finstall

A GUI-based installer for FreeBSD

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Sponsored partially by
Google Summer of Code 2007.
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Project goals

- A modern, graphical installer for FreeBSD 7+
- Usable both by experts and novice users
- Support for several installation modes
- Support for modern FreeBSD features

Why the name?

- Only temporary!
- Once done, it can be called Fabulous Beastie-based Confabulator or whatever.
  - Suggestions welcome
- Nothing to do with fins or Finns.

Architecture

- Front-end
  - GUI using GTK, in Python
- Back-end
  - System daemon, in Python
  - Calls FreeBSD system utilities (like fdisk, disklabel)
- Miscellaneous scripts (ISO building scripts, etc.)
- Front-end and back-end communicate:
  - XML-RPC
  - UDP broadcasts for discovery

Front-end and back-end

- Front-end and back-end are completely independent and replaceable
  - As far as the front-end is concerned, it might be installing Linux
  - Back-end contains generic functions – it doesn't "know" it's being used in the installer

- Example XML-RPC invocations:
  - GetDMESG()
  - GetMountPoints()
  - SetConf()

What works?

- **Can install a full, working FreeBSD base system plus X.Org, Python, Ruby, Firefox...**

- Remote installation support

- Multiple file-system support (UFS, gjournal, ZFS, ext2), uses *glabel* for mount points

- Can configure NICs

- Can configure users

- Can configure basic services (sshd, ntpd, ...)

- Generates call-log of XML-RPC invocations

What's still missing?

- User-driven partition support (aka graphical fdisk+disklabel)

  - GPT support is also missing (implemented too late in FreeBSD)

- Software RAID support

- Package selection support

  - Currently everything from the live CD is installed

- X.Org configuration support

- Graphic card, sound card, etc.

Screenshot: Desktop
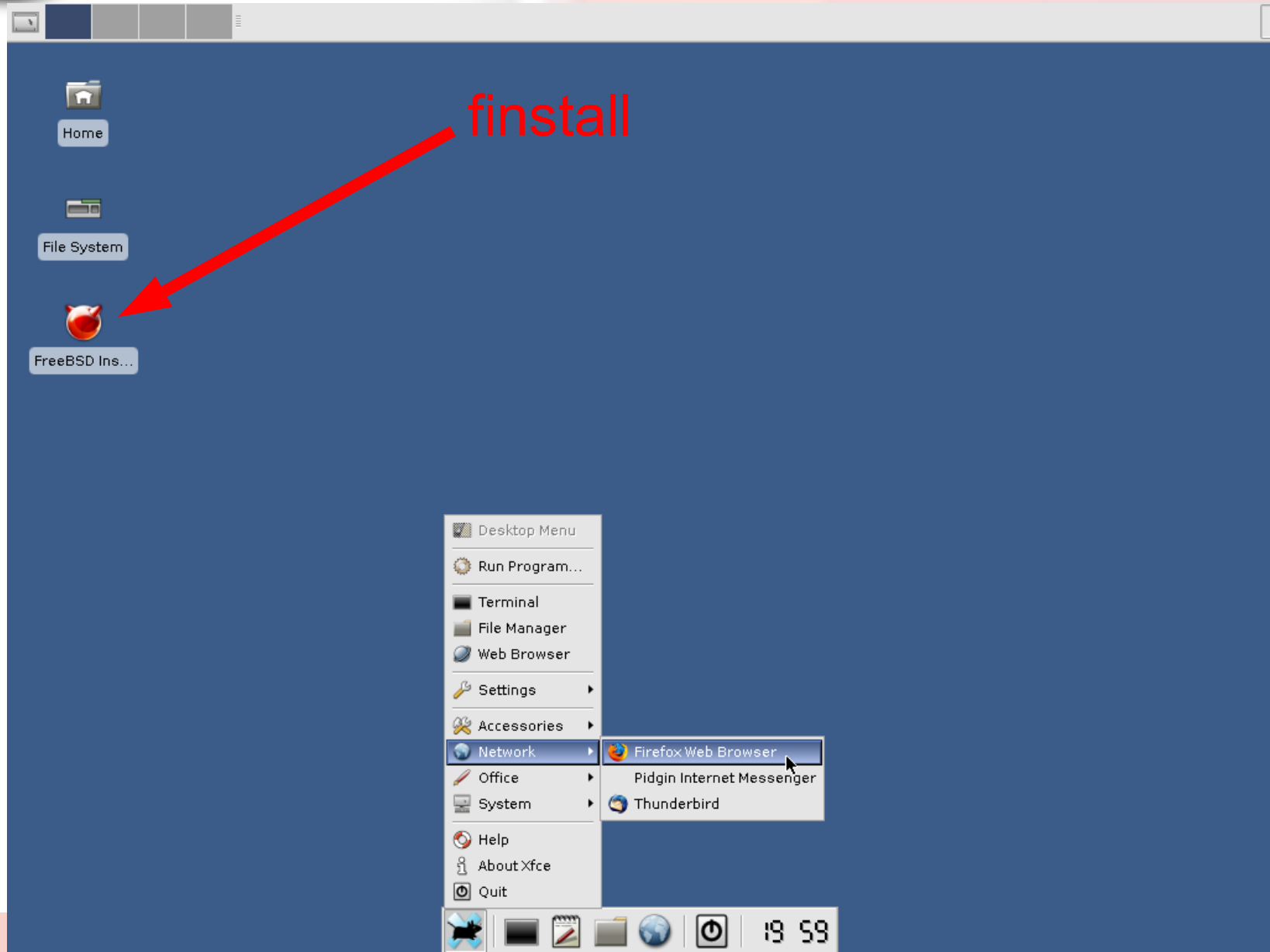
LiveCD

- Boots "normal" FreeBSD base from the CD

- Root on ISO9550 (read-only)

- Unionfs mounts memory-based UFS over significant directory trees (/var, /tmp, /etc, ...)

  - Unionfs still has bugs (in RELENG_7)!

- X.Org 7.3 starts from this live system

- Installer application is available as a desktop shortcut

- A "normal" PyGTK application

Screenshots: Select remote server

Server IP	Last seen
10.0.0.117	2008-05-11 05:25
10.0.0.2	2008-05-11 05:25

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FreeBSD is a registered trademark of The FreeBSD Foundation.
FreeBSD 7.0-STABLE #0: Thu Apr 24 22:58:18 CEST 2008
ivoras@ursaminor.cosmos:/usr/obj/usr/src/sys/URSAMINOR
Timecounter "i8254" frequency 1193182 Hz quality 0
CPU: Geode(TM) Integrated Processor by AMD PCS (499.91-MHz 586-class CPU)
Origin = "AuthenticAMD" Id = 0x5a2 Stepping = 2
Features=0x88a93d<FPU,DE,PSE,TSC,MSR,CX8,SEP,PGE,CMOV,CLFLUSH,MMX>
AMD Features=0xc0400000<MMX+,3DNow!+,3DNow!>
real memory = 262037504 (249 MB)
avail memory = 246915072 (235 MB)
kbd1 at kbdmux0
K6-family MTRR support enabled (2 registers)
ath_hal: 0.9.20.3 (AR5210, AR5211, AR5212, RF5111, RF5112, RF2413, RF5413)
acpi0: <GENSW OEM00001> on motherboard
acpi0: [ITHREAD]
acpi0: Power Button (fixed)
Timecounter "ACPI-safe" frequency 3579545 Hz quality 850
acpi_timer0: <32-bit timer at 3.579545MHz> port 0x9c10-0x9c13 on acpi0
cpu0: <ACPI CPU> on acpi0
acpi_button0: <Power Button> on acpi0
acpi_button1: <Sleep Button> on acpi0
pcib0: <ACPI Host-PCI bridge> port 0xcf8-0xcff on acpi0
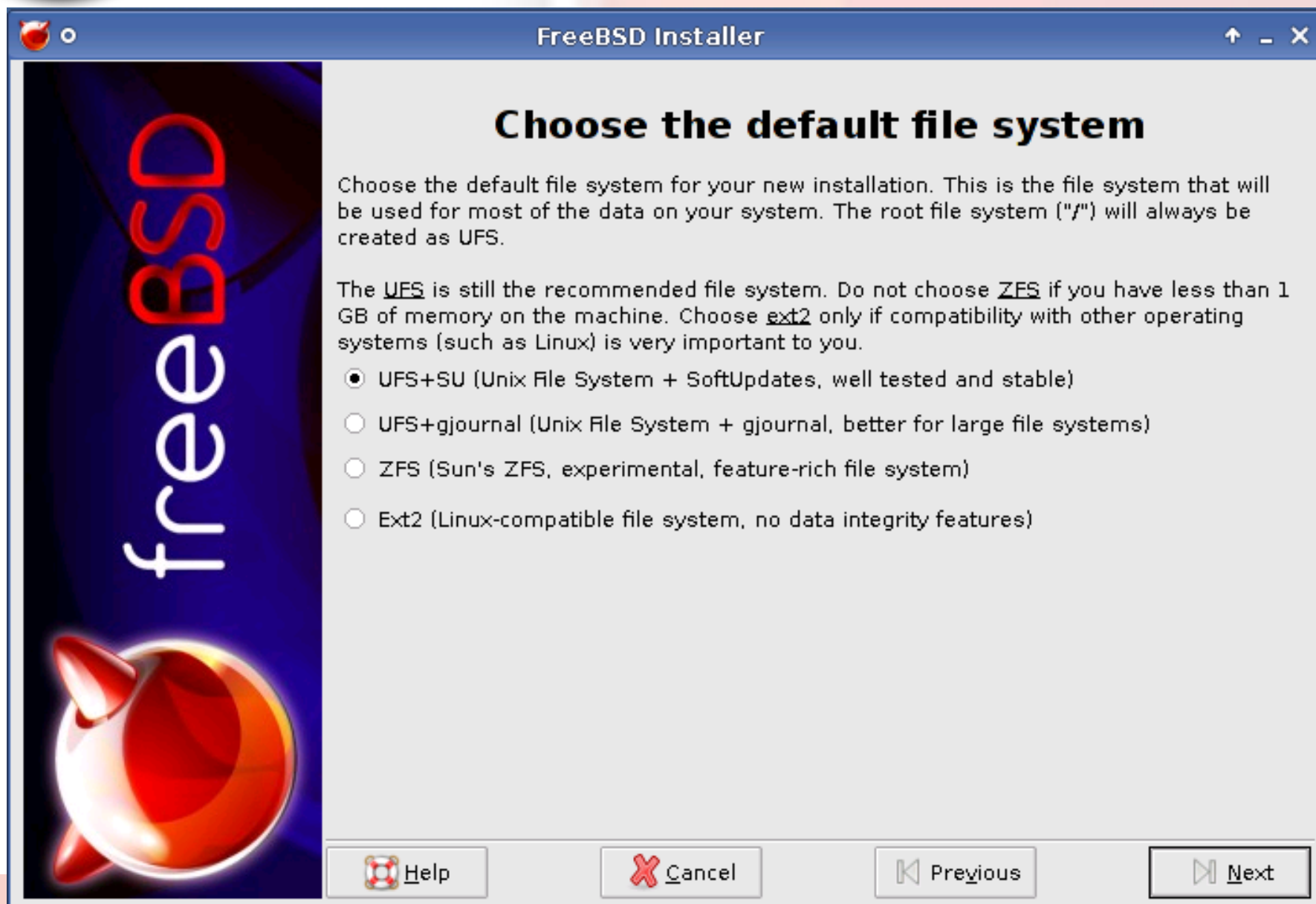pci0: <ACPI PCI bus> on pcib0

Connect   Cancel

Remote install

- Booting from the finstall CD by default (this can be canceled by the user) starts XML-RPC servers on available NICs (initialized by dhclient), and also a UDP broadcaster

- Front-ends can listen for UDP broadcasts to locate nodes

- Front-ends can connect to remote nodes, perform install "as usual", no difference

Screenshot: Choose file system

FreeBSD Installer

Choose the default file system

Choose the default file system for your new installation. This is the file system that will be used for most of the data on your system. The root file system ("/") will always be created as UFS.

The UFS is still the recommended file system. Do not choose ZFS if you have less than 1 GB of memory on the machine. Choose ext2 only if compatibility with other operating systems (such as Linux) is very important to you.

- ● UFS+SU (Unix File System + SoftUpdates, well tested and stable)
- ○ UFS+gjournal (Unix File System + gjournal, better for large file systems)
- ○ ZFS (Sun's ZFS, experimental, feature-rich file system)
- ○ Ext2 (Linux-compatible file system, no data integrity features)

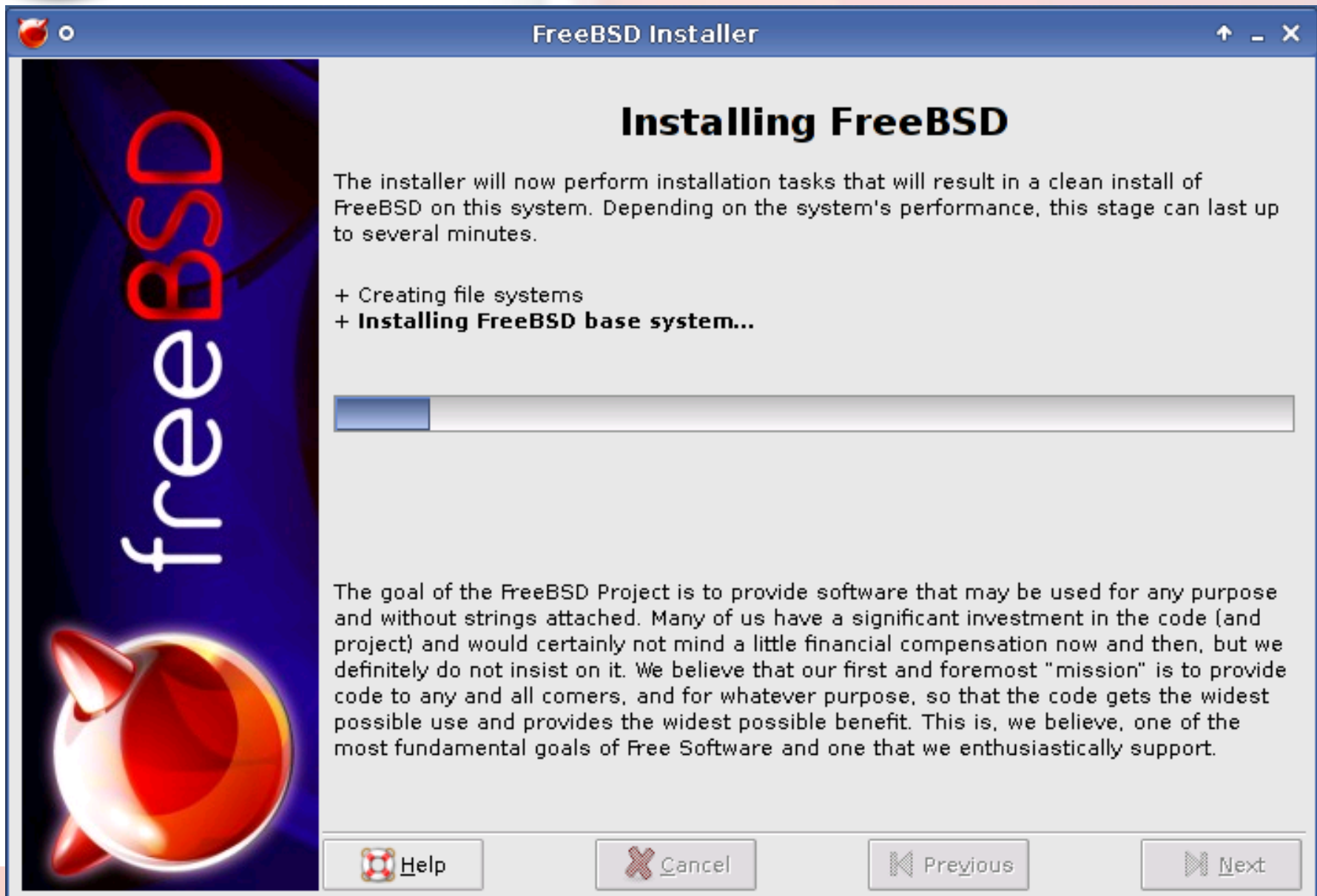Help   Cancel   Previous   Next

File system support

- Does "special" things in each case:
    - UFS+SoftUpdates
    - gjournal flags, kernel module, device label
    - ZFS tuning in loader.conf, enable in rc.conf
    - Ext2 – doesn't allow it on root
- Uses native labels (UFS, ext2) as much as possible
    - root is on `/dev/ufs/root`

Screenshot: Progress

Installing FreeBSD

The installer will now perform installation tasks that will result in a clean install of FreeBSD on this system. Depending on the system's performance, this stage can last up to several minutes.

+ Creating file systems
+ **Installing FreeBSD base system...**

The goal of the FreeBSD Project is to provide software that may be used for any purpose and without strings attached. Many of us have a significant investment in the code (and project) and would certainly not mind a little financial compensation now and then, but we definitely do not insist on it. We believe that our first and foremost "mission" is to provide code to any and all comers, and for whatever purpose, so that the code gets the widest possible use and provides the widest possible benefit. This is, we believe, one of the most fundamental goals of Free Software and one that we enthusiastically support.

Help | Cancel | Previous | Next

Install jobs (long-term)

- Server (systoold) spawns thread to perform long lasting jobs

- Client periodically polls for progress

- Advertising opportunity :)

Screenshot: configure NICs

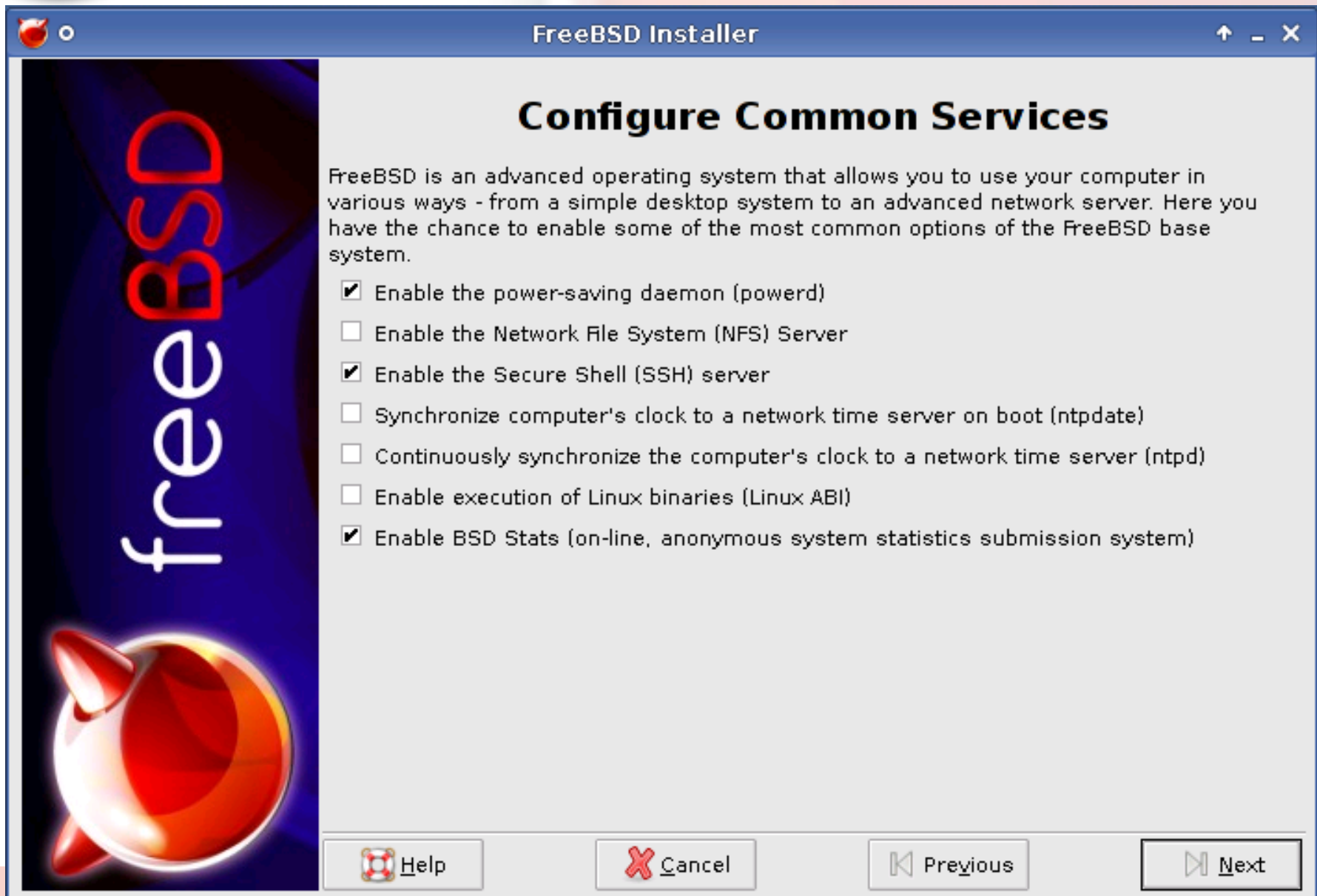# NIC configuration

- Configure each NIC separately

    – Static or DHCP

- Additional options:

    – ipfw

    – ipv6 (only enable/disable)

Screenshot: Services

Services

- For now, only simple services
  - sshd
  - ntpdate, ntpd
  - bsdstats
  - Linuxulator
  - powerd
  - nfsd

Future development

- Graphical partition editor

- Software RAID (gmirror)

- Package selection

- X.Org configuration

- Multimedia device configuration

- ... but it will progress slowly
  - no sponsorship currently

Thank you / Questions?

- Thank you for listening to a presentation of **finstall (a graphical FreeBSD installer)**

- Ivan Voras <ivoras@freebsd.org>

- Sponsored in part by Google (Summer of Code 2007), mentor Murray Stokely