Solving for Wireless Segmentation at Scale Using MSS-G UPSK

PSK Wireless Segmentation Challenges

One of the main challenges for PSK wireless segmentation is scalability as traditionally packet forwarding decisions are done by a controller, or by destination APs, which results in forwarded table limitations as well as wasted network bandwidth. To avoid these problems, Arista architected a segmentation solution that takes a novel approach to where and how packet forwarding decisions are made. With the Arista solution, forwarding decisions are made at the source AP, which remediates the scalability issues seen in other PSK wireless segmentation offerings. This innovative approach enables the Arista solution to scale well beyond competitors' solutions.

UPSK Overview

Unique Pre Shared Keys (UPSK) provide a simplified and secure client authentication process. UPSK allows users to connect to the same SSID using a unique / user specific PSK. Arista's UPSK solution provides added security over single PSK deployments because single PSKs use the same PSK for all connected devices. PSKs are more easily compromised, and the fallout is greater than if a UPSK is compromised.

UPSK can be implemented with Arista Guardian Network Identity (AGNI) or a third party NAC. Using AGNI with UPSK also provides an option for UPSK-to-UPSK based segmentation where wireless Macro Segmentation Service - Groups UPSK (MSS-G UPSK) are created. Third party NACs do NOT support MSS-G

MSS-G UPSK with AGNI

Implementing MSS-G UPSK with AGNI effectively creates private networks for each user (using their own UPSK) that share a single SSID and a single VLAN. When MSS-G UPSK is enabled, clients connecting with the same UPSK can talk to each other regardless of which APs the clients are associated to, while clients that do not share a UPSK cannot talk to each other. All user devices can access clients that are in the Shared Client Group (e.g. shared printers), as depicted in the Figure 1 on page 2.

UPSK with WPA2

Arista's MSS-G UPSK solution can scale to meet the requirements of even the largest organizations as forwarding decisions are made at the source AP. When MSS-G UPSK is enabled, APs will only forward packets from devices in a UPSK Group if one of the following criteria is met.

- The destination device is in the same UPSK Group as the source device.

- The destination device is the default gateway.

- The destination device is in the "Shared" UPSK Group.
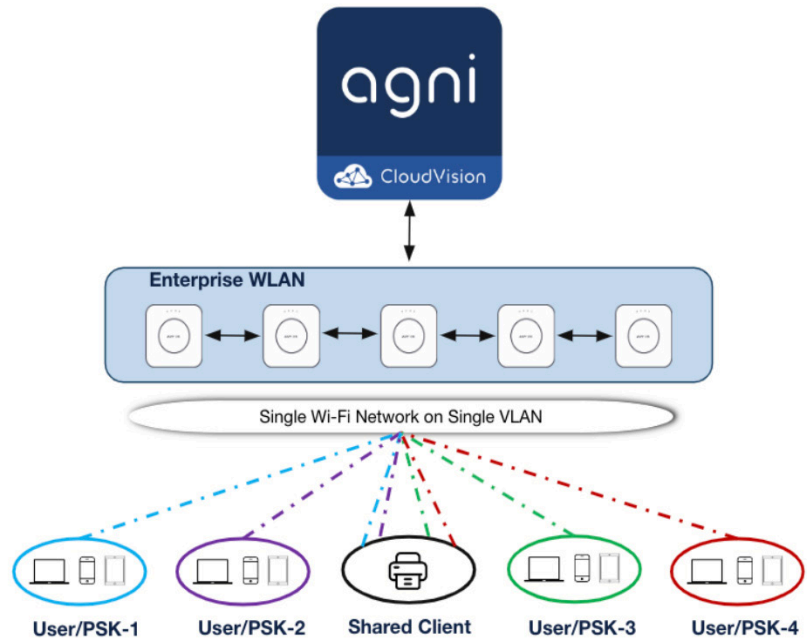
All other packets are dropped at the source.

Figure 1.

Conclusion

Arista's MSS-G UPSK implementation tackles one of the main challenges for PSK wireless segmentation, which is scalability. Arista architected a segmentation solution that takes a completely unique approach to where and how packet forwarding decisions are made. This innovative approach enables the Arista solution to scale to meet the needs of any organization.

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