

สยามชัมนานาค
SIAM CHAMNAN KIT



Shu Ha Ri



We Love Bug

Performance Test

April 2020

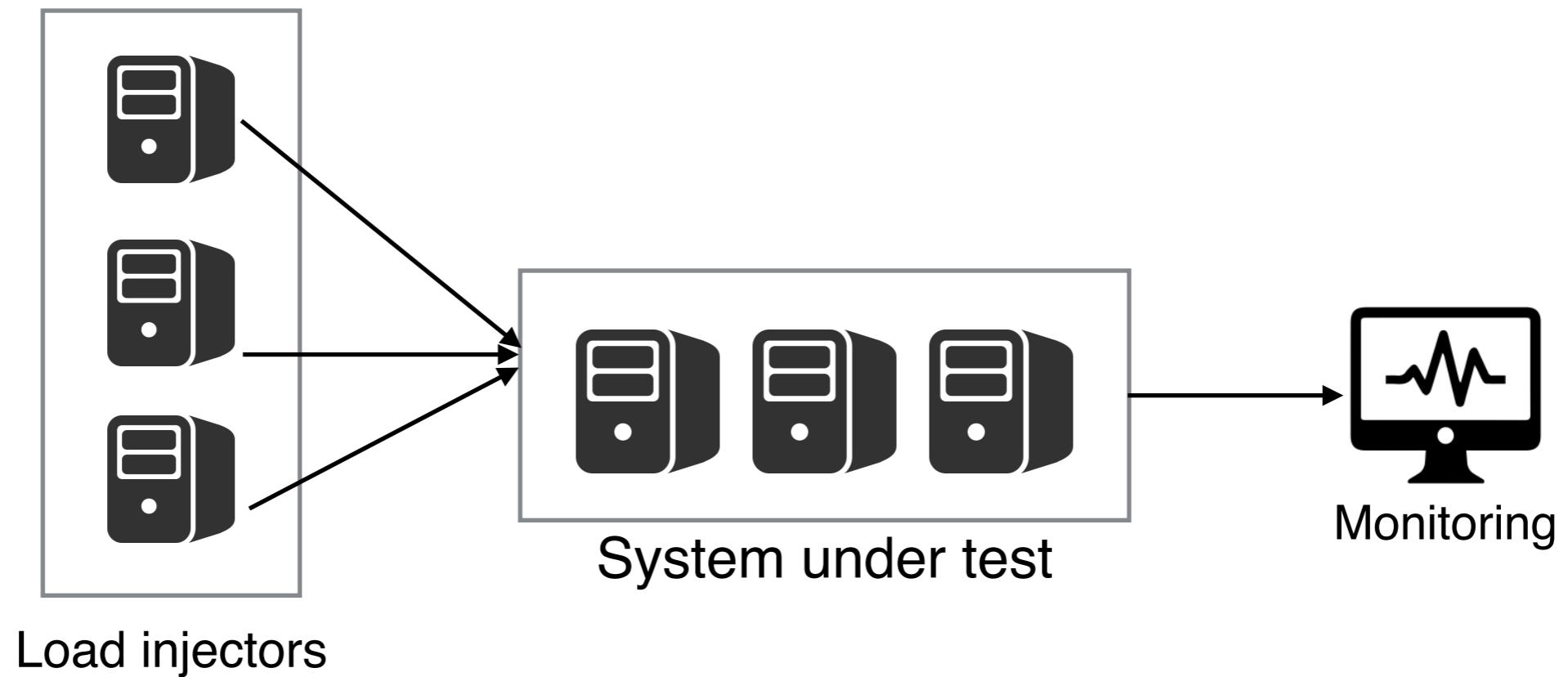


April 16, 2020

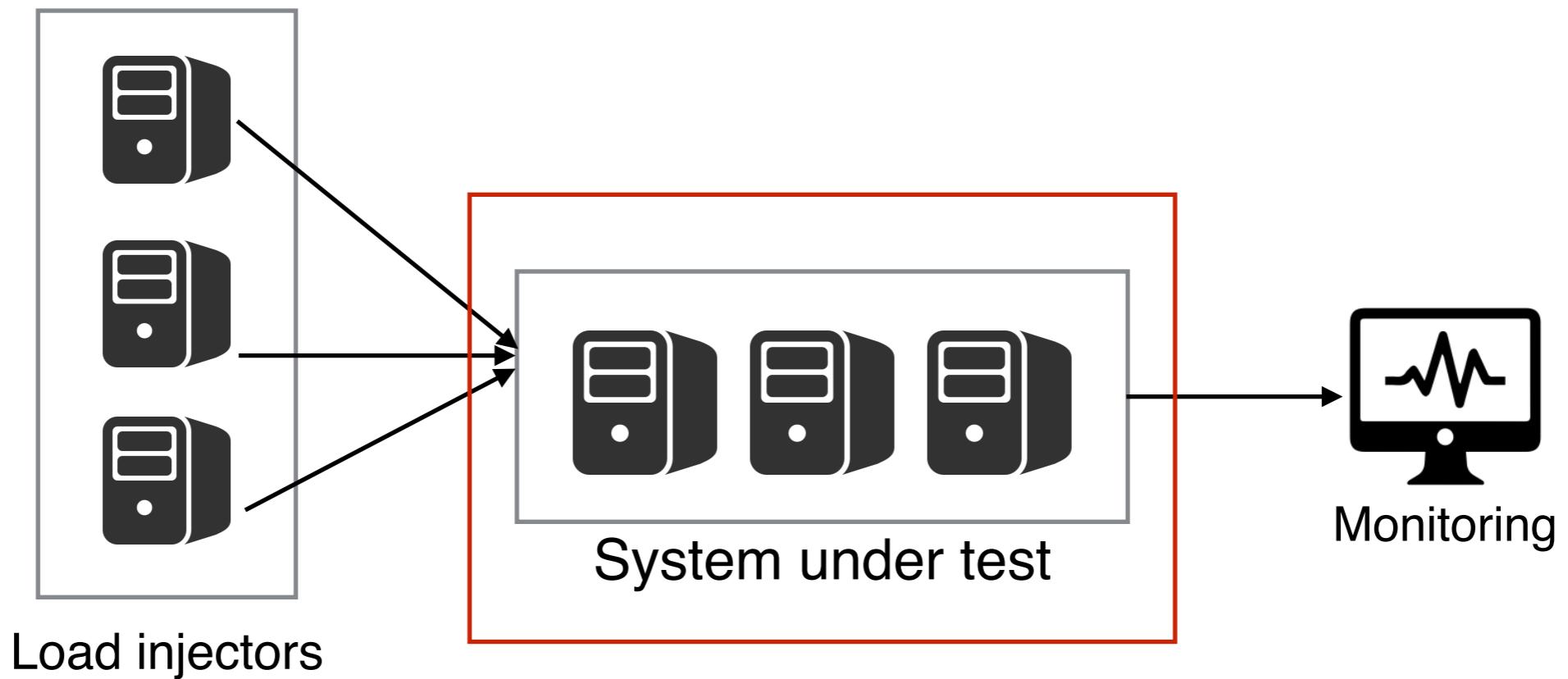


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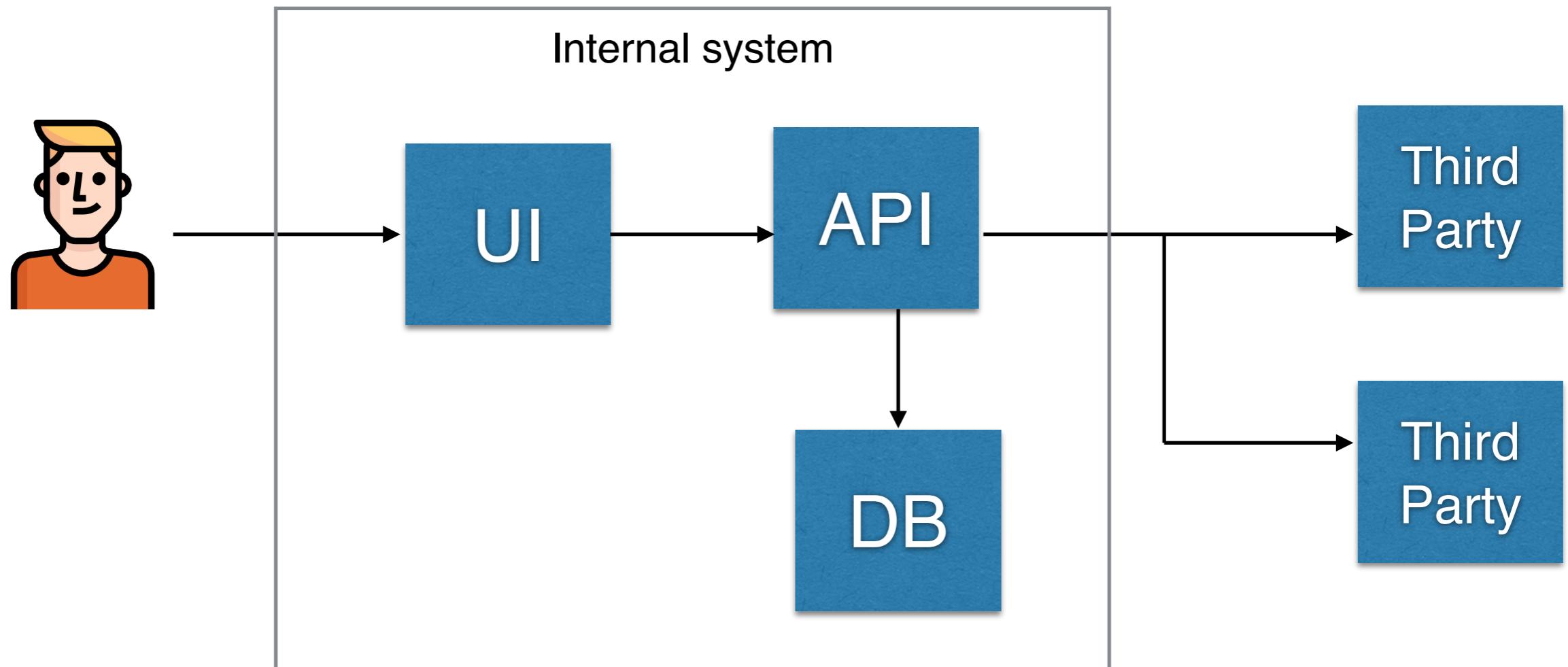
Performance Test



Performance Test



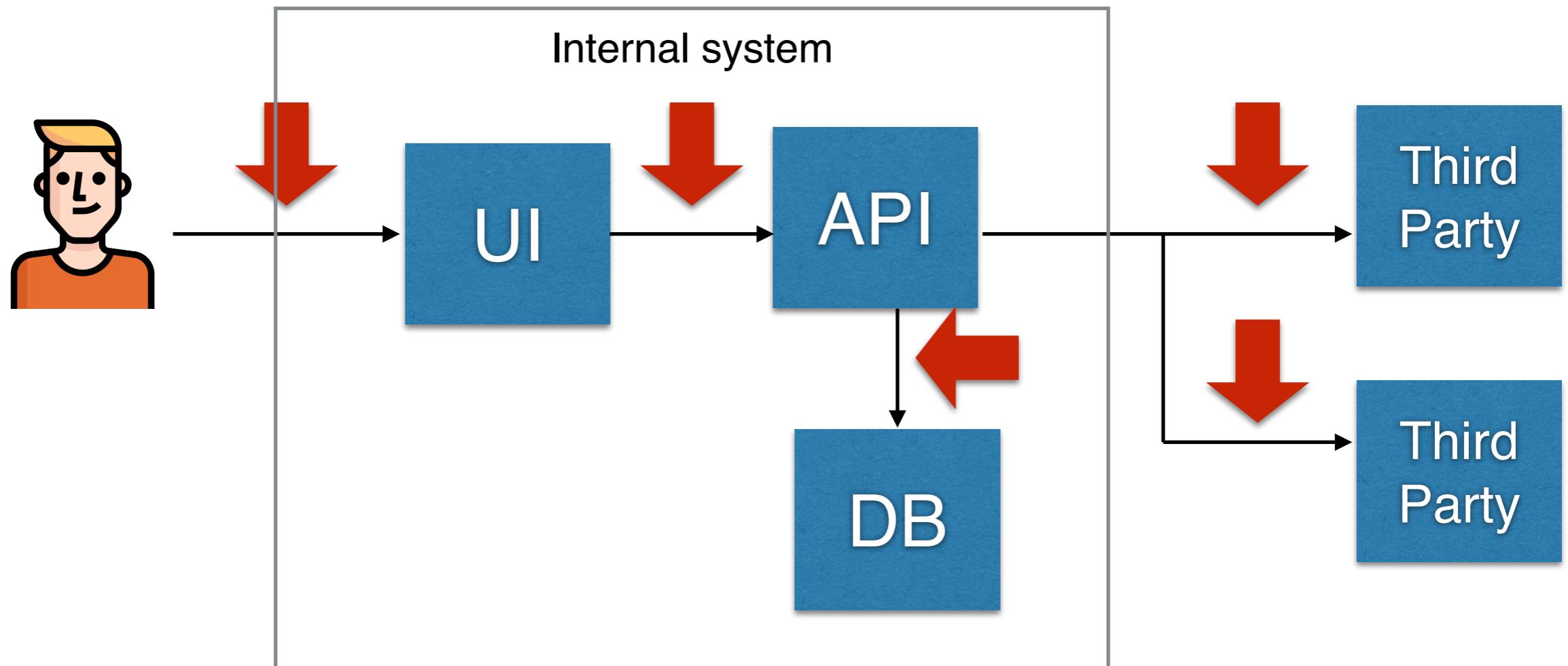
System Under Test Architecture



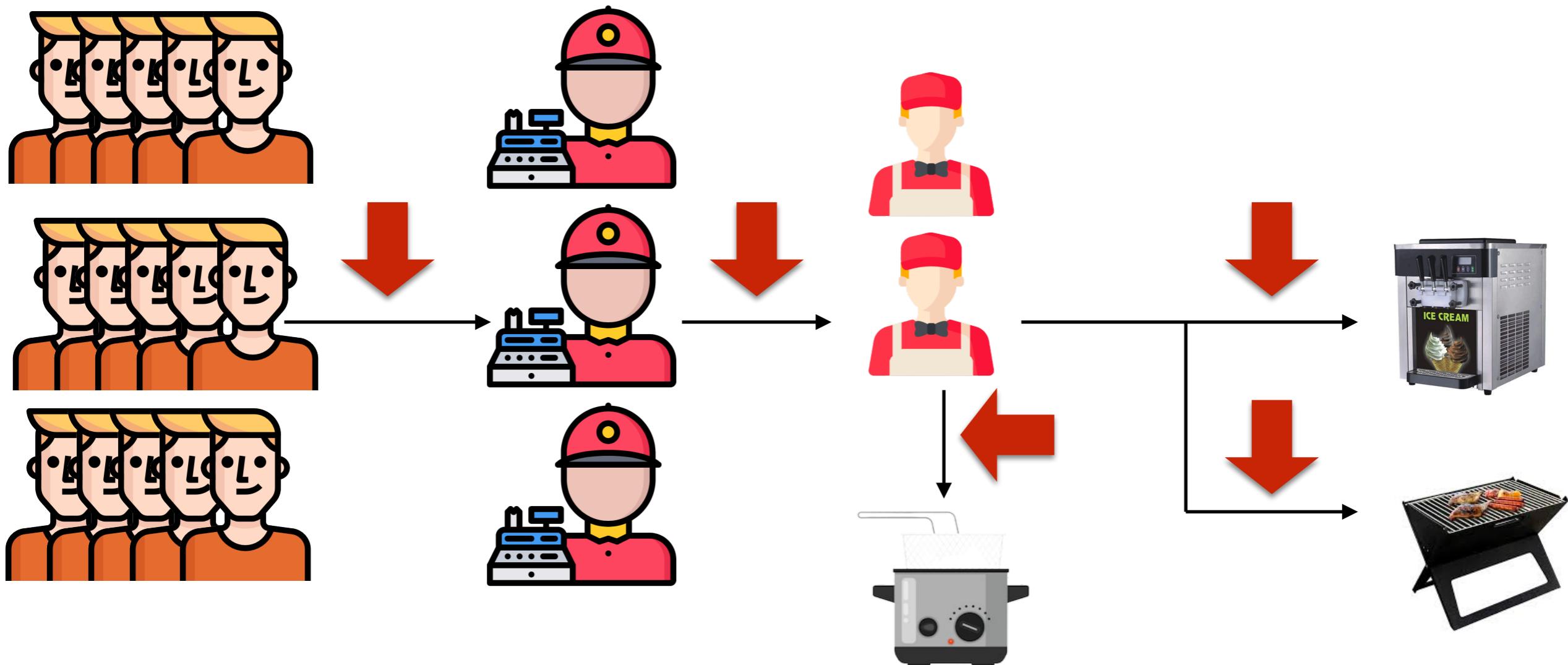
<https://github.com/SCK-SEAL-TEAM-One/Shopping-cart>



System Under Test Architecture



System Under Test Architecture

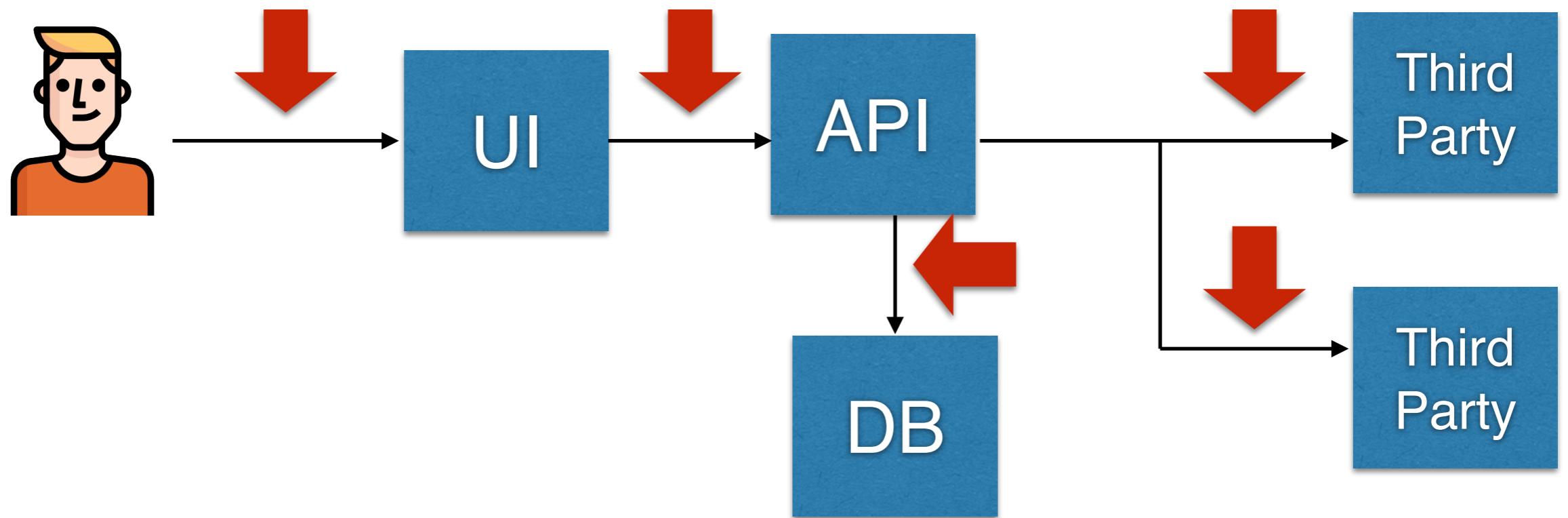


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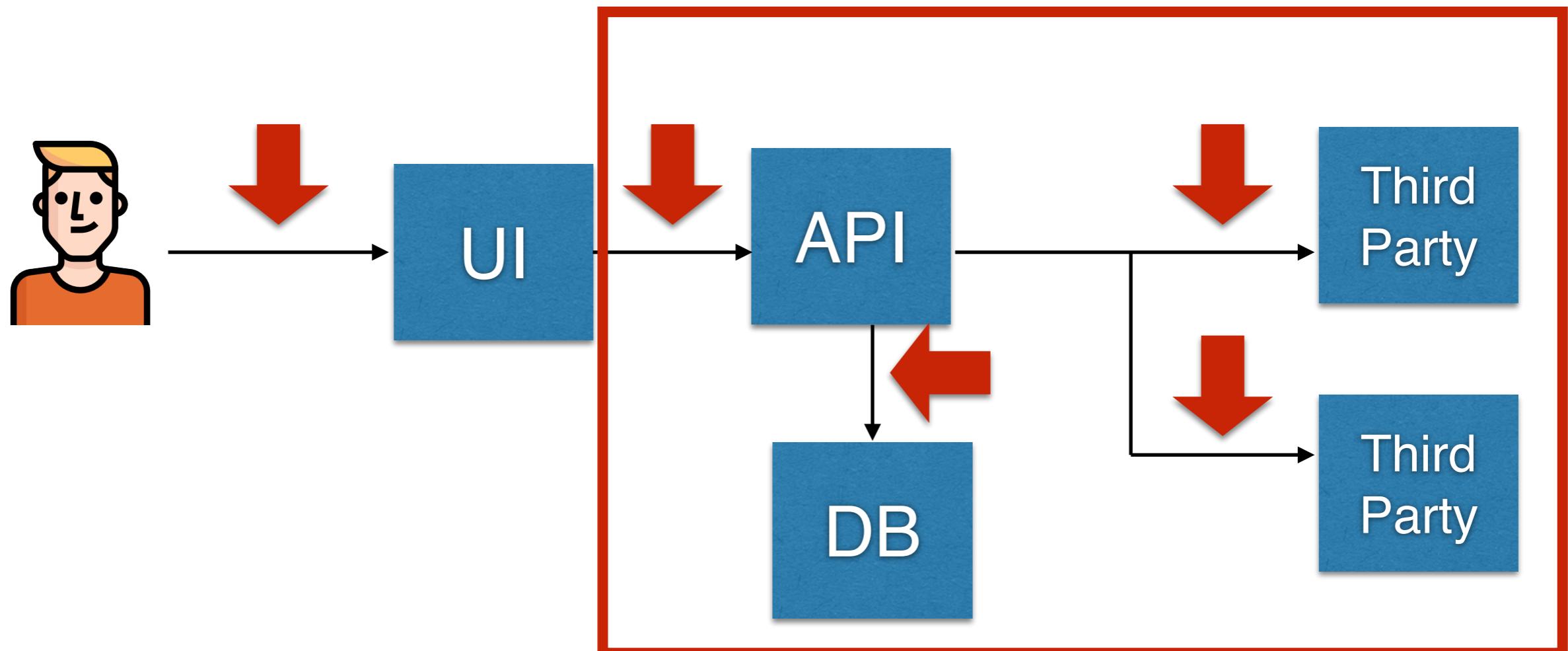
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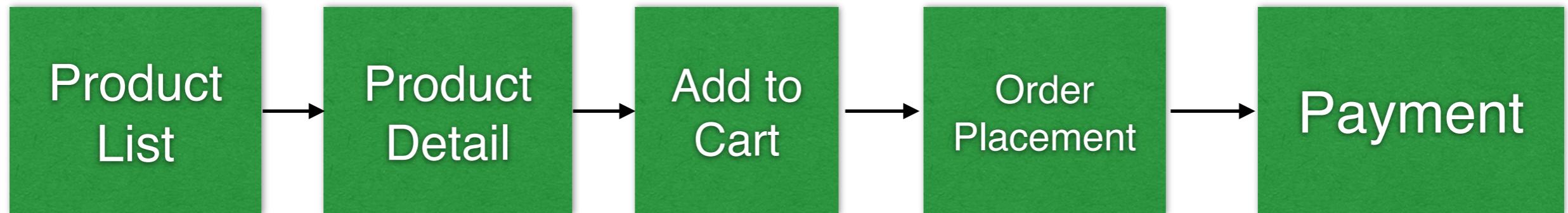
System Under Test Architecture



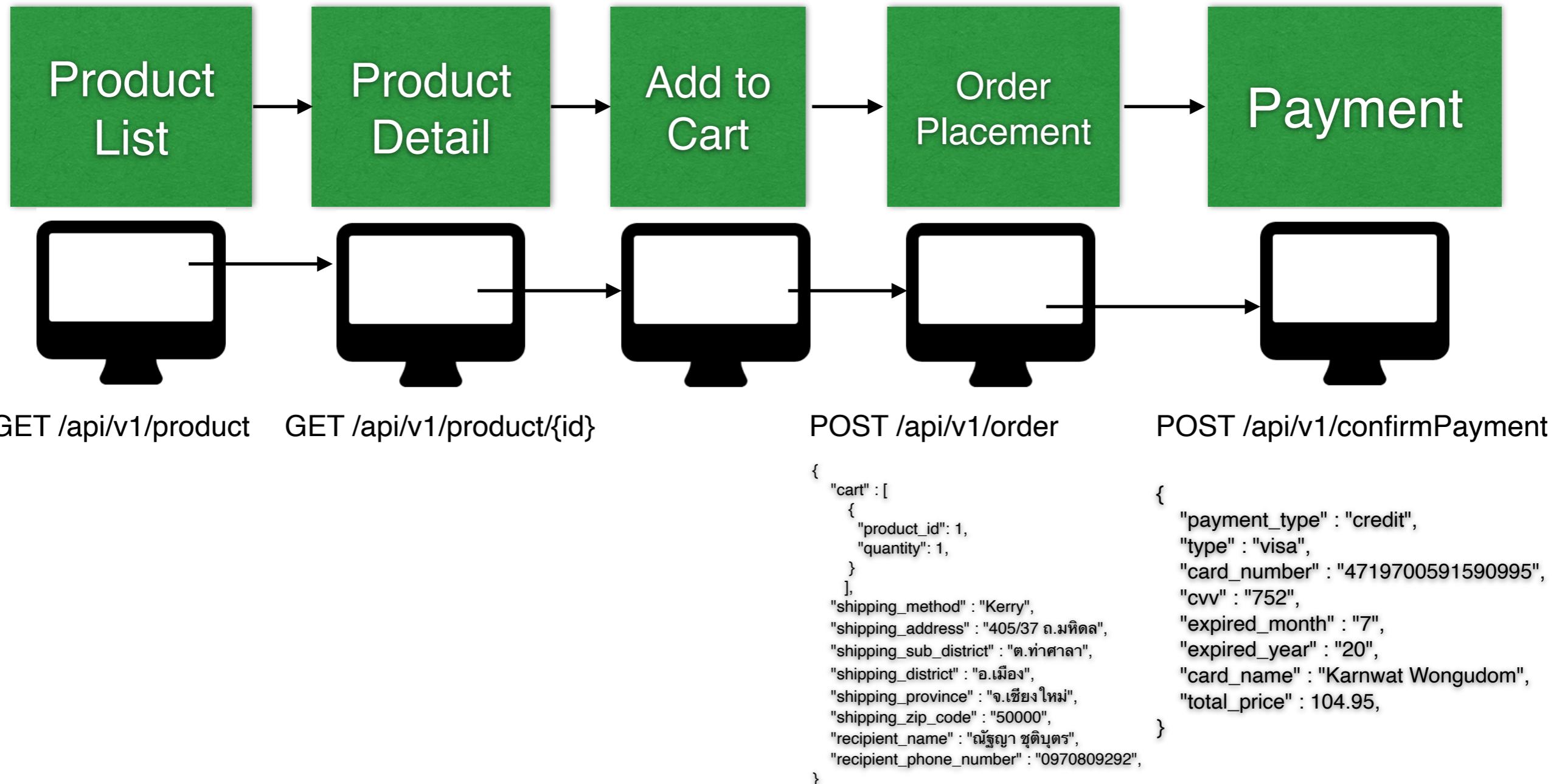
System Under Test Architecture



Shopping Cart Workflow

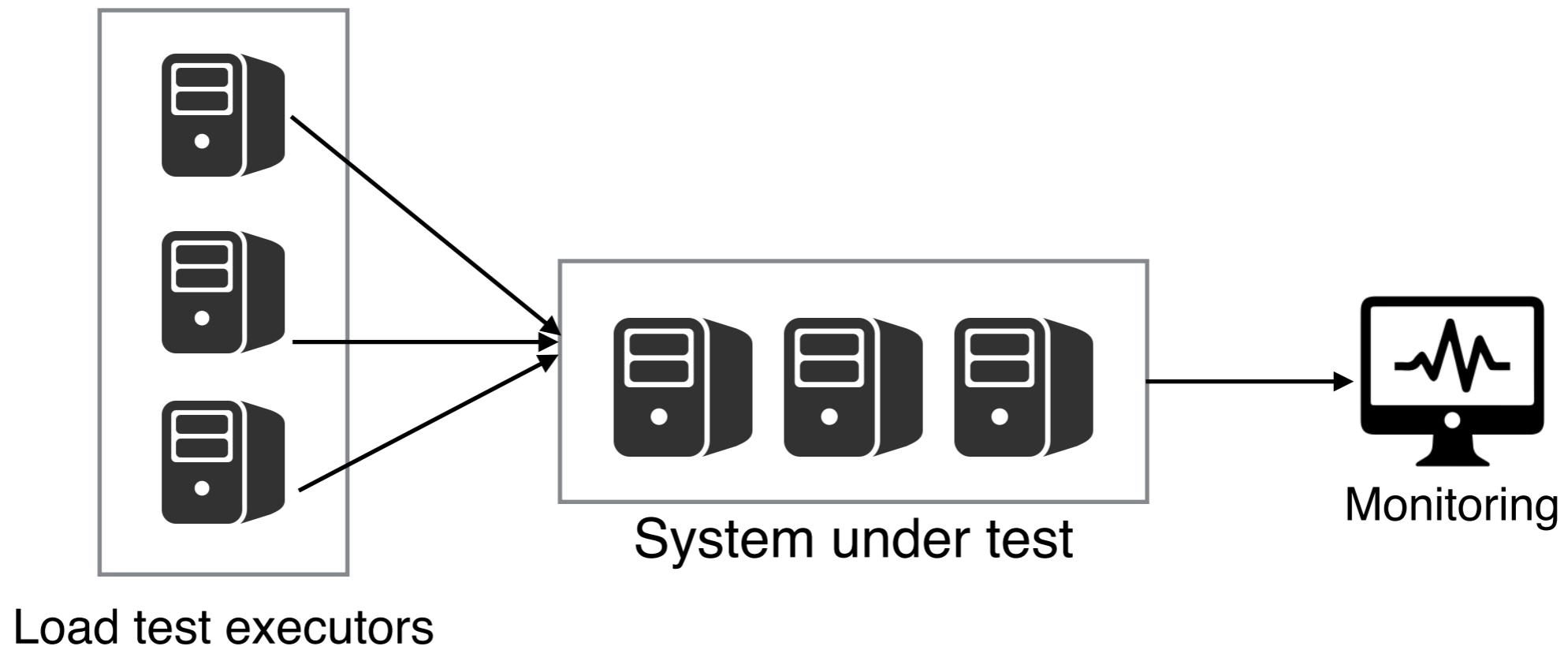


Shopping Cart Workflow

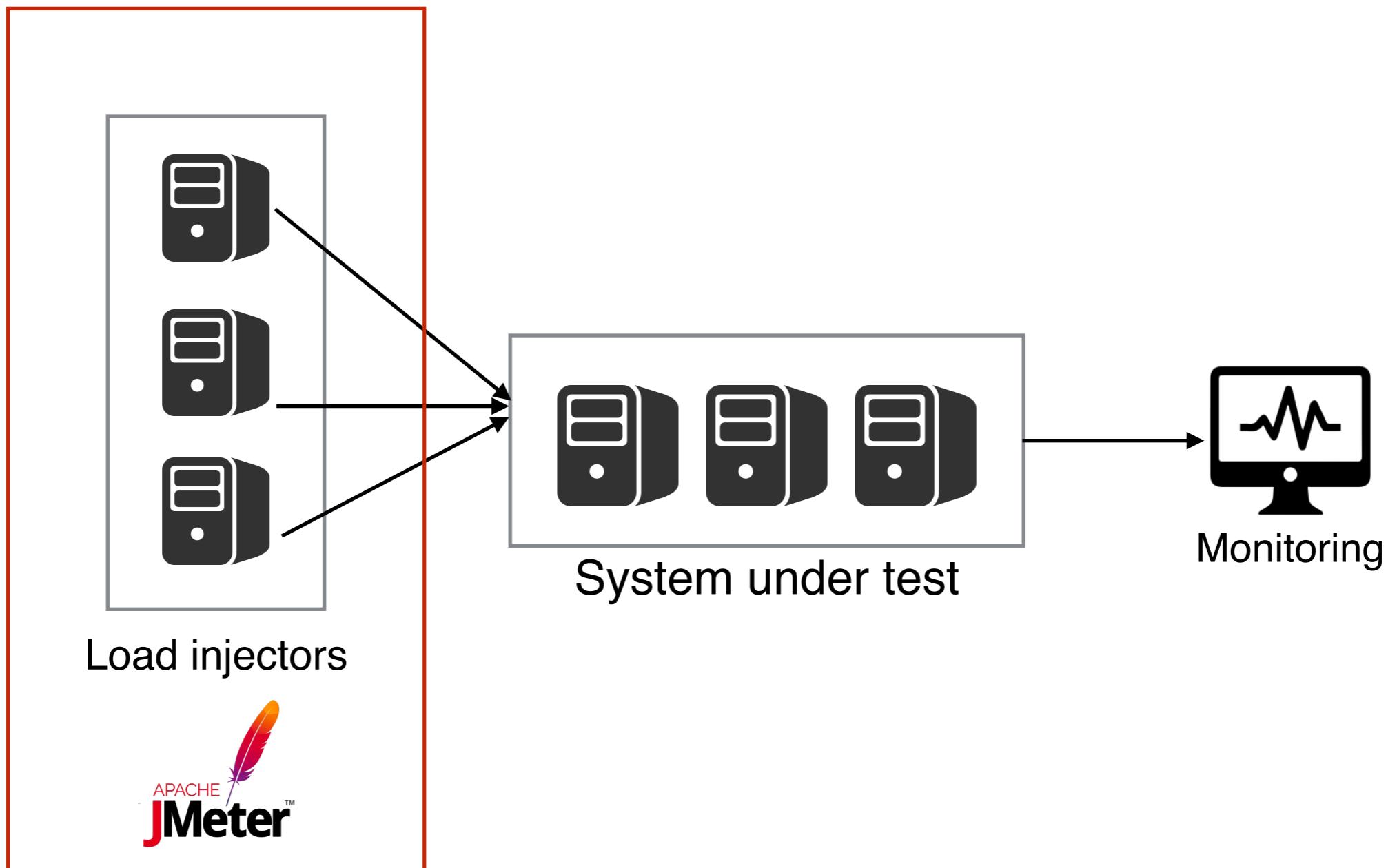


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Performance Test



Performance Test



Apache JMeter

Open Source application designed to *load test applications and measure performance*

Ability to test many different applications/server/protocol types:

- Web - HTTP, HTTPS (Java, NodeJS, PHP, ...)
- SOAP / REST Webservices
- FTP
- Database via JDBC
- LDAP
- Message-oriented Middleware (MOM) via JMS
- Mail - SMTP(S), POP3(S) and IMAP(S)
- Native commands or shell scripts
- TCP
- Java Objects



First developed by
Stefano Mazzocchi, Apache Foundation



Apache JMeter

Advantages

- Free
- Record and playback
- Distributed load testing
- Robust Report
- A lot of Plugins



Apache JMeter

Disadvantages

- Memory Consumption
- Web application Only
- Lack of JavaScript support



Apache JMeter



http://jmeter.apache.org/download_jmeter.cgi



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Apache JMeter

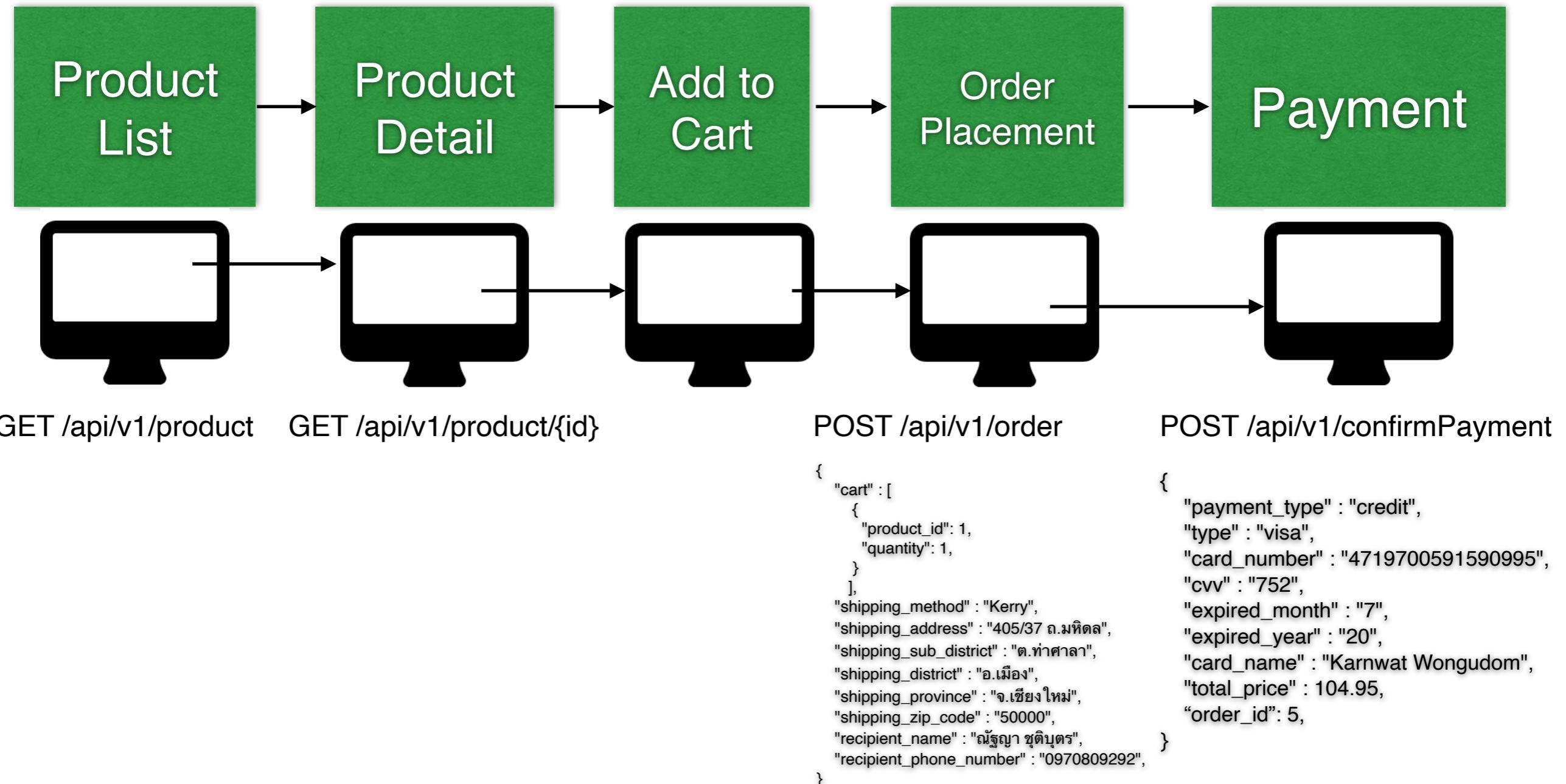


<https://jmeter-plugins.org/install/Install/>

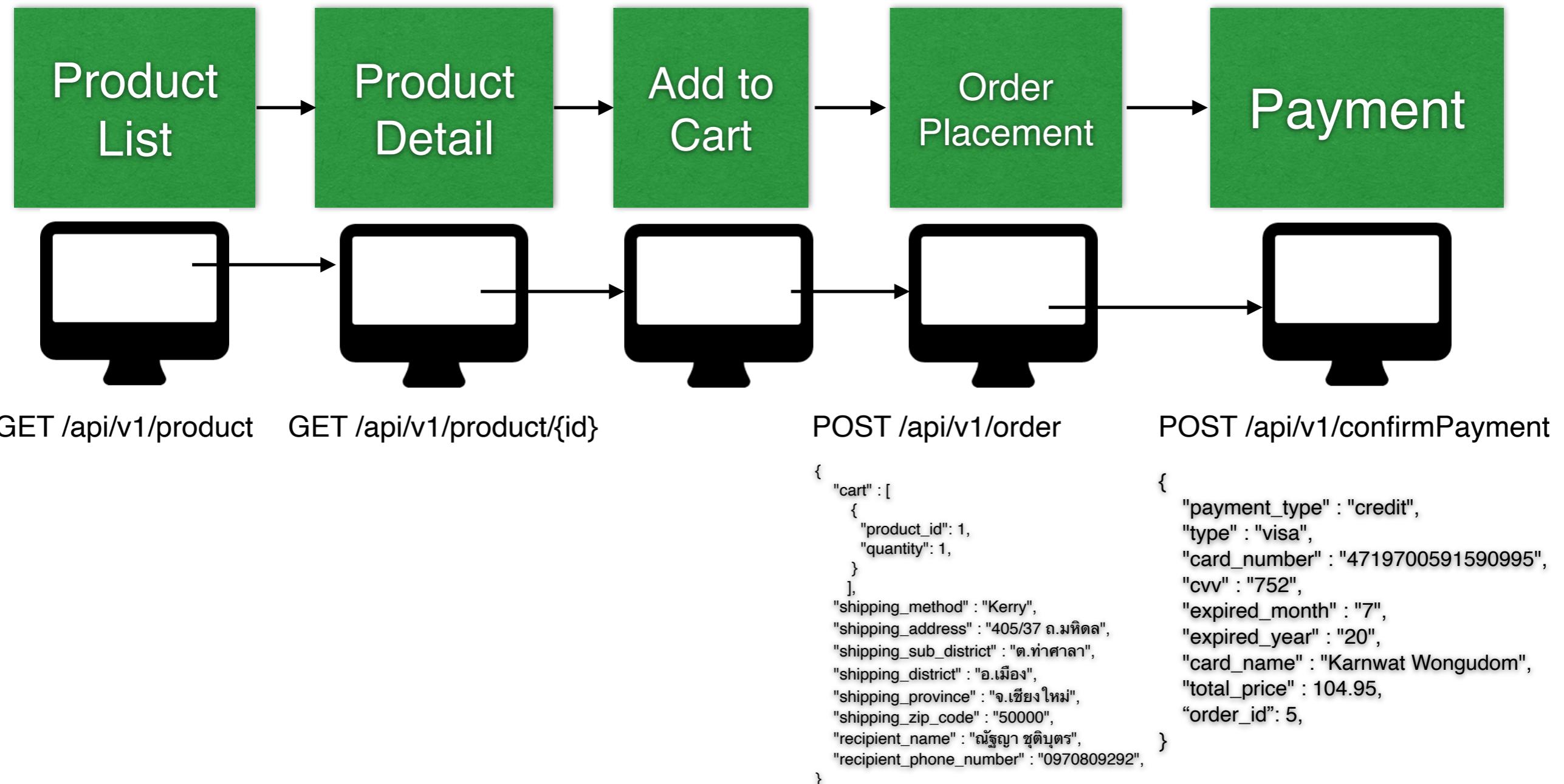


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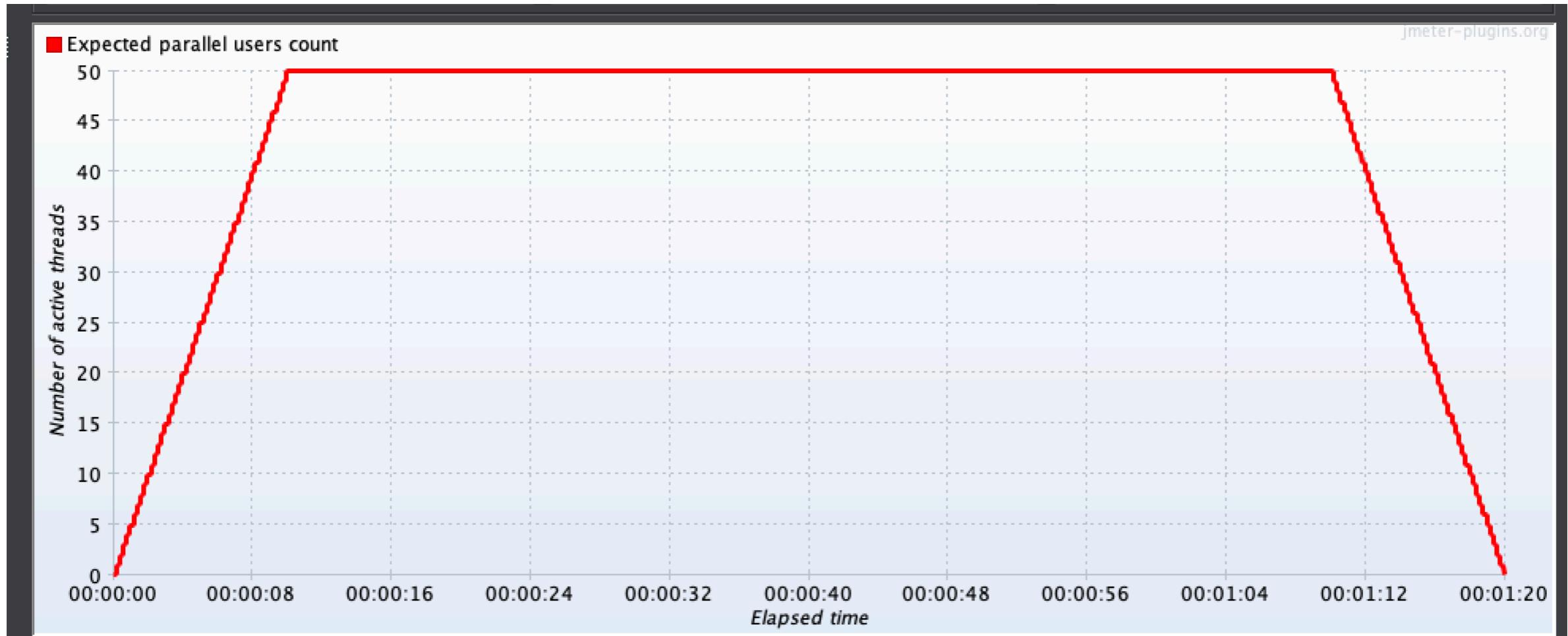
Shopping Cart Workflow



Shopping Cart Workflow



Basic Load



April 17, 2020

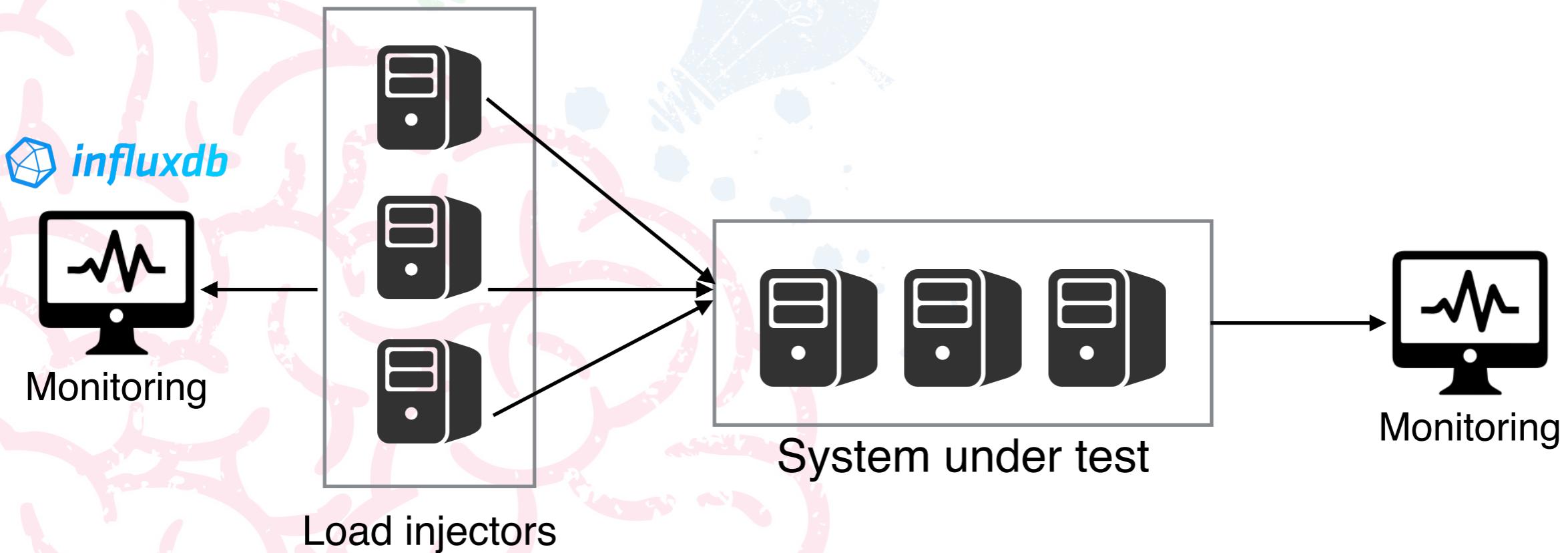


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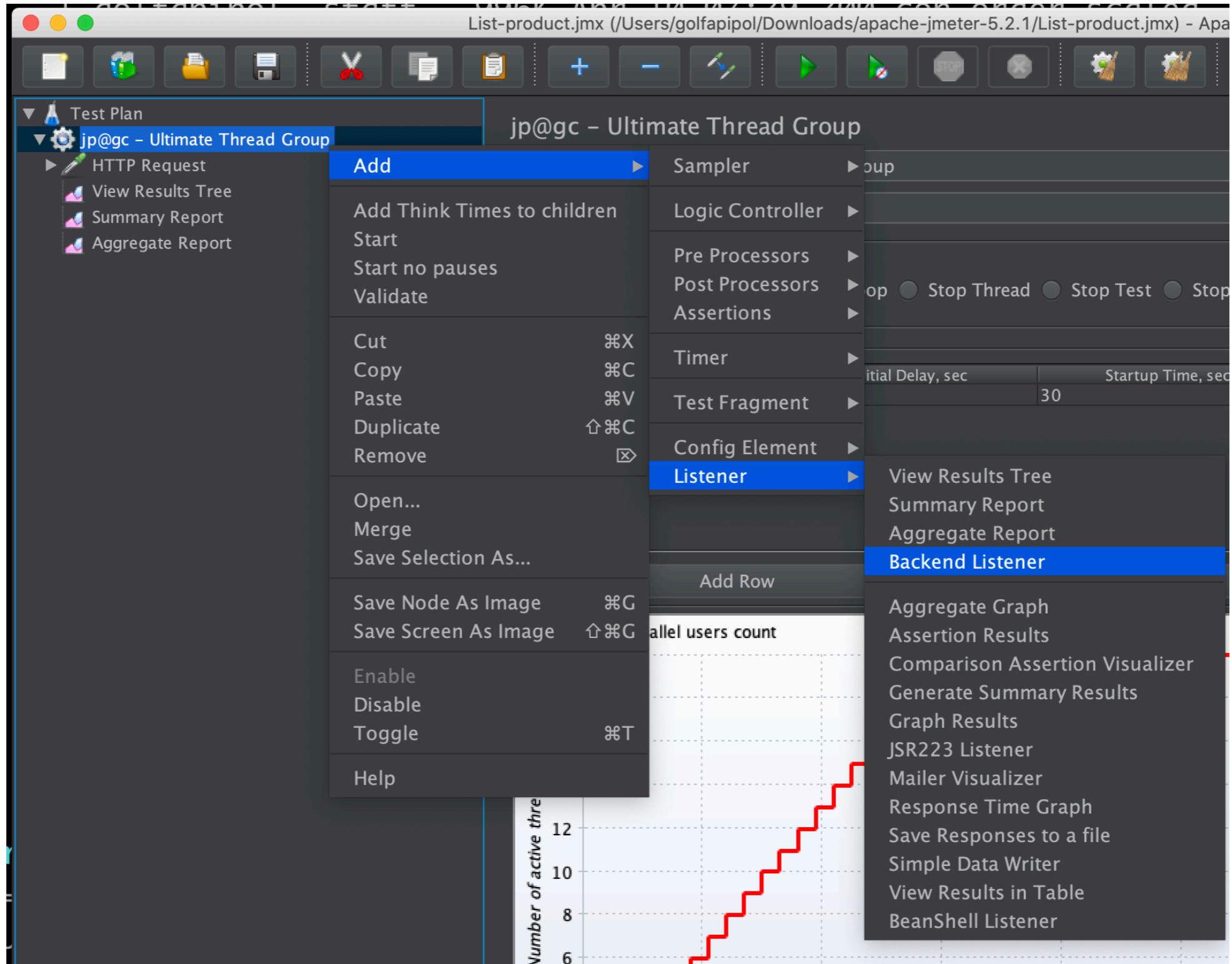
Monitoring jMeter with InfluxDB



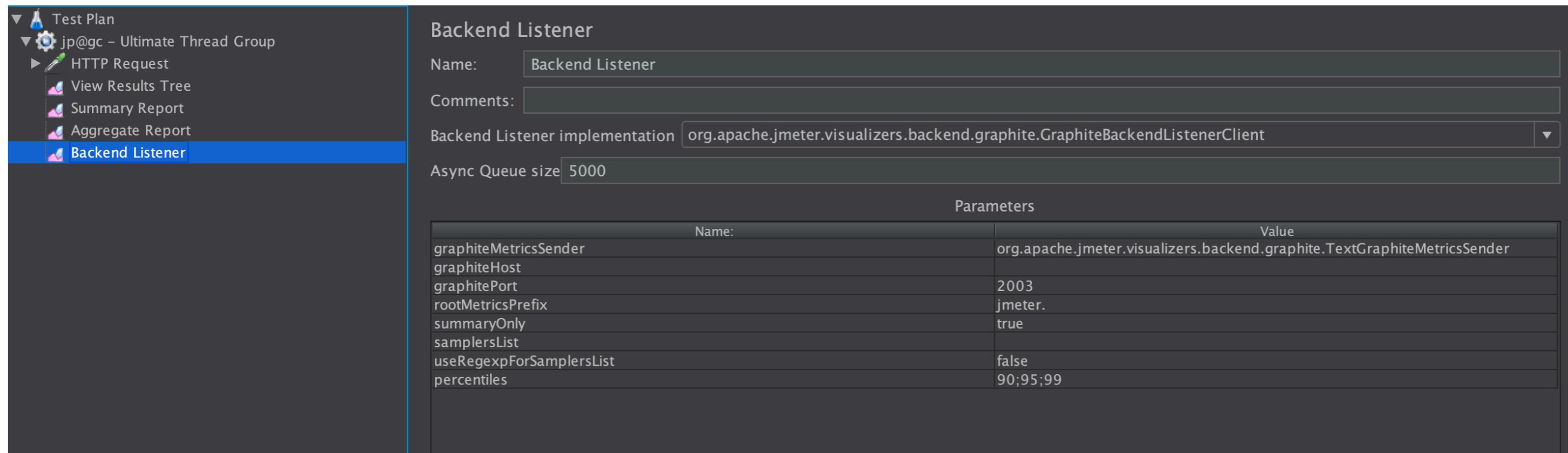
Monitoring jMeter with InfluxDB



Add > Listener > Backend Listener



Add > Listener > Backend Listener



The screenshot shows the JMeter interface with a test plan containing an 'Ultimate Thread Group' and a 'Backend Listener'. The 'Backend Listener' is selected, revealing its configuration details.

Backend Listener Configuration:

- Name: Backend Listener
- Comments: (empty)
- Backend Listener implementation: org.apache.jmeter.visualizers.backend.graphite.GraphiteBackendListenerClient
- Async Queue size: 5000

Parameters:

Name:	Value
graphiteMetricsSender	org.apache.jmeter.visualizers.backend.graphite.TextGraphiteMetricsSender
graphiteHost	2003
graphitePort	jmeter.
rootMetricsPrefix	true
summaryOnly	false
samplersList	90;95;99
useRegexpForSamplersList	
percentiles	



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Backend Listener Implementation

The screenshot shows the JMeter Test Plan interface. On the left, under the 'Test Plan' tree, there is a 'Backend Listener' node highlighted with a blue selection bar. A red arrow points from this node to the corresponding configuration screen on the right.

Backend Listener Configuration (Top Panel):

- Name: Backend Listener
- Comments: (empty)
- Backend Listener implementation: org.apache.jmeter.visualizers.backend.graphite.GraphiteBackendListenerClient (highlighted with a red box)
- Async Queue size: 5000

Parameters (Table):

Name:	Value
graphiteMetricsSender	org.apache.jmeter.visualizers.backend.graphite.TextGraphiteMetricsSender
graphiteHost	2003
graphitePort	jmeter.
rootMetricsPrefix	true
summaryOnly	

Backend Listener Configuration (Bottom Panel):

- Name: Backend Listener
- Comments: (empty)
- Backend Listener implementation: org.apache.jmeter.visualizers.backend.graphite.GraphiteBackendListenerClient (highlighted with a blue selection bar)
- Async Queue size: 5000

Below the implementation dropdown, two other options are listed:
org.apache.jmeter.visualizers.backend.GraphiteBackendListenerClient
org.apache.jmeter.visualizers.backend.influxdb.InfluxdbBackendListenerClient



Edit influxdbUrl

Backend Listener

Name: Backend Listener

Comments:

Backend Listener implementation org.apache.jmeter.visualizers.backend.influxdb.InfluxdbBackendListenerClient

Async Queue size 5000

Parameters

Name:	Value
influxdbMetricsSender	org.apache.jmeter.visualizers.backend.influxdb.HttpMetricsSender
influxdbUrl	http://host_to_change:8086/write?db=jmeter
application	application name
measurement	jmeter
summaryOnly	true
samplersRegex	.*
percentiles	90;95;99
testTitle	
eventTags	

Name:	Value
influxdbMetricsSender	org.apache.jmeter.visualizers.backend.influxdb.HttpMetricsSender
influxdbUrl	http://ec2-54-169-205-187.ap-southeast-1.compute.amazonaws.com:8086/write?db=db0
application	golf
measurement	jmeter
summaryOnly	true
samplersRegex	.*
percentiles	90;95;99
testTitle	Test name
eventTags	

InfluxdbUrl:

http://ec2-54-169-205-187.ap-southeast-1.compute.amazonaws.com:8086/write?db=db0



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Let's Fire again

Command line mode

```
./jmeter -n -t search.jmx -l result.csv -e -o report
```



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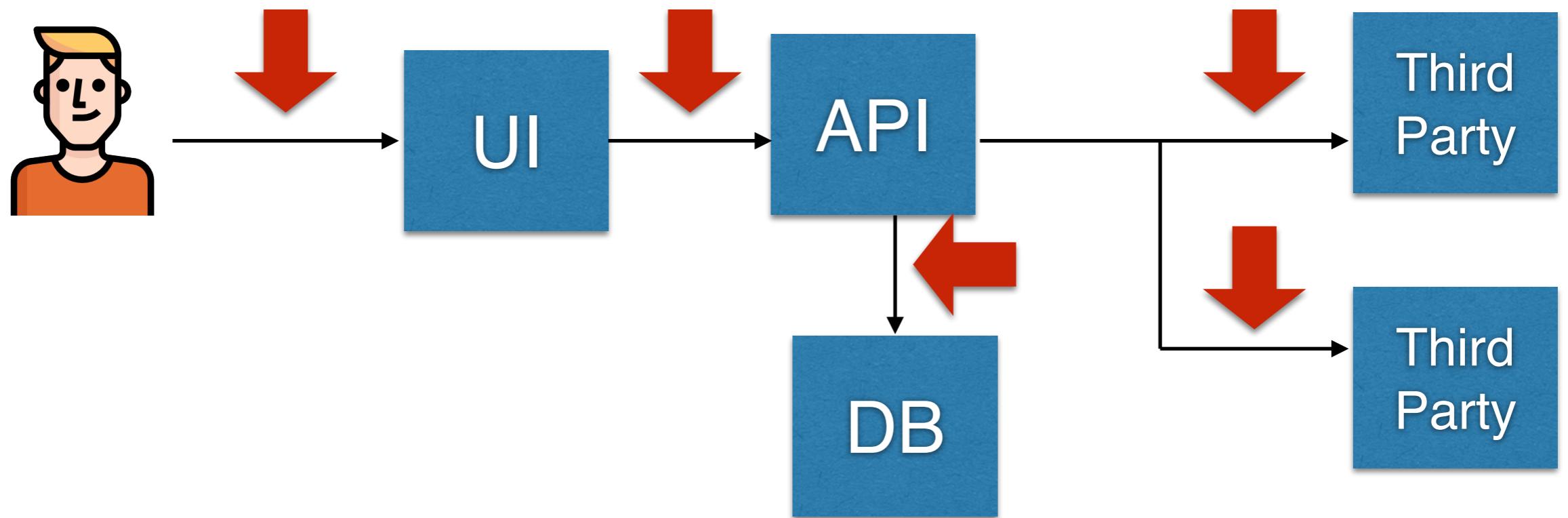
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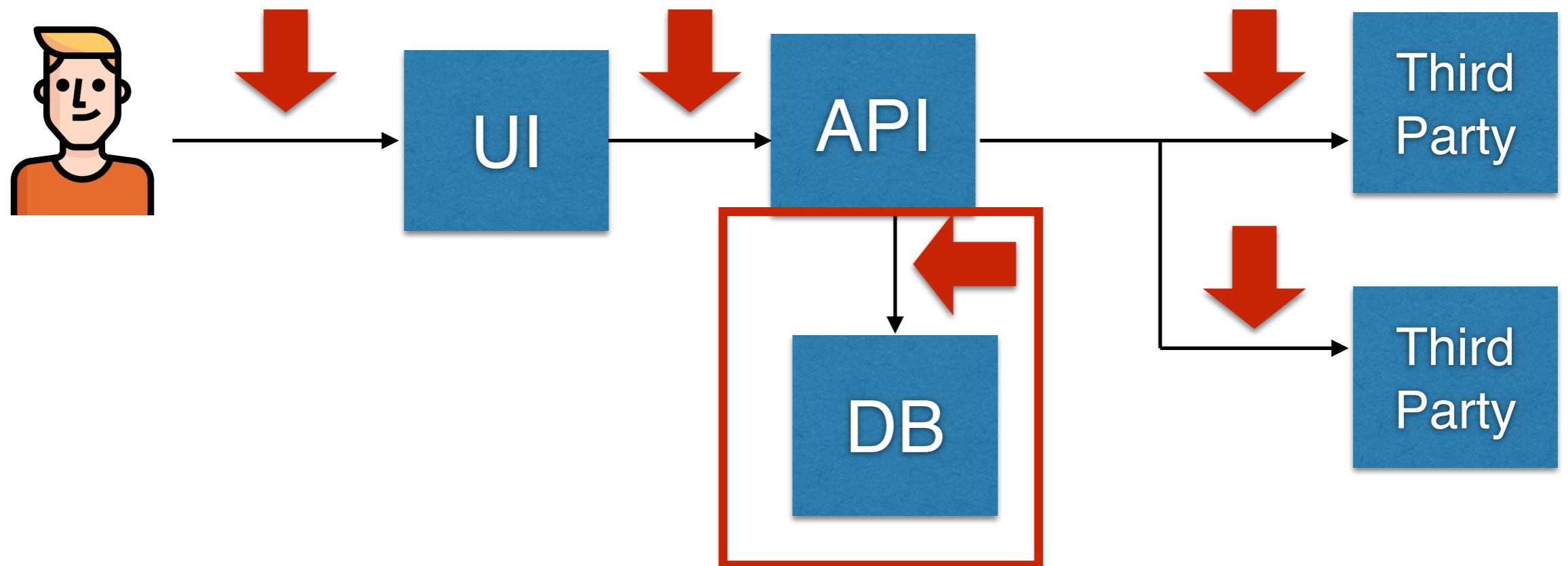
Database Performance Test



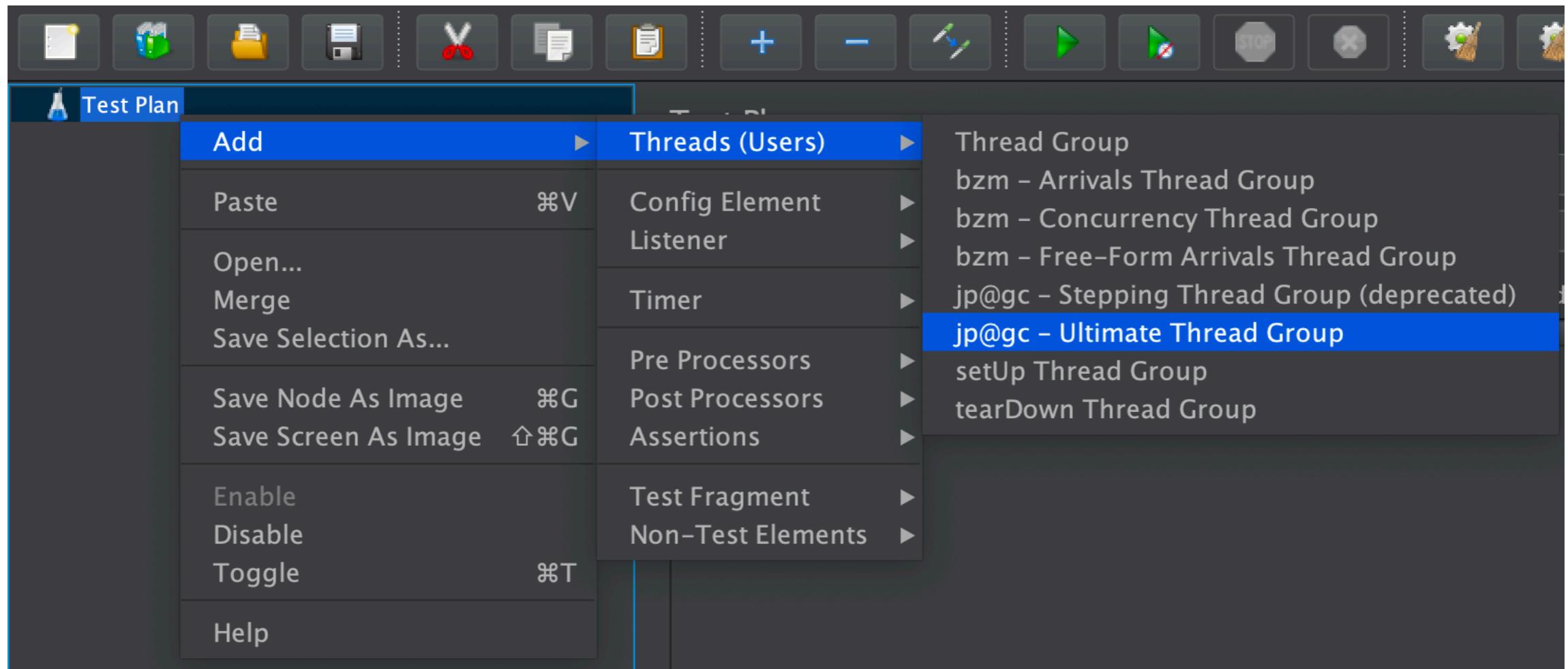
System Under Test Architecture



System Under Test Architecture



Create new test plan



Create new test plan

jp@gc – Ultimate Thread Group

Name: jp@gc – Ultimate Thread Group

Comments:

Action to be taken after a Sampler error

Continue Start Next Thread Loop Stop Thread Stop Test Stop Test Now

Threads Schedule

Start Threads Count	Initial Delay, sec	Startup Time, sec	Hold Load For, sec	Shutdown Time
20	0	30	60	10

Add Row Copy Row Delete Row

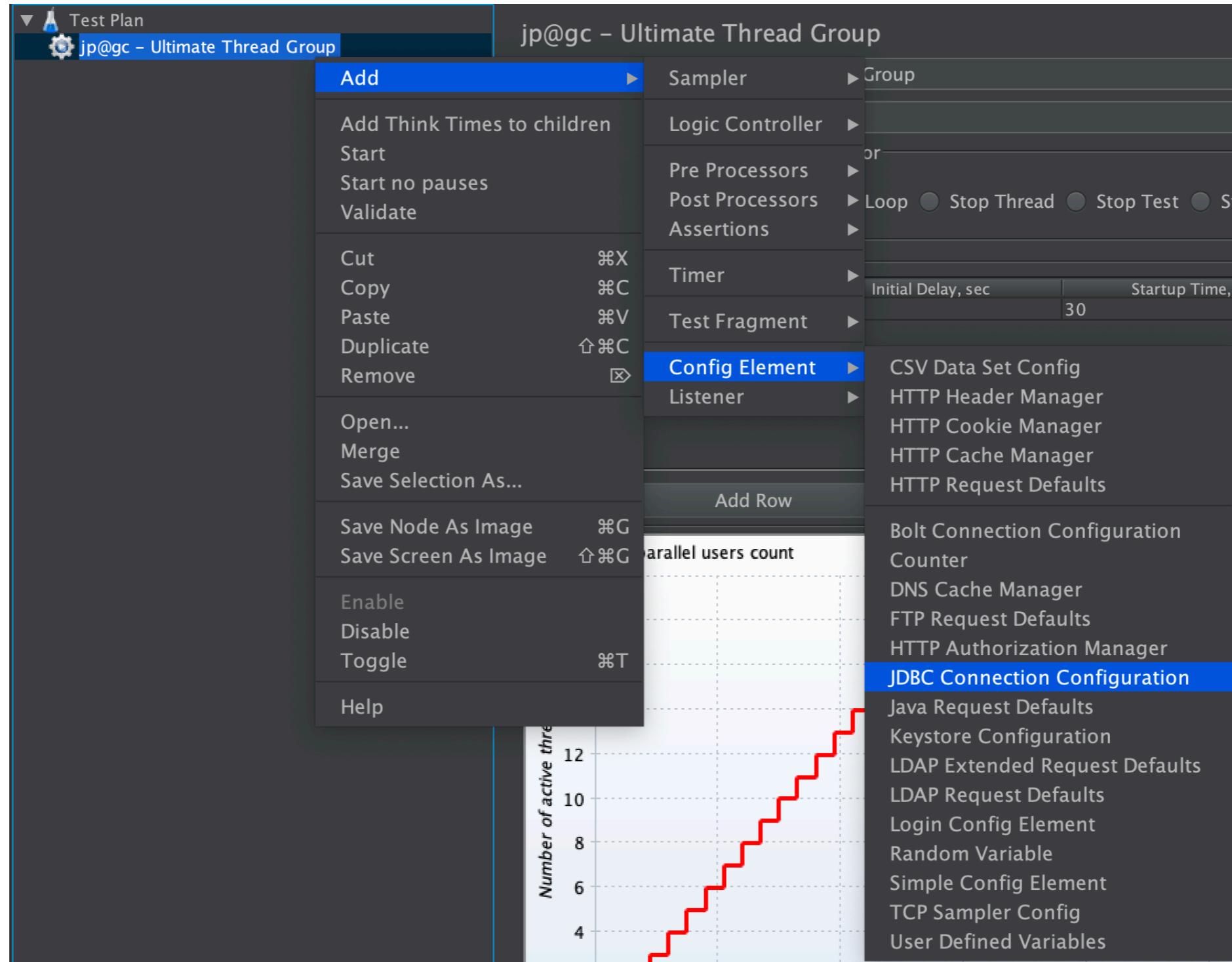
Expected parallel users count

jmeter-plugins.org

Elapsed time	Number of active threads
00:00:00	0
00:00:05	1
00:00:10	2
00:00:15	3
00:00:20	4
00:00:25	5
00:00:30	6
00:00:35	7
00:00:40	8
00:00:45	9
00:00:50	10
00:00:55	11
00:01:00	12
00:01:05	13
00:01:10	14
00:01:15	15
00:01:20	16
00:01:25	17
00:01:30	18
00:01:35	19
00:01:40	20



Ultimate ThreadGroup > Add > Config Element > JDBC Connection Configuration



Ultimate ThreadGroup > Add > Config Element > JDBC Connection Configuration

Test Plan
jp@gc - Ultimate Thread Group
JDBC Connection Configuration

JDBC Connection Configuration

Name: JDBC Connection Configuration

Comments:

Variable Name Bound to Pool
Variable Name for created pool:

Connection Pool Configuration

Max Number of Connections:	0
Max Wait (ms):	10000
Time Between Eviction Runs (ms):	60000
Auto Commit:	True
Transaction Isolation:	DEFAULT
Preinit Pool:	False

Init SQL statements separated by new line:
1

Connection Validation by Pool

Test While Idle:	True
Soft Min Evictable Idle Time(ms):	5000
Validation Query:	

Database Connection Configuration

Database URL:	
JDBC Driver class:	
Username:	
Password:	
Connection Properties:	



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Ultimate ThreadGroup > Add > Config Element > JDBC Connection Configuration

Test Plan
jp@gc - Ultimate Thread Group
JDBC Connection Configuration

JDBC Connection Configuration

Name: JDBC Connection Configuration

Comments:

Variable Name Bound to Pool
Variable Name for created pool:

Connection Pool Configuration

Max Number of Connections: 0
Max Wait (ms): 10000
Time Between Eviction Runs (ms): 60000
Auto Commit: True
Transaction Isolation: DEFAULT
Preinit Pool: False

Init SQL statements separated by new line:
1

Connection Validation by Pool

Test While Idle: True
Soft Min Evictable Idle Time(ms): 5000
Validation Query:

Database Connection Configuration

Database URL:
JDBC Driver class:
Username:
Password:
Connection Properties:



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Ultimate ThreadGroup > Add > Config Element > JDBC Connection Configuration

Database URL: jdbc:mysql://ec2-54-169-205-187.ap-southeast-1.compute.amazonaws.com:3306/toy

JDBC Driver class: com.mysql.jdbc.Driver

Username: root

Password: root

JDBC Connection Configuration

Name: JDBC Connection Configuration

Comments:

Database Connection Configuration

Database URL: jdbc:mysql://ec2-54-169-205-187.ap-southeast-1.compute.amazonaws.com:3306/toy

JDBC Driver class: com.mysql.jdbc.Driver

Username: root

Password: ••••

Connection Properties:

Connection Validation by Pool

Test While Idle: True

Validation Query:

Database Connection Configuration

Database URL:

JDBC Driver class:

Username:

Password:

Connection Properties:



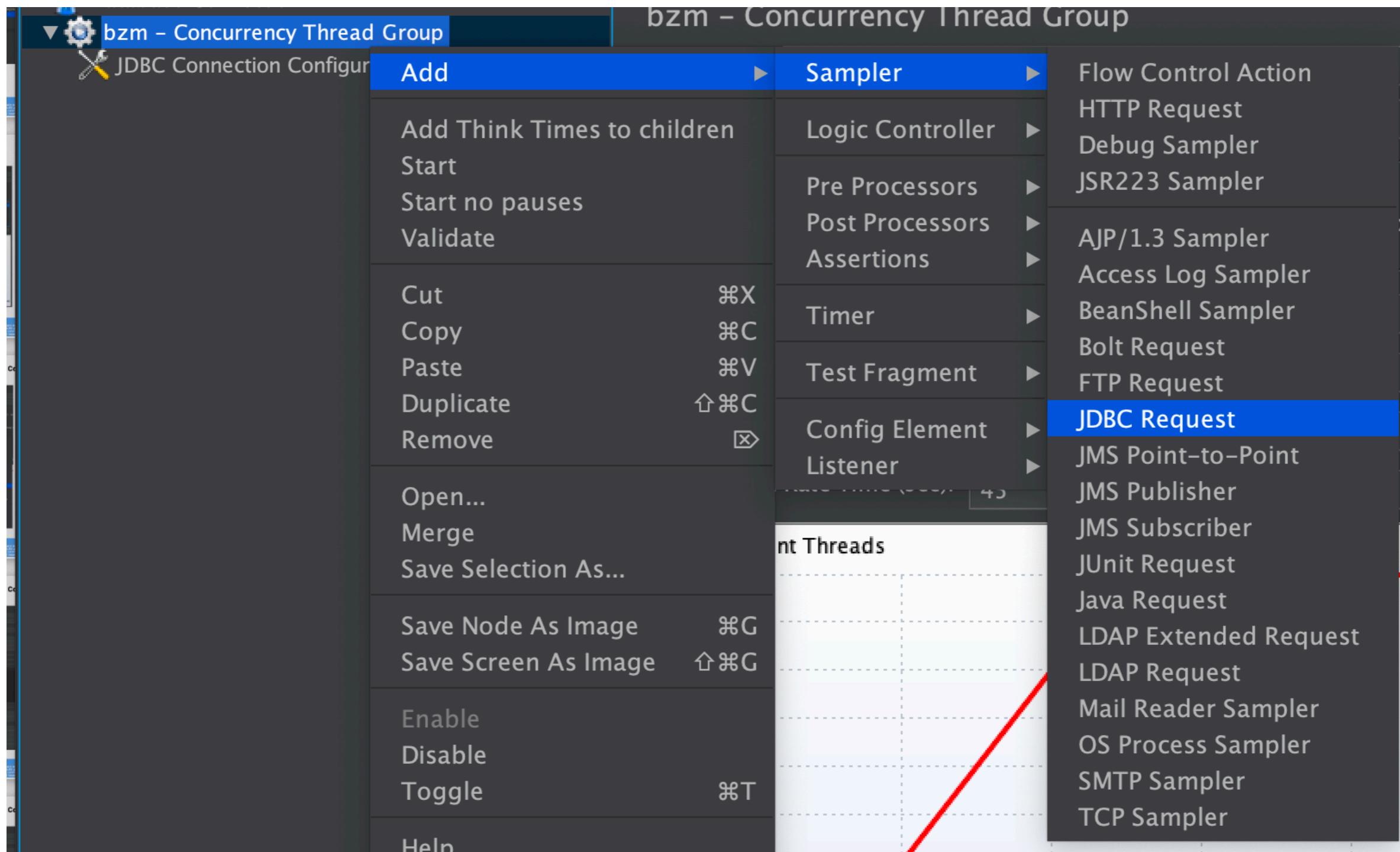
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Add > Sampler > JDBC Request



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Add > Sampler > JDBC Request

JDBC Request

Name: JDBC Request

Comments:

Variable Name Bound to Pool

Variable Name of Pool declared in JDBC Connection Configuration:

SQL Query

Query Type: Select Statement

Query:

```
1
```

Parameter values:

Parameter types:

Variable names:

Result variable name:

Query timeout (s):

Limit ResultSet:

Handle ResultSet: Store as String



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Add > Sampler > JDBC Request

Query:

```
SELECT id,product_name,product_price,image_url  
FROM products
```

The screenshot shows the 'JDBC Request' configuration dialog. At the top, there are fields for 'Name' (set to 'JDBC Request') and 'Comments'. Below these are sections for 'Variable Name Bound to Pool' and 'Variable Name of Pool declared in JDBC Connection Configuration'. A large text area labeled 'SQL Query' contains the SQL statement: 'SELECT id,product_name,product_price,image_url FROM products'. At the bottom of the dialog, there are several configuration options: 'Parameter values:', 'Parameter types:', 'Variable names:', 'Result variable name:', 'Query timeout (s):', 'Limit ResultSet:', and 'Handle ResultSet: Store as String'.



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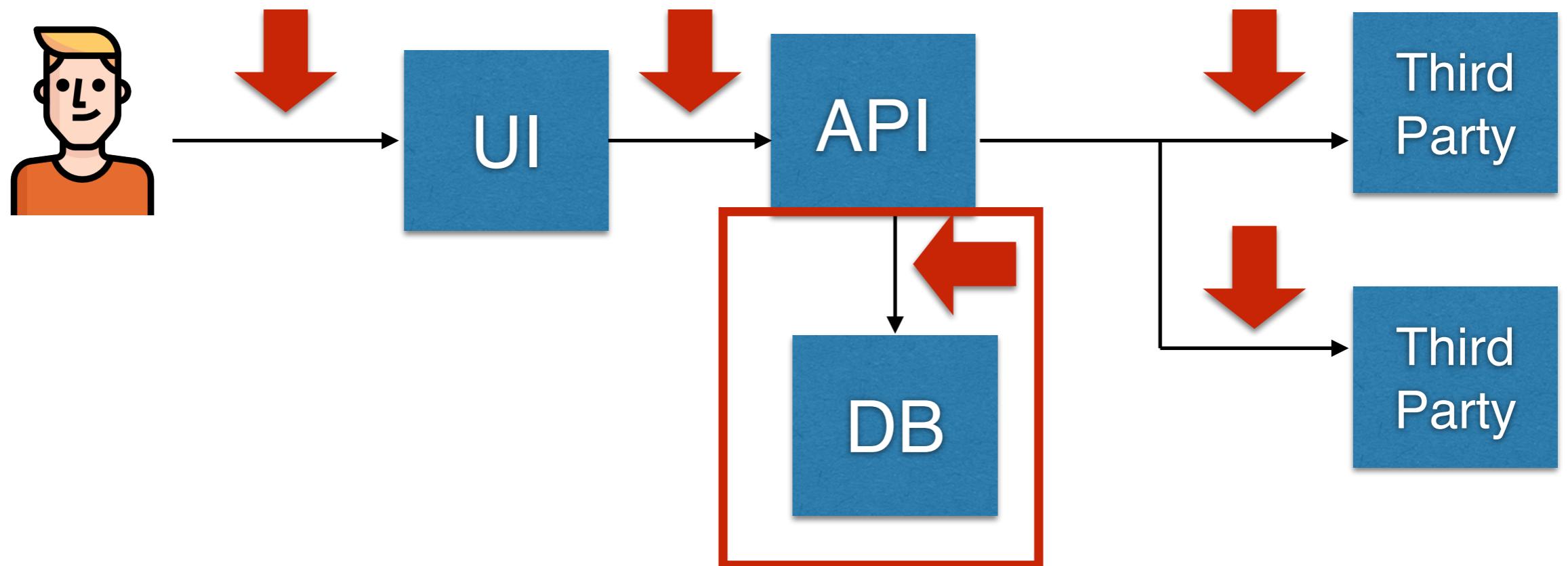
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Tuning

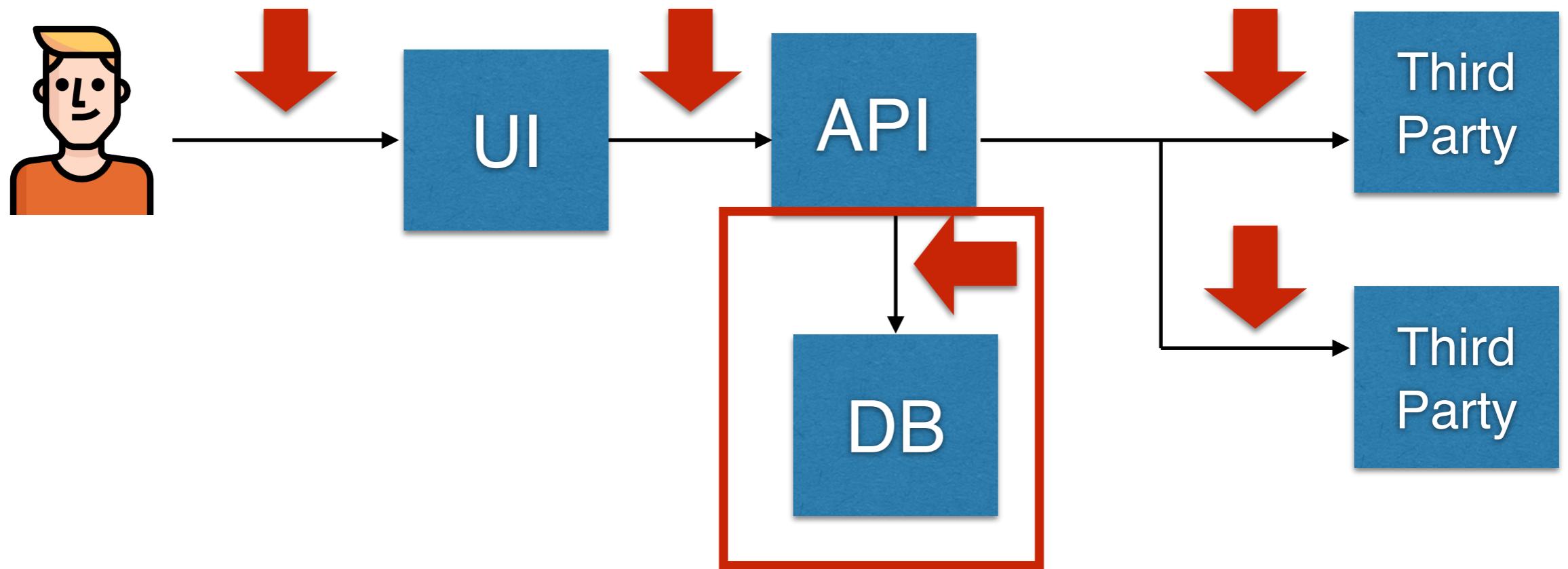


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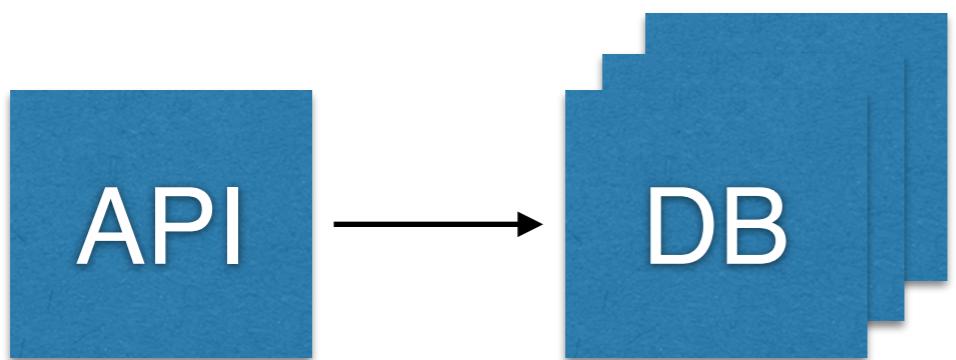
Tuning



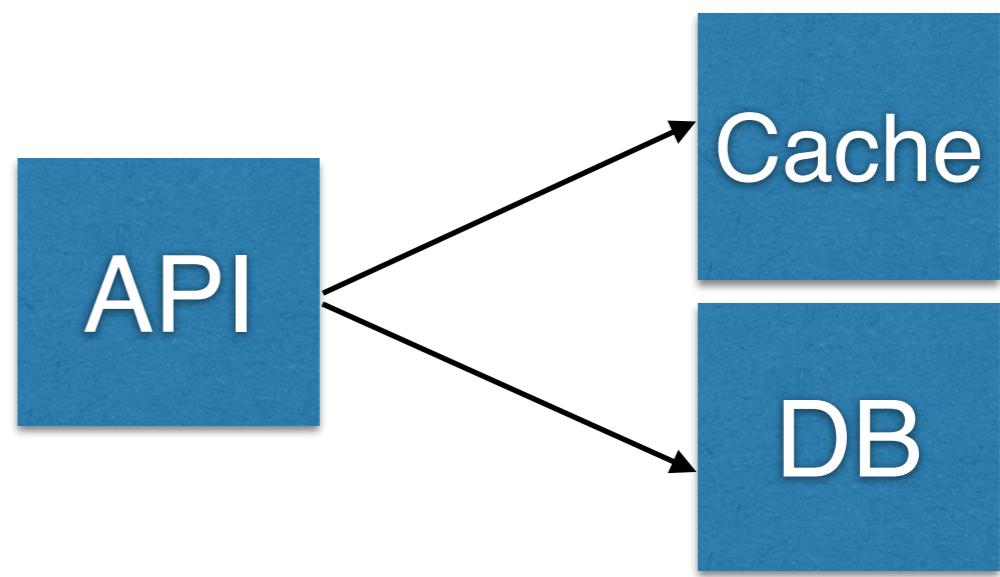
Tuning



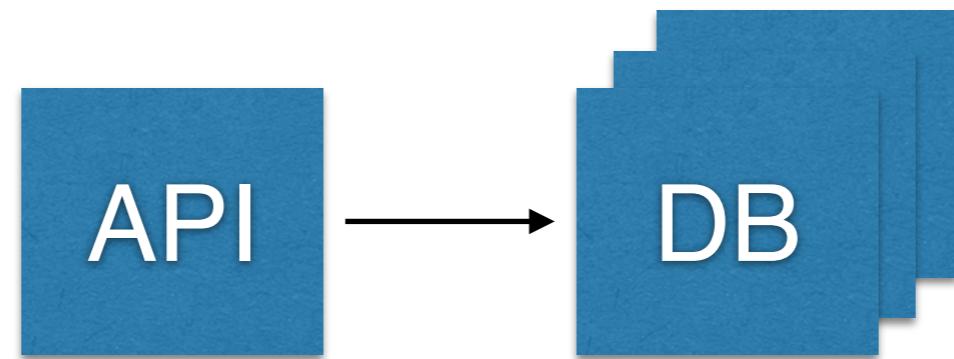
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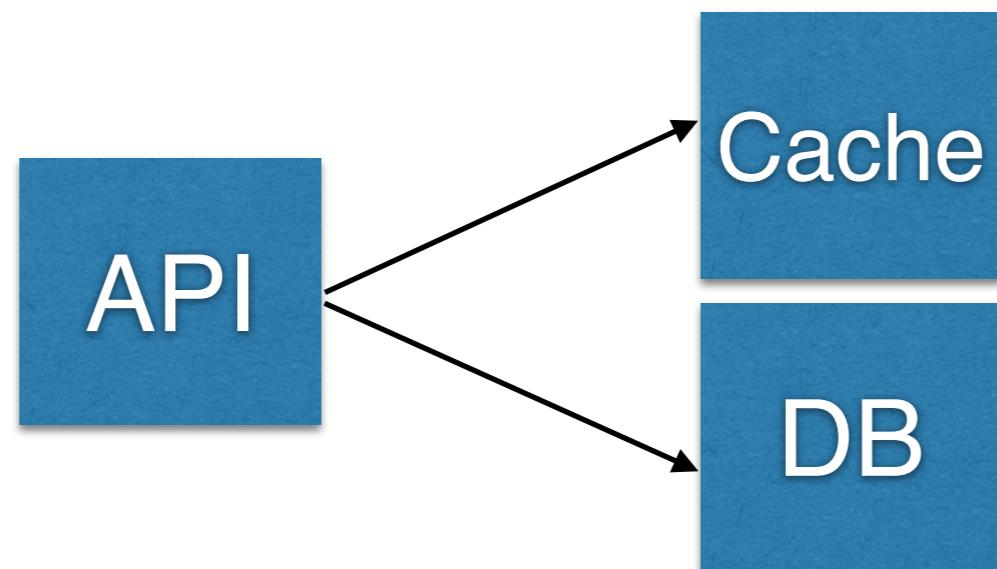
B



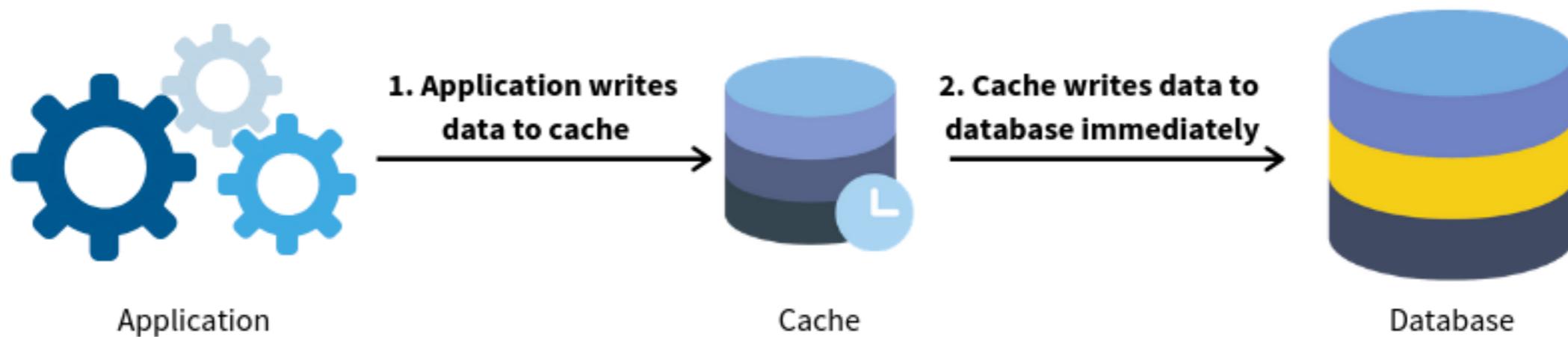
Database Scaling



Caching Response

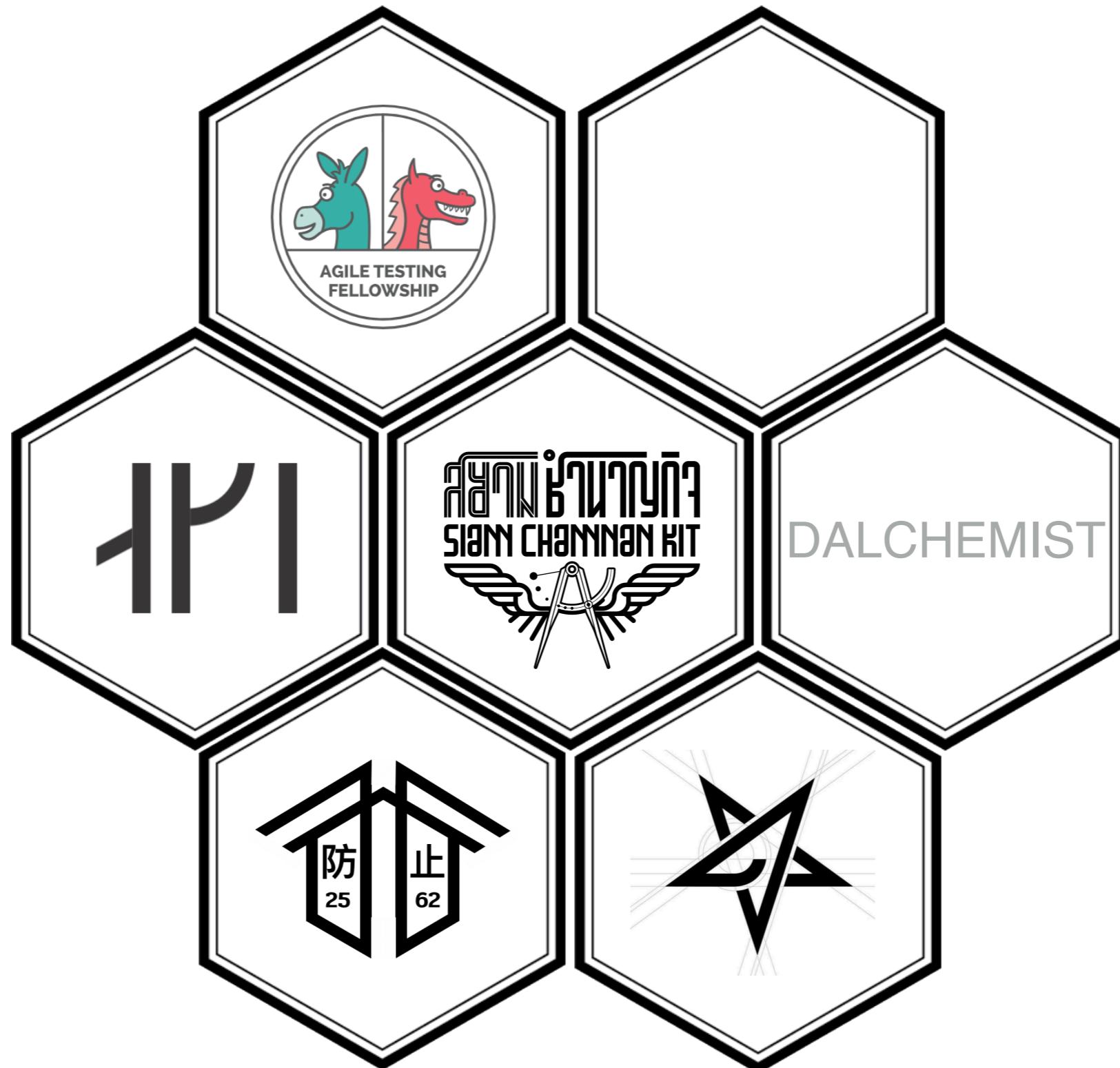


Caching Response



Use CSV file





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