IP over Avian Carriers with Quality of Service

Status of this Memo

   This memo defines an Experimental Protocol for the Internet
   community. It does not specify an Internet standard of any kind.
   Discussion and suggestions for improvement are requested.
   Distribution of this memo is unlimited.

Abstract

   This memo amends RFC 1149, "A Standard for the Transmission of IP
   Datagrams on Avian Carriers", with Quality of Service information.
   This is an experimental, not recommended standard.

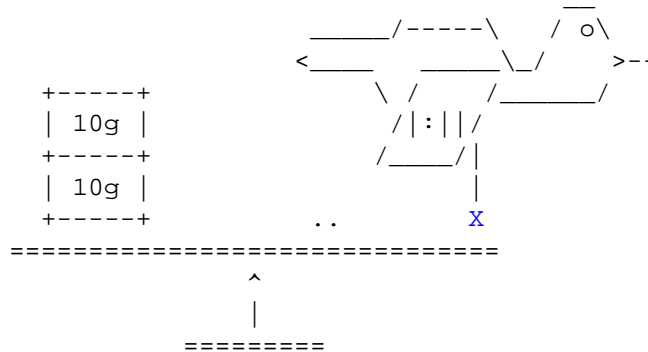Overview and Rational

   The following quality of service levels are available: Concorde,
   First, Business, and Coach. Concorde class offers expedited data
   delivery. One major benefit to using Avian Carriers is that this is
   the only networking technology that earns frequent flyer miles, plus
   the Concorde and First classes of service earn 50% bonus miles per
   packet. Ostriches are an alternate carrier that have much greater
   bulk transfer capability but provide slower delivery, and require the
   use of bridges between domains.

   The service level is indicated on a per-carrier basis by bar-code
   markings on the wing. One implementation strategy is for a bar-code
   reader to scan each carrier as it enters the router and then enqueue
   it in the proper queue, gated to prevent exit until the proper time.
   The carriers may sleep while enqueued.

   For secure networks, carriers may have classes Prime or Choice.
   Prime carriers are self-keying when using public key encryption.
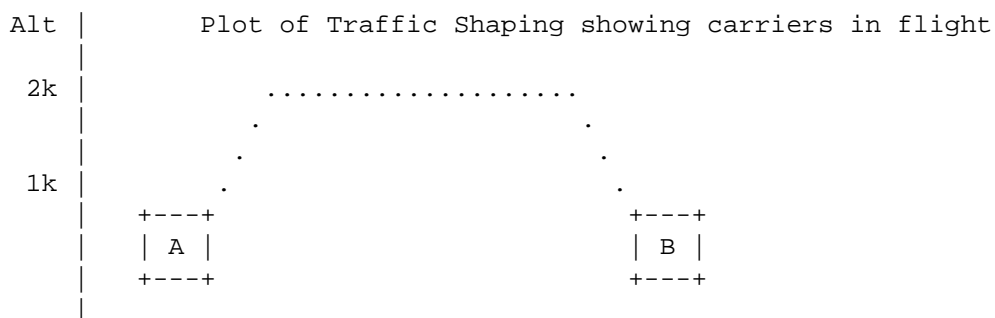   Some distributors have been known to falsely classify Choice carriers
   as Prime.

   Packets MAY be marked for deletion using RED paint while enqueued.

Weighted fair queueing (WFQ) MAY be implemented using scales, as
shown:

```
                                                    __
                                    _____/-----\    / o\
                                   <____    _____/    >--
                +-----+                \  /      /_____/
                | 10g |                /|:||/
                +-----+               /____/|
                | 10g |                     |
                +-----+          ..         X
            ==============================
                          ^
                          |
                      ========
```

Carriers in the queue too long may leave log entries, as shown on the
scale.

The following is a plot of traffic shaping, from coop-erative host
sites.

```
        Alt |        Plot of Traffic Shaping showing carriers in flight
            |
        2k  |              ....................
            |           .                    .
            |          .                      .
        1k  |        .                         .
            |   +---+                         +---+
            |   | A |                         | B |
            |   +---+                         +---+
            |_____
```

Avian carriers normally bypass bridges and tunnels but will seek out
worm hole tunnels. When carrying web traffic, the carriers may
digest the spiders, leaving behind a more compact representation.
The carriers may be confused by mirrors.

Round-robin queueing is not recommended. Robins make for well-tuned
networks but do not support the necessary auto-homing feature.

A BOF was held at the last IETF but only Avian Carriers were allowed
entry, so we don't know the results other than we're sure they think
MPLS is great. Our attempts at attaching labels to the carriers have
been met with resistance.

   NATs are not recommended either -- as with many protocols, modifying
   the brain-embedded IP addresses is difficult, plus Avian Carriers MAY
   eat the NATs.

   Encapsulation may be done with saran wrappers. Unintentional
   encapsulation in hawks has been known to occur, with decapsulation
   being messy and the packets mangled.

   Loose source routes are a viable evolutionary alternative enhanced
   standards-based MSWindows-compliant technology, but strict source
   routes MUST NOT be used, as they are a choke-point.

   The ITU has offered the IETF formal alignment with its corresponding
   technology, Penguins, but that won't fly.

   Multicasting is supported, but requires the implementation of a clone
   device. Carriers may be lost if they are based on a tree as it is
   being pruned. The carriers propagate via an inheritance tree. The
   carriers have an average TTL of 15 years, so their use in expanding
   ring searches is limited.

   Additional quality of service discussion can be found in a Michelin's
   guide.

MIB and Management issues

   AvCarrier2 OBJECT-TYPE
     SYNTAX   SEQUENCE OF DNA
     MAX-ACCESS can't-read
     STATUS   living
     DESCRIPTION "Definition of an avian carrier"
     ::= { life eukaryotes mitochondrial_eukaryotes crown_eukaryotes
           metazoa chordata craniata vertebrata gnathostomata
           sarcopterygii terrestrial_vertebrates amniota diapsida
           archosauromorpha archosauria dinosauria aves neornithes
           columbiformes columbidae columba livia }

   AvCarrier OBJECT-TYPE
     SYNTAX   SET OF Cells
     MAX-ACCESS not-accessible
     STATUS   obsolete
     DESCRIPTION "Definition of an avian carrier"
     ::= { life animalia chordata vertebrata aves
           columbiformes columbidae columba livia }

   PulseRate OBJECT-TYPE
     SYNTAX   Gauge(0..300)
     MAX-ACCESS read-only

```
      STATUS      current
      DESCRIPTION "Pulse rate of carrier, as measured in neck.
                  Frequent sampling is disruptive to operations."
      ::= { AvCarrier 1}
```

   The carriers will not line up in lexigraphic order but will
   naturally order in a large V shape. Bulk retrieval is possible
   using the Powerful Get-Net operator.

Specification of Requirements

   In this document, several words are used to signify the requirements
   of the specification. These words are often capitalized.

   MUST   Usually.

   MUST NOT   Usually not.

   SHOULD   Only when Marketing insists.

   MAY   Only if it doesn't cost extra.

Security Considerations

   There are privacy issues with stool pigeons.

   Agoraphobic carriers are very insecure in operation.

Patent Considerations

   There is ongoing litigation about which is the prior art: carrier or
   egg.

References

   Waitzman, D., "A Standard for the Transmission of IP Datagrams on
   Avian Carriers", RFC 1149, 1 April 1990.

ACKnowledgments

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