

Project 3 - Report

CS6378 - Advanced Operating Systems

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Introduction:

This report details the values of Version Number, Replicated Unites and the Distinguished Sites at each level when the Jajodia-Mutchler voting algorithm is executed on the below network partitions. 2 writes are done on each network component at every level.

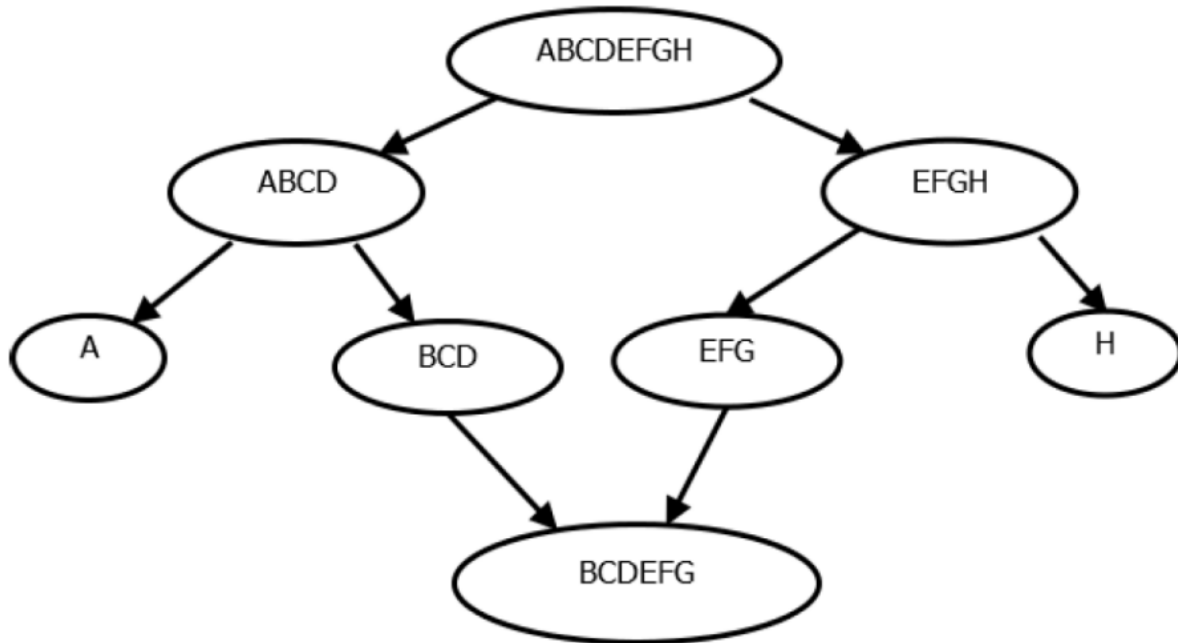


Figure 1: Sequence of network state transitions.

Detailed Analysis:

The system consists of 8 servers and 1 client. The client initiates 2 writes to 2 different servers in each network component. Below are the values:

Initial state: Partition is A B C D E F G H

Servers:	A	B	C	D	E	F	G	H
Version Number	1	1	1	1	1	1	1	1
Replicated Units	8	8	8	8	8	8	8	8
Distinguished Sites	A	A	A	A	A	A	A	A

State 1.1: Partition is A B C D E F G H

The client sent an update request to server A

Servers:	A	B	C	D	E	F	G	H
Version Number	2	2	2	2	2	2	2	2
Replicated Units	8	8	8	8	8	8	8	8
Distinguished Sites	A	A	A	A	A	A	A	A

State 1.2: Partition is A B C D E F G H

The client sent an update request to server B

Servers:	A	B	C	D	E	F	G	H
Version Number	3	3	3	3	3	3	3	3
Replicated Units	8	8	8	8	8	8	8	8
Distinguished Sites	A	A	A	A	A	A	A	A

State 2.1: Partition is A B C D and E F G H

The client sent an update request to servers A and E

Servers:	A	B	C	D	E	F	G	H
Version Number	4	4	4	4	3	3	3	3
Replicated Units	4	4	4	4	8	8	8	8
Distinguished Sites	A	A	A	A	A	A	A	A

State 2.2: Partition is A B C D and E F G H

The client sent an update request to servers B and F

Servers:	A	B	C	D	E	F	G	H
Version Number	5	5	5	5	3	3	3	3
Replicated Units	4	4	4	4	8	8	8	8
Distinguished Sites	A	A	A	A	A	A	A	A

State 3.1: Partition is A, B C D, E F G, and H

The client sent an update request to servers A, B, E, and H

Servers:	A	B	C	D	E	F	G	H
Version Number	5	6	6	6	3	3	3	3
Replicated Units	4	3	3	3	8	8	8	8
Distinguished Sites	A	-	-	-	A	A	A	A

State 3.2: Partition is A, B C D, E F G, and H

The client sent an update request to servers A, C, F, and H

Servers:	A	B	C	D	E	F	G	H
Version Number	5	7	7	7	3	3	3	3
Replicated Units	4	3	3	3	8	8	8	8
Distinguished Sites	A	-	-	-	A	A	A	A

State 4.1: Partition is BCDEFG

The client sent an update request to server B.

Servers:	A	B	C	D	E	F	G	H
Version Number	-	8	8	8	8	8	8	-
Replicated Units	-	6	6	6	6	6	6	-
Distinguished Sites	-	B	B	B	B	B	B	-

State 4.2: Partition is BCDEFG

The client sent an update request to server C.

Servers:	A	B	C	D	E	F	G	H
Version Number	-	9	9	9	9	9	9	-
Replicated Units	-	6	6	6	6	6	6	-
Distinguished Sites	-	B	B	B	B	B	B	-