What’s Next for Teal
The typed dialect of Lua

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FOSDEM 2021
About me

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About this talk

Part III of a trilogy!
Part I - Past

“Minimalism Versus Types”
FOSDEM 2019
Part II - Present

“Minimalistic Typed Lua is Here”
FOSDEM 2020

What’s Next for Teal
https://hisham.hm/
Part III - Future

“What’s Next for Teal”
FOSDEM 2021
We have a name!

https://teal-language.org

What's Next for Teal

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Let’s step back a bit

Lua
Let’s step back a bit

Lua

a widely used niche language
Lua is everywhere

- Game engines
  big and small (too many to list)
- IoT / Embedded systems
- Networking software
- Scripting for Applications
  (often a good chunk of entire applications)
- LuaTeX
- Wikipedia!
Why do people use Lua?
Why do people use Lua?

Embeddable (+small and fast)
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Extensible
Why do people use Lua?

Embeddable (+small and fast)

Extensible

Something they use is using Lua
Lua is **minimalistic** but not minimal
There's a **pragmatism** to it

The language grows, slowly

Features are added
often in a logical pattern

example: bitwise operators added
once integers were added
“Mechanisms, not policies”

pros:
fits well for an embedded language in an application

cons:
not ideal for pure-Lua application programming and ecosystem building
Several ecosystems

OpenResty

Love2D

Roblox

etc.
Teal

a new programming language:
a statically typed dialect of Lua
Why Teal?

Static types are good

I like Lua and I like compilers

people (myself included)
do write (large) applications in Lua
minimalistic

a single Lua module (tl.lua) implements a Teal-to-Lua compiler

can be loaded into any Lua 5.1-5.4 project without any dependencies
What’s Next for Teal

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Where Teal is now

- a small but growing **community**!
- **editor support** (vim, vscode, etc.)
- **teal-playground**
- **teal-types**: repo with type definitions of Lua libraries
- language **improvements**
Language improvements

Union types

Tuple types

Metamethods

Integer division and bitwise operators with metamethods (working for all versions of Lua!)

Improved flow-based inference

Syntax tweaks and cleanups

What’s Next for Teal

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What’s Next for Teal

Time to start using it!

Use the experience to mature the language

Identify what is missing

Strike the balance between minimalism and pragmatism

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Some early feedback

- Integer type
- Abstract interfaces for records
- Optional/required function arity
- Strict nil-safety?
Taking a page from Lua

Teal is embeddable
Taking a page from Lua

Teal is embeddable

It needs to be extensible

What’s Next for Teal

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Extensibility

Lua extensibility:
- metatables/methods at runtime
- Lua/C API

Teal extensibility:
- metaprogramming at compile time
- Compiler API
In short

Teal is usable today!

Embeddable static typing support for Lua-based environments, for programming in the large

A new language, evolving with a welcoming community

What’s Next for Teal

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Thank you!

Join the community via Gitter or Matrix

Links at
https://github.com/teal-language/tl

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