

A Demo of DD-Graph

1 Machines:

ddMaster:

Machine3: 192.168.2.73

Workers:

Machine1: 192.168.2.81

Machine2: 192.168.2.84

Machine3: 192.168.2.73

Note system runs on the 40Gbps InfiniteBand.

2 Source code is deployed on Machine3

3 Compile the DD-Graph on Machine3

```
# cd /ddgraph/preprocessing; make
# cd /ddgraph/exec; make
# cd /ddgraph/exec/src/ddMaster; make
```

4 Modify configuration files on Machine3

```
# vi /ddgraph/exec/src/ddMaster/conf/hosts.slave
192.168.2.81
192.168.2.84
192.168.2.73

# vi /ddgraph/preprocessing/conf/CE_Graph.local.cnf
```

```
# DD_Graph configuration.
# Commandline parameters override values in the configuration file.
# execthreads=2
loadthreads = 4
niothreads = 2

# Good for 8gigs
#membudget_mb = 3000

# Good for 4 gigs
membudget_mb = 800

machines = 2
IP1=192.168.3.81
IP2=192.168.3.84

# I/O settings
#preload.max_megabytes = 300
io.blocksize = 1048576

# Comma-delimited list of metrics output reporters.
# Can be "console", "file" or "html"
metrics.reporter = console,file,html
metrics.reporter.filename = graphchi_metrics.txt
metrics.reporter.htmlfile = graphchi_metrics.html
```

5 distribute DD-Graph to Workers

```
#scp -r /ddgraph root@Machine1:/
#scp -r /ddgraph root@Machine2:/
```

6 The dataset twitter-2010.edge is deployed on Machine3: /ddgraph/dataset/

7 Preprocessing (Partitioning)

Machine1 and Machine2 run sharder_basic with sub mode:

```
#cd /ddgraph/preprocessing
#bin/sharder_basic
```

```
[root@de77 preprocessing]# bin/sharder_basic
Please enter value for command-line argument [mode]
  (Options are: 'main' mode or 'sub' mode)
sub
Please enter value for command-line argument [edgedatatype]
  (Options are: int, uint, short, float, char, double, boolean, long, float-float,
int
DEBUG:   sharder.hpp(submode:3851): Run as submode , waiting for data...
DEBUG:   sharder.hpp(submode:3852): EdgeType:int
█
```

Machine3 runs sharder_basic with main mode:

```
#cd /ddgraph/preprocessing
```

```
#bin/sharder_basic
```

```
[root@ca31 preprocessing]# bin/sharder_basic
Please enter value for command-line argument [mode]
  (Options are: 'main' mode or 'sub' mode)
main
Please enter value for command-line argument [file]
  (Options are: [path to the input graph])
/ddgraph/dataset/twitter-2010.edge
Please enter value for command-line argument [edgedatatype]
  (Options are: int, uint, short, float, char, double, boolean, long, float-float, int-int, length16
int
Please enter value for command-line argument [nshards]
  (Options are: Number of shards to create, or 'auto')
6
Please enter value for command-line argument [opti_mode]
  (Options are: Average --- 1 , Original --- 2 , Patition --- 3)
1
Please enter value for command-line argument [filetype]
  (Options are: edgelist, adjlist, binedgelist, metis , multivalueedgelist(Only for dynamic edges))
edgelist
```

7 Execute pagerank

Machine1, Machine2 and Machine3 run pagerank:

```
# cd /ddgraph/exec
```

```
#bin/example_apps/pagerank file /ddgraph/dataset/Twitter-2010.edge nshards 6
```

Machine3 run ddMaster:

```
#cd /home/ddgraph/exec/src/ddMaster
```

```
# ./ddMaster file /ddgraph/dataset/ Twitter-2010.edge nshards 6 niters 10
```