



# "Work From Home" mini hybrid Datacenter

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# NOEL TENG



Ex Microsoft Malaysia for 15 years



Last 5 years, Supporting Microsoft Regional



Active community contributor and evangelist

Join me online on LinkedIn at  
<https://www.linkedin.com/in/noel-teng-jesus-in-my-life/>

Email: [nwkteng@my-an.com](mailto:nwkteng@my-an.com)

WhatsApp: +6012 2820130



**Kevin Lim**

Kevin.Lim@RefineNetworks.com

Mobile: +6012 345 5093

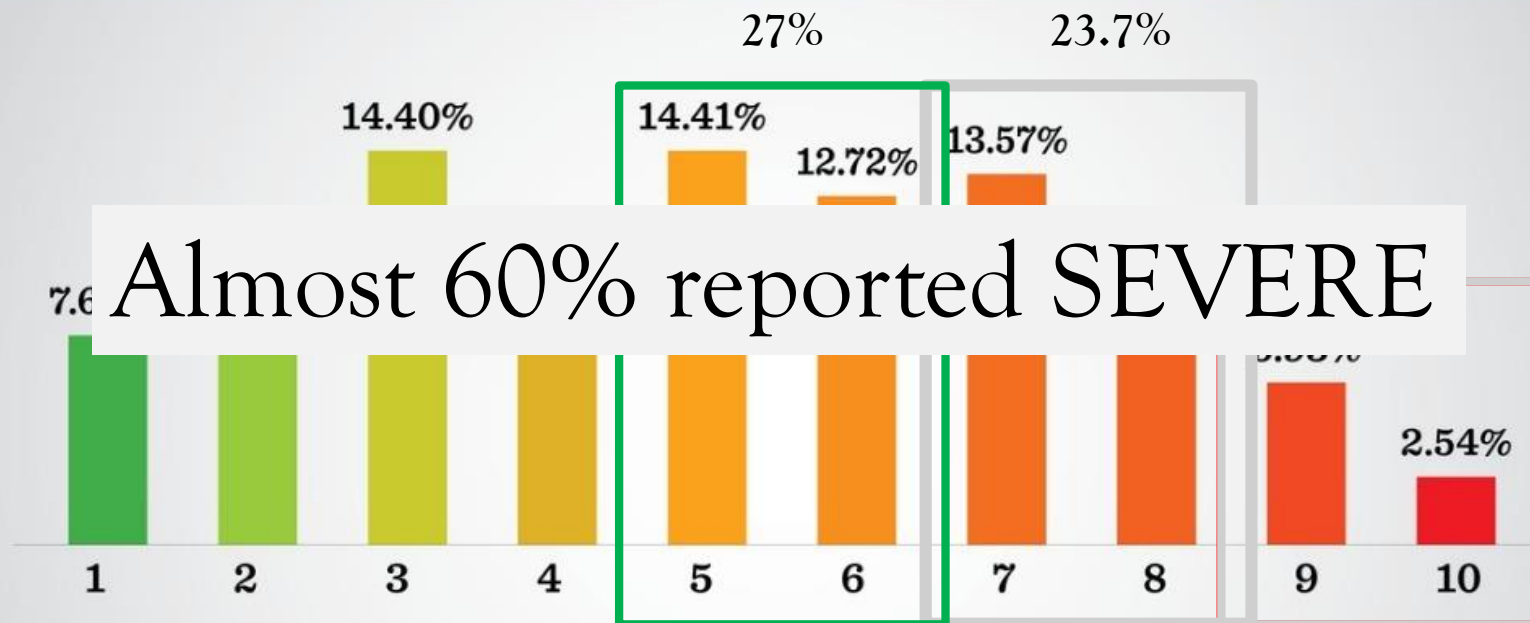
- A technical Consultant at RefineNetworks Sdn Bhd. Focus on the arena of infrastructure and security. Experience in design and implement various Infrastructure, Security, LAN & WAN Networking, and Cloud solution.
- He holds an active ISC2 CISSP certification and was awarded as a Microsoft MVP on Virtual Machines for three terms.
- He is a veteran on Citrix application and desktop virtualization solution.
- He is passionate with Microsoft technologies on the areas of Azure Stack HCI, VDI, and RDS solution.

# Background

- Is the “New Normal”, Work From Home?
- Everything we do and know, have somehow been reset, somewhat
- Normal people go home to work with their laptop or desktop with their Internet of 4G connectivity
- IT people who manage their IT equipment including servers, also Work From Home with their laptop connecting securely over the Internet



# COVID-19: Business Impact Assessment



In your assessment, what will be the impact of  
Coronavirus on your business in 2020?

Scale 0-10 | (no impact) to (disastrous)



· WORK TRANSFORMED ·

## These companies plan to make working from home the new normal. As in forever

By Rob McLean, [CNN Business](#)

Updated 2119 GMT (0519 HKT) May 22, 2020



Rest of 2020



**PNB**  
Permodalan Nasional Berhad



# The Story Unfolds

- How about the Bosses of small and medium sized companies and businesses?
  - Minimalistic and pragmatic
- Think about them bringing HOME, their entire datacenter in 2 small pizza shaped boxes, called servers





Microsoft sunk a massive data center in the ocean to boost internet speed ✓  
Microsoft sunk the 40-foot long vessel off the coast of Scotland. The data center contains 12 racks of computers with a total of 864 servers. Microsoft said it can hold [www.cnbc.com](http://www.cnbc.com)

"Work From Home" mini Datacenter - lighting up SMBs in a time such as this with Covid-19

Large Cloud players like AWS, Google and Microsoft operate big hyperscale datacenters. Microsoft even has an underwater datacenter. Check out

<https://www.cnbc.com/video/2018/06/07/microsoft-built-underwater-submarine-data-center.html>. Generally, they are quite big, expensive and require intense amount of skills and experience to run.

How about at the opposite scale of the spectrum, small home-based, highly cost effective, minimal air-con or none with just air cooled but yet with amazing amount of power and plenty of storage to power a small and medium business (SMB). Grouping them together will allow us to even power up a large company by distributing the computing requirements. Microsoft cloud technologies have taught us that these are all possible. Welcome to the Dell Work From Home mini datacenter. Why would anyone do this, right?

When normal office users go home to work, they bring along their laptop or desktop and a printer. What do you do if you are an IT person? You bring along your datacenter with you, right. The "Work From Home" datacenter is the heartbeat of the company.

Maybe the IT person brings this to the boss' home and the IT person remotely connect to these equipment and manage but the boss gets to see it everyday as he or she works from home too.

You can still get all these with a fixed investment without paying monthly subscription. I call this the "Work From Home" mini datacenter because it has everything a small and medium business needs.

# Work From Home mini hybrid Datacenter



## PowerEdge R640 1U Server

- 2 - 16 node Hybrid
- 2 - 16 node All flash
- 2 - 16 node All NVMe
- 2 - 16 node NVMe + HDD
- 2 - 16 node NVMe + SSD
- 2 - 16 node All flash w Intel Optane DC PMEM
- 2 - 16 node NVMe w Intel Optane DC PMEM
- 2 - 16 node Intel Optane SSD cache + SSD



**Validated for Azure Stack HCI**

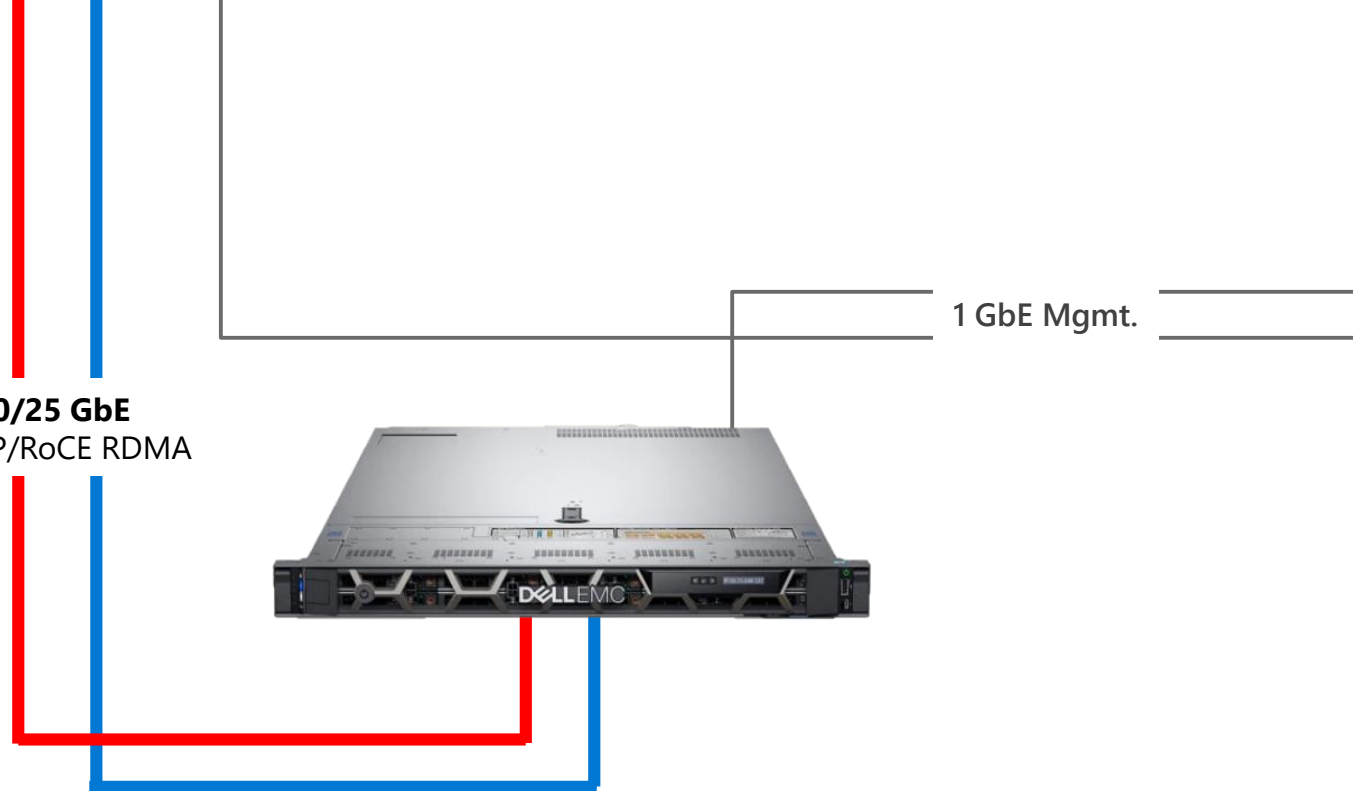
**Minimum two servers, no switch required**



**10/25 GbE**  
iWARP/RoCE RDMA



1 GbE Mgmt.





# Hewlett Packard Enterprise

## Proliant DL360 1U Server

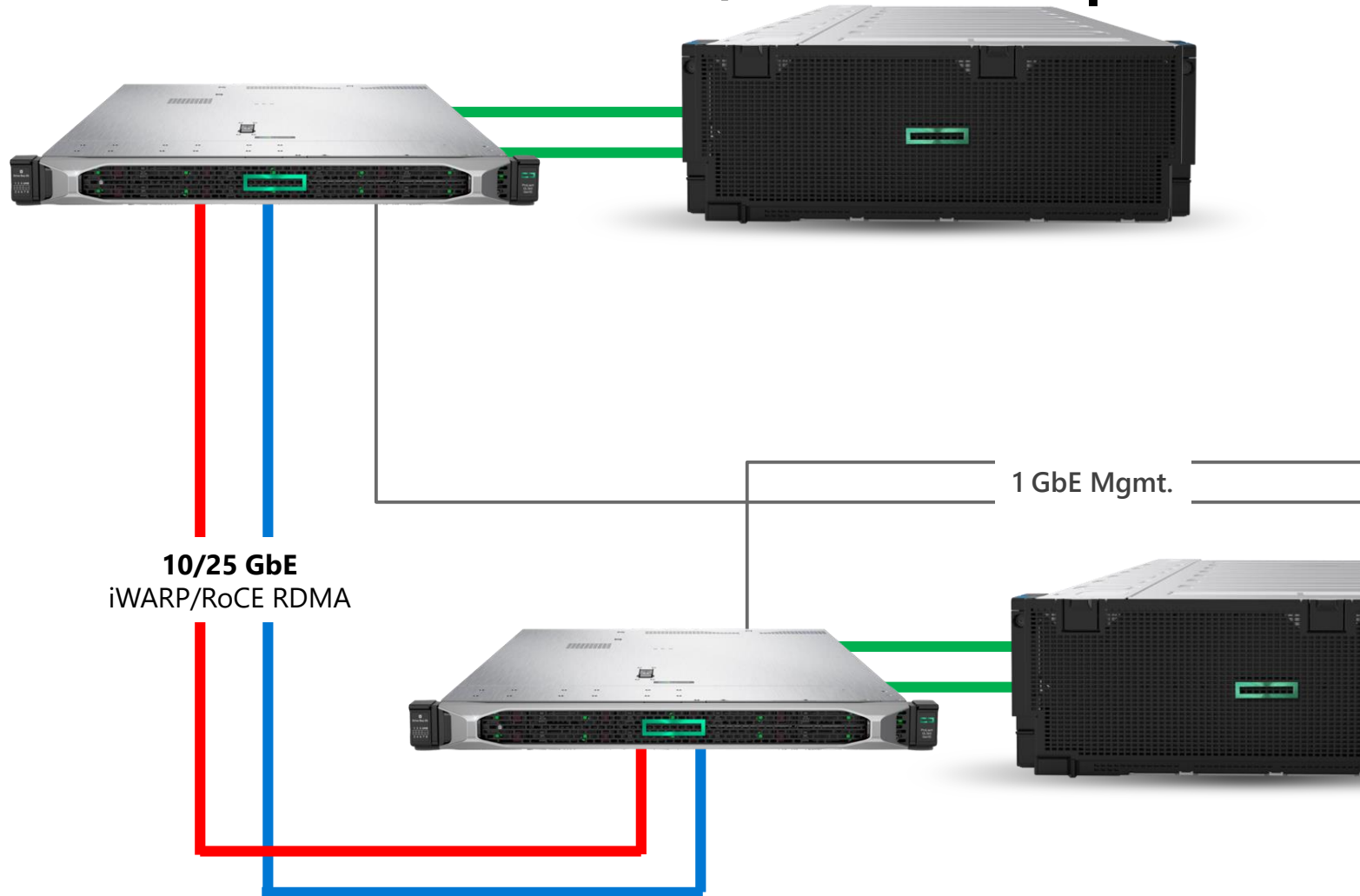
- 2\* - 4 node Hybrid
- 2\* - 4 node All Flash

## JBOD 14 CONFIGURATIONS



**Validated for Azure Stack HCI**

**Minimum two servers, no switch required**





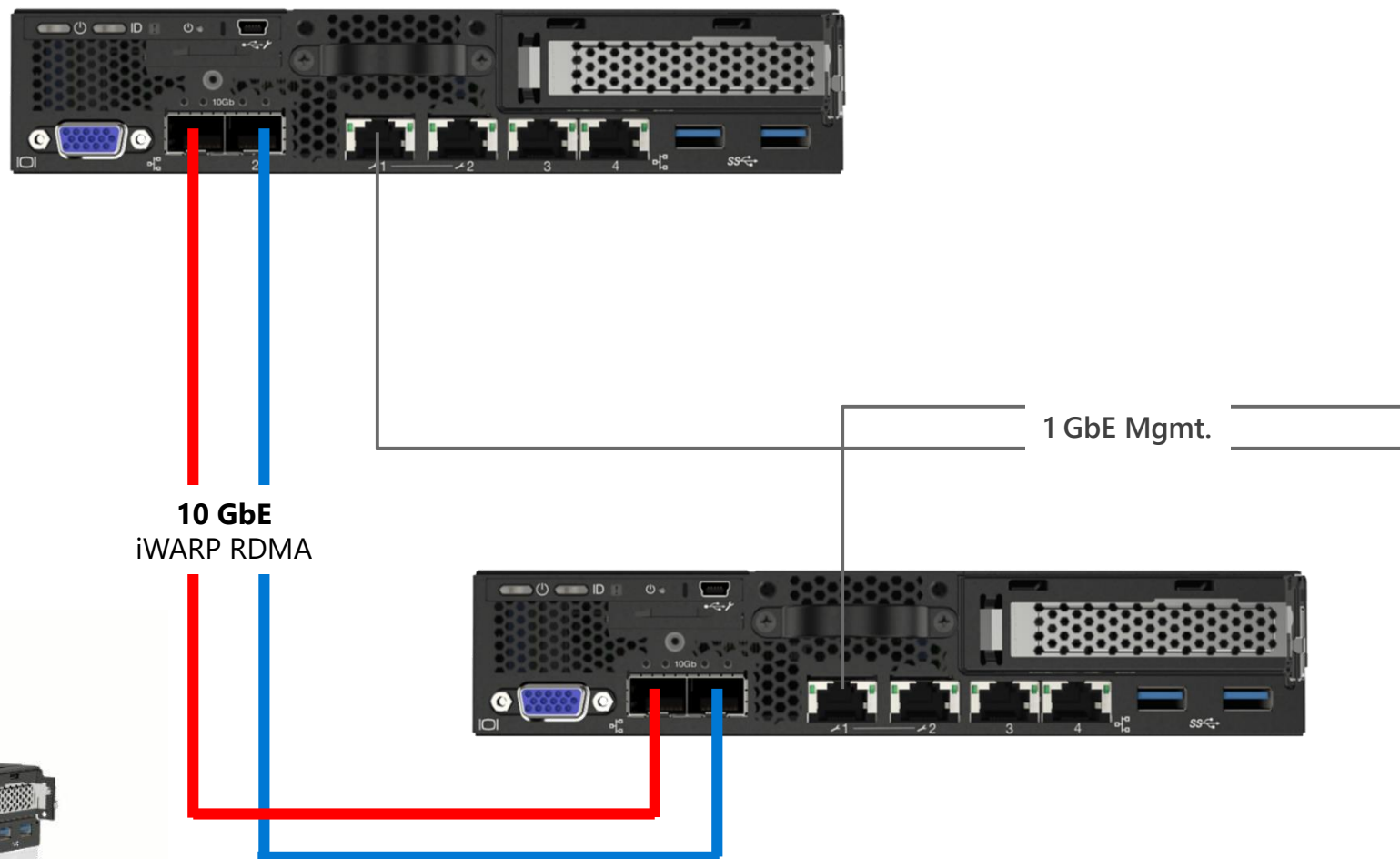
## ThinkSystem SE350 Edge Server

- **8-core Intel® Xeon® D** processor
- **64 GiB** (up to 256 GiB) TruDDR4 ECC memory
- **2 × 10 GbE** SFP+ iWARP RDMA
- **4 × 1 TB NVMe** SSD (up to 8 × 2 TB)
- **PCIe slot** for GPU
- TPM 2.0, UEFI
- XClarity Controller Advanced
- Locking bezel, intrusion detection, motion sensor...



**Validated for Azure Stack HCI**

**Minimum two servers, no switch required**



# The Story Unfolds ...

- Why, so kiasu?
  - How much is your data worth?
- With other disaster like flooding, earthquake, looting etc



Floods  
rebuild

BLOG - DO

HOW  
BUS

# First came a pandemic. Then, looting. Small businesses pick up the pieces as their debt mounts.

"I did feel violated, but what do you do? You clean up the glass and open the door and try to keep serving the community," said one small-business owner.







# The world's most valuable resource is no longer oil, but data



David Parkins

Leaders

May 6th 2017 edition >

Regulating the internet giants

## The world's most valuable resource is no longer oil, but data



# Interview Question 1

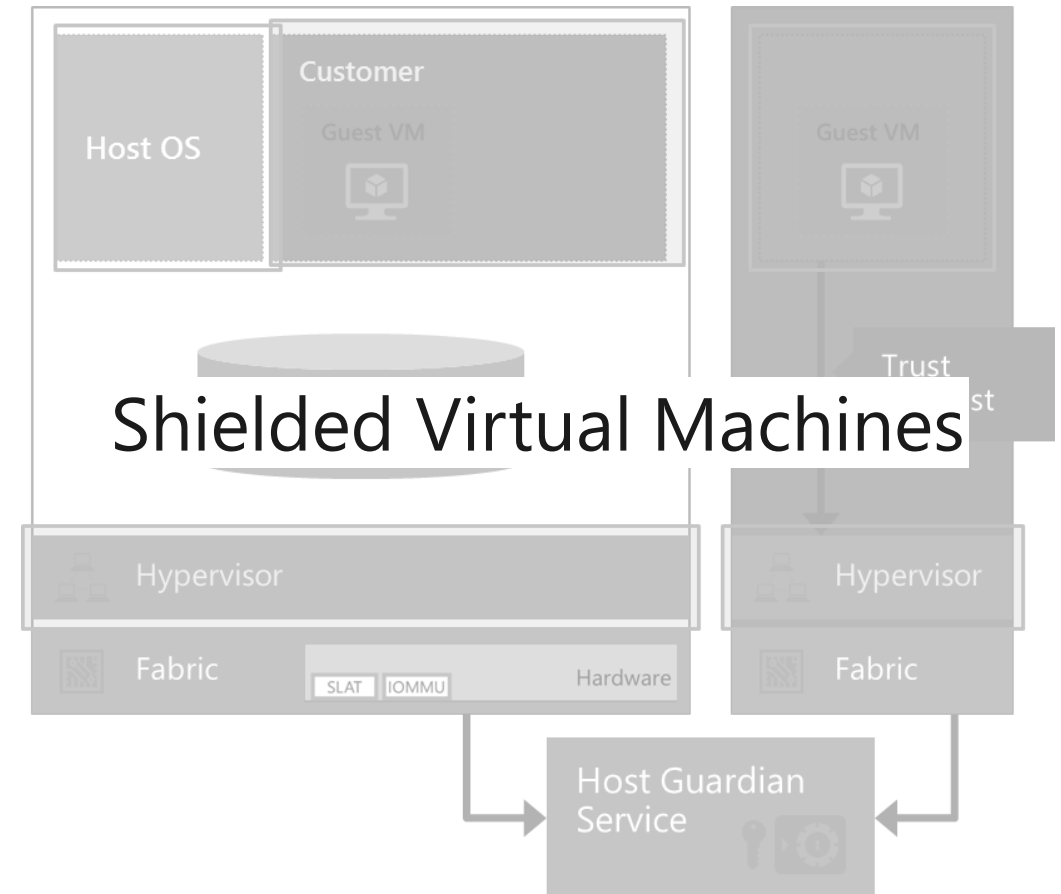
- With the lockdown, how can we take care of our data physically if we cannot go to the office or datacenter?
- Servers store these data

- Bring the servers home with us?

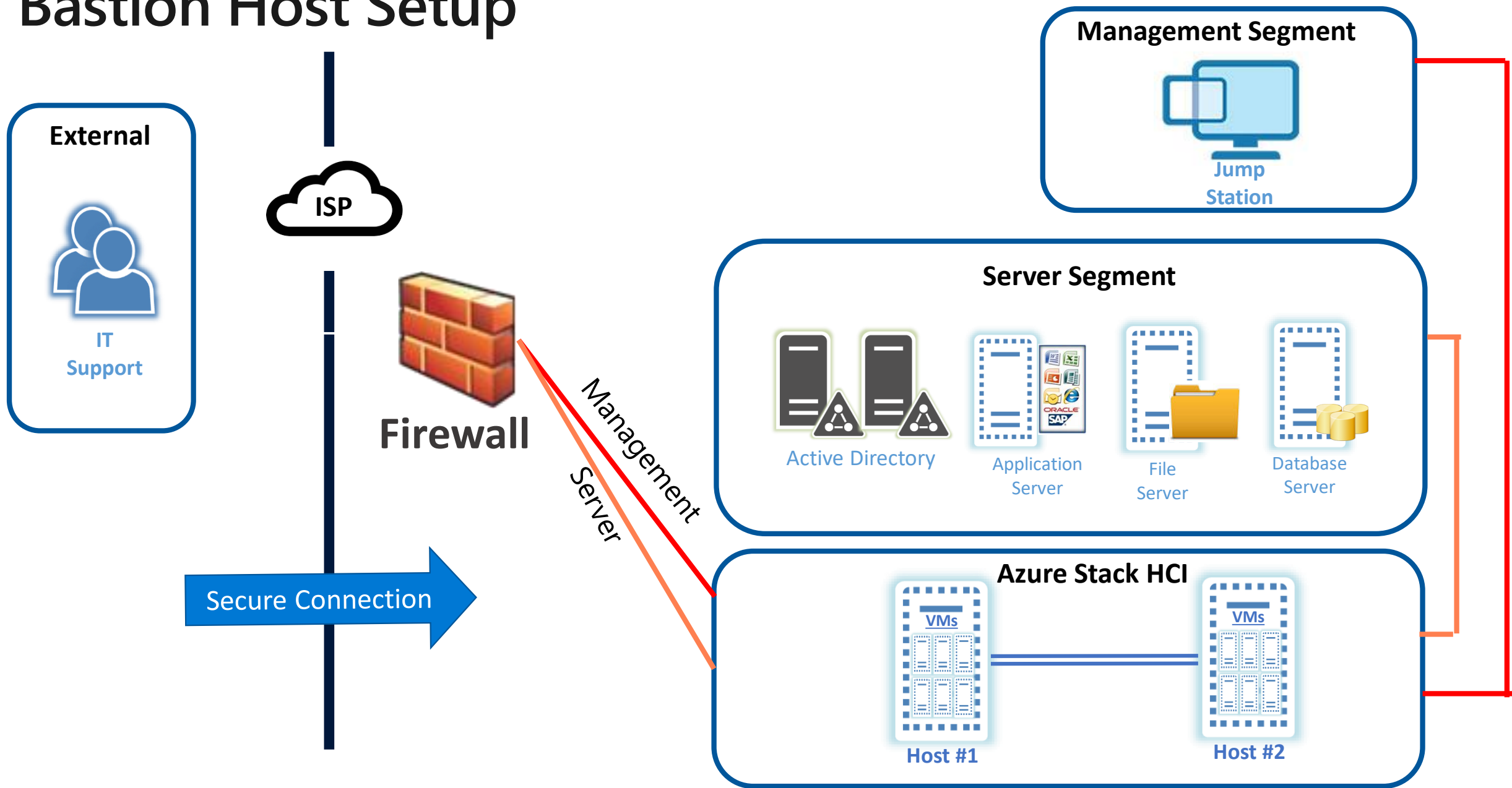


# Interview Question 2

- How are you managing Cyberthreats?
- Multi-layer security, Shielded VMs?
- Why Shielded VMs?



# Bastion Host Setup



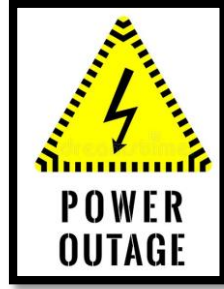
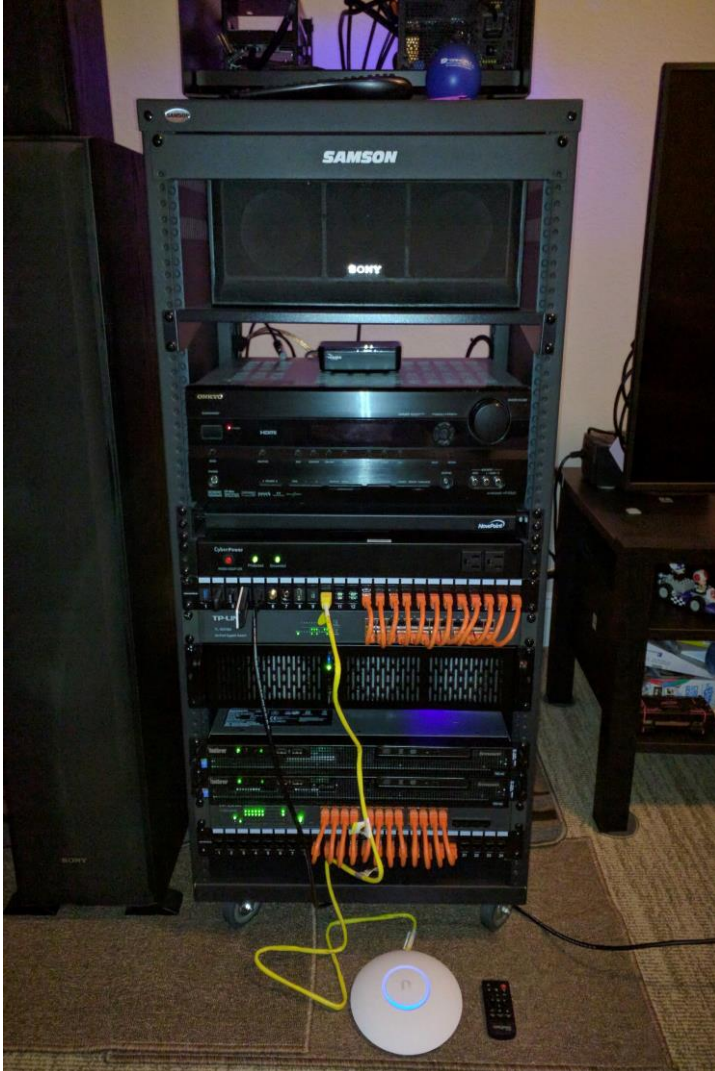
# Interview Question 3

- How about the HOME environment?
- How can we make it appropriate?
- Any special thing we need to do?





# Mini HOME Datacenter



- Properly secure the power source
- Ensure power loads is supported.
- Has an Uninterrupted Power Supply (UPS)



- 10° to 35°C (50° to 95°F)
- 8% to 90% - Relative humidity (Rh), 28°C maximum wet bulb temperature, non-condensing.
- Air-conditioner



- Dry and clear area
- Has smoke detector
- Avoid sunlight, and windows areas

# Interview Question 4

- How do users access their applications and data to keep the business going?



# Interview Question 5

- Finally, what is your advice to companies especially the smaller ones with what you see is coming in the next 6 months?



# Hope to Hear from You



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Email: [nwkteng@my-ian.com](mailto:nwkteng@my-ian.com)

WhatsApp: +6012 2820130

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