```
                    ++                 +           .x+=:.                   s
              dF                   @88>        z`    ^%               :8
             '88bu.                %8P      .      <k             .88
            '*88888bu            .        .@8Ned8"          :888ooo
   .udR88N       ^"*8888N     .@88u     .@^%8888"        -*8888888
  <888'888k  beWE "888L ''888€` x88:   `)8b.        8888
  9888 'Y"     888€  888€     888€   8888N=*8888        8888
  9888          888€  888€     888€    %8"     R88        8888
  9888          888€  888F     888€     @8Wou 9%     .8888Lu=
  ?8888u../  .888N..888     888&   .888888P`      ^%888*
   "8888P'    `"888*""     R888"  `   ^"F          'Y"
     "P'         ""          ""
```

cdist
next generation configuration management

Topics

- Background / Motivation

- What's in the cdist box?

- How to use cdist

This is not a speech

History

- Sysadmin @ ETH Zurich (2008-2011)

- Used existing CM

  – Found many bugs

- Tried other CM

  – Not suited

  – Seemed to be too complex

Cdist history

- 2010-11-10: LISA'10 BoFs
- 2011-03-07: First public release of cdist
- 2011-09-16: Rewrite cdist core in python
- 2012-12-09: Release of cdist 2.1
- 2013-01-01: Founded ungleich GmbH
- ?

Development Objectives

- Central point for configuration

- Reproduceable (omnipotent)

- Configuration = Documentation

- ...

Development Requirements

- Minimale requirements to environment
  - DB (filesystem)
  - Target hosts (sh, ssh)
  - Technologies (fs, sh, ssh)
- Known DSL (sh)
- Scalable

Cdist Features

- Configured in Shell script

- SSH for auth* & transport

- Zero dependency CM

- Highly scalable

- Push based

- Manpages

More on the website...

How to use cdist

- Download cdist
  - Via git
  - Via pypi
  - Archlinux: via AUR

- Installation is optional

  % cdist -V

  2.1.0

Configuration

```
% mkdir -p ~/.cdist/manifest
% $EDITOR ~/.cdist/manifest/init

case "$__target_host" in
   localhost)
      __file /tmp/cdist-rocks
   ;;
esac
```

Configuration Run

```
% cdist config -v localhost
INFO: localhost: Running global explorers
INFO: localhost: Running initial manifest
/home/users/nico/.tmp/tmpn9mbqn/out/conf/manifest/init
INFO: localhost: Running object manifests and type explorers
INFO: localhost: Running manifest and explorers for
  __file/tmp/cdist-rocks
INFO: localhost: Generating and executing code
INFO: Resolving dependencies...
INFO: localhost: Generating and executing code for
  __file/tmp/cdist-rocks
INFO: localhost: Finished successful run in 4.075293779373169
seconds
INFO: Total processing time for 1 host(s): 4.618075609207153
```
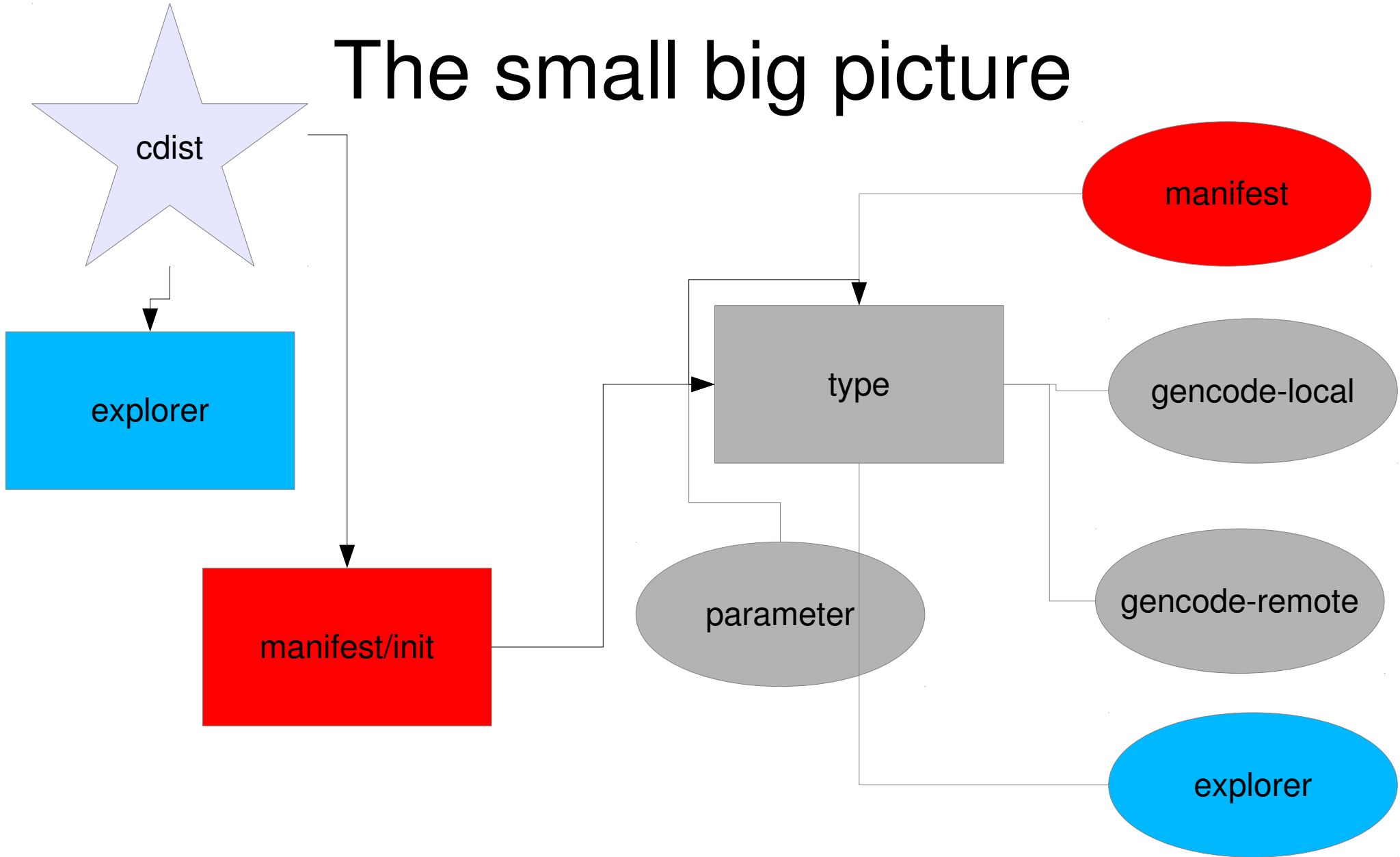
Did anyone understand what I did?

Manifest

- Shell script

- Define <u>what</u> to use

```
% $EDITOR ~/.cdist/manifest/init

case "$__target_host" in
    localhost)
        __file /tmp/cdist-rocks
    ;;
esac
```

The small big picture

cdist

explorer

manifest/init

manifest

type

gencode-local

parameter

gencode-remote

explorer

Explorer

- Acquire state of the system

```
% cdist config -v localhost
INFO: localhost: Running global explorers
INFO: localhost: Running initial manifest...
```

- Examples of explorers:

  - hostname

  - Interfaces

  - os

Create Type

```
% mkdir -p ~/.cdist/type/_speech
% mkdir ~/.cdist/type/_speech/parameter
% echo colour > ~/.cdist/type/_speech/parameter/required
% $EDITOR ~/.cdist/type/_speech/manifest


colour=$(cat "$__object/parameter/colour")
__file "$__object_id" --source - << eof
The speech is $colour today!
eof


% echo "__speech /tmp/speech --colour green" >> ~/.cdist/manifest/init
```

Type Being Used

% cdist config -v localhost
INFO: localhost: Running global explorers
INFO: localhost: Running initial manifest
/home/users/nico/.tmp/tmp89xo__/out/conf/manifest/init
INFO: localhost: Running object manifests and type explorers
INFO: localhost: Running manifest and explorers for __file/tmp/cdist-rocks
INFO: localhost: Running manifest and explorers for __speech/tmp/speech
INFO: localhost: Running manifest and explorers for __file/tmp/speech
INFO: localhost: Generating and executing code
INFO: Resolving dependencies...
INFO: localhost: Generating and executing code for __file/tmp/cdist-rocks
INFO: localhost: Generating and executing code for __file/tmp/speech
INFO: localhost: Generating and executing code for __speech/tmp/speech
INFO: localhost: Finished successful run in 4.90235710144043 seconds
INFO: Total processing time for 1 host(s): 5.402170896530151

% cat /tmp/speech
The speech is green today!

Using Type

% cat ~/.cdist/manifest/init
case "$__target_host" in
   localhost)
      __file /tmp/cdist-rocks
   ;;
esac
__speech /tmp/speech --colour green

Type

- Consist of
  - Manifest
  - Explorer
  - Manpage
  - Parameter
  - gencode-local, gencode-remote
- <u>Bundle</u> functionality

Type Parameter

- Optional (optional_multiple)

- Required (required_multiple)

- Boolean

```
% __file /etc/shadow \
  --mode 0600 --owner root --group shadow

% __ssh_authorized_keys root \
  --key "$(cat ~/.ssh/id_rsa.pub)" \
  --key "ssh-rsa AXYZAAB3NzaC1yc2..."

% __directory /home/services/nfs \
  --parents
```

Type Gencode

- Shell script

- Outputs code to be executed

  – Local

  – Remote

```
__package_pip:
  echo pip install \"$name\"


__directory:
   absent)
      echo rm -rf \"$destination\"
   ;;
```

Questions?

Support

- FOSS project

- IRC: #cstar (freenode)

- Mailinglist

- Github: Issue tracking

- Commercial Support (http://www.ungleich.ch)