BCM 3.6 T.38 Interoperability Patch

A number of T.38 issues have been resolved in this release, as described below:

A. Initial fax protocol negotiation failure due to the timing of T38 task creation: (Post BCM 3.6)

Problem Description:
If the T38 Task does not receive the entire first burst of fax negotiations from the answering fax machine, then a CRP (Command Repeat) signal was sent to the originating fax, causing some fax machines to hang-up.

Solution:
If no other V21 signaling has been sent to the originating/answering fax machine, then T38 will not send a CRP, but instead just end the signal and await another burst of negotiation.

Also, the T.38 task will ignore incoming packets until the appropriate "Preamble" packet is received to indicate the proper start of a negotiation burst.

B. Answering Fax does not respond to first EOP (End of Page) message: (Post BCM 3.6)

Problem Description:
If an answering fax does not reply to the first EOP (End of Procedure) message, the T.38 Task could enter a state in which no further fax communications could take place in the T.38 session.

Without confirming the EOP, the fax machines would indicate a transmission failure.

Solution:
During EOP reception, the T.38 task will no longer enter a state where it will block further fax signaling.

C. Transmit speed is not acquired by T.38 Task (Post BCM 3.7 Beta)

Problem Description:

Some fax machines send very short DCS messages to indicate the transmit speed that the transmitting fax is about to send. Due to a race condition within the T.38 Task, this speed was not received properly and would cause the fax session to fail. In this scenario, ALL fax transmission attempts from that specific fax machine (over T.38) would FAIL. (This is a fairly rare situation).

Solution:

The transmit speed will be acquired by the T.38 Task earlier in the process to avoid the race condition.

D. V.34 to V.34 fax attempts over T.38 are frequently failing (Post BCM 3.7 Beta)

Problem Description:

V.34 to V.34 fax machines use a different negotiation protocol than is supported by T.38. Upon failing to negotiate at the faster speeds, these fax machines should back off to V.21 negotiations.

Some fax machines would back off to V.21 properly, but then recognize the V.34 capabilities of each other and attempt V.34 negotiations once again. This causes frequent failure of fax transmission of these types of calls over T.38.

Solution:

There is a V.8 bit in the V.21 negotiations that indicated if the answering fax machine supports the faster speeds. Masking out this bit prevents the fax machines from trying to renegotiate V.34.

E. Misinterpreted Voice Call initiates T.38 Task (Post BCM 3.7 Beta)

Problem Description:

If a CED (fax answer tone) is heard in a VoIP call (fax/modem overheard in the background, a switch to T.38 will be initiated. If fax signaling is detected while in T.38 mode (modem/fax speaker audible in the background), then the T.38 Task could receive bad data. This could cause the T.38 Task to get into a non-recoverable state.

Solution:

Specific fax identifiers will be checked for in the T.38 Task to ensure that a fax call is taking place.

F. UDP Redundancy Control support added to DSP Firmware (Post BCM 3.7 Beta)

Problem Description:

The UDP redundancy was previously hard-coded to 2 in the DSP Firmware.

Solution:

The UDP Redundancy setting in Unified Manager is sent to the T.38 Task, and this value will now be used to control the T.38 redundancy transmitter (maximum of 2 frames).

G. UDP Redundancy in high-speed data causing multi-page faxes to fail.

Problem Description:

UDP Redundancy is used during high-speed data transmission (page data) from some gateways was causing BCM's T38 to stop transferring any T38 data causing the fax over T38 connection to fail.

Solution:

As this was never tested for, once the problem was known and reproduced, the BCM firmware was fixed to allow the larger packets (due to redundancy during high-speed data) to be accepted from the network.

CRs Resolved:

- Q00831314: BCM; Upgrade to 3.5, faxing stopped working
- Q01057041:BCM 37 VMail not working & "No Resource" seen when Voicemail accessed
- Q00901572: BCM <-> BCM H.323 T.38 calls are failing over NAT
- Q01105648: BCM - Long T.38 fax calls BCM to PSTN fail

Status:

- Generally Available -