A Modular Approach to Configuration Storage

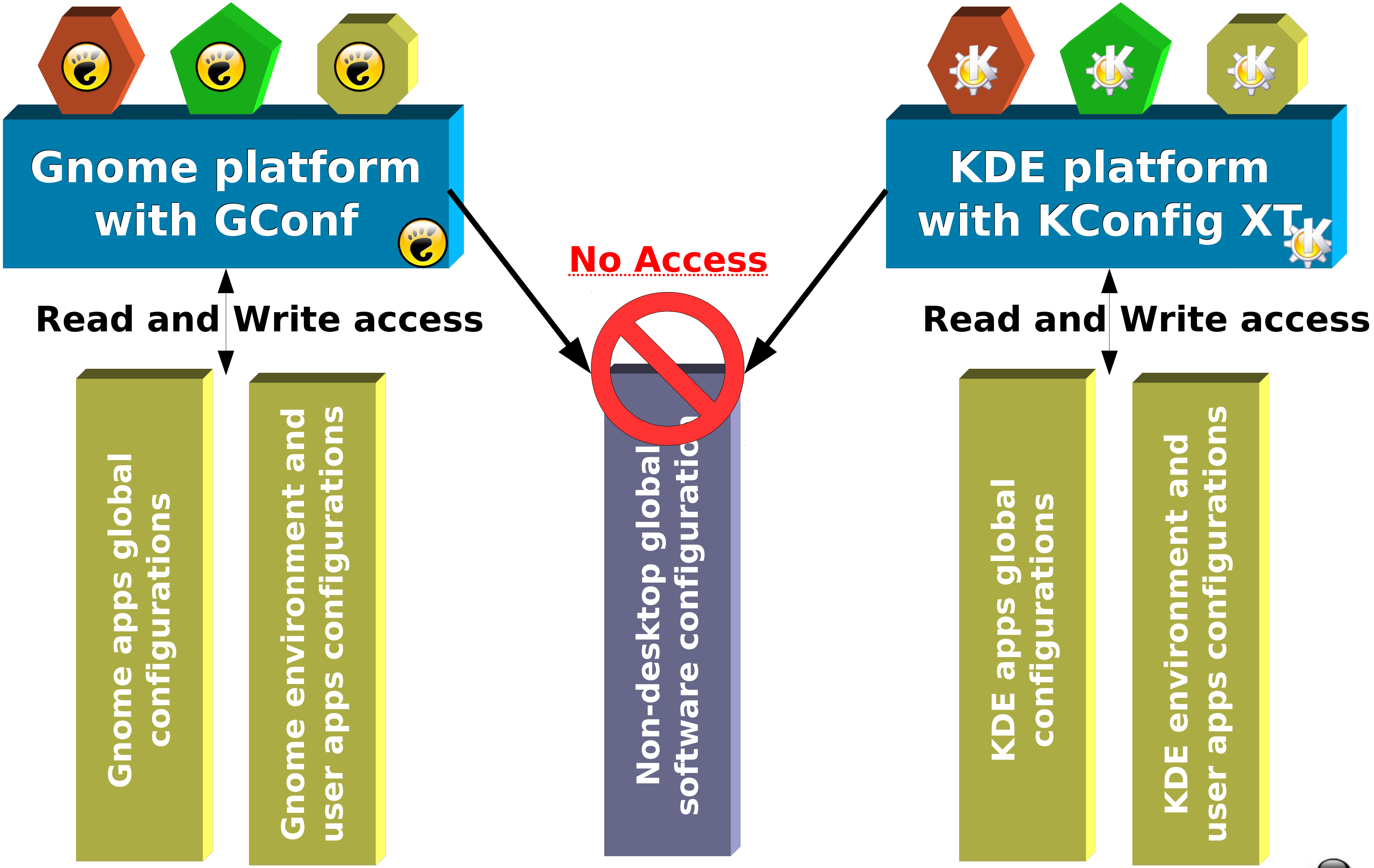
Linuxwochen / LGM 2012

Wien

Markus Raab <elektra@markus-raab.org>

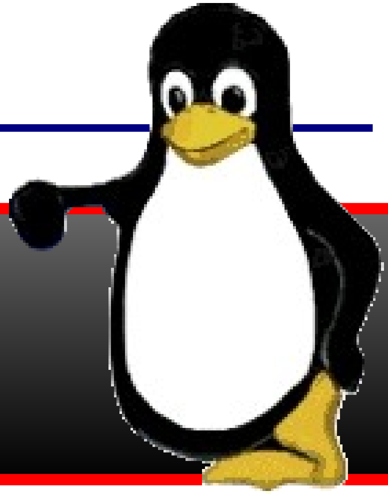
https://gitorious.org/elektra-initiative/libelektra

Situation of configuration today?


Gnome platform with GConf
KDE platform with KConfig XT
No Access
Read and Write access
Read and Write access
Gnome apps global configurations
Gnome environment and user apps configurations
Non-desktop global software configuratio
KDE apps global configurations
KDE environment and user apps configurations

What is Elektra?

```
sh$ ldd /lib/libelektra.so
    libc.so.6 => /lib/tls/libc.so.6
    /lib/ld-linux.so.2 => /lib/ld-linux.so.2
```



✔ *Library to access to configuration storage*

✔ *Portable (ANSI C)*

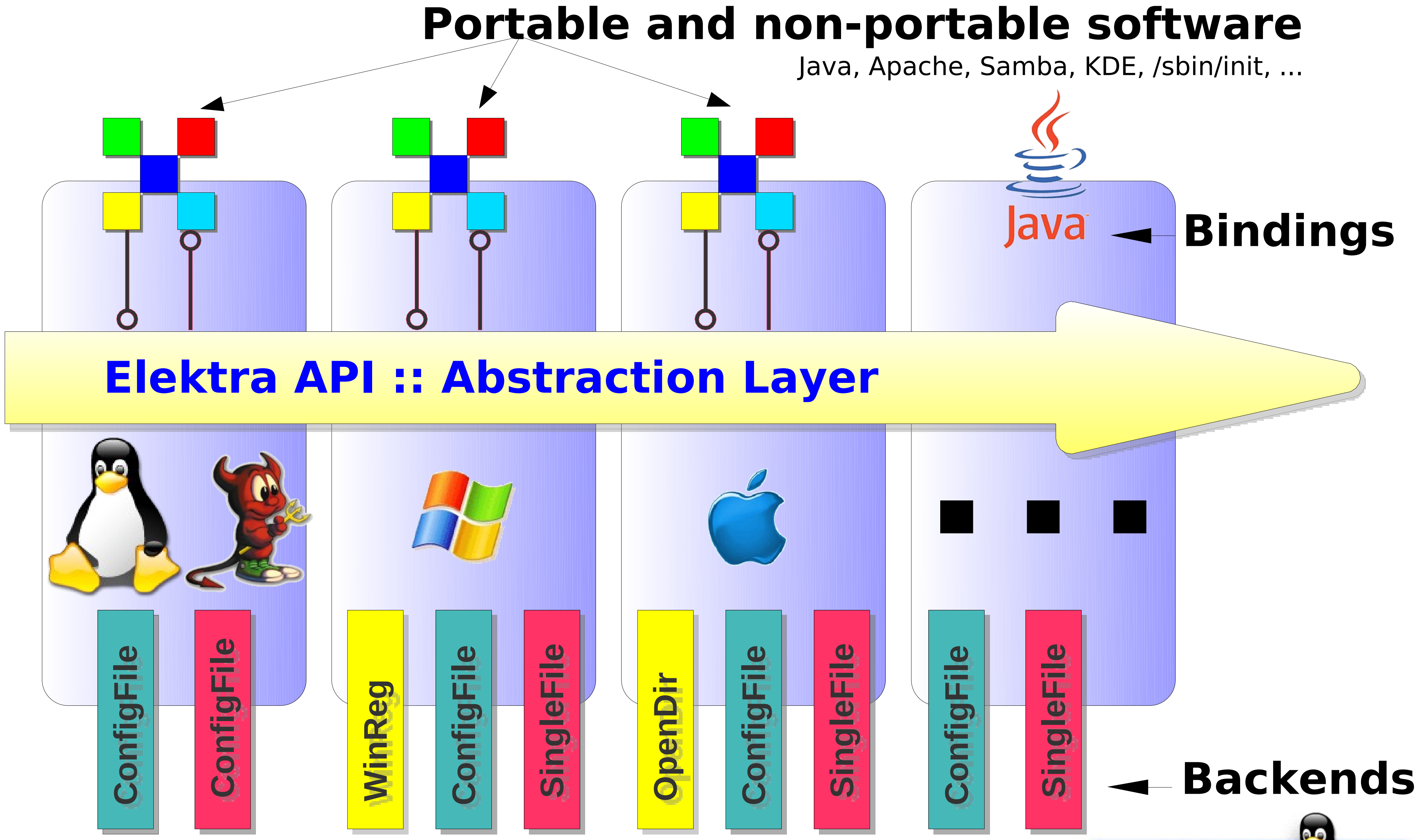
✔ *For embedded Systems (small, static)*

✔ *Security by OS*

✔ *Configuration files (with comments)*

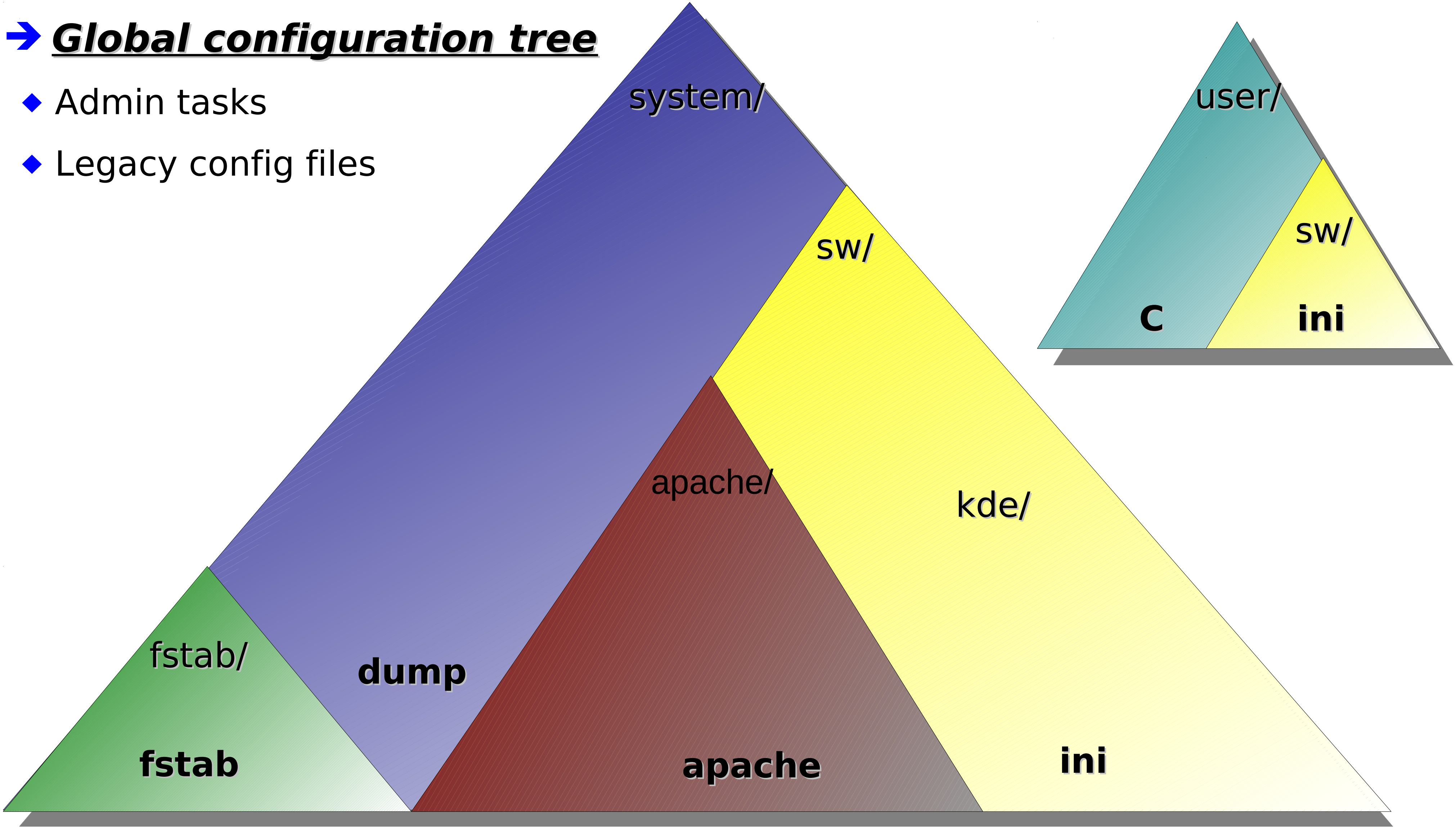
✔ *Abstracts configuration*

What is the Goal?



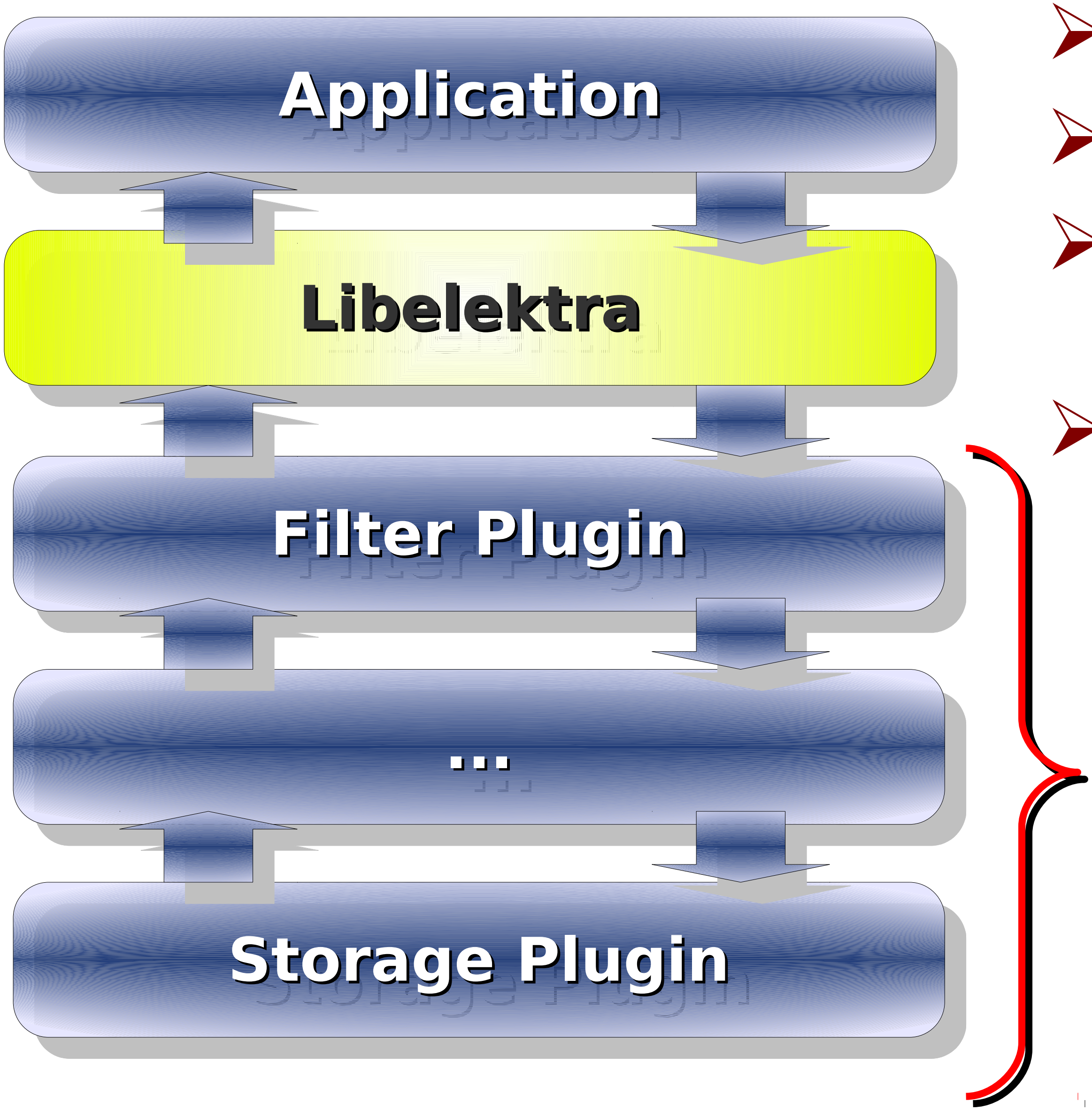
Mounting backends

- ***Global configuration tree***
  - Admin tasks
  - Legacy config files



`system/sw/apache/site1.com/DocRoot`

Backends



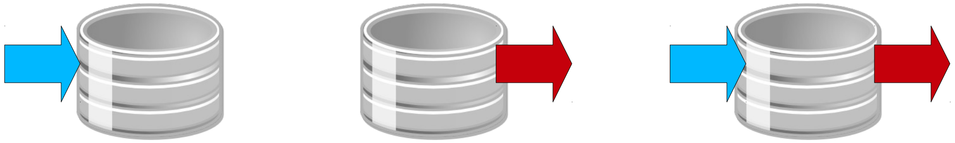
- *Separation of Concerns*
- *Unix philosophy*
- *Can be changed at runtime*
- *Dependencies only to single plugins*

n plugins = 1 backend

Consequences

```
# kdb set system/sw/xorg/display/mode 12y80x1024
Could not validate “12y80x1024”
needed [0-9]+x[0-9]+
```

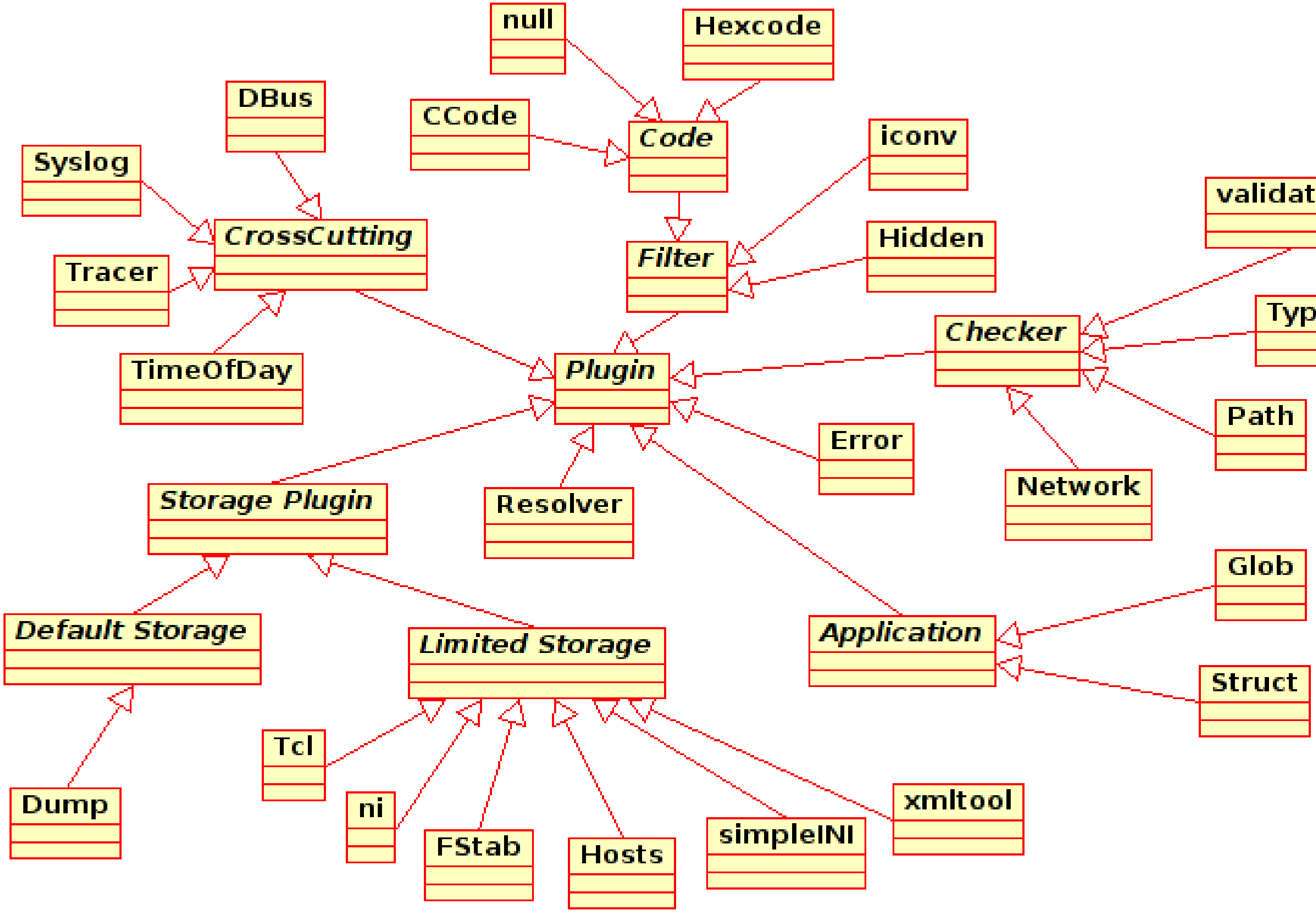
- ✔Tool support
- ✔Validation
- ✔Import/Export/Convert



- ✔Application can use plugins

```
<?xml version="1.0"
encoding="UTF-8"?>

<keyset xmlns=""
        xsi:schemaLocation=""

        parent="user/env/alias">
        <key basename="ls"
             type="string"
             value="ls -Fh"

             <comment></comment>
        </key>

        <key basename="vnc"
             type="string">
             <value>vncserver
            -geometry
             900x650</value>
             <comment></comment>
        </key>
</keyset>
```

Plugins Overview

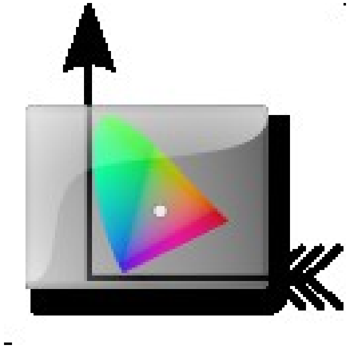


Who uses Elektra?

- ✔ *Embedded Systems*

BROADCOM

- ✔ *Cross Plattform Software*



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Thank you for your attention!

See you:

Friday 16h [Hörsaal 3 (UEB A1.07)]

Saturday 13h [LGM Workshop]

Markus Raab <elektra@markus-raab.org>

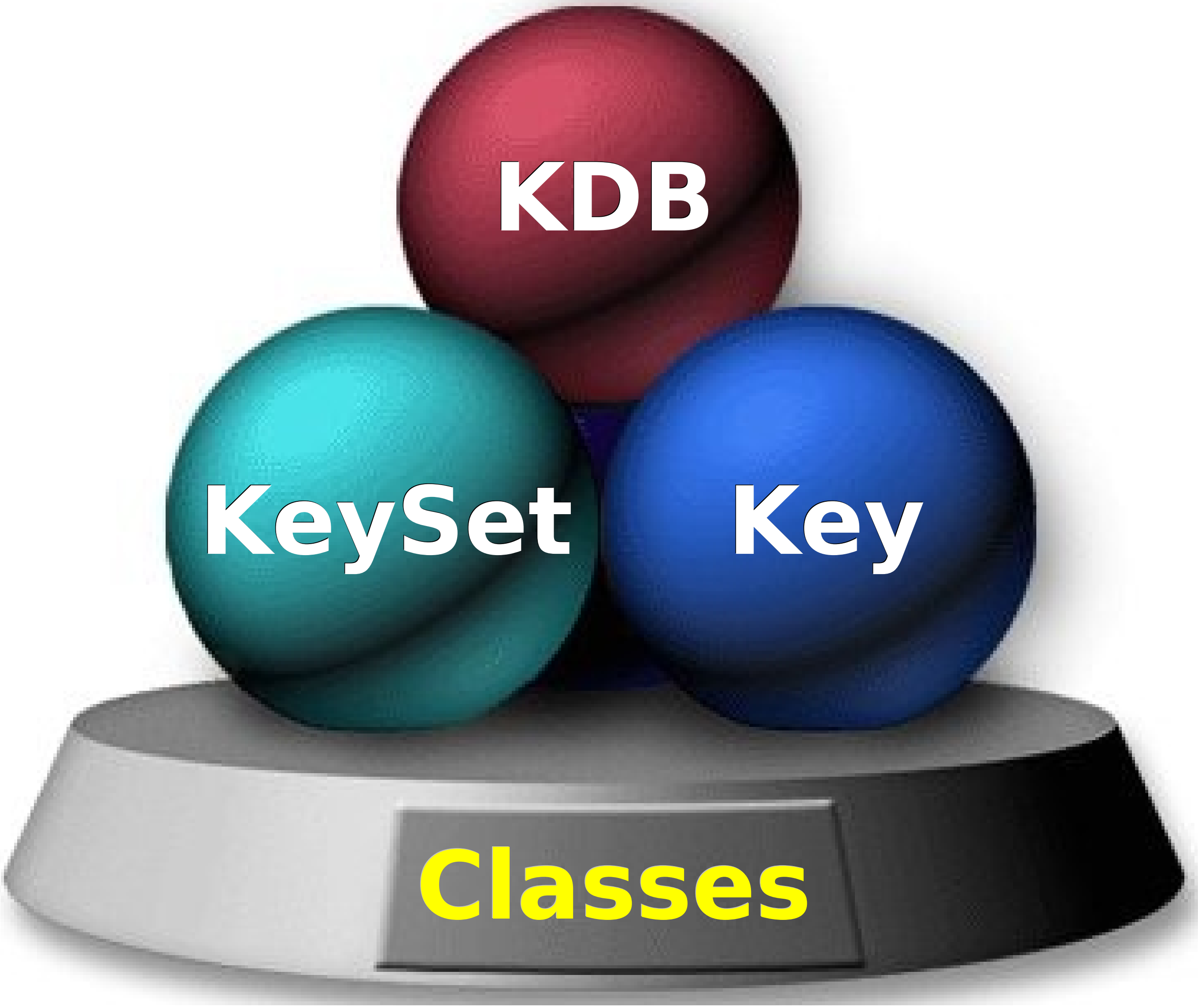
https://gitorious.org/elektra-initiative/libelektra

Ready to be used…

- ***Ready***
  - ✔ C
  - ✔ C++
  - ✔ Shell
  - ✔ XML

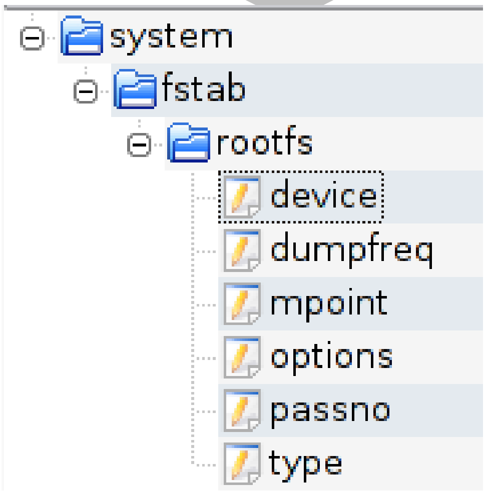
- ***Existed . . .***
  - ✔ Python
  - ✔ Scheme
  - ✔ Ruby
  - ✔ Java

API with 3 classes



Struct Checker

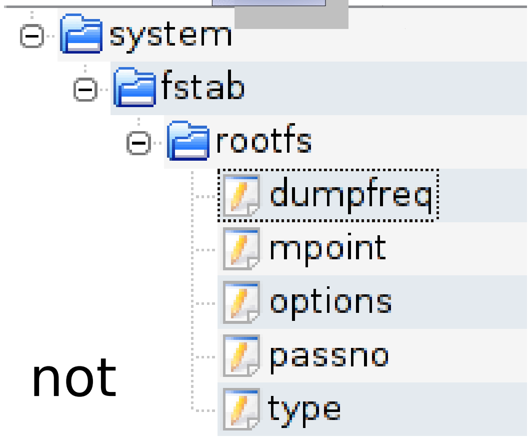
```
LABEL=stable /      jfs   defaults,errors=remount-ro 0 1
proc         /proc  proc  defaults 0 0
LABEL=swap   none   swap  sw 0 0
LABEL=home    /home jfs   rw,suid,dev,exec,auto,nouser 0 2
```



```
struct FStab {
    string device;
    string mpoint;
    FSType type;
    string options;
    unsigned_short dumpfreq;
    unsigned_short passno;
};
```

Struct

list <FStab>



Changes

✗ Some entries must/must not be available