Open Source applied to Computer Forensics

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Open Source should be used in Computer Forensics for many different reasons:

✓ In the back-office it’s useful to build an enterprise level lab with a very low investment. You may use many interesting technologies which are far better than commercial ones (AFS, for example)

✓ The above helps emerging countries and States with a low dedicated budget

✓ When you need to perform analysis you find that open source software is often updated faster than others

✓ GNU/Linux is the best Computer Forensics environment in the world, without any doubt
A Computer Forensics Lab has many different needs:

✓ You need HUGE storage (our lab has > 40 TB), but you don’t want to spend everything in SAN/NAS/whatever

✓ You need to keep data secure but you need to give local root (or Administrator) password to every single computer forensics expert

✓ You need to work with many different platforms
✓ These needs don’t coexist very well
✓ We had many troubles trying to work with these problems
✓ We tried many technologies:
  - NFS
  - SMB
  - NFS v.4
  - Coda
OpenAFS solved all the troubles at once!

It has:

- Strong Authentication (Kerberos V)
- Client and server for more than 20 different platforms
- Replication
- Surpass the concept of “file server” (cell)
- Backup
- Strong encryption
- Central management
- Works well also with low band
✓ With OpenAFS we work with cheap hardware and we are able to scale up without a single problem
✓ At the present we have:
  ➢ 1 Cell (lab.atpss.net)
  ➢ 10 File Servers
  ➢ > 40 Tb of data
  ➢ 1 Site
✓ In a very near future we’ll able to scale up to:

- 3 Sites (1 Research Lab and 2 operating ones)
- 1 Cell
- > 100 Tb
- > 20 File Server

Everything without changing actual systems but simply adding new components to the system
✓ GNU/Linux is unique operating system
✓ Yes, there are many other open source operating systems but only GNU/Linux has:
  ➢ Support for more than 18 types of partition schemes
  ➢ Support for more than 40 file systems
✓ GNU/Linux is also useful because it’s:
  ➢ Reliable
  ➢ Affordable
  ➢ Very good hardware support
✓ And, last but not least ... it does what you are asking for (no wizards, helpers, whatsoever)
✓ You have also many other interesting technologies:

- Loop devices
- Software RAID
- Wine
- Bond devices
- Libpcap
On the top of GNU/Linux and its features you’ll find a world of computer forensics programs to perform (for example):

- Bitstream copy
- Hash validation
- Analysis
- Network Forensics
- Reverse engineering
- RAM Dumping
- ... many others ...
✓ Are you scared about all these things?
✓ Don’t worry there are Computer Forensics Distributions!
✓ Helix Knoppix: recently updated (no more than 2 weeks ago), it’s one of the best computer forensics distro in the world. It’s a Live CD useful both to copy and inspect computer systems
✓ DEFT: A true “Italian job” by Stefano Fratepietro and Andrea Ghirardini. Ubuntu based (like the new Helix), it’s a Linux Live CD with everything you need to perform forensics analysis
✓ DEEEFT: A SD-CARD distribution (by Andrea Ghirardini). With DEEEFT you can turn an eeepc in a compact forensics machine. A little lab in 1.1 Kg!
There is also profound reasons to use Open Source Software for forensics analysis:

- **Availability:** Software is always “on the net” you can find also a obsolete version years later
- **Open Format:** Open source means open formats. You always convert an open source file format in another one... (Try to read a very old .doc file if you can...)
- **Double check:** The opposite side can check every step of your analysis if you use (and produce) open source software. This is not true if you need a many-thousand-dollar software...
- **Transparency:** Commercial software is a black box. Open source software can be checked without any problem
That’s all!
Any questions?
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