

BACKGROUND

Joe Portman, President, Alamo Broadband established his fast-growing WISP in Elmendorf, Texas over 7 years ago. Joe has an extensive technical background including network coding at all levels.

NEED FOR PRESEEM

Joe had been researching Bufferbloat and looking for ways to measure and reduce the latency it causes in his network when he discovered Preseem and became an early adopter.

RESULT

- Bufferbloat fixed - dramatic drop in latency for subscribers
- Preseem's QoE reporting identified areas of the network with low level problems
- Preseem's QoE Optimized Plan Enforcement led to fewer support calls
- Alamo broadband now offers higher speeds without raising prices



Alamo Broadband

WIRELESS INTERNET SERVICE PROVIDER - CASE STUDY

NETWORK

The Alamo Broadband network is largely based on Ubiquiti access points and previously used Mikrotik routers for plan enforcement.

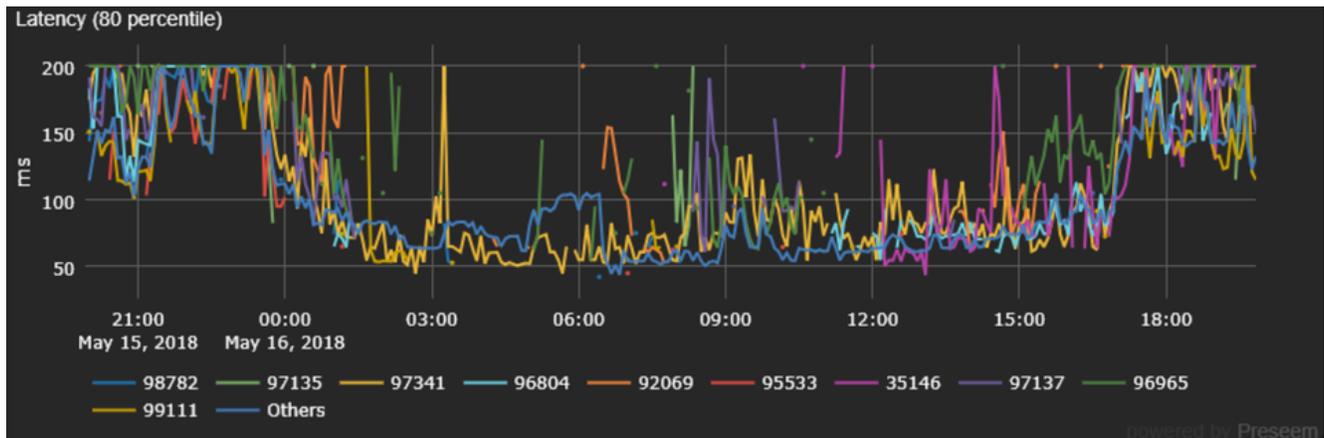
OBSERVATION & LEARNINGS

After deploying Preseem, it quickly became apparent that Joe's concerns about Bufferbloat in his network were real and likely explained a large percentage of "my internet is slow" calls from his customers.

Large, un-managed packet buffers, aka Bufferbloat, cause high latency when a connection nears its capacity. If you have ever observed ping times go up or had your Skype call ruined when downloading a file, you have been a victim of Bufferbloat.

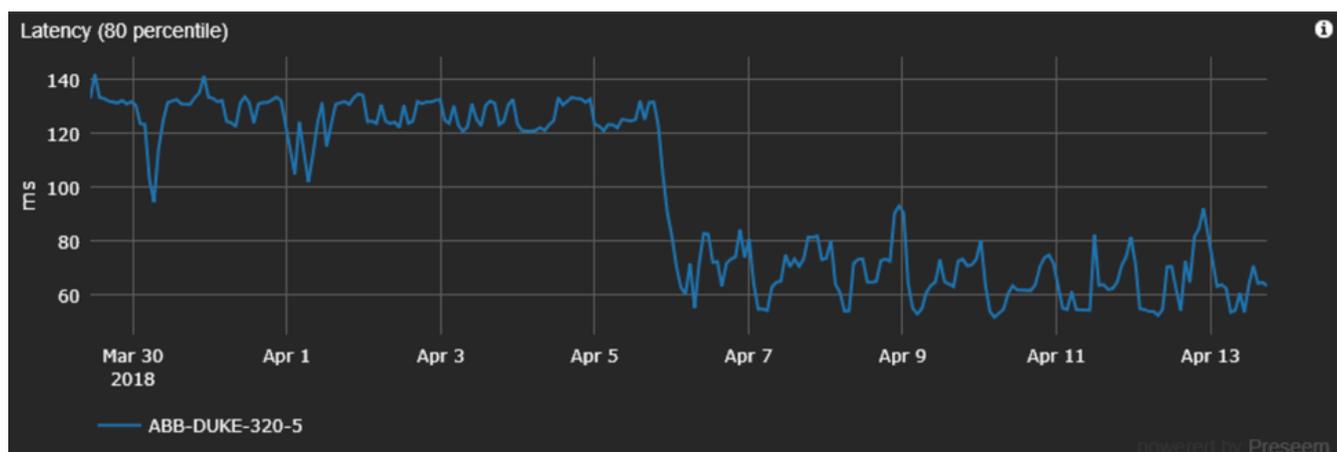
In most WISP networks the two main causes of a poor customer experience are plan enforcement solutions based on simple queues and congested Access Points. Preseem's Quality of Experience (QoE) Optimized Plan Enforcement directly addresses the first of these problems and Preseem's QoE reporting provides key insight into the latter.

Preseem's detailed QoE metrics showed Alamo exactly which Access Points (and in some cases backhaul radios) provided a poor customer experience. This information allowed Joe to address the underlying network issues. For example, the access point below exhibited high latency under load. Fixing these problems required a few key upgrades as well as frequency changes to alleviate interference.

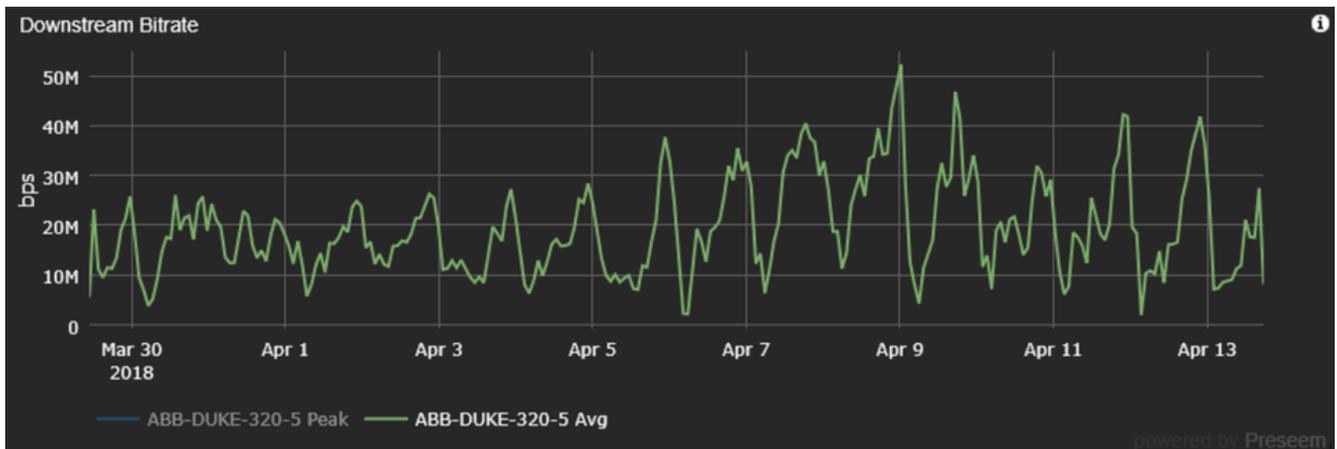


With the lower level QoE issues resolved, it was time to address the latency introduced by the Mikrotik based plan enforcement solution. This plan enforcement solution makes use of simple deep queues in the bandwidth shapers. Preseem's **QoE Optimized Plan Enforcement** makes use of recent active queue management (AQM) advances to enforce plan speeds without introducing unnecessary latency or a poor experience under load. Preseem's integration with Sonar to obtain subscriber and plan information made enabling plan enforcement a simple configuration change - no duplicate data entry was required.

When Preseem's QoE Optimized Plan Enforcement was enabled (to replace Mikrotik shaping) the impact was immediate and dramatic. The example below comes from a Rocket 5AC Prism.



Whereas Alamo's plans previously had a bursting component, with Preseem, Joe is able to offer higher plan speeds at all times and deliver more throughput to his customers. This is possible because Preseem provides visibility into the QoE throughout the network thereby enabling immediate action if the subscriber experience degrades.



The following post, displayed on Alamo's website - alamobroadband.com, highlights the impact Preseem had in enabling a better QoE for Alamo's customers.

"New, faster plans have been implemented as of April 6th, 2018. Using advanced bandwidth control and QoS from a new vendor, we are able to up our plan speeds without raising our prices. You may have noticed the difference! We have been working with these folks for months, planning this rollout and it has gone very smoothly."

Importantly, given the reduced number of support calls and Alamo's use of an external service for after-hours support, Preseem resulted in lower business costs in addition to happier customers. Joe best summarized Preseem's impact in his network with the following quote -

"My-internet-is-slow calls have all but ceased"
- Joe Portman



Developed exclusively for WISPs, Preseem is a one-of-a-kind networking solution that helps to find & fix Quality of Experience (QoE) issues across towers, sectors, and subscribers.



Preseem extracts key performance metrics such as packet loss, TCP Round-trip-time latency, jitter and throughput directly from the subscriber traffic in real-time with 10 seconds samples. With cloud-based analytics, user-friendly graphical interface and features like the Wireless Summary, Preseem allows you to understand the real QoE delivered by your network and pinpoint problematic areas of the network.

Preseem's QoE-optimized plan enforcement, based on FQ-CoDel, provides per-flow fairness and prioritization. This allows interactive flows like VoIP, gaming & DNS to get through smoothly without being affected by bulk flows like streaming video and large Windows downloads. For WISPs, this ensures that customers never call to complain about slow internet while someone else in the house is streaming Netflix or doing a heavy download.



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