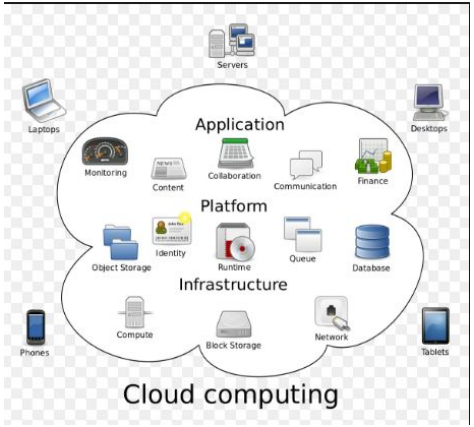
What is Cloud-Computing

- Cloud Computing is a remote virtual pool of on-demand shared resources

- Offering Compute , Storage and Network Services that can be rapidly deployed at scala

What is Cloud-Computing

- Quick access to an arbitrary amount of compute resources.
- From a distance without the need to buy
- Need not to maintain hardware themselves
- On demand delivery of IT resources and applications
- Via the internet with pay-as-you-go pricing.



Advantages of Cloud-Computing

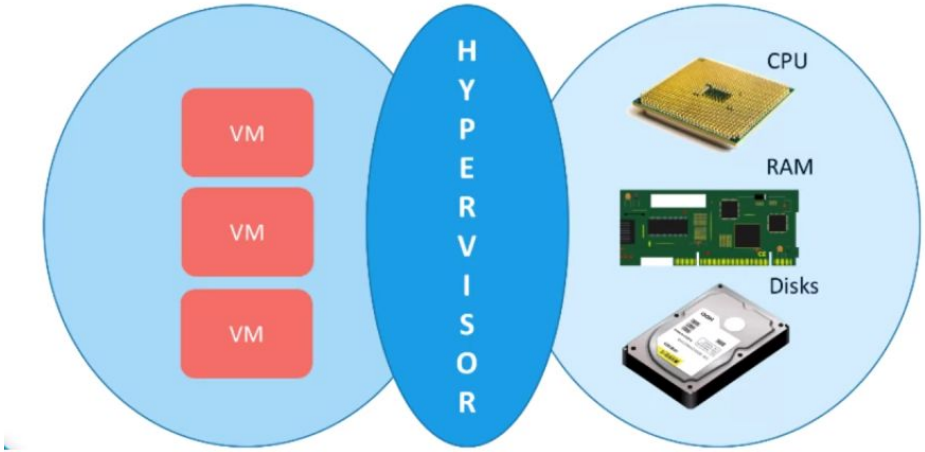
- Variable vs. Capital Expense
- Economies of Scale
- Stop Guessing Capacity
- Increase Speed and Agility
- Focus on Business Differentiators
- Go Global in Minutes

Cloud-Providers

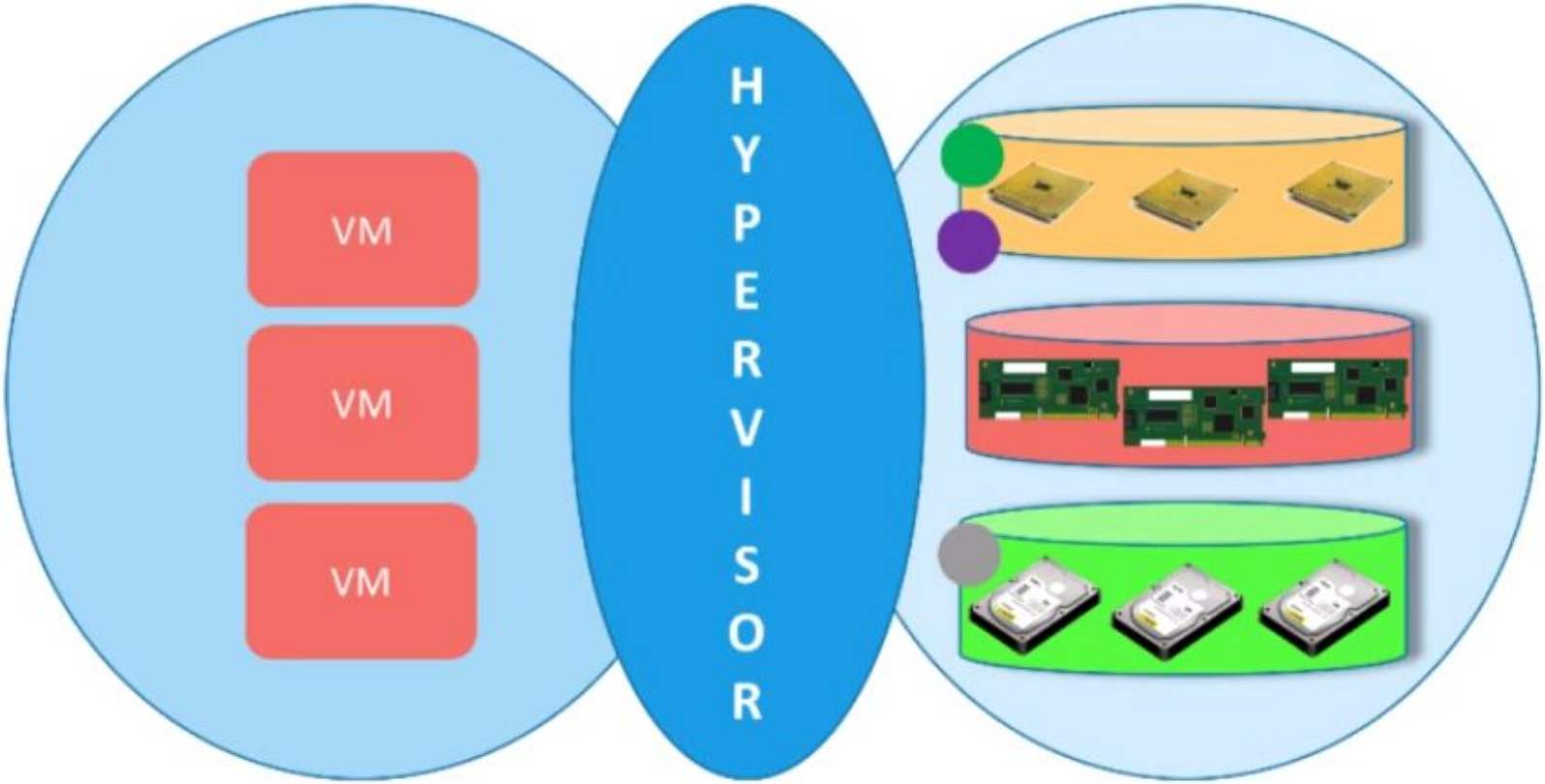
- AWS
- Google Cloud
- Microsoft AZURE
- Digital Ocean

understanding virtualization

understanding virtualization



understanding virtualization



Benefits of Virtualization

- Reduce Capital expenditure
- Reduced operational costs
- Less space required
- Optimization of resources

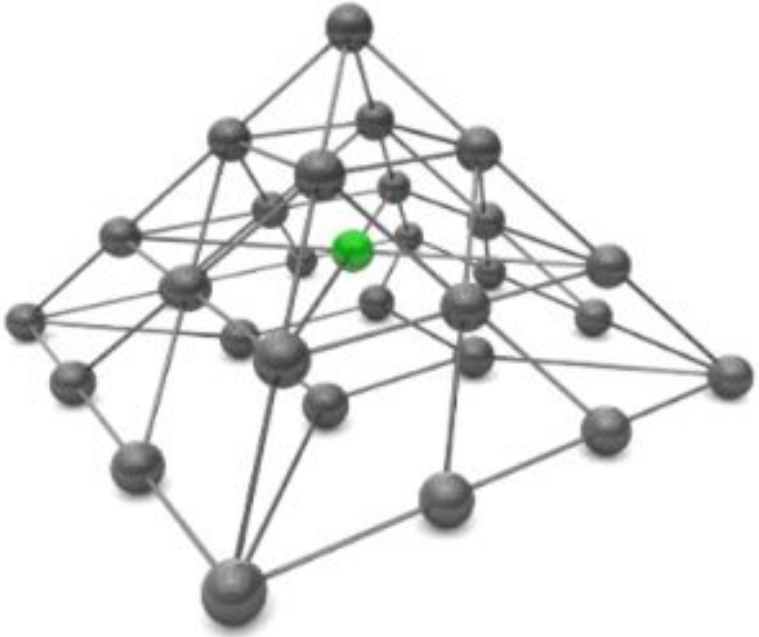
Compute

- The ‘brains’ to process your workload
- Virtualized Hosts
- Computational ability to process requests
- CPU/RAM

Storage

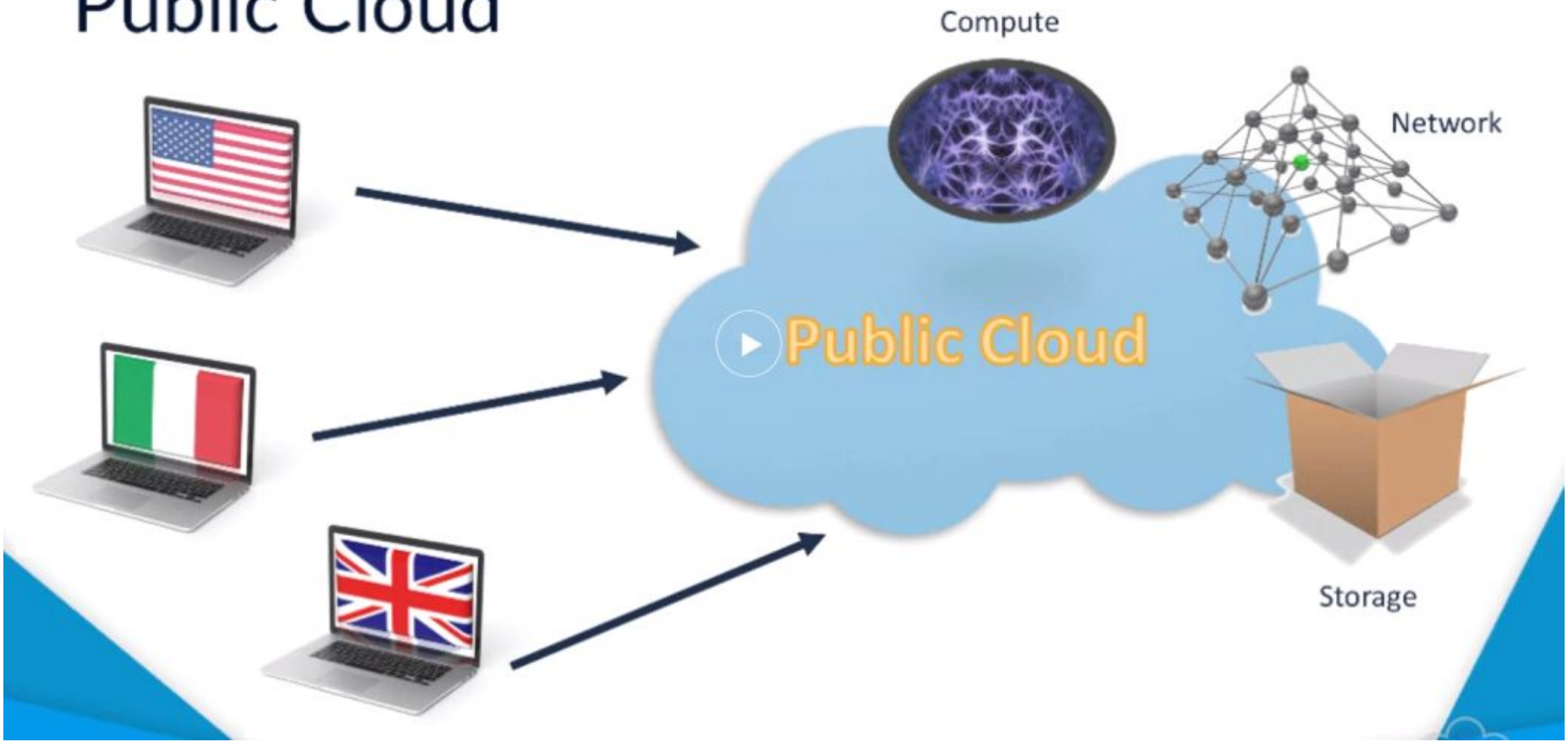
- Save your data across a shared environment
- Logically attach to instances
- Separate object store for backup/DR

Network



- Provide connectivity for all resources to communicate with each other
- IP Subnets (Network segmentation)
- Route Tables
- Network Access Control Lists (Security)
- Network Address Translation

Public Cloud



Public Cloud

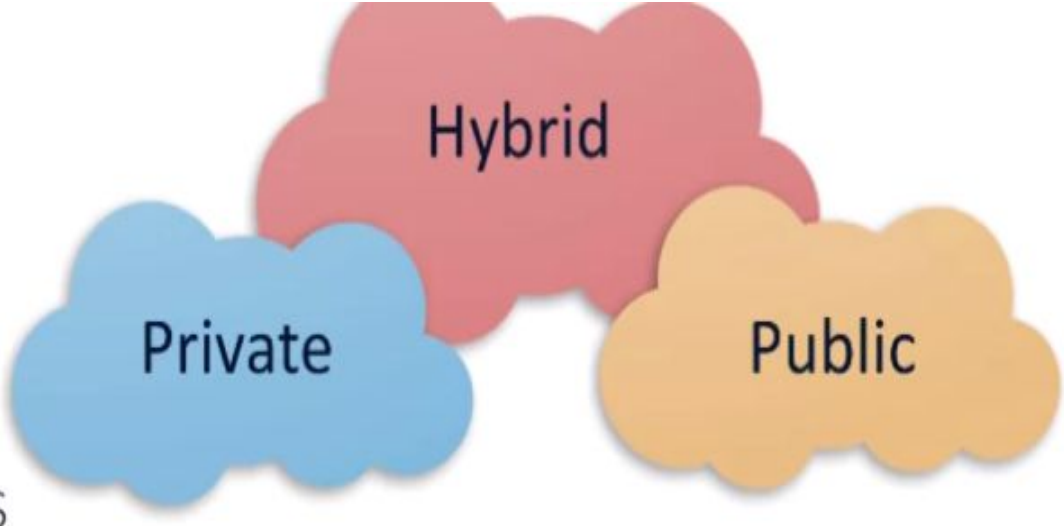
Public Cloud

Private Cloud

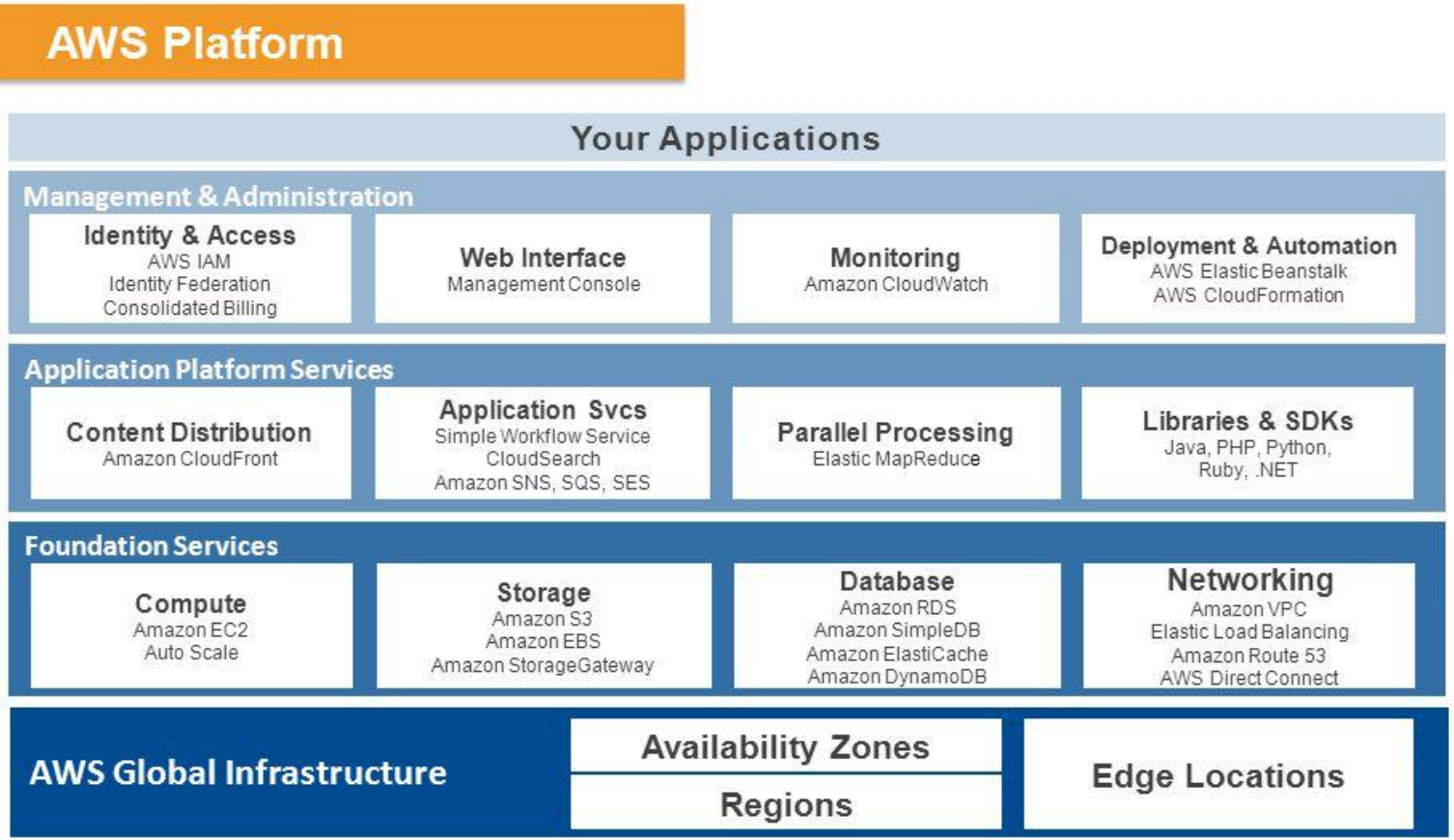
- Privately Hosted
- Greater Control
- Direct Access to data
- Tight Security
- Hardware Held on-premise
- Higher Cost

Hybrid Cloud

- Both Public & Private
- Extend logical network
- Benefits from both Clouds
- Constraints from both Clouds
- Short-term configurations



AWS Walkthrough



Accessing the Platform

- CLI
  - Unified tool to manage AWS
  - Multiple services.
  - Automate via-Scripts

- AWS Management Console
  - Console/service basis.
  - Account and billing info
  -
- AWS Software Development Kits
  - Access through programs

AWS- Compute & Networking Service

- Amazon EC2(Elastic Compute Cloud)
  - Provides resizable compute cloud.
  - Virtual server configuration in Amazon data center.
  - Verity of OS
- AWS Lambda
  - Zero administration compute platform for back-end/web developer
  - There is no charge when your code is not running
  - currently Node.js, Java, C# and Python
- Auto Scaling
  - Allows resources to scale in and out to match the demands of dynamic
  - workload

AWS- Compute & Networking Service

- Elastic Load Balancing
  - Automatically distributes traffic across multiple EC2 instances
  - Enables greater levels of fault tolerance.
- AWS Elastic Beanstalk
  - Running web application
  - Auto resource provisioning,load balancing
  - Platforms- PHP,Java,Python,Node.js
- Amazon Virtual Private Cloud(VPC)
  - Logically isolated section of the AWS
  - Control over selection of IP range, creation of subnets
  - Configuration of route tables and network gateway
- AWS Direct Connect(analogous to VPN)
- Amazon Route 53
  - DNS web service

Storage and Content Delivery

- Simple Storage Service(S3)
  - Scalable storage handles virtually unlimited amounts of data
  - Backup and recovery,big data,content distribution.
- Amazon Glacier
  - Low cost storage for archiving
  - Long term backup.
  - Infrequent access retrieval of several hours
- Amazon Elastic Block Store(EBS)
  - Block storage volumes with EC2
  - Automatically replicated
  - Consistency and low latency
- AWS Storage Gateway(service for data exchange on-premise and cloud)
- Amazon CloudFront
  - Content cache for local availability

Database Services

- Amazon Relational Database Service(RDS)
  - Many popular and commercial database engine.
  - Auto backups, software patching,monitoring scaling, replication
- Amazon DynamoDB
  - NoSql database service
  - Single digit millisecond latency at any scale.
  - Document and key/value data models.
- Amazon Redshift
  - Fast fully managed petabyte-scale data warehouse service
  - Provides SQL interface ,parallelizing queries on multiple nodes
  - Most common administrative tasks are automated
- Amazon Elasticache(supports Memcached and Redis cache engines)

Management tools

- Amazon CloudWatch
  - Monitoring service for AWS Cloud resources and application
  - Metrics tracking monitor log files and set alarms
- AWS CloudFormation
  - Analogos to workflow
  - Template for platform replication to another region
- AWS CloudTrail
  - Log file for audit and review.
  - Time of API call, API caller
  - Response element returned by the service.
- AWS Config
  - Resource inventory
  - Configuration history and configuration change notifications

Security and Identity

- AWS Identity and Access MAnagement(IAM)
  - Securely control access to AWS
  - AWS users and groups and user permissions
- AWS Key Management Service(KMS)
  - Provides encryption keys to organization for data encryption
- AWS Directory Service
  - For Microsoft Active Directory
  - Manage user and groups
  - Provides single sign-on
- AWS Certificate Manager
  - Secure Sockets Layer/Transport Layer Security
- AWS Web Application Firewall
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Application Service

- Amazon API Gateway
  - Developer can maintain monitor and secure API at any time
  - Front door for application like web application
- Amazon Elastic Transcoder
  - Media transcoding in the cloud for smart devices
- Amazon simple Notification SErvice
  - Works on publisher and subscribers model
  - Works on asynchronously
- Amazon Simple Email Service(SMTP-Server)
- Amazon Simple WorkFlow Service(Workflow engine)
- Amazon Simple Queue Service(Like MSMQ)