

APNIC

Autonomous System Numbers

INET 2000
Network Training Workshops

ASIA PACIFIC NETWORK INFORMATION CENTRE

APNIC

Overview

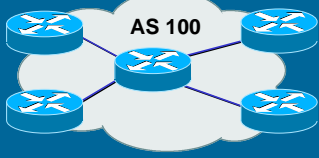
- ♦ What is an AS?
- ♦ Guidelines and procedures
- ♦ Application form (documentation)
- ♦ Policy expression

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What is an 'Autonomous System' ?

- ♦ Definition of an AS
 - ♦ Collection of networks with the same routing policy, usually under single ownership, trust & administrative control




The diagram shows a central cloud labeled 'AS 100' containing five blue router icons connected by lines, representing a single autonomous system.

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What is an 'Autonomous System' ?

- ♦ When do I need an AS?
 - ♦ Multi-homed network to different providers and
 - ♦ Routing policy different to external peers



The diagram shows a central cloud labeled 'AS100' connected to three external clouds labeled 'AS300', 'Global Internet', and 'AS200'. Each connection is represented by a green line with a router icon at the interface point, illustrating a multi-homed network.

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ASN Guidelines

- ♦ Factors that don't count
 - ♦ Transition
 - ♦ 'Future proofing'
 - ♦ Multi-homing to the same upstream
 - ♦ RFC2270: Using dedicated AS for sites homed to a single provider
 - ♦ Service differentiation
 - ♦ RFC1997: BGP Communities attribute
- ♦ Recommended reading
 - ♦ RFC1930: Guidelines for creation, selection and registration of an Autonomous System

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Requesting an ASN

- ♦ Complete the request form
 - ♦ web forms available (APNIC and RIPE NCC)
 - ♦ <http://www.apnic.net/db/aut-num.html>
 - ♦ <http://www.ripe.net/cgi-bin/web147.cgi>
 - ♦ text form (ARIN)
 - ♦ <http://www.arin.net/regserv/templates/asntemplate.txt>
- ♦ Must include routing policy
 - ♦ Multiple as-in and as-out lines
- ♦ Contacts for upstream providers required

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Requesting an ASN

APNIC customers

- Procedures
 - Can request via member, or directly through 'non-member' schedule (ARIN and APNIC only)
- If customer disconnects from member
 - Customer keeps AS
 - Modify database entry for AS
 - member removes maintainer protection
 - customer updates policy
- Transfers of ASNs
 - Need legal documentation (mergers etc)
 - Should be returned if no longer required

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Request Form (APNIC example)

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The AS Object

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- An example


```

aut-num: AS4777
as-name: APNIC-NSPIX2-AS
descr: Asia Pacific Network Information Centre
descr: AS for NSPIX2, remote facilities site
as-in: from AS2500 100 accept ANY
as-in: from AS2524 100 accept ANY
as-in: from AS2514 100 accept ANY
as-out: to AS2500 announce AS4777
as-out: to AS2524 announce AS4777
as-out: to AS2514 announce AS4777
default: AS2500
admin-c: PW35-AP
tech-c: NO4-AP
remarks: Filtering prefixes longer than /24
mnt-by: MAINT-APNIC-AP
changed: paulg@apnic.net 19981028
source: APNIC
      
```

POLICY RIPE-181

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Representation of Routing Policy

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Basic concept

AS 1

AS 2

aut-num: AS1
<administrivia go here>
as-in: from AS2 100 accept AS2
as-out: to AS2 announce AS1

aut-num: AS2
<administrivia go here>
as-in: from AS1 100 accept AS1
as-out: to AS1 announce AS2

COST per AS shows preference
lower cost means 'preferred'

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Representation of Routing Policy

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AS 123

AS 4

AS 5

AS 10

More complex example

- AS 4 gives transit to AS 5, AS 10
- AS 4 gives local routes to AS 123

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Representation of Routing Policy

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AS 123

AS 4

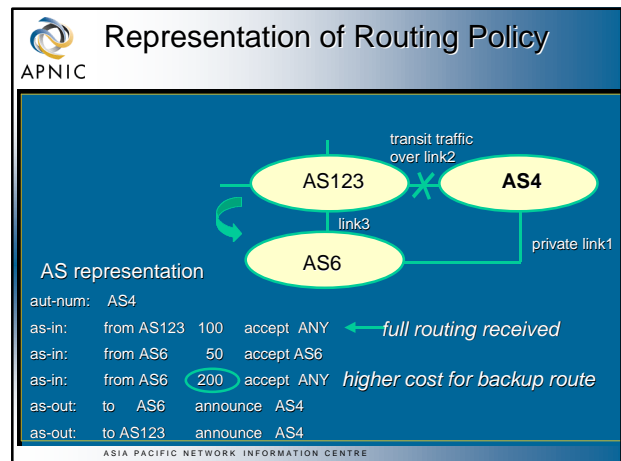
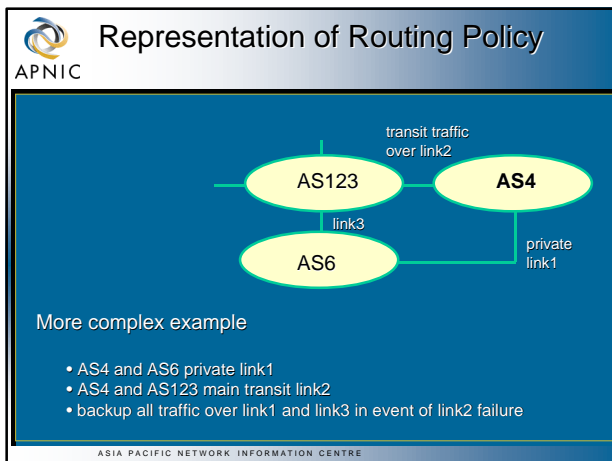
AS 5

AS 10

aut-num: AS4
as-in: from AS123 100 accept AS123
as-in: from AS5 100 accept AS5
as-in: from AS10 100 accept AS10
as-out: to AS123 announce AS4
as-out: to AS5 announce AS4 AS10
as-out: to AS10 announce AS4 AS5

Not a path

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Routing Policy Specification Language

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- ♦ RPSL
 - ♦ Derived from RIPE-181
 - ♦ New object specification language
 - ♦ more expressive syntax
 - ♦ advanced aut-num and routing policy options
 - ♦ introduces route objects and route macros
- ♦ Basic conversion very simple

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RPSL Conversion Tools

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- ♦ <http://www.isi.edu/ra/rps/transition/>

Welcome to the RPSL Transition Page

This page presents the latest information on the transition from RIPE-181 to the new Routing Policy Specification Language. The information will be updated frequently; visit often to stay up-to-date.

- ♦ [Query a mirrored copy of the Internet Routing Registry](#)
- ♦ [Query a mirrored copy of the IRR that has been converted to RPSL](#)
- ♦ [Convert RIPE-181 objects to RPSL / Perform RPSL syntax checks](#)
- ♦ [Access ISI's RPSL-capable database server](#)
- ♦ [Download the RIPE-to-RPSL converter tool](#)
- ♦ [Transition Plan](#)
- ♦ [RPSL Transition Presentation to NANOG, October 1997](#)

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