The carrier grade virtualized voice solution for service providers
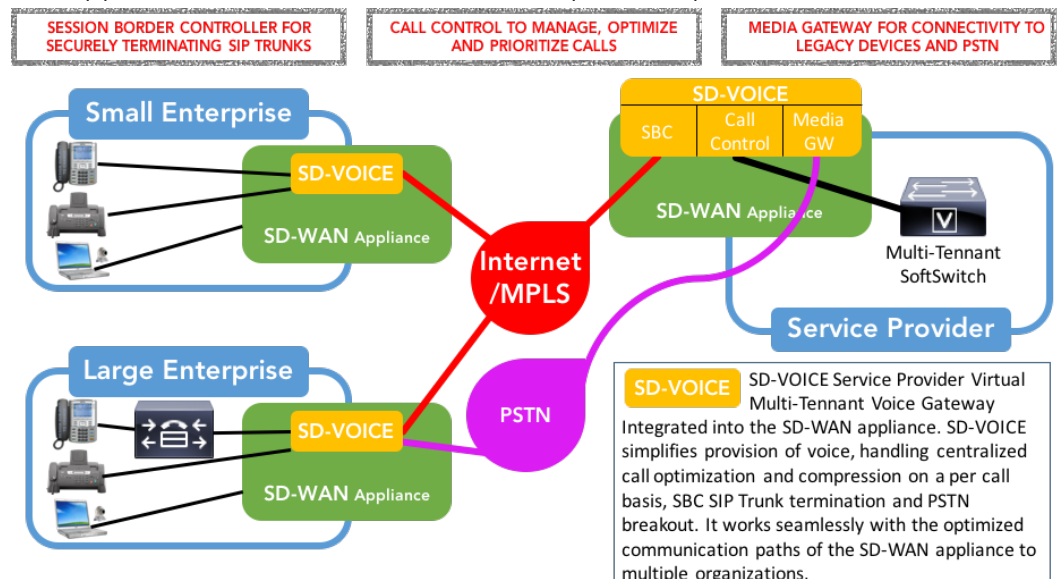# SD-VOICE the solution to deliver voice over SD-WAN

Key Benefits

- Multi-Tennant support for Carrier deployment and billing of Virtualized Voice Services

- Truly disruptive platform when coupled with SD-WAN aimed at delivering highly differentiated service offering

- Designed to be deployed both within the Carrier and its Enterprise customers

- Optimize the use of Voice through patented technology

- Can be configured to work with SD-WAN to utilize the lowest cost route whilst preserving voice quality

Service Providers (SPs) are finding it increasingly challenging to maintain business services revenue and profit streams in the face of a new generation of voice and data appliances that utilize inexpensive, high speed Internet based connections. Services such as MPLS are threatened by the ability of customers to use SD-WAN technologies that finely control routing and can leverage priorities across multiple Internet circuits.

SPs still provide the essential connection between VoIP and conventional public telephone networks (PSTN), on which the majority of the organisations still depend. However, as enterprises look at simpler, more cost effective ways to provision and manage IT services within their data-center and branch networks, SPs will also need to adopt SD-WAN technology in order to compete and deliver the expected added value.

The main issue facing SPs is the increased use of cloud and SaaS applications that have significantly altered WAN traffic flows in organizations which link branches to centralized or cloud resources. The addition of voice services further complicates matters since the requirements to provide consistent high quality voice calls differ from other applications. Although VoIP is viewed as a low bandwidth application, quality of service is noticeably impacted by network impairments such as momentary bandwidth constriction, excessive jitter and packet loss. Additionally, many enterprises require VoIP communications to operate seamlessly with the PSTN for more than just dial-up voice, for example to provide emergency service when an Internet connection fails, or for facsimile transmission.

VoLTE Systems, alongside a number of vendors who are introducing SD-WAN technologies, has developed **SD-VOICE**, a vital component that allows SPs to bridge the hybrid nature of voice within the enterprise. **VoLTE Systems SD-VOICE** is an appliance designed to be embedded within an SD-WAN appliance provided by the SP, ensuring that the two functions are tightly integrated and managed as a single entity. The **SD-VOICE** appliance can intelligently utilize the optimized paths available via SD-WAN.

SESSION BORDER CONTROLLER FOR SECURELY TERMINATING SIP TRUNKS

CALL CONTROL TO MANAGE, OPTIMIZE AND PRIORITIZE CALLS

MEDIA GATEWAY FOR CONNECTIVITY TO LEGACY DEVICES AND PSTN

SD-VOICE SD-VOICE Service Provider Virtual Multi-Tennant Voice Gateway Integrated into the SD-WAN appliance. SD-VOICE simplifies provision of voice, handling centralized call optimization and compression on a per call basis, SBC SIP Trunk termination and PSTN breakout. It works seamlessly with the optimized communication paths of the SD-WAN appliance to multiple organizations.

Advantages of VoLTE Systems SD-VOICE

VoLTE Systems SD-VOICE adds a new level of flexibility that can greatly enhance service availability and voice quality over conventional SIP based telephony. **SD-VOICE** adds a new dimension to SD-WANs by adding more than just the capabilities of a fully featured Session Border Controller (SBC) to an appliance. In addition to providing the expected VoIP session and PSTN gateway functions of a SBC Gateway, **SD-VOICE** adds the capability to optimize the transmission and route selection of each voice call on a call-by-call basis.

Conventional SIP trunks combine multiple calls between locations over a pre-configured WAN. When two or more connections are available SD-WANS provide the flexibility to prioritize and optimize overall SIP trunk performance based on measured criteria such as loading, delay and jitter. However, the SIP calls themselves are not normally optimized beyond (possibly) some minor header compression or using packet aggregation. The result is that SD-WANS by themselves may not have the ability to significantly effect the QoS of individual VoIP calls.

Built around software-based virtualization, **VoLTE Systems SD-VOICE** enables telephony abstraction that results in simplification of existing PBX, VoIP and Unified Communication operations. **SD-VOICE** appliances can provision branches in a full mesh, partial mesh, or hub-and-spoke topology. Connections are monitored in real-time, and if a bandwidth restriction or an outage is detected the information is relayed to all other **SD-VOICE** peer appliances within the network allowing them to determine the best routing for each call on a call-by-call basis. It should be noted that regardless of the bandwidth available the best path for a voice call may not necessarily be the best path chosen for other applications since voice is real time, more susceptible to jitter than delay and can never recover lost packets. A major benefit of **SD-VOICE** coupled with SD-WAN is to minimize the disadvantages of the Internet (poor reliability, unpredictable latency, and weak security). **SD-VOICE** is especially effective when integrated within SD-WAN appliances communicating via the Internet using multiple connections. **SD-VOICE** appliances are peer aware with the ability to dynamically create and tear down infrequently used SIP trunks. As a result, voice calls between branches do not have to route through a central office switch, maintaining scalability and aiding zero touch provisioning.

SD-VOICE trunks are also optimized to eliminate SIP trunk overhead and deliver consistent high quality voice. SIP is a notoriously inefficient protocol. Using patented bandwidth optimization techniques, **SD-VOICE** increases the efficiency of SIP trunks by reducing both bandwidth and overall packet throughput by up to ten times or more. This shortens latency, reduces the likelihood of lost packets and reduces the possibility of momentary network overload compared to conventional full bandwidth SIP implementations. As a result telephony QoS and end user experience is significantly increased.

VoLTE Systems SD-VOICE also addresses the issue of supporting a hybrid voice environment (IP, TDM, Analog and Digital) within the context of a SD-WAN implementation, enabling the displacement of incumbent integrated services routers.

The **SD-VOICE** appliance supports and emphasizes multi-tenant capabilities and high scalability. Essential for the SP market, multiple customers can each view an independent clustered virtualized instance of hundreds of branch sites. Call detail records for billing and other management functions can be provided to each customer in real time or on a batch basis.

Summary

In common with the ability for SD-WAN appliances to identify specific application streams, the **VoLTE Systems SD-VOICE** appliance is able to identify multiple voice applications, optimize the voice streams and route traffic accordingly. Using **SD-VOICE** technology the capacity of voice carrying trunks can typically be increased by a factor of ten or more whilst simultaneously improving consistency of high quality audio. TDM Voice, VoIP, FAX and Modem access can be retained across the network and gateway to public networks. The solution provides dynamic performance awareness of voice, voice quality mitigation and the ability to be readily and simply reconfigured on an immediate call-by-call basis.

The **VoLTE Systems SD-VOICE** appliance supports both enterprise and SP carrier applications. Cloud management and zero touch provisioning facilitate seamless deployment by a SP in a multi-tenanted environment. The same technology can be deployed within the connected enterprises, allowing SPs to drive the adoption of **SD-VOICE** and SD-WAN together. This reduces the risk of introducing new technology, assists in the migration to hybrid Voice and WAN (i.e. a mix a MPLS, Internet circuits and Analog and Digital Voice), and facilitates the provision of professional support services.