Harnessing Big Data Everywhere: The Power of SD-WAN and Multi Bearer Solutions.

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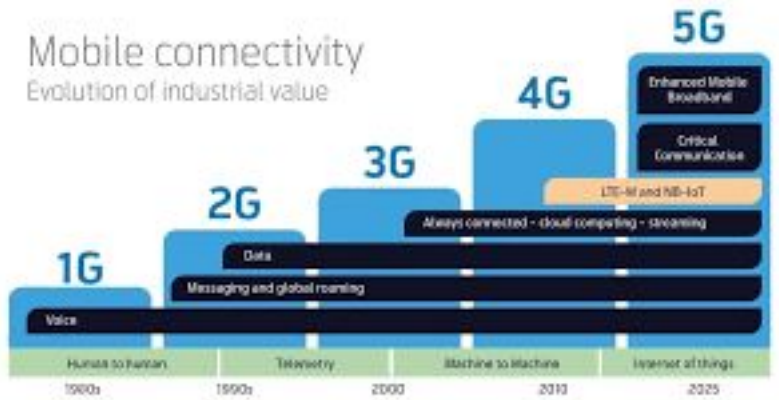
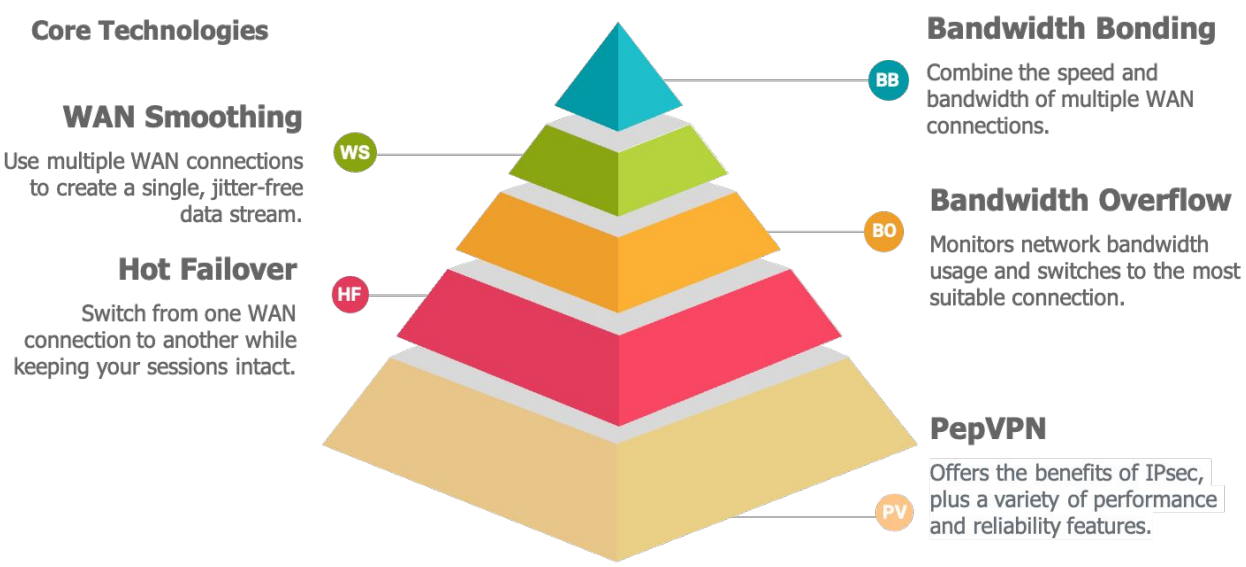
The evolution of mobile data

- For the past 20 years or so the majority of mobile data systems and applications have relied upon cellular networks
- Incremental improvements in speed, architecture and capability – CDMA, 2G, 3G, 4G, 5G,LCR with Satellite
- **We started with simple data requirements like MDT/AVL**
- Only in Metro/Cellular environments
- We are now evolving to Big Data solutions using multiple bearers whilst mobile, focussed on security, speed, Persistence, and minimal jitter- which must be available everywhere
- Using dynamically changing bearers, including terrestrial and Satellite

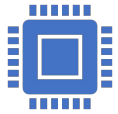


Means a very different approach is required to support it

- So how do we manage multiple bearers in a dynamic environment?
- Different characteristics and latency
- Maintain a single IP/Sockets
- Ensure it is lossless
- Make it secure
- Mission Critical
- **And have intelligent application aware routing**



Traditional SD-WAN/ VPN concentrators simply does not cut it. We need…



A highly resilient connection between a host and server that does not reset if a wan bearer fails.

Intelligent algorithms like Hot Failover, Wan Smoothing and Dynamic weighting policies all working together

Ability to aggregate all available bandwidth over all bearers

FEC is required to ensure mission critical applications do not lose packets

Encryption on the Bonded VPN connection providing an end-to-end secure connection

Single virtual VPN, balanced across multiple WAN connections

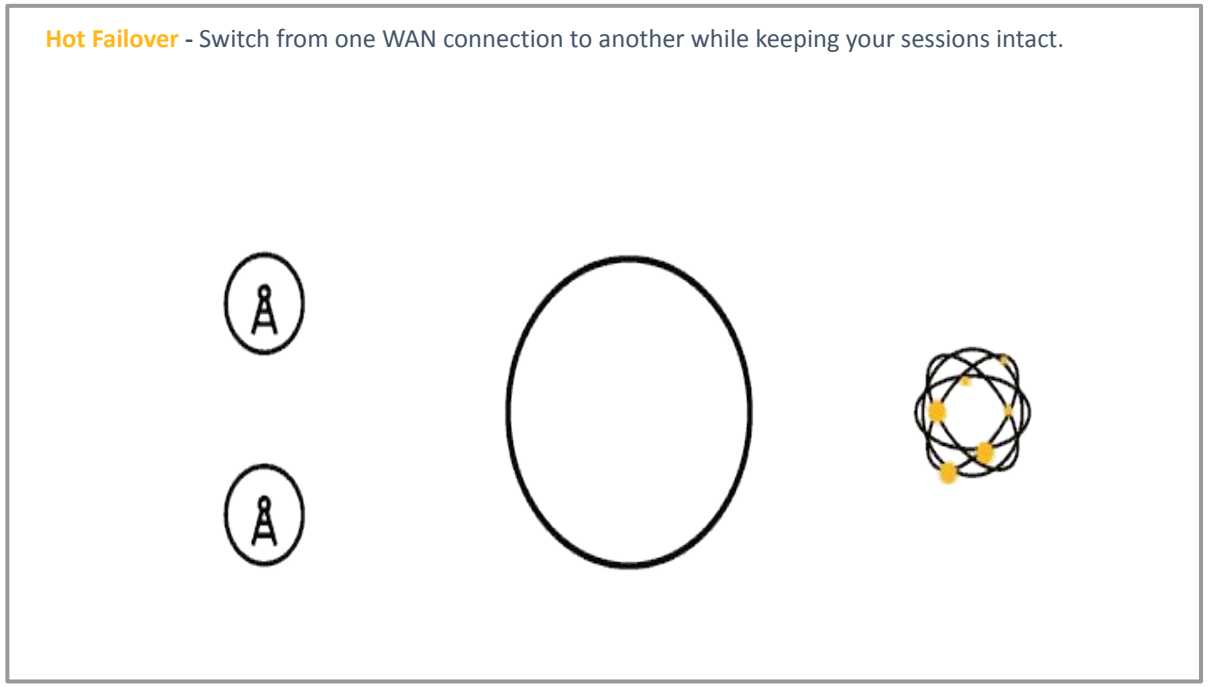
Easy to configure and manage

Let's Explore what this means in detail

Hot Failover

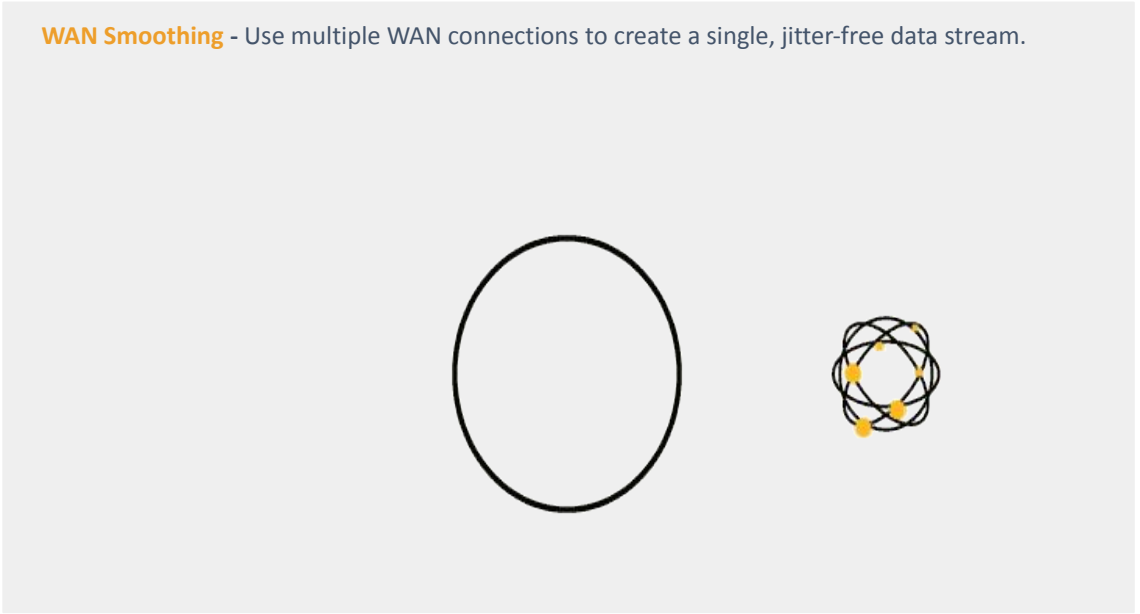
- Failover offered in existing technologies will transfer sessions to another connection, but will not prevent the session from breaking when one WAN connection fails
- This results in some interruptions or down time.
- Hot Failover will transfer your traffic to another connection while maintaining session persistence

Critical to secure applications



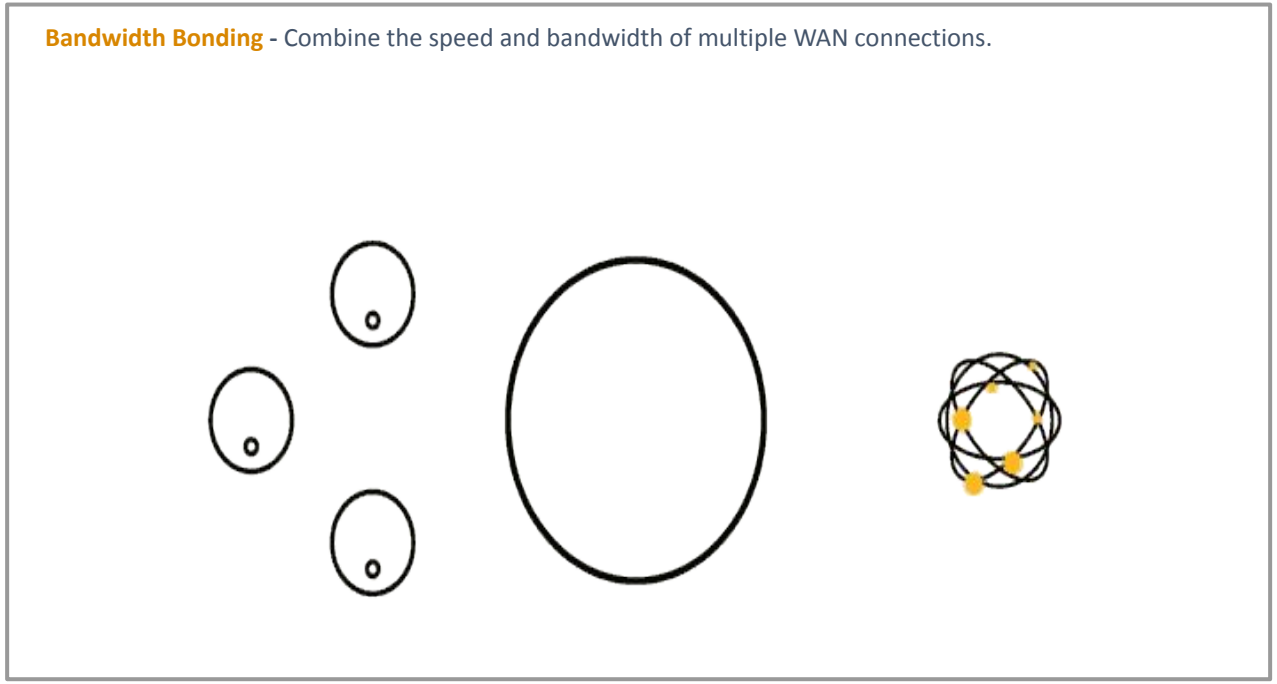
Wan Smoothing

- WAN Smoothing utilizes intelligent algorithms to fill in connectivity gaps, trading bandwidth for greater connection resiliency
- WAN Smoothing minimizes latency and reduces the impact of packet loss
- WAN Smoothing sends redundant packets through multiple network channels simultaneously, instantly filling in the gaps in data and eliminating the effects of packet loss



Dynamic Weighted Bonding

- Aggregate multiple Wan-to-Wan links as a single higher throughput tunnel.
- QOS policies can then prioritize mission critical applications
- TCP acceleration algorithms in sync with Starlink taking advantage of the networks burstablity = higher bandwidth utilisation



Bandwidth Overflow

- Monitors network bandwidth usage and switches to the most suitable connection as bandwidth usage changes
- Traffic steering policies
- Granular routing polices

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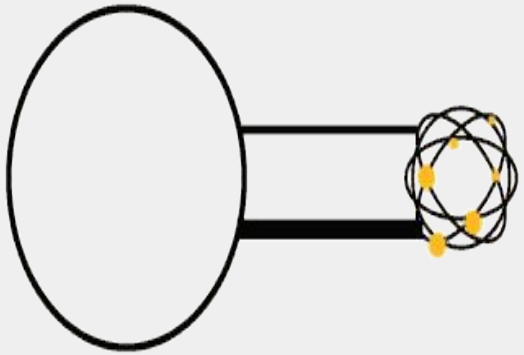

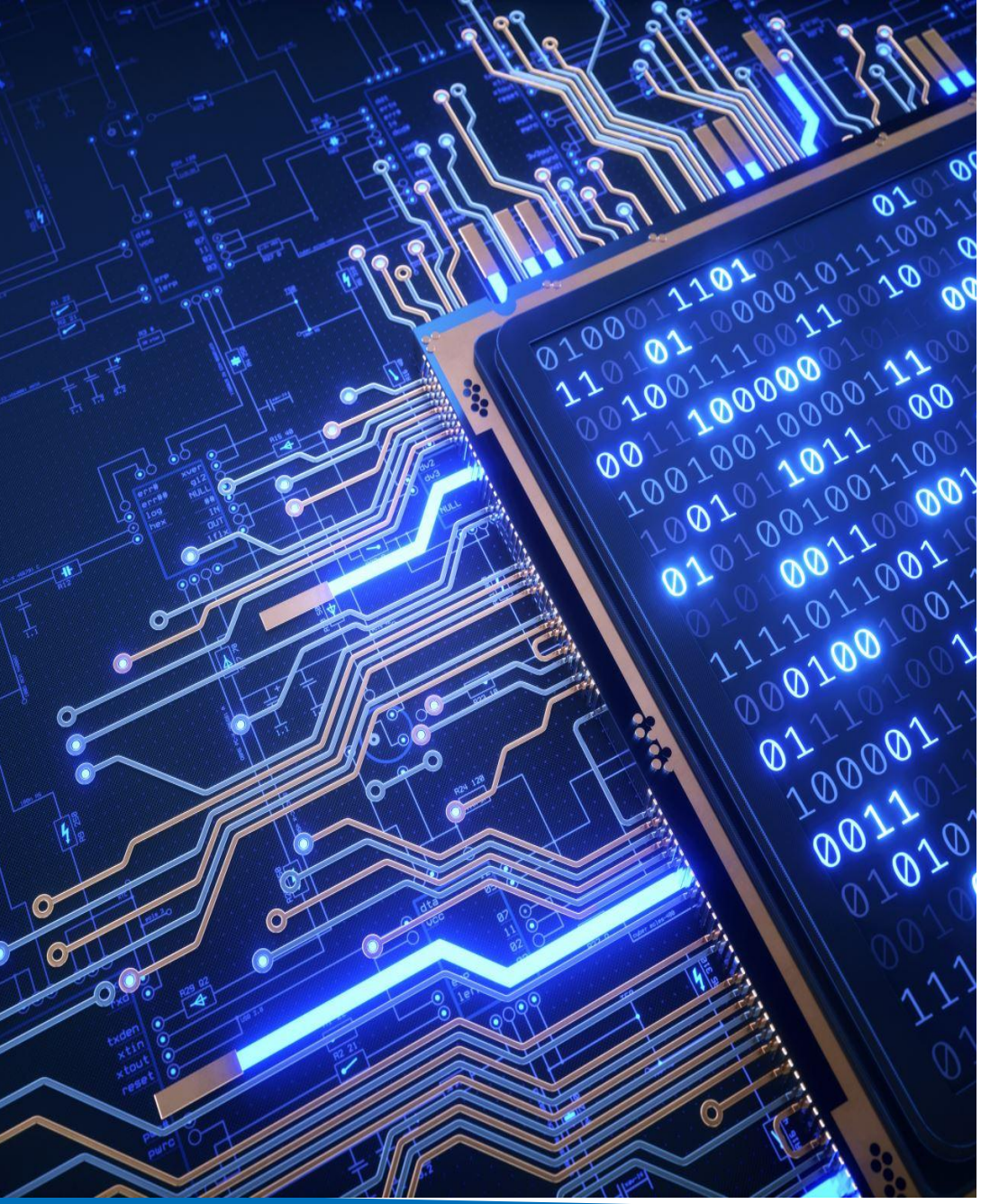

What it means for future software apps

Allows Real-Time Communication for video, enables telemedicine consultations in the field, Realtime updates from drones and other surveillance equipment and better co-ordination between different agencies

Access to cloud based applications, AI and SaaS providing access to vital information such as building blueprints and hazardous materials databases.

Allows better integration with IoT infrastructure and control systems.

Allows use of brand new technologies such as VR and AR.

More consistent user experience

Updates of software direct to devices in the field.

Big Red Bash

Connected Vehicle

- SPEEDFUSION
- LOCAL WIFI BUBBLE (100M)
- HYPHA MESH BUBBLE (1KM)
- P25 VOICE AND DATA