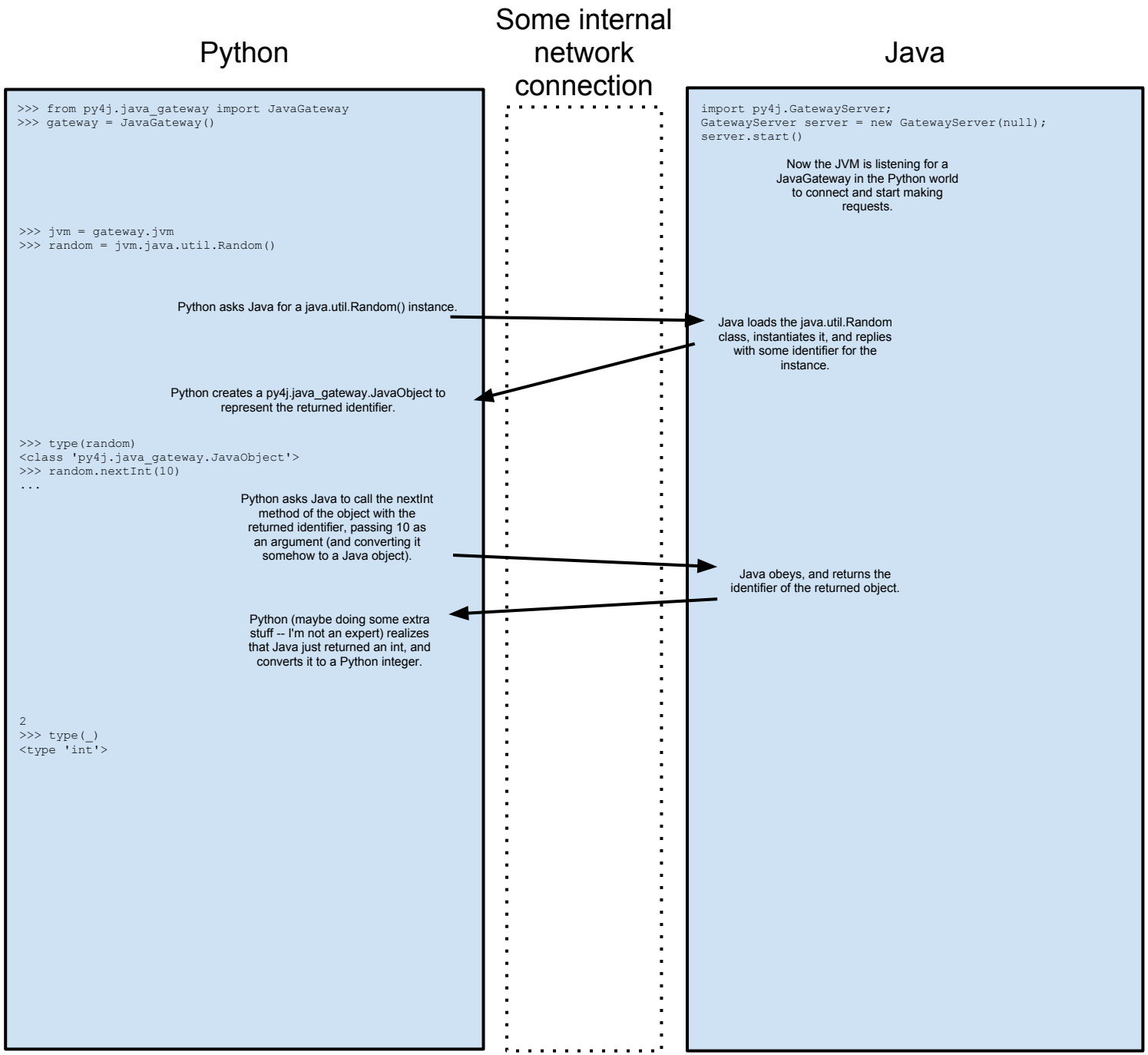
Python
Some internal network connection
Java
>>> from py4j.java_gateway import JavaGateway
>>> gateway = JavaGateway()
import py4j.GatewayServer;
GatewayServer server = new GatewayServer(null);
server.start()
Now the JVM is listening for a JavaGateway in the Python world to connect and start making requests.
>>> jvm = gateway.jvm
>>> random = jvm.java.util.Random()
Python asks Java for a java.util.Random() instance.
Java loads the java.util.Random class, instantiates it, and replies with some identifier for the instance.
Python creates a py4j.java_gateway.JavaObject to represent the returned identifier.
>>> type(random)
<class 'py4j.java_gateway.JavaObject'>
>>> random.nextInt(10)
...
Python asks Java to call the nextInt method of the object with the returned identifier, passing 10 as an argument (and converting it somehow to a Java object).
Java obeys, and returns the identifier of the returned object.
Python (maybe doing some extra stuff -- I'm not an expert) realizes that Java just returned an int, and converts it to a Python integer.
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>>> type(_)
<type 'int'>