Flush+Reload

L3 Cache Side-Channel Attack

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CS 305 Course Project

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- Explore measures to combat this attack
- Discuss possible implications

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- Recovers 96.7 percent of encryption key in single run through

Implementation of attack on GnuPG

```
function exponent(b, e, m)
begin
  x ← 1
  for i ← |e| − 1 downto 0 do
    x ← x^2
    x ← x mod m
    if (e_i = 1) then
      x ← xb
      x ← x mod m
    endif
  done
  return x
end
```

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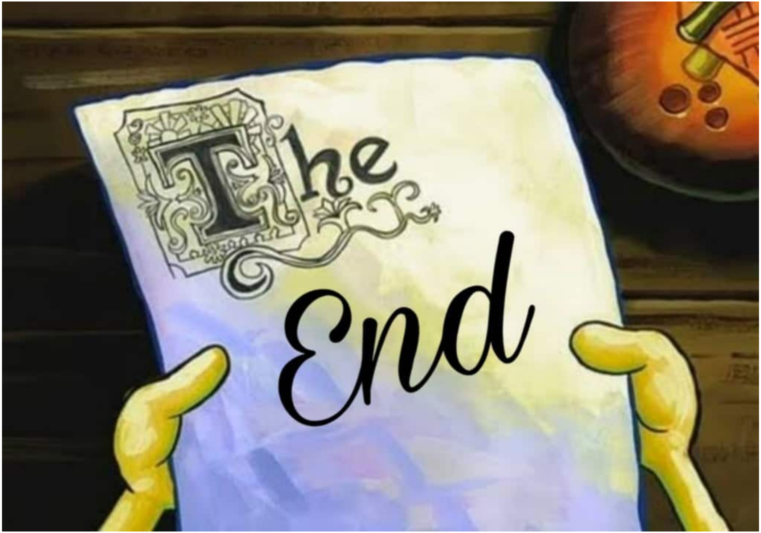
- Execution order of a process shouldn't be indicative of any sensitive information.

Possible Applications

- SSH, to extract the secret keys used for public-key authentication
- SSL, determining other users' private keys
- VIM, to determine what the victim is typing into a document
- Terminal commands (e.g. ls, cat, cd)


The
End