Distributed Sort data flow based on zeromq

Input data	Input data	-	-
Source node 1 Local Sort	Source node N Local Sort	Source node 1	Source node N
PUSH	PUSH	REP	REP

Sending Histograms
ipc://histogram

1

2

2   Request Detailed
Histograms
ipc://details-%d

PULL	REQ
Manager Histogram Analizer	Manager Histogram Analizer
REQ	REQ

3   3   Request Ranges
ipc://range-request-%d
%d = process#

REP	REP
Source node 1	Source node N
PUSH	PUSH

4   4   4   4   Send Ranges
ipc://range-%d
%d = process#

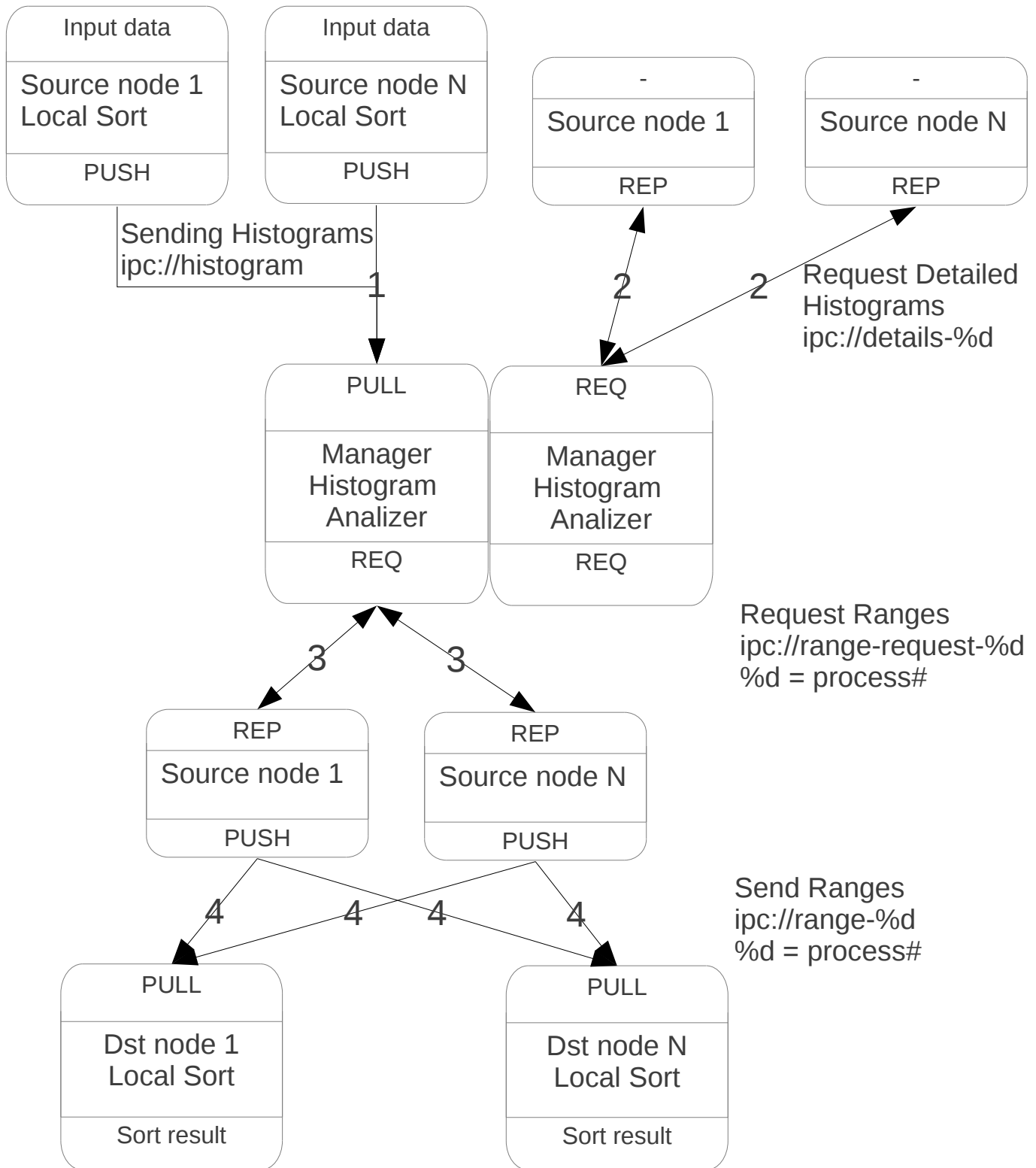| PULL	PULL
Dst node 1 Local Sort	Dst node N Local Sort
Sort result	Sort result

1. Every source sends one histogram to single manager; histogram is consist from 1000items, every item describes own part of source array sized by 1000; item={value, fist_index, last_index};

2. By request from Manager node Source node replied with detailed histogram with 5000 items, where one item describes single element first_index=last_index;

3.Manager send request to every source node; Request data is array of len N-source nodes count; range={dst_node_id, first_index, last_index};

4.Source node sends to every of N Destination nodes his range of data; Every destination nodes receives range from every N sources;

Result: Every destination node should receive own part of data;