If you haven't tried REDCap and want to get a feel for it you can try it out at this link:
https://redcapdemo.vanderbilt.edu/

Suresh Maslamoney: What do you need to run a REDCap Instance?

Redcap is a server application and can be run on most operating systems. The below chat will be based on the Linux operating system (OS). Part of the design and setup would be generic across all OS's.

NOTE: I'm assuming that you already have some form of infrastructure like a network switch, internet connectivity, UPS, a public domain name, etc

1) Assessing hardware/equipment needs

The first step is to evaluate whether or not you could run your RedCap instance on existing hardware or if you need to purchase additional hardware.

RedCap can be run on a physical server as a single purpose application server. Alternatively you can run RedCap on a virtual machine (VM). VM's are the prefered method as it reduces your total cost and lowers your carbon footprint by reducing the number of physical servers needed.

You are spoilt for choice when it comes to virtualization. You can turn to Microsoft and use their Hyper-v offering. There is a free version of Hyper-v but it is only text based while the GUI version can be obtained when you purchase a Microsoft server license. NOTE: if you go the Microsoft paid route, ensure you pick a licensing model that has the Hyper-v included and that covers the number of users and CPU's.

VMware is another good option. As with Microsoft, there is a free and paid for version. The free version would provide all the functionality that you would need. The paid for version would add a few more functions and would simplify management of the hardware and virtual platform as well as support.

Lastly, you have the open source options. Most commonly used one is KVM which is short for Kernel Virtualization Module.

To setup a virtual host, You would install any one of the above hypervisors onto your single physical server. Once installed, you can create virtual machines based on the capacity of your local physical resources (RAM, cores and disk space).

Pros and cons

A physical machine allows you to dedicate all resources to the application/s. The down side though is that it cost more in room space, UPS, servers, etc.

Virtualization as I said is preferred and allows you to run multiple server with a variety of operating systems on a single physical server. Backing up or snapshotting your server is a lot easier compared to a physical server. It's worth noting though that there could be a possible knock on effect on networking and disk speed.

REDCap is not a very resource hungry application. You could get away with minimal resources. Assuming that you have decided to go the virtualization route and that you have chosen Linux for your OS. You can assign 2 cores, 4GB RAM per VM with the web server having a ~60GB hard drive and the database a 100GB hard drive.

- https://projectredcap.org/software/requirements/
- https://projectredcap.org/wp-content/resources/REDCapTechnicalOverview.pdf

2)   Obtaining a REDCap Licensing

The RedCap software is not open source software and cannot be shared with anyone other than institution. There is no cost to acquire the RedCap software, you simply need to join the RedCap consortium and by way of this consortium - you get access to the RedCap software. You can read up on how to join the consortium as well as the licensing terms and conditions >>

- https://projectredcap.org/partners/join/
- https://projectredcap.org/partners/

3)   Setting up a server to host REDCap

There are a few in my view to setting up a REDCap instance. This includes the web server setup, REDCap install and the security of the virtual machine.

a)   LAMP

In addition to an OS, you need a web server with PHP and a database to install REDCap. You can install all of this in Linux. The complete installation is referred to as a LAMP installation (**Linux Apache MySQL PhP**). It is also recommended to split the web and database functions. Typically you will have a web server that runs the REDCap web GUI and have a second server on your internal network that runs your database instance. The database server can double as your file server to store your documents.

For some tips and instruction for installing Linux as an OS, you can visit the howto guides on our website >> https://h3abionet.org/tools-and-service/technical-guidelines. Additional information can also be found on the REDCap website >> https://projectredcap.org/software/requirements/

Once you have installed LAMP successfully, all you then need to do is extract the REDCap files into your Apache web directory which is usually /var/www/html/

b)   Firewall (server and boundary)

Enable the local server firewall and only allow the necessary ports to be opened. The firewall on the local database server should be strict. You should also be behind an institutional firewall where you only open the https port to your REDCap web GUI.

c)   Email or smtp server

To be able to send out REDCap communication directly from REDCap you need to have access to a working SMTP setup.   You would install something like POSTFix or Sendmail and have that relay to something like gmail. Or you can use your institutions email settings.

d)   Local server security

For the local security, ensure that only the necessary accounts are created and that you limit root or administrator access. Consider installing something like "fail2ban" to monitor and secure your remote connections to your VM.

e)   Maintaining REDCap

Maintenance entails updating the OS, checking login accounts, firewall ports and backups. The web server backup is fairly straight forward. On the backup server, you need to first dump the MySQL database and then include it into your normal system backup. You can script this dumping fo the MySQL database via cron.

f)   Data laws

Ensure that you adhere to your country's data laws or if you collect data from other countries - ensure that you adhere to their laws on protecting data. Examples are SA's POPI act or the UK's GDPR.

4) SysAdmin skills needed

Nothing extra special is needed here. If you have a developer or tech savvy individual on staff, they would be able to setup a VM with LAMP and install REDCap.
In addition, we (H3ABioNet) can assist you with the design and setup.

If you are a H3ABioNet or H3Africa node, you will be able to log a call via the H3ABioNet helpdesk for support. Currently our helpdesk is being migrated to a new platform and as such is not currently available. I can ask Katherine to forward the new url once the new site is operational.