

Clouds, containers and R,

towards a global hub for reproducible and collaborative open data science

AngletR 2017
29th June 2017

Karim Chine

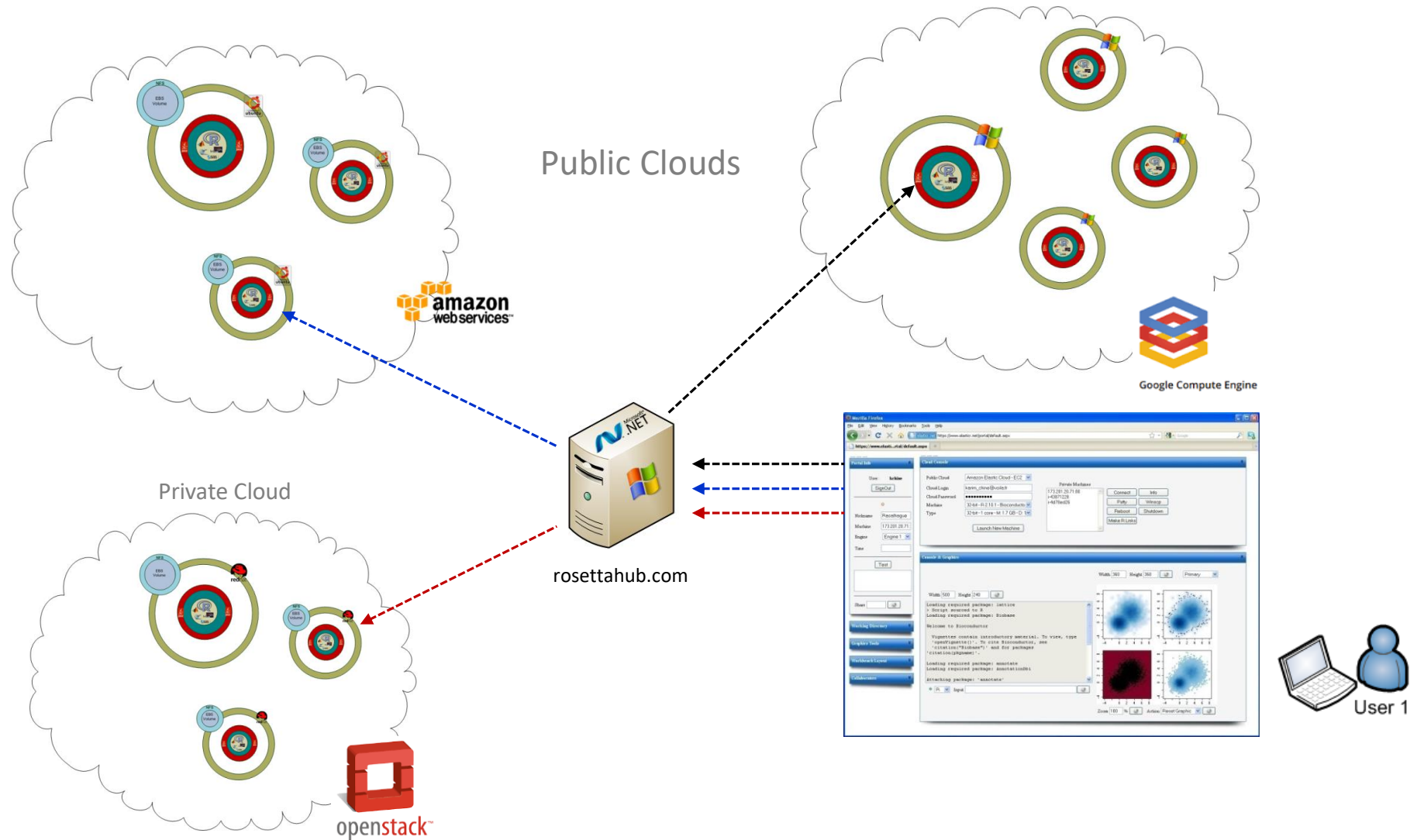
karim.chine@rosettahub.com

What is RosettaHUB?

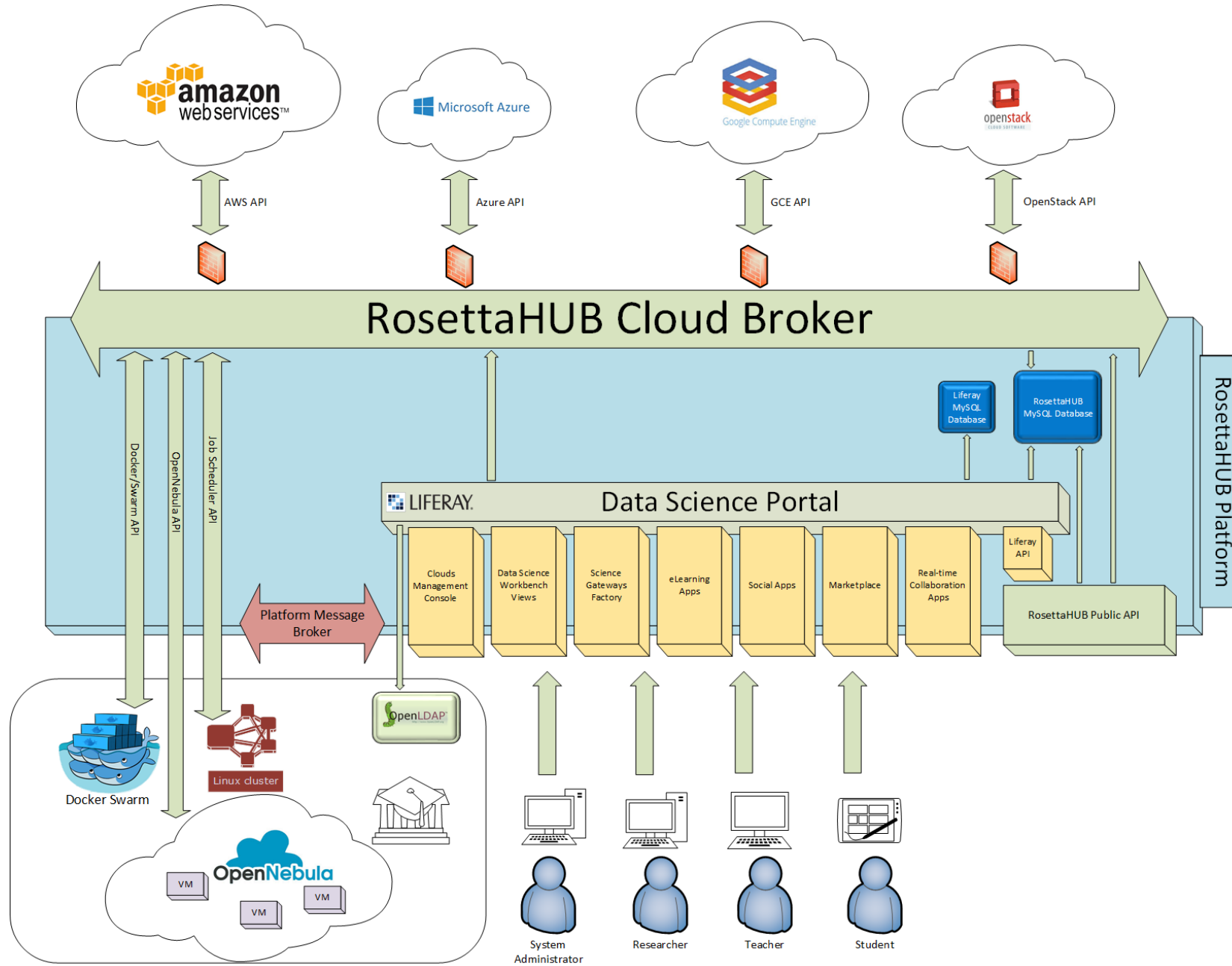
The RosettaHUB platform and hub connects the dots between **clouds, containers, research software, real-time collaboration frameworks** and **social portals**.

It delivers a **virtual environment**, an **API** and a **marketplace** that foster **usability, reproducibility, shareability** and **auditability** at all layers of interactions between scientists and the research tools and infrastructures.

Usability: meta cloud and converged infrastructures



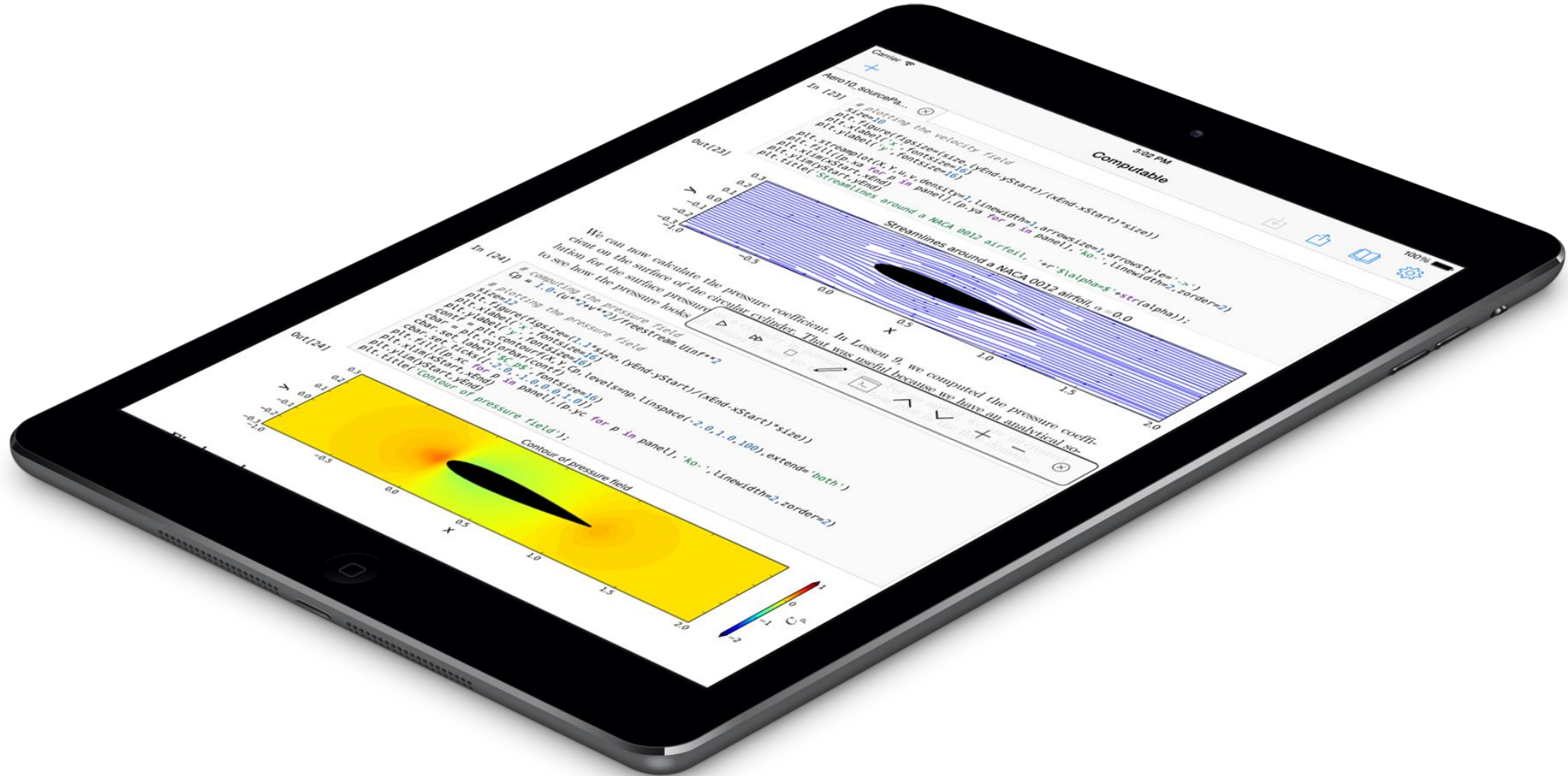
Usability: meta-social platform, converged RBAC for public clouds



Usability: meta kernels and converged computing environments



Usability: Mobile-centric architectures and interaction design, Data Science on the iPad



Usability: Merging the spreadsheet and the notebooks paradigms

rosettaHUB management x

Secure | <https://www.rosettahub.com/console/DefaultLight.aspx?engineUid=e-1fe88f60-9336-4001-aaca-60e2f15ccf8c>

Actions Share

IDE Browse Data Tools Action Social

IN TAB

R

SPREADSHEET

Actions R

C1 require(grDevices) # for colours x <- 10*1:nrow(volcano) y <- 10*1:ncol(volcano) filled.contour(x, y, volcano, color = terrain.colors, plot.title = title(main = "The Topography of Maunga Whau", xlab = "Meters North", ylab = "Meters West"), plot.axes = { axis(1, seq(100, 800, by = 100)) axis(2, seq(100,

1

A

```
1 # High Density Scatterplot with Binning
2 library(hexbin)
3 x <- rnorm(1000)
4 y <- rnorm(1000)
5 binc<-hexbin(x, y, xbins=50)
6 plot(bin, main="Hexagonal Binning")
```

B

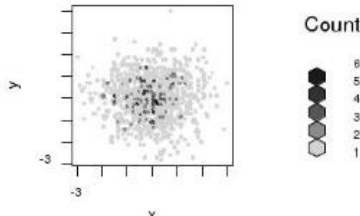
```
1 exec(open('/mnt/workspace/mandelbrot.py').read())
```

C

```
1 require(grDevices) # for colours
2 x <- 10*1:nrow(volcano)
3 y <- 10*1:ncol(volcano)
4 filled.contour(x, y, volcano, color = terrain.colors,
5 plot.title = title(main = "The Topography of Maunga Whau",
6 xlab = "Meters North", ylab = "Meters West"),
7 plot.axes = { axis(1, seq(100, 800, by = 100))
8 by = 100)) },
9 key.ti Datalink
10 key.ax Highlighter
    Evaluate
    Console
    Notebook Eval
```


2

Hexagonal Binning

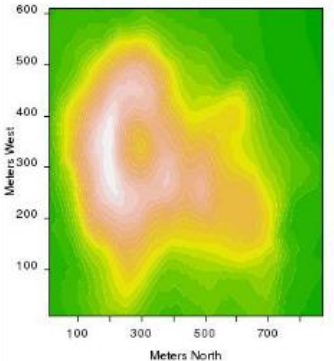


Counts

The Mandelbrot fractal set
Rendered with matplotlib 1.5, 2017 - <http://matplotlib.org/>



The Topography of Maunga Whau



Meters West

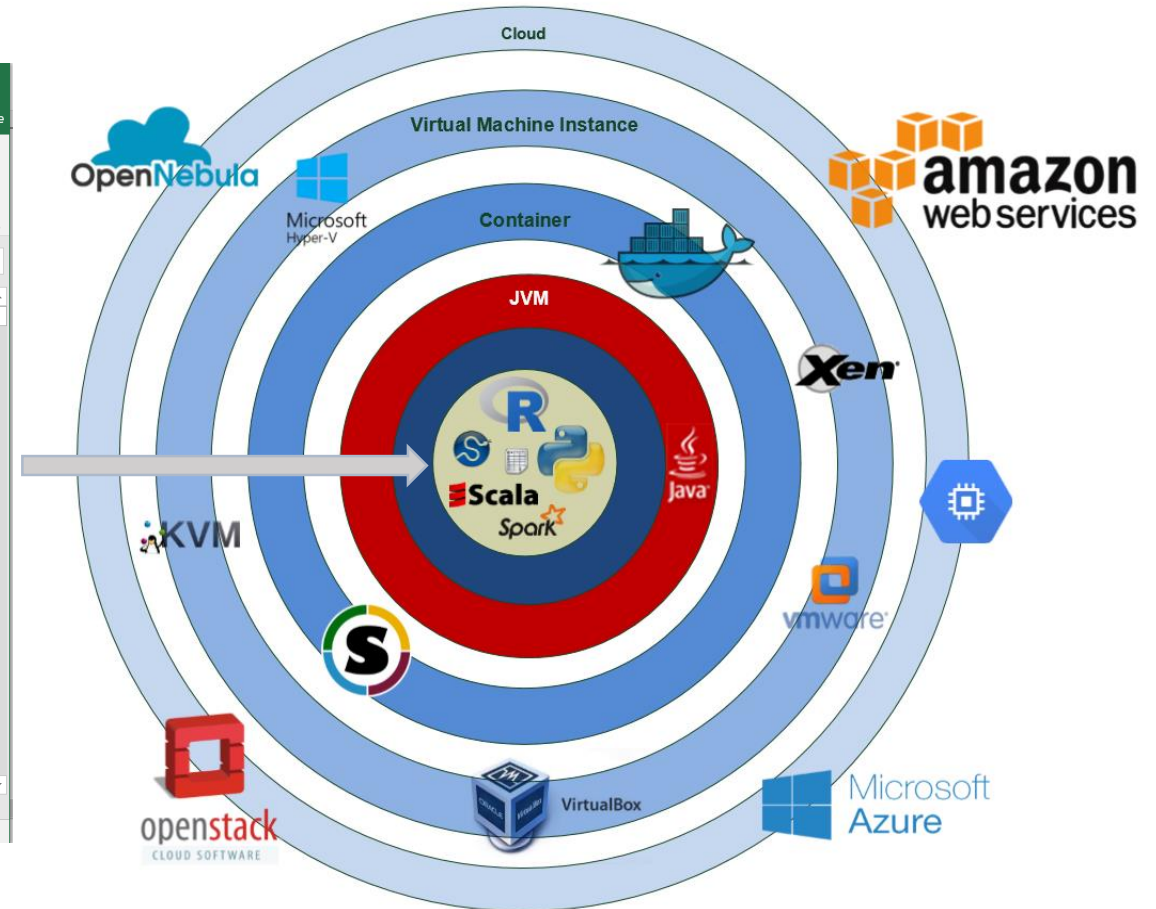
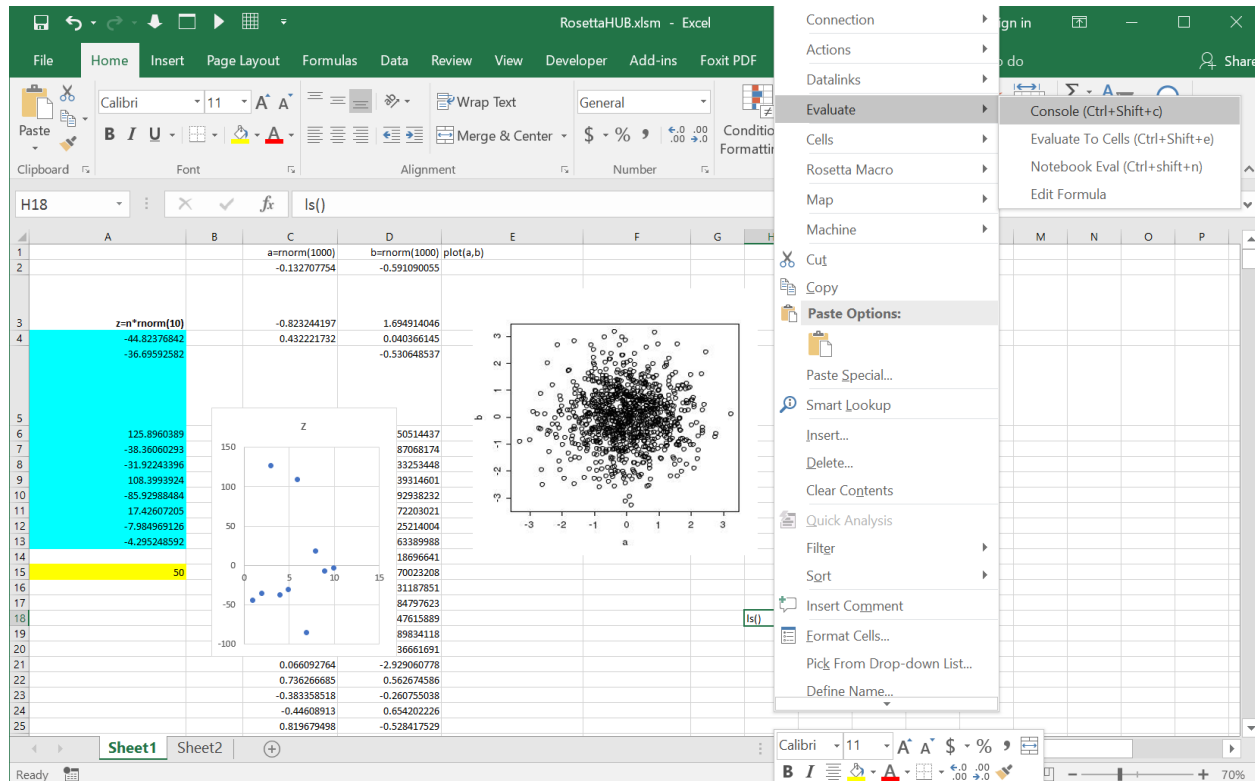
Meters North

Notebook Coll

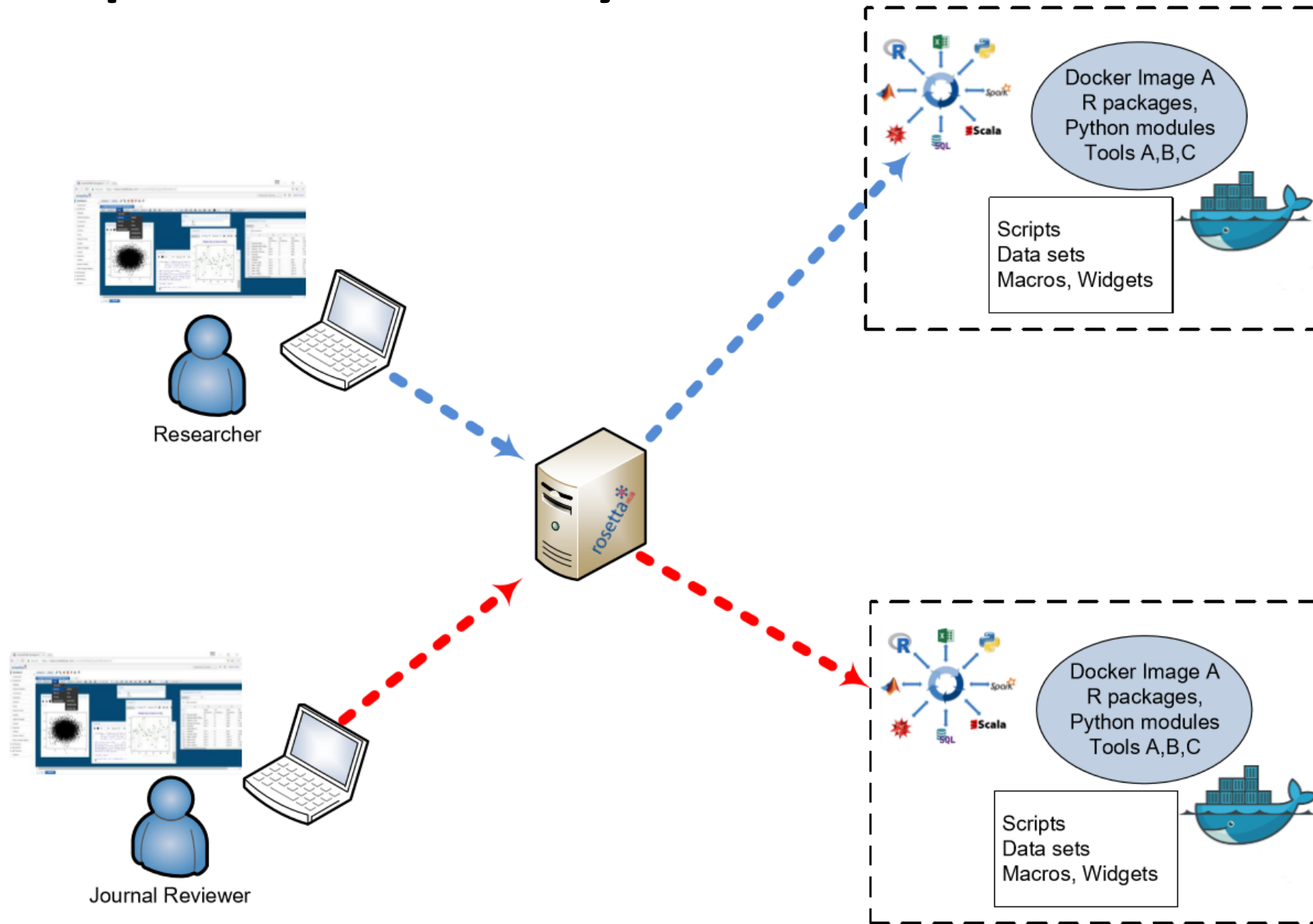
```
1 Geo=gvisGeoChart(Exports, locationve
2 colorvar="Profit",
3 vti"))
4 plot(Geo)
```

Sheet1

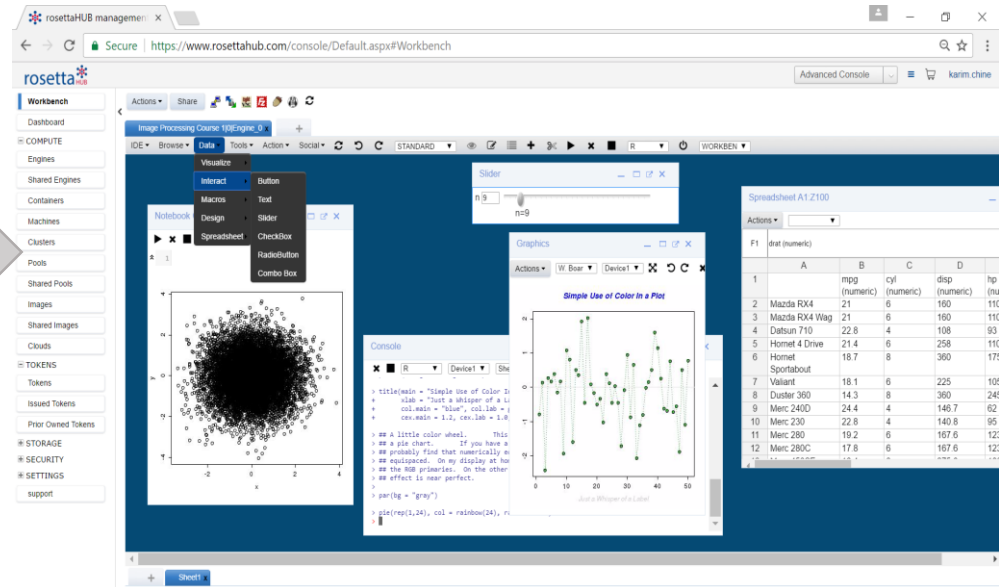
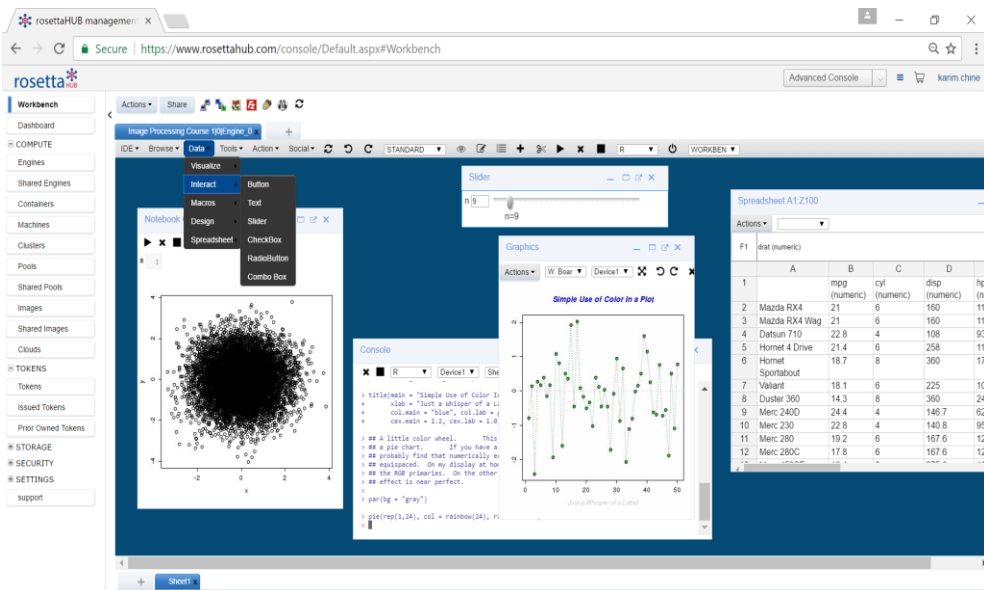
Usability: Take the compute to the data, remote control from the desktop tools



Reproducibility, Docker, Singularity & converged CloudFormation



Shareability, Everything-as-a-URL & ubiquitous real-time-collaboration



Shareability,

A democratic marketplace for data science apps

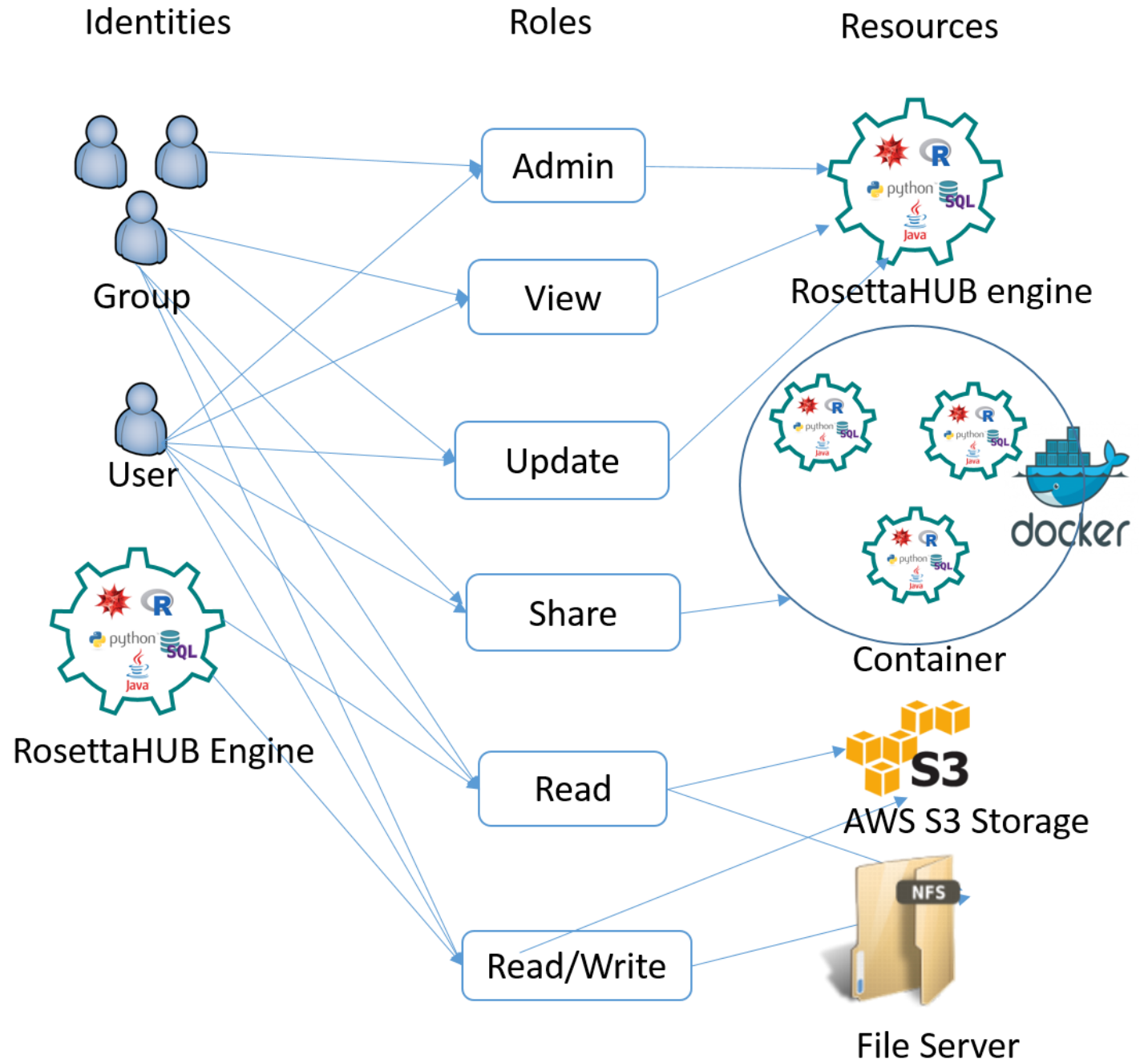
Towards an “ebay of scientific apps and analytics”

Shareability,

A democratic marketplace for self-run containers-centric clouds

Towards an “airbnb of containers”

Auditability



aws educate



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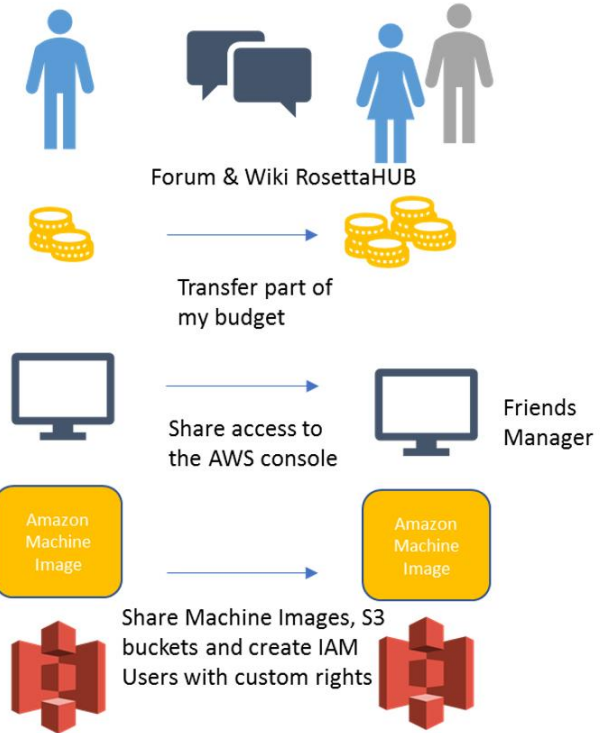
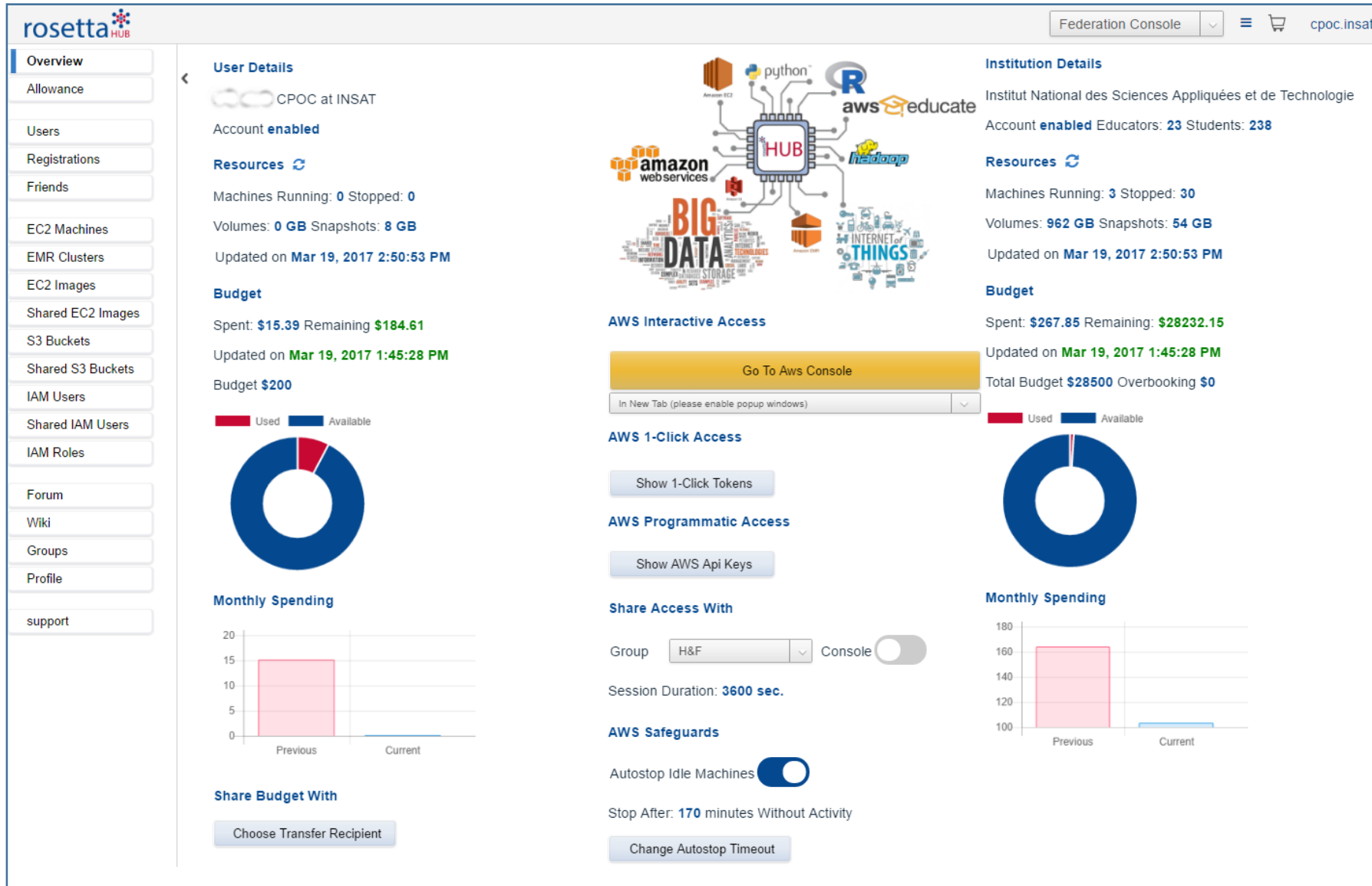
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- > 4000 researchers, educators and students

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