Users specify a *map* function that processes a key/value pair to generate a set of intermediate key/value

pairs, and a *reduce* function that merges all intermediate values associated with the same intermediate key.

Mapreduce 有两个部分 第一部分就是映射 第二部分是合并所有的映射（之前的key – value）

Mapreduce大致用两种mapreduce实现

The major contributions of this work are a simple and powerful interface that enables automatic parallelization and distribution of large-scale computations, combined with an implementation of this interface that achieves high performance on large clusters of commodity PCs.

使用的Programming model

*Map*, written by the user, takes an input pair and produces a set of *intermediate* key/value pairs. The MapReduce

library groups together all intermediate values associatedwith the same intermediate key I and passes them to the *Reduce* function and merge these sets of values.

几个谷歌选择某种implementation的标准

1) Machines are typically dual-processor x86 processors running Linux, with 2-4 GB of memory per machine.

(2) Commodity networking hardware is used – typically either 100 megabits/second or 1 gigabit/second at the machine level, but averaging considerably less in overall

bisection bandwidth.

(3) A cluster consists of hundreds or thousands of machines, and therefore machine failures are common.

(4) Storage is provided by inexpensive IDE disks attached directly to individual machines. A distributed file system [8] developed in-house is used to manage the data stored on these disks. The file system uses replication to provide availability and reliability on top of unreliable

hardware.

(5) Users submit jobs to a scheduling system. Each job consists of a set of tasks, and is mapped by the scheduler to a set of available machines within a cluster.