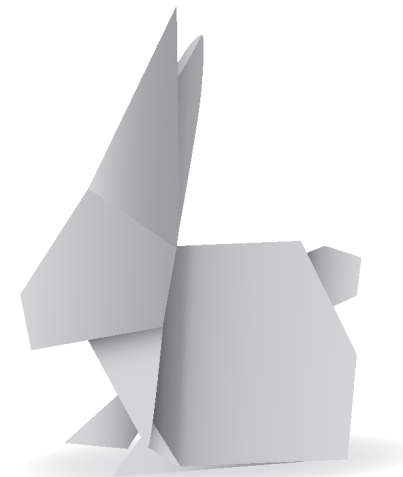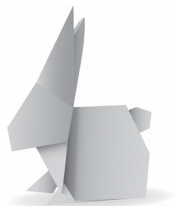**openXPKI**

Core Features
Connector

Oliver Welter, 2018/05

**WhiteRabbitSecurity**

# Connector – Initial Idea

- Data Abstraction Layer

- Generic access to hierarchical structured data

- Same interface regardless of location, type, etc. of actual data source:

```
my $source = Connector→new(…);
my $data = $source→get('my.data.key');
$source→set('my.data.key', $data);
```
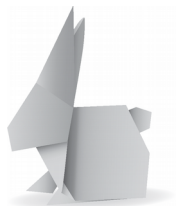
# Connector – What it is now

- Support for scalar / list / hash (key-value pairs)

- Delegation

- Iteration

- Authentication connector (blind password check)

- More than 30 connectors in public repository

- Dozens of custom connectors implemented

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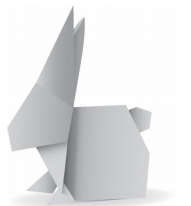
# Connector
# +
# Config::Merge
# =
# OpenXPKI Config

# OpenXPKI Config Layer

- Server config layer is a Connector instance

- Uses Config::Merge with YAML files as local backend

- Config tree can be split into directory / file structure

- Local overrides possible

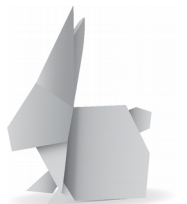- Easy to maintain using version control system (git)

# OpenXPKI Config Layer - Example

```
/etc/openxpki/config.d/
    system/
        database.yaml

main:
    type: MySQL
    name: openxpki
    host: db123.acme.org
    user: openxpki
    passwd: s3cret
```
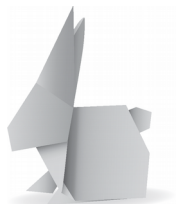
Load database password "s3cret" with:

```
$config->get('system.database.main.passwd')
```
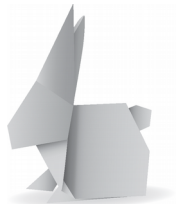
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# OpenXPKI Config Layer - Challenges

- Development: Use localhost database

- Security: Literal password in config

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# Connector - Connector::Multi

- Same basic methods as all Connectors

- Adds special "redirect" nodes

- Target can be another path (like a Unix symlink)

- Target can be a connector itself

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# OpenXPKI Config Layer – Password Manager

- `/etc/openxpki/config.d/system/database.yaml`

```
main:
  …
  passwd@: system.credentials.dbpassword
```

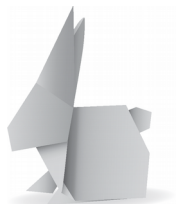- `/etc/openxpki/config.d/system.yaml`

```
credentials@: connector:system.keynanny

keynanny:
  class: KeyNanny::Connector
  LOCATION: /var/run/keynanny.socket
```
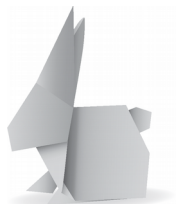
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# OpenXPKI Config Layer – Challenges

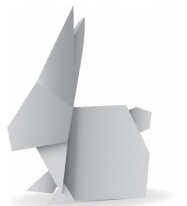Override database settings for local development

`/etc/openxpki/config.d/local.yaml`:

```
system:
  database:
    main
      host: localhost
      user: openxpki
      passwd: notsecret
```
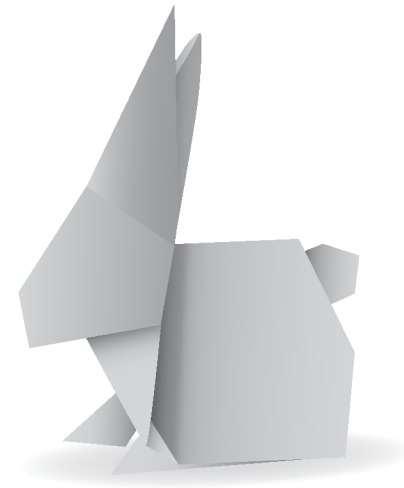
# OpenXPKI Config Layer - Summary

- Easy maintenance using filesystem and text files

- (Almost) all configuration is in one place

- Also used to write data to the outside
  (e.g. CRL Publishing)

- Connector features can be used EVERYWHERE

- Custom Requirements? Just write your own
  Connectors – no need to "hack the core"

Thank You!