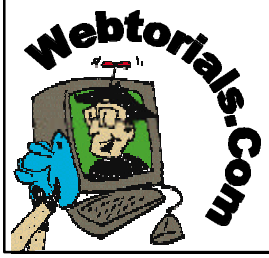
Service Level Agreements That Work for Frame Relay

1998 ICA Conference

Steven Taylor
Distributed Networking



Copyright & Notices

Professional Opinions - All information presented and opinions expressed by Distributed Networking are the current opinions of Distributed Networking based on professional judgment and best available information at the time of presentation. Consequently, the information is subject to change, and no liability for advice presented is assumed. Ultimate responsibility for choice of appropriate solutions remains with the Customer.

Biographical Information - The seminar will be led by Steven Taylor, President of Distributed Networking Associates and Publisher/Editor in Chief of Webtorials.Com, a premier source of on-line telecommunications seminars and market research. An independent consultant, planner, author, and teacher since 1984, Mr. Taylor is frequently quoted in the trade press and is one of the industry's most published authors on high bandwidth networking techniques. Distributed Networking Associates may be contacted at 2707 Lake Forest Drive, Greensboro, NC 27408; (336) 288-3858. E-mail: taylor@distributed-networking.com.

Service Level Agreements That Work For Frame Relay

- For ANY technology, the key to a successful SLA is precise terminology
- For precise terminology, you must have precise definitions
  - Definition of “service” as an example
  - Tariffs are grossly insufficient
- Frame Relay Forum is defining “Service Level Definition” IA as a precursor to OA&M procedures

What is a Service Level Agreement?

- An agreement between the Carrier and the Customer that specifies more precisely what level of service the customer should expect to receive…
- Augments specifications in tariffs
- Two primary functions:
  - Pricing
  - Performance

SLAs and SLDs

- Frame Relay Forum “Service Level Definition” Implementation Agreement is in “Letter Ballot”
  - Forms a common vocabulary for SLAs
    - Also should help with marketing issues
  - Defines “what to measure” but not “how to measure it”
    - “OA&M” IA is following
  - Ballots due on June 23
    - ***NO predictions of final outcome***, but concepts are worth considering regardless...

Technical Parameters for your SLA/SLD

- Define Reference Models
- Delay
- Frame Delivery Ratio
- Data Delivery Ratio
- Service Availability
- Plus “business considerations”
  - Mean Time to Respond; Mean Time to Repair, etc.

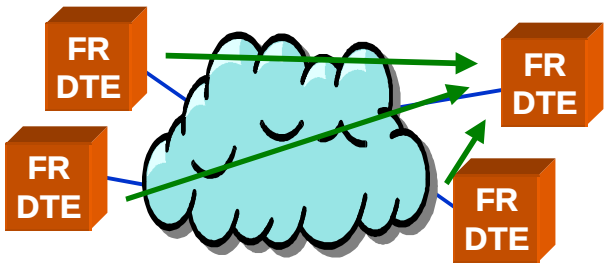
Delay Example

- Delay to transport frames through the network
  - default is 128 byte payload
  - Three types: End-to-End, Edge-to-Edge Interface, Edge-to-Egress Queue
- Frame Transfer Delay = $t_2 - t_1$
  - t_1 is time (msec) when frame left the source
  - t_2 is time when the frame arrives at the destination

Egress Queuing & Committed Traffic Oversubscription

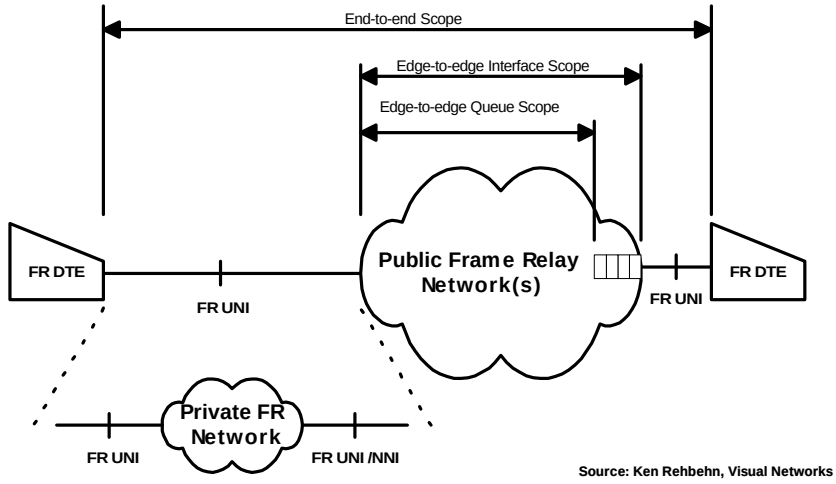
- Key to efficiency and cost-effectiveness
- May "violate" CIR agreements
  - But well worth it!

64 kbps links
32 kbps CIR per PVC



Situation #1: Multiple Connections

Service Level Reference Model



Service Availability

- Operational Readiness, affected by:
  - Fault Outages (network faults)
  - Excluded Outages (scheduled maintenance, etc.)

$$FRVCA = \frac{IntervalTime - ExcludedOutageTime - Outagetime}{IntervalTime - ExcludedOutageTime} * 100$$

- FRVCA: Frame Relay virtual connection availability
- Possible Excluded Outage Examples
  - Scheduled Maintenance; Local loop (Edge-to-Edge vs. End-to-End)

Availability Definition

- Measurement interval is a key to extended outages
  - Assume 99.5% availability
    - If one month, allows a failure within the month of > 3.5 hours
    - If one day, less than 8 minutes per day
  - Go for the nines!
    - 99.95% allows 22 minutes per month outage
    - 99.995 allows about 2 minutes per month

You may also address (among other issues)

- Trouble escalation procedures
- Performance penalties (beyond credits)
- Mean Time to Respond (vs. Repair)
- Measurement interval for CIR
- Reporting mechanism
  - Web based?
  - Reported interval vs measured interval (T_C, etc.)

Additional Resources

- Frame Relay Forum
  - http://www.frforum.com; Watch for publication of SLD-IA
- Other Web sites
  - Webtorials.Com
    - On-line free seminar on “Managing Frame Relay”
  - SLA Template by Telechoice and Visual Networks
    - http://www.visualnetworks.com/corp/slaform.htm
  - Other enhanced CSU/DSU vendor sites, including
    - ADC Kentrox, Hekimian, Sync Research, AT&T Paradyne

