Mondo Rescue:
A GPL disaster recovery solution

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Open Source and Linux
Profession EMEA Lead

MondoRescue
Introducting myself

- Software engineering and Unices since 1988

  - Mostly Configuration Management Systems (CMS), Build systems, quality tools, on multiple commercial Unix systems

  - Discover Open Source & Linux (OSL) & first contributions in 1993

  - Full time on OSL since 1995, first as HP reseller then @HP

- Currently:

  - Technology **Architect** on OSL for the HP/Intel Solution Center, Grenoble

  - OSL HP **Ambassador**

  - EMEA OSL HP **Profession Lead**

  - Solutions Linux Conference board member

  - MondoRescue, Dploy.org, Project-Builder.org **project lead**

  - LinuxCOE, mrepo, tellico, rinse, fossology **contributor**

  - Mandriva, Fedora **packager**

- Disaster Recovery Plan (DRP):

  - Identifying, inventorying and classifying the critical systems and data in the enterprise (in relationship with their value for the enterprise) and consequent procedures, processes and systems to put in place to recover from a disaster.

  - Balance between DRP implementation costs and downtime costs, or loss of data/services costs.

  - Much more paper based than computer based. However tools are also needed as part of the plan. Also DR doesn't substitute itself to backups or archives.

  - Today, among the systems to deal with, you'll have Linux systems.

- Points to consider:

  - Recovery of solutions: systems, network, storage, connectivity, HA configurations and coherency between those elements.

  - Recovery of system configuration (BIOS, Stripe size, Block size, FS layout and options, Boot loader, OS data, users and application data, ...) and coherency between those elements.
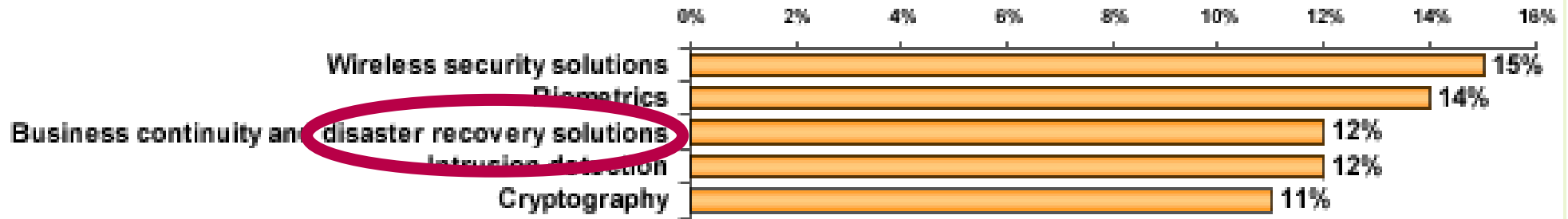
Figure 4 - Information Security Technologies - Planned for Deployment

Technology	Percentage
Wireless security solutions	15%
Biometrics	14%
Business continuity and disaster recovery solutions	12%
Intrusion detection	12%
Cryptography	11%

Frost & Sullivan 2008 (ISC)2 Global information security Workforce Study
https://www.isc2.org/download/2008_Global_WF_Study.pdf

Table 2 - Top Five Security Technologies Being Deployed by Region

Rank	Americas	Asia-Pacific	EMEA
1	Biometrics	Wireless security solutions	Wireless security solutions
2	Wireless security solutions	Intrusion detection	Storage security
3	Business continuity and disaster recovery solutions	Business continuity and disaster recovery solutions	Biometrics
4	Intrusion detection	Biometrics	Risk management solutions
5	Cryptography	Cryptography	Business continuity and disaster recovery solutions

MondoRescue
A GPL Disaster Recovery Solution

- Distribution neutral (Mandriva, RedHat, Fedora, RHEL, OpenSuSE, SLES, Debian, Ubuntu, Gentoo, Slackware) – x86, x86_64, ia64

- Supports most FS supported by the kernel (ext2/3/4, reiserfs, XFS, NTFS, [V]FAT, NFS, including dual boot systems) on any disk supported (IDE, SCSI, FC, HW Raid, SW Raid, LVM v1/2, DM, Multipath) and boot loader (lilo/grub/elilo)

- Supports CD–R[W], DVD[–+]R[W], Tapes, USB disks/keys, NFS, local FS (ISO9660 files)

- Uses mindi for mini-distro (live backup !)

- Full or differential backups supported

- CLI + curses based UI

- System DR in minutes

- Need for a Rescue CD for Linux pre-installed servers in 2000

- 2 choices: mkCDrec and Mondo Rescue

- Mondo Rescue nearer to my initial needs

- Developer happy to receive patches

- -H option added

- Uses either bzip2, gzip or lzo for data compression

- Uses afio for reliable backup (supports compression on a file basis, ASCII headers, cpio comp.)

- Generates bootable ISO images or burns media/creates tapes or USB disks, using running kernel + modules

- Saves disk structure and content. Proliant HW information

- Runs on a live system

```
/usr/sbin/mondoarchive -O -d /bkp -
s 700M -p m1 -E "/usr/doc /usr/src"
-N -T /tmp -n s1.hpintelco.org:/nfs
```

- From bootable physical media (CDs, tapes, OBDR since 2.2.6, USB devices), images on disks, network (PXE), virtual media (Proliant specific)

- Interactive restore from image files under the OS

- Proliant goodies support

- Various modes: Automatic, Interactive, Expert, Compare

- Ability to change FS type, layout, SW Raid, even HW configuration.

- DR restore in minutes. But do it !
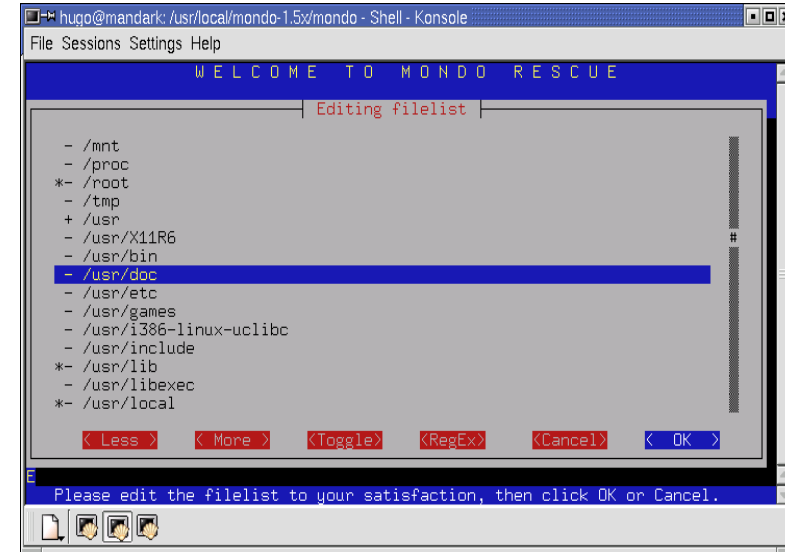
MondoRescue
Cloning support

- Requires knowledge of master and target platforms (potential different drivers)

- All drivers should be part of the mindi image created (either used on master or forced in mindi)

- Use –H if master and target are identical hardware platforms

- In other cases, all functions are also available (partition resizing, filesystem type change ...) + hardware adaptation

- Improvement for mindi to include all drivers – TBC

RELAX.
MONDO'S GOT IT COVERED.

- First patch in Dec. 2000

- First attempt of ia64 port not published back in 2001, then in Apr. 2004, and finally published in Nov. 2007

- Proliant fixes in Nov. 2004

- Then migration from CVS => SVN

- PXE support added in Apr. 2005

- Then no working SVN (1 year+)

- Patched 2.04 version in Sep. 2005

MondoRescue
PXE Support

- Using PXE boot ROM, ability to integrate MondoRescue images with a generic deployment server based on pxelinux.

- Ability to boot from a (central) server hosting (all) ISO images without physical media.


```
label mondo

    kernel kernel/vmlinuz-mondo

    append root=/dev/ram rw pxe
    initrd=initrd/initrd-mondo.img
    ramdisk_size=32768 prefix=m1
    load_ramdisk=1 prompt_ramdisk=0
    ipconf=eth1:192.168.0.1:255.255.255.
    0:192.168.0.255:192.168.0.254
    nfsmount=192.168.0.10:/mondo ping=5
```
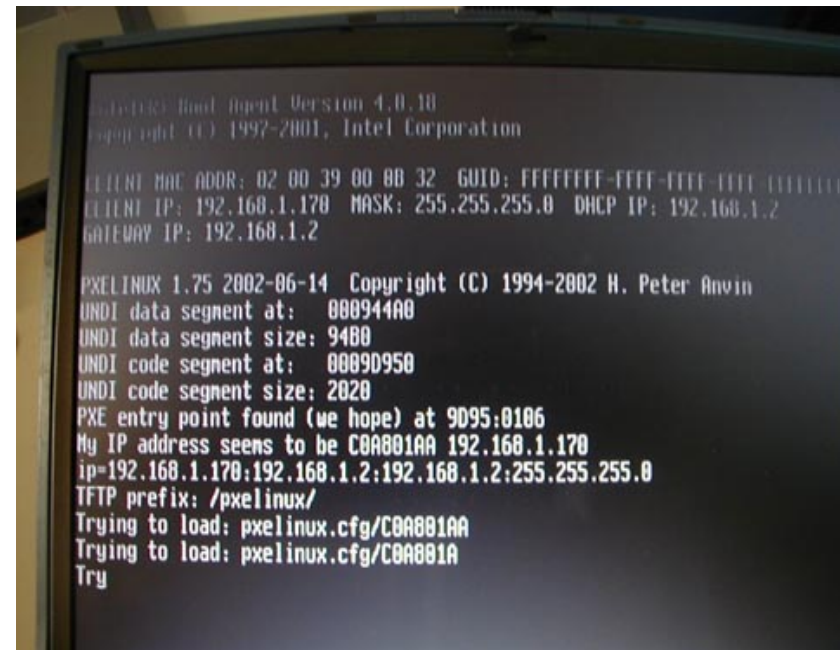
MondoRescue
Proliant Features

- With the iLO and Virtual Media function, ability to boot from a (central) server hosting (all) ISO images or a laptop through a Web interface without physical media.

- Smart Array support

- Proliant NIC support

- Hardware info backup & recovery possible in a cloning approach (using hpacucli, hponcfg, conrep from SSSTK) – preliminary support in 2.2.5

- Project Maintainer since Oct. 2005

- New subversion repository (Thanks BerliOS – HP)

- 15 versions published with 2.2.8

- New Build process (Generated pkgs => lead to project-builder.org)

- 60 distribution tuples (Thanks Qemu)

- New Website (Thanks Ayo)

- Trac (300+ Bugs declared – half fixed already)

- Mondorescue HOWTO Rewritten

- Mailing List activity

MondoRescue
Project Lead: 2.2.5

- bug fixes on 2.2.4

- Better Ubuntu and Debian support

- Proliant SSSTK support

- ia64 support

- USB key support

- Udev support

- Use Project Builder

MondoRescue
Project Lead: 2.2.6

- bug fixes on 2.2.5
- Gentoo x86_64 support
- Better tape support (-G)
- OBDR support
- Remove floppy support
- New cli params for mondorestore

- bug fixes on 2.2.6

- Improve USB support

- Fix for debian x86_64

- Support labeled reiserfs FS

- Remove shm usage

- OCFS2 preliminary support

- -E/-I support devices

MondoRescue
Project Lead: 2.2.8

- bug fixes on 2.2.7

- Ext4 support added

- Fix OBDR on ia64

- Adds 2.6.27 support

- Adds multipath support

- Adds RHAS 2.1 support

MondoRescue
Project Lead: 2.2.9

- bug fixes on 2.2.8

- Pre and post scripts

- Proliant DL160 G6 PXE (igb + e1000e, sata_via, ...)

- Ia64 improvements (serial mode, parted2fdisk

- SuSE ramdisk support

- Increased mountlist limit

- Inactive VGs not restored

- Memory mangement improvements (some)

- NFS user + mount support

- Rewritten in perl (mindi first)

- Busybox removal

- OS independance (FreeBSD)

- Network protocol and setup independance

- Internationalization (fr,us)

- Configuration files

- Support of all FS/LVM options

- SElinux/EFIbootmgr support

- Software Engineering (tests programs, splint, valgrind, fossology...)

Mondorescue main site

http://www.mondorescue.org

Trac / Wiki

http://trac.mondorescue.org

Busybox

http://www.busybox.net

Project-Builder
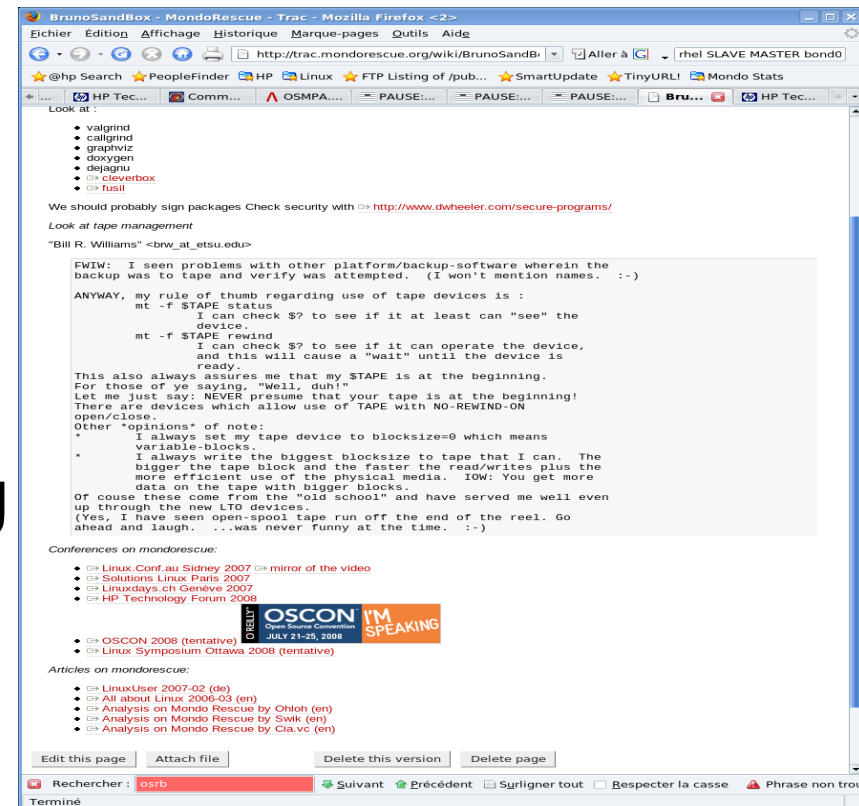
http://trac.project-builder.org

Open Source at HP

http://opensource.hp.com

"*The evolution of FLOSS and the Internet are tightly coupled*"

MondoRescue
Contact – Thanks

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at the HP/Intel Solution Center)

http://www.hp.com/linux

http://opensource.hp.com

Thanks goes to:

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my family for their patience :-)
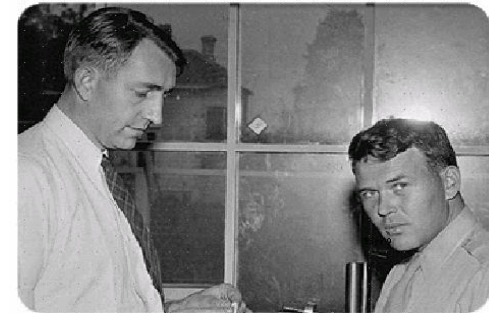
"Changes are never easy to make.
There is comfort and safety in
tradition, but change must come, no
matter how painful or expensive it
may be."

Bill Hewlett