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[seihoon@true.inhatc.ac.kr](mailto:seihoon@true.inhatc.ac.kr), [cjwangse@inha.ac.kr](mailto:cjwangse@inha.ac.kr)

## A Design of Role Based Access Control Manager in Distributed Virtual Environment

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가

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1.

Spline[6], Massive[7]

가

CSCW(Computer Support Collaborative

가

3

VRML

Work)

OpenCommunity[8],

[1,2].

BlacxonInterative[9]

가

가

가

가

가

[3].

(security)

가

가

가

SIMNET[4], NPSNET[5]

가

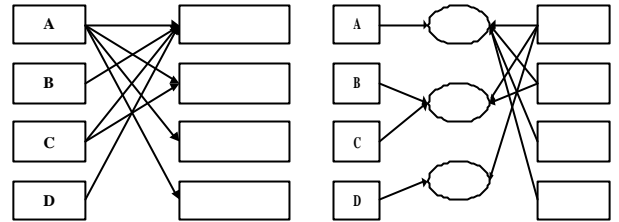
(Role)

2.

[ 1]

가

2.1



(a)

(b)

[ 1]

(Discretionary Access Control,

[ 1]

DAC)

(ID)

[10]

가

가

가

가

DAC

DAC

ID

3.

가

가

가

(Mandatory Access Control,

3.1

MAC)

가

[10]. MAC

가

RBAC

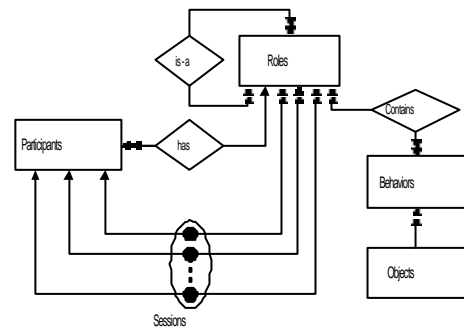
가

DAC

가

2]

(entity)



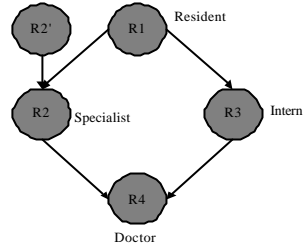
[ 2] RBAC

3.1.1

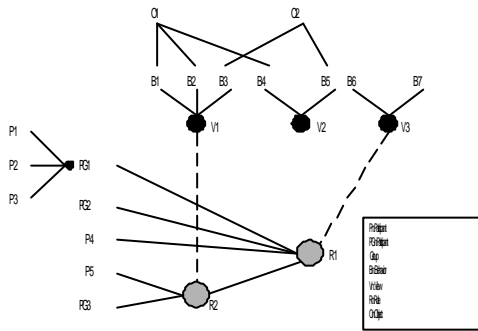
[11].

- (Participant)  $P = \{ p_1, p_2, p_3, \dots, p_i \}$
- (Behavior)  $B = \{ b_1, b_2, b_3, \dots, b_i \}$
- (Object)  $O = \{ o_1, o_2, o_3, \dots, o_i \}$
- (Role)  $R = \{ r_1, r_2, r_3, \dots, r_i \}, r_k \in \wp(U) \times \wp(P)$
- (Session)  $S = \{ s_1, s_2, s_3, \dots, s_4 \}$

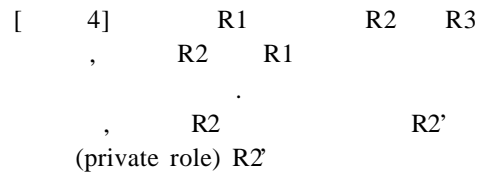
[ 3] / , , , ,  
 $R : P \times \wp(B) \quad f\{u,b\}$



(Subject)



가 [ 4]



3.3

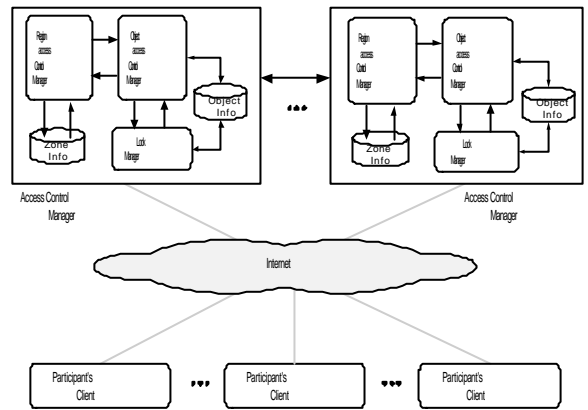
(Region Access Control Manager), (Object Access Control Manager), (Lock Manager) [ 5]

3.2

(role graph model)

3.2.1

(directed acyclic graph)



R4 “is-a” R2 R4 R2,

R1 가 R2 R3 가 “ ”

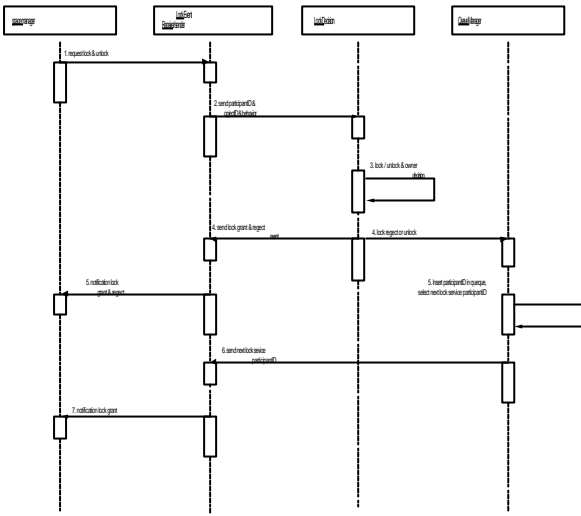
[ 5] 가

가 walk , 가 boundary

3.2.2

가 가





[ 7]

4. 가

4.1

가

가

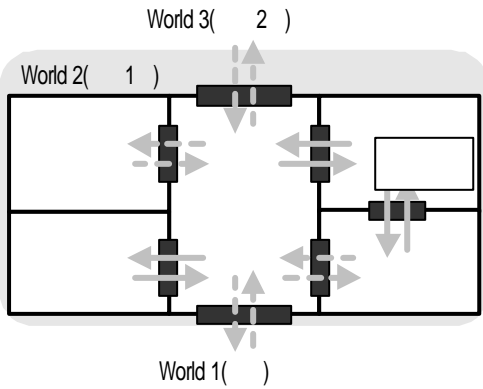
[ 8]

가

가

portal( )  
( )

가  
가



[ 8]

가

[ 8] 가

가

4.2

Permitted\_Roles = {  
, , }, Permitted Roles  
= { , , },  
Permitted\_Roles = { , } 가  
가 가

boundary

[ 3]

“ ”

[ 3]

가

[ 3]

Region_ Name	Permitted_ Roles	Max_ Exist	Present_ Exist	Group_ Policy
		10	5	Max Or Min
		3	1	Max Or Min

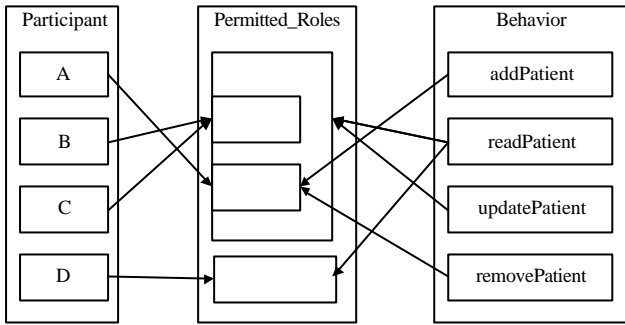
4.3

가

가, ,

4 (A)  
2 (B, C), 1 (D)

[ 9]



[ 9]

B, C  
 가 , [ 9] 가,  
 가 ,  
 [ 4] + [ 4] 가  
 가  
 가  
 A 가  
 request( , A, addPatient)  
 B  
 request( , B, removePatient)

[ 4]

Permitted_Roles	Inherits from	Behavior	Participant
	_defaultRole	+readPatient	A,B,C
	_defaultRole	+readPatient	D
		+readPatient -updatePatient	B,C
		+readPatient -pdatePatient -removePatient +addPatient	A

A 가  
 가  
 B 가  
 가  
 가

5.

가

가

가

가 가

[1] , , “ 가 ”  
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