

Compath Project updates

APAN-JP/JGN2plus/TEIN2-JP NOC
KDDI

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2009

Agenda

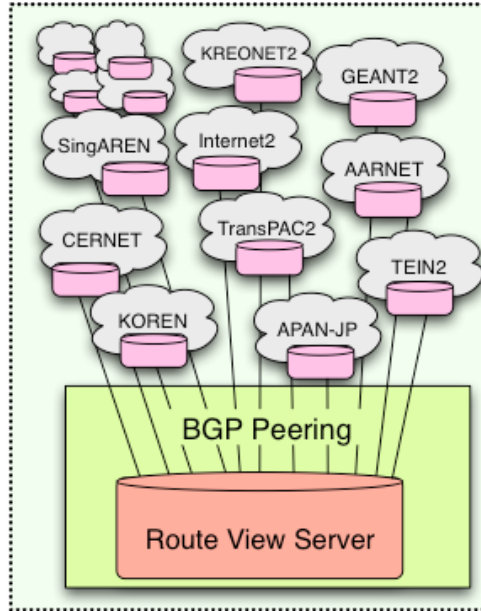
- Overview
- Systems
- Summary of Investigation
- Update (KREONET2)
- Future Work

Overview

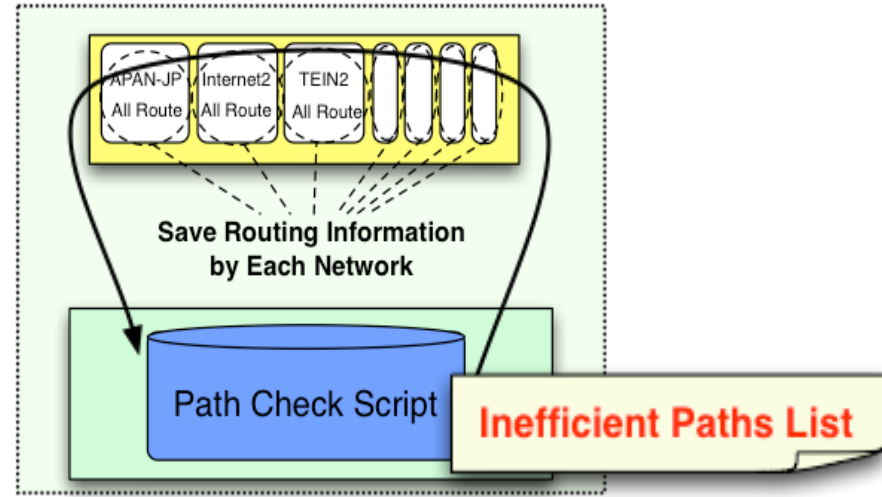
- As the connectivity in the Asian region improve, the inefficient routing has occurred such as intercontinental loop routes.
- Compath Project is aiming to the implement optimum BGP routing.
- We developed 2 systems in the Compath Project, one is R&E route view server and another is for detecting inefficient paths.
- R&E route view server collects IPv4 BGP routing information by peering with R&E networks, and display the current routing status on the web page.
- Detecting system checks the current routing status and extracts intercontinental loop and over half around the world routes as inefficient paths.
- 24 R&E networks are joining this project, now.

Systems

24 R&E networks



R&E Route view server



Detecting Inefficient paths

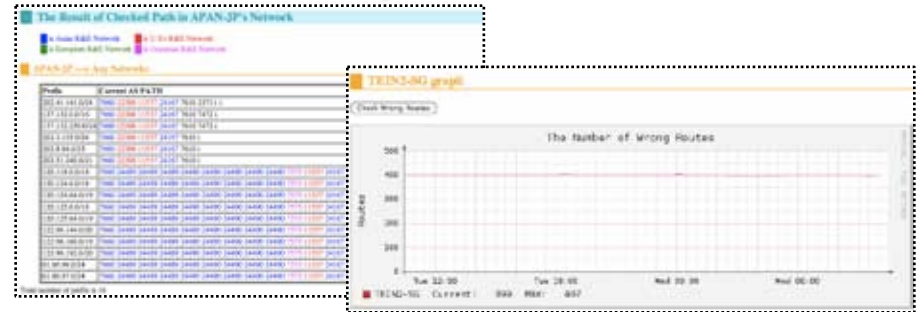
BGP Table of APAN-JP_tpr6

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BGP table version is 0, local router ID is 203.181.249.35
Status codes: s - suppressed, d - dampened, h - history, * - valid, > - best, i - internal,
               o - OSPF-Other, O - OSPF, S - Summary
Origin codes: i - IGP, e - EGP, ? - Incomplete

Network          Next Hop          Metric LocPrf Weight Path
>> 0.0.0.0/24    203.181.249.144  0 0 0 7680 22380 15337 640 i
>> 8.2.0.0/22    203.181.249.144  0 0 0 7680 22380 15337 640 i
>> 8.2.0.0/28    203.181.249.144  0 0 0 7680 22380 15337 640 i
>> 8.4.0.0/16    203.181.249.144  0 0 0 7680 22380 15337 640 i
>> 8.8.0.0/28    203.181.249.144  0 0 0 7680 22380 15337 640 i
>> 8.8.0.0/16    203.181.249.144  0 0 0 7680 22380 15337 640 i
>> 8.7.0.0/16    203.181.249.144  0 0 0 7680 22380 15337 640 i
>> 8.6.0.0/20    203.181.249.144  0 0 0 7680 22380 15337 640 i
>> 8.9.0.0/28    203.181.249.144  0 0 0 7680 22380 15337 640 i
>> 12.0.0/16    203.181.249.144  0 0 0 7680 22380 15337 640 i
>> 8.4.244.0/24  203.181.249.144  0 0 0 7680 22380 15337 51096 4596
>> 8.4.249.0/24  203.181.249.144  0 0 0 7680 22380 15337 28649 696 i
>> 12.0.48.0/20  203.181.249.144  0 0 0 7680 22380 15337 60978 1743
>> 12.6.208.0/20 203.181.249.144  0 0 0 7680 22380 15337 10578 1743
    
```

Current routing information



The result of inefficient paths and statistics

Summary of investigation

- The system detects the inefficient paths in only Asian R&E networks.
- Those inefficient paths across Asia, were almost via TWAREN(AS7539) and KREONET2(AS17579).
- On TEIN3 network, many inefficient paths are detected, but these paths were based on TEIN3 routing policy, so they were not wrong routes.

Summary of investigation (cont.)

- The worst ranking

Ranking at 22 Apr. 2009

Rank	Networks Name	AS Number	count
1	KREONET2	17579	1084
2	TWAREN	7539	312
3	CERNET	4538	97
4	ASGC	24267	59
5	CSTNET	7497	14

This ranking means the rank of "ITN" (International Transit Network) that the inefficient paths has been selected by other R&E networks. The count is the sum of detected inefficient path on each R&E network which join "Compath Project". This rank doesn't include TEIN3 routes.

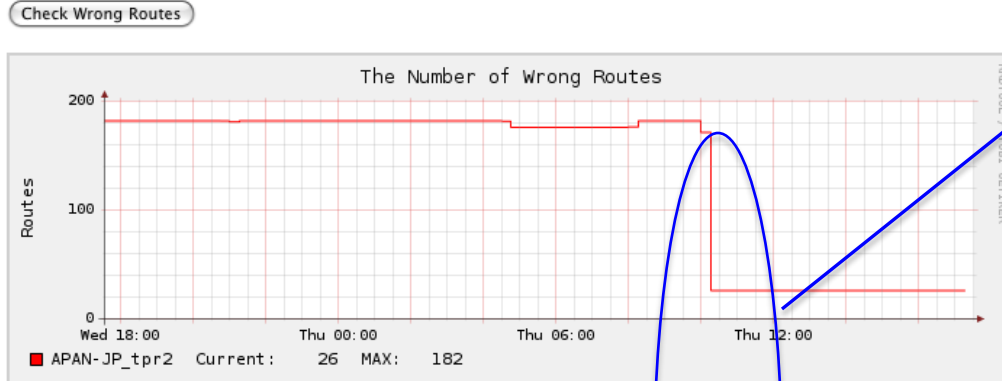
From any Asian networks (except TEIN3) to KREONET2 and their leaf network

	APAN-JP	APAN-TW	ASTI	KOREN	SingAREN	SINET	ThaiREN	UniNet
via KREONET2	153	68	143	122	152	91	280	137

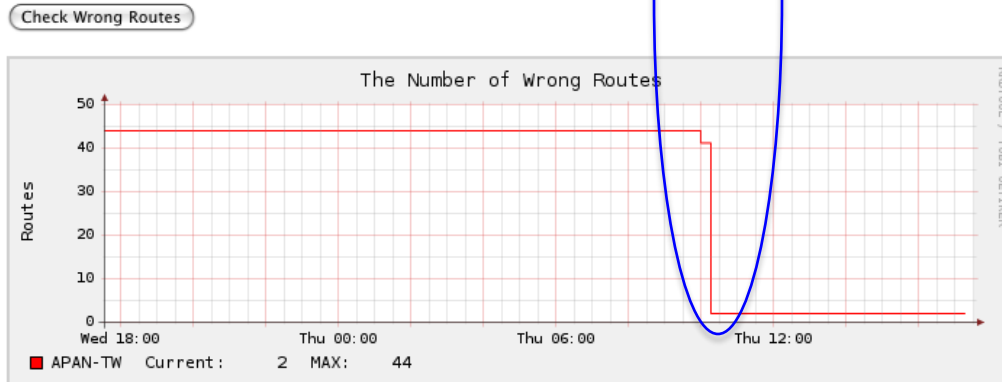
Update(KREONET2)-2-

- After peering

APAN-JP_tpr2 graph



APAN-TW graph



At 23 Apr. 2009, APAN-JP and KREONET2 have peering over HKIX. All inefficient paths about KREONET2 have been disappeared on Asian R&E Network.

Future Work

- Regarding to inefficient paths of TWAREN (AS7539), we will contact them and solve the problem same as KREONET2.
- Also investigating IPv6 routing for detecting commercial routes in R&E route. We started to discuss this problem and resolve it partially.

References

- About Compath Project

<http://www.jp.apan.net/NOC/bgp-routes/index.html>

- Compath Project (member only)

<http://compath.jp.apan.net/index.rhtml>

- Activities

<http://www.jp.apan.net/meetings/0607-sg/kuro-sg.pdf>

<http://www.jp.apan.net/meetings/0701-manila/Kurokawa.pdf>

<http://www.jp.apan.net/meetings/0708-xian/kurokawa.pdf>

<http://www.jp.apan.net/meetings/0801-hawaii/kurokawa.pdf>

<http://www.jp.apan.net/meetings/0808-NZ/kurokawa.pdf>

<http://www.jp.apan.net/meetings/0903-TW/kurokawa.pdf>