Summer 7-3-2014

Accessing Information Using LVAlert and Python

Belinda Cheeseboro
Andrews University, cheesebo@andrews.edu

Tiffany Summerscales Ph.D.
Andrews University, tzs@andrews.edu

Accessing Information Using LVAlert and Python

Andrews University

B. D. Cheeseboro[1] & T. Z. Summerscales[1]

[1]Department of Physics, Andrews University

cheesebo@andrews.edu & tzs@andrews.edu

ABSTRACT

GraCEDb is a database that stores events that could possibly produce gravitational waves. By using the notification system, LVAlert, we can develop a program in python to extract necessary information from that event and store it in a usable data structure. That data can then be analyzed by our algorithms to extract gravitational waveform data from the detectors

BACKGROUND

GraCEDb

Gravitational waves can be produced from two supermassice black holes coalescing into one, massive stars coming to the end of their life in a giant explosion called a supernova, and many other astronomical phenomena.

To keep track of all the possible events that are happening in our observable universe, we use the Gravitational wave Candidate Event Database (GraCEDb).
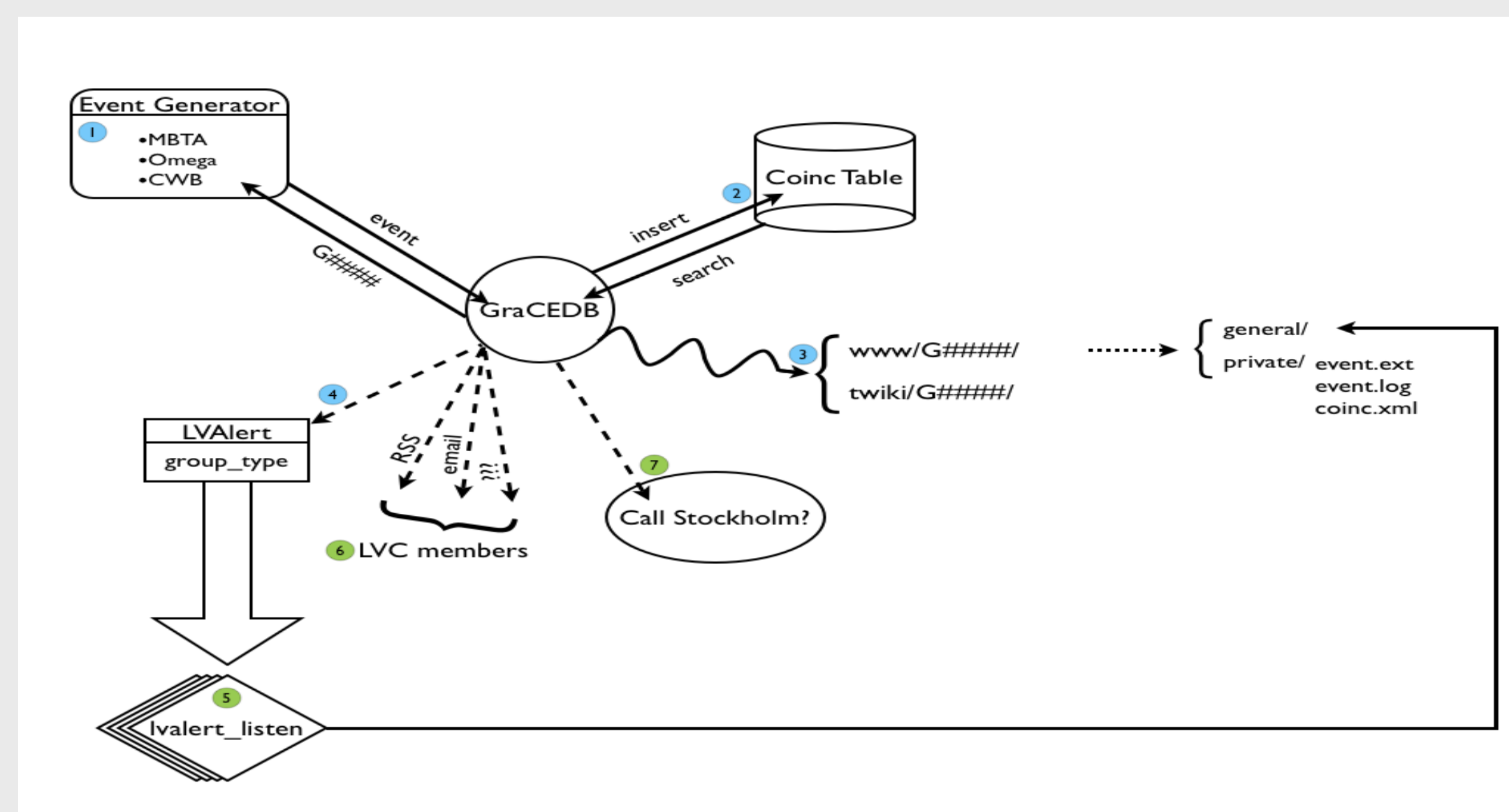
LVAlert

To be notified an event has been entered into the database, we use the Ligo-Virgo Alert system (LVAlert). This system automatically publishes the information to the node (channel) and those subscribed to that node are notified of the event.

METHODOLOGY

Python and XML

Python is a computer interpreted language that is excellent for parsing extensible markup language (xml) files. An xml file is a file that contains tags, elements, and attributes.

The data of an event candidate is stored in xml files. So by writing a python program to access the information that we need from those files . Then we can use that information in algorithms to analyze the data from that event

PROGRESS MADE

So far I have signed up to receive alerts from LVAlert, retrieved data from the GraCEDb website, and currently working on parsing xml data files from GraCEDb.

WHAT'S NEXT?

The next step after parsing xml files is working with LVAlert to accessing the information from GraCEDb directly using terminal.

REFERENCES

LIGO GraCEDb Wiki page

https://www.lsc-group.phys.uwm.edu/daswg/wiki/HowtoGraceDb

LIGO Data Analyis Software Group

https://www.lsc-group.phys.uwm.edu/daswg/projects/lvalert.html

ACKNOWLEDGEMENTS