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COMMITTEE CONTRIBUTION

Technical Committee TR30 Meeting

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TITLE: Short-comings

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Abstract

TR-30.1/SG16 is currently considering a revision to V.34 and V.90 to accommodate the modem-on-hold feature of the proposed V.92. Additionally support of a fast renegotiations may also be considered for these modem standards. In conjunction with these changes under consideration, it may also be desirable to address short-comings in the existing implementation of V.90. This is the subject of this presentation.

1. Introduction

TR-30.1/SG16 is currently considering a revision to V.34 and V.90 to accommodate the modem-on-hold feature of the proposed V.92. Additionally support of a fast renegotiations may also be considered for these modem standards. In conjunction with these changes under consideration, it may also be desirable to address shortcomings in the existing implementation of V.90. This is the subject of this presentation.

2. Rate Selection Limitations

V.34 rate negotiations in Phase 4 provides a mechanism for both the transmitter and receiver to determine the speed of the communications channel in each direction. (Technically, the rate used for a given direction is the floor of what both the transmitter and receiver select for that direction.)

V.90 channel (upstream and downstream) speeds are determined mostly by the receiver, with the transmitter only influencing the maximum speed allowed only in Phase 3. With poor decisions made by some client modems, it is currently difficult to enforce a reduction of speed, requiring a retrain and substantial increase in time to reestablish data flow.

The implementation of rate selection matching what is provided in V.34 is not directly possible since the client V.90 modem selects the data rate by designing an appropriate constellation for that data rate. However, the server modem could communicate a suggested reduction in speed using for example reserved bits 19:23 of the MP frame to indicate the maximum speed. The maximum speed would be coded the same as bits 20:24 of a CP. This would may not affect the current speed selection, unless the MP was received before the first CP or if the client redesigned the constellations and sent a different CP before it sent a CP'. In any future renegotiations, the client would however honor this rate reduction.

3. Modulation Selection Limitations

V.90 client modems today are solely responsible for the decision in Phase 2 to either select V.90 or fallback to V.34. There have been observed cases where client modem consistently have made decisions to select V.90 even though the line would not support such a connection. It would be desirable for sever modems to have an effect on the selection of the modulation, especially within a retrain.

With V.92 allowing for PCM in both directions, each modem should select the operation mode (PCM or V.34) and then a joint decision should be made to select the modulation (V.92, V.90 or V.34). Some encoding of bits in INFO1d would need to be used to indicate the server's selection of the modulation. The client would then select the final modulation consistent with the server's selection.

4. Summary

We ask the committee to consider inclusion of a renegotiation rate reduction provision (such as the one suggested for V.90) to allow the server modem to suggest a rate reduction to the client modem for both V.90 and V.92 modems.

We also ask the committee to consider a method to allow both client and server modems to jointly select which modulation will be used in Phase 2. If possible, this mechanism should be adopted for V.90 as well as for V.92 operation.