

JGroups

What is JGroups?

- an open-source toolkit for building reliable messaging and group communication systems

Building blocks

- Building blocks are intended to save the application programmer from having to write tedious and recurring code, e.g. request-response correlation, and thus offer a higher level of abstraction to group communication.
 - ReplicatedHashMaps
 - Distributed locks
 - ReplCache

JGroups

- Channels always know who the other members are in the same group: a list of member addresses can be retrieved from any channel. This list is called a **view**
- Whenever a process joins or leaves a group, or when a crashed process has been detected, a **new view** is sent to all remaining group members
 - RpcDispatcher

Protocols

- Transport (UDP, TCP)
- Discovery (Ping ...)
- Merging (MERGE3)
- Failure detection (FD_ALL, FD_SOCKET)
- Reliable transmission ordering (NAKACK2, UNICAST3)
- Message stability (STABLE)
- Group members (GMS)
- ...

What can I build with it?

- Distributed caches
- Messaging hub
- Replicated State Machine
- ...

Handling network partitions

- <http://www.jgroups.org/manual/html/user-advanced.html#HandlingNetworkPartitions>
- Merging substates
 - <http://www.jgroups.org/manual/html/protlist.html#d0e5492>
- The primary partition approach
- The split brain syndrome and primary partitions

