Who's afraid of

Spectre & Meltdown?

FSFLA Latin America

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Grandma 2.033's Wisdom

- Prevention is better than cure
- Take a coat, for the cold!
  ... and a condom, for the heat :-)

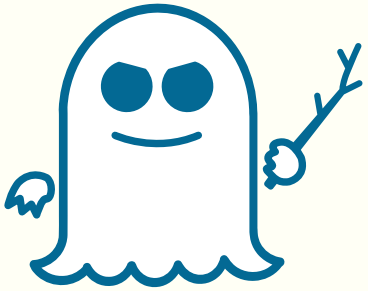
- Don't let the **Big Bad Wolf** in
- Don't take candy **from** strangers
- Don't take strange programs
  (it used to be easier)

Data and Software

- Data: passive (text, tables)
- Software: active (instructions)
- Software embedded in data
  - Macros, Javascript
- Automatic execution: **strange sweetness**
  - Viruses, Worms and Trojan Horses
  - Trackers, miners, blockers

Madness and common sense

- Antivirus.ru banned in gov.us, .uk, .au
- Mobile.cn banned in gov.us
- Trojan horse in Iranian nuke research
- Sovereignty and jurisdiction over tech
- Our governments, armed forces, elections?
- How about us and our own computers?



Spectre & Meltdown

```
if (x < n)
  a = m[x], b = a & 1, y = *c[b];
```

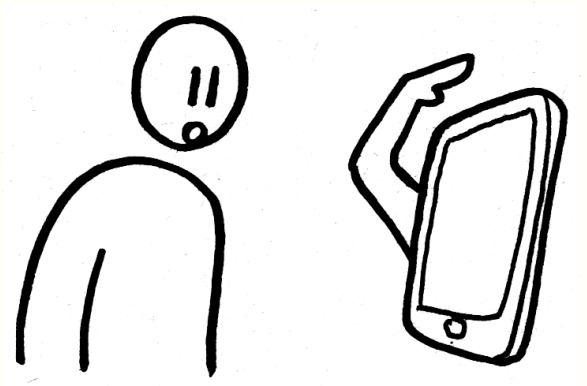
- Speculative execution: while obtaining `n`...
- Branch prediction: usually `(x < n)`
- Memory protection: `m[x]` inaccessible, but...
- Memory caches: holding `*c[0]` or `*c[1]`?
- Even with VM, in VMs and browsers!

Why Worry?

Got personal data on the computer?

Software you use either...

- is reliable? (not strangers' candy)
- serves you, under your control?
- is auditable **and** was audited?
- could be changed for direct access?



... or it does not serve you

Free Software

- Controlled by the user
- Essential freedoms
  - Run for any purpose
  - Study (audit) sources and adapt

    ⇑ Individual ⇓ Community
  - Make and distribute copies
  - Improve and distribute improvements

Software Freedom

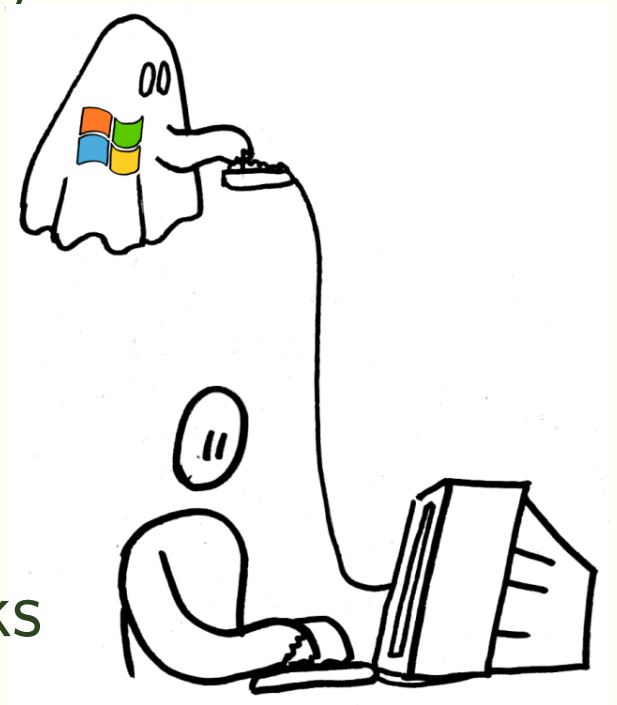
- Human right founded on ethics
- For your data security
- Operating system, apps
- Libraries, plugins, addons
- Software embedded in data!
- Drivers, firmware and microcode
- ~~Service as a Software Substitute (SaaSS)~~

Virtual Machine, Real Risk

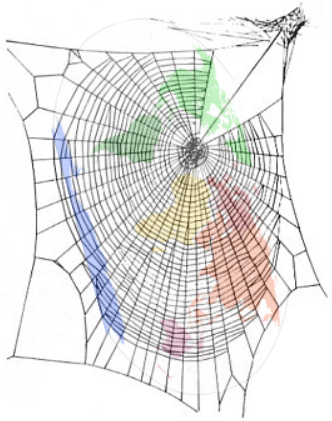
- Own local computer (IntelME? PSP?)
- Own remote computer
- Shared (virtual?) computer
- Isolation between customers by provider
- Ethics: independente computations
- Practice: panic among customers and providers

Freedom and Security

- Freedom is not enough for security
- But security requires freedom
- Controlling software and users
- Individual and collective defenses
  - Deliberate and elaborate attacks
  - Exploiting accidental errors
  - Exploitable (NetSpectre) gadgets



World Wide Execution Web



- Pages with Flash, Java, Javascript, ...
- Automatic execution under server's control
- GNU LibreJS, NoScript, Greasemonkey
- Auditing, adaptation, version selection
- Control by the user, or block
- Unwanted access, all lost: coincidence?

Holes and Patches

- Demand for non-Free microcode
- Updates with unwanted features?
- Slower and costlier computing
- Consider software freedom

- Who knows what other holes are there?
- Don't let the Big Bad Wolf in!

Nothing to Fear...

Thank you!

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Latin America

Be Free!

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