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PRODUCT

Jira (1,629)

Discover new apps

Browse through our category pages to learn about new useful apps you may have never heard of before.

Agenda

Nix

Functions and packaging

Functions and operating systems

Development shells

Docker without Dockerfiles

Nix

Functional programming for infrastructure

History

Functions: same input, same output **12th century**

"Nix: A Safe and Policy-Free System for Software Deployment" Eelco Dolstra **2004**

"NixOS: A Purely Functional Linux Distribution" Eelco Dolstra **2008**

I started using it **2014**

Support

Nix, programming language

Nix, package manager
- Linux
- macOS
- WSL & WSL2

NixOS, Linux operating system

NixOps, deployment tool

Alternatives

Divergent
Manual configuration
Shell scripts
apt, yum, pacman

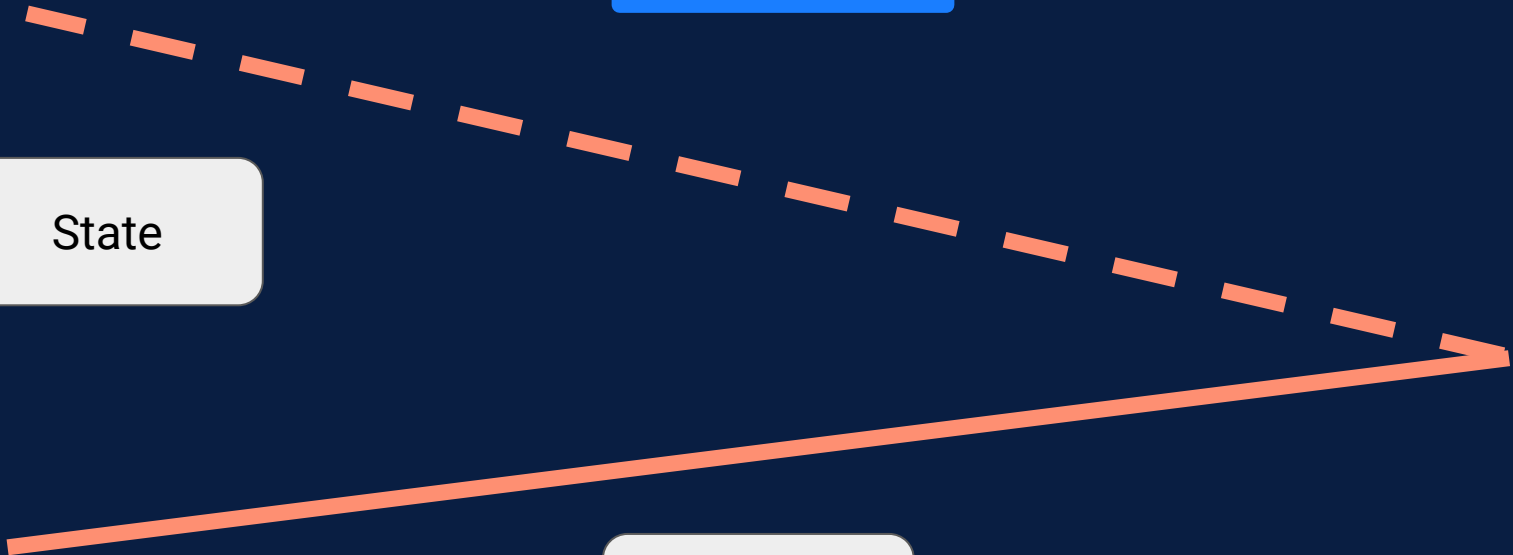**Convergent**
Puppet, Chef, Ansible

Congruent
Docker
Guix
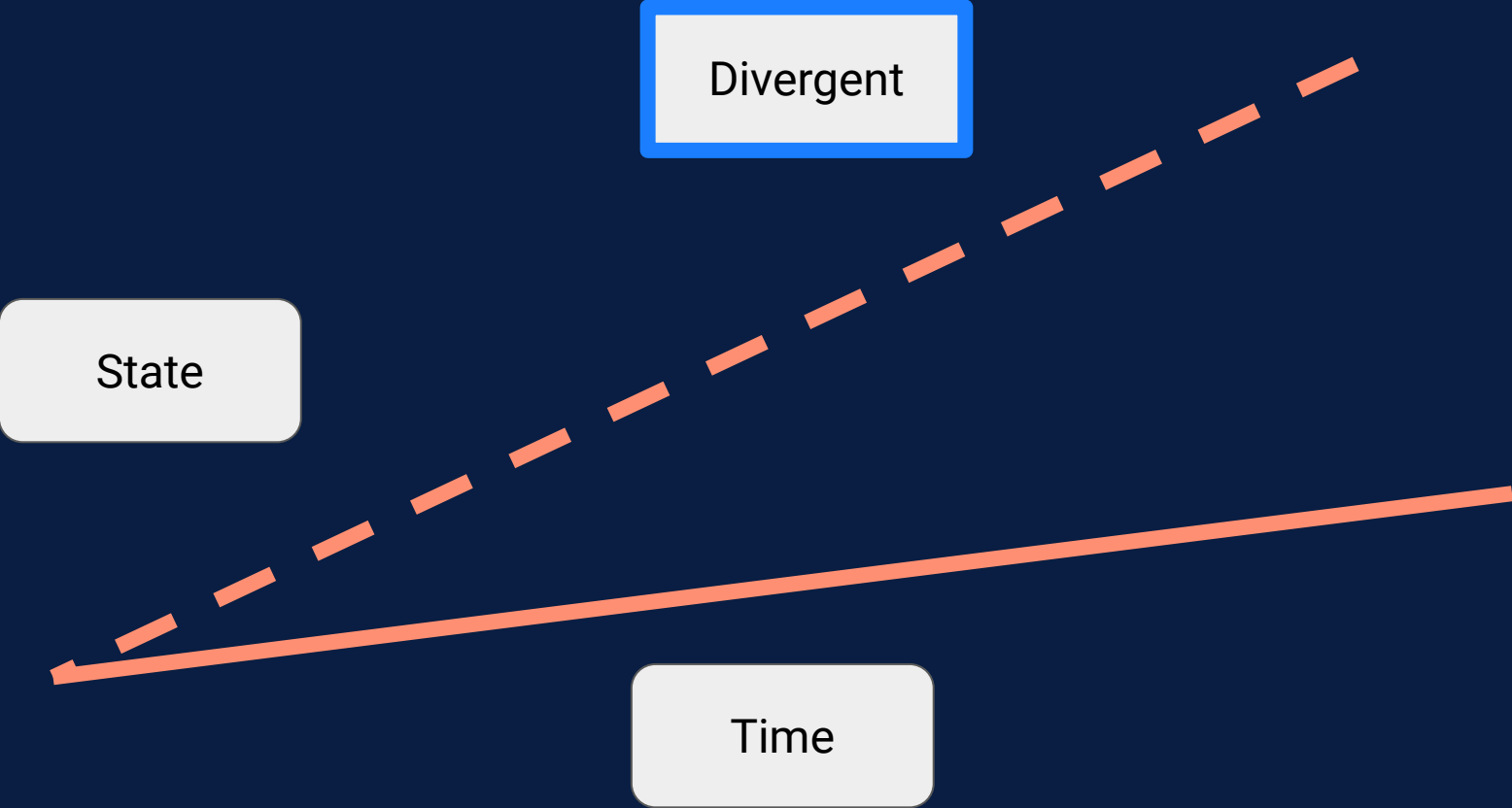
Use cases

- Cross-compiling
- Virtual machines (Linux, Windows)
- Automated GUI/service tests
- chroot environments
- AppImage packages
- RPM and Deb packages
- Continuous integration
- **Development shells**
- **Docker images**

Package management

As functions

Package

Build inputs
Dependencies
Sources
Configuration

Build outputs
Artifacts

Build definitions
Steps to create artifact from inputs
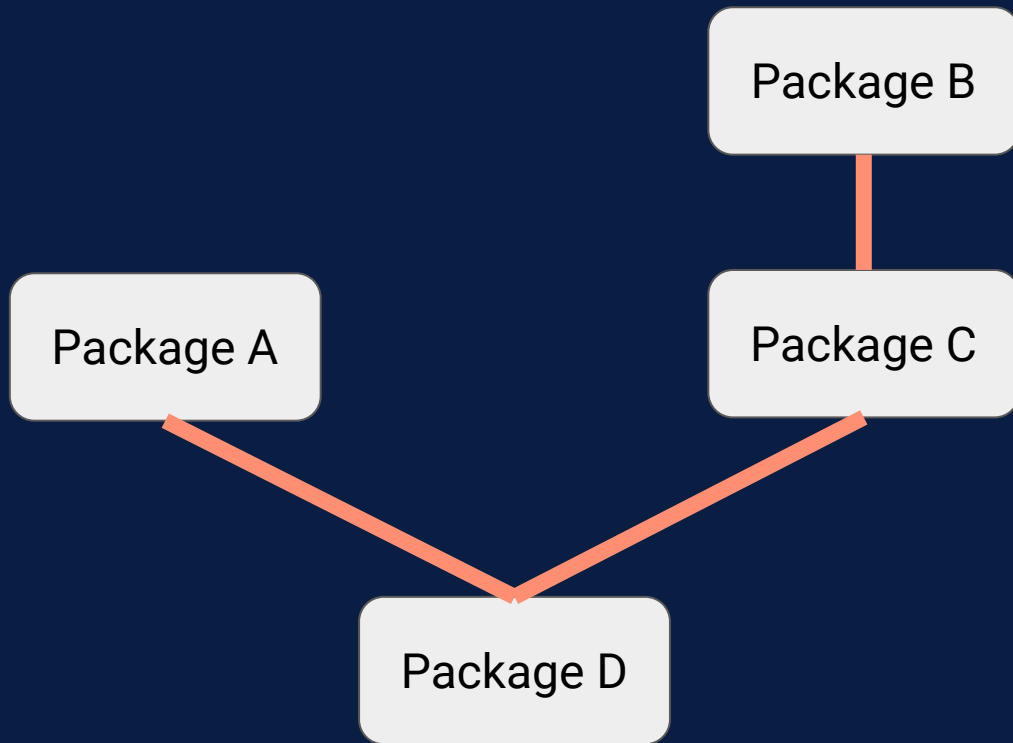
Expressions

Nix programming language only has expressions

Build inputs are values

Use functions to define the steps

Package management

Packages

Expressions

Derivations

Outputs

```
mkDerivation {
  name = "hello-file";
  buildCommand = "
    echo 'Hello world' > $out
  ";
}
```

Package management

Packages

Expressions

Derivations

Outputs

```
mkDerivation {
  name = "hello-file";
  buildInputs = [ hello ];
  buildCommand = "
    hello > $out
  ";
}
```

Package management

Packages

Expressions

Derivations

Outputs

```
runCommand "hello-file" {
  buildInputs = [ hello ];
} "hello > $out"
```

Derivations

A tree representing the build to run

No more functions, only serialised values

nix-instantiate

Package management

Packages

Expressions

Derivations

Outputs

```
$ nix-instantiate hello-file.nix
/nix/store/sn8i-hello-file.drv
```

Package management

Packages

Expressions

Derivations

Outputs

```json
"outputs": {
  "out": {
    "path": "/nix/store/jr4s-hello-file"
  }
}

"inputSrcs": [
  "/nix/store/9krl-default-builder.sh"
]
```

Package management

Packages

Expressions

Derivations

Outputs

```json
"inputDrvs": {
  "/nix/store/5gpb-stdenv-linux.drv": [
    "out"
  ],
  "/nix/store/ccna-bash-4.4-p23.drv": [
    "out"
  ],
  "/nix/store/sddw-hello-2.10.drv": [
    "out"
  ]
}
```

Package management

Packages

Expressions

Derivations

Outputs

```json
"platform": "x86_64-linux"

"builder":
"/nix/store/b9p7-bash-4.4-p23/bin/bash"

"args": [
  "-e",
  "/nix/store/9krl-default-builder.sh"
]
```

Package management

Packages

Expressions

Derivations

Outputs

```json
"env": {
    "buildCommand": "hello > $out",
    "buildInputs": "/nix/store/gdh8-hello-2.10",
    "builder":
"/nix/store/b9p7-bash-4.4-p23/bin/bash",
    "name": "hello-file",
    "out": "/nix/store/jr4s-hello-file",
    "outputs": "out",
    "passAsFile": "buildCommand",
    "stdenv": "/nix/store/r23m-stdenv-linux",
    "system": "x86_64-linux"
}
```

Outputs

Files stored at hash of the derivation

Purity is same derivation should give same output

Can be checked for purity by building many times

Or we can use a chroot

Caching builds becomes trivial

nix-store --realise

Package management

Packages

Expressions

Derivations

Outputs

```
$ nix-store --realise /nix/store/sn8i-hello-file.drv
/nix/store/jr4s-hello-file

$ cat /nix/store/jr4s-hello-file
Hello, world!
```

Operating systems

As functions

Operating systems

Configuration

Generations

```
{
    services.openssh.enable = true;
    virtualisation.docker.enable = true;

    users.extraUsers.brian = {
      uid = 1000;
      extraGroups = [ "wheel" "docker" ];
    };
}
```

Generations

If we change configuration we build a new *profile*

A profile contains kernel, systemd configuration, /etc files and a directory to be placed on $PATH

Profiles are registered as generations

Old generations can be collected

Generations are shown at boot

NixOS (Generation 24 NixOS 18.03.132597.9df3c53f38b, Linux Kernel 4.14.47, Bu
NixOS (Generation 25 NixOS 18.03.132597.9df3c53f38b, Linux Kernel 4.14.47, Bu
NixOS (Generation 26 NixOS 18.03.132597.9df3c53f38b, Linux Kernel 4.14.47, Bu
NixOS (Generation 27 NixOS 18.03.132597.9df3c53f38b, Linux Kernel 4.14.47, Bu
NixOS (Generation 28 NixOS 18.03.132597.9df3c53f38b, Linux Kernel 4.14.47, Bu
NixOS (Generation 29 NixOS 18.03.132597.9df3c53f38b, Linux Kernel 4.14.47, Bu
NixOS (Generation 30 NixOS 18.03.132597.9df3c53f38b, Linux Kernel 4.14.47, Bu
NixOS (Generation 31 NixOS 18.03.132597.9df3c53f38b, Linux Kernel 4.14.47, Bu
NixOS (Generation 32 NixOS 18.03.132597.9df3c53f38b, Linux Kernel 4.14.47, Bu
NixOS (Generation 33 NixOS 18.03.132597.9df3c53f38b, Linux Kernel 4.14.47, Bu
EFI Default Loader
Reboot Into Firmware Interface

Development shells

Using functions

Development shells

Usage

Configuration

```
$ nix-shell -p python
$$ which python
/nix/store/8818-python-2.7.11/bin/python

$ cd myproject
$ nix-shell

## install direnv
$ cd myproject
```

Development shells

Usage

Configuration

```
mkDerivation {
    name = "amkt-env";
    buildInputs = [
      nodejs-8_x
      yarn
      jdk
      which
      curl
      git
      flow
    ] ++ optionals isLinux [ firefox ];
}
```

Docker as functions

No Dockerfiles

Docker as functions

Dockerfile

Nix

```
FROM alpine

RUN apk add --update cowsay

CMD ["/bin/cowsay", "hello"]

EXPOSE 8080
```

Dockerfile

What's the version of Cowsay?

What's the version of Perl?

What's the version of libc?

What's the version of Alpine?

Docker as functions

Dockerfile

Nix

```nix
dockerTools.buildImage {
  name = "cowsay-hello";
  contents = [ cowsay ];
  fromImage = alpine;
  config = {
    Cmd = [ "/bin/cowsay" "hello" ];
    ExposedPorts = {
      "8080/tcp" = {};
    };
  };
}
```

Functional infra

One tool for CI, dev and prod.
Known versions of everything.
All reproducible.

Thank you!

BRIAN MCKENNA | SENIOR DEVELOPER | @PUFFNFRESH

Simplicity

Same inputs always give same output

Can always inline and extract expressions

Evaluation is substitution

Reuse

If we see same code, we can always extract it out

Using code is just using functions

Agenda

Agenda item 1

Agenda item 2

Agenda item 3

Agenda item 4

Agenda item 5

Agenda item 6

Agenda

Highlight sections

As you introduce them

Hold *shift* and drag the bar

Use *Distribute* tools

Found under *Arrange*

In the menu above

Talk Title

Subtitle

THE DIRECT TEAM THAT WORKS ON THIS SUBJECT

Alternate agenda option

Agenda
item 1

Agenda
item 2

Agenda
item 3

Agenda
item 4

Alternate agenda option

Delete the circles

Of other agenda items

As you highlight

Each of them

Chapter Titles

Chapter subtitles should be two lines or less

#stat#

super awesome things

This is a big statement slide. Use dark background for bolder points.

This is a big statement slide. Use dark background for bolder points.

This is a big statement slide. Use light background for lighter points.

This is a big statement slide. Use dark background for bolder points.

THIS IS A BIG STATEMENT SLIDE OPTION FOR EXTRA-STRONG MESSAGES

THERE'S A FEW DIFFERENT COLOR OPTIONS TO WORK WITH FOR EMPHASIS

USE THESE SPARINGLY. AND CONSISTENTLY WITHIN A COMMUNICATION PIECE.

USE THESE SPARINGLY.
AND CONSISTENTLY WITHIN A COMMUNICATION PIECE.

This is a reference point slide. Likely will be from a site, book, talk, etc.

This is a reference point slide. Likely will be from a site, book, talk, etc.

"

This is a quote slide.
Keep it tweetable.

AUTHOR

"

If you can't explain it simply, you don't understand it well enough.

ALBERT EINSTEIN

ONE SIDE

List out

The qualities

of the two

Different sides

Use another

Slide type

If you want to point out

The similarities

THE OTHER SIDE

List out

The qualities

of the two

Different sides

Use another

Slide type

If you want to point out

The similarities

Big statement with support

Talking point

Supporting info for talking point. Use no more than two lines.

Talking point

Manage audience focus by placing bar beneath talking point.

Talking point

Stay consistent with using the light or dark throughout the related big statement.

Big statement with support

Spacing

Hold down *Shift* to drag when moving the bar to make sure it stays properly aligned.

Please remember

Using a lot of text on slides is like reading your notes to your audience. Not presenting.

Less is more

If you don't need any of the points, don't use them. We don't believe in filler, baby!

Deeper info slide title

Bold text

Normal text

Move marker

Change text style

Talking point

This is arguably the most text that should ever be on one of your presentation slides.

Are they here to read or be engaged?

Don't ask your audience to read/listen to your notes and call it a presentation. Can send them a document.

Don't need a third point?

Go ahead and delete!

Code sample with headers

Bold text

Normal text

Move marker

Change text style

```json
"contentBylineItems": [
  {
    "context": "addon",
    "target": { "type": "inlinedialog" },
    "tooltip": { "value": "Approvals" },
    "icon": { "url": "/images/approval.png"
},
    "name": { "value": "Page Approvals" },
    "key": "byline-item",
    "url":
"/approvals?contentId={content.id}"
  }
]
```

Use illustrations from the Graphic Assets Deck to support point.

Use illustrations from the Graphic Assets Deck to support point.

Keep your big points short & sweet
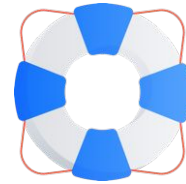
Talking point

Supporting text should be brief and no longer than 4 lines. Limit one talking point and image per slide.

Talking point

Illustrations

Utilize spot illustrations from our design site.

Separators

Use minimal grey bar to separate points/illustrations.

Talking point

Usage

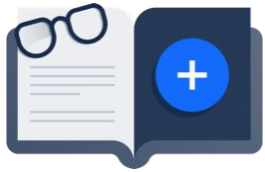These slides have proven to be versatile in use.

Remember

Keep the text light and focus on presenting your points.

Don't Obsess

The illustrations need only to hint at your point.

Talking point

Headline 3
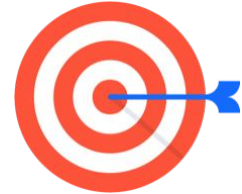Subtext type size is optimized at 14 pt.

Rehearse
Rely on rehearsing your voiceover rather than writing.

Focus
Use 4 points maximum to keep focus.

No worries
It's OK if the subtext lengths differ.

Before

Use to discuss points about how
something worked before.

After

Celebrate how fantastic things are now
that you've implemented changes.

Short title, 2 lines max

Point 1

Point 2

Point 3

Point 4

Talking point

Supporting text should be brief and no longer than 4 lines. Limit one talking point and image per slide.

Illustrations > text

Use illustrations to represent ideas rather than always relying on text.

Talking point

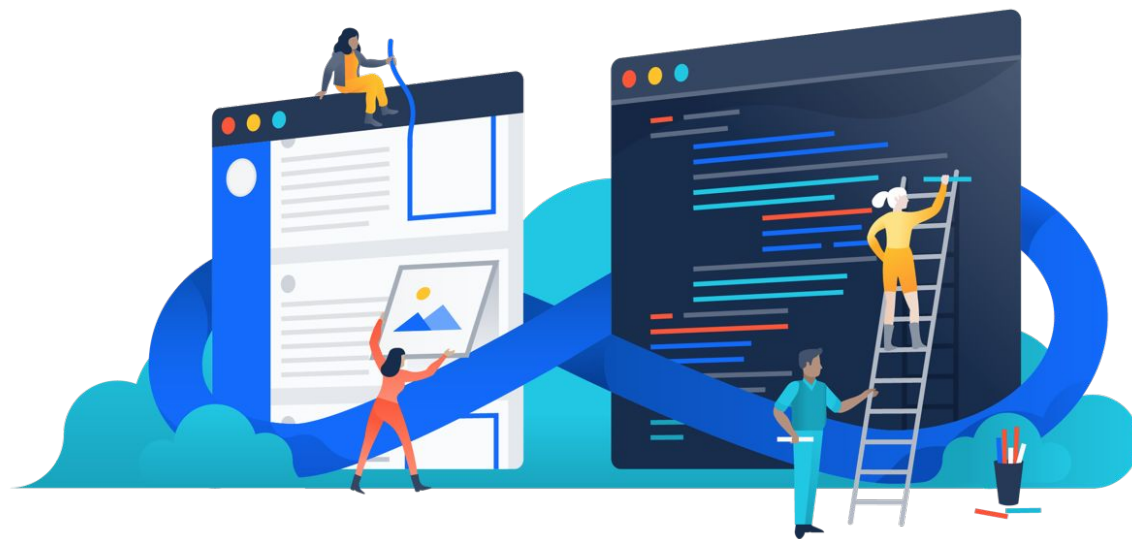Reinforcement of a big idea - use no more than two lines of text here.

Less is more

If you don't need any of the points, don't use them.

```json
"contentBylineItems": [
  {
    "context": "addon",
    "target": { "type": "inlinedialog" },
    "tooltip": { "value": "Approvals" },
    "icon": { "url": "/images/approval.png"
},
    "name": { "value": "Page Approvals" },
    "key": "byline-item",
    "url":
"/approvals?contentId={content.id}"
  }
]
```

Large visual with title

Blank with title

Icon with text

Icons

You'll find loads of custom Atlassian icons at atlassian.design available to you in light and dark.

Download

Unlike with Keynote and PPT versions, you'll have to download the icons, illustrations, and meeples to place in Google Slides.

Check back

We'll let you know when there are updates to our custom icon set.

Icon with text

Icons
You'll find loads of custom Atlassian icons at atlassian.design available to you in light and dark.

Download
Unlike with Keynote and PPT versions, you'll have to download the icons, illustrations, and meeples to place in Google Slides.

Check back
We'll let you know when there are updates to our custom icon set.

Icon with text

Point 1
Use 4 points maximum to keep audience focus.

Point 2
Any more than that is not intended for presentation format.

Point 3
Need more? Please simply duplicate the page and add "cont." to your title.

Point 4
These slides will look cleaner and more cohesive. We promise.

Icon with text

Point 1

Use 4 points maximum to keep audience focus.

Point 2

Any more than that is not intended for presentation format.

Point 3

Need more? Please simply duplicate the page and add "cont." to your title.

Point 4

These slides will look cleaner and more cohesive. We promise.

We use a 50% transparency N900 box over a full-bleed photo when using text overlays

Use a white gradient on light photos to create enough contrast for your text

With the gradient object selected, under *Format Shape / Shape Options / Fill* you'll find more options to control the gradient.

With the gradient object selected, under *Format Shape / Shape Options / Fill* you'll find more options to control the gradient.

Use a dark gradient on dark photos to create enough contrast for your text

Use a transparent overlay over a full-width photo

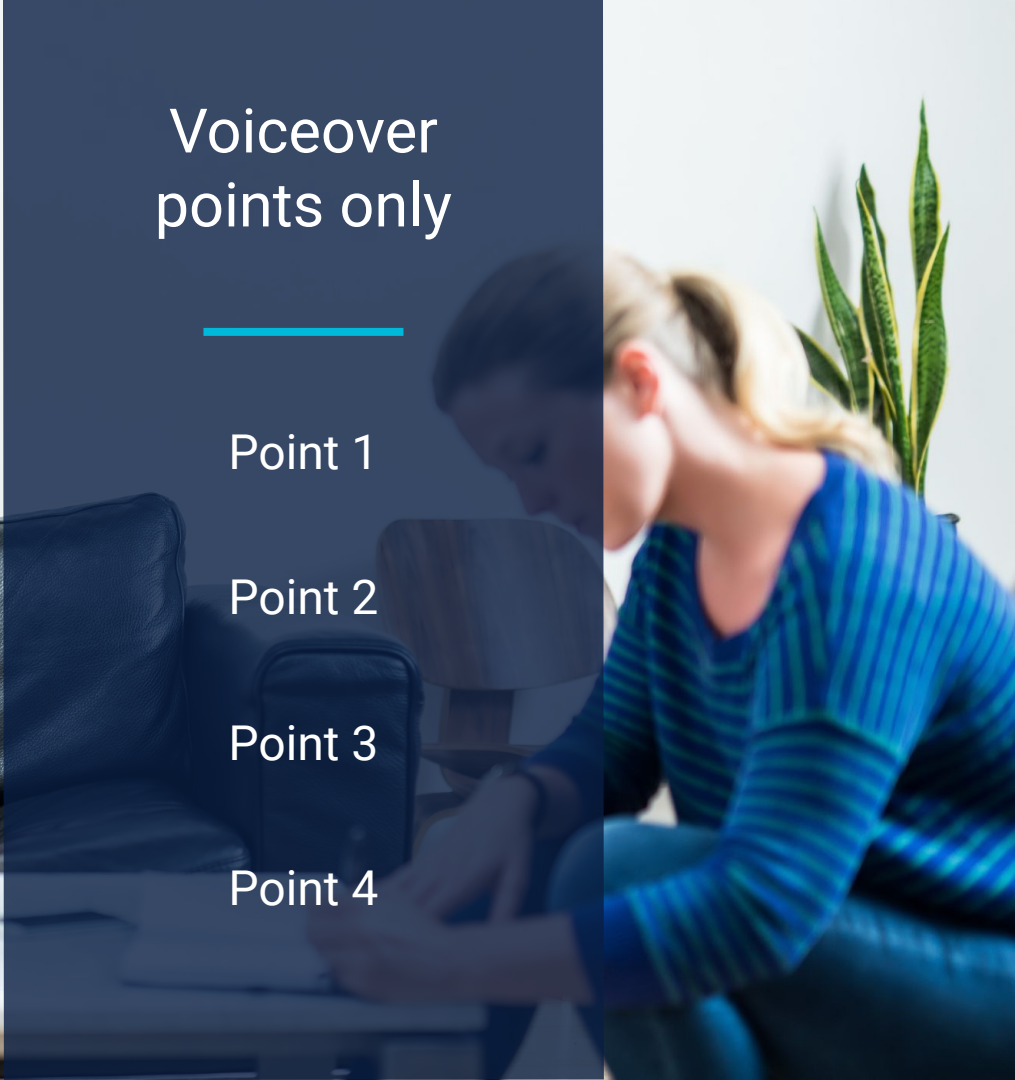Place this column wherever it makes sense on the photo. Select all and then deselect the photo. Hold *Shift* and move.

Voiceover points only
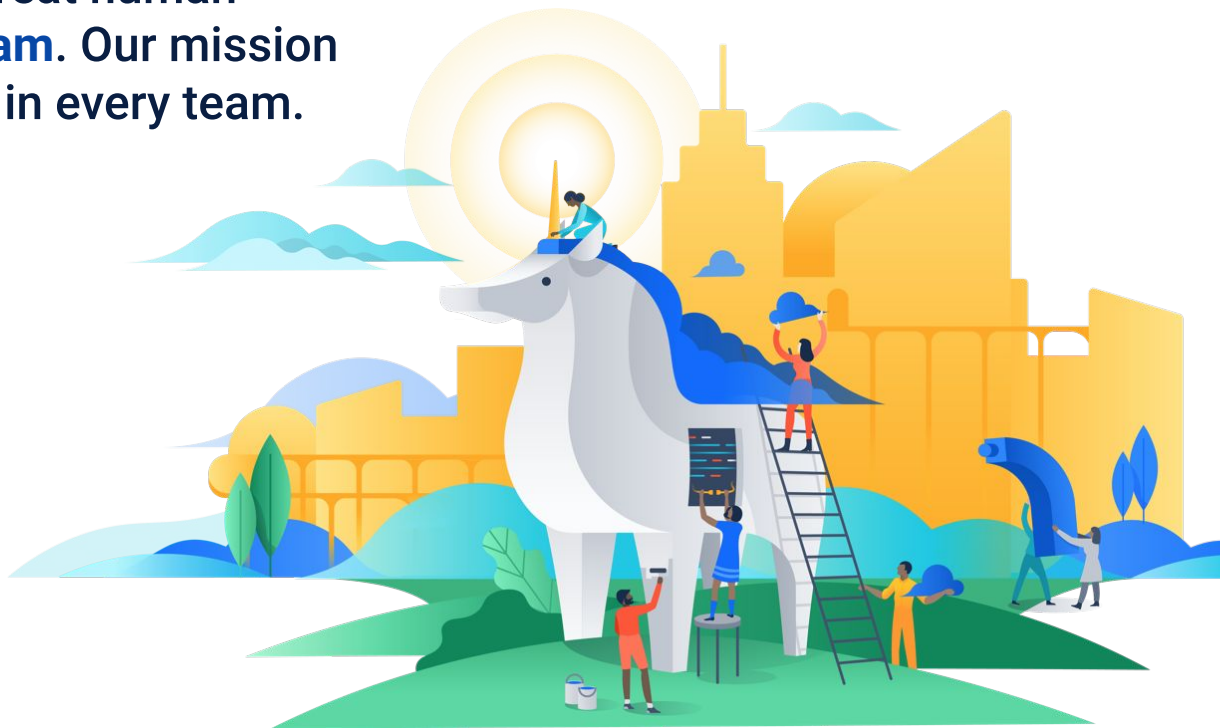
Point 1

Point 2

Point 3

Point 4

Concept Slides

Mission and Values overview – please do not change

OUR MISSION

We believe behind every great human achievement, there is a **team**. Our mission is to unleash the potential in every team.

OUR MISSION

We believe behind every great human achievement, there is a **team**. Our mission is to unleash the potential in every team.

We believe behind every great human achievement, there is a **team**. Our mission is to unleash the potential in every team.

OUR MISSION

We believe behind every great human achievement, there is a **team**. Our mission is to unleash the potential in every team.

Atlassian Values

They guide what we do, why we create, and who we hire.

Open company, no bullshit

Play, as a team
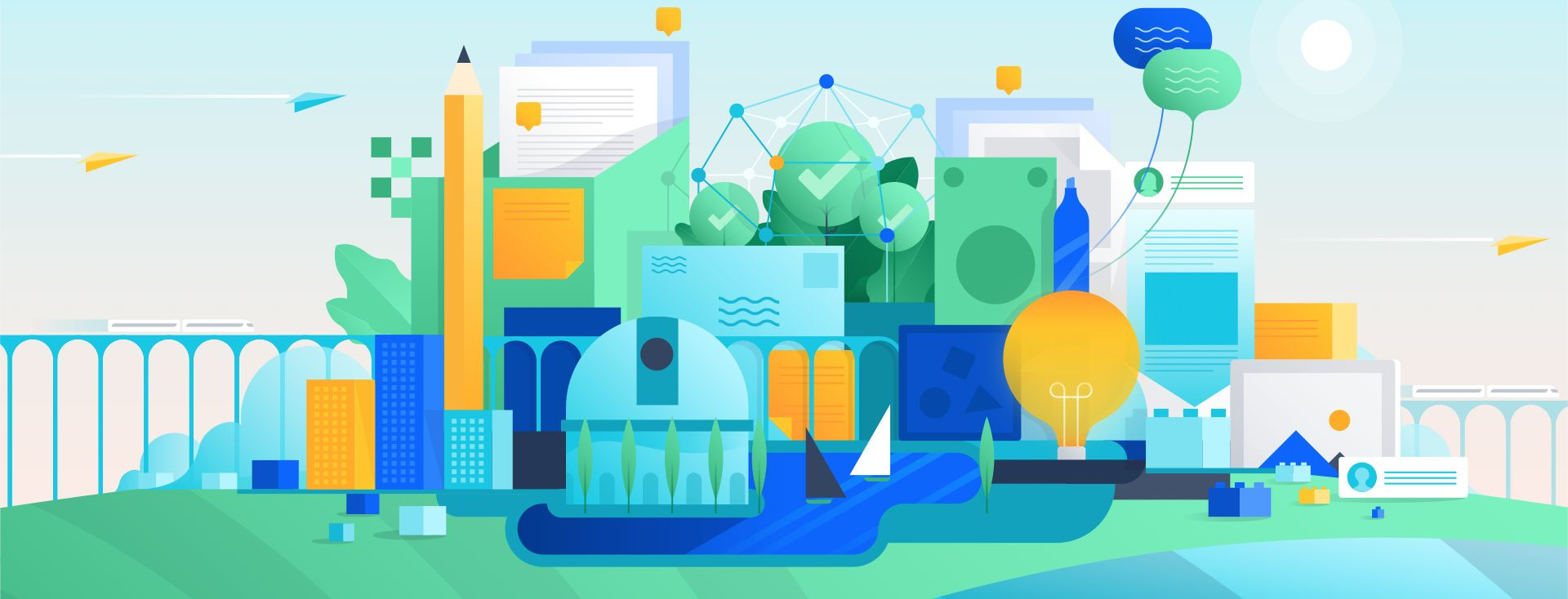
Build with heart & balance

Be the change you seek

Don't #@!% the customer

WE BELIEVE

When work is **open**, we unleash the full potential of all teams.

go/shipit-#

ShipIt

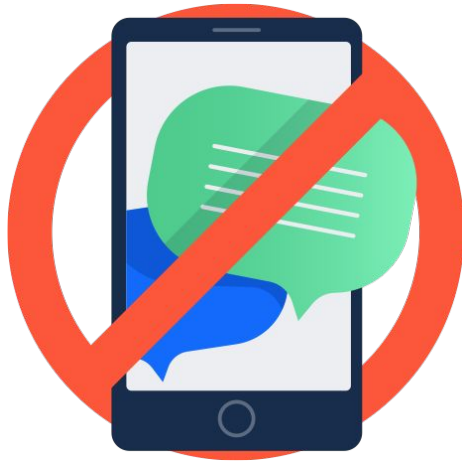24 hours to innovate.
It's like 20% time.
On steroids.

Foundation

We created the Atlassian Foundation with the vision of helping make the world better.

Giving Back

As a company, we contribute 1% of annual profits, 1% of employee time, and 1% of company equity to the foundation.

Confidential

No tweets, photos, etc.

Add a title, URL, or just remove this text

Add a title, URL, or just remove this text

Thank you!

THE DIRECT TEAM THAT WORKS ON THIS SUBJECT