Billing Account Management

If you are reading this, that means you have access to the Pew EFH AWS Billing account. Note that while this document goes into cost-saving strategies, this account has no control over those issues. All this account can do is:

- Edit Credit Card Info
- View Invoices

However, it is also assumed that your role has a vested interest in keeping costs down, so additional sections are included so that you can be an educated participant in these decisions.

Logging In

- Go to this login page: https://122603692724.signin.aws.amazon.com/console
    - Optionally, you can go to the main site: https://aws.amazon.com
        - Click on “Sign In to the Console”
- Use the credentials provided by your project team
- Click on the blue ‘Sign In button

Updating Your Password

- In the top-right corner of the screen there should be an option like “xxxxxxxx @ ####-####-####”
- Click on it to open a drop-down menu
    - Select “My Security Credentials”

Managing/Updating Credit Card Info

- At the top of the screen, find and click on “Services”
    - Select “Billing” from the left-hand side of the drop-down
- Select “Payment Methods” from the list of options on the left
- Click on the “Add a card” button or edit the existing CC data.

Viewing Current and Past Bills

- In the top-right corner of the screen there should be an option like “xxxxxxxx @ ####-####-####”
- Click on it to open a drop-down menu

    - Select "My Billing Dashboard"

From here you will see some infographics outlining what has been spent this month to date, the estimated cost for the month, and comparisons with the previous month.

To see details of specific monthly invoices:

- select "Bills" from the left navigation list
- The first field allows you to select which month you wish to see billing details for.
- By default, you will be presented with the current month's charges to day
    - This is not yet an invoice, and will most likely increase
- Monthly bills are generally available within a week after a month closes.

Estimating Cost

Unlike most server companies, Amazon does not charge a flat monthly fee - they only charge you for exactly what you use. This is good for cost cutting, but tremendously complex for budgeting and managing.
Simplifying the myriad expenses (most being less than 10 cents/month) that you may see showing up on the bills, there are two big ones:

- Amazon Elastic Compute Cloud running Linux/UNIX (~$35/month)
    - This is an overly complicated way of saying "Server Fee"
        - This is the hourly rate you pay to have your server running
- EBS (Elastic Block Storage, less than $5/month)
    - This is an overly complicated way of saying "Data Storage"
        - This is primarily the cost of storing server backups

This means, if things stay steady, the cost of the server should be under (but near) $40/month. This will change under the following conditions:

- Web traffic increases immensely
    - The site would have to become amazingly popular to cost more than $1/month more
- Data storage increases dramatically
    - Registered users can now import spatial data layers into the tool - these could build up and drive up the "EBS" cost
    - Registered users could import or create many complex closure scenarios. I suspect that it is unlikely that this will cause any large spikes in cost
- Server Size is changed
    - The "Amazon Elastic Compute Cloud" hourly rate is tied to the size of the server (number of CPUs, size of RAM).

As billing manager, you have no way of controlling any of these. Only the SysAdmin and the users (collectively) can drive these changes.

Ways to Reduce Cost

There are two primary ways to reduce cost:

- Run a smaller server
- Commit to a long-term “Reserved Instance”

Server Size

The first option is unlikely to be the best - many tests have been performed over the years on this tool to keep it as “lean” as possible (the developers at Ecotrust were also paying for the server at the time and didn’t want to pay more than they had to, either). While most of the time the server is not using all of its hardware, it has to be ready for users to give it large tasks that it supports. We have found that smaller server sizes lead to the server crashing when being asked to perform several of its functions.

Reserved Instance

Amazon allows users to make a ‘down payment’ or at least a ‘commitment’ to paying for servers. These are called “**Reserved Instances**”.

Setting up Reserved Instances will need to be done by your assigned SysAdmin.

This can get really complicated really fast. If you really want to dive in, more information can be found here: https://aws.amazon.com/ec2/pricing/reserved-instances/pricing/

Here are the main things you need to look into these options:

- Operating System:
    - Linux
- Region
    - US West (Oregon)
- Server (“instance”) size:
    - t2.medium (this is the current size class)
- Anticipated Server Lifespan (“Term”)
    - Reserved instances can be purchased for 1 or 3 years at a time
    - You cannot ‘double-up’ on reserved instances:
        - Buying 2 “3 year” reserved instances means you will see cost savings on up to two server instances for 3 years (**NOT** 1 server for 6 years)

        - If you only have 1 instance, you will only take advantage of 1 reserved instance, they will both expire after 3 years
- Standard or Convertible
    - This is a server for a WebApp, which means it expects to have 100% uptime (it's always on)
    - Because of this, you will want "Standard"
    - Convertible only saves money in circumstances that don't apply to this server.
- Upfront payment
    - You can pay 0 down and get some savings
    - You can pay for 100% of the server cost ("Amazon Elastic Compute Cloud" on the bill, ~$35/month, not the full invoice) for the duration of the server's life for the most savings possible.

Examples:

Current "On Demand" cost of the t2.medium Linux instance in Oregon:

- $0.0464 per Hour (up to $34.52/mo, or $406.46/year)

Cost for 1 year with $0 pre-pay (Standard):

- $0.029 per Hour (38% savings, ~$20.95/mo, $254.04/year)

Cost for 1 year with full payment ($235) up-front (Standard):

- $0.00/hour ($0.027 'effective' hourly) (42% savings, $0/mo, $235/year)

Cost for 3 years with $0 pre-pay (Standard):

- $0.02 per Hour (57% savings, ~$14.60/mo, $175.20/year)

Cost for 3 years with full payment ($458) up-front (Standard):

- $0.00/hour ($0.017 'effective' hourly) (62% savings, $0/mo, $152.67/year)