THE VP1LIGHT EVENT DISPLAY

INTERACTIVE VISUALIZATION WITH VP1 AND VP1LIGHT

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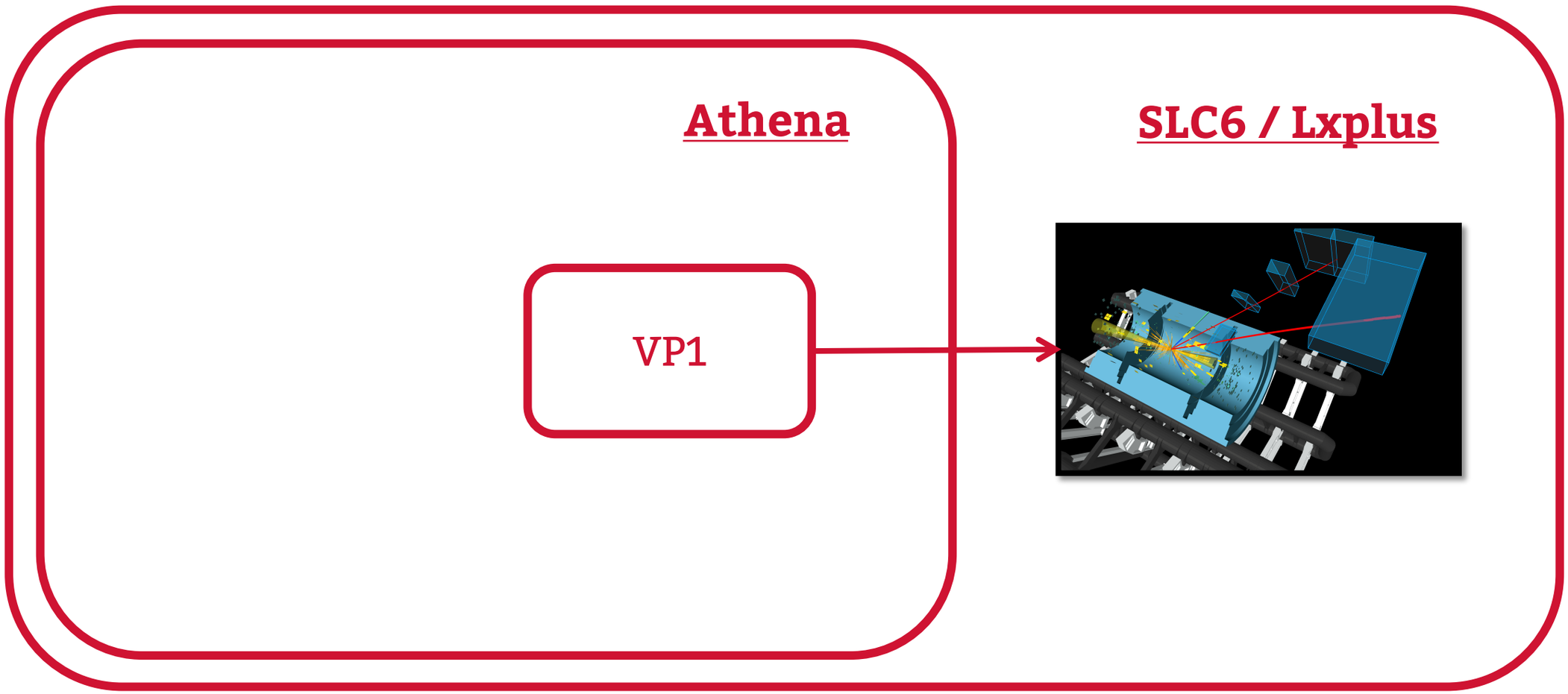
ATLAS SW Tutorial

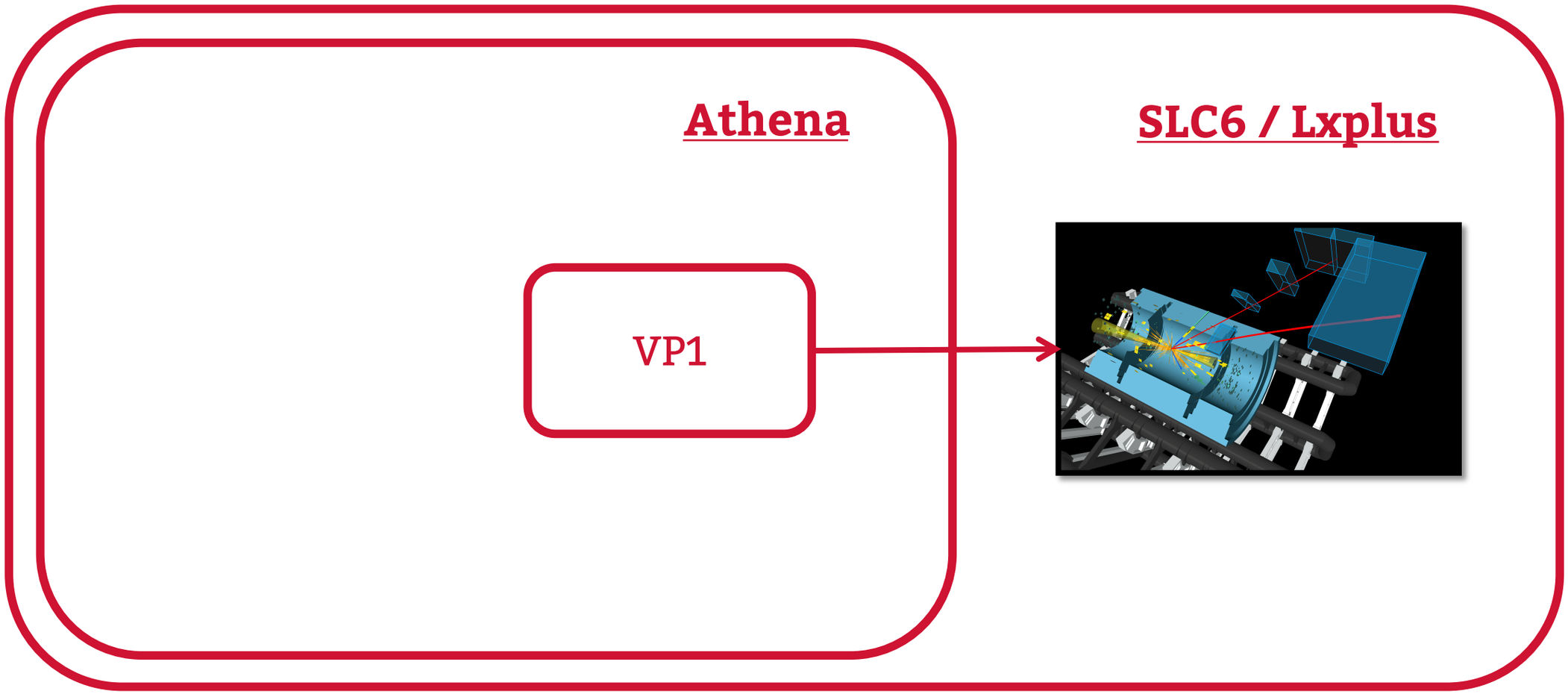
VP1



VP1 is the **ATLAS 3D event display**.

VP1 is **integrated into Athena**. It can **access** all services and databases and can **visualize all ATLAS data** (ESD, AOD, EVGEN, HITS,...).

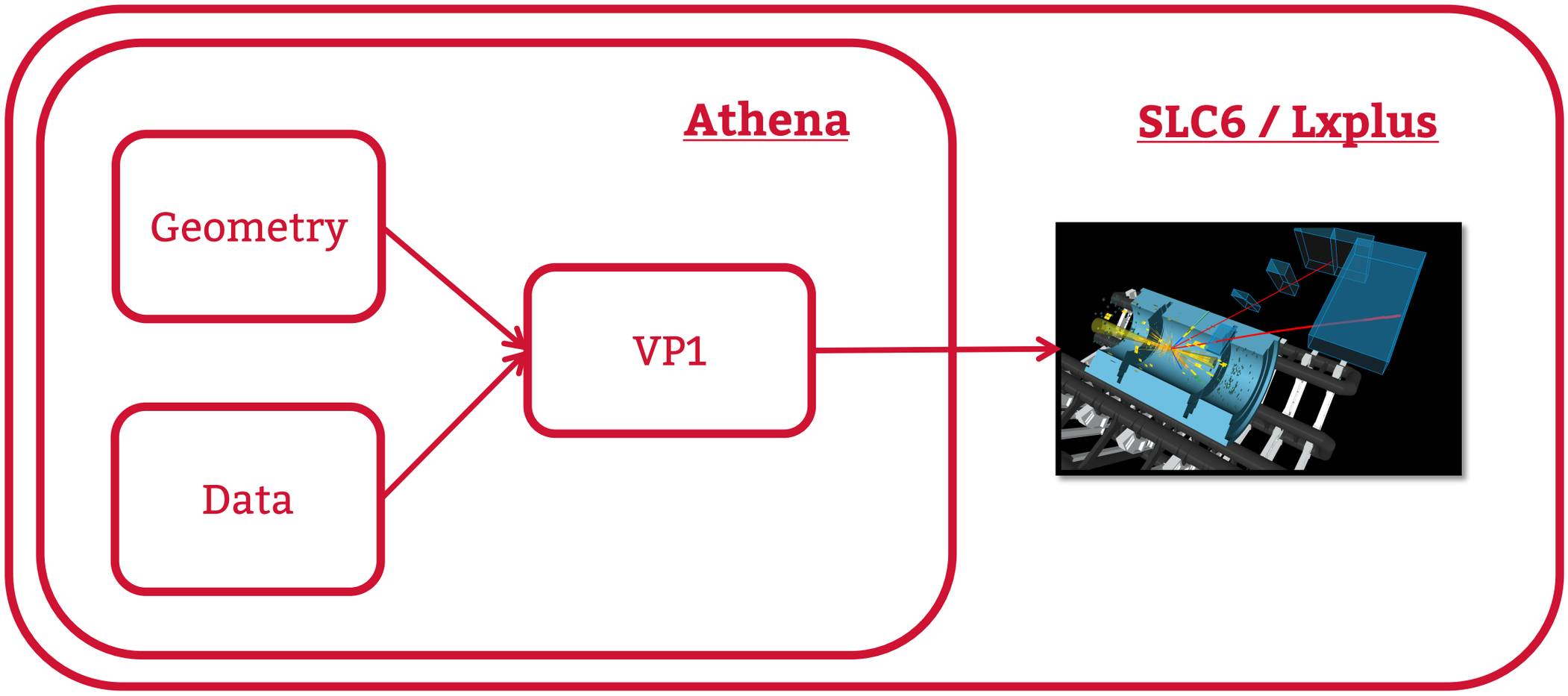
RUNNING VP1



Being part of Athena, VP1 must start the **full Athena framework**, which may be quite cumbersome for end users.

Moreover, it must be run on **Centos7/SLC6**, the only platform which are officially **supported by ATLAS**. And running it **remotely** (e.g.,on Lxplus) it is **too slow for 3D** graphics data.

FROM VP1 TO VP1LIGHT

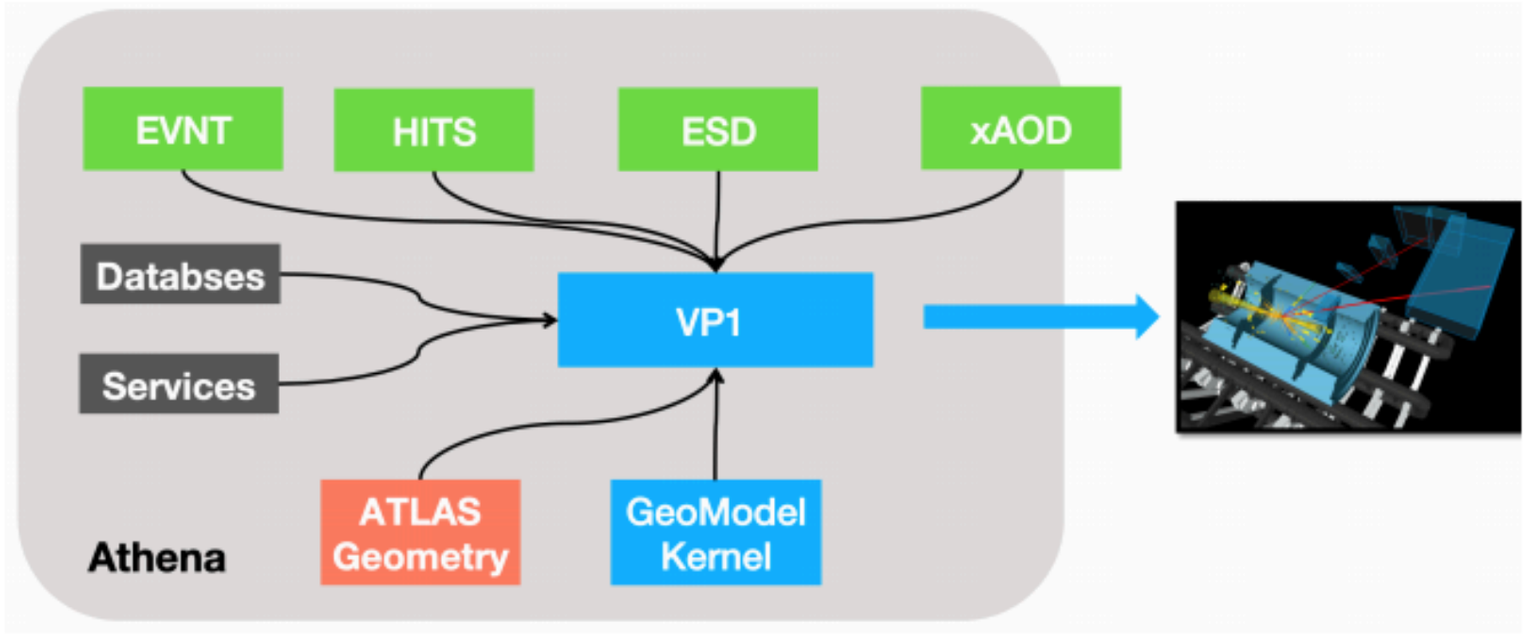


To produce event displays, **VP1** needs **data** and **geometry**.

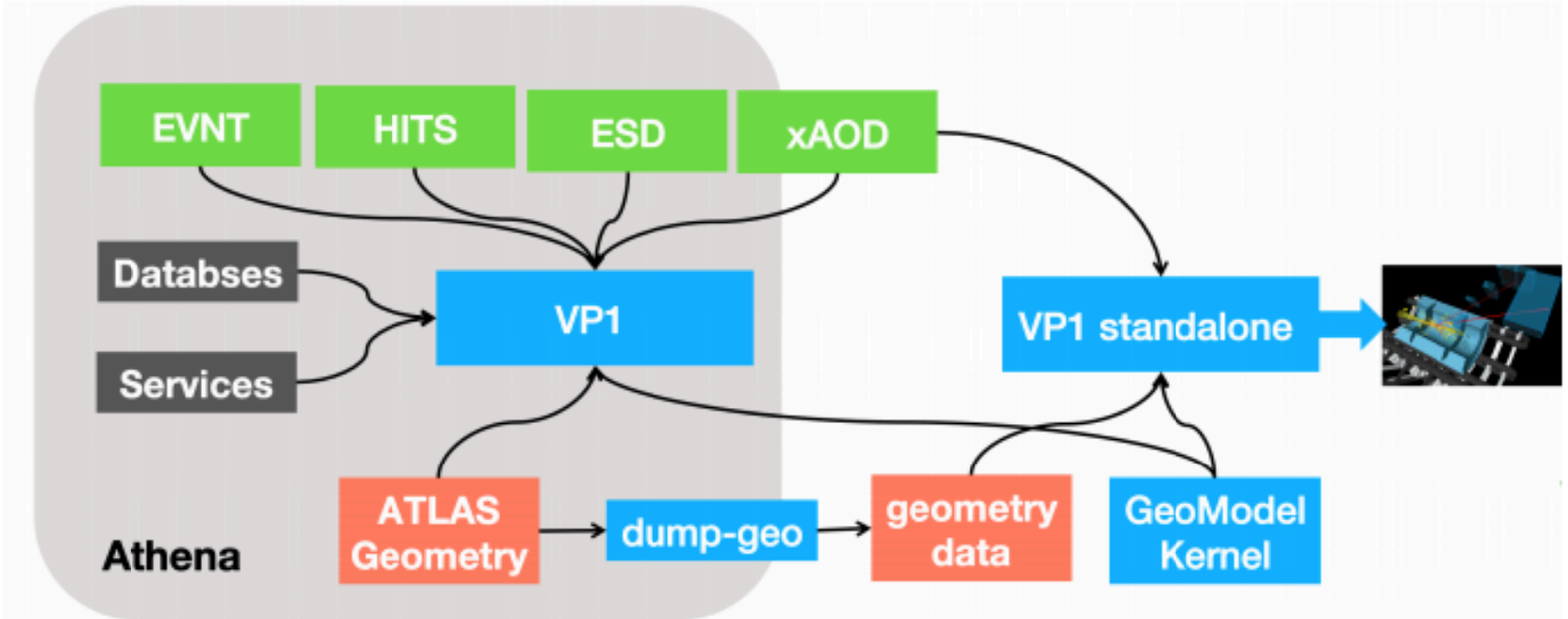
Thus, recently we worked to **extract the actual geometry from Athena**, to be accessed without Athena.

VP1 & VP1LIGHT ARCHITECTURE

VP1



VP1Light



See: https://indico.cern.ch/event/646947/contributions/3234602

VP1LIGHT, A VP1 COMPANION

So, now the **VP1 family** is composed by two applications:
VP1 and **VP1Light**

VP1Light does not replace VP1, it **completes** it:
they are different* tools for **different use cases**

** VP1Light and VP1 are **not** different tools, they share the same code base. VP1Light is based on a subset of the VP1 packages and is built differently.*

VP1 / VP1LIGHT, HOW TO CHOOSE?

VP1

- You need access to **ESD**, HITS, EVNT, xAOD, Geometry
- You need access to **databases** and **services**
- You run VP1 as part of a **custom** Reco/Simu **jobOption**

- You want to visualize **all collections**: **Hits**, **Calo cells**, All track collections, …

- You don’t mind running on **SLC6**

VP1Light

- You need access to **xAOD** and **Geometry ***

- You want to visualize **physics objects**: tracks, vertexes, jets, Calo clusters, MET

- You want to run on **Mac** or **Ubuntu**

** VP1Light shows the actual geometry, as VP1 does. The only difference is that VP1Light uses a “frozen” persistent geometry, while VP1 builds the geometry on-the-fly from Athena, and it can load any version of the detector geometry. But for most physics-analysis use, the default geometry is good enough.*

THIS TUTORIAL

- In this tutorial we will focus on **VP1Light** only, because it is targeted to physics-analysis users and it is easier to **run on laptops**.
- In this tutorial we will only visualize the **geometry** and the **physics objects** contained in the **xAOD**.

- But **VP1** has **many more features**.
- With VP1 you can also visualize **hits**, **calo cells**, muon segments, MDT and RPC **measurements**, and much more.
- You can check the **backup slides** for more info about VP1.

HOW CAN I USE VP1LIGHT?

Three platforms supported so far: **Mac**, **Ubuntu**, **SLC6**

We built **packages** for Mac and Ubuntu, to be installed easily with "**brew**" and "**apt**".

- **Mac*** (macOS "Mojave" (10.14), *"High Sierra" (10.13), and "Sierra" (10.12))*

```
brew tap atlas/geomodel https://gitlab.cern.ch/GeoModelDev/packaging/homebrew-geomodel.git
brew tap ric-bianchi/vp1light
brew install geomodelcore geomodelio
brew install vp1light-mac
```

- **Ubuntu** (*tested on 19.0, 18.0.4 LTS, and 16.0.4 LTS*):

```
sudo add-apt-repository ppa:kaktusjoe/rootdist
sudo apt-get update
sudo apt install vp1light
```

Detailed, updated instructions and hands-on instructions:
https://gitlab.cern.ch/rbianchi/atlas-tutorials/blob/master/vp1light/

** On Mojave, pre-compiled packages will be installed so the installation is quick. On High Sierra and Sierra the process currently requires compilation, which may be slow.*

THANKS FOR YOUR FEEDBACK!

- **A note:** VP1Light is a **new project** and it's **work in progress**. We're still fixing packaging and libraries' issues.
- But **it can be used**, already.

- Please try it, and send us your **feedback**, **especially** if you find **flaws**, **errors**, or **geometry discrepancies**:

atlas-sw-vp1-help@cern.ch

REFERENCES & BACKUP

PUBLIC ATLAS EVENT DISPLAYS

- Most of the event displays shown in these slides are taken from the "**Public event displays**" page: https://twiki.cern.ch/twiki/bin/view/AtlasPublic/EventDisplayRun2Physics

- All the event displays listed in the above page are **approved for public use**: you can insert them in your **Thesis** and you can use them in your **talks** and **presentations**. You only need to insert the ATLAS copyright statement: http://atlas.cern/copyright

RUNNING THE FULL VP1 - HOW

If you need to access Athena data or you want to **produce a detailed event display** with ESD data (with **hits**, **calo cells**, etc.), then you need to run the **full VP1**

The best option is having a **local machine**, on which you can install **SLC6** or **Centos7** from CERN

In that way you will have an **exact copy of the ATLAS platform**, to run Athena and VP1.

Otherwise, you can setup a **Virtual Machine**

More info, on the VP1 web site:
http://atlas-vp1.web.cern.ch/atlas-vp1/home/documentation/how-to-run-vp1/best-ways-to-run-vp1/

RUNNING THE FULL VP1 - SETUP

You can find **updated instructions** about **VP1 setup** with various Athena releases on the VP1 site:

http://atlas-vp1.web.cern.ch/atlas-vp1/home/documentation/how-to-run-vp1/running-the-latest-vp1-version/

Examples:

- master:

asetup master,latest,Athena[,slc6]
vp1