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SONET to Sonnet Translation

Status of this Memo

This memo provides information for the Internet community. This memo does not specify an Internet standard of any kind. Distribution of this memo is unlimited.

Abstract

Because Synchronous Optical Network (SONET) transmits data in frames of bytes, it is fairly easy to envision ways to compress SONET frames to yield higher bandwidth over a given fiber optic link. This memo describes a particular method, SONET Over Novel English Translation (SONNET).

Protocol Overview

In brief, SONNET is a method for compressing 810-byte (9 lines by 90 bytes) SONET OC-1 frames into approximately 400-byte (fourteen line decasyllabic) English sonnets. This compression scheme yields a roughly 50% average compression, and thus SONNET compression speeds are designated OCh-#, where 'h' indicates 50% (one half) compression and the # is the speed of the uncompressed link. The acronym is pronounced "owch."

Mapping of the 2^{704} possible SONET payloads is achieved by matching each possible payload pattern with its equivalent Cerf catalog number (see [1], which lists a vast number of sonnets in English, many of which are truly terrible but suffice for the purposes of this memo).

Basic Transmission Rules

The basic transmission rules are quite simple. The basic SONET OC-1 frame is replaced with the corresponding sonnet at the transmission end converted back from the sonnet to SONET at the receiving end. Thus, for example, SONET frame 12 is transmitted as:

When do I count the clock that tells the time
And see the brave day sunk in hideous night;
When I behold the violet past prime,
And sable curls,...

For rates higher than OC-1, the OC-1 frames may either come interleaved or concatenated into larger frames. Under SONNET conversion rules, interleaved frames have their corresponding sonnet representations interleaved. Thus SONET frames 33, 29 and 138 in an OC-3 frame would be converted to the sequence:

Full many a glorious morning have I seen
When, in disgrace with fortune and men's eyes,
When my loves swears that she is made of truth
Flatter the mountain-tops with sovereign eye
I all alone bewep my outcast state,
I do believe her, though I know she lies
Kissing with golden face...

while in an OC-3c frame, the individual OC-1 frames concatenated, one after another, viz.:

Full many a glorious morning have I seen
Flatter the mountain-tops with sovereign eye
Kissing with golden face...

When, in disgrace with fortune and men's eyes, I all alone
bewep my outcast state,...

When my loves swears that she is made of truth I do believe her,
though I know she lies...

(This example, perhaps, makes clear why data communications experts consider concatenated SONET more efficient and esthetically pleasing).

Timing Issues

It is critical in this translation scheme to maintain consistent timing within a frame. If SONET frames or converted sonnets shift in time, the SONET pointers, or worse, poetic meter, may suffer.

References

- [1] Cerf, B., "A Catalog of All Published English Sonnets to 1950", Random House, 1953. (Now out of print.)

Security Considerations

Security issues are not discussed in this memo.

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