cloud computing:

Private Cloud: Private clouds are accessible only to company employees

Public Cloud: Private clouds provide service to any paying customer.

ex: EC2, S3.

Cloud: It's a cluster datastore (Lots of storage+compute cycle nearby)

Single -site cloud: Consists of :

- compute node

- A switches, connecting the racks.

- Storage nodes connected to network.

- Front end for submitting jobs and receiving client rquests.

- Software services.

Geographically distributed clouds consists of:

- Mulitple such sites

- Each site perhaps with a different structure and services.

Cluster??? and cloud difference:

- Massive Scale : large scale

- On Demand Access : pay and use

- Data Intensive nature : large data operations

- New cloud programming paradigm : Mapreduce/ Hadoop etc.

WUE: Water use efficiency: Annual water usages/ IT Equipment Energy(low is good)

PUE: TOtal Facility Power/ IT equipment power (low is good)

HAAS: Hardware as a service

IAAS: Infrastructure as a service:

Platform as a service:

Software as a service:

Map Reduce:

Term are borrowed from Functional Language.

Map : Process each record sequentially and independently

Reduce: Processes set of all records in batches.

Map generates : Key, Value pair

Reduce: Processes and merges all intermediate values associated per key.

YARN: Yet another resource negotiator

Gossip

Multicast problem:

Node with a piece of information to be communicated to everyone./Different from broadcast

Problem: Latency, tree structure maintenance.

Failure detector based on heartbeating. one process send heartbeat to another one. it will be overloading on centralized process.

Ring Heartbeating. ring sequence. some failure might be undetected.

All to All Heartbeat: sent to everyone.Good Equal load per member. protocol complete.

how to increase robustness of All to All Heartbeating.

Gossip style failure detection work on All to All Heartbeat but with improved accuracy.

Swim Failure detector: Instead of heartbeat we use ping

DIssemination: one more for failure detection

GRID Applications:

GRID Infrastructure:

P2P system introduction:

Peer to Peer system:

Napster: no security server client strcture

Gnutrella: