

HACKING YOUR PORTABLE LINUX SERVER

FEDERICO LUCIFREDI

DISCLAIMER

WHILE THE FOLLOWING WAS
CONSCIENTIOUSLY RESEARCHED AND
VERIFIED, NEITHER LINUX JOURNAL
NOR THE AUTHOR WILL ACCEPT ANY
LIABILITY IF YOU RENDER YOUR DEVICE
INOPERABLE AS A RESULT OF THESE
INSTRUCTIONS.

PROCEED AT YOUR OWN RISK.

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ORIGINS

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COMMUNITY

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PROCUREMENT

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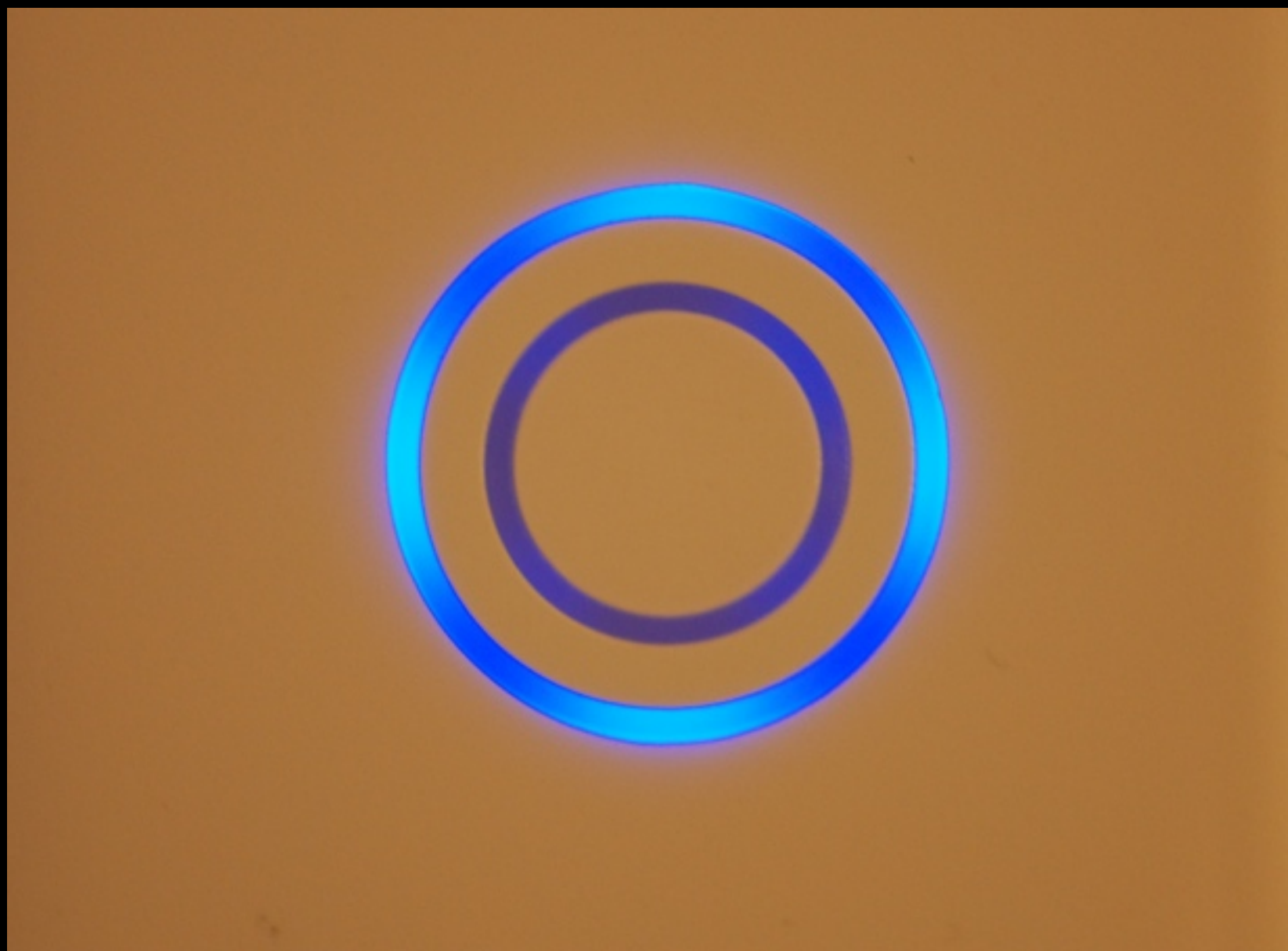
THE HARDWARE

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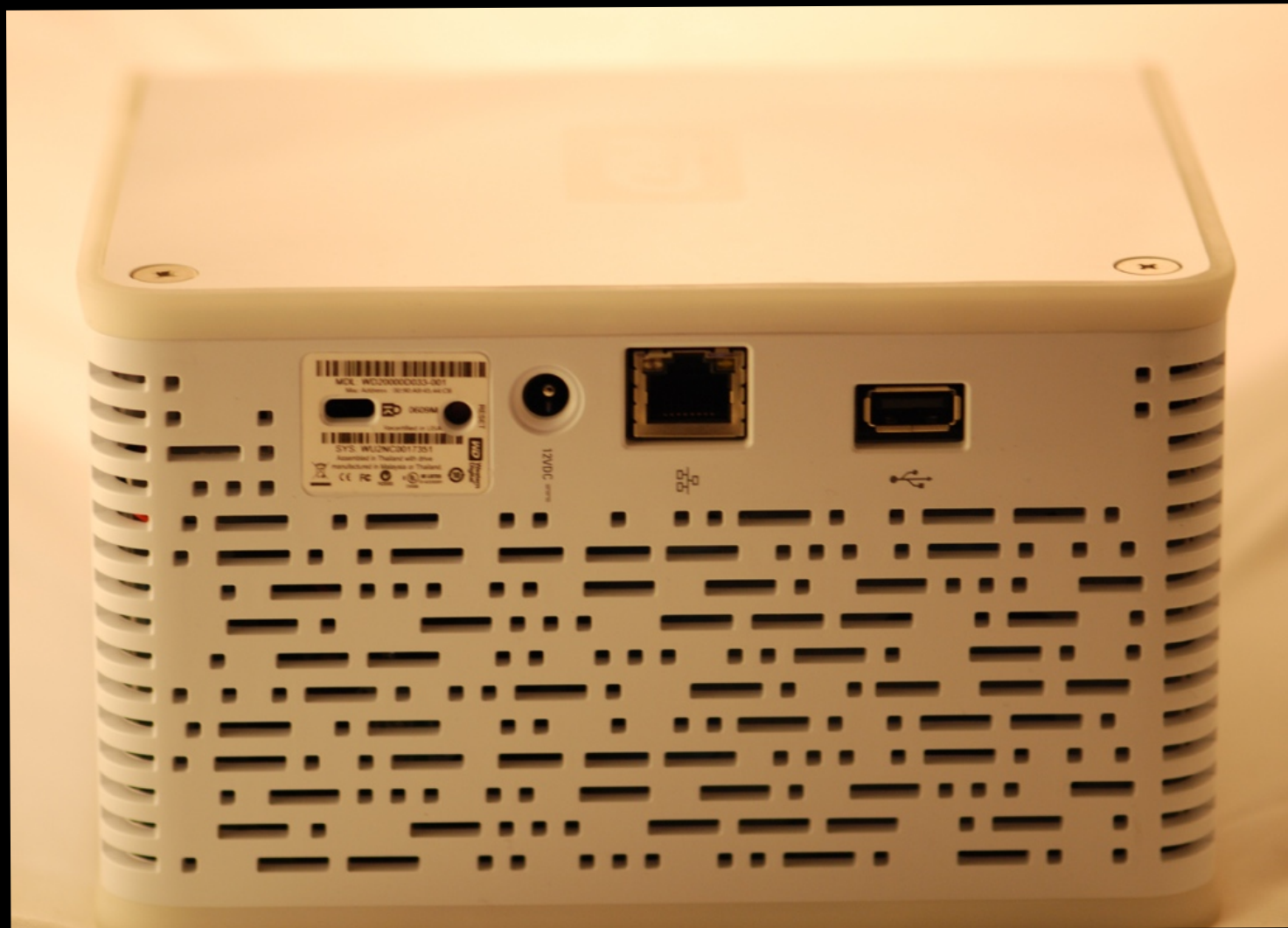




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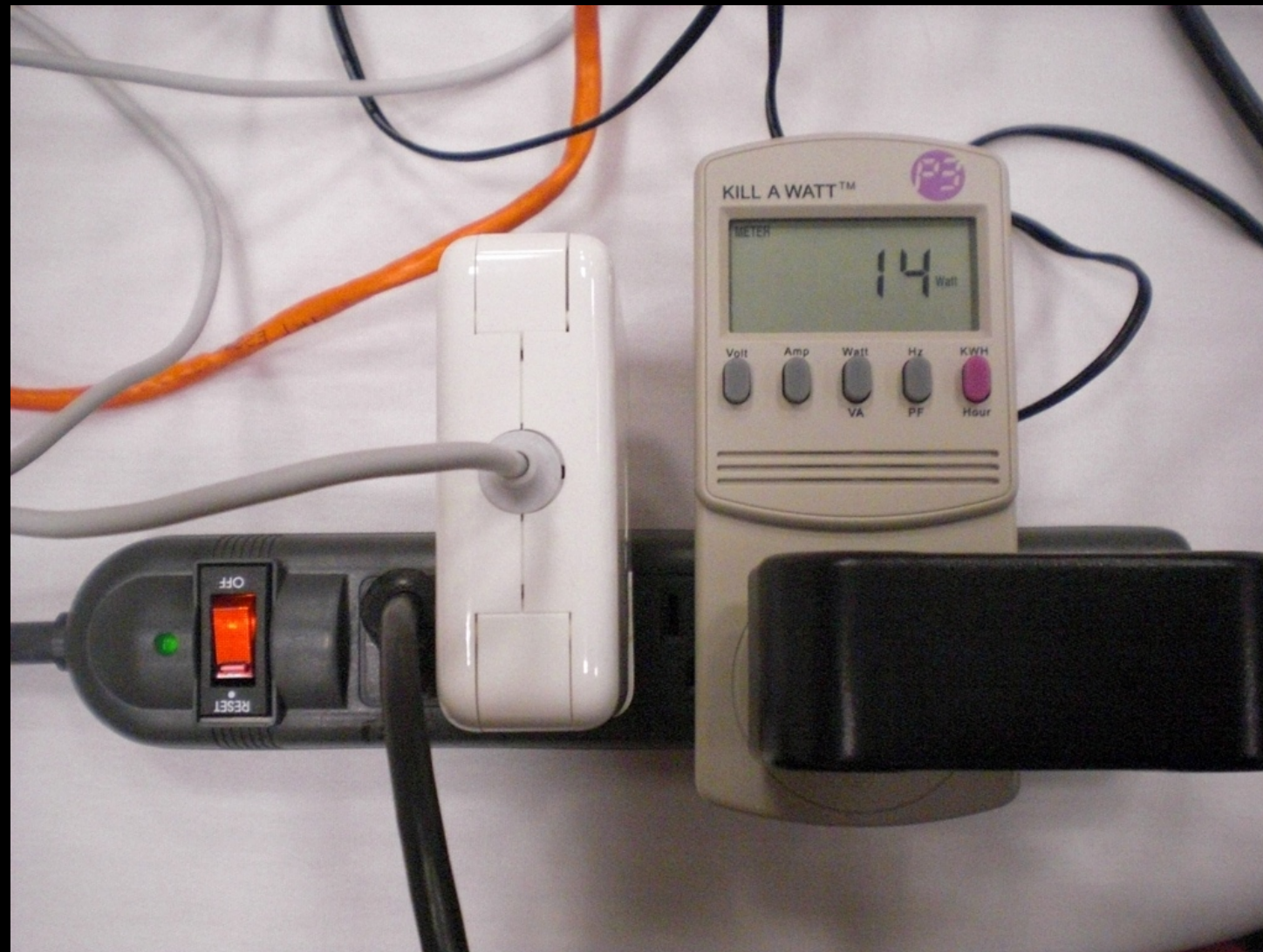


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WATTS



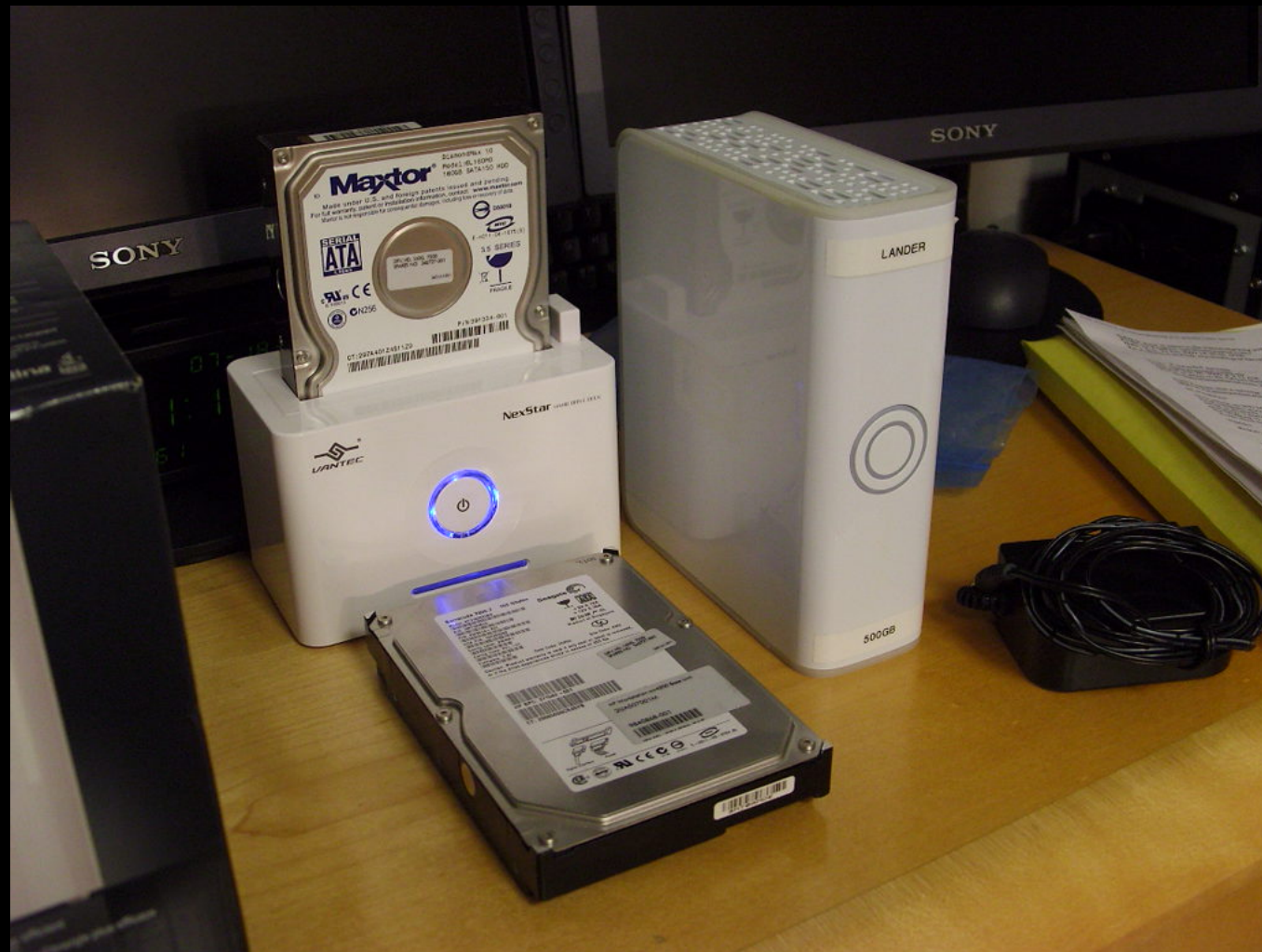
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...MORSE CODE



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INSIDE



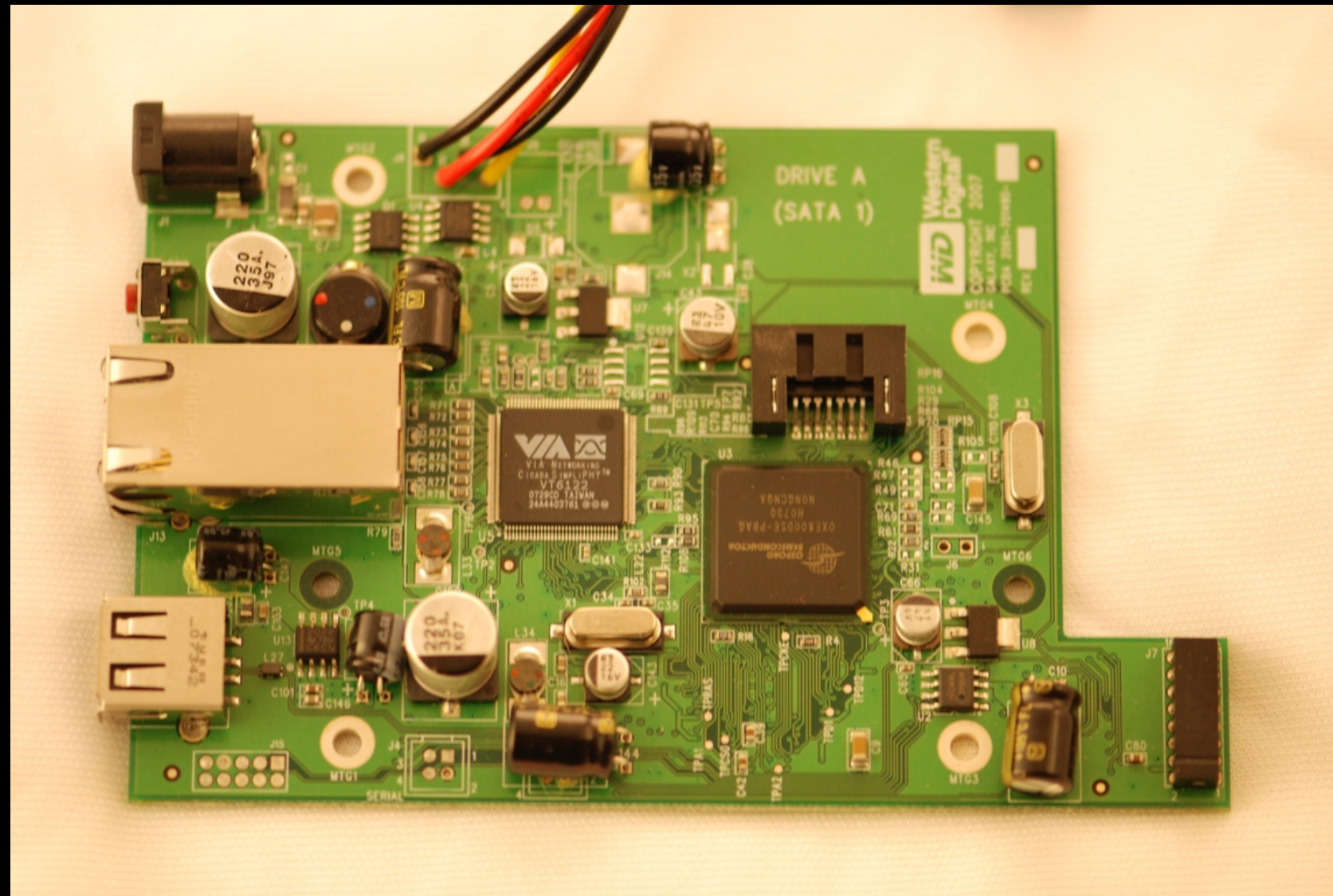
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(EXT-III ? USB?)



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OXFORD NAS



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OXFORD NAS

*Oxford semiconductor OXE800
ARM 926EJ-S core*

*VIA Cyclada Simpliphy vt6122
Gigabit Ethernet*

Hynix 32Mbit DDR SDRAM

USB, SATA

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MICRO



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MICRO

*Oxford semiconductor OXE800
ARM 926EJ-S core*

E: DSP enhancements

J: Java extension (Jazelle)

200 MHZ, 98 bogoMIPS

serials, USB, ethernet and more

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ETHERNET



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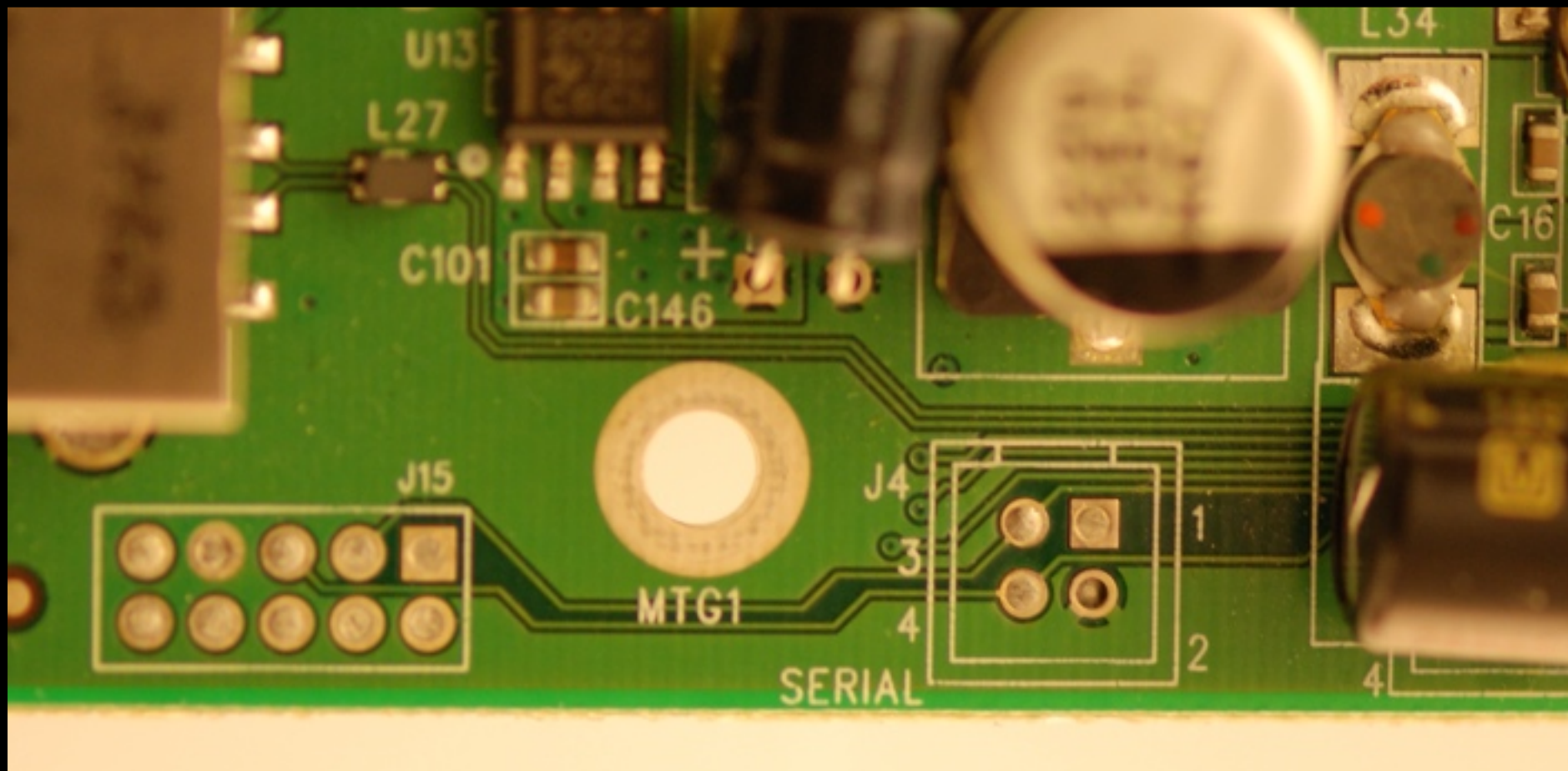
ETHERNET

*VIA Cyclada Simpliphy vt6122
Gigabit Ethernet*

“Our internal testing shows that the MyBook World’s will transfer at 24-40Mbps (3-5 MBps) on a local network. The drive does not move data quicker because that is the maximum thruput that the enclosure’s CPU can handle”--WD Support

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AND THESE?



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FIRST PACKETS

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SETUP

BOOT WOW PARTITION

...OR CATCH DHCP ON THE FLY

...OR READ DHCP TABLES

...OR MDNS FOR _HTTP._TCP

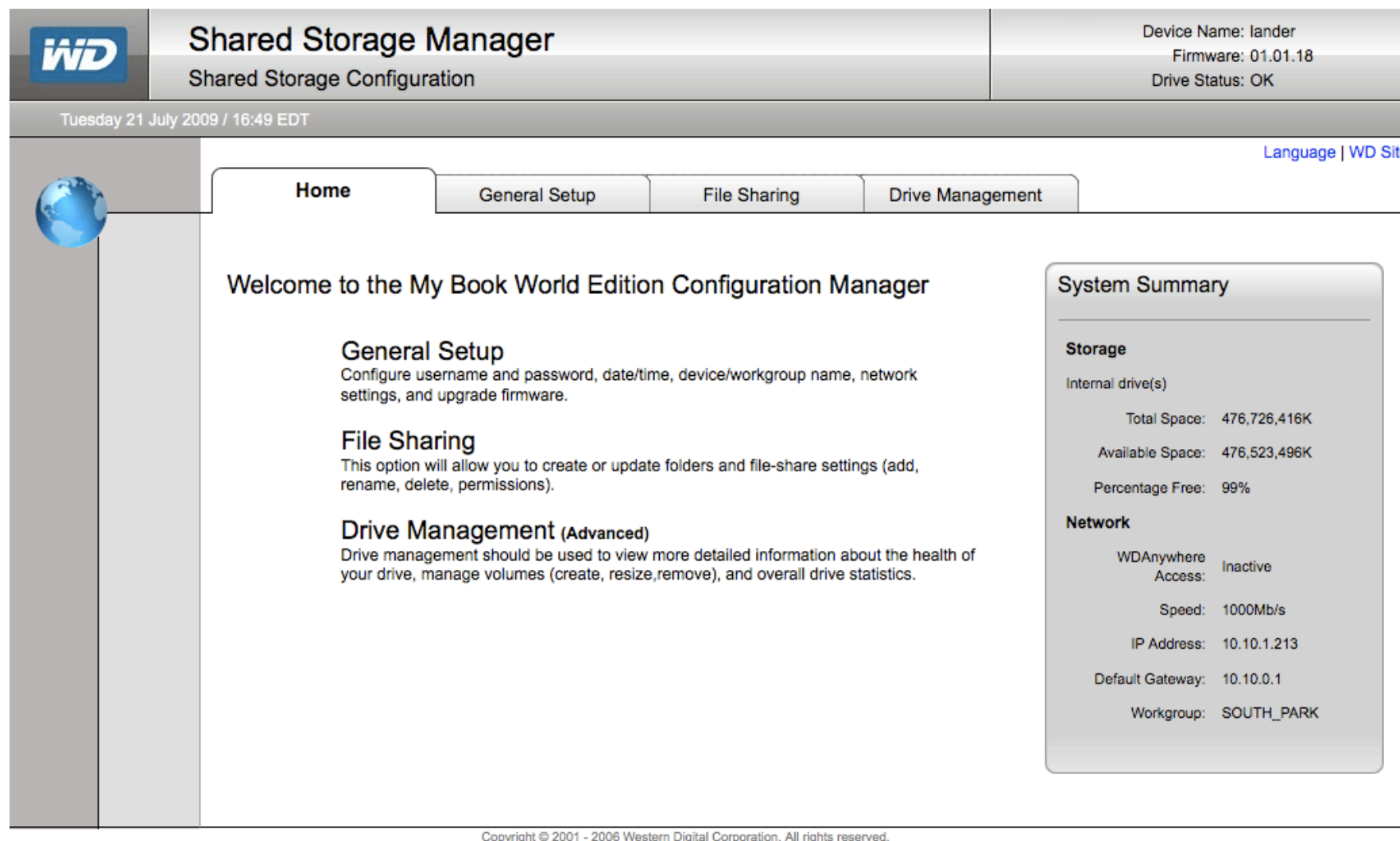
PASSWORD SETUP

LOG IN TO WEB UI

WD SHARED STORAGE MANAGER

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WEB UI



The screenshot displays the WD Shared Storage Manager web interface. At the top, a header bar contains the WD logo, the title 'Shared Storage Manager', and the subtitle 'Shared Storage Configuration'. To the right of the title, device information is shown: 'Device Name: lander', 'Firmware: 01.01.18', and 'Drive Status: OK'. Below the header, a timestamp reads 'Tuesday 21 July 2009 / 16:49 EDT'. A navigation bar features four tabs: 'Home' (selected), 'General Setup', 'File Sharing', and 'Drive Management'. The main content area is titled 'Welcome to the My Book World Edition Configuration Manager'. It lists three sections: 'General Setup' (configure username, password, date/time, device/workgroup name, network settings, and upgrade firmware), 'File Sharing' (create or update folders and file-share settings), and 'Drive Management (Advanced)' (view detailed information about drive health, manage volumes, and overall drive statistics). On the right, a 'System Summary' box provides details on storage and network. The storage section shows 'Internal drive(s)' with 'Total Space: 476,726,416K', 'Available Space: 476,523,496K', and 'Percentage Free: 99%'. The network section lists 'WDAanywhere Access: Inactive', 'Speed: 1000Mb/s', 'IP Address: 10.10.1.213', 'Default Gateway: 10.10.0.1', and 'Workgroup: SOUTH_PARK'. A footer at the bottom states 'Copyright © 2001 - 2006 Western Digital Corporation, All rights reserved.'

WD Shared Storage Manager

Shared Storage Configuration

Device Name: lander
Firmware: 01.01.18
Drive Status: OK

Tuesday 21 July 2009 / 16:49 EDT

Language | WD Site

Home General Setup File Sharing Drive Management

Welcome to the My Book World Edition Configuration Manager

General Setup
Configure username and password, date/time, device/workgroup name, network settings, and upgrade firmware.

File Sharing
This option will allow you to create or update folders and file-share settings (add, rename, delete, permissions).

Drive Management (Advanced)
Drive management should be used to view more detailed information about the health of your drive, manage volumes (create, resize, remove), and overall drive statistics.

System Summary

Storage

Internal drive(s)

Total Space: 476,726,416K
Available Space: 476,523,496K
Percentage Free: 99%

Network

WDAanywhere Access: Inactive
Speed: 1000Mb/s
IP Address: 10.10.1.213
Default Gateway: 10.10.0.1
Workgroup: SOUTH_PARK

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WD SHARED STORAGE MANAGER

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CHOOSE

RAID MODE?

DEFAULT 0 (STRIPING)

OPTION 1 (MIRRORING)

CHANGE TRIGGERS REBUILD

SYSTEM PARTITIONS MIRRORED

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DON'T

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VOIDING WARRANTIES

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BREAKING IN

HEAD TO MARTIN HINNER'S SITE
COMPOSE UPDATE URL

<http://martin.hinner.info/mybook/sshaccess.php>

TRIGGER FIRMWARE UPDATE

(<http://martin.hinner.info/mybook/files/latestfw.sh>)

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PITFALLS

MANY ROADS TO FALSE #FAIL
UPDATE WILL FAIL
UPDATE WILL SAY NOTHING

ATTEMPT SSH LOGIN
YOUR USERNAME IS UPPERCASE!

WHEN SSHD RESPONDING, SUCCESS!

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CONSOLE

MAKE IT PERMANENT

SU -

/ETC/INITTAB

::SYNIT:/UR/SBIN/SSHD

CLEANUP AND HOUSEKEEPING

/ETC/PASSWD, SHADOW, ETC

CHECK /ETC/SSHD_CONFIG

DISABLE MIONET CLEANLY

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SOFTWARE

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DMESG

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PS AXJF

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GRAND TOUR

kernel 2.6.17.14

Samba, NFS

*udhcpd, crond, syslogd, klogd,
mDNSResponderPosix*

*SSHD, lighttpd, ntpd,
(telnetd), (tftpd)*

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No man pages

Busybox

ps, top, free, ifconfig, ...

*wget, rsync, tload, chroot,
smartctl, nhfsstone,*

telnet, ssh, scp

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O'REILLY™
OSCON™
Open Source Convention
JULY 20-24 2009

GRAND TOUR

gcc, g++, gmake

awk

Java ME

Perl

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O'REILLY™
OSCON™
Open Source Convention
JULY 20-24 2009

Perl!

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DISCOVERY

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DISCOVERY

I. BROADCAST

USE MDNS
LIMITED TO LOCAL LINK
REQUIRES NO EXTERNAL SUPPORT

HOWTO: http://primates.ximiam.com/~flucifredi/mybook_mDNS.html

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DISCOVERY

II. ANNOUNCE

IM DIRECT MESSAGE
MOST VERSATILE OPTION
REQUIRES ROUTE TO SERVER

HOWTO: full writeup in Linux Journal, issue of July

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DISCOVERY

III. DO IT RIGHT

USE DNS UPDATE
RFC MMCXXXVI

FULL FLEDGED INTERNET NODE
REQUIRES CONTROL OF YOUR DOMAIN

HOWTO: <http://primates.ximian.com/~flucifredi/dns-update.html>

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PLATFORM

You now have a very portable Linux system

A very flexible, low-cost platform

Discovery problem solved in all modes

Cross compiling an option (where Perl not enough by itself :)

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CONCLUSIONS

A wondrous Hacking Platform

WD very wise in designing, later opening the system for custom use (sells more!)

Many services already HOWTO'd

Join us in finding new great uses for it!

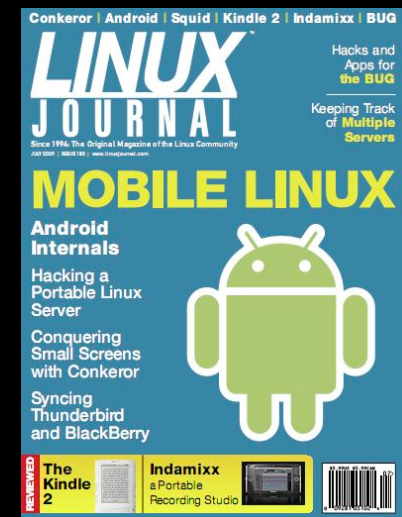
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RESOURCES

Linux Journal, July 2009

Resources section of said article!

Wikidot (<http://mybookworld.wikidot.com>)



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QUESTIONS



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