Solutions for Bandwidth Optimisation, Bonding and Networking

RAIN Mode

The Problem:

When deploying VoIP across a single connection user's often have a bad experience due to the sometimes poor quality on the link such as packet loss, complete link failure and lower than advertised upstream speed at different times of the day. This is particularly prevalent on wireless and ADSL connections. Due to ViBE's optimisation functionality the problem of slower bandwidth upstream speeds can be significantly overcome however the problem of packet loss on a link still presented a problem. Until now that is.

RAIN MODE is an enhanced function available on ViBE connections. RAIN MODE enables VoIP and Data traffic to be simultaneously transmitted on the same link or multiple connections. These connections do not even need to be of the same type. RAIN MODE can be delivered on, say, ADSL plus LTE for example. The ViBE routers then analyses each received packet in sequence and where there is packet loss on one of the links simply takes the relevant packet from the other link delivering uninterrupted and in sequence packets resulting in well maintained quality calls and data delivery. At first glance this would suggest that RAIN MODE utilises twice the bandwidth therefore twice the cost however RAIN MODE is deployed with bandwidth optimisation so the total bandwidth used is still a fraction of that used with conventional non-ViBE connections. No other technology mitigates the effects of packet loss as effectively and there is NO real-time disruption during the call.

BY SIMULTANEOUSLY SENDING PACKETS ACROSS ONE OR MULTIPLE LINKS VIBE ENSURES THAT THE EFFECTS OF PACKET LOSS ON THE LINK(S) ARE ELIMINATED DELIVERING UNINTERRUPTED CALL QUALITY.

*A link (UDP) performance test should be carried out before installing ViBE.

How does it work?

RAIN Mode works by sending every ViBE data packet in a ViBE link twice down two independent circuits of a ViBE bonded link and then using whichever data packet arrives first. Because every data packet is sent twice, there is a trade-off between an increase in data reliability and a halving in available bandwidth. However, despite sending every data packet twice, ViBE does not need to have an even number of circuits in a bonded link to allow RAIN mode to work, as it rotates the primary and duplicated packet through the links. So in a bonded set of three circuits, ViBE uses 1+2 then 2+3 then 3+1 then 1+2 and so on to send the primary and backup packets. In fact, at the expense of losing half of the bandwidth, RAIN mode can even be enabled on a single circuit over a standard ViBE tunnel which "may" provide a small degree of protection against packet loss. As packet loss on individual circuits can often be in bursts rather than single packets this mode of operation may or may not provide a useful decrease in packet loss.

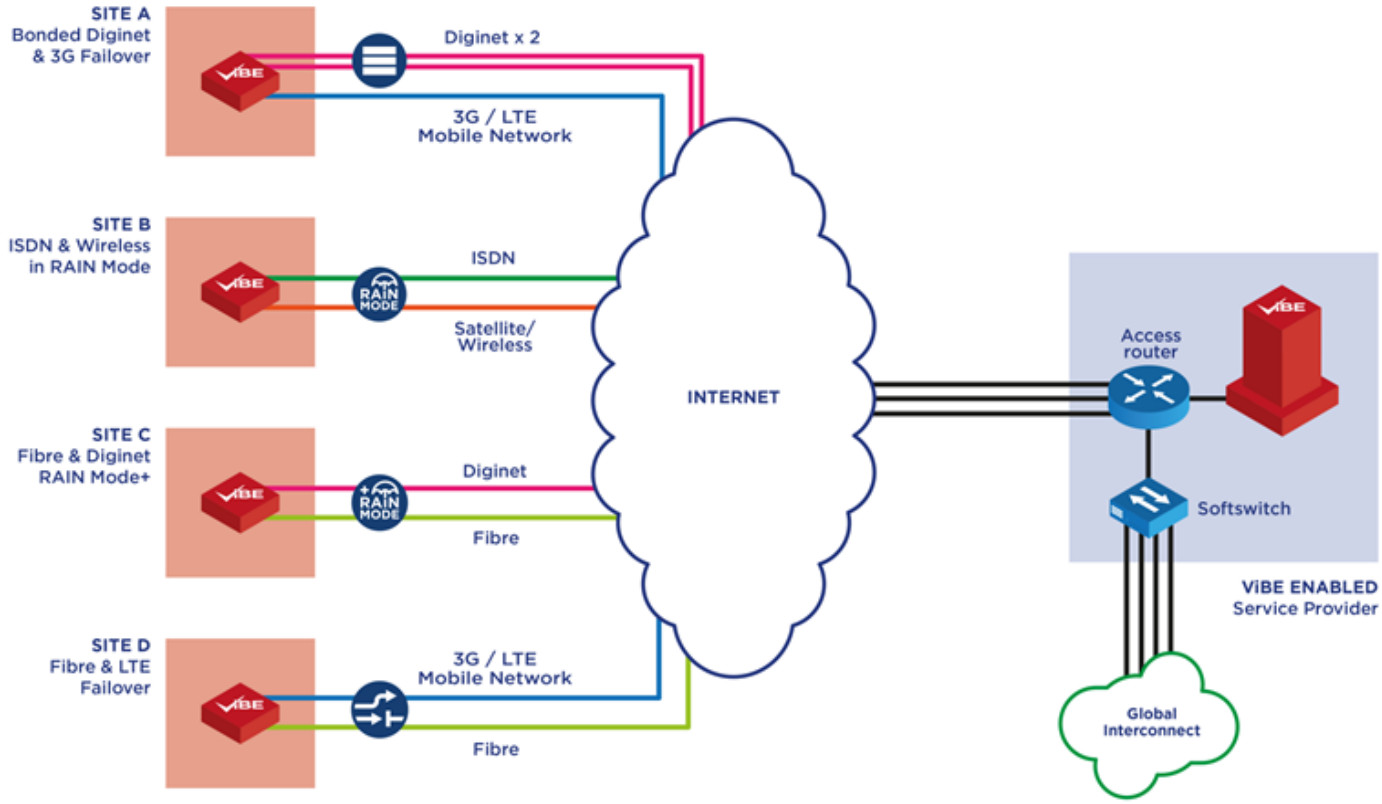
Advantages of using RAIN Mode

As well as providing a degree of protection against random packet loss, RAIN mode also provides an instantaneous "failover" between circuits in the event of a circuit breaking. In fact, as the data has been sent twice it is not a failover just a case of true redundancy. The major advantage of RAIN Mode over other forms of failover is that it provides good connectivity even when a circuit partially fails. With other forms of failover it is often difficult to set parameters (packet loss latency etc.) to determine a circuit failure, and even more importantly, to determine when a circuit has returned to proper operation, as the failure (high latency especially) is often only evident when the circuit is carrying higher levels of traffic. This can result in backup links oscillating between an up and down state and causing degradation of voice traffic. RAIN Mode copes with everything from a single packet loss or high latency to complete circuit outage with zero loss of packets.

Compatible CPE's – RB-750, TP-Link and P2PB-203.

A key benefit of ViBE is its ability to optimise broadband connections (including ADSL) to carry a higher volume of VoIP calls (and data) simultaneously - and all at business class quality and full real-time prioritisation. The number of calls that ViBE can carry at once is dependent on the bandwidth available, but 20 concurrent calls plus other data (email, web browsing and cloud-based applications) is possible based on an upstream bandwidth as low as 256Kbits per second. Furthermore the ability of ViBE to dynamically react to changes in bandwidth performance ensures links are never over-subscribed and QoS is maintained. No other VPN is able to deliver this whilst also offering the benefits normally associated with expensive corporate networks.

ViBE Connectivity Options



- Based on VPN technology.
- Delivers up to 5 times call concurrency.
- Business grade QoS on calls.
- Essential Call Access Control measures through EsP.
- Dynamic link suspension during high pure link quality.
- RAIN mode for service improvement and failover.
- Line bonding & bandwidth aggregation.
- Offers MPLS integration and additional customer features.

ViBE is a VPN technology that delivers bandwidth enhancement, designed to optimise the performance and quality of internet and WAN connections.

ViBE delivers a comprehensive range of networking functions and is a key enabling technology for the effective delivery of voice and data services'