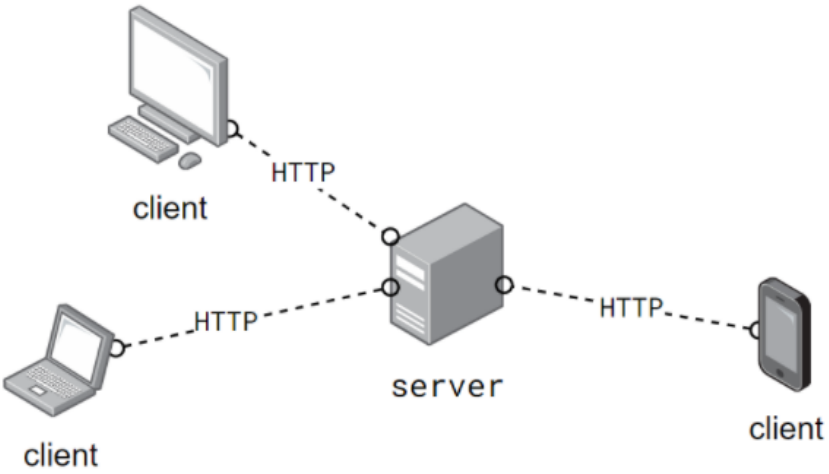
Intro to APIs

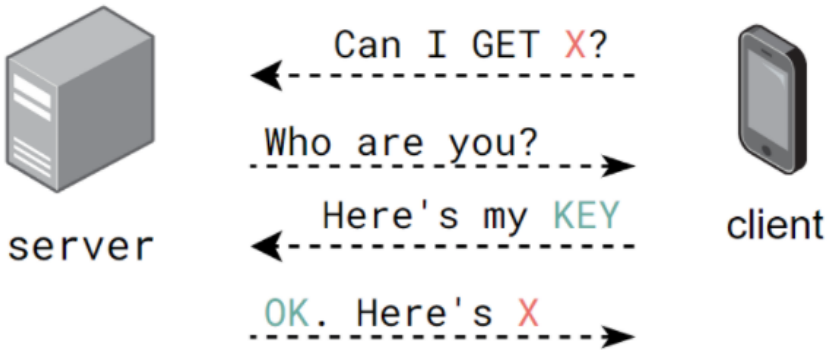
Background



1. What does **HTTP** stand for, and what does it mean in the context of the *internet*?
2. What is the relationship between a **server** and **clients**?
3. In the context of this diagram and APIs, what is a **URL**?
4. In the context of this diagram and APIs, what is an **endpoint**?

Server-Client Communication

Let's examine an interaction between a server and a client.



1. How does the server know who the client is?
2. Why does the server need a `KEY` before sending `X`?
3. The server and client are communicating via HTTP (Hyper *Text* Transfer Protocol). What format will the requested `X` be sent as?

Data Transfer

Review

Examine the following Python dictionary.

```
pokemon = {
    'name': "Scolipede",
    'height': 25,
    'types': [
        {
            'slot': 1,
            'type': "bug"
        },
        {
            'slot': 2,
            'type': "poison
        }
    ]
}
```

1. What does `pokemon['name']` evaluate to?
2. What does `pokemon['types']['0']` evaluate to?
3. Write Python code that accesses the `height`.
4. Write Python code that accesses the `type` in slot 2.

JSON

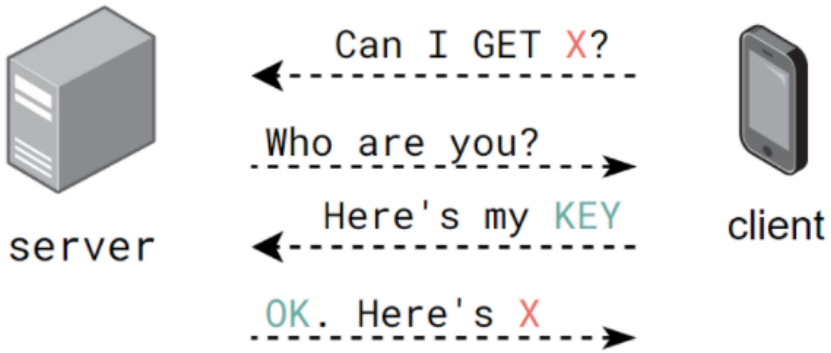
1. What does **JSON** stand for? Why is it useful for **REST** APIs?

Examine the following **Javascript object**.

```
pokemon = {
    'name': "Scolipede",
    'height': 25,
    'types': [
        {
            'slot': 1,
            'type': "bug"
        },
        {
            'slot': 2,
            'type': "poison
        }
    ]
}
```

2. What does `pokemon['name']` evaluate to?
3. How would you access the `type` in slot 2?
4. How is a Javascript object different than a Python dictionary?

Consuming APIs With Python



Let's return to this diagram:
and accompany it with some Python code:

```
import requests
BASE_URL = "http://www.server.com/"
ENDPOINT = "endpoint"
API_KEY = "abcd1234"

payload = {'key': API_KEY, 'q': "X"}

response = requests.get(BASE_URL+ENDPOINT, params=payload)
if response.ok:
    data = response.json()
else:
    print(reponse.status_code, response.text)
```

1. What is the **requests** module used for?
2. What parameters does the `get` method take?
3. What is a **payload** in the context of APIs?
4. We can now treat `data` as a Python dictionary. Why is that allowed?
5. How do we check if the response is OK?
6. What do we do if the response is not OK?
7. What is an HTTP **status code**?