Index

A
Absolute Percentage Error (APE) 21
abstraction 178
accrual protocol 130
activity context 202, 204, 206, 208, 210, 212
actuator 172
adaptive protocol 129
adaptivity 103
Adhoc On-demand Distance Vector (AODV) 56
admission control (AC) 239
affected nodes 104
alive request 135
All Sharing Task Scheduling (ASTS) 235
alteration attack 243
automation systems engineering (ASE) 153, 164
autoregressive moving average 22
awareness 171, 199-200, 202, 204-206, 208, 210, 212

B
base content 272-273, 278
battery life 94
Behavior Model Comparator 149
body area network (BAN) 312
boids path model 60-61
boundary object 255
boundary zone 253, 255, 257-259, 265, 267
branch-and-bound (B&B) technique 236
business trust 279-280

C
Cascade Correlation 24-26, 29-35
catastrophe 214
causality preservation 187
cell 88
central node 76
checkpoint 88
checkpointing 90
checkpoint sequence number (csn) 89
clique 4
cloud computing 202, 310
cluster 38, 40-41, 43, 49
cluster coordinator 131-132
Cluster Table (CT) 41-42
coevolution 253
collaboration 185-186
Collaborative Task Manager (CTM) 199-200, 204, 209
common repository 152-154, 157, 161-162, 164-165
Community of Interest (CoI) 253
Community of Practice (CoP) 253
commutativity 190
complementary content 272-273, 278
component-based software development (CBSD) 256
computer-supported cooperative work (CSCW) 186
concurrency control 185, 188, 190-191, 197-198
conflict graph 191, 195
context filter 206
conversion 187
cost estimation 44
Critical Friends Community (CFC) 2
Crossbow technology 57, 68
cross product 21
crowd sourcing 312
Cyber Infrastructure 310
cyclic instance 192, 194-195

data capturing 177
deadlock 240
decomposition-based prediction 27, 29, 31-32
decoupling 137
degree of security deficiency (DSD) 244
diff 186
directed acyclic graph (DAG) 41, 237
distributed hash table (DHT) 9
distributed track strategy 102, 104, 115
duration link 8

E
early warning coordination center 300
early warning system (EWS) 295
emergency communication 295
end-user development (EUD) 256
ergy model 59, 62
Engineering Knowledge Base (EKB) 152-153, 157-
158, 162, 165
equal partitioning rule (EPR) 237
Event-Condition-Action (ECA) rule 277
Exponential Moving Average (EMA) 22, 135

F
factory automation 156, 166-167, 252, 260-262
failure detection system 127-128, 130, 135, 138,
146, 150
Failure Paradigm Method (FPM) 297
fault tolerant system 38
fitness function 27
flocking 61
frame sharing 203
Friis formula 57

G
Gadgetware Architectural Style (GAS) 169
General Purpose Graphic Processing Unit (GPGPU)
70
global scheduler (GS) 237
global state 88
goodput 55-56, 62-65, 67
Google Web Toolkit (GWT) 209
gossiping protocol 135
graph locking 190
graph theory 2
Grid technology 2
group decision making 213-214, 216, 219

H
heartbeat strategy 129-130
Hive-Mind Space (HMS) model 252-253
Horizontal Reflection Diffraction (HRD) 71
Host node 5, 7, 9, 11, 13, 102
human-computer interaction (HCI) 255
human network moderator 274, 279
hybrid time (HT) protocol 283, 287, 292

I
identifier 178
idle resetter (IR) 239
inference engine 171-172, 177, 179, 182
information provisioning 269, 271, 276, 278-279
infrastructure recovery 222
Intelligent Ray Launching Algorithm (IRLA) 70
intention preservation 188
inter-cluster discovery request 133
Inter Module discovery Communication (IMC) 42-43

J
Jigsaw 169-170
Job Precedence and Dependence Graph (JPDG) 41
join execution plan (JEP) 106
join ordering 105-106, 114, 122

K
Kaufman's Adaptive Moving Average (KAMA) 135
k-failure detector 130
Knowledge Base Pairing (KBP) 5

L
Large Scale Distributed System (LSDS) 19
lattice topology 56
linear time (LT) protocol 283, 292
Line of Sight (LOS) propagation 57
LISA 141
load balancing (LB) 239-240
lookup service (LUS) 131
lossy communication 129

M
MAC protocol 57
Manufacturing Agent Simulation Tool (MAST) 156,
165
many-to-one multi-hop 60
Matrixes Of Weighing (MOW) 213, 215, 225
media space 181-182
metadata snapshot profile 1-3, 5, 8-9, 15
meta-design 256
middleware 147
Index

minimum workload derivative first (MWF) 237
mobile host (MH) 88
mobile support station (MSS) 88
model checking 152-154, 157-158, 160-161
MonALISA 20-21, 35, 149
monitoring module 19, 149
monitoring node (MN) 59
moving state strategy 122
multi-attribute model (MM) 218
multi-criteria model 218, 225
Multiple Instruction Multiple Data (MIMD) 74
multiplicative factors 213, 217-221, 223, 225
multipoint broadcasting 4
Multiprocessor System-on-Chips (MPSoCs) 242
multithreading 75
multi-way window-based stream join query 103

N
neural network (NN) 22
no-communication scheme 79
node communication 2
node operator set (NOS) 102, 104, 123
Normalized Mean Squared Error (NMSE) 21

O
object modeling 271, 279
one-step ahead prediction 23, 31-34
ontology 156
operational transformation (OT) 187, 197-198
opportunistic load balancing (OLB) 235
optimal partitioning rule (OPR) 237
orphan message 88
overhead 188

P
parallelization 74
Parallel Object-oriented Programming in C++ (POP-C++) 71, 76
parallel track strategy 122
path equivalence 191
pathloss 58
perceptron 29-34
personal cloud platform (PCP) 207, 209
Physical Resource Announcement (PRA) 5
physical time (PT) protocol 283, 287, 292
Piecemeal theory 186-188, 191, 196-197
Policy Management Control (PMC) 5
prediction module 20
processor 170
production automation systems 153-154, 164
produsers 253
project 170

Q
QoS detection 128, 150
Quality Assurance (QA) 154
query plan migration 103-104
query plan modification 103-104, 120

R
random network 56
ray launching 70
real time distributed system (RTDS) 230
real-time editors 186, 188
Reliability-based Scheduling Model (RSM) 38
re-optimization 121-122, 124
repository server 20
Route Reply (RREP) 59
Route Request (RREQ) 59

S
schedule 189
scheduling policy 41, 53, 234, 237
secondary replica 131-132, 135, 143-144
Self-led Critical Friend (SCF) 2
semantic integration 156
sensor 170-171
serializability 185, 189, 197
service clouds 202, 211
Simple Moving Average (SMA) 22
Simulator of Assembly Workshops (SAW) 156
sink node 56
snooping 243
soft checkpoint 87, 89-97
software shaping workshop (SSW) 257-258
soundness 191
Source Code Control System (SCCS) 186
spoofing 243
star topology 39
suspicion value 133
symmetry of ignorance 254, 256-257, 266
synchronization message overhead 96
synergy 179
Systemic Disaster Management System (SDMS) 294, 297, 304
system reliability 38
Index

T

- task 203, 234-235, 245
- task allocation 39-40, 53-54, 244-245, 250
- task arrival 233
- task filter 206
- Time Constraints Management (TCM) 5, 8
- tool data 153, 157-158
- Topiary 171, 184
- trained eddies (TEddies) 122
- transaction theory 191
- tuple-routing approach 121-122
- turnaround-based scheduling model (TSM) 50
- TwoRayGround radio model 56

U

- UBI-Designer 170, 184
- ubiquitous computing 312
- ubiquitous environment 168, 170-171, 173-174,
  176-177, 179, 181, 183, 200
- unit-time cost model 106
- unnecessarily ordered messages 282-283, 288-292
- user-directed assignment (UDA) 235
- User Interface (UI) 200

V

- Valchiavenna Portal (VCP) 263
- vector time (VT) 283, 285
- versioning control system 186
- Vertical Diffraction (VD) 71
- Viable System Model (VSM) 297
- victim location 311
- virtual enterprise (VE) 270
- virtual organization (VO) 38
- visual composing 178
- VMWare 117, 125

W

- Web 2.0 200
- web server 20
- Weighted Moving Average (WMA) 22
- well-defined 191
- wide area network (WAN) 284
- wireless sensor network (WSN) 55
- Worst Case Execution Time (WCET) 246