



memo

TO	Aggregation Partners
CC	
FROM	REANNZ
DATE	30 May 2007
SUBJECT	KAREN Accredited Network Aggregator Policy

Background

This policy was developed by REANNZ. A draft was submitted to the community for feedback on 30 April 2007. Feedback received has been incorporated into this final policy.

Overview

The purpose of an aggregation layer is to allow multiple smaller organisations to gain access to KAREN without having to bear the cost, or administrative burden, of a core KAREN connection. In addition, aggregators may choose to offer additional services to their customers taking advantage of centralised peering to make routing decisions for customer traffic.

Aggregators would connect to the KAREN core in the same way as core members, taking advantage of either single or multiple 1Gb/s and 10Gb/s connections to provide access to R&E&I organisations compliant with our Network Access Policy.

End customers would be required to sign a KAREN membership agreement and pay the appropriate member charges.

Objectives

Our aggregation service has the proposed following objectives:

- Allow a wider group of customers to access KAREN by reducing the last mile connection barriers
- Maintain a high-quality KAREN experience
- Lower cost for the user and aggregation provider
- Ease administration for the user and aggregation provider

- Allow provision of other services by the aggregation provider to the user providing such services do not negatively impact traffic to and from KAREN.

Principles

We propose that an aggregation service must follow KAREN's principles as evidenced in its architecture, objectives and operations, including:

- A customer's aggregated KAREN connection cannot be bound to other service offerings from the aggregation provider, ie there must be no commercial or technical 'lock-in'.
- Customers must not be restricted access to any service or routes available on KAREN (unless provided for by law)

We encourage differentiation between aggregation service providers based on service and product excellence, rather than commercial and technical lock-in.

Commercial

Aggregators connecting to KAREN will be required to sign an Agreement with REANNZ. The Charges in this Agreement may be zero-rated.

Only compliant traffic (as specified in REANNZ's Network Access Policy and Acceptable Use Policy) may be transmitted from the aggregator's network to and from KAREN, ie the aggregator may not make use of KAREN for purposes other than those of providing KAREN access for members.

Accredited aggregators will be allowed to use specific "KAREN Accredited" branding commissioned by REANNZ in their marketing, sales and service materials.

Aggregator Requirements

The aggregator will face the same technical and commercial connection requirements as any other member connecting to the KAREN core network.

In addition, the aggregation network itself should support the following service parameters to the end customer:

- IPv6 capable
- Multicast capable
- Minimum 10Mbps symmetrical bandwidth per customer CPE
- Latency measured from customer CPE to the KAREN core should be < 25ms
- Jitter measured at customer CPE to the KAREN core should be < 10ms

- Latency, jitter and throughput tests will be carried out according to REANNZ guidelines at commission and there after on a six monthly basis
- The aggregator will provide the Rendezvous Point for multicast and will therefore support MSDP and MBGP with PIM-SM.
- Over subscription of any part of the aggregation network or the core connection to KAREN is not permitted
- Security will need to be appropriate for both the connection and transit methods covering confidentiality, availability and integrity.
- Aggregators will not levy a per MB charge for traffic to or from KAREN
- Aggregators must not unreasonably restrict access to any services (including VLANs) or routes available on KAREN
- Aggregation network availability should be 99.9% on a 12-month rolling basis
- Aggregators should provide level 1 help desk services, which should be based around the hours of 0500 to 2100 from Monday to Friday as a minimum.

IP Addressing and AS numbers

- Aggregators will require an AS number because they will be operating a different routing policy from KAREN.
- Members will be included within the aggregators routing domain, and will therefore not require an AS number. However, this should not prohibit members from using their own AS number if they wish to do so, and meeting APNIC guidelines for AS number allocation.
- It is expected that there will be a direct relationship between the aggregator's KAREN AS, and the KAREN core AS, and that KAREN routes will be delivered to members using these AS numbers.
- REANNZ can provide approved aggregators with a block of IP addresses for the exclusive use of addressing KAREN members. These IP addresses remain the property of REANNZ and are not transferable
- For their KAREN connection, the customer can choose to either:
 - use (some of) their own existing address space
 - use some of the aggregation service provider's (non REANNZ-provided) address space
 - use a REANNZ provided address (either directly or as provided to the aggregator).
- If the customer chooses to use (some of) their own address space OR some of the aggregation provider's address space, at a minimum a /24 IPv4 or /64 Ipv6 block has to be assigned to KAREN connectivity.

Routing

- Members should be offered the option of receiving a default route only.
- The aggregator will likely have to provide commodity internet routes in addition to KAREN routes to support a single default route or a simple routing topology
- The routing protocol used by the aggregator should be standards based e.g. OSPF
- Aggregators will be separated from the other core members through the use of standards based 802.1Q VLAN tagging.

Customer Connection Requirements

We propose that there is a flow of mandatory service capability and specification from KAREN, to the aggregation network, and then to the customer connection.

Just as with core KAREN connections, REANNZ can only specify the minimum requirements for customer CPE to connect to an accredited aggregation network. Whether, and how effectively, the customer decides to implement some or all of the capabilities delivered by their aggregated KAREN connection is at the member's discretion.

The service flow diagram below shows the 'basic' ie minimum, service that a customer of an accredited aggregation service should have. This specification has been chosen to balance cost of CPE with the requirement for a quality KAREN experience.

For the avoidance of doubt:

- REANNZ has no preference as to the physical transport method provided that all technical requirements are met
- Connection speeds for the end customer will range from 10Mb/s (minimum) to 1Gb/s
- IP MTU may be smaller than 9000 bytes i.e. the aggregator will provide fragmentation and support ICMP Path MTU discovery

REANNZ may, at its sole discretion, allow members to connect to KAREN at non-accredited service levels.

Services flow down diagram

