etc/rear/os.conf

Fedora

Disable SELinux

1.) Set "SELINUX=disabled" in /etc/sysconfig/selinux or /etc/selinux/config

2.) Reboot

3.) Confirm that the getenforce command shows "Disabled"

Have sufficient space in TMPDIR

export TMPDIR=/var/tmp
Configure Relax-and-Recover

Start with an appropriate example config file

```
  cp /usr/share/rear/conf/examples/SLE11-ext3-example.conf
  /etc/rear/local.conf
```

Adapt /etc/rear/local.conf as needed

**Mandatory**

```
  BACKUP_URL=nfs://192.168.100.1/nfs
```

**Optional**

Access the ReaR recovery system from remote via ssh

```
  SSH_ROOT_PASSWORD="rear"
```

Let the ReaR recovery system run dhclient for network setup

```
  USE_DHCLIENT="yes"
```
Configure Relax-and-Recover (cont.)

Specific adaption in etc/rear/local.conf

Fedora

    export TMPDIR=/var/tmp

Ubuntu

    Work around that there is no eth0 in the ReaR recovery system

        lsmod | tail -n +2 | cut -d ' ' -f 1 | tac | tr -s '[:space:]' ' '

        MODULES_LOAD=( pata_acpi floppy mii 8139cp psmouse 8139too autosfs4
                      parport lp ppdev parport_pc sunrpc i2c_piix4 mac_hid 8250_fintek
                      soundcore snd snd_timer snd_seq_device snd_seq_virtio_rng serio_raw
                      snd_rawmidi input_leds snd_seq_midi_event snd_seq_midi snd_pcm
                      snd_hwdep snd_hda_core snd_hda_codec snd_hda_intel
                      snd_hda_codec_generic isofs )

    Work around that udevd does not work in the ReaR recovery system

        PRE_RECOVERY_SCRIPT="mknod /dev/sda b 8 0 ; mknod /dev/sda1 b 8 1 ;
                           mknod /dev/sda2 b 8 2"
Run “rear mkbackup”

1.) `usr/sbin/rear -d -D mkbackup`

   Running that in the Linux system on the first virtual machine results on the NFS server a `/nfs/HOSTNAME` directory that contains in particular

   - The ReaR recovery system as a bootable ISO image `rear-HOSTNAME.iso`
   - A backup of the files of the Linux system on the first virtual machine `backup.tar.gz`

2.) Shut down the first virtual machine

   Simulate a disaster happened on the first virtual machine
Run “rear recover”

1.) Boot the second virtual machine
   Boot via CDROM from the rear-HOSTNAME.iso
2.) On the ReaR recovery system log in as root
   (no password)
3.) `rear -d -D recover`
   On the second virtual machine
   a system gets installed from scratch
   as it had been before on the first virtual machine
4.) Reboot the second virtual machine
   Boot from harddisk to run the re-created system
As a general public accessible entry point visit the openSUSE Wiki page

SDB:Disaster Recovery

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

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