

IEPG meeting in Vancouver, Dec 2nd 2007

Authorization mechanism in JPIRR

Japan Network Information Center

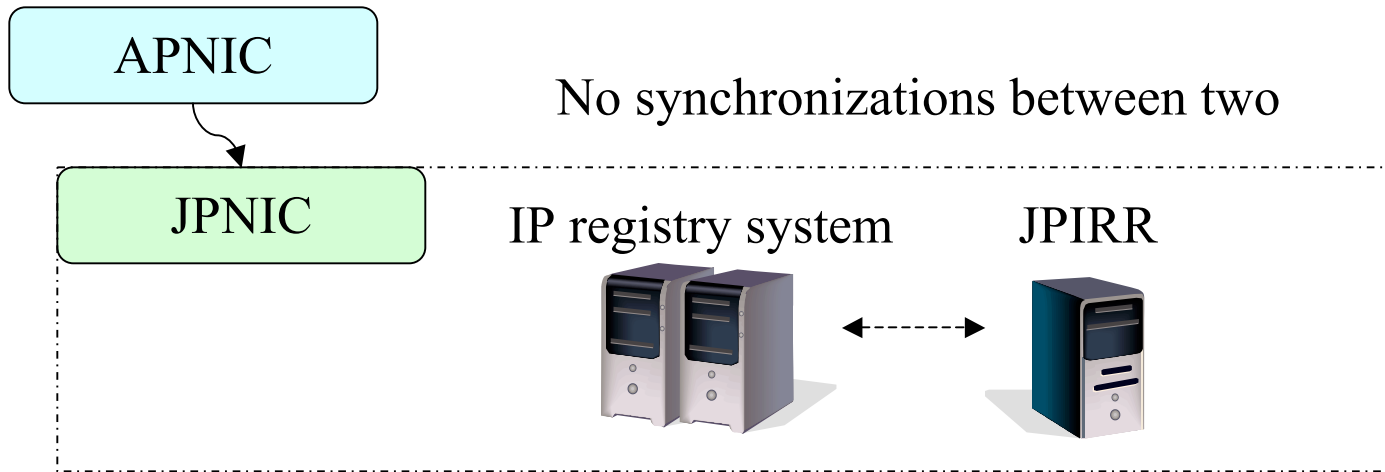
Taiji Kimura

One topic about Internet Routing Registry

- An trial implementation of authorization mechanism for JPIRR
 - Will be released for LIRs in Japan this month
 - Has LIR's authorization list
 - Maintained by LIRs who have allocated prefixes from JPNIC
 - Allow/Deny mntners in JPIRR to put prefixes in route objects
 - AS numbers can be specified by LIRs.
- Does this works well for routing security?

What JPIRR is, and Why this mechanism is needed

JPIRR - Internet Routing Registry in JPNIC



JPIRR

Number of mntner obj.: 122

Number of route obj.: 2,904

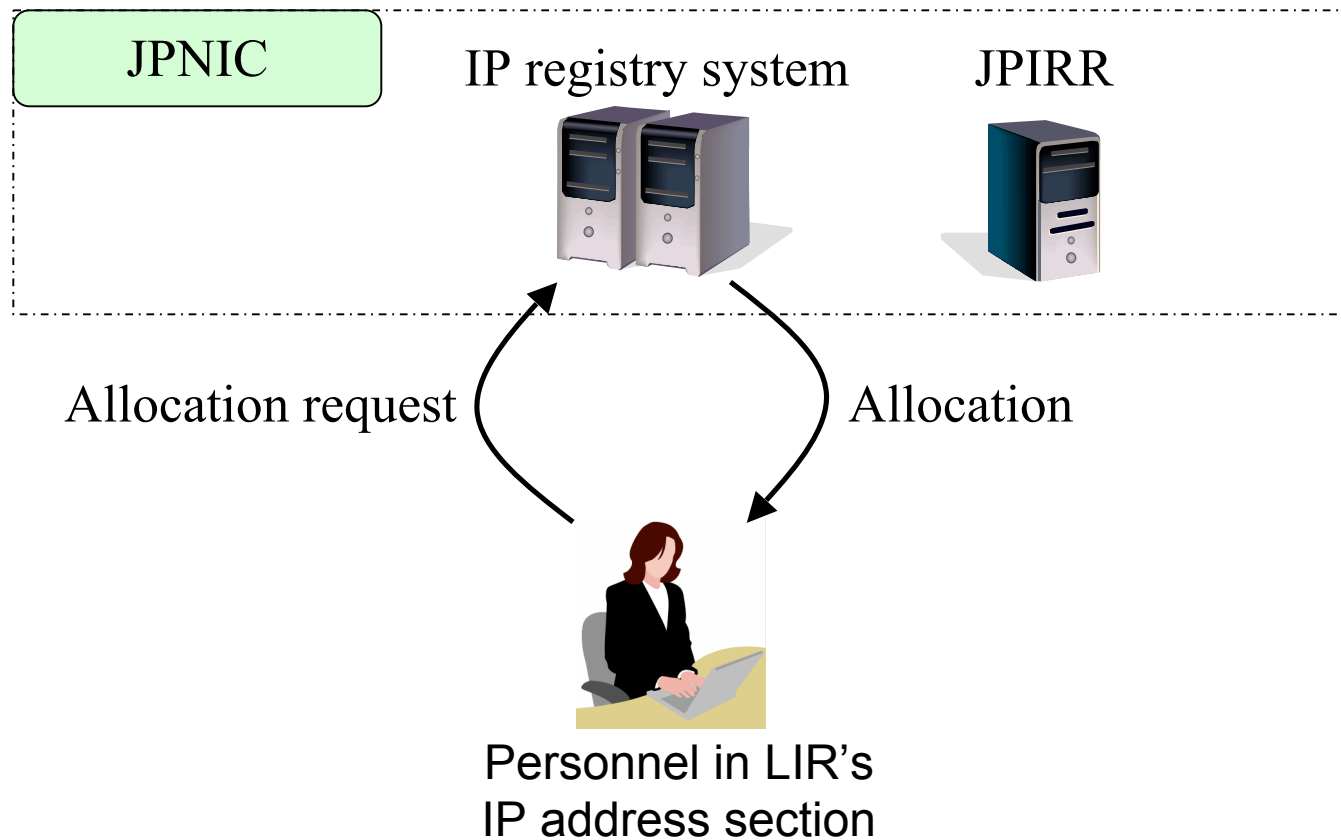
RADB

mntner obj.: 2,172

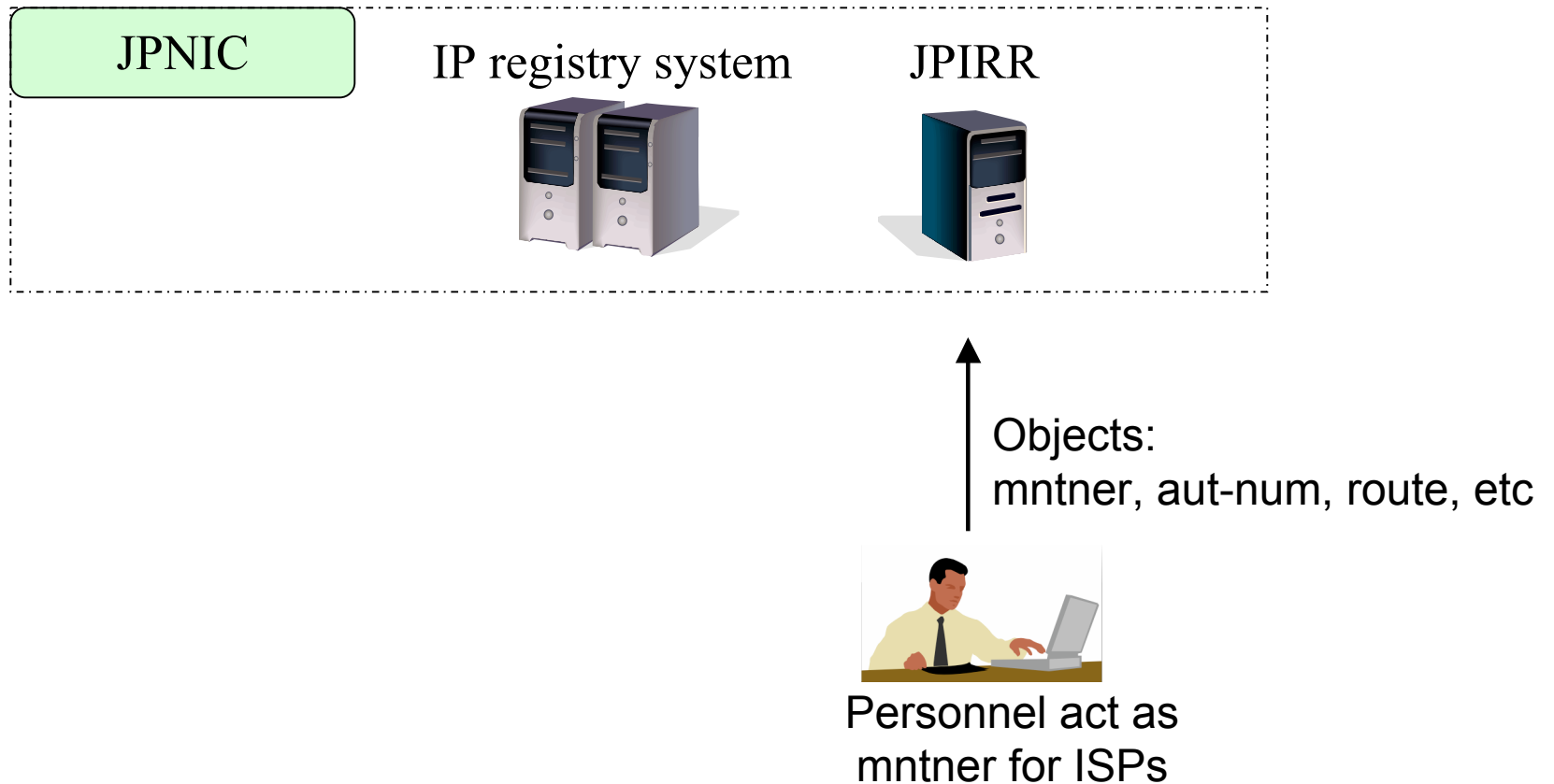
route obj.: 208,501

In Dec 2 2007

IP address allocation to LIRs



Registration of objects in JPIRR



Why this mechanism is needed

- There are no relationship between IP address allocated to LIRs and prefixes in route objects in JPIRR.

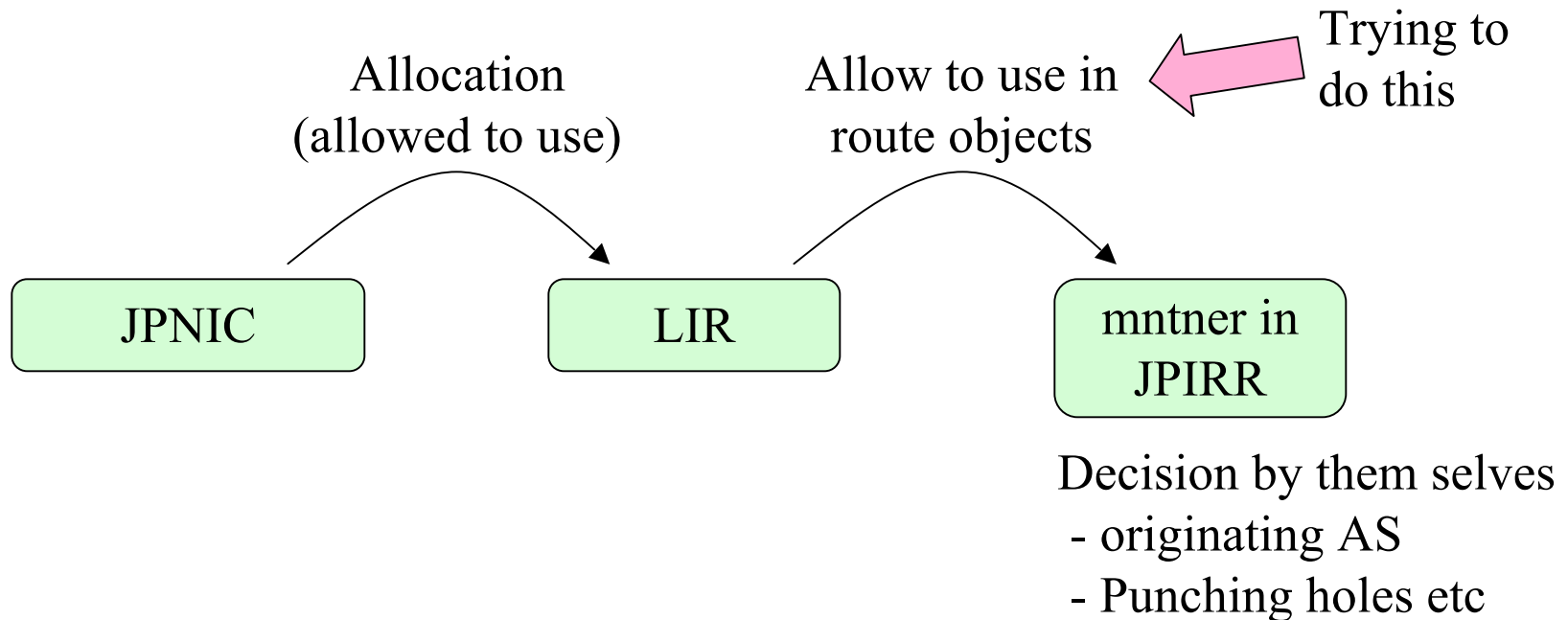
Two big questions:

- Does anyone can put any prefixes in route objects? - - Yes he/she can.
- Is there any correctness of prefix-based filtering for BGP routers along with JPIRR? - - Well, yes if all mntner does correctly.
- How should we handle it?
 - At least, LIRs are need to be aware of use of prefixes in global routing operations.

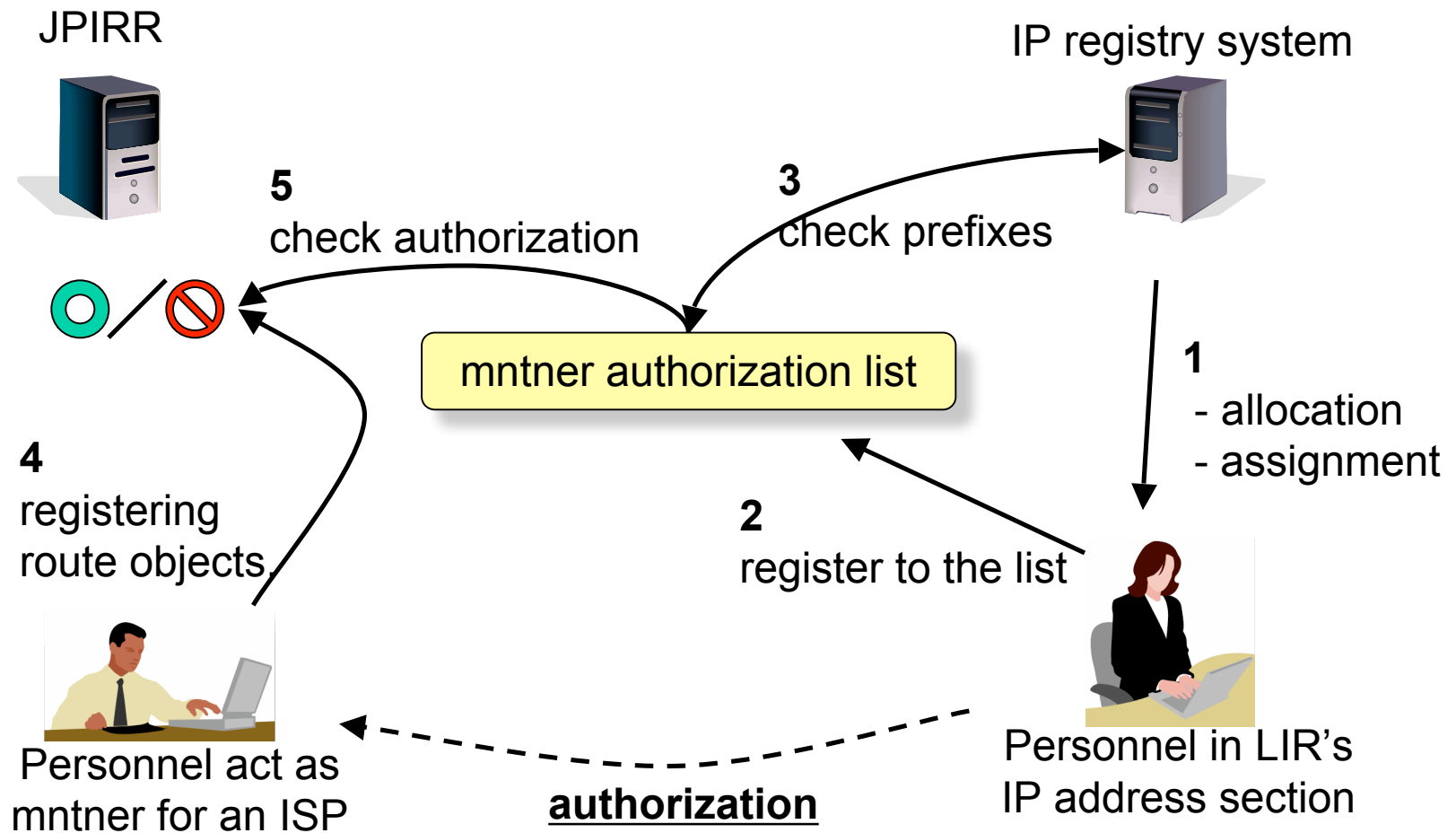
A trial mechanism in JPNIC

mntner authorization mechanism

- A mechanism restricts mntners to register route objects having prefixes are not allocated to LIRs. And keeps ordinal way of routing operations.



mntner authorizaiton list (1)



mntner authorization list (2)

Prefix (inclusive)	allow / deny	mntner	Origin AS (optional)
1.1.0.0/16	allow	MAINT-JPNIC	12345
1.1.0.0/17	deny	MAINT-AS2515	

mntner authorization list (3)

経路情報登録機構 - Mozilla Firefox

ファイル(F) 編集(E) 表示(V) 履歴(S) ブックマーク(B) ツール(T) ヘルプ(H)

経路情報登録機構

複数項目の条件はAND条件として検索します。

検索 クリア 全件表示

.....

検索結果 10件

許可リストID	資源管理番号	資源管理者略称	Prefix ▲ ▼	メンテナー名 ▲ ▼	AS番号 ▲ ▼
13	9998	ROUTEREGTEST	100.0.80/24	MAINT-ROUTEREG	
19	9998	ROUTEREGTEST	100.0.10.0/24	MAINT-ROUTEREG2	AS9.9, AS2.5
18	9998	ROUTEREGTEST	100.0.10.0/32	MAINT-ROUTEREG	AS2.2
23	9998	ROUTEREGTEST	100.0.32.0/19	MAINT-ROUTEREG2	AS00001.00001, AS3791
14	9998	ROUTEREGTEST	100.0.32.0/19	MAINT-ROUTEREG	
27	9998	ROUTEREGTEST	202.210.58.0/23	MAINT-ROUTEREG2	AS37911, AS2.5
29	9998	ROUTEREGTEST	202.210.59.0/24	MAINT-ROUTEREG2	
26	30999	ROUTEREGTEST	2001.0c40::/32	MAINT-ROUTEREG2	AS37911, AS2.5
24	30999	ROUTEREGTEST	5000::/32	MAINT-ROUTEREG2	AS99999.99999, AS3791
11	30045	JPNIC	5000::/32	MAINT-ROUTEREG	AS64512, AS00001

完了 routerreg.nic.ad.jp 0.454s

How it works (1): LIR's registration

The mechanism's check:
- prefixes allocated to registering LIR

IP registry system



許可IPIP	資源管理番号	資源管理者名称	Prefix	ルータ名	AS番号
13	9998	ROUTEREGTEST	100.98.0/24	MAINT-ROUTEREG	
19	9998	ROUTEREGTEST	100.0.10.0/24	MAINT-ROUTEREG2	AS9.9, AS2.5
18	9998	ROUTEREGTEST	100.0.10.0/22	MAINT-ROUTEREG	AS2.2
23	9998	ROUTEREGTEST	100.0.32.0/19	MAINT-ROUTEREG2	AS00001, 00001, AS3791
14	9998	ROUTEREGTEST	100.0.32.0/19	MAINT-ROUTEREG	
27	9998	ROUTEREGTEST	202.210.58.0/23	MAINT-ROUTEREG2	AS37911, AS2.5
29	9998	ROUTEREGTEST	202.210.59.0/24	MAINT-ROUTEREG2	
26	30999	ROUTEREGTEST	2001.0x40./32	MAINT-ROUTEREG2	AS37911, AS2.5
24	30999	ROUTEREGTEST	0000./32	MAINT-ROUTEREG2	AS99999, 99999, AS3701
11	30045	JPNIC	0000./32	MAINT-ROUTEREG	AS64512, AS00001

LIR's registration:

- mntners who can use allocated prefixes
- prefixes those mntners can put in route objects
- AS numbers as Origin AS can be specified (optional)



Personnel in LIR's
IP address section

How it works (2): mntner's action

JPIRR



The mechanism's check:

- authorizations

(mntners who are allowed by LIR to use the prefixes)

検索項目の条件はAND条件として検索します。

検索結果 10件

許可したID	資源管理番号	資源管理名称	Prefix	メンテナンス名	AS番号
13	9998	ROUTEREGTEST	100.0.0.0/24	MAINT-ROUTERS	
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18	9998	ROUTEREGTEST	1000.10.0/32	MAINT-ROUTERS	AS2.2
23	9998	ROUTEREGTEST	1000.32.0/19	MAINT-ROUTERS2	AS00001.00001, AS37911
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26	30999	ROUTEREGTEST	2001.0.40./32	MAINT-ROUTERS2	AS37911, AS2.5
24	30999	ROUTEREGTEST	5000./32	MAINT-ROUTERS2	AS99999.99999, AS37911
11	30045	JPNIC	5000./32	MAINT-ROUTERS	AS64512, AS00001



Personnel act
as mntner

Mntner's registration:

- route objects

Expected results

- All new registered route objects will have allocated prefixes. And they are registered by appropriate mntners.

This situation can keep:

- Avoiding

- Use of un-allocated prefixes in route objects
- Miss-matches from registry's allocations

- Providing

- Selecting originating AS by mntners according to operational reasons
- Nothing new if LIR and mntner are the same

Operator's expect on use of JPIRR in Japan

- irrzebra
 - Checks BGP updates with IRR
 - Shows flags as “checked” when displaying routing table
- Keiro-bugyo
 - (Keiro is ‘route’)
 - (Bugyo is organized decision makers for local society in Samurai era)
 - Checks received BGP updates with local configurations
 - (Local configurations are checked by using IRR)
 - Notify if a miss-use is detected by e-mail

They will have more accuracy of ‘checks’ if the authorization mechanism works well.

Issues (1)

- Updating list and objects
 - Checking allocation database in IP registry system periodically (implemented as shell scripts)
 - Checking in-consistency between existing route object and authorization list (not implemented)
- Provider Independent(PI) address / Multi-homing
 - Should JPNIC staff register to the list manually...? (implemented)

Issues (2)

- Status of the activity
 - Beginning with a trial, and not for all LIR/mntners.
 - Not released yet, preparing releasing in this month
- **Is this just a kind of catching up to RIRs?**
 - RIPE NCC, ARIN and APNIC...do...
 - Does this work with resource certificates?
 - May be a small step for LIRs to be aware of authorization of prefixes in Japan.

Summary

- An trial implementation of authorization mechanism for JPIRR
 - Will be released for LIRs in Japan this month
 - Has LIR's authorization list
 - Maintained by LIRs who have allocated prefixes from JPNIC
 - Allow/Deny mntners in JPIRR to put prefixes in route objects
 - AS numbers can be specified by LIRs.
- There are several issues on this but,
 - May be a small step for LIRs to be aware of authorization of prefixes in Japan.

Questions, Answers and Discussions.

Thank you for your attentions.