« Freen IT » - Free as in Green IT

fOSSa 2010 - November 9, 2010

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In this session we'll discuss...

What Green IT is and why it matters

How Free / Libre / Open-Source Software...

...May Provide Solutions...

...to the Top « Green IT » Challenges

Which it would be wise to take into account in public policies!

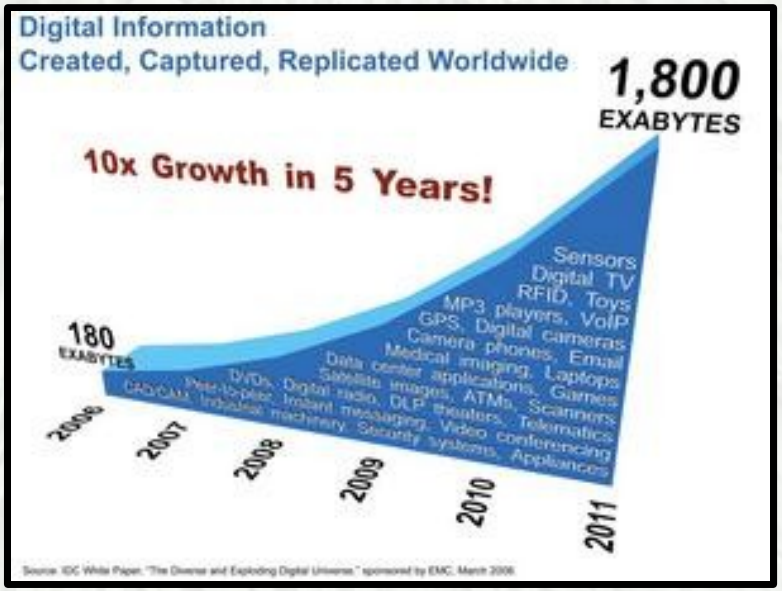
Humanity is entering the Digital Age

Post « Industrial Age », post-humanity (?)

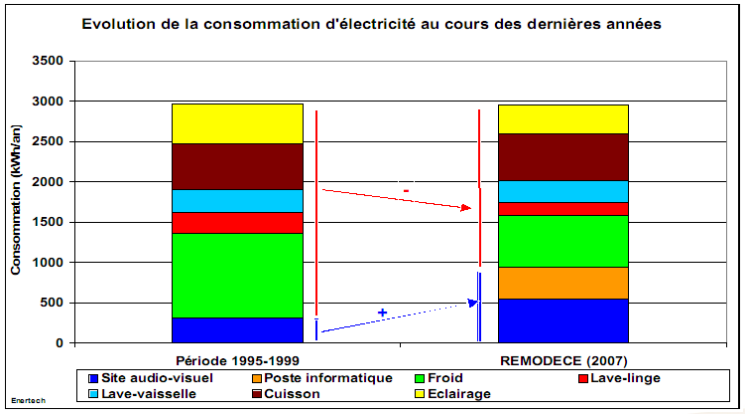
« Digital na(t)ives »: first generations born with computers at home

1.000 ExaBytes (10^{18}) of digital information created or copied in 2010 in the world

+57% / y growth rate



Bytes are not « Virtual »



Bytes are software DNA

To run software you need to feed the processors and... the memory

Energy consumption:

one 2nd Life avatar = one average “real life” Brazilian

Digital world puts pressure on our real World

1 Billion PCs = huge carbon dioxide footprint (4b in 2020)

Billions of kWh of electricity to feed 1.800 Eb of data storage

13,5 % power consumption (France) / +10%/y growth rate

2% of CO_2 emission: same as air transport

Green IT: yes, You should care!

Green IT « 1.0 »: as of today

- Reduce ICT footprint
- ...2% of the problem

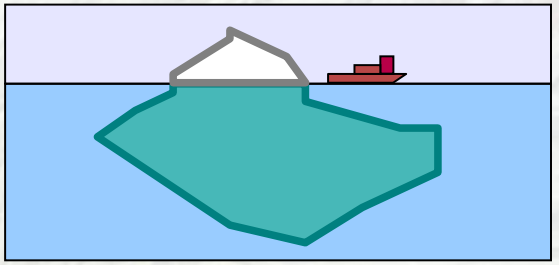
Green IT 1.0
Green for IT

Green IT « 2.0 »: the path ahead

- Using ICT for a greener world
- May help solve... 98% of the problem

Green IT 2.0
Green by IT

Energy Consumption: Only the Tip of the Iceberg



- Embodied energy
  - Cell phone impact: 80% comes from embodied energy
  - Manufacturing a desktop in China emits 24x more GHG (CO_2) than using it in France for one year
- E-waste (WEEE) = pollution
  - 75 millions tons of e-waste 2014 - < 20% reused or recycled
  - Enough mercury to pollute all crop fields on Earth
- Shortage of non-renewable resources
  - Imagine a world without... oil... copper... drinking water...
- Saving power during the “active phase” of hardware is great... but not the main challenge

Four Battles to Fight First

Extend hardware lifespan & re-use

Reduce software frenzy

Help humanity **mutualize** Earth's last critical resources

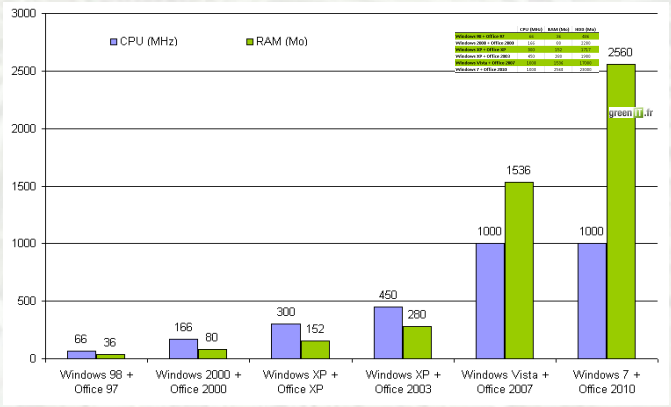
Speed up the move to **functional & circular economy**

Reduce software frenzy

FLOSS is Less Ressource Hungry

Escaping Wintel planned obsolescence

- Vista requires a processor +250% more powerful than XP; XP +75% more than W2K...
- Vista + Office 2010 requires 70x more resources than Win 98 + Office 97...



Superior design... sometimes

- No anti-virus nor defrag in Linux...
- But poor efficiency of Java-based OpenOffice?

Modularity enables optimization

- Distros: from tiny SliTaz (30 MB) to no install Puppy Linux to cluster-oriented Caos Linux
- From compile-your-own Debian to RPM based “on demand”

Extend hardware lifespan & re-use

FLOSS Extends Hardware Lifespan

… Whenever proprietary licences are not transferable, to begin with!

F/L/OSS makes refurbishing economically viable

- Old computers with F/L/OSS perform just as good as new ones with last version proprietary software
- Price point much lower, may balance lack of guarantee

Average use of personal computers: 2 years

- Using refurbished PCs for an extra 2 years means manufacturing half as many new machines!

Move to functional & circular economy

FLOSS – A Proven Collective Development Process

- Green IT challenges need to be addressed on a global scale
  - The bad example of refurbished Pcs ending as WEEE in developing countries...
- The dream of all large companies
  - Making 100's of people from different countries, languages, timezones and background work together... and deliver
- FLOSS lessons learned to be used for Green IT 2.0?
  - Virtual worlds to the rescue!
  - Cyberspace, virtualization – born from F/L/OSS

Help humanity mutualize resources

Openness is Good for Innovation!

- Open Innovation...
  - Coopetition, commoditization, open standards
- Addressing Green IT 2.0 Challenges
  - Eco-design: Open Standards for devices and components help reuse
  - Handling electronic waste, bridging the digital divide, designing the smart grid
  - Saving on software R&D to innovate elsewhere: F/L/OSS saves 36% European ICT R&D
- (Back to?) A service-based economy
  - From pure F/L/OSS players to Platform-as-a-Service

Free + Green = « Freen »
Towards Sustainable ICT?

World 2.0 *big big* trends

Mutualization: moving from product to service to extend lifespan

- FLOSS: from license fees to service based business models
- Green: from ownership (back) to shared resources & commons

Standardization : smart building, meter, grids, ...

Can we seriously afford to waste time with a closed innovation process?

Openness to speed up innovation

Open standards to speed up adoption

That's the FLOSS know-how!

To Take Away... and Promote in Public Policies!

Green IT: you should care...

Top challenges: embodied energy & e-waste

FLOSS May Help Provide Solutions

- Squeeze software
- Re-use
- Share
- Green by IT

Thank you for your attention!

Questions?

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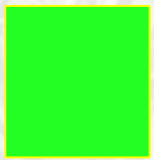
Thanks to F. BORDAGE / greenit.fr
for his contribution to preparing this presentation



*In case you were wondering... this is what **freen** means!*
« extra amazingly cool acidic green » (the Urban Dictionary)