NIX ♥ OSX ♥ DEV
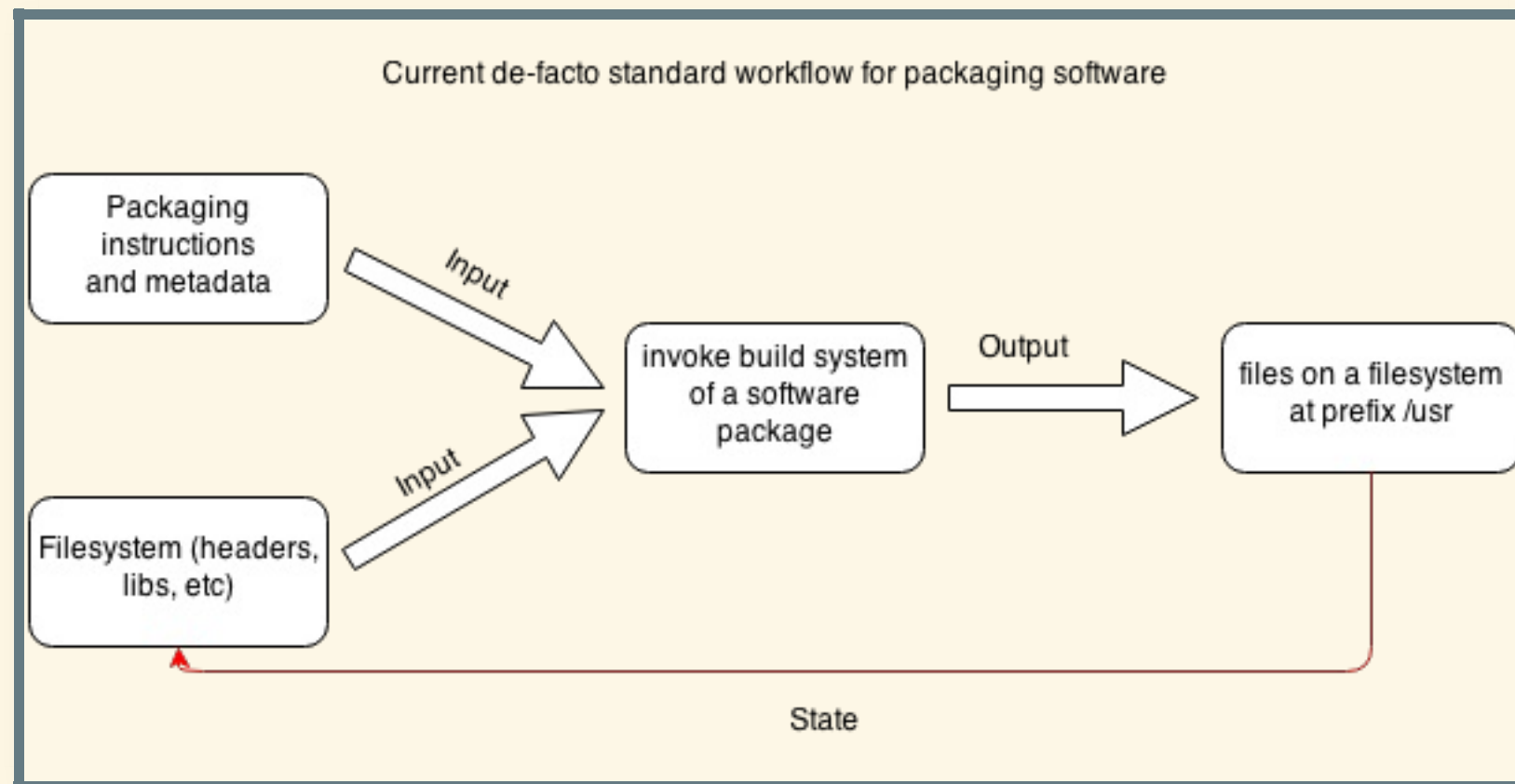
PACKAGE MANAGEMENT & DEV ENVIRONMENT

WHAT IS NIXOS & NIX IN GENERAL?

NIXOS

- Declarative package and configuration management
- Reliable, atomic upgrades and rollbacks
- Reproducible and deterministic system configs
- Multi-user environments beyond system env
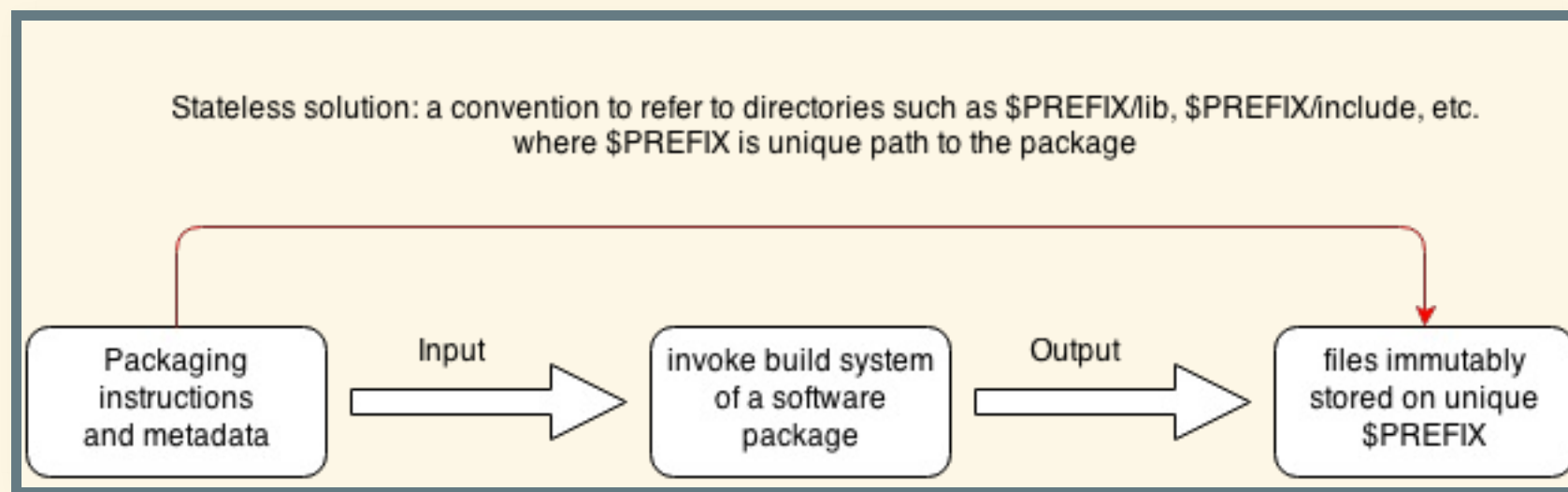
NIX PACKAGE MANAGER

STATEFUL APPROACH: BREW/PUPPET/ANSIBLE/ETC.

Current de-facto standard workflow for packaging software

Packaging instructions and metadata — Input → invoke build system of a software package — Output → files on a filesystem at prefix /usr

Filesystem (headers, libs, etc) — Input → invoke build system of a software package

State

(Source: "Why Puppet/Chef/Ansible aren't good enough" by Domen Ko?ar)

NIX PACKAGE MANAGER

STATELESS APPROACH: NIXOS

Stateless solution: a convention to refer to directories such as $PREFIX/lib, $PREFIX/include, etc.
where $PREFIX is unique path to the package

Packaging instructions and metadata → Input → invoke build system of a software package → Output → files immutably stored on unique $PREFIX

(Source: "Why Puppet/Chef/Ansible aren't good enough" by Domen Ko?ar)

NIXPKGS REPOSITORY

- Single repository for all packages
- Lazy evaluation of package expressions
- Overridable package expressions
- Rich library for customizations

STDENV SUPPORT

OS	i686	x86_64	arm5/6/7
Linux	✓	✓	✓
Darwin		✓	
Solaris		✓	
FreeBSD		✓	
Cygwin	✓	✓	

OVERVIEW OF THE NIX TOOLS I

Tool	Function
nix-env	Install, remove packages
nix-shell	Virtual development environment
nix-build	Testing & build expressions
nix-repl	REPL for testing nix expressions

OVERVIEW OF THE NIX TOOLS II

Tool	Function
nix-ops	Deployment of nixos machines (AWS, Azure,etc.)
nix-channel	Package channel management
nix-store	Low level store management
nix-garbage-collect	Garbage collector

DEMO 1: LET'S PLAY WITH THE TOOLS

DEMO 2: EXPLORE NIXPKGS REPOSITORY

DEMO 3: BUILD DEFAULT.NIX FOR NIX-SHELL IN MY PROJECT

DEMO 4: PATCH/ENABLE A NIX PACKAGE EXPRESSION

SO LONG AND THANKS FOR THE FISH!

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FURTHER READING

- Nix Pills 1-19
- Nix Manual
- NixPkgs Contributor's Guide
- Nix Package Manager Guide
- Nix Publications
- Why Puppet/Chef/Ansible aren't good enough
- From Zero to Application Delivery with NixOS
- Tour on Nix Lang
- User report: How i develop with nix
- User report Nix for Pythoneers