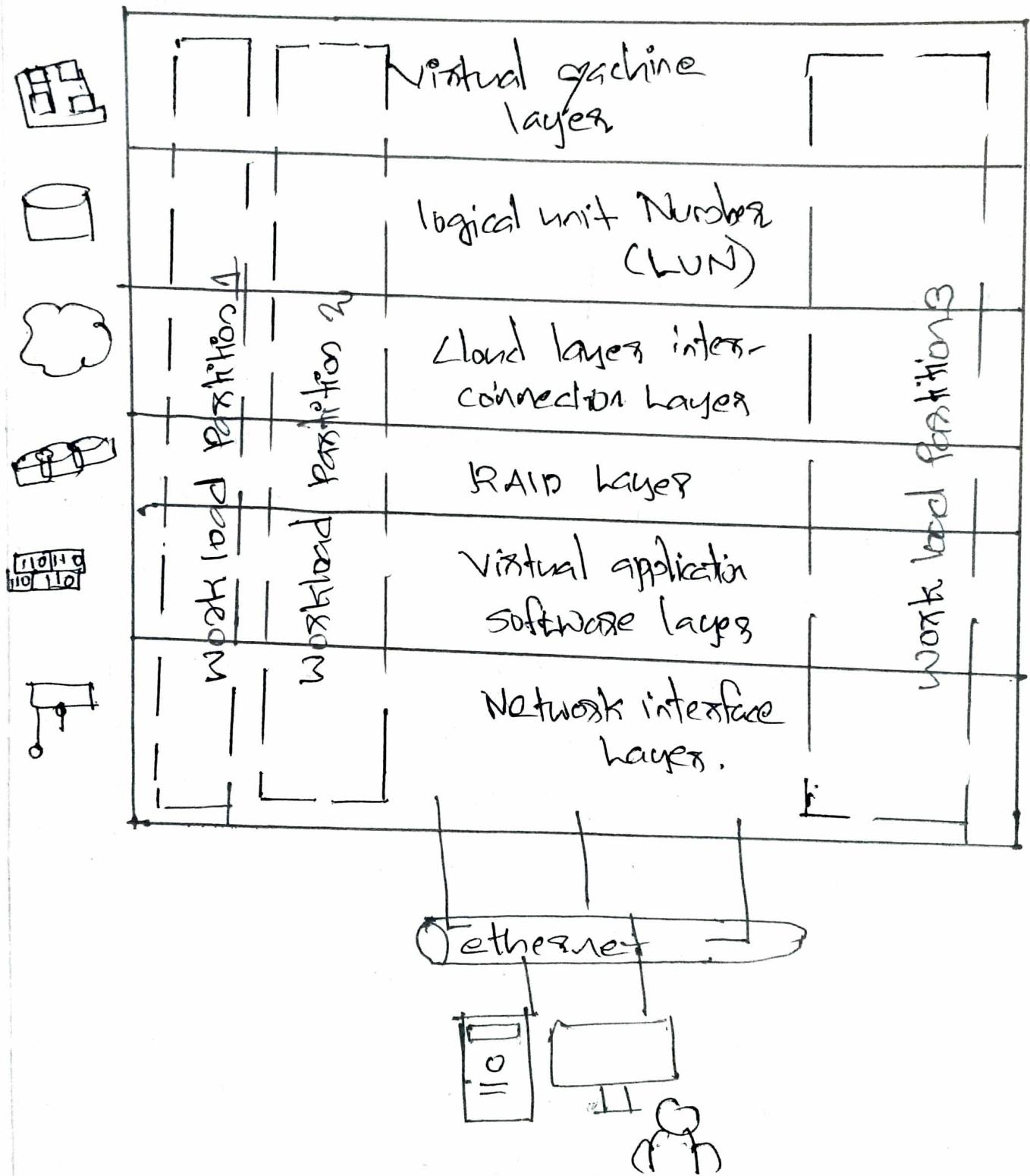


Cloud computing.

IaaS workload.

- in an IaaS deployment, the basic unit of virtualized client is called a workload. A workload works like a real server and performs certain amount of work.
- in cloud computing, a provisioned server called an instance is assigned by a customer, and the necessary amount of computing resources are allocated to the clients needs.
- A client would reserve machine resources that is required to run each of these workloads.

(2)



2)

Porting applications

→ cloud computing applications run on virtual systems and they can be moved as

(3)

needed to respond to demand.

- Systems, storage, and network assets can all be virtualized.
- Applications that run in datacenters are captive to the OS and hardware platforms that they run on.
- eg: - Porting an application built on Microsoft Azure Platform to AWS or Google Apps is difficult.
- Some technologies used for porting applications:
 - ① Simple Cloud API by Zend Technologies
 - ② Virtual Application Appliance by AppZero.

* Simple Cloud API

→ The simple cloud API for cloud application services is an open source initiative by Zend Technologies to create a common application interface that will allow application to be portable.

→ Founding supporters are IBM, Microsoft, Nuvanix, Rackspace, and Gridify.

(4)

* Virtual application Appliance

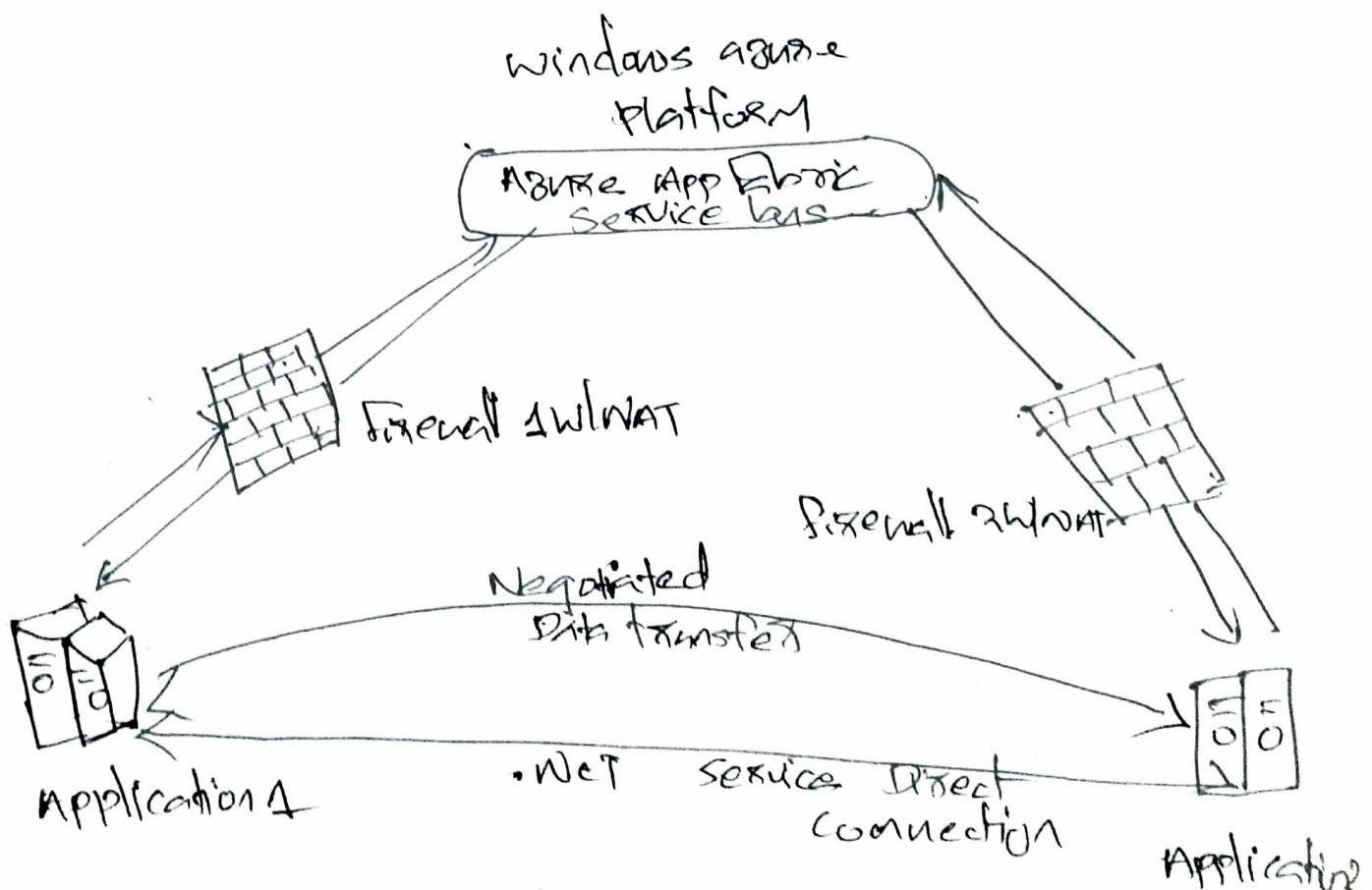
- virtual application Appliance (VAA), developed by AppZero company, gives the ability to run an application from whatever platform you want.
- It is created as an architected layer between the windows or the UNIX OS and the applications. The virtualization layer serves as the mediator for file I/O, memory I/O, and application calls and response to Dlls.
- The running application in AppZero changes none of the registry entries or any of the files on the windows system.
- AppZero Dissolve removes the VAA virtualization layer from the encapsulated application and installs that application directly into the operating system.

3) Windows Azure AppFabric

- It is a service bus and access control facility based on .NET technology for client requests to Web services on Azure.
- Previously, known as Microsoft .NET services.
- Microsoft refers Azure AppFabric as an "Internet Service Bus".
- Supports the standard SOA protocols such as REST and SOAP etc.
- AppFabric has components such as service orchestration, identity management, access control, a namespace, service registry and a messaging fabric; but it localizes these components in the cloud.
- The function of a service bus provide end point services to clients with the help of a Uniform Resource Identifier (URI).
- A particular set of endpoints and its associated access control rules for an application is referred to as the service Namespace.

(6)

- Each namespace is assigned a segment key that is part of the security mechanism.
- Azure AppFabric manages requests by locating the service, communicating the request, and making the necessary connection possible by performing network address translation, opening appropriate ports in any intervening firewalls.



- A source has negotiated the exchange of info. b/w a client and the service

- ⊕
- AppFabric manages the transaction to ensure that it is completed and a response is sent to the client.
 - AppFabric can provide a negotiated traversal of services through firewalls and NATs.
 - The access control examines the request and if it finds to be valid, it grants a security token to the client.

Steps in access control:

- * Client requests authentication from access control
- * Access control creates a token based on the stored rules for service application.
- * A token is signed and returned to the client application.
- * The token client presents the token to the service application.
- * Service application verifies the signature and uses the token to decide what the client application is allowed to do.

6) Major mobile platforms

- Android
- Apple iPhone
- Research in Motion BlackBerry
- Symbian
- Windows Mobile.

*Android

- Android is a mobile operating system based on a modified version of the Linux kernel and other open source software, designed primarily for touch screen mobile devices such as smartphones and tablets.
- Android is developed by a consortium of developers known as the Open Handset Alliance and commercially sponsored by Google.
- It is free and open source software; its source code is known as android open source project.
- Primarily licensed under the Apache license.

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* Blackberry

- BlackBerry Limited is a Canadian multinational company specializing in software and the internet of things.
- It developed the BlackBerry brand of smartphones and tablets.
- BlackBerry was one of the most prominent smartphone vendors in the world, specializing in secure communications and mobile productivity and well known for the keyboards on most of its devices.
- The BlackBerry line traditionally used a proprietary operating system developed by BlackBerry Limited known as BlackBerry OS.

* Symbian

- Symbian is a discontinued mobile operating system and computing platform designed for smartphones.
- Symbian was originally developed as a proprietary software OS for PDAs in 1998 by the Symbian.

- The symbian os platform is formed of two components: one being the silicon based operating system with its associate libraries, and the other being the user interface, which provides the graphical shell atop the OS.
- The core symbian OS originally provides no user interface. Instead, it was used as the underlying base for two major smartphone UI platforms: S60 and UIQ.

* Windows Phone:

- Windows Mobile is a discontinued family of mobile operating systems developed by Microsoft for smartphones and personal digital assistants.
- It was first released in the Pocket PC 2000 operating system and was based on the Windows CE kernel.
- Windows Mobile included basic applications developed with the Microsoft Windows API and options for customization and slow development with no restrictions by Microsoft -

(11)

3) Major players that have office suits:

(1) Acrobat.com

→ is Adobe's application suite of cloud based applications; it has been available worldwide since 2007

→ unlike other office suites described in this section, Adobe's offerings on Acrobat.com are centered around preparing documents manipulating graphics, and publishing the results.

(2) Glide Digital

→ is a collection of integrated applications that are packaged within a complete desktop environment.

→ Translated, the developer calls the environment the Glide OS, which is now at version 4.0.

→ Glide is compatible with Internet Explorer, Firefox, Chrome etc.

(3) Google Docs

→ is a collection of office applications that

(2)

users can create, modify, share, and work on documents collaboratively with others.

→ Google Docs has a very large user base, mainly due to the dominant position of the search engine company in the market place and its free use.

(4) Microsoft office web Apps

→ Microsoft's office web apps are online stored down versions of the Microsoft Office suite. They are written in Ajax and eventually are to be supplemented with Silverlight features.

(5) thinkfree office

→ is one of the earliest of the online office suites to be released, first appearing in 2001.

→ written in Java, with portions later added in ajax, the current version supports linux, macintosh OSx, and windows users in nine different languages and locales.

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6) Zoho office suite

- the Zoho office suite is one of the more highly regarded online office suites.
- with the exception of Google's apps, Zoho probably offers more modules than any of the other cloud-based office suite vendors.
- Zoho was created by an Indian company called AdvertNet, Inc, which later re-branded itself as Zoho Corporation.

4)

- securing the data, sent to, received from, and stored in the cloud possess great security concerns for organizations as it can be intercepted and modified.
- so data transferred to a cloud service provider and stored off-premises are usually encrypted and protected using passwords or account IDs.

(14)

→ Mechanisms for protecting data are:

↳ Access control

↳ Authentication

↳ Auditing

↳ Authorising.

* Brokered cloud storage Access

→ Data stored in the cloud can be located in any datacenter across the world.

→ To protect cloud storage assets, data must be isolated from direct client access.

→ The proxy service impose some rules that allows safe data request based on the client identity and delay that request broker

* Storage location and tenancy

→ cloud service providers you or they not store and process data in pre-determined location

* Encryption

→ is a core technology used for protecting data in transit to and from the cloud as well as data stored in the cloud.

* Auditing and compliance

→ Auditing is the ability to monitor the events to understand performance & to investigate security.