



redhat.



Forget mod_php

PHP Tour Clermont-Ferrand 2016

Talk by:

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Summary



1. Presentation
2. mod_php
3. FPM
4. Advanced use
5. Fedora situation
6. Questions

Presentation

Remi Collet

- 1998 : PHP 3.0 user
- 2005 : Remi's RPM repository / LAMP
- 2006 : Fedora contributor (PHP stack)
- 2007 : Fedora PHP co-maintainer
- 2011 : PECL developer
- 2012 : Fedora / Red Hat PHP maintainer
- 2012 : PHP developer

=> <http://fr.linkedin.com/in/remicollet>

Remi's RPM Repository



- Target: Fedora, RHEL and CentOS
- PHP versions 5.4, 5.5, 5.6 et 7.0
- Base packages
 - Replacement (php-*), 1 repository per version
- *Software Collections*
 - Parallel installation (php##-*)
- ~150 extensions
- Upstream of Fedora / RHEL / RHSCCL
=> <http://rpms.remirepo.net/>

mod_php



mod_php

- Module for Apache HTTPD Server
- PHP scripts execution

Advantages

- Most commonly used (documentation)
- Simplest

```
LoadModule php7_module modules/libphp7.so
```

```
<FilesMatch \.php$>
```

```
    SetHandler application/x-httpd-php
```

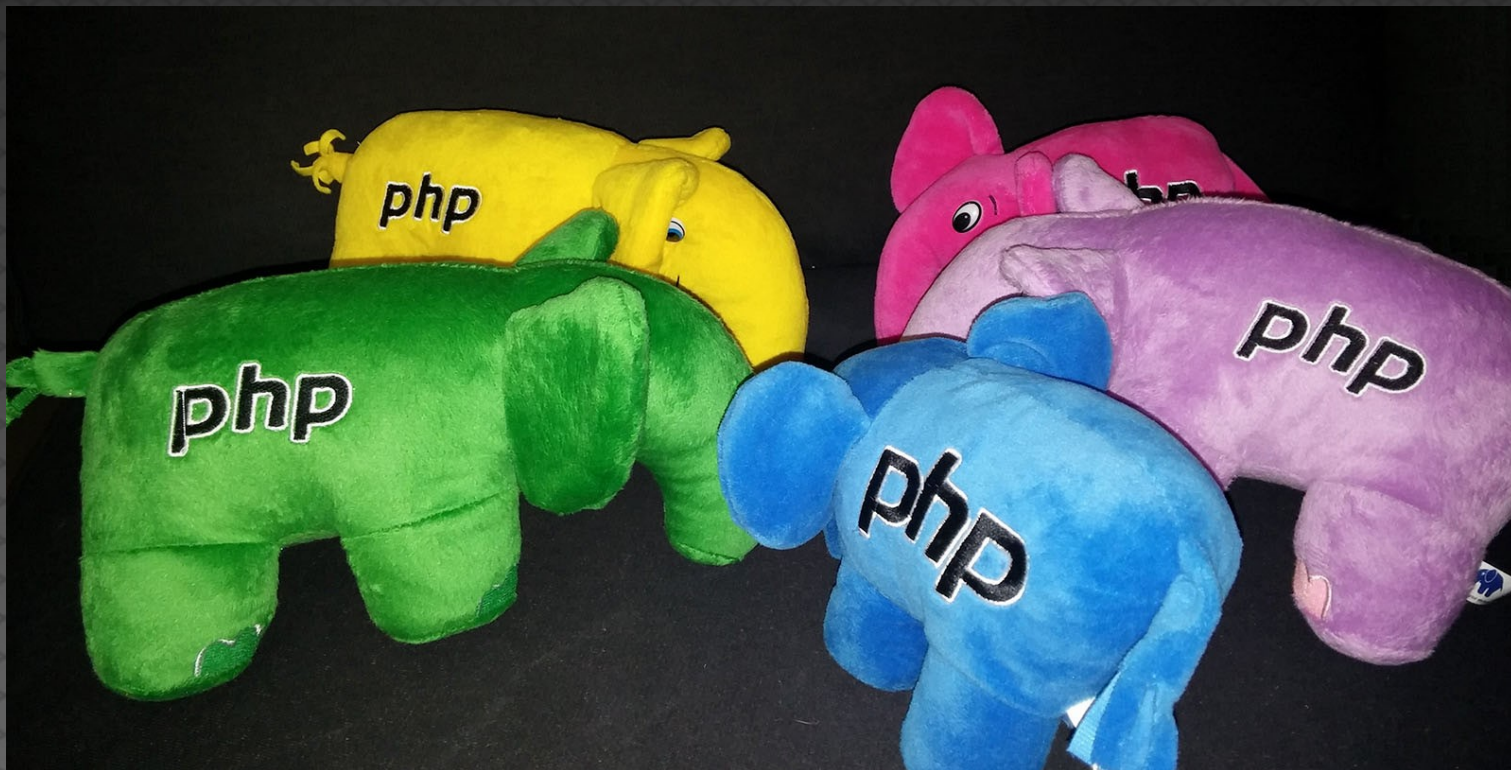
```
</FilesMatch>
```

- Notice: AddHandler is deprecated (security)

Drawbacks

- mod_php
 - « Apache HTTPD Server » only
 - *prefork* mode only (process)
 - ZTS exists but is not supported upstream
 - Single process (security)
 - CVE-2014-4721 info leak in phpinfo
 - Single PHP version
 - php5_module + php7_module not possible
 - Single user
 - (excepted using itk, suphp, ...)

FPM



FPM

- Since PHP 5.3
- FastCGI Process Manager
 - Separated service
 - Multi-pool
 - User, group, permissions, directories
 - IPv4, Ipv6 sockets or UDS
 - Various modes
 - Dynamic (charge adaptation)
 - Static (no surprise)
 - Ondemand (economic)

Advantages

- Isolation
- Standard protocole (FastCGI)
- Separated application server
 - Different Processes on same server
 - Processes on various servers
- Various services (1 per version)
- Various « pools » (1 per projet)

nginx

Configuration



```
upstream php-fpm {
    server unix:/run/php-fpm/www.sock;
}
location ~ /\.php$ {
    try_files $uri =404;
    fastcgi_intercept_errors on;
    fastcgi_index    index.php;
    include          fastcgi_params;
    fastcgi_param    SCRIPT_FILENAME
        $document_root$fastcgi_script_name;
    fastcgi_pass     php-fpm;
}
```

Apache HTTPD Server

Httpd

- Remove or disable `mod_php`
- Switch to *worker* or *event* mode (threads)
- Disable `.htaccess` if not used

Httpd + mod_fastcgi

- Deprecated module, stop using it

```
FastCgiExternalServer
```

```
-socket /run/php-fpm/www.sock
```

```
-host 127.0.0.1:9000
```

Httpd + mod_proxy_fcgi

- Version 2.4 or 2.2 (backports)

```
ProxyPassMatch (*.*\.*php)$  
    fcgi://127.0.0.1:9000/srv/website
```

- Notice: rule executed early during URI analyser, before redirection or rights management.

Httpd + mod_proxy_fcgi

- Version 2.4.10+ (backported in RHEL)

```
<FilesMatch \.php$>  
  SetHandler "proxy:fcgi://127.0.0.1:9000"  
</FilesMatch>
```

```
<FilesMatch \.php$>  
  SetHandler  
    "proxy:unix:/run/php-fpm/fpm.sock|fcgi://foo"  
</FilesMatch>
```

Docker

Container FPM



- Dockerfile

```
FROM centos:7
RUN yum -y update && yum clean all
RUN yum -y install php-fpm php-mbstring php-mysqlnd php-gd...
RUN sed -e 's/127.0.0.1:9000/9000/' \
    -e '/allowed_clients/d' \
    -e '/catch_workers_output/s/^; //' \
    -e '/error_log/d' \
    -i /etc/php-fpm.d/www.conf
RUN mkdir -p /var/www/html
ENTRYPOINT /usr/sbin/php-fpm --nodaemonize
```

Micro-services

- Container httpd, frontal
 - Container fpm1, application
 - Container fpm...
 - Container postgresql1, data
 - Container postgresql..
 - Container redis
 - Container mongodb
 - ...

Advanced use



Various PHP versions

Various PHP versions



- Version selection per project

```
<Directory /srv/foo>
...
<FilesMatch \.php$>
    # Redirect to FPM of PHP 5.6
    SetHandler "proxy:fcgi://127.0.0.1:9056"
</FilesMatch>
</Directory>
<Directory /srv/bar>
...
<FilesMatch \.php$>
    # Redirect to FPM of PHP 7.0
    SetHandler "proxy:fcgi://127.0.0.1:9070"
</FilesMatch>
</Directory>
```

Various PHP versions

- 1 virtual host per version
- Can serve the same pages (for development)
- See « My PHP workstation »

<http://blog.remirepo.net/post/2016/04/16/My-PHP-Workstation>

Load balancing

Various FPM servers



- httpd + mod_proxy_balancer + mod_proxy_fcgi

```
# Load balancer
<Proxy balancer://phpfpm1b>
    BalancerMember fcgi://10.0.0.11:9000
    BalancerMember fcgi://10.0.0.12:9000
    BalancerMember fcgi://10.0.0.13:9000
</Proxy>

# Redirect PHP execution
<FilesMatch \.php$>
    SetHandler "proxy:balancer://phpfpm1b"
</FilesMatch>
```

Configuration

FPM configuration



- Network access rights

```
listen = 10.0.0.15:9000  
listen.allowed_clients = 10.0.0.16
```

- UDS access rights

```
listen = /run/php-fpm/pool.sock  
;listen.owner = nobody  
;listen.group = nobody  
;listen.mode = 0660  
listen.acl_users = nginx,apache  
;listen.acl_groups =
```

FPM configuration



- Process management

```
pm = dynamic
pm.max_children
pm.start_servers = 5
pm.min_spare_servers = 5
pm.max_spare_servers = 35
;pm.max_requests = 500
```

```
pm = ondemand
pm.max_children
;pm.process_idle_timeout = 10s;
```

```
pm = static
pm.max_children
```

FPM configuration

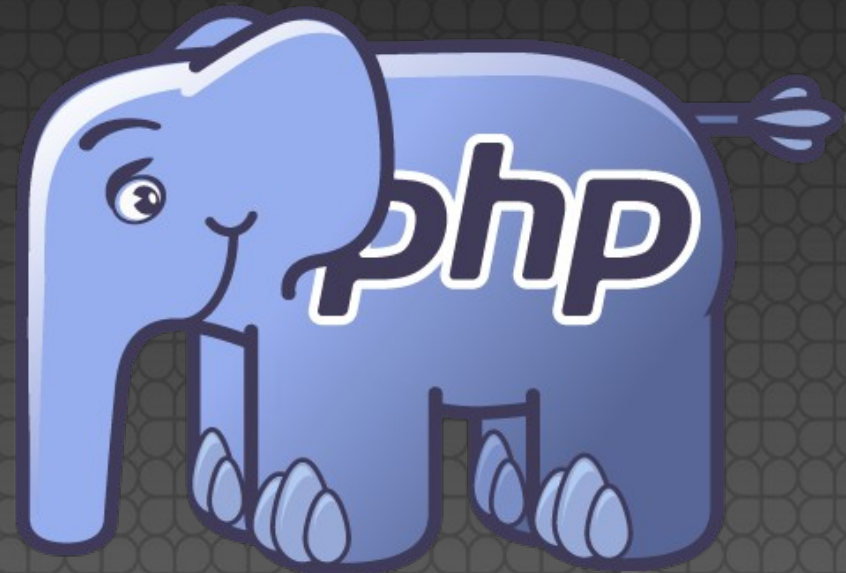
- PHP options

```
php_value[session.save_handler] = files
```

```
php_value[session.save_path] = /var/lib/php/session_foo
```

```
php_value[soap.wsdl_cache_dir] = /var/lib/php/wsdlcache_foo
```


Fedora situation

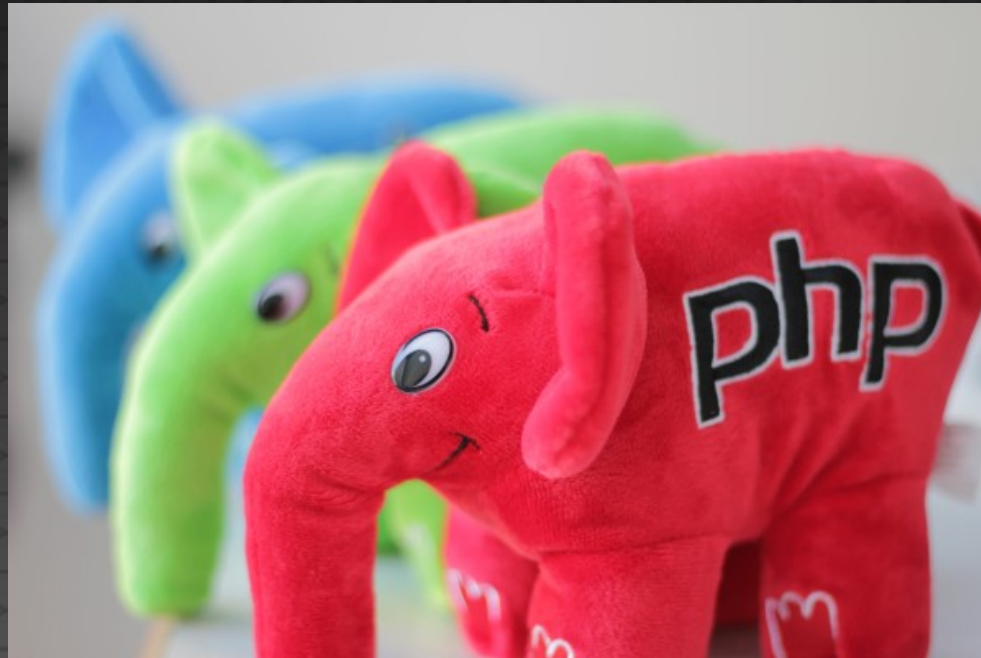


Fedora



- `httpd + mod_php` : works
 - `/etc/httpd/conf.modules.d/php.conf`
 - `/etc/httpd/conf.d/php.conf`
- `httpd + php-fpm` : works
 - `/etc/httpd/conf.d/php.conf`
- `nginx + php-fpm` : works
 - `/etc/nginx/conf.d/php-fpm.conf`
 - `/etc/nginx/default.d/php.conf`
- Packaged web applications
 - GLPI, Wordpress, Owncloud, phpMyAdmin...

Questions?



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