

Grid

Web

Cloud

Publish/Subscribe

Peer-to-Peer & overlays
(storage/search, churn ...)

Wireless/
Mobile

Sensor

Embedded/
Pervasive/
Ubiquitous

Multimedia
content

FAULT TOLERANCE & RELIABILITY, e.g., checkpoint and recovery, failure detectors, self-stabilization, ...

DATA MANAGEMENT – consistency models, replication, caching, etc., DATABASE (ACID)

SYNCHRONIZATION – leader election,
mutual exclusion, producer/consumer;
CONSENSUS – wait-free/ non-blocking etc.

OBSERVATION – predicate detection,
deadlock, termination, debugging, ...

STATE

TIME

KNOWLEDGE

COMMUNICATION – mechanisms, groups/
INTERCONN. NETWORKS/ OVERLAYS/ROUTING

FAULT MODELS

*Msg-Passing/
Asynch*

*Shared Mem/
Asynch*

Mapping

*Msg-Passing/
Synch*

*Shared Mem/
Synch*

ALGORITHMS:
*app. logic, app layer algos,
graph, scheduling, etc.*

Centralized

Multi-core
& Hybrid

Supercomputing

Clusters

Interfaces –
MPI, OpenMP,
NetBeans,
Java RMI,
CORBA,
Hadoop,
Mapreduce,
..., ...

Naming / Search / Filesystem

SECURITY

Network services and routing

Local OS