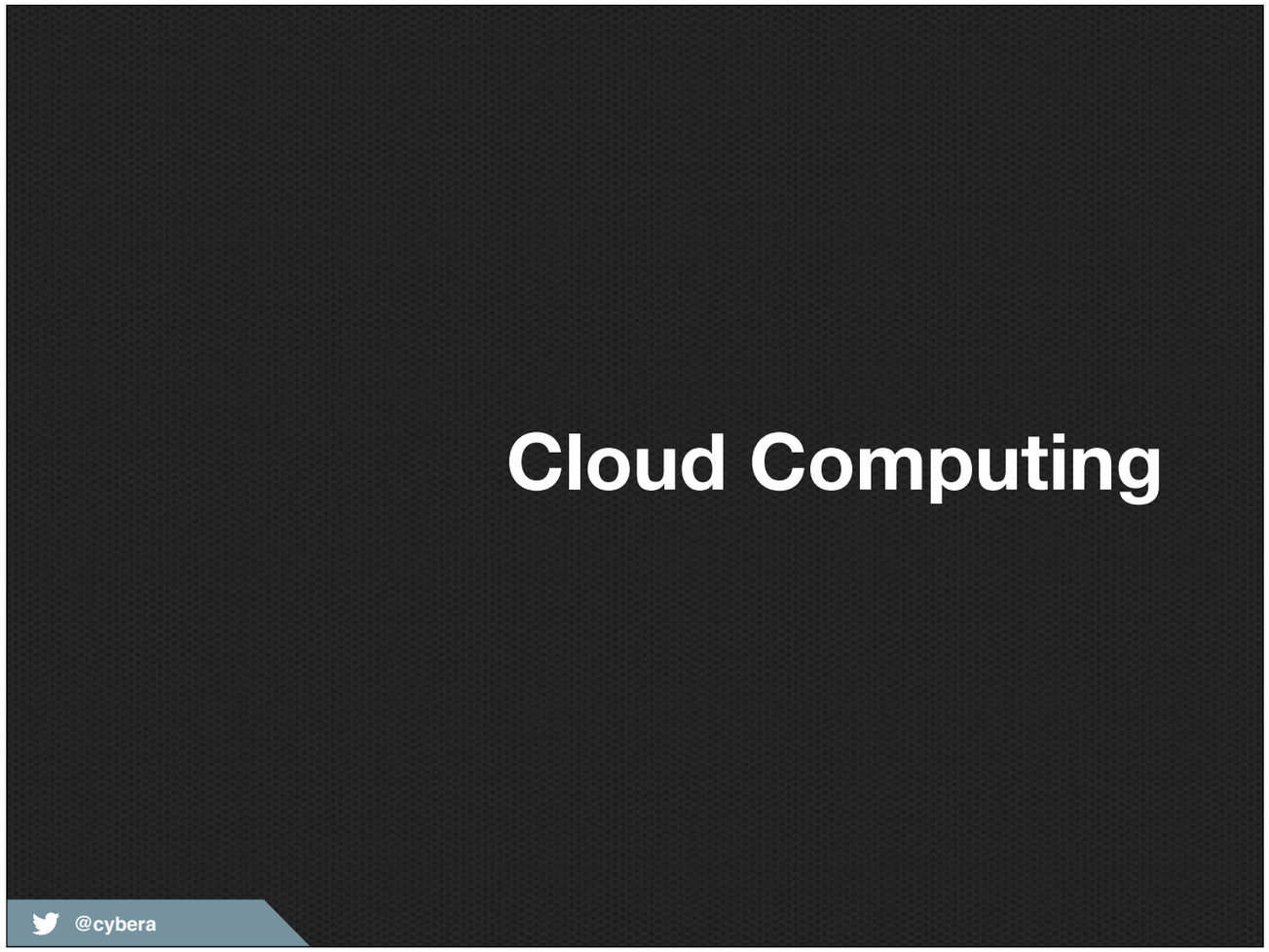
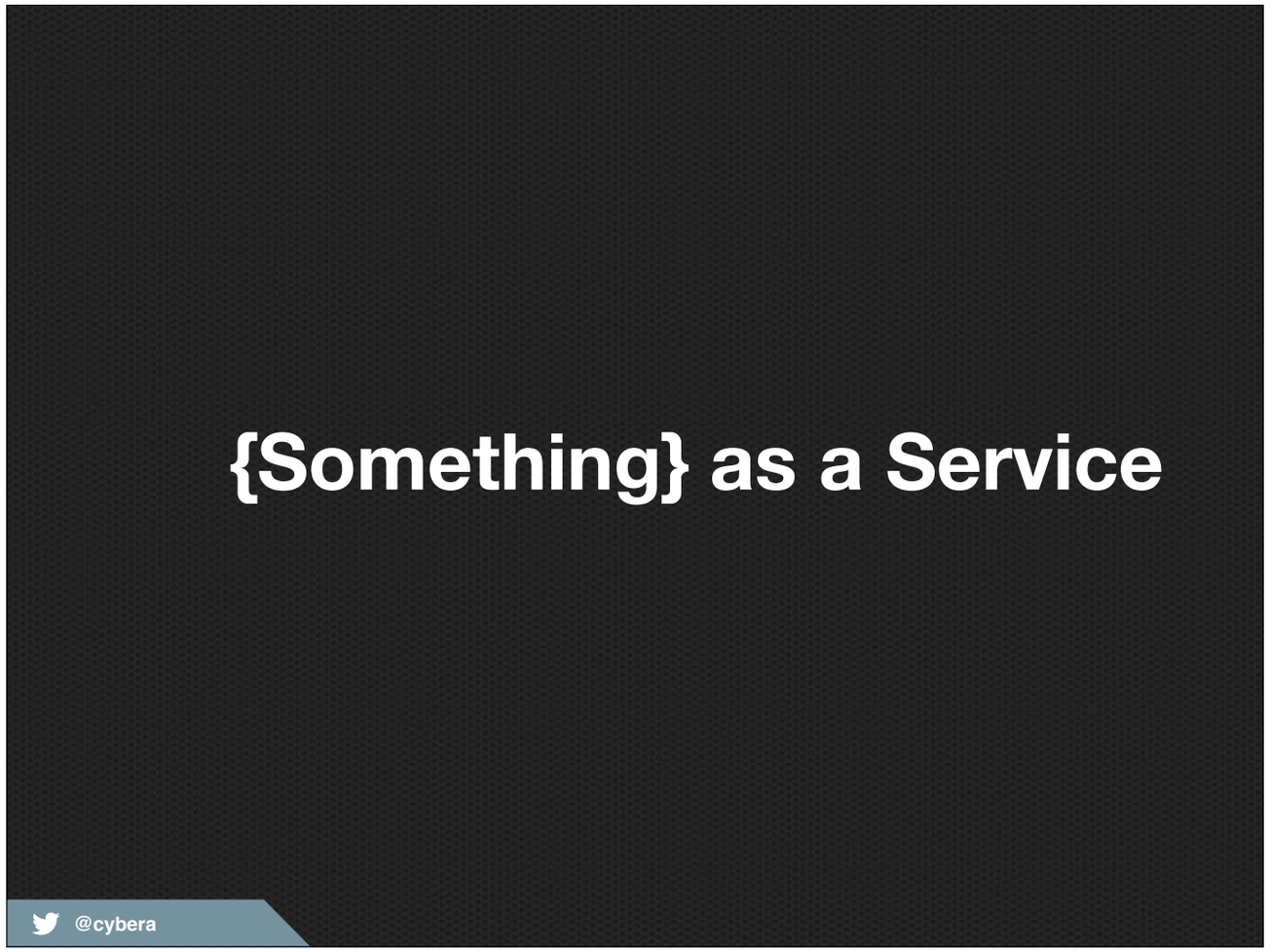
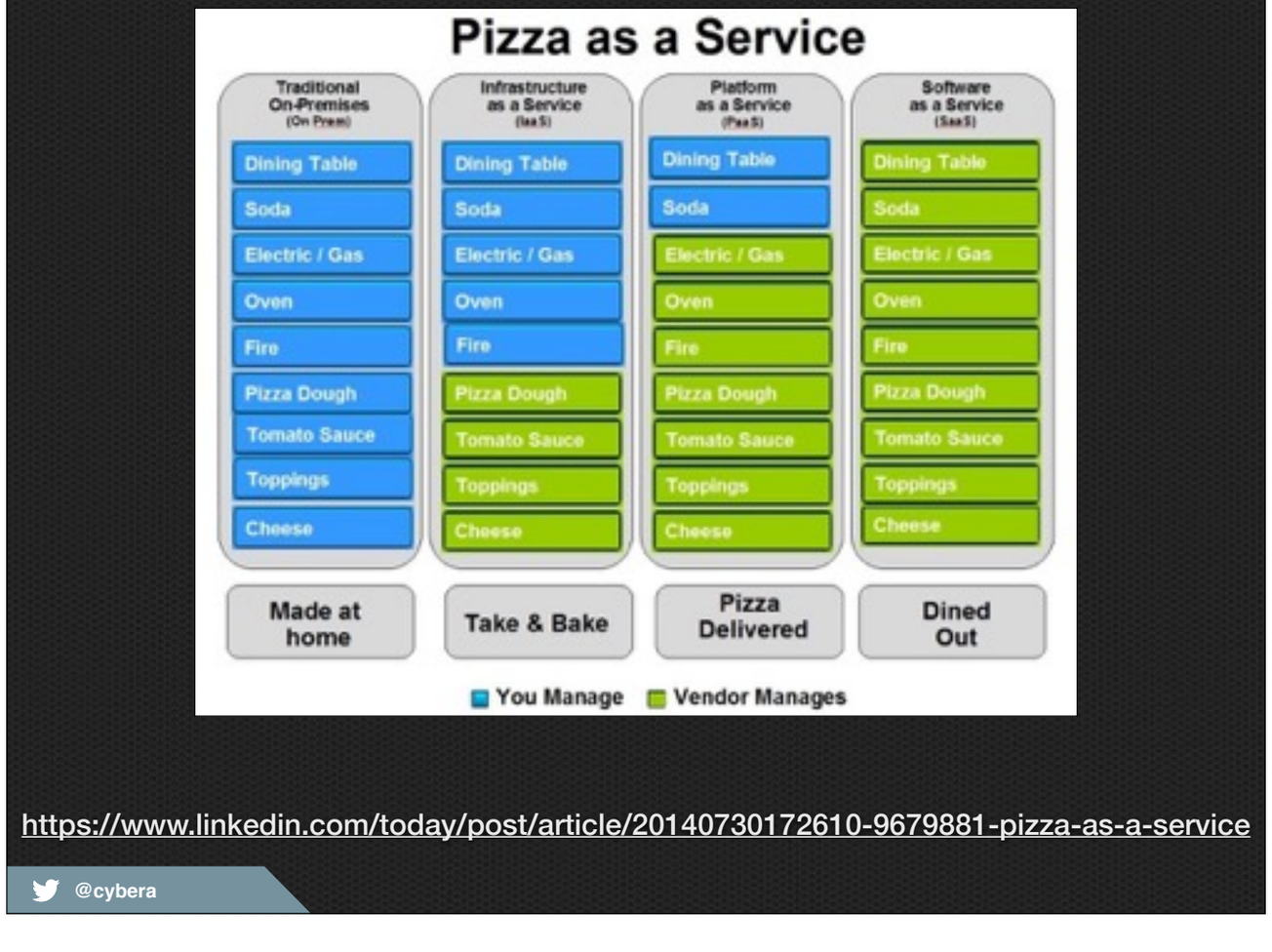
Hi
How well versed is everyone in what cloud computing is



An overly generalized definition of Cloud Computing is the pooling of resources together (compute, disk, network, etc.) and giving them out on as they are actually needed. So we can take the resources we need, when we need it.



So how does it work? It means as a user you'll using something as service and everything else below what you care about someone else will take care of.



https://www.linkedin.com/today/post/article/20140730172610-9679881-pizza-as-a-service

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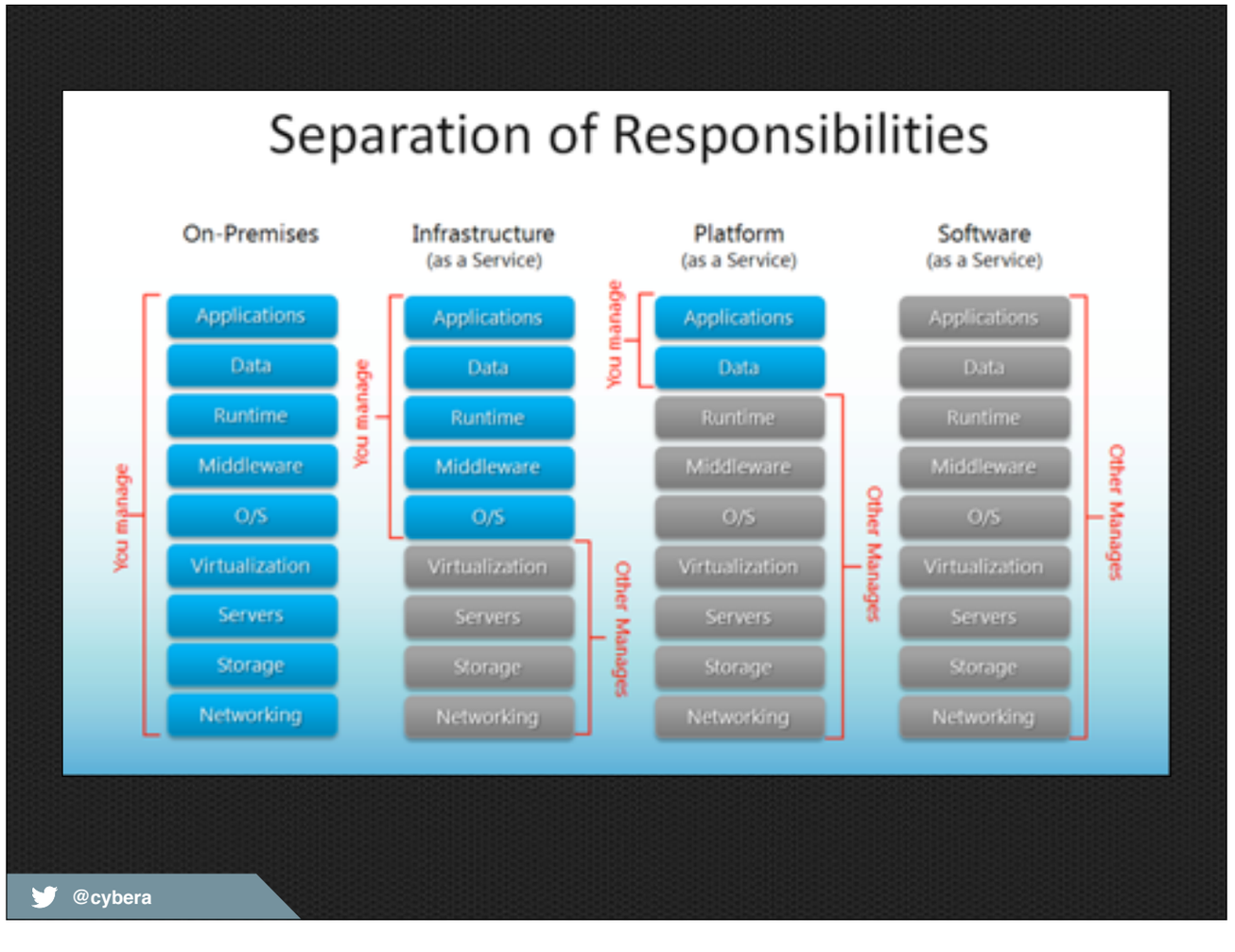
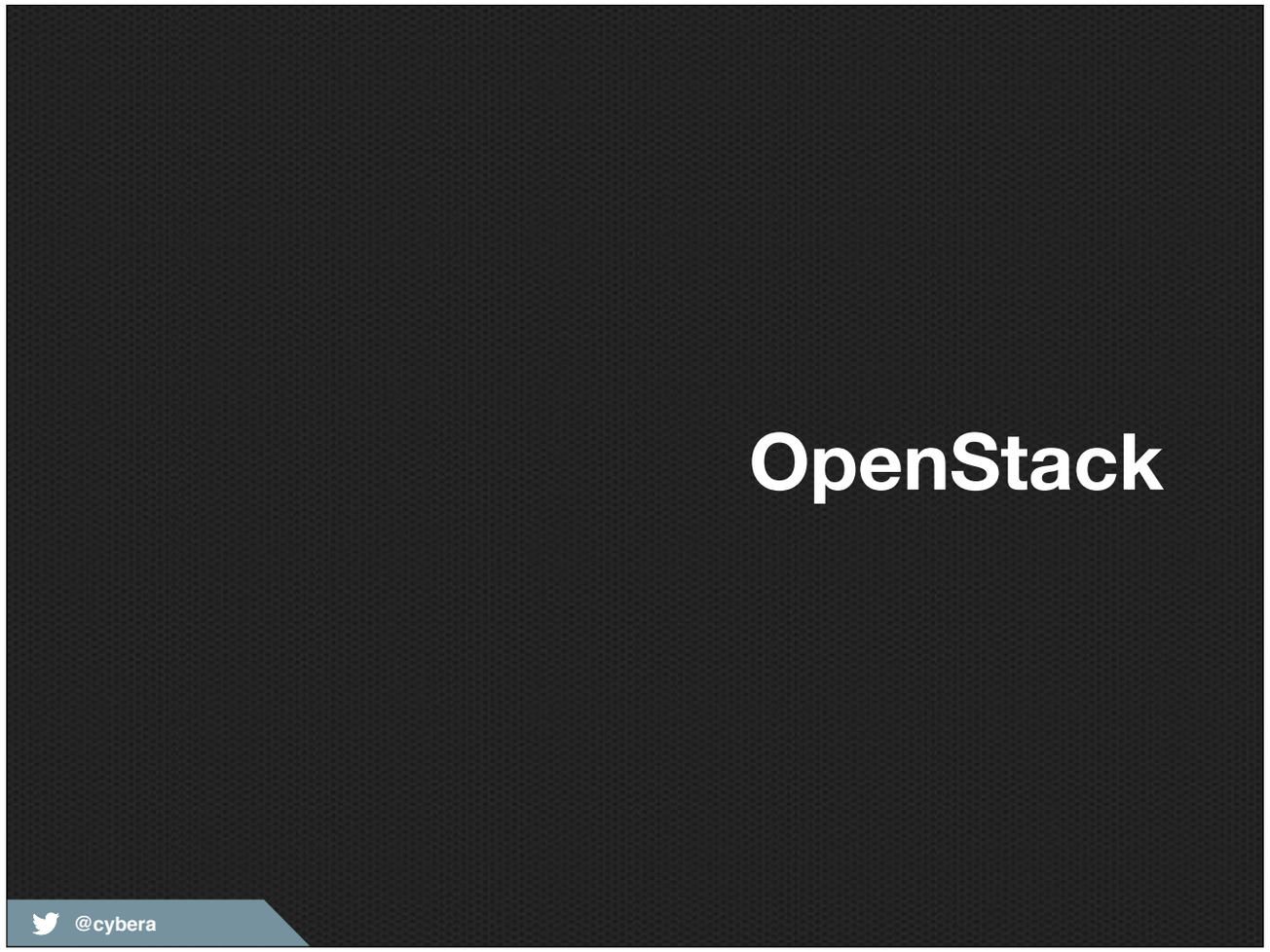
If we think of it in terms of food we can see what we as users need to manage in blue in order to have some pizza. The full meal deal if we have our own server, to Software as a Service with is like Dining Out.



The actual hardware stack



OpenStack has been around since 2010 when NASA and Rackspace created a joint project. NASA bringing a VM layer. Rackspace Object Storage.

I like this description because it accurately describes everything OpenStack does in an incredibly brief sentence.
It leverages individual pieces and products and brings them together. eg. You can choose which hypervisor you want, how your storage is set up, how your networking is set up.

Think of it as an API or SDK. It’s not a hypervisor, storage system, etc. It leverages those.

HORIZON	Dashboard
KEYSTONE	Authentication/Users
NEUTRON	Networking
GLANCE	Images
NOVA	Compute
CINDER	Block Storage
SWIFT	Object Storage
TROVE	Databases

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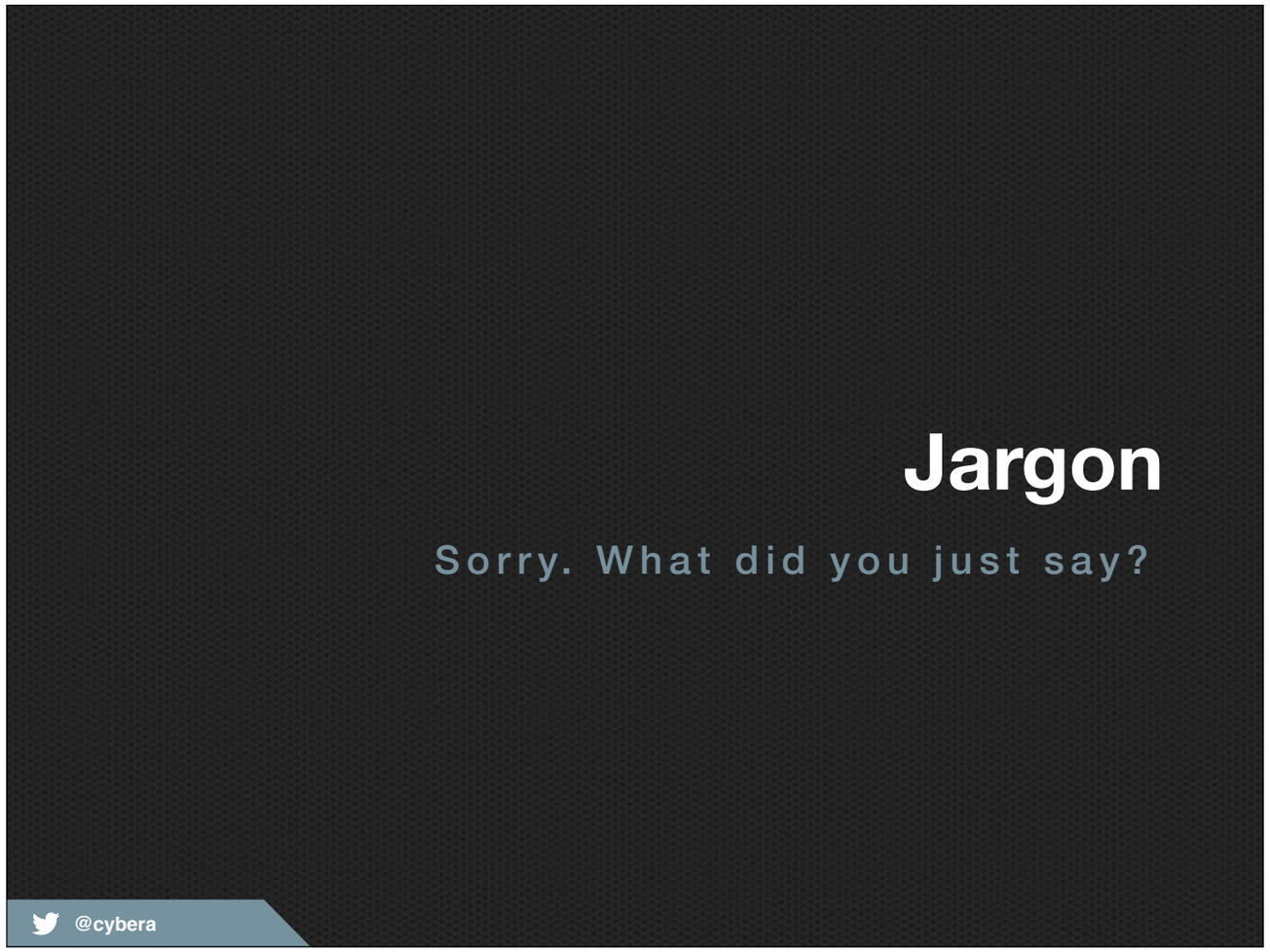
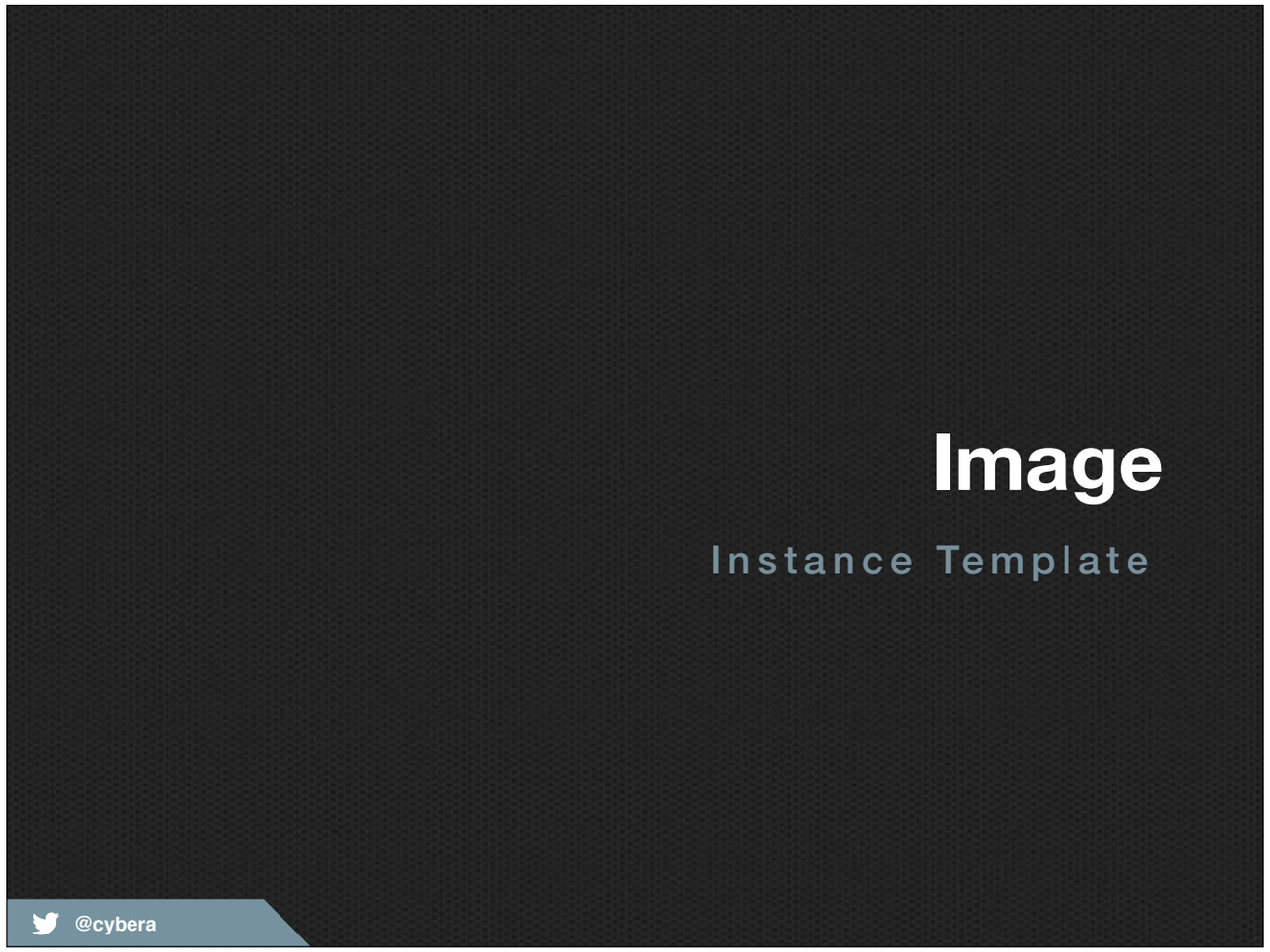
OpenStack components have different names and we'll refer to some. Just because something is powered by OpenStack doesn't means it will have all of these components in use or available.



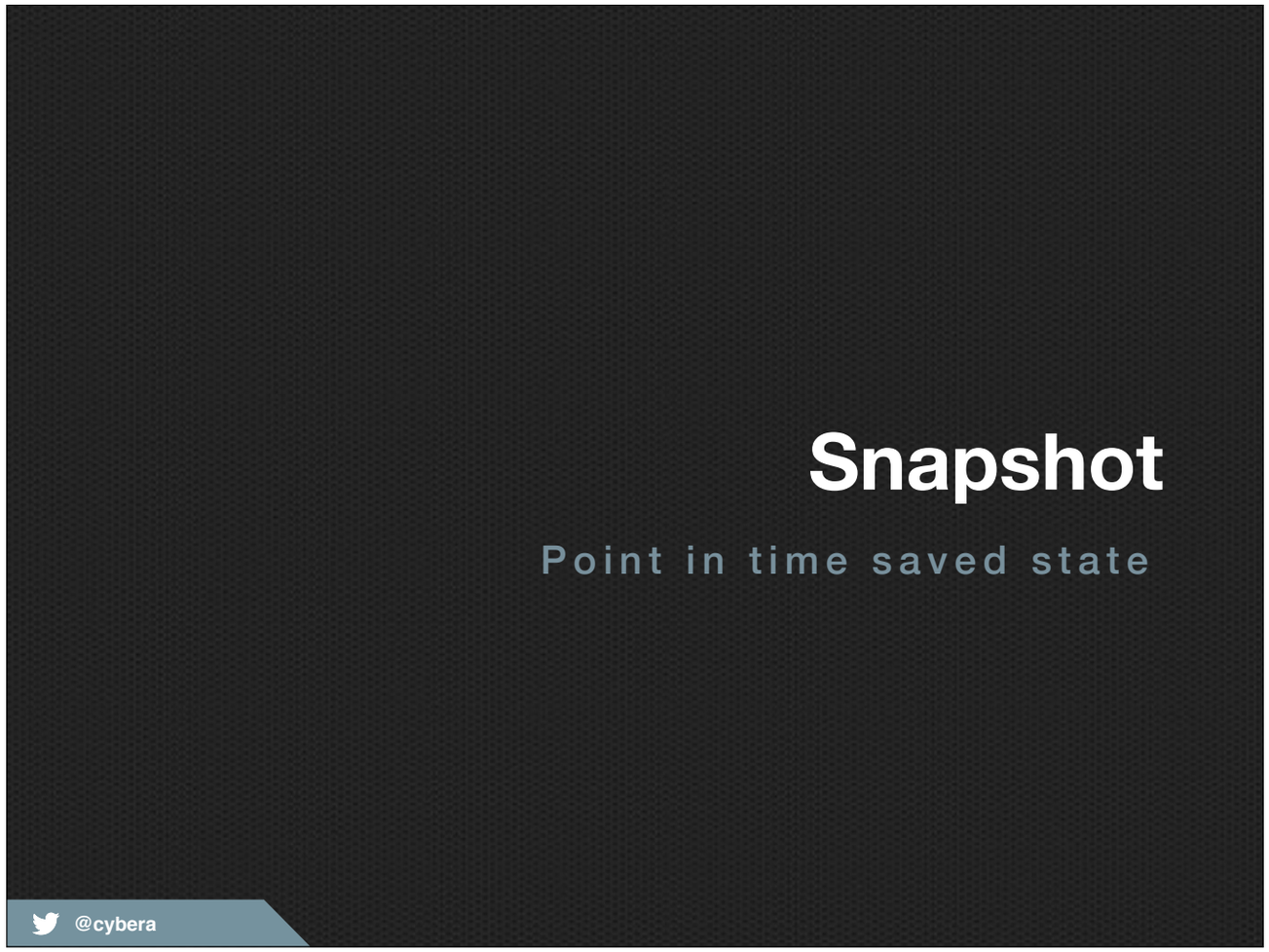
Run down of some jargon we will be using and some important concepts for the next portion of our talk.

Run down of some jargon we will be using and some important concepts for the next portion of our talk.

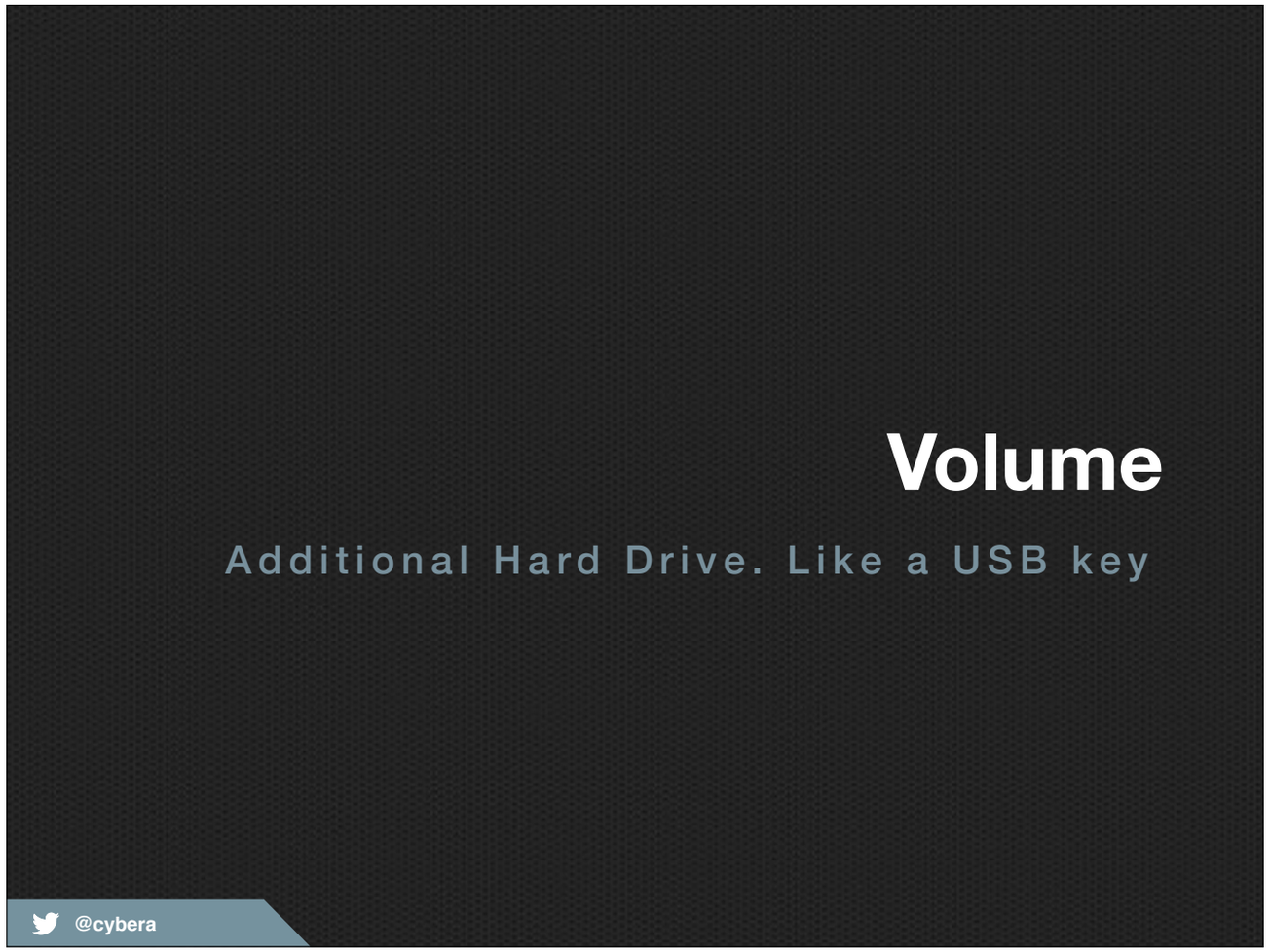
Tenant, Project, Group - the names are used quite interchangeably and leads to much confusion. Users belong to Tenants, as instances, volumes and other things can belong to Tenants or other times users.



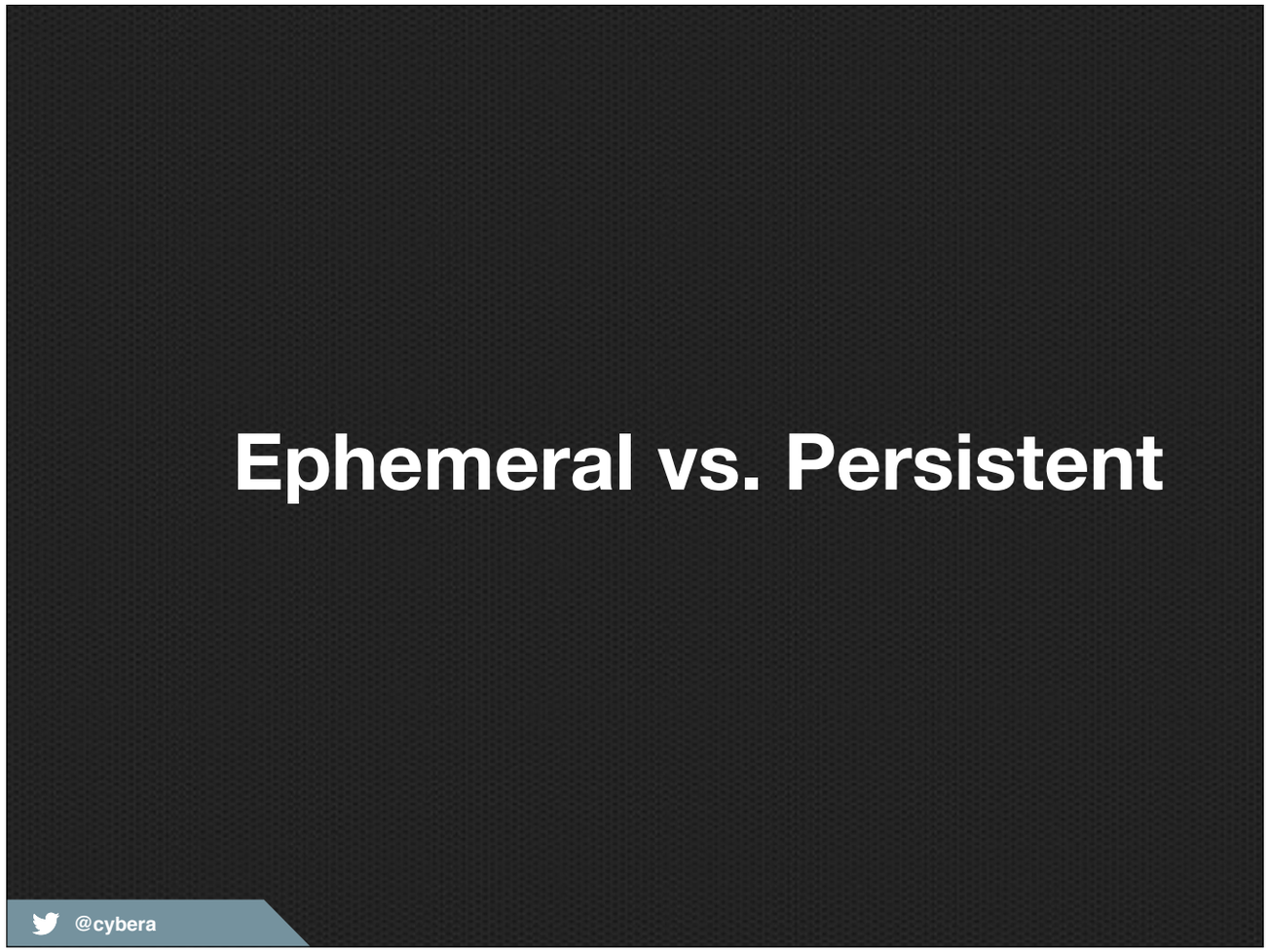
A virtual machine template. This can be something you create, something provided by an OS vendor, or something else entirely.



Can be used as an image



Volumes are additional storage that can be moved around. Like a USB key or external hard drive, but faster and more water vapoury.



One thing to note - you'll see a difference between ephemeral and persistent mentioned. Ephemeral means that the contents (eg. instance's hard drive) only stick around as long as the instance is around. Just like if it was only stored on a local computer. Throw away the computer, throw away everything on it unless you back it up.

Key pair is another term you'll hear quite heavily in the next section; instead of passwords you exchange keys to prove you should be able to log into the instance.

Security Groups play a very important role - they are the cloud’s firewall between your instance and the outside world and don’t let anything through by default

Security Groups uses CIDR (Classless Inter-Domain Routing) rules to denote what IP addresses it should affect.

CIDR

- 192.168.1.13/32
- 192.168.1.0/24
- 0.0.0.0/0
- 2001:BD8::/32
- ::/0

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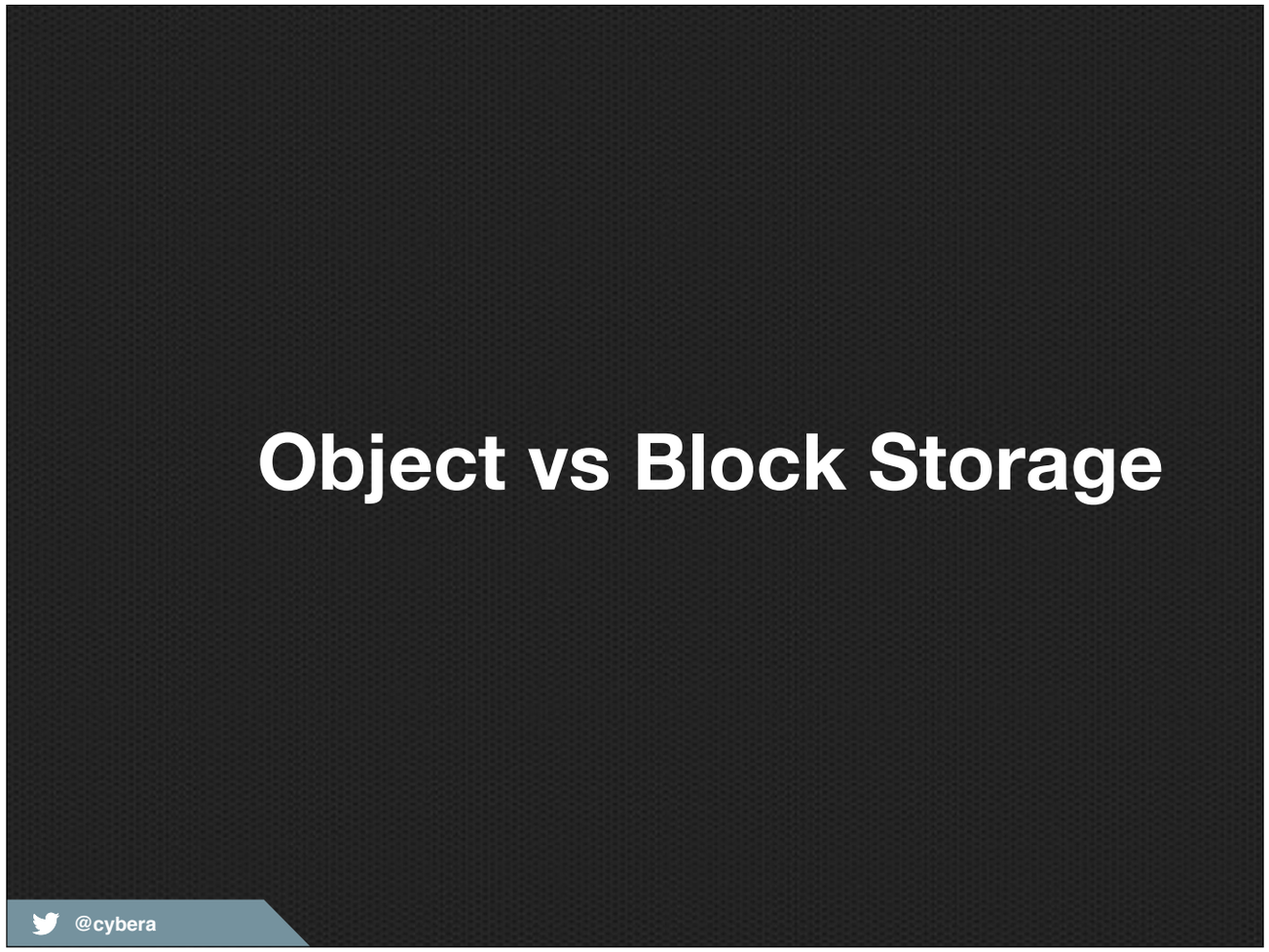
/32 is one IP

/24 is 255 IPs

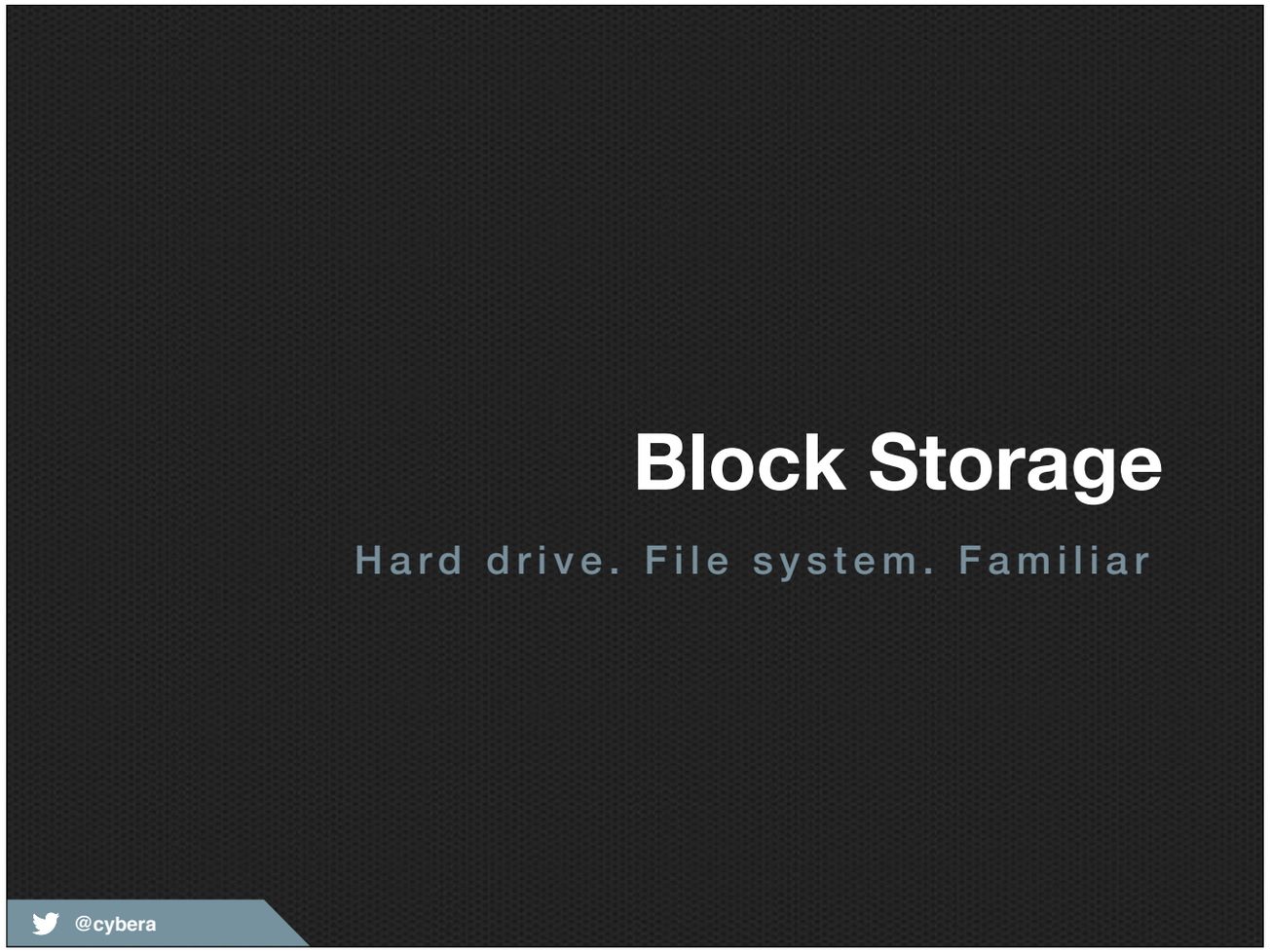
0.0.0.0/0 for anyone.

IPv6 ones look similar.

Like volumes, floating IPs are attached, detached and then reattached to instances. There’s also a limit on the number of public IPs available.



Before we move into the demo we're going to take a moment to explain the difference between Object and Block Storage



Block Storage (Cinder) is exactly what you think about an external hard drive - you place files on a filesystem, sort them in folders, manage them. If you want to share them you need to either set up some sharing system (eg. NFS) and otherwise back them up as there is only one copy.

Object Storage is a completely different take - everything you put on Object Storage becomes a blob or object you can access via an HTTP call. It's now a shared storage system, an easy place to store files publicly, and much more!

The other major difference versus block storage is it's distributed as the system behind the scenes will keep 3 copies at all times and is constantly checking them to see if the copy they have is correct.

Use Cases

- Unstructured (no filesystem organization) data
- Large amounts of data
- Archival
- Capacity Flexibility
- More extensive metadata

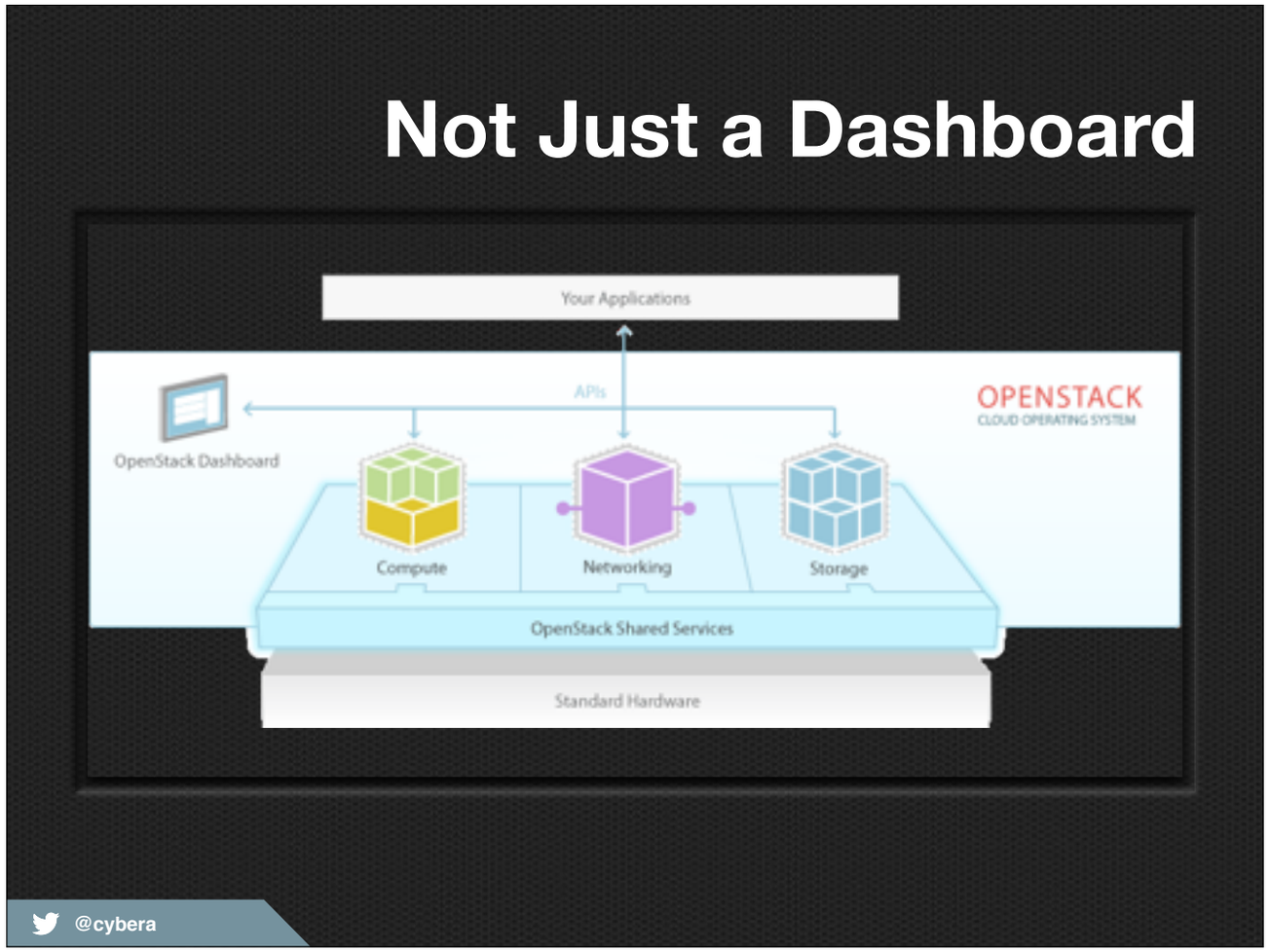
Works best with “unstructured” data - data that doesn't need to managed, categorized or otherwise sorted **on the filesystem**

Caveats

- No folders (can do pseudo folders)
- Objects can’t be edited (Replace, no append)

Works best with “unstructured” data - data that doesn't need to managed, categorized or otherwise sorted **on the filesystem**

Now we tour!



As we mentioned before OpenStack is an SDK and API as well. Horizon - the dashboard we just ran through uses all the same API calls you could do in your own application or using the command line clients that are available.

Now we tour!

Interactive Demos/ Automation

http://github.com/cybera/misa-workshop

Now we tour!

Domains

ssh <user name>@yyc-misa.cybera.ca
ssh <user name>@yeg-misa.cybera.ca

Usernames

Thank you.

PRESENTED BY Micheal Jones

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