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

cdist
next generation configuration management

Nico Schottelius - LISA'12 - 2012-12-11

About this BoFs

- History

- Features

- Using cdist

Interactive BoFs: Ask, discuss, criticise, ...

History

- Sysadmin @ ETH Zurich

- Used existing CM

  - Found many bugs

- Tried other CM

  - Not suited

  - Seemed to be too complex

LISA'10 BoFs

- CM, how I would love it

  – Easy to use (everyday!)

  – Reuses existing tools

  – Provides good documentation

  – Scales out (> 10k clients are no problem)

  – Push and Pull architecture

Back in the mountains...

- That idea at LISA...need to do some coding …

    – 2011-03-07: first public release of cdist

    – 2011-09-16: Rewrite cdist core in python

    – 2012-12-09: Release of cdist 2.1

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
```
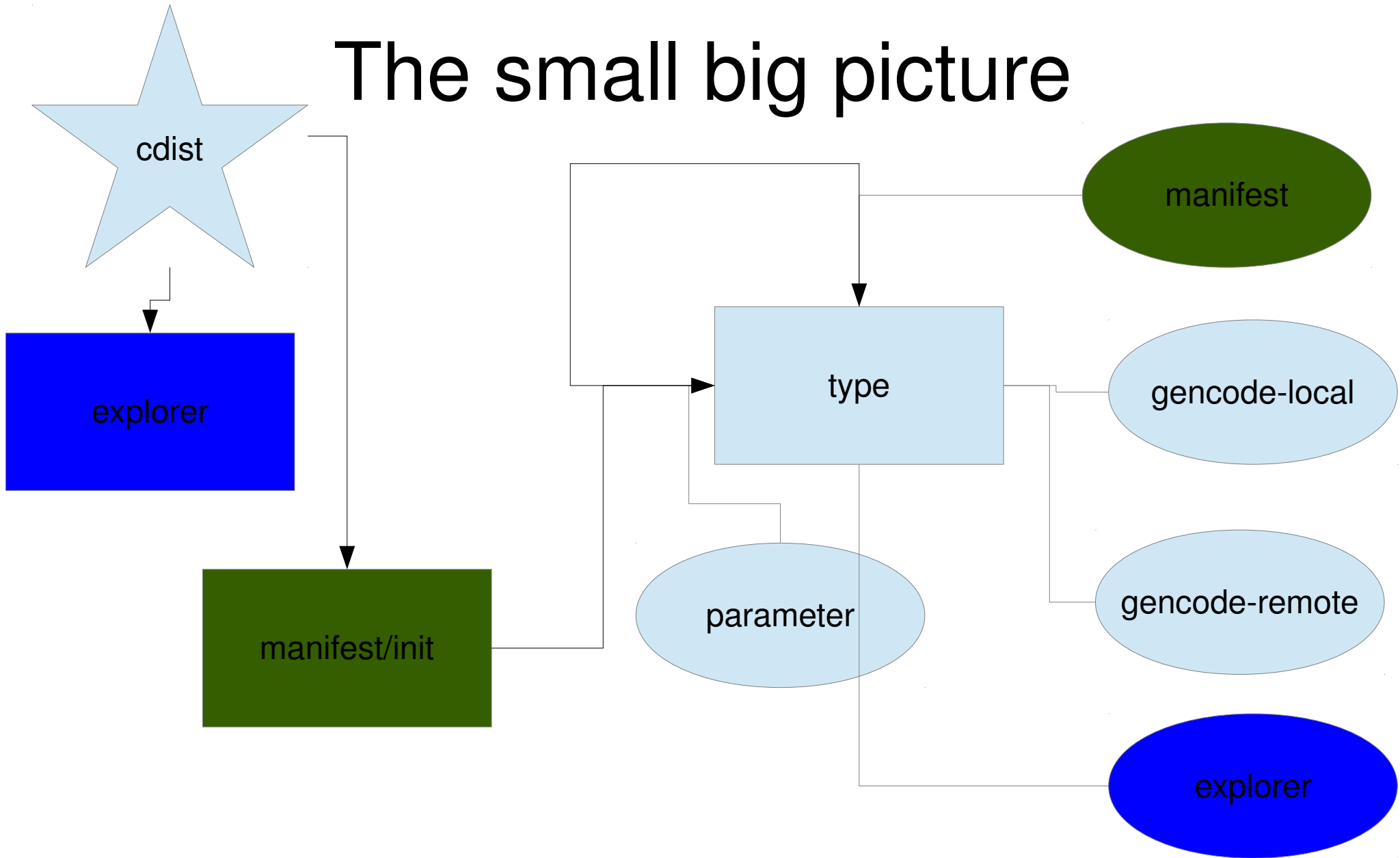
Explorer

- 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

The small big picture

Create Type

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

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

% echo "__lisa /tmp/lisa --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 __lisa/tmp/lisa

INFO: localhost: Running manifest and explorers for __file/tmp/lisa

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/lisa

INFO: localhost: Generating and executing code for __lisa/tmp/lisa

INFO: localhost: Finished successful run in 4.90235710144043 seconds

INFO: Total processing time for 1 host(s): 5.402170896530151

% cat /tmp/lisa

Lisa is green today!

Using Type

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

Type

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

Support

- FOSS project

- IRC: #cstar (freenode)

- Mailinglist

- Github: Issue tracking

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

Questions?

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\"
   ;;
```

Why CM?

- Reproducable

- Documentation

- Idempotent

- Scaling out