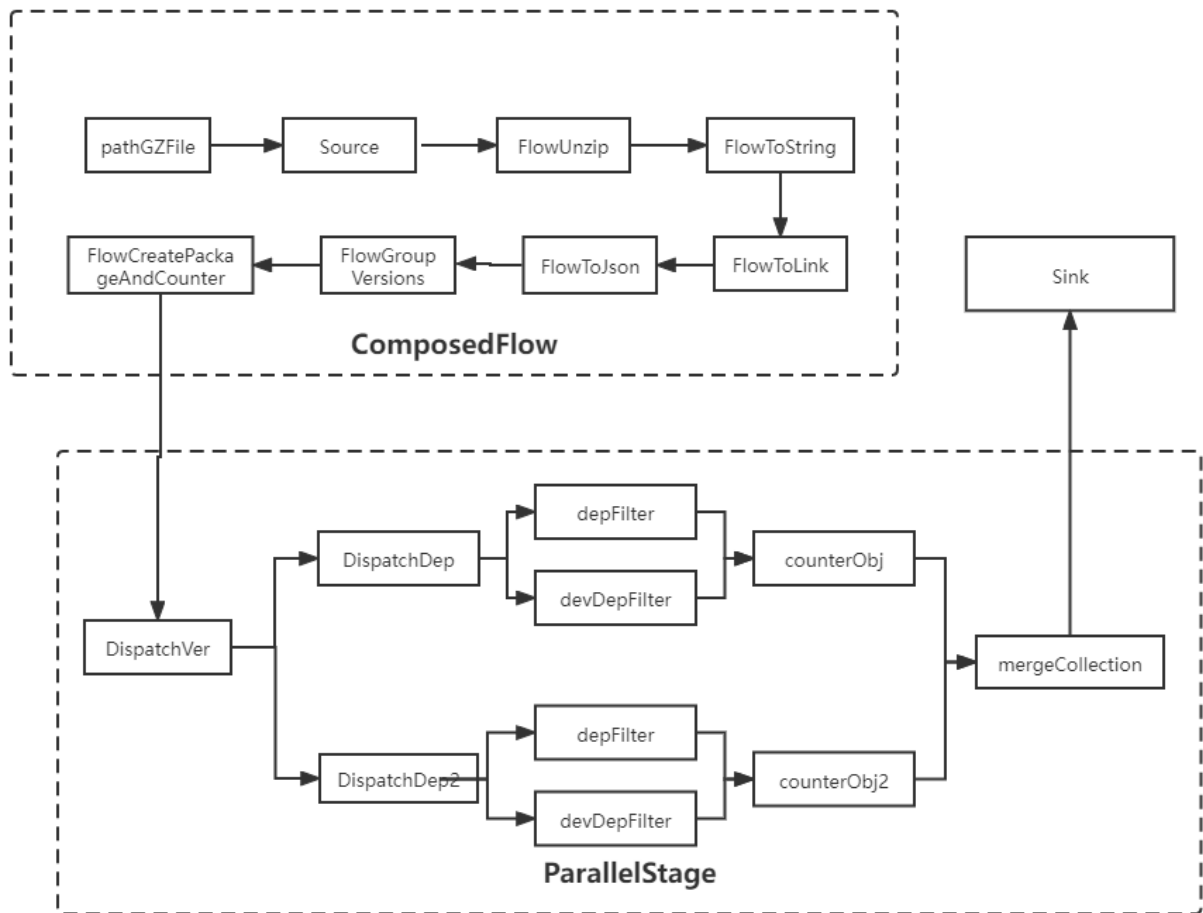# Software Architectures

Assignment 1: Akka Stream

Graph

Illustration

In the ComposedFlow, the main objective is to convert the zipped file to a list of *packages* and *counters*, which are implemented in order to store the result of the analysis. The case classes **package** has four parameters: *name, version, dependencies* and, *devDependencies,* while **counter** has *name, version, NumOfDependencies* and, *NumOfDevDependencies* instead. Apart from the parameters, *counter* has two methods to increase the counters separately.

The conversion is achieved by the following process:
1. Unzip and read the content of the text file, extract the strings and concat them to get links. The *Source* streaming is buffered with a maximum capacity of 10

packages with the backpressure strategy. In *FlowToJson* we read the content of web pages and parse them. One package is streamed each 3 seconds in this step to meet the requirement.

2. Next, we capture and iterate all versions from the json using *FlowGroupVersions*. By this way we got a JArray object which looks as follows: {versions1:{version1:{dependencies:{}},version2:{dependencies:{}}...}, versions2:{version1:{dependencies:{}},version2:{dependencies:{}}...}}

   Because I did not make it to flatten the array, *flowSimplfy* is introduced here to Fetches the first element from each JArray.

3. With the simplified array, we get the four parameters and create packages and counters separately.

The tuples of counters and packages are streamed to the ParallelStage. *DispatchVer* is Balance because each package is emitted to the first available *DispatchDep*s here. *DispatchDep* is Broadcast because we need to emit each package to both two filters. The filters get the information that they need and call the corresponding method of *counter* to increase the number of dependencies or the devDependencies. The two flow merges at *mergeCollection* then are streamed to *Sink* to print the result.

Output

Analysing "Base64"...

Version: "0.1.0", Dependencies: 0, DevDependencies: 3

Analysing "abab"...

Version: "1.0.0", Dependencies: 0, DevDependencies: 1

Analysing "acme"...

Version: "0.0.5", Dependencies: 1, DevDependencies: 0

Analysing "adafruit-i2c-lcd"...

Version: "0.0.1", Dependencies: 2, DevDependencies: 0

Analysing "adobe-analytics-di"...

Version: "1.0.0", Dependencies: 0, DevDependencies: 3

Analysing "advpng-bin"...

Version: "0.0.1", Dependencies: 2, DevDependencies: 1

Analysing "agent-base"...

Version: "0.0.1", Dependencies: 0, DevDependencies: 1

Analysing "aiur"...

Version: "0.0.1", Dependencies: 5, DevDependencies: 1

Analysing "akismet-api"...

Version: "0.0.1", Dependencies: 1, DevDependencies: 3

Analysing "alertifyjs"...

Version: "1.1.0", Dependencies: 0, DevDependencies: 21

Analysing "ab-testing"...

Version: "1.0.0", Dependencies: 0, DevDependencies: 4

Analysing "abstract-socket"...

Version: "0.0.1", Dependencies: 2, DevDependencies: 0

Analysing "aconite"...

Version: "0.2.0", Dependencies: 3, DevDependencies: 7

Analysing "address-validator-net"...

Version: "1.0.0", Dependencies: 1, DevDependencies: 0

Analysing "adorn"...

Version: "0.0.1-security", Dependencies: 0, DevDependencies: 0

Analysing "afterwriting"...

Version: "1.2.3", Dependencies: 4, DevDependencies: 24

Analysing "aggregation"...

Version: "0.9.0", Dependencies: 0, DevDependencies: 7

Analysing "ajax-cache-parser"...

Version: "1.0.0", Dependencies: 0, DevDependencies: 2

Analysing "albatross"...

Version: "0.1.0", Dependencies: 2, DevDependencies: 1

Analysing "alex"...

Version: "1.0.0", Dependencies: 15, DevDependencies: 12