Amsterdam Nix Meetup

ContainerSolutions

Nix

Maarten Hoogendoorn

moretea

@moretea_nl

ContainerSolutions

Nix{lang,pkgs,os,ops}

Maarten Hoogendoorn

moretea

@moretea_nl

Why you should Nix

Fully declarative specification

Reproducible environment

One language to rule them all!

The Nixiversum

- Nixlang special purpose language (source files)
- nix-build build system (bundler / npm / cargo / gradle)
- Nixpkgs Homebrew
- NixOS Linux distribution build on Nixpkgs
- NixOps Chef / Puppet / Ansible / Terraform

ContainerSolutions

Building software, the Nix way.

Building software

- Source
- Run build instructions

Building software

- Source
- Run build instructions
- Dependencies

Building software

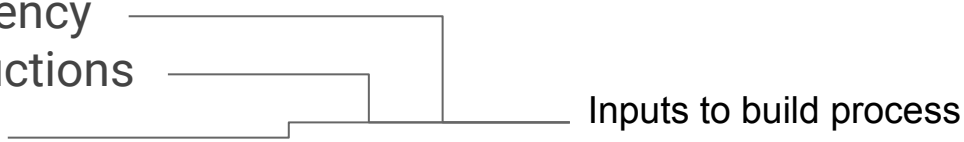
- Source
- Run build instructions
- Dependencies
- Store the build artifacts

Building software

- ~~Source~~ dependency
- Run build instructions
- Dependencies
- Store the build artifacts

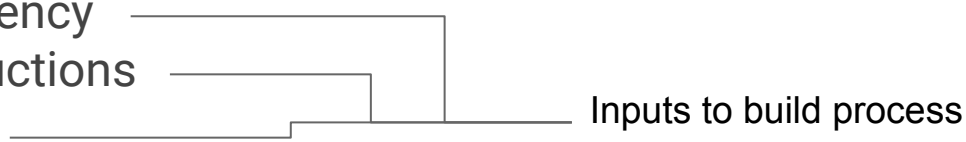
Building software

- ~~Source~~ dependency
- Run build instructions
- Dependencies
- Store the build artifacts



Building software

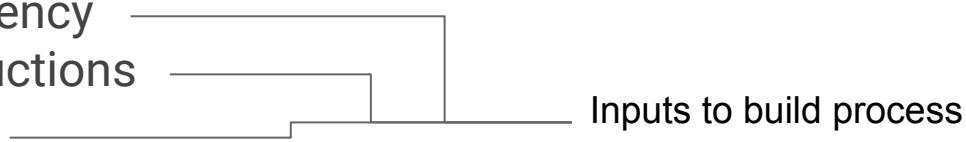
- ~~Source~~ dependency
- Run build instructions
- Dependencies
- Store the build artifacts



- Build process has no side-effects *

Building software

- ~~Source~~ dependency
- Run build instructions
- Dependencies
- Store the build artifacts

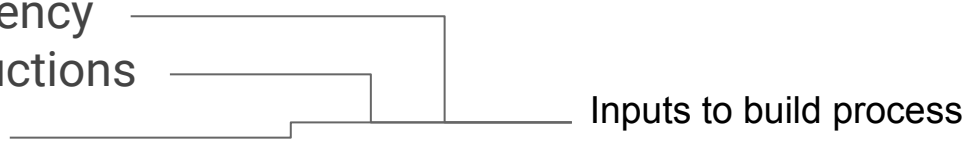


- Build process has no side-effects *

- Pure function: *f(x) = x + 1*

Building software

- ~~Source~~ dependency
- Run build instructions
- Dependencies
- Store the build artifacts

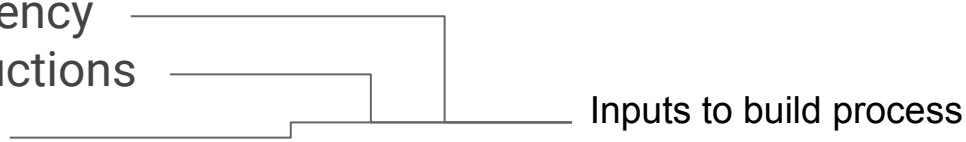


- Build process has no side-effects *

- Pure function: *f(x) = x + 1* (impure function: *f(x) = time_of_day*)

Building software

- ~~Source~~ dependency
- Run build instructions
- Dependencies
- Store the build artifacts

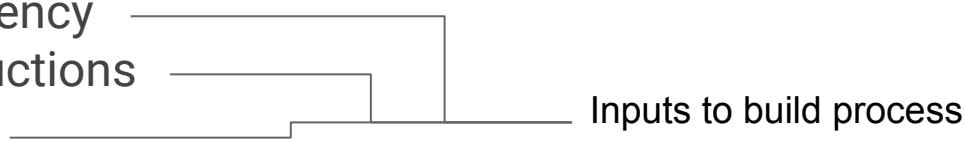


- Build process has no side-effects *

- Pure function: *f(x) = x + 1* (impure function: *f(x) = time_of_day*)
- Output only depends on *x*, the input.

Building software

- ~~Source~~ dependency
- Run build instructions
- Dependencies
- Store the build artifacts

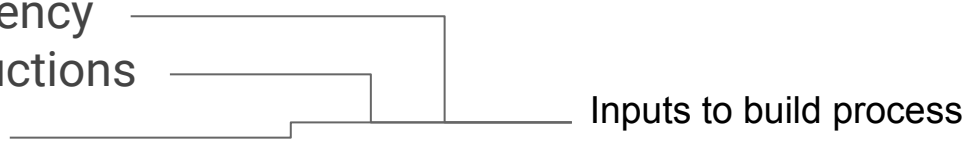


- Build process has no side-effects *

- Pure function: *f(x) = x + 1* (impure function: *f(x) = time_of_day*)
- Output only depends on *x*, the input.
- Nix does this, for building software!

Building software

- ~~Source~~ dependency
- Run build instructions
- Dependencies
- Store the build artifacts



- Build process has no side-effects *

- Pure function: *f(x) = x + 1* (impure function: *f(x) = time_of_day*)
- Output only depends on *x*, the input.
- Nix does this, for building software!
- Cache on the input, don't recompute/rebuild!

Hello World

```
{ stdenv, fetchurl }:
stdenv.mkDerivation rec {
  name = "hello-2.10";

  src = fetchurl {
    url = "mirror://gnu/hello/${name}.tar.gz";
    sha256 = "0ssi1wpaf7plaswqqjwigppsg5fyh99vdlb9kzl7c9lng89ndq1i";
  };
}
```

Hello World

```
{ stdenv, fetchurl }:
stdenv.mkDerivation rec {
  name = "hello-2.10";

  src = fetchurl {
    url = "mirror://gnu/hello/${name}.tar.gz";
    sha256 = "0ssi1wpaf7plaswqqjwigppsg5fyh99vdlb9kzl7c9lng89ndq1i";
  };
}
```

Hello World

```
{ stdenv, fetchurl }:
stdenv.mkDerivation rec {
  name = "hello-2.10";

  src = fetchurl {
    url = "mirror://gnu/hello/${name}.tar.gz";
    sha256 = "0ssi1wpaf7plaswqqjwigppsg5fyh99vdlb9kzl7c9lng89ndq1i";
  };
}
```

Hello World

```
{ stdenv, fetchurl }:
stdenv.mkDerivation rec {
  name = "hello-2.10";

  src = /nix/store/0ssi1wpaf7….;
}
```

Developer environment for free!

- Dependencies are know!
- Nix-shell

DEMO devshell of nixops

more?

Where to go next?

- **Download page**
  https://nixos.org/nixos/download.html
- **A tour of nixlang**
  https://nixcloud.io/tour/
- **Nix pills** http://lethalman.blogspot.nl/2014/07/nix-pill-1-why-you-should-give-it-try.html
- **IRC**
  freenode, #nixos
- **E-mail list**
  http://lists.science.uu.nl/mailman/listinfo/nix-dev

Why you should Nix

Fully declarative specification

Reproducible environment

One language to rule them all!

Thank you


ContainerSolutions
We Are Hiring!
Currently we are looking for:
Systems Developers
Application Developers
Support Engineers
UI/UX Developers
MESOS
kubernetes
We're hiring in Amsterdam, London, Zürich and remote
container-solutions.com/careers