

# Glossary

**Cloud Computing** a business model that provides utility Computing services and/or SaaS services.

**Grid Computing** distributed computing that enables IT scalability and flexibility, mainly focusing on large-scale problems.

**Platform as a service** Pay-per-Use for network-based delivery of a computing platform and a related solution stack as a service.

**Service Orientation** a design paradigm that specifies the creation of automation logic in the form of services. It is applied as a strategic goal in developing a service-oriented architecture (SOA).

**Software as a Service** Pay-per-Use for network-based software applications services.

**Utility Computing** Pay-per-Use for network-based Compute and Storage services.

**Virtualization** a technique for hiding the physical characteristics of computing resources from the way in which other systems, applications, or end users interact with those resources.

# Index

## A

Abstractions, 201  
Accounting, 157  
Advance reservation, 144  
Agenda, 144  
Amazon EBS, 81  
Amazon EC2, 56, 63, 76, 179, 186, 191  
Amazon S3, 76, 81  
Application resource tuple, 25  
Azure, 202

## B

Billing, 157  
Broadband, 77, 78, 83

## C

Capping, 148, 151  
Carbon footprint, 144  
Client-server, 9  
Cloud computing, 6, 169  
Condor, 75, 76, 80  
Condor glideins, 81  
Consolidation, 145  
Contextualization, 75, 76  
Coordinated resource sharing, 5  
Corral, 81  
COST action IC0805, 171  
CPU idling, 147  
CPU throttling, 145  
Cyberinfrastructure, 72, 76

## D

DAGMan, 75, 80  
Data-compute affinity problem, 15  
DRMAA, 66  
DVFS, 145  
Dynamic voltage and frequency scaling, 145

## E

EGEE, 58  
EGI, 171  
Elasticity, 73  
Electricity cost, 144  
Energy, 144  
Energy awareness, 144, 155  
Energy consumption, 144  
Energy efficiency, 61, 144  
Energy saving, 144  
Energy-aware cloud framework, 144, 153  
Ensemble-based simulations, 202  
Enterprise application workloads, 24  
Epigenome, 77, 78, 84  
Everything as a service, 163

## F

Fault-tolerance, 173, 176, 178, 180  
Federation, 58, 64

## G

Globus toolkit, 66, 81, 177, 191  
GlusterFS, 76  
GPFS, 76  
GPU, 170, 174, 188  
Green open cloud, 144, 153  
Green policies, 157  
Green SLA, 157  
Grid computing, 5  
GridWay, 60, 66

## H

Hardware abstraction layer, 11  
Hybrid cloud, 56, 63  
Hypervisor, 147

**I**

I/O device sharing bottlenecks on virtualized server, 35  
 I/O device virtualization challenges, 24  
 I/O virtualization architecture description, 38  
 I/O virtualization architecture wish-list, 38  
 IaaS, 56, 57, 61, 66  
 Ibis, 174  
 Ibis programming models, 175  
 IbisDeploy, 178  
 Illusion of infinite resources, 73  
 Infrastructure as a service, 72  
 Interoperability, 9, 173, 200  
 Interoperation, 64  
 IPL, 174

**J**

JavaGAT, 177  
 Join-elect-leave (JEL), 175  
 Jorus, 186  
 Jungle Computing, 171  
 Jungle Computing System, 169, 171

**L**

Legacy applications, 74  
 Legacy codes, 174, 181  
 Live migration, 150  
 Lustre, 76, 82

**M**

Makespan, 82  
 Malleability, 173, 176, 178  
 MapReduce, 193  
 MapReduce,Dean, 13  
 MAQ, 78  
 Metacomputing, 2  
 Middleware, 3  
 Middleware independence, 173  
 Migration, 144  
 Montage, 77, 83  
 Multimedia content analysis, 181

**N**

NCSA, 72, 76  
 Network presence, 155  
 Network QoS evaluation on virtualized server, 33  
 Neuroinformatics, 183  
 NFS, 76  
 Nimbus context broker, 75, 88

**O**

OASIS, 9  
 OCCI, 63

On-demand, 73  
 Open grid forum, 9  
 Open science grid, 72  
 OpenNebula, 63, 65

**P**

Panasas, 76  
 Parallelization, 173  
 PBS, 76  
 Peer-to-peer, 9, 169, 180  
 Peer-to-peer middleware, 178  
 Pegasus, 75, 80  
 Pilot job, 59  
 Pinning, 148, 152  
 Platform as a service, 72, 89  
 Platform-as-service, 7  
 Power management, 154  
 Prediction algorithms, 157  
 Private cloud, 56, 60  
 Programming models, 201  
 Provenance, 74  
 Provisioning, 73  
 Proxy, 155  
 Public cloud, 56, 62, 64  
 PVFS, 76

**R**

Remote sensing, 184  
 Replica location service, 89  
 Reproducibility of scientific results, 74  
 RESERVOIR, 58  
 Resource independence, 173  
 Resource management system, 146  
 Resource manager, 154  
 Resource provisioning, 73, 145  
 Review of I/O virtualization techniques, 36  
 Robust connectivity, 173

**S**

SAGA, 201  
 Scale-out, 57, 63  
 Scaling, 3  
 Scheduler, 159  
 SDSC, 72  
 Semantic web, 182  
 Server consolidation, 60  
 Service level agreement, 9, 157  
 Service-oriented architecture, 72  
 SLA, 157  
 SmartSockets, 176  
 Software as a service, 72, 89  
 Software-as-service, 7  
 StratusLab, 58, 63

Sun grid engine, 76  
System virtualization, 24

**T**

Temperature-aware scheduling, 145  
TeraGrid, 72

**V**

Virtual clusters, 75  
Virtual CPU, 147  
Virtual machine, 10, 144  
Virtual machine energy cost, 148  
Virtual machine monitor, 11  
Virtual organizations, 5

Virtualization, 72, 74, 145, 180  
Virtualization and application performance, 28  
VM, 144

**W**

Web application, 144  
Workload consolidation, 145

**X**

Xaas, 163  
Xen, 147

**Z**

Zorilla, 178