



WhiteLabel Erlang

Adventures in the undocumented wilds of `inet_dns`

Who is this guy?

- 👤 Geoff Cant
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- 👤 Current (xmpp|mailto):
gcant@process-one.net
- 👤 Previously
geoff@catalyst.net.nz
- 👤 archaelus on [http://github](http://github.com), [irc:freenode/#erlang](irc://freenode/#erlang)

My projects (archaelus)

😊	nemports
😊	libdnet
😊	archaelus.github.com
😊	edbi
😊	esmtp
😊	mochiweb
😊	webmachine
😊	plists
😊	erlaws
😊	yaws
😊	ejango
😊	erlydtl
😊	rvre
😊	erlmail
😊	math_example
😊	tsung
😊	errd
😊	erlirc





What have I been up to?

 ejabberd

 debugging

 virtual hosting

 debugging large clusters

 porting patches

 debugging patches

What have I been up to?

Whitelabel ejabberd hosting



The screenshot shows the hosted.IM website interface. At the top, the logo "hosted.IM" is displayed with the tagline "Create and personalise your instant messaging solution". Below the logo is a navigation bar with links for "HOME", "ABOUT", and "FAQ". To the right of the navigation bar is a "Log in" button and a link for "Already registered?". The main content area features a heading "Set up your very own instant messaging capabilities" followed by a paragraph explaining that hosted.IM is a free service provided by ProcessOne, enabling small businesses to establish their own instant messaging capabilities. Below this, a section titled "Step 1. Create an account." contains a form with fields for "Your Email..." and "Account Password...", and a "Sign up" button. To the right of the main content area, there is a sidebar with a "process one" logo and a description of their services, followed by sections titled "What is hosted.IM?" and "How does hosted.IM work?" with links to "Find out more" and "See FAQ" respectively.

hosted.IM Create and personalise your instant messaging solution

HOME | ABOUT | FAQ Already registered? » [Log in](#)

Set up your very own instant messaging capabilities

hosted.IM is a free service, provided by ProcessOne, that enables small businesses and work groups to establish their own, personalised instant messaging capabilities using their company domain name. This web-based service is free of charge and can be set up in a matter of minutes.

Simply follow these three easy steps and start using instant messaging!

Step 1. Create an account.

[Sign up](#)

Step 2. Setup your domain.

Step 3. Add users.

process one
ProcessOne delivers scalable and robust systems to support creative instant messaging applications. Visit our site.
[GO >](#)

What is hosted.IM?
hosted.IM comes with a range of features including group chat and file transfer. [> Find out more](#)

How does hosted.IM work?
Read our list of frequently asked questions and answers to find out more about hosted.IM.
[> See FAQ](#)

A rant in four parts

- 🗨️ Web Frameworks (why Mochiweb)
- 🗨️ Other libraries (ejango, esmtp, erlydtl)
- 🗨️ DNS (OTP Undocumented)
- 🗨️ Tricks and Lessons

Web Frameworks

 Erlyweb

 YAWS

 inets

 The Erlang Web

 Nitrogen

Mochiweb.

(No logo, 'cause they're too busy coding)

Other pieces

 Templating

 URL Routing

 Form validation

 Email

Templating

🗨️erlydtl

🗨️Templates
compile to
modules

🗨️Well known
template syntax
(Django-ish)

🗨️Template

```
{% extends "master.dtl" %}
{% block title %}Blank Page{% endblock %}
{% block main_text %}
<h1>Blank Page Title</h1>
<p>Main text</p>
{% endblock %}
{% block form %}
<div class="blank">
  Form Content
</div>
{% endblock %}
```


URL Routing

- ☞ Must work with RESTful URLs
- ☞ Must be reversible - able to generate URLs too
- ☞ `django.url_routes`

```
routes() ->
[
  { [ ],
    ["account", "new"] ], vhref_web_signup, [ ],
  { [ ["account", "confirm"],
    ["account", "confirm", token] ], vhref_web_confirm, [ ],
  { [ ["account", "reset_password"] ], vhref_web_request_reset, [ ],
  { [ ["account", "complete_password_reset"],
    ["account", "complete_password_reset", token] ], vhref_web_reset_pass, [ ],
  { [ ["domain", "setup"] ], vhref_web_setup, [ ],
  { [ ["domain"],
    ["domain", domain] ], vhref_web_account_domains, [ ],
  { [ ["login"] ], vhref_web_login, [ ],
  { [ ["logout"] ], vhref_web_logout, [ ]
].

route(Path) ->
  url_routes:route(Path, routes()).

generate(Controller) ->
  generate(Controller, [ ]).
generate(Controller, Components) ->
  generate(relative, Controller, Components).
%% @spec generate(Base, controller(), Extra_Path::path_components()) -> URL::string()
%% Base = absolute | relative | string()
%% @end
generate(absolute, Controller, Components) ->
  generate(base_url(), Controller, Components);
generate(relative, Controller, Components) ->
  generate("", Controller, Components);
generate(BaseUrl, Controller, Components) ->
  url_routes:generate(BaseUrl, Controller, Components, routes()).

base_url() ->
  vhref_app:config(base_url).
```

Form Validation

- 🗨️ Generate forms and validate form posts
- 🗨️ Couldn't find anything available already
- 🗨️ Declarative DSL for form specification
- 🗨️ `ejango.form`, `ejango.form_validator`


```
reset_form() ->
    form:create("Reset your password",
        vhreg_web:generate(?MODULE),
        [form:text("Reset Token:", "txttoken",
            email_tokens:field_validation(token)),
        form:password("Password:", "txtpassword",
            vhreg_account:field_validation(password)),
        form:password("Re-enter Password:", "txtpasswordc",
            □),
        form:submit("Reset password")
    ],
    [{"passwords", [{duplication, ["txtpassword", "txtpasswordc"]}]]
).
```

```
serve_path('GET', _, Req) ->
    vhreg_dtl:render_form(?RENDER, Req);
serve_path('POST', _, Req) ->
    Post = Req:parse_post(),
    case form:valid_post(reset_form(), Post) of
        {invalid, _Result, Fields} ->
            Error = "XXX - This error should be explained.",
            vhreg_dtl:render_data(?RENDER, Req, [{errors, [Error]}], Fields);
        {valid, Fields} ->
            Token = proplists:get_value("txttoken", Fields),
            Password = proplists:get_value("txtpassword", Fields),
            case vhreg_account:reset(Token, Password) of
                {error, Reason} ->
                    erlang:error(Reason);
                {password_reset, Account} ->
                    S = vhreg_sessions:new([{account, Account}]),
                    vhreg_sessions:store(S),
                    Cookie = vhreg_sessions:cookie("vhreg", S),
                    {ok, Page} = vhreg_reset_complete:render(),
                    Req:ok({"text/html", [Cookie], Page})
            end
        end;
    end;
serve_path(_, _, Req) ->
    Req:respond({501, □, □}).
```

Sending Email

🗨️ smtp_fsm

🗨️ Erlware smtp

🗨️ No attachments?

🗨️ This should be much easier.

🗨️ esmtp

Mail Sending API

mailq/0

```
mailq() -> any()
```

send/1

```
send(Msg) -> any()
```

send/2

```
send(To, Msg) -> any()
```

send/3

```
send(From, To, Msg) -> any()
```

send/5

```
send(MX, Ehlo, From, To, Msg) -> any()
```


Mime Attachment API

add_text_part/2

```
add_text_part(Msg, Text) -> any()
```

encode/1

```
encode(Msg) -> any()
```

from/1

```
from(Mime_msg) -> any()
```

msg/0

```
msg() -> any()
```

msg/3

```
msg(To, From, Subject) -> any()
```

msg/4

```
msg(To, From, Subject, Body) -> any()
```

send/5

```
send(Ip, Host, From, To, Msg) -> any()
```

send_test/4

```
send_test(Ip, Host, From, To) -> any()
```

test/0

```
test() -> any()
```

test_msg/0

```
test_msg() -> any()
```

to/1

```
to(Mime_msg) -> any()
```

DNS

 Need to verify ownership of domain

 Need to add XMPP SRV records

 `inet:gethostbyname`

 ...

 To the githubs!

lib/kernel/src/inet.erl at master from mfoemmel's erlang-otp - GitHub

git

http://github.com/mfoemmel/erlang-otp/blob/master/lib/kernel/src/inet.erl

RSS

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github

Search

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archaelus

account | profile | log out

dashboard | gists

Source

Commits

Network (3)

Fork Queue

Downloads (38)

Wiki (1)

Graphs

mfoemmel / erlang-otp

pull request

fork

unwatch

download

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3

Description:

All of the public Erlang/OTP source releases (since R6B-0 in 1999) in convenient git form

Homepage:

<http://www.erlang.org>

Public Clone URL:

<git://github.com/mfoemmel/erlang-otp.git>

Your Clone URL:

<git@github.com:mfoemmel/erlang-otp.git>

importing R13A

archaelus (author)

March 18, 2009

commit

6c5f522f2e63a13e891e659998d02b4050325e43

tree

09c0e4024de00642e669014619b9d9deaf45e0a3

parent

c6341282a575b4cdaa64c6f7013f9eab05fe0cf4

erlang-otp / lib / kernel / src / inet.erl

100644

1314 lines (1140 sloc)

40.375 kb

edit

raw

blame

history

1

%%

2

%% %CopyrightBegin%

3

%%

4

%% Copyright Ericsson AB 1997-2009. All Rights Reserved.

5

%%

6

%% The contents of this file are subject to the Erlang Public License,

7

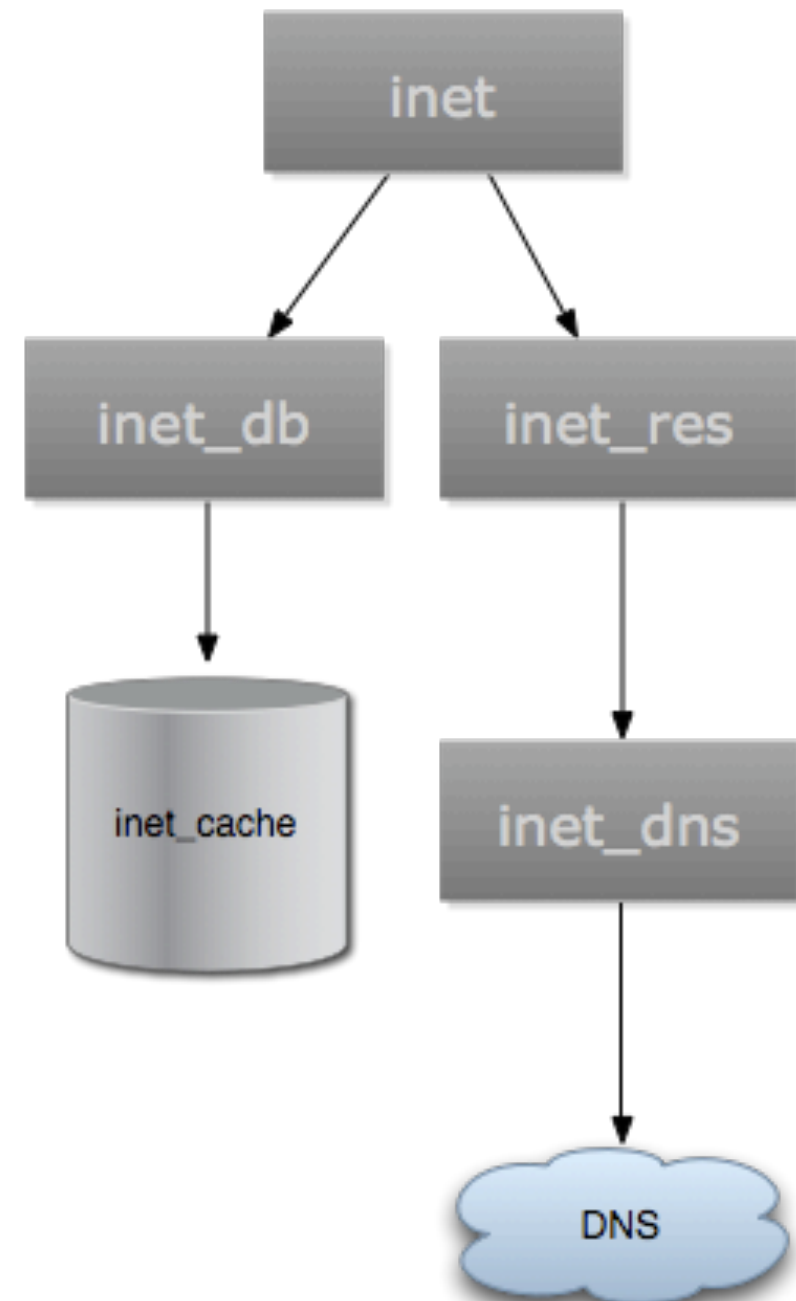
%% Version 1.1, (the "License"); you may not use this file except in

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%% compliance with the license. You should have received a copy of the

DNS Undocumented

- 🔊 inet_res:getbyname/2
- 🔊 inet_res:nnslookup/5
- 🔊 inet_db - caching
- 🔊 inet_dns - packet encoding/decoding, bugs
- 🔊 'dns' -- the way forward.



Here be Dragons.

- ☞ Sometimes it's undocumented for a reason
- ☞ The TXT RR is subtle.
- ☞ I reimplemented the same bug.



My DNS decoder

🐦 TXT RRs are

<<Len:8,

Data:Len/binary>>*

🐦 Binary pattern matching rocks

```
decode(Msg = <<ID:16,  
             QR:1,OPCODE:4,  
             AA:1,TC:1,RD:1,RA:1,  
             _Z:3,RCODE:4,  
             QDCOUNT:16,ANCOUNT:16,  
             NSCOUNT:16,ARCOUNT:16,  
             Rest/binary>>) ->  
Header = #dns_header{id=ID,  
              qr=QR,  
              opcode=OPCODE,  
              aa=AA,tc=TC,  
              rd=RD,ra=RA,  
              rcode=RCODE},  
{Queries,AnsRest} = decode_queries(Msg, QDCOUNT, Rest),  
{Answers,AuthRest} = decode_answers(Msg, ANCOUNT, AnsRest),  
{Authorities,AddRest} = decode_authority(Msg, NSCOUNT, AuthRest),  
{Additional,_} = decode_additional(Msg, ARCOUNT, AddRest),  
[Header,Queries,Answers,Authorities,Additional].
```

Whitelabel Tricks

- ☞ Check SOA to test if domain exists
- ☞ Bypass DNS caching

YSlow Optimisations

- Initially got a D on my YSlow report
- Decided to gzip and minify content, move js blocks around
- `django.static:compress_docroot/1,`
`django.static:serve_compressed/3`

Minifying...

```
[priv/www/styles] Not Gzipping "thickbox.css.min" -> "thickbox.css.min.gz" (7 bytes larger)
[priv/www/styles] Minifying "thickbox.css" -> "thickbox.css.min" to (saves 3936 bytes).
[priv/www/styles] Not Gzipping "thickbox.css.min" -> "thickbox.css.min.gz" (7 bytes larger)
[priv/www/styles] Gzipping "thickbox.css" -> "thickbox.css.gz" to (saves 2981 bytes).
[priv/www/styles] Not Gzipping "print.css.min" -> "print.css.min.gz" (7 bytes larger)
[priv/www/styles] Minifying "print.css" -> "print.css.min" to (saves 287 bytes).
[priv/www/styles] Not Gzipping "print.css.min" -> "print.css.min.gz" (7 bytes larger)
[priv/www/styles] Gzipping "print.css" -> "print.css.gz" to (saves 137 bytes).
[priv/www/styles] Not Gzipping "form.css.min" -> "form.css.min.gz" (7 bytes larger)
[priv/www/styles] Minifying "form.css" -> "form.css.min" to (saves 3661 bytes).
[priv/www/styles] Not Gzipping "form.css.min" -> "form.css.min.gz" (7 bytes larger)
[priv/www/styles] Gzipping "form.css" -> "form.css.gz" to (saves 2755 bytes).
[priv/www/styles] Not Minifying "all_ie7.css" -> "all_ie7.css.min" (30 bytes larger)
[priv/www/styles] Not Gzipping "all_ie7.css" -> "all_ie7.css.gz" (15 bytes larger)
[priv/www/styles] Not Gzipping "all_ie6.css.min" -> "all_ie6.css.min.gz" (7 bytes larger)
[priv/www/styles] Minifying "all_ie6.css" -> "all_ie6.css.min" to (saves 848 bytes).
[priv/www/styles] Not Gzipping "all_ie6.css.min" -> "all_ie6.css.min.gz" (7 bytes larger)
[priv/www/styles] Gzipping "all_ie6.css" -> "all_ie6.css.gz" to (saves 501 bytes).
[priv/www/styles] Not Gzipping "all.css.min" -> "all.css.min.gz" (7 bytes larger)
[priv/www/styles] Minifying "all.css" -> "all.css.min" to (saves 14649 bytes).
[priv/www/styles] Not Gzipping "all.css.min" -> "all.css.min.gz" (7 bytes larger)
[priv/www/styles] Gzipping "all.css" -> "all.css.gz" to (saves 10949 bytes).
```

Lessons

- 🗨️ Hierarchical modules are a world of hurt.
- 🗨️ Metaprogramming in Erlang is still too hard.
- 🗨️ Never trust ADSL routers.
- 🗨️ ...

Use Github.

A small plea for help

 I have way too many github projects

 Adopt my code?

 Interested in collaborating?

Fin.