The main details I'm looking for are:

1. What are the upfront costs of each?

Cloud hosting offers lower upfront costs always below $400 (usually $0), on-prem servers offer a high upfront cost of between $1600-$3000. This cost could increase more depending on if you want multiple CPUs.

1. What are the ongoing costs?

The ongoing costs associated with these options are very different. For cloud hosting your monthly costs can be between $1,900-$5,000. This depends on whether you want it to be a managed instance or Dynamo or a straight EC2 instance. The on prem server you will need to replace components, provide roughly $100-$200 of electricity and have about 10 hours of labor to work on it every month. Let’s call this $750 of labor for a total of $1,100 a month of ongoing cost.

3. When is the breakeven point?

With an $1,100/month and a $2,500 upfront cost we will break even with a $2,000/month rate on the 3rd month. This is assuming we have a position that can devote some time to the on-premises server but can have other responsibilities. Even if we have a $15,000 upfront cost for an on prem server, we will break even in the 17th month. The drawbacks of an on-prem are if we need to scale rapidly that will be much harder. If we need to scale while on a cloud provider the VM can get resized. Overall, on-prem is much cheaper and likely offers better performance if we are using it for a team of data analysts, but if we are using the database for a mobile application then a cloud provider may offer much better performance as we could implement some form of sharding/horizontal scaling. In the end, both options are good choices, and we can see why certain industry professionals believe cloud hosting will shrink.

|  |  |  |
| --- | --- | --- |
| RDS – postgreSQL | DynamoDB | EC2 |
| db.m4.10xlarge |  |  |
|  |  |  |
|  |  |  |
| Cost 5,015.20/month | 330 upfront, 4046/month | 1,966.56/month |

|  |  |  |
| --- | --- | --- |
| Item | Selfbuilt (non enterprise grade) | Selfbuilt (enterprise grade) |
| CPU | Ryzen Threadripper 2970WX ($680) | [AMD EPYC 7313](https://www.dell.com/en-us/shop/amd-epyc-7313-30ghz-16-core-processor-16c-32t-128m-cache-155w-3200/apd/338-bzry/processors) $1442.26 |
| Memory | 4x32gb ($224) | + 250% = 562.5 (enterprise ram is usually around 2.5 times more expensive) |
| SSD | Samsung ($186.99\*4) = ~750 | ~750 |
|  |  |  |
| Total | 1655 | 2755 |

A screenshot of a computer

Description automatically generated