

Denial of Service (DOS)

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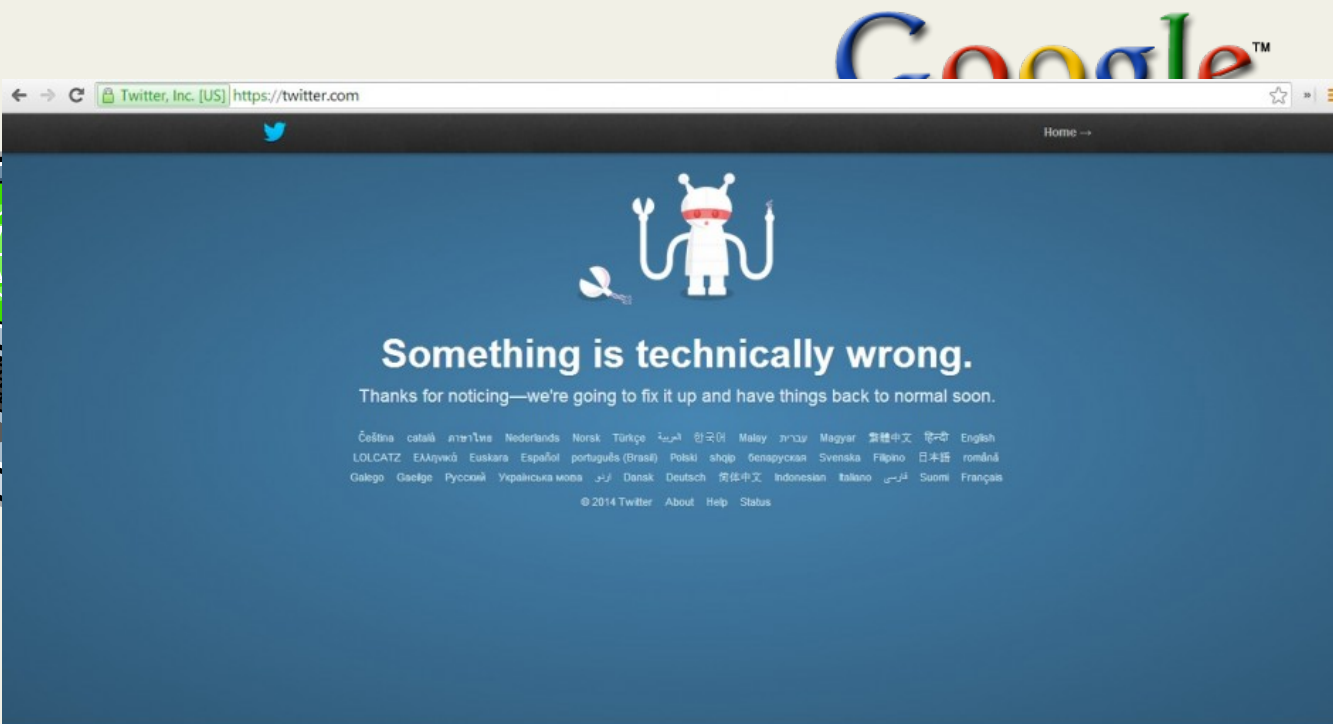
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The National Science Foundation**

Denial of Service



- Denial of Service: rendering a system unable to provide services
- Hackers use this attack to manipulate stock exchanges

Types of Denial of Service



- Hardware DOS: breaking the electronics between links
- Application Specific DOS: crashing on specific site

Application Specific DOS Defense

Apps are made of codes
Codes take resources
Hackers attack the parts that take a lot of resources
Line of Defense:
Remove the parts that consume the most resources



```
def parse1(lines)
  lines.each do |line|
    name, employee_id, office = line.split
    puts "employee_id: #{employee_id}"
    puts "office: #{office}"

    last_name, first_name = name.split
    puts "last_name: #{last_name}"
  end
end
```

```
parse1(File.new("timesheets.txt").readlines)
true)
options = {
  :fenced_code_blocks => true,
  :no_intra_emphasis => true,
  :autolink => true,
  :strikethrough => true,
  :lax_html_blocks => true,
  :superscript => true
}
markdown_to_html = Redcarpet::Markdown.new(coderayified)
markdown_to_html.render(text).html_safe
end
end
```

Mitigation Approach

```
Listing Articles
New Article
Title          Text
Rails is awesome! It really is.
Show          Destroy
```

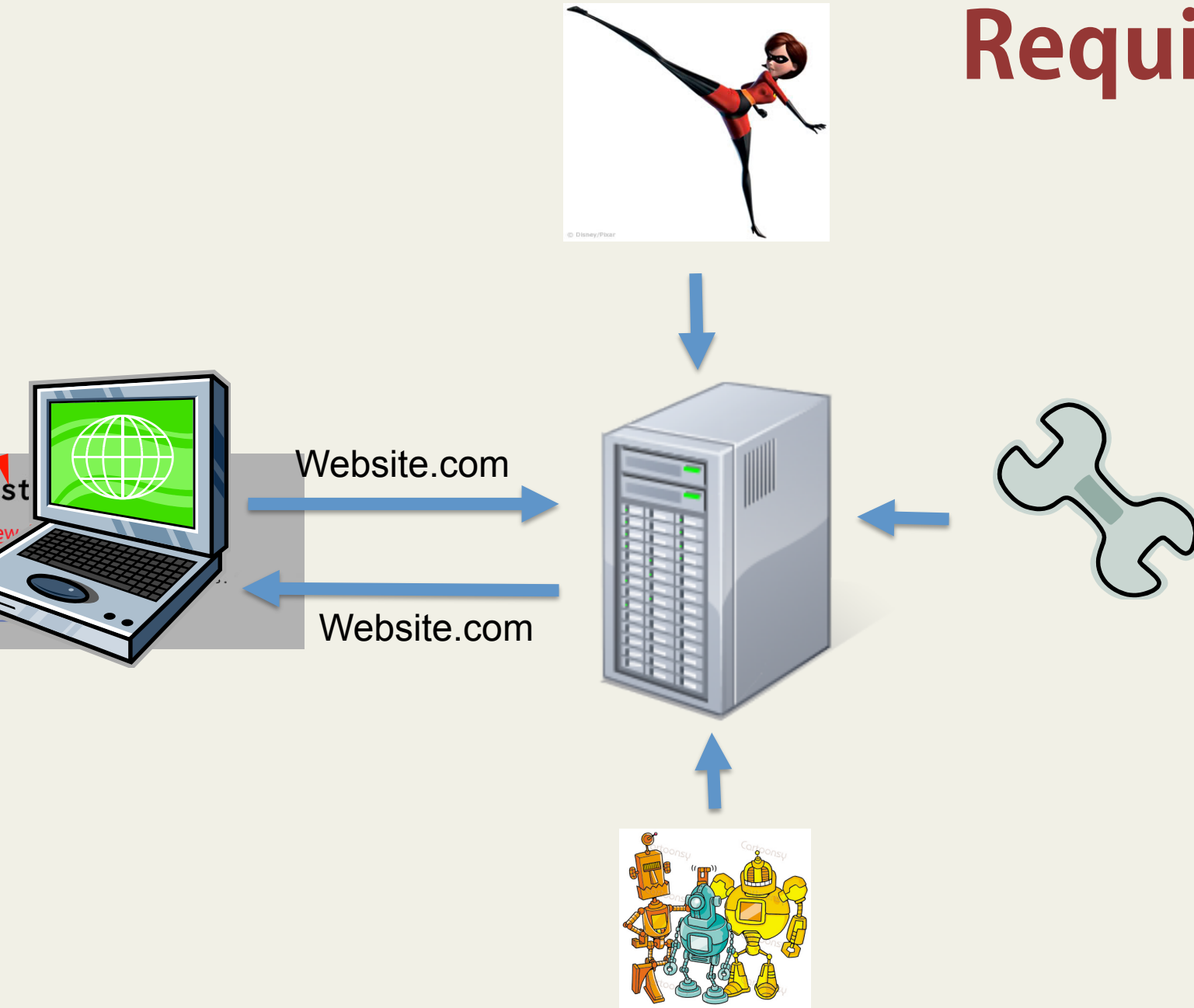


ABRACADABRA!



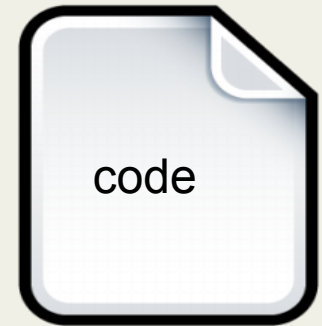
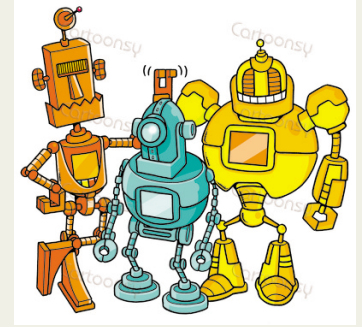
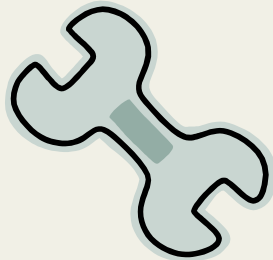
- Accurately identify which parts consume the most resources
- Implement our algorithm
- Check our results

Requirements



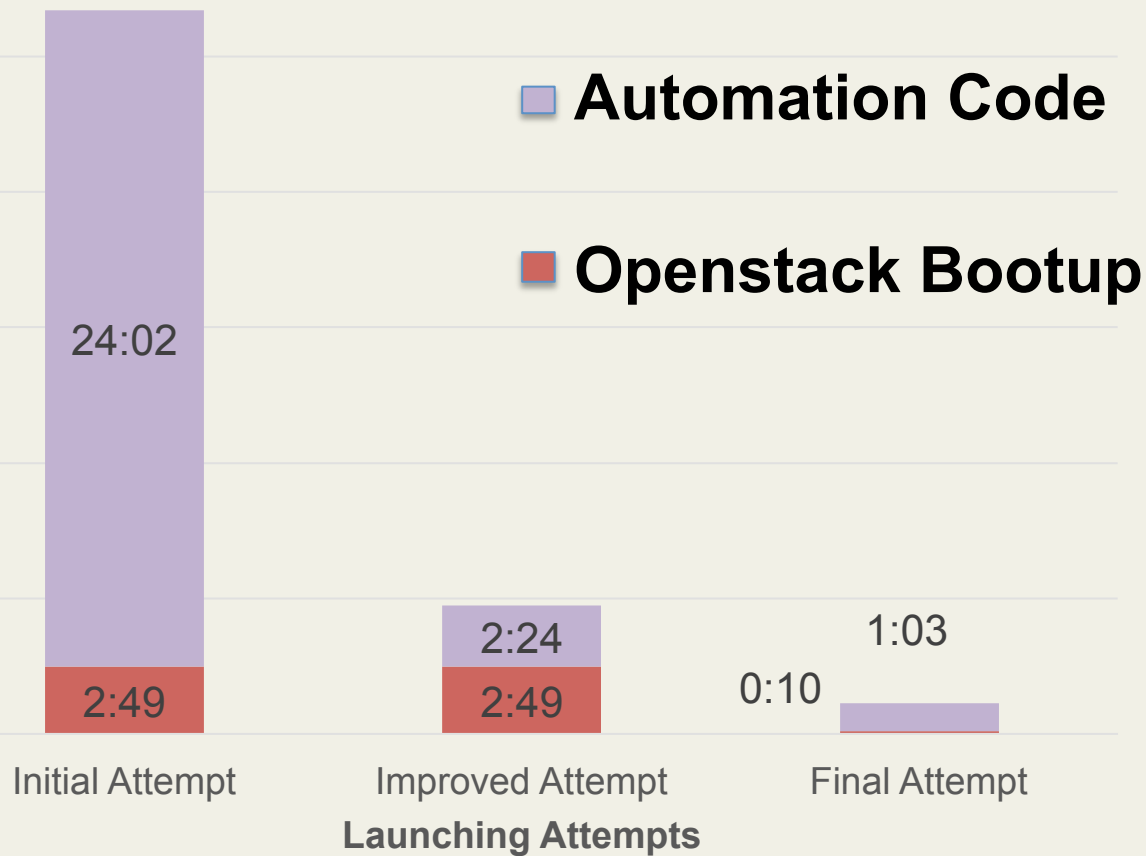
- Speed
 - Flexible
 - Configur
 - Automat

Solutions



Speed

Speed Progression



- Initial attempt
 - Required external process
- Improved attempt w but not the best
- Final = success!



= 1 min – 5 mi

Software in Action

```
elacruz-Studio-XPS-9100:~/Documents$ ./testSampleApp.sh  
new server name: AppServer
```

192.168.163.32:9000 Google

SAMPLE APP

Home Help Sign in

Welcome to the Sample App

This is the home page for the [Ruby on Rails Tutorial](#) sample application.

Sign up now!



Rails Tutorial by Micheal Hartl

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```
erprint ls ee:8e:bb:14:50:4e:5d:c5:a5:97:1d:44:bc:c4:73:e4.  
ou want to continue connecting (yes/no)? yes
```

Future Prospects

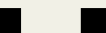
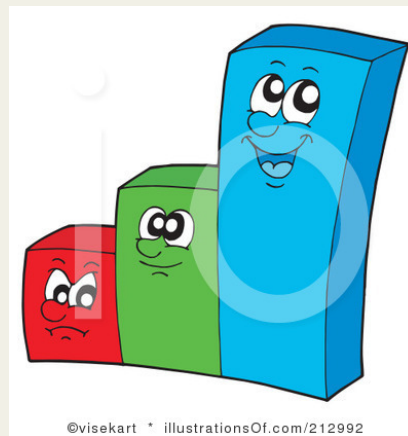
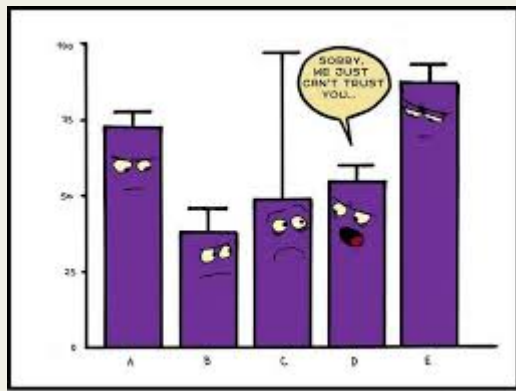
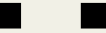


A screenshot of a web browser displaying two pages. The top page is Indiegogo, showing a navigation bar with "EXPLORE", "HOW IT WORKS", and "START YOUR CAMPAIGN". Below it is a notification: "Hooray! Indiegogo just got more social. You can now see what your Facebook friends are funding. Learn more." The bottom page is CrunchBase, titled "The Business Graph", with a search bar and "Advanced Search" link. It features a section "CrunchBase Daily - Top Funding Rounds" with two entries: Druva (\$25MM / Series D) and InVision (\$21MM / Series B). A blue arrow labeled "Algorithm" points from the Indiegogo notification area towards a bar chart on the right.

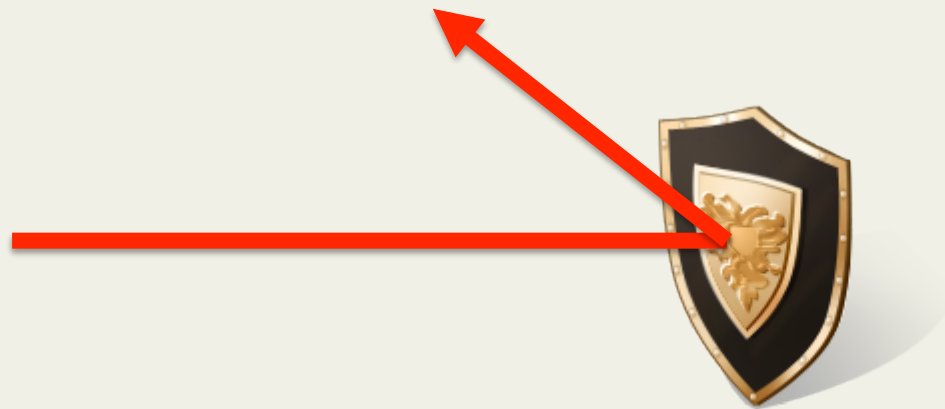


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Future Prospects



No More Crashing



Listing Articles

[New Article](#)

Title

Text

Rails is awesome! It really is.

[Show](#) [Edit](#) [Destroy](#)

Acknowledgements