

# REST

ili kao sam se prestao brinuti  
o HTTP-u i zavolio ga  
(HTTP Server sa RFID driverom)

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# Zašto?

**Razviti podršku za  
posuđivanje i vraćanje  
knjiga RFID tehnologijom  
preko browsera!**

*Kartica na čitaču treba dvosmjernu  
komunikaciju sa Kohom!*

# 3M RFID protokol

- 3M software za korisnike
  - Visual Basic iz 90-tih
  - Ne prikazuje SID-ove RFID čipova
  - Prikazuje 5 čipova istovremeno
  - Automatski copy/paste u drugu Windows aplikaciju
- USB serial protokol sa RFID čitačem



# 3M RFID protokol

- Portmon za pregled USB prometa
  - Windowsi pod KVM-om
- Otkriti sve mogućnosti
  - čitanje 25 čipova istovremeno
  - koliko podataka stane na RFID čip
  - kako funkcionira security
- Protokol ima CCITT checksum
  - StackOverflow korisnik **selwyn** rješio moj problem!



# Comet = Meteor + RFID

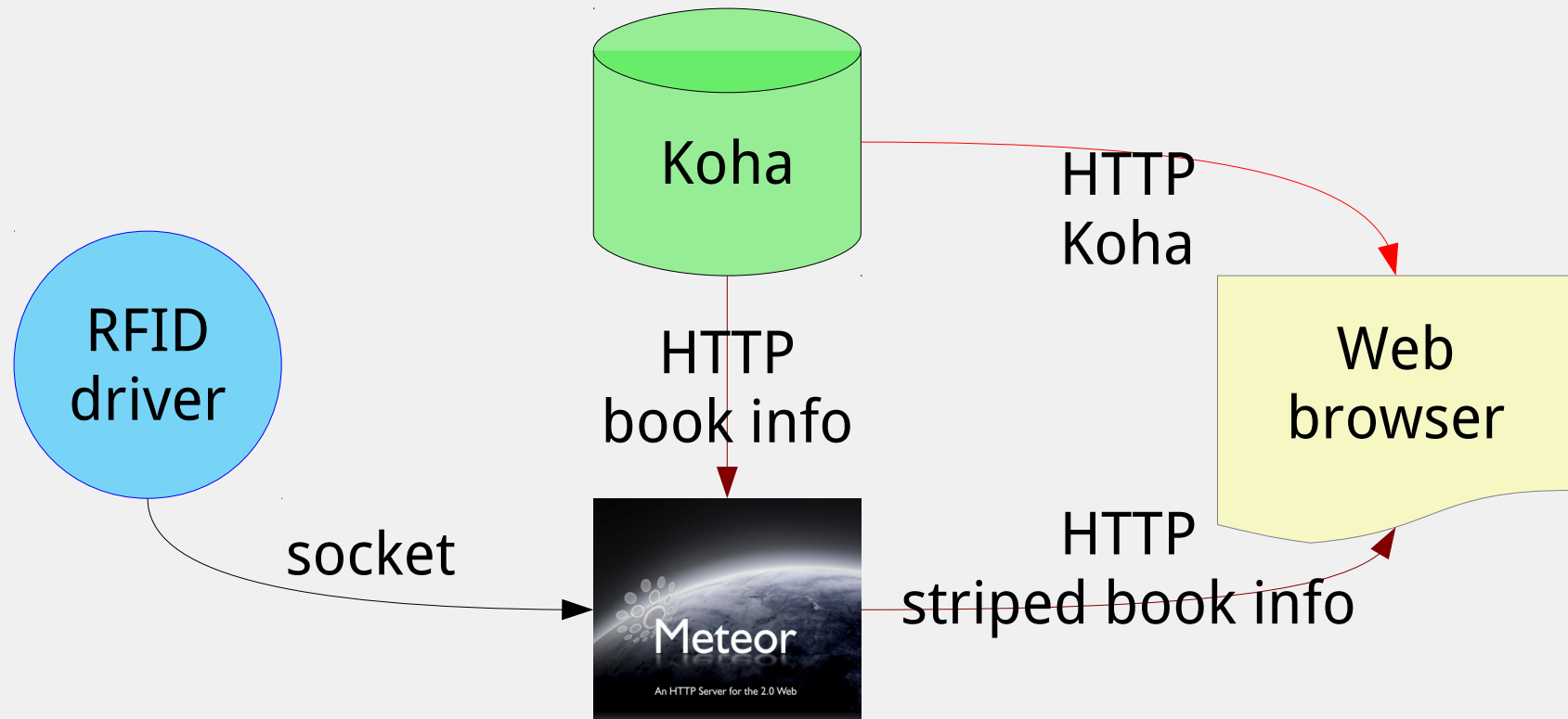
The screenshot shows a web browser window displaying a library website. The page title is "Item descriptions from Koha". The main content area features two book listings. The first listing is for "Odrabrani raskazi / Povijest knjige /" by Kristina Andelko Todorovski. The second listing is for "Povijest knjige /" by Stjepan Aleksandar. Below the listings, there is a section titled "Items in reader range: E00401001F7773FD" with a timestamp of "Sun Mar 29 23:42:04 2009".

On the right side of the browser window, a debugger console is open, showing a series of log messages. The messages include timestamps and debug information, such as "Sun Mar 29 23:41:54 2009" and "debug Meteor".

At the bottom of the browser window, the "Inspect" tool is visible, showing the "Console" tab. The console displays several log messages, including "item E00401003123ABA2 out of range" and "process [ 'info-in-range', 'E00401001F7773FD', 'Sun Mar 29 23:42:02 2009' ]".

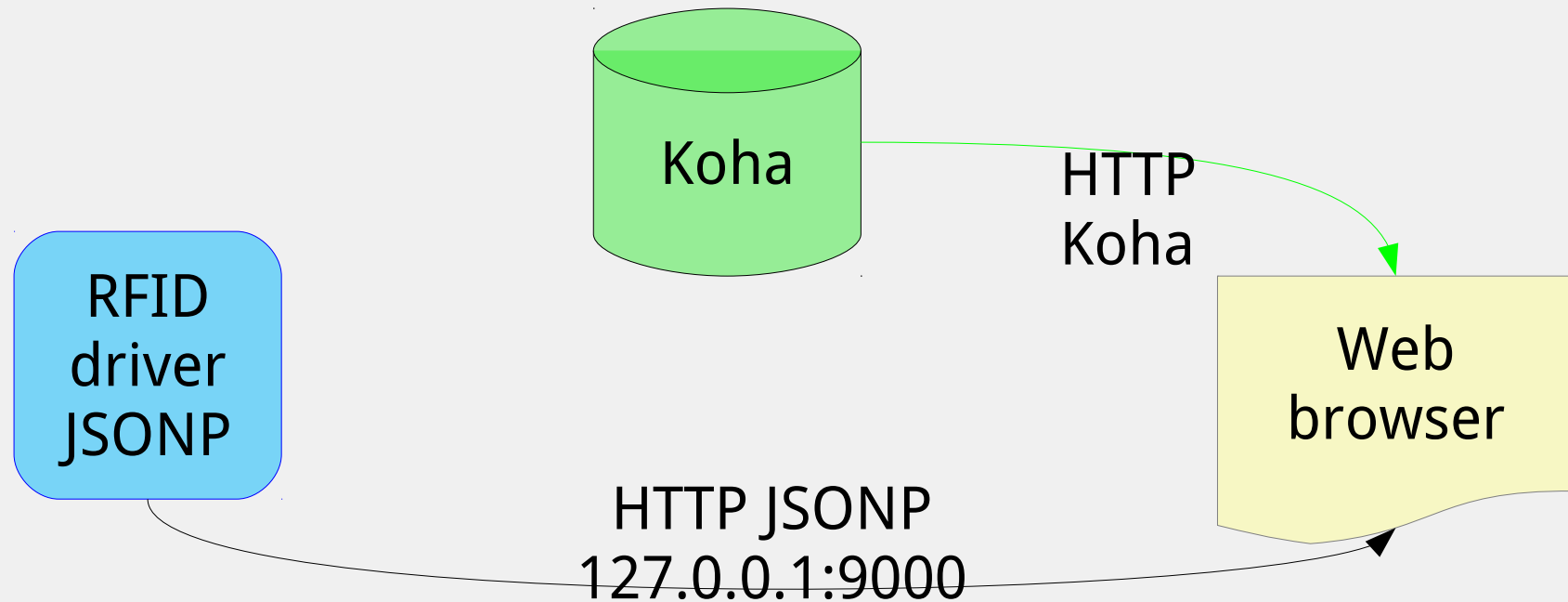
<http://www.youtube.com/watch?v=ptWv4fFJ6Q8>

# ETOOMUCH



Meteor Comet server: single point of failure

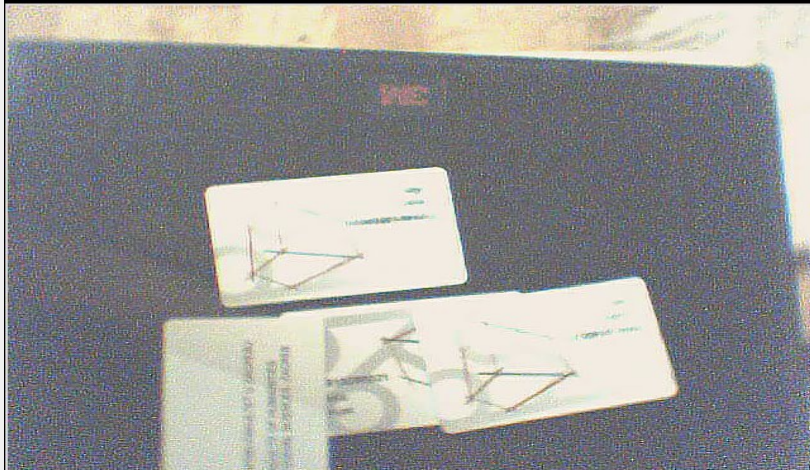
# KISS: JSONP



Svaki JSONP poziv je nezavisan!  
Pull RFID čitača iz browsera

# RFID + HTTP/JSONP

```
E00401001F7780DC => ("\0" x 64),
E00401001F779671 => ("\0" x 64),
} item type: Other
# read tag upto 16
checksum doesn't match: 480b != 1234 data: d6 00 0b 0a e0 04 01
00 1f 77 80 dc
# SECURITY E00401001F7780DC = 00
TAG E00401001F7780DC {
  branch => 0,
  content => "",
  custom => 0,
  library => 0,
  set => 0,
  total => 0,
  type => 0,
  u1 => 0,
  u2 => 0,
# tags: (
  "E00401001F779671",
  "E00401001F776304",
  "E00401001F7780DC",
  "E00401001F776EE",
)
}
```



3M RFID x Koha > ... x http://... x http://... x

http://localhost:9000/

## RFID tags in range

active

success

- E00401001F779671
- E00401001F7776EE
- E00401001F7780DC
- E00401001F776304

<http://www.vimeo.com/9348504>



# REST

- Scan

**GET http://localhost:9000/scan?callback=foo**

```
foo({"time":1265896293,"tags":
[{"sid":"E00401001F778B5D","custom":0,"content":"","library":0,
"branch":0,"total":0,"u1":0,"u2":0,"security":"00","type":0,"se
t":0}]})
```

- Program

**GET http://localhost:9000/program?E00401001F778B5D=201002120042**  
**302 Location**

**GET http://localhost:9000/program?E00401001F778B5D=blank**

# REST

- Security
  - Vraćanje (check-in)
  - Posuđivanje (check-out)
  - Automatski kod programiranja

```
GET http://localhost:9000/secure?E00401001F778B5D=DA
302 Location
```

```
GET http://localhost:9000/secure?E00401001F778B5D=D7
302 Location
```

```
GET http://localhost:9000/secure.js?E00401001F778B5D=DA
JSONP
```

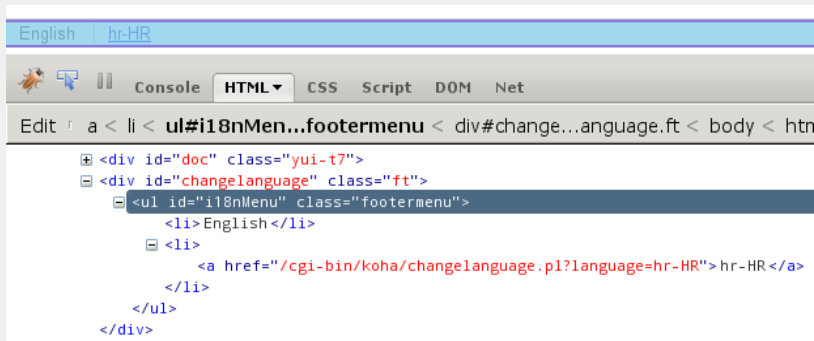
```
GET http://localhost:9000/secure.js?E00401001F778B5D=D7
JSONP
```

# HTTP tweaks

- Etag: visible-E00401001F77478C
  - Not supported in our jQuery 1.2.3 until <http://github.com/jquery/jquery/commit/2>
  - RFID driver zna **promjene** pa bi ih mogao gurnuti klijentu za DOM update
- HTTP je state-less
  - Omogućava povezivanje više klijenata istovremeno (trenutno lokalni i Koha)

# Koha modifications

- Find element to hook into
- Append your data



```
Edit | a <li <ul#i18nMenu...footermenu <div#change...anguage.ft <body <html>
  <div id="doc" class="yui-t7">
    <div id="changelanguage" class="ft">
      <ul id="i18nMenu" class="footermenu">
        <li>English</li>
        <li>
          <a href="/cgi-bin/koha/changelanguage.pl?language=hr-HR">hr-HR</a>
        </li>
      </ul>
    </div>
  </div>
```



```
English | hr-HR | RFID status
Console | HTML | CSS | Script | DOM | Net
Clear | Profile
>>> $('ul#i18nMenu').append('<li>RFID status');
Object length= 1 0=ul#i18nMenu.footermenu prevObject=Object
>>>
```

- Minimalne modifikacije aplikacije
  - `<script src="koha-rfid.js">`
  - 2.5K JavaScript-a...

# Koha + RFID = RIA

The screenshot shows the Koha library system interface. At the top, there's a navigation bar with 'Home', 'Circulation', and 'Checkouts'. The main content area is titled 'Checking out to 446a28b 8bf00f759ab'. It includes a form for entering item barcodes and a 'Check Out' button. Below the form, there's a table of 'Previous checkouts' with columns for Due date, Title, Item Type, Checked out on, Call no, Charge, Price, Renew, and Check in. The table shows one entry for 'Taxonomies of human performance.' by Fleishman, Edwin A. on 11/02/2010. At the bottom, there's a console window showing JavaScript code snippets related to RFID scanning.

Due date	Title	Item Type	Checked out on	Call no	Charge	Price	Renew	Check in
14/08/2010	Taxonomies of human performance.; by Fleishman, Edwin A. 1302000823	Knjiga	11/02/2010	BC10 FLE t	0.00		0	<input type="checkbox"/>

- In-browser!
- JSONP /scan
- Intelligentan form fill-in + submit
- Screen scraping za security
- Nema modifikacije Kohe!
- Single-origin policy je pain

# Buzzword Bingo

- Napravite prototip
- Ako izgleda prekomplicirano – **jest**
- **KISS** – keep it simple and stupid!
- Sve može biti web-enabled!



# Više informacija

## **Portmon for Window (serial sniffer)**

- <http://technet.microsoft.com/en-us/sysinternals/bb896644.aspx>

## **Izvorni kod**

- <http://svn.rot13.org/index.cgi/RFID/>

## **CCITT checksum pitanje**

- <http://stackoverflow.com/questions/149617/how-could-i-guess-a-checksum-algorithm>

## **Meteor Comet server with RFID**

- [http://blog.rot13.org/2009/04/comet\\_experiment\\_rfid\\_reader\\_with\\_koha\\_data\\_in\\_browser.html](http://blog.rot13.org/2009/04/comet_experiment_rfid_reader_with_koha_data_in_browser.html)

## **Hitchhiker's guide to RFID**

- [http://saturn.ffzg.hr/rot13/index.cgi?hitchhikers\\_guide\\_to\\_rfid](http://saturn.ffzg.hr/rot13/index.cgi?hitchhikers_guide_to_rfid)

Pitanja?

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