

Data-PASS SSP Use Case 1 – All Invitations Accepted

lockss-0.icpsr.umich.edu
IP Add 141.211.192.29
Commitment 100

lockss-1.icpsr.umich.edu
IP Add 141.211.192.52
Commitment 1700

lockss-2.icpsr.umich.edu
IP Add 141.211.192.53
Commitment 1700

props.irss.unc.edu
IP Add 152.2.32.234
Commitment 39

dris.irss.unc.edu
IP Add 152.2.32.233
Commitment 39

haar.irss.unc.edu
IP Add 152.2.32.207
Commitment 200



Machine Ownership Key
ICPSR
Odum Institute

Invitation AU0, AU3

Invitation AU0, AU1, AU2, AU3

Invitation AU0, AU1, AU2, AU3

Invitation AU1, AU2

Invitation AU1, AU2

Invitation AU0, AU3

SCHEME

Let there be $h=6$ hosts (lockss-0, lockss-1, lockss-2, props, dris, haar), and $n=4$ AU's (AU0, AU1, AU2, AU3).

Generate h (6) invitations, such that:

- (A) For each AU, there are at least $k=4$ hosts harvesting
- (B) For each host, the sum of max size of AU's harvested is less than storage commitment.

For AU0 (size=95):

- *Invite lockss-0 ($k=1$) (harvesting 95, comm 100)
- *Invite lockss-1 ($k=2$) (harvesting 95, comm 1700)
- *Invite lockss-2 ($k=3$) (harvesting 95, comm 1700)
- *Cannot invite props (harvesting 0, comm 39)
- *Cannot invite dris (harvesting 0, comm 39)
- *Invite haar ($k=4$) (harvesting 95, comm 200)

For AU1 (size=18):

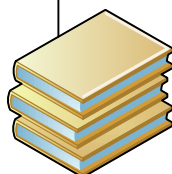
- *Cannot invite lockss-0 (harvesting 95, comm 100)
- *Invite lockss-1 ($k=1$) (harvesting 113, comm 1700)
- *Invite lockss-2 ($k=2$) (harvesting 113, comm 1700)
- *Invite props ($k=3$) (harvesting 18, comm 39)
- *Invite dris ($k=4$) (harvesting 18, comm 39)

For AU2 (size=18):

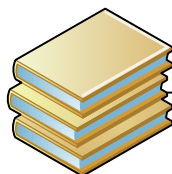
- *Cannot invite lockss-0 (harvesting 95, comm 100)
- *Invite lockss-1 ($k=1$) (harvesting 131, comm 1700)
- *Invite lockss-2 ($k=2$) (harvesting 131, comm 1700)
- *Invite props ($k=3$) (harvesting 36, comm 39)
- *Invite dris ($k=4$) (harvesting 36, comm 39)

For AU3 (size=4):

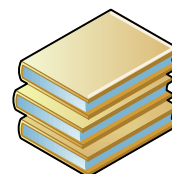
- *Invite lockss-0 ($k=1$) (harvesting 99, comm 100)
- *Invite lockss-1 ($k=2$) (harvesting 135, comm 1700)
- *Invite lockss-2 ($k=3$) (harvesting 135, comm 1700)
- *Cannot invite props (harvesting 36, comm 39)
- *Cannot invite dris (harvesting 36, comm 39)
- *Invite haar ($k=4$) (harvesting 99, comm 200)



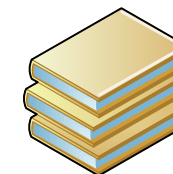
Title	AU0
Size	95



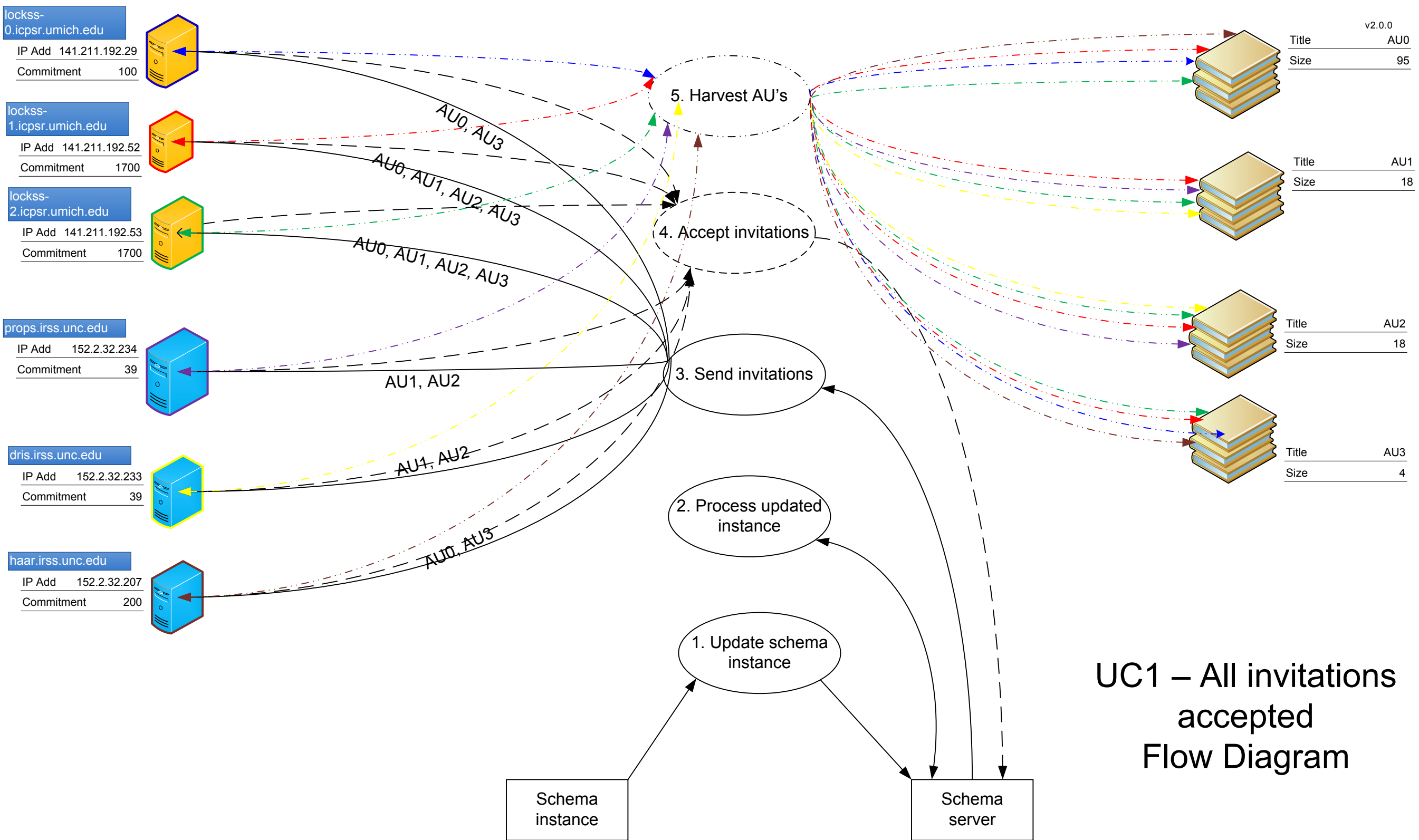
Title	AU1
Size	18



Title	AU2
Size	18



Title	AU3
Size	4



lockss-0.icpsr.umich.edu	
IP Add	141.211.192.29
Commitment	100

lockss-1.icpsr.umich.edu	
IP Add	141.211.192.52
Commitment	1700

lockss-2.icpsr.umich.edu	
IP Add	141.211.192.53
Commitment	1700

props.irss.unc.edu	
IP Add	152.2.32.234
Commitment	39

dris.irss.unc.edu	
IP Add	152.2.32.233
Commitment	39

haar.irss.unc.edu	
IP Add	152.2.32.207
Commitment	200

Title	AU0
Size	95

Title	AU1
Size	18

Title	AU2
Size	18

Title	AU3
Size	4

UC1 – All invitations accepted
Flow Diagram

Data-PASS SSP Use Case 1 – Some Invitations Rejected

lockss-0.icpsr.umich.edu

IP Add 141.211.192.29
Commitment 100

lockss-1.icpsr.umich.edu

IP Add 141.211.192.52
Commitment 1700

lockss-2.icpsr.umich.edu

IP Add 141.211.192.53
Commitment 1700

props.irss.unc.edu

IP Add 152.2.32.234
Commitment 39

dris.irss.unc.edu

IP Add 152.2.32.233
Commitment 39

haar.irss.unc.edu

IP Add 152.2.32.207
Commitment 200



Machine Ownership Key	
	ICPSR
	Odum Institute

Invitation AU0, AU3

Invitation AU0, AU1, AU2, AU3

Invitation AU0, AU1, AU2, AU3

Invitation AU1, AU2

Invitation
Rejection AU1, AU2

Invitation AU0, AU3
2d Stage Invite AU1, AU2

SCHEME

Let there be $h=6$ hosts (lockss-0, lockss-1, lockss-2, props, dris, haar), and $n=4$ AU's (AU0, AU1, AU2, AU3).

Generate h (6) invitations, such that:

(A) For each AU, there are at least $k=4$ hosts harvesting

(B) For each host, the sum of max size of AU's harvested is less than storage commitment.

For AU0 (size=95):

- *Invite lockss-0 ($k=1$) (harvesting 95, comm 100)
- *Invite lockss-1 ($k=2$) (harvesting 95, comm 1700)
- *Invite lockss-2 ($k=3$) (harvesting 95, comm 1700)
- *Cannot invite props (harvesting 0, comm 39)
- *Cannot invite dris (harvesting 0, comm 39)
- *Invite haar ($k=4$) (harvesting 95, comm 200)

For AU1 (size=18):

- *Cannot invite lockss-0 (harvesting 95, comm 100)
- *Invite lockss-1 ($k=1$) (harvesting 113, comm 1700)
- *Invite lockss-2 ($k=2$) (harvesting 113, comm 1700)
- *Invite props ($k=3$) (harvesting 18, comm 39)
- *Invite dris ($k=4$) (harvesting 18, comm 39)

For AU2 (size=18):

- *Cannot invite lockss-0 (harvesting 95, comm 100)
- *Invite lockss-1 ($k=1$) (harvesting 131, comm 1700)
- *Invite lockss-2 ($k=2$) (harvesting 131, comm 1700)
- *Invite props ($k=3$) (harvesting 36, comm 39)
- *Invite dris ($k=4$) (harvesting 36, comm 39)

For AU3 (size=4):

- *Invite lockss-0 ($k=1$) (harvesting 99, comm 100)
- *Invite lockss-1 ($k=2$) (harvesting 135, comm 1700)
- *Invite lockss-2 ($k=3$) (harvesting 135, comm 1700)
- *Cannot invite props (harvesting 36, comm 39)
- *Cannot invite dris (harvesting 36, comm 39)
- *Invite haar ($k=4$) (harvesting 99, comm 200)

k-values

AU0	4
AU1	3
AU2	3
AU3	4

Inadequate replication!

Redetermine invitations:

- AU1 [size=18] {lockss-1, lockss-2, props}
- *Cannot invite lockss-0 (comm=100, harv=99)
- *Cannot invite dris (rejected invitation)
- *Can invite haar (comm=200, harv=99), $k=4$

AU2 [size=18] {lockss-1, lockss-2, props}

- *Cannot invite lockss-0 (comm=100, harv=99)
- *Cannot invite dris (rejected invitation)
- *Can invite haar (comm=200, harv=117), $k=4$

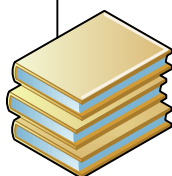
Send new invitations:

haar {AU0, AU1, AU2, AU3}

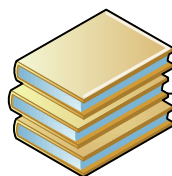
haar accepts AU0, AU1, AU2, AU3

Invitations are sent to hosts:

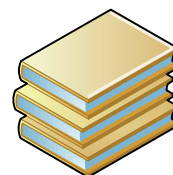
lockss-0 accepts AU0, AU3
lockss-1 accepts AU0, AU1, AU2, AU3
lockss-2 accepts AU0, AU1, AU2, AU3
props accepts AU1, AU2
dris rejects AU1 and AU2!
haar accepts AU0, AU3



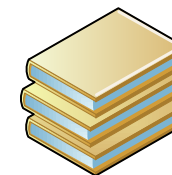
Title	AU0
Size	95



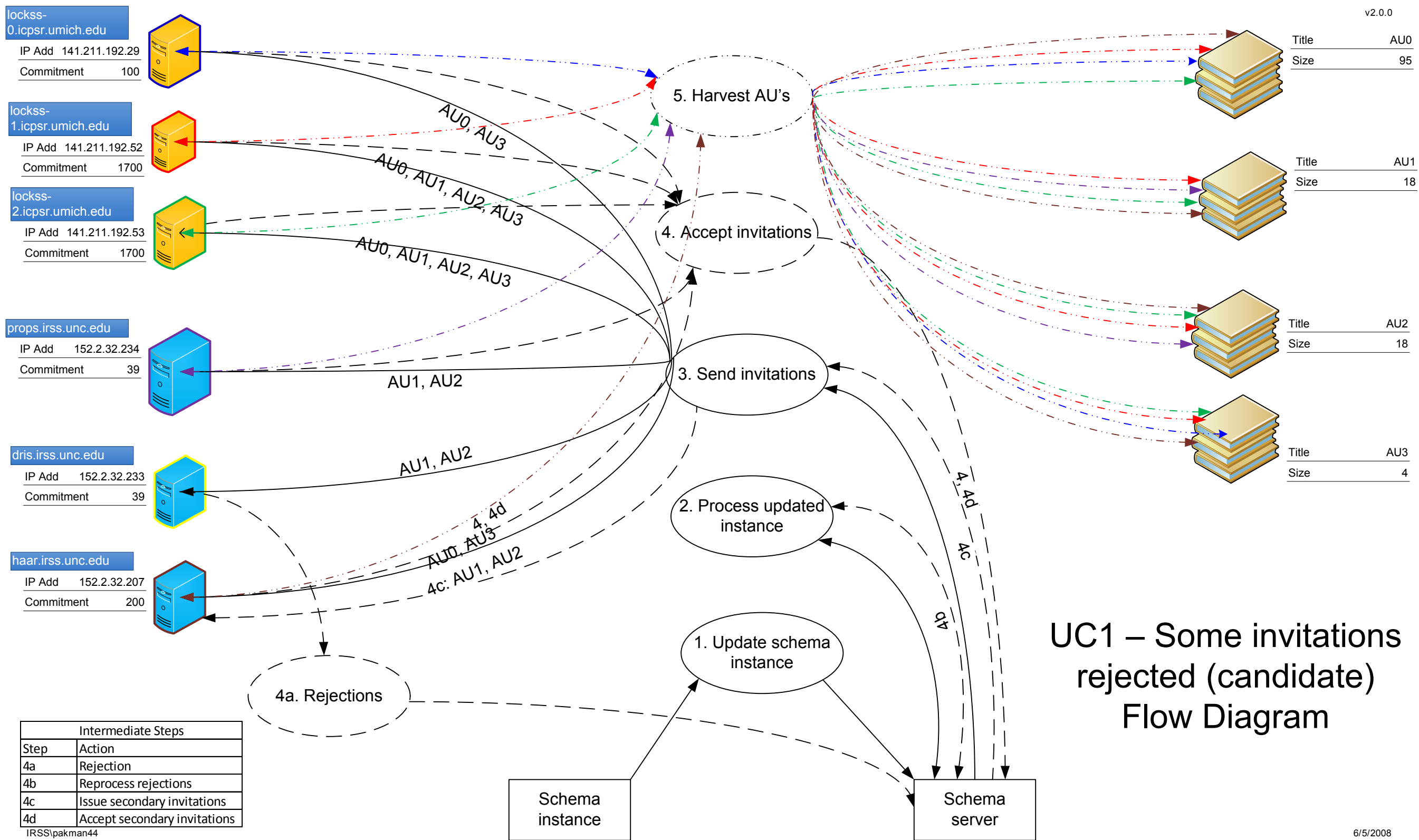
Title	AU1
Size	18



Title	AU2
Size	18



Title	AU3
Size	4



UC1 – Some invitations rejected (candidate)
Flow Diagram