Index

A
aggregates 192, 199, 202
availability analysis (AA) 146

B
Boolean preferences 259

C
CCOs 228, 229
cell data 173, 175, 177, 179, 180, 181, 183, 184, 185, 186
cell data calculation change 177
cell data restructuring 177
Chunk placement layout (CPL) 140
chunks 136
ChunkSim 131–149
ChunkSim model parameters 140
ChunkSim performance availability analysis 139
ChunkSim to analyze performance and availability 144
Chunk-wise on-demand query processing 138
COMET temporal data warehouse 178
complex data 38, 39, 40, 41, 42, 43, 44, 46, 47, 48, 49, 50, 51, 52
conceptual canonical ontologies (CCOs) 228
conceptual design 1, 3
conceptual model 3, 6, 7, 8, 9, 10, 13, 14, 15
constraints 21, 22, 26, 27, 28, 30, 33
CONTA ontology structure 84
content query 206, 220, 221, 222

D
data allocation 133, 140
database management systems (DBMSs) 39
database-oriented ontology query languages, analysis 238
data definition language (DDL) 233
data grids 150, 152, 168
data integration 17, 19, 20, 32, 33, 36
data manipulation language (DML) 233
data mart design and implementation 3
data mart design for relational and XML sources 59
data mart designing 55–80
data mining 39, 44, 47, 50, 51
data source pretreatment 61
data swapping 274
data transformation 174, 180, 185
data warehouse 17, 18, 20, 24, 32, 36
data warehouse, aspects of time 178
data warehouse changes on cell data 177
data warehouse definition 40
data warehouse design 1–16
data warehouse design approaches 57
data warehouse evolution 177, 178
data warehouse maintenance 171, 173, 175, 177, 178, 180, 183, 185, 186
data warehouse maintenance problem 174
data warehouse security 271–278
Data Warehouses, QoS-oriented grid-enabled 150–169
data warehouse versioning 177, 178
DDL 233
decision support systems (DSS) 55
decision-support systems (DSSs) 39
DFM 9, 10, 13, 14
dimensional fact model (DFM) 9
dimension instance 207, 208, 212, 214, 215, 217, 218, 219, 220, 221
distributed QoS-oriented warehouse 154
DML 233, 240
DM schema construction 70
domain ontologies 228
domain ontologies, definition and classification 228
DSS 55, 56, 57
DSSs 39, 43, 50
DTD simplification 61
DW evolution 207
DW instance version 208
DW maintenance and evolution 3
DW planning 3
DW schema version 208
DW version 208, 209, 210, 211, 212, 213, 215, 218, 221, 222, 223

E
enumerated preferences 258
E/R diagram-based design approaches 57
ETL component 46, 47

F
fact table 208, 210, 213, 214, 215, 216, 218
fixed perturbation 274
flexible querying 82, 83, 87, 92, 93, 94
flexible querying system 87
fuzzy preferences 259
fuzzy set 83, 85, 86, 87, 89, 91
fuzzy set theory 85

G
geographic information 97, 98, 99, 108, 110
global physical schema (GPS) 156
grid-enabled databases 152

grid resource management (GRM) 151
GRM 151, 152

H
heterogeneous 189, 190, 191, 192, 193, 194, 196, 202, 203
heterogeneous data integration 192
heterogeneous data warehouses 189–204

I
incremental maintenance of aggregates 199
incremental maintenance of data 199
integration environment 194
integration process 194
interpreted preferences 258
inter-site QoS-oriented dynamic replication 160
interval preferences 259
intra-site replica candidates 161

L
level instance 209, 210
level table 208, 210, 215, 216, 218, 219
load-balancing 136
local caching 161
local schedulers and service level agreements 159
logical method 19
logical model (LM) 156

M
mappings 18, 19, 20, 21, 23, 24, 25, 32
materialization decision 121
MATUN, materialization-based tuning tool 122
metadata in multiversion data warehouse, querying 214
metadata query 221
meta-schema 198
multidimensional model 96, 97, 99, 110, 111
multiversion data warehouse 208
multiversion query 178
multiversion query (MVQ) 211
MVDW 206, 207, 208, 209, 211, 214, 220, 221, 223, 224
MVDWQL, prototype implementation 220
MVQ 211, 212, 213, 214, 221, 222

N
node partitioned data warehouse (NPDW) strategy 155
NPDW 155, 156, 158
numerical method 19
numeric preferences 258

O
OBDB 247, 248, 252, 254, 270
object evolution query 215, 218, 222, 223, 224
OLAP dominant solutions 102
OLAP-GIS integrated solutions 102
on-line analytical processing (OLAP) 39
OntoDB 248, 249, 252, 253, 254, 256, 257, 262, 263, 265, 266, 268
ontology 17, 18, 19, 20, 21, 23, 24, 25, 32, 33, 34, 35, 36
ontology alignment 82, 83, 91, 92, 93, 94
ontology-based databases 227–247
ontology-based databases (OBDB) 227
ontology-based database with preferences 256
ontology-based data integration 81, 82, 83, 94
ontology model resource definition 257
ontology preference link 261
ontology query languages for ontology-based databases 227–247
OntoQL 228, 238, 240, 241, 242, 243, 244, 245, 253, 254, 262, 263, 264, 266, 268

P
PARD 142, 145
partitioning 133
performance analysis of replication degrees (PARD) 145
preference model 247, 248, 249, 252, 256, 257, 258, 262, 263, 264, 266, 267
preference model instantiation 264
pre-selection algorithm 120

Q
QoS, caching and replication 160
QoS-oriented DW, distributed data placement 155
QoS-oriented query scheduling 157
query-based perturbation 274
query processing 134

R
random sample queries 275
RBAC 272, 273
RBAC, administrating 273
reference model 38, 40, 43, 44, 47, 48
relational model concepts 61
relation classification 69
replacement policy 122
replication 136, 140, 141, 142, 143, 144, 145, 148
replication layout (RL) 140
requirement analysis 1, 2, 4, 5, 7, 10, 12, 13, 14, 15
requirement analysis techniques 4
role-based access control (RBAC) model 272
RQL 228, 234, 236, 237, 238, 241, 243, 244, 245

S
security in data warehouses 271–278
semantic annotation 82, 83, 84, 85, 86, 87, 92, 93, 94
singleversion query (SVQ) 211
SOLAP 96, 97, 99, 100, 101, 102, 103, 106, 107, 108, 109, 111
SPARQL 228, 234, 235, 236, 239, 240, 243, 244, 246
spatial analysis 96, 98, 100, 101, 102, 103, 106, 107, 108, 112
spatial OLAP (SOLAP) 97
statistical database security 274
supply-driven approach 4
Index

SVQ 211, 212, 213, 221
system size planning (SSZP) 145

T

tourism ontology 263
transition tree construction 63
transition tree enrichment 65

U

uninterpreted preferences 260
usage control 273, 274, 278
user-driven approach 5, 12

V

view selection algorithms 120
view selection and materialization 114–130
view selection problem 117
view selection strategy 119
visual interface 98, 104

W

‘what-if’ analysis 207, 208
wrappers 19, 24, 25, 35, 36, 37

X

XML-based design approaches 58
XML data warehouse 38, 39, 40, 41, 42, 44, 45, 47, 48, 49, 50, 53
XML data warehouse reference model 44
XML data warehouses, modeling 44
XML data warehousing 40
XML document warehouses 41
XML-OLAP 41, 44, 53
XML source 24, 25
XML structural concepts 60
XML web warehouses 41
X-WACoDa 38–54