

# Python

## INTERMEDIATE

Rapid prototyping using Python libraries and integration with local and remote services



POLITECNICO  
DI TORINO



# The Starting Point

- You (should) have the basic knowledge for creating Python programs from scratch
- In realizing an application, you can *stand on the shoulders of giants*
  - i.e., reuse things (libraries, packages, etc.) made available by other developers
- In looking for libraries to integrate with your application, it could be useful to
  - Keep It Simple Stupid (KISS)

# What can I integrate?

- Libraries and packages to provide more functionality, algorithms, etc. to your own program
  - e.g., complex math operations, statistical packages, OS interfaces, ...
- Libraries and packages to integrate external (cloud, web) services
  - e.g., weather, social networks, ...

# Integrate Python Packages

- To use other Python packages in your applications you should
  - install them (typically)
  - import them
- Python modules can be installed with the `pip` command

```
pip install <package_name>
```

Learn more about `pip` at <https://pip.pypa.io>

# Learning by Example



- We would like to realize a Telegram bot (AmIBot) that
  - greets us
  - acts as a textual parrot, by sending back as text whatever we write (*textual echo*)
  - acts as a parrot, by sending back as voice whatever we write (*vocal echo*)

# What is a Telegram bot?

- A third-party application that run inside Telegram
- Users can interact with bots by sending them
  - messages
  - commands
  - inline requests
- Developers can control their own bots using the Telegram bot API or dedicated libraries

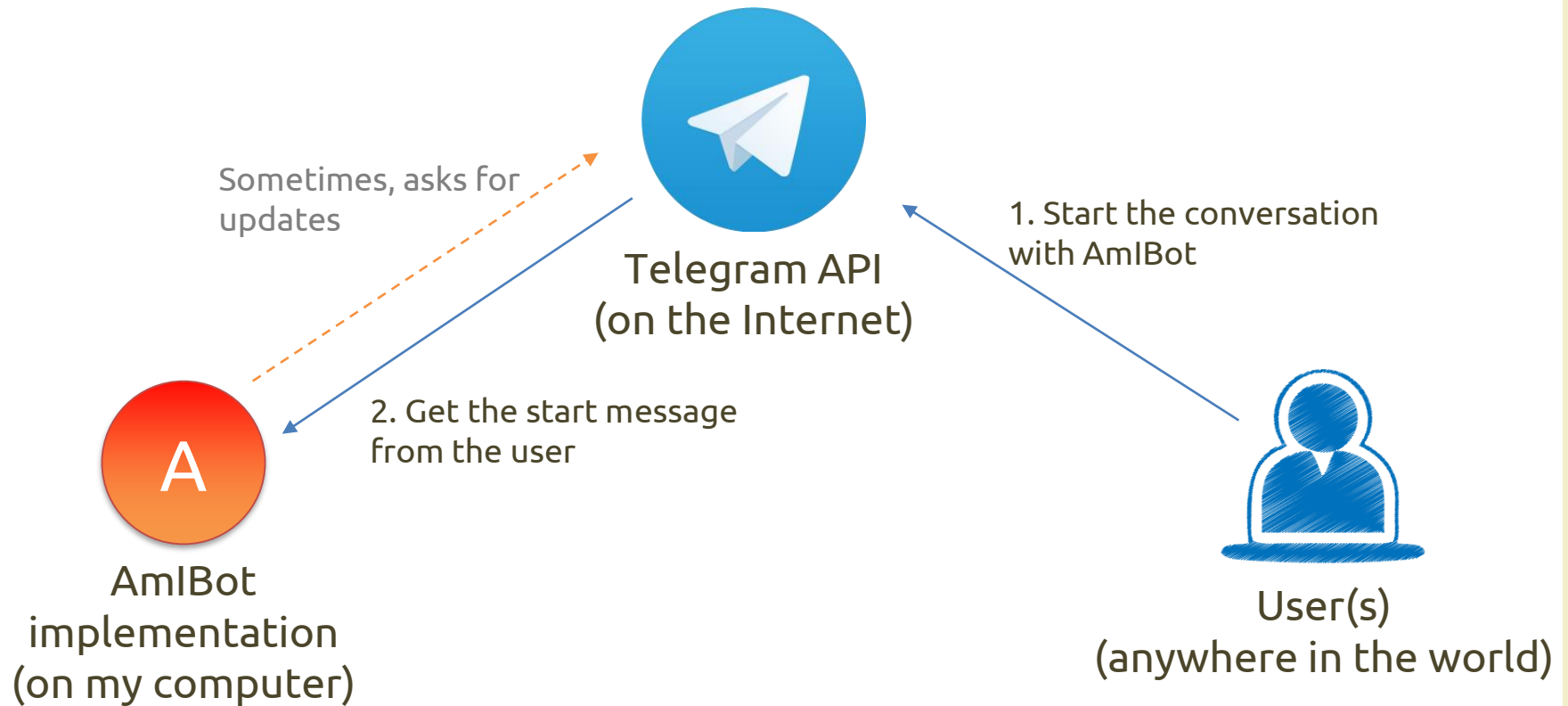
Discover more at <https://core.telegram.org/bots>

# How to create a Telegram bot?

- First, ask BotFather
  - set up a bot account with @BotFather
  - it will ask you for
    - a name (I chose `AmIBot`)
    - a username that must end in 'bot' (I chose `AmI2017_bot`)
  - Then, BotFather will give you
    - a token to use the Telegram API
    - a Telegram link to let users converse with your bot



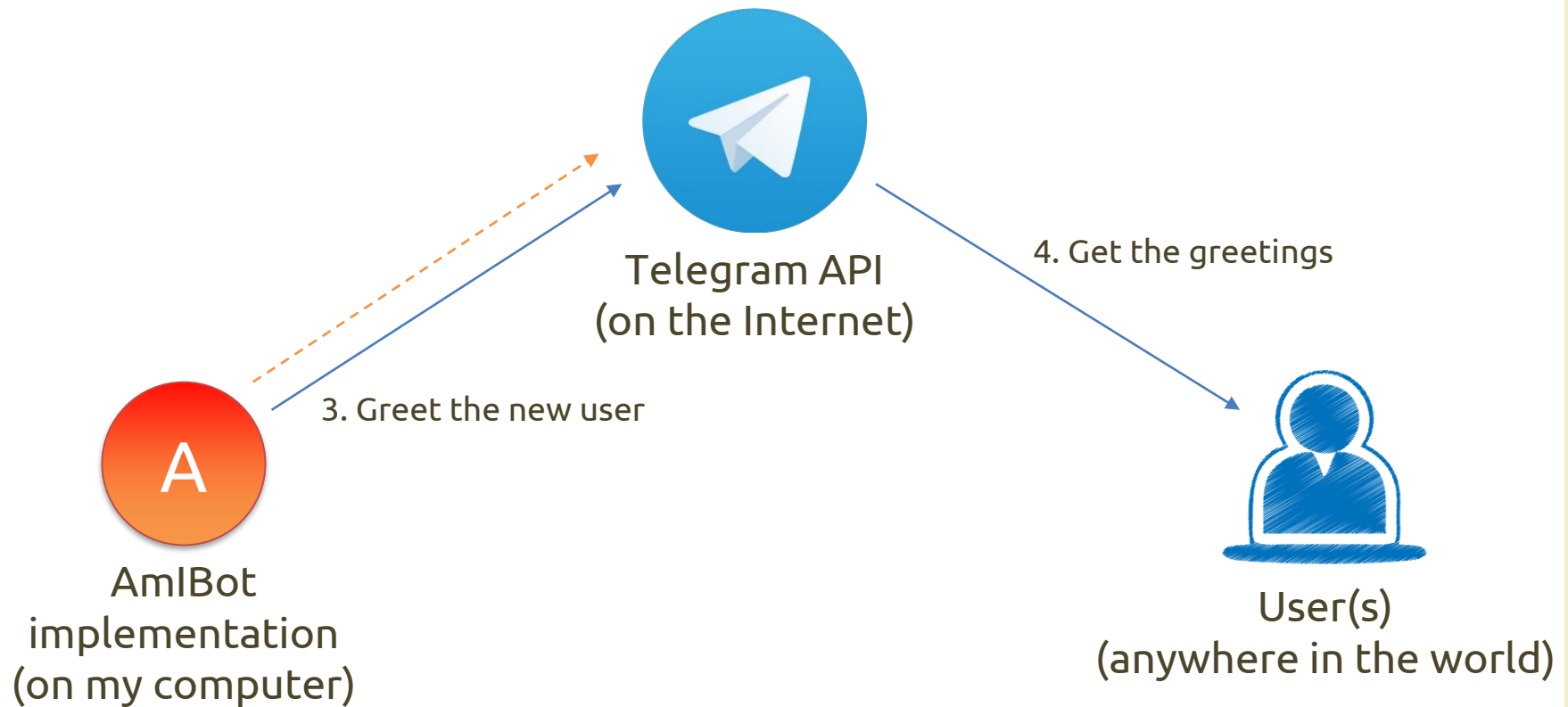
# How will our bot work?



*(from 10,000 feet...)*

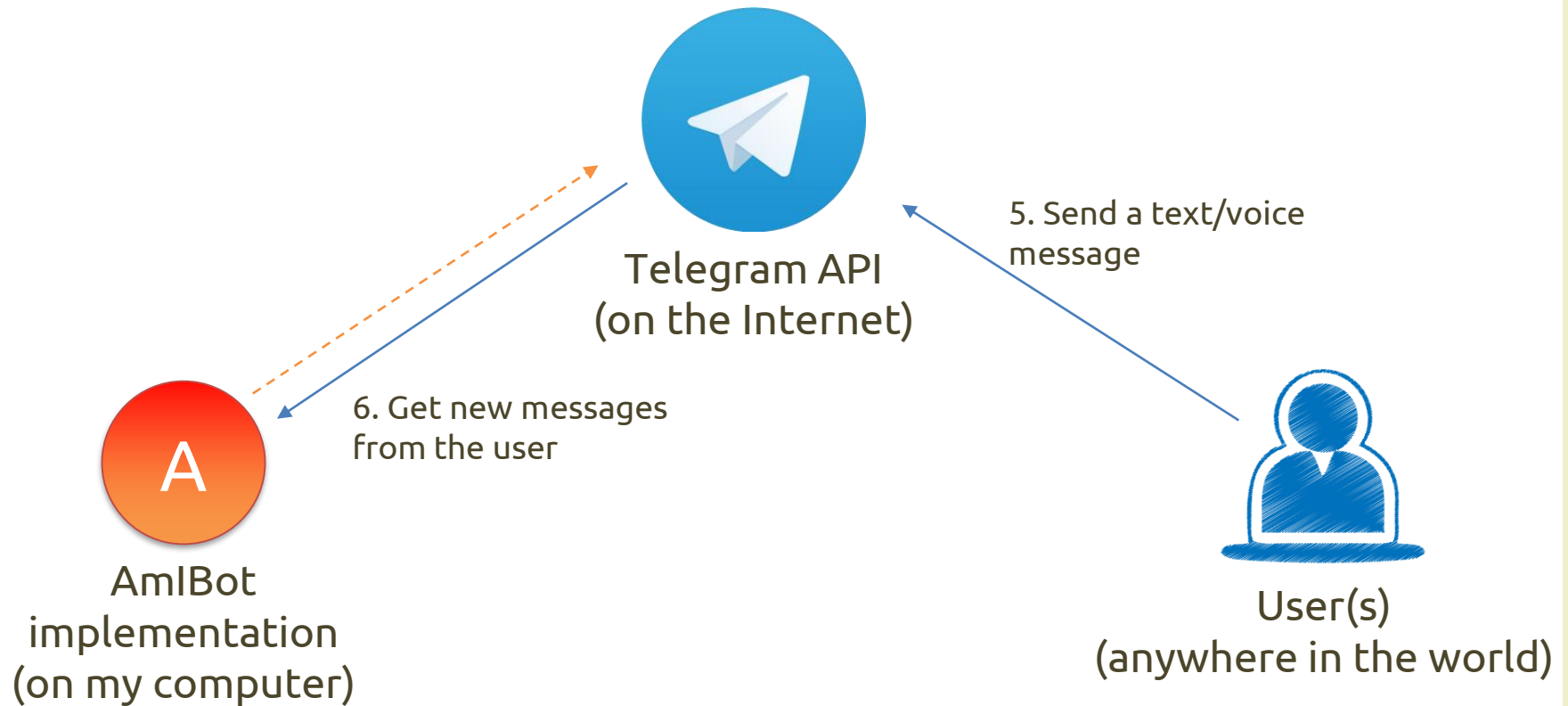


# How will our bot work?



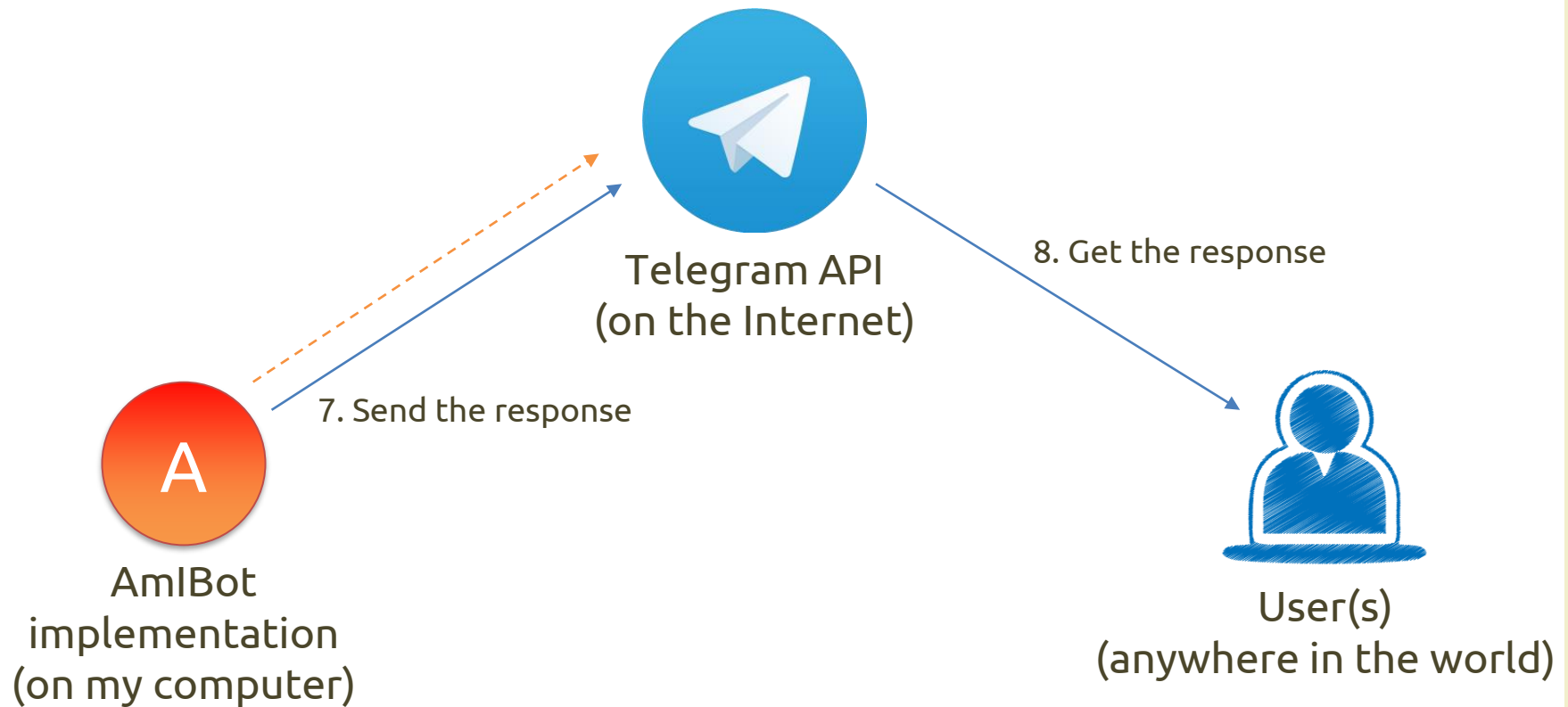
*(from 10,000 feet...)*

# How will our bot work?



*(from 10,000 feet...)*

# How will our bot work?



*(from 10,000 feet...)*

# Which library do we choose?

- No official Telegram library for Python
- Two libraries are "recommended" by Telegram...
  - Telepot
    - <https://github.com/nickoala/telepot>
  - twx.botapi
    - <https://github.com/datamachine/twx.botapi>
- ... while another is widely used in tutorials and examples (by searching with Google)
  - python-telegram-bot
    - <https://github.com/python-telegram-bot/python-telegram-bot>

# Which library do we choose?

- All the libraries
  - support Python 3
  - are available on pip
  - have some sort of documentations
  - are well maintained
- How can we choose?
  - python-telegram-bot has more commits/stars/forks/watches... than the other two
  - twx.botapi has no available examples and implements a slightly older version of the bot API
- Let's go with **python-telegram-bot**, then!

# Command vs non-command messages

- Command messages
  - e.g., `\start`, `\edit`, `\something`
- Non-command messages
  - free text messages
- We want to send greetings with the `\start` command message
- While the "echo" operation will be performed on every non-command message

# The Text-To-Speech dilemma

- How to convert a text into speech?
- Online services exist
  - e.g., Google Text to Speech, VoiceRSS, ...
- We will use the gTTS Python package
  - <https://github.com/pndurette/gTTS>
  - available on pip
  - it takes some text and, by using the Google Text to Speech API, return a mp3 file
- In our bot, we will send the mp3 back to the user
  - as a parrot (*vocal echo*)

# Playground

- If you want to experiment more, you can...
- ... perform an "inverted" echo
  - e.g., the user write "hello, bot" and the bot should reply with "olleh, tob"
- ... ask for the weather
  - <https://pypi.python.org/pypi/yahooweather>

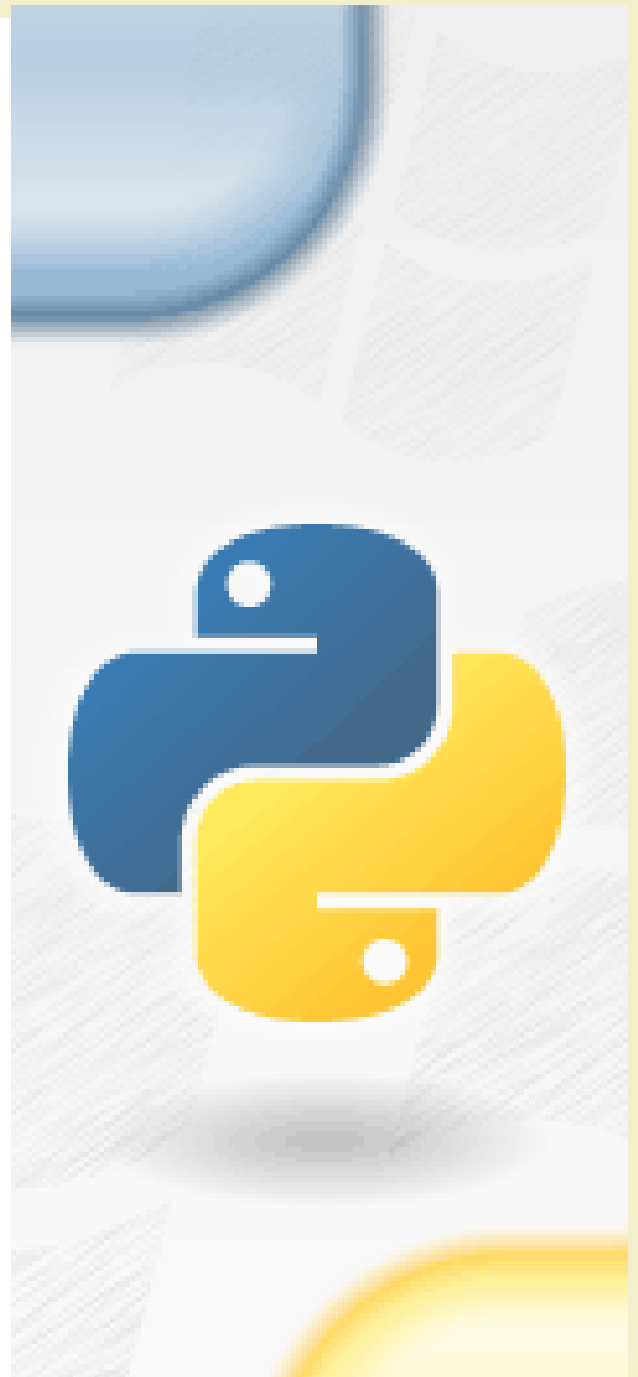


# Questions?




**01QZP AMBIENT INTELLIGENCE**

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