



QUANT ICT
Smart Network

SILENCE BY DESIGN

How RRM Quiet IE broke VoWiFi in a clinical environment

Project Overview

Hospital LAN & WLAN redesign · VoWiFi as primary use case

Client Hospital

Primary use case VoWiFi calling · Unify Openscape handsets

Access points HPE Aruba AP515 · fixed TX power

Frequency 5 GHz only · dedicated VoWiFi SSID

Coverage target -65 dBm · client offset -8 dBm

Interop config HPE Aruba + Ascom I63 published interoperability guide

Scope Full LAN & WLAN redesign

Design tool Ekahau AI Pro · VoWiFi coverage profile

Management HPE/Aruba Central AOS10

Channel plan 4× 40 MHz pairs: 36-40 / 44-48 / 52-56 / 60-64

Handset (LCMI) Unify Openscape · partner confirmed Ascom I63 chipset

Validation Hybrid design survey + full validation after installation

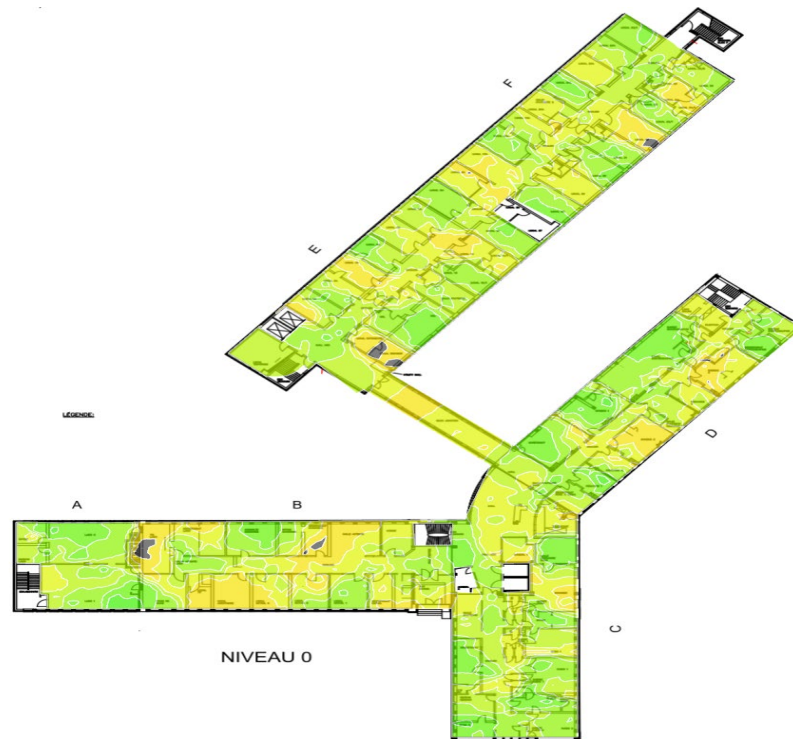
Primary Signal Coverage • Predictive vs. Live Validation

Left: Ekahau AI Pro simulation • Right: post-installation survey • Ekahau Sidekick 2 • Design: -65 dBm • -8 dBm offset

Predictive Design



Live Validation



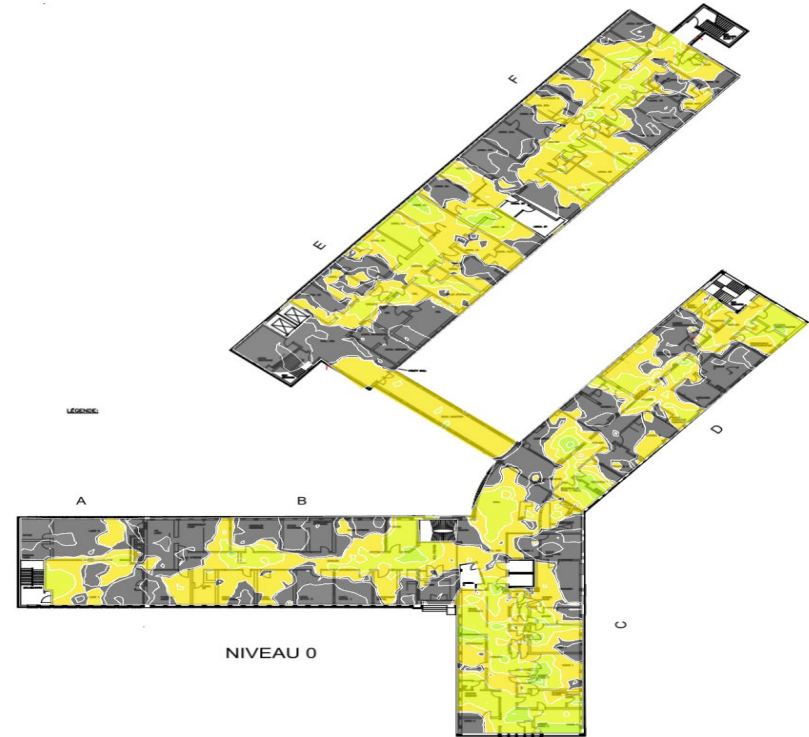
Secondary Signal Coverage · Predictive vs. Live Validation

Left: Ekahau AI Pro simulation · Right: post-installation survey · Ekahau Sidekick 2 · Design: -65 dBm · -8 dBm offset

Predictive Design



Live Validation





Everything
looked perfect...
until

The Problem

Design validated · network live · calls started dropping

"The calls kept dropping."

Intermittent · No pattern · Self-recovering · Reproducible only occasionally

Why this matters in a hospital:

- A missed call can delay a critical patient alert
- An unreachable colleague can directly affect patient outcome
- Intermittent does not mean acceptable — clinical connectivity is not negotiable



ALERT
SITE ISSUE DETECTED
CLIENT SITE

TODAY:

- ✓ SITE SURVEY
- ✓ CLIENT REPORT
- ✓ AP OPTIMIZATION

INVESTIGATE
SITE ISSUE!



- ✓ SITE SURVEYS
- ✓ CLEAT MAPPING
- ✓ PERFORMANCE ANALYSIS
- ✓ EXPERT SOLUTIONS

**WiFi
SURVEY**

SITE SURVEYS • ANALYSIS • SOLUTIONS

WIF1-SRV

**SURVEY
GEAR**

Troubleshooting · CWNP Methodology

Define · Determine Scale · Identify Probable Causes · Observe · Capture and Analyze · Remediate · Document

Define

1

Intermittent 'Voice Only' state on Voice handsets — calls drop without warning

Determine Scale

2

Multiple handsets affected, but no specific devices or no specific zones

Probable Causes

3

Roaming? Coverage gap? QoS? Driver bug? Infrastructure configuration?

Observe

4

Repeated on-site sessions — no consistent trigger found in infrastructure logs

Capture

5

Ekahau Sidekick 2 + Analyzer · filtered to handset MAC + AP MAC · waited on-site

Remediate

6

Root cause identified → Quiet IE disabled → call drops stopped immediately

The Capture · Setup & Context

Ekahau Sidekick 2 · Ekahau Analyzer on iPad · 4 hours on-site



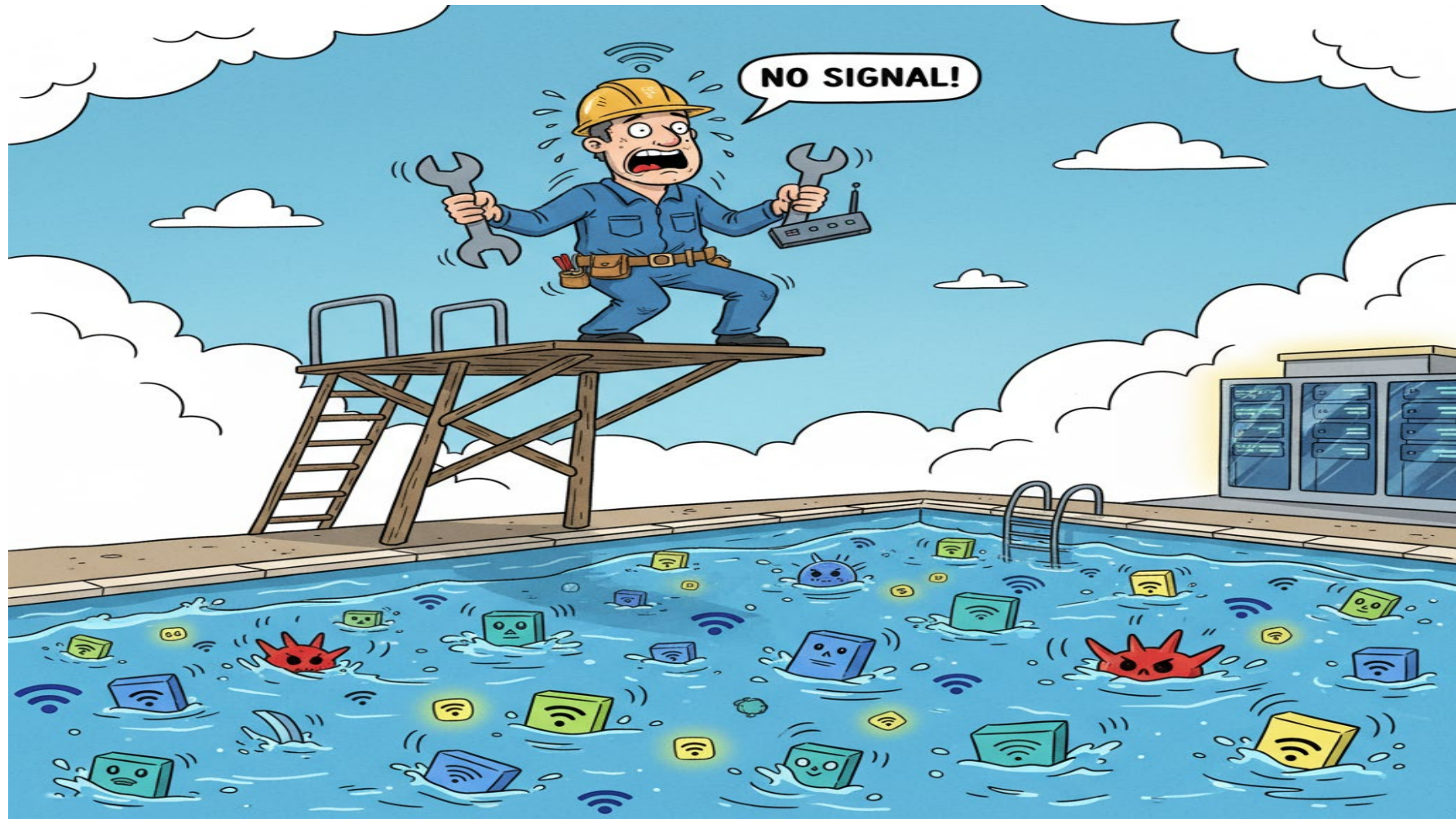
Ekahau Sidekick 2 · iPad + Analyzer · Unify handset · WLAN Pi

Capture setup:

- Ekahau Sidekick 2 — dedicated OTA capture sensor
- Ekahau Analyzer on iPad — real-time frame view
- Multiple test handsets associated to nearby APs

4 hours on-site. No fault. The Sidekick was about to be disconnected when the 'Voice Only' event appeared — live, captured in full.

"Sometimes patience is the only tool left."



Fractions Don't Lie • Normal vs. Fault

Wireshark capture filtered to affected handset and AP MAC

Normal client behaviour

0.000007	20.843184	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	44 - 72 ddm	QoS Null function (No data), SN=3890, FN=0, Flags=...P...TC
0.000014	20.853110	UnifSoftwan_e1:1e:bd	Intel_61:02:74	HewlettPacka_A4:c2:d2	182.802.11ac	200	44 - 78 ddm	QoS Data, SN=3433, FN=0, Flags=p.p...TC
0.000007	20.853189	UnifSoftwan_e1:1e:bd	Intel_61:02:74	HewlettPacka_A4:c2:d2	182.802.11ac	400	44 - 48 ddm	QoS Data, SN=127, FN=0, Flags=p...f.C
0.000008	20.904208	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	44 - 68 ddm	QoS Null function (No data), SN=3891, FN=0, Flags=...P...TC
0.000015	20.963301	UnifSoftwan_e1:1e:bd	MS-NLB-PhysServer-02_01	HewlettPacka_A4:c2:d2	182.802.11ac	200	48 - 75 ddm	QoS Data, SN=3434, FN=0, Flags=p.p...TC
0.000008	21.871979	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	44 - 72 ddm	QoS Null function (No data), SN=3892, FN=0, Flags=...P...TC
0.000011	21.881654	UnifSoftwan_e1:1e:bd	Intel_61:02:74	HewlettPacka_A4:c2:d2	182.802.11ac	200	44 - 78 ddm	QoS Data, SN=3435, FN=0, Flags=p.p...TC
0.000008	21.881715	UnifSoftwan_e1:1e:bd	Intel_61:02:74	HewlettPacka_A4:c2:d2	182.802.11ac	400	44 - 48 ddm	QoS Data, SN=131, FN=0, Flags=p...f.C
0.000011	21.973086	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	48 - 70 ddm	QoS Null function (No data), SN=3893, FN=0, Flags=...P...TC
0.000011	21.981619	UnifSoftwan_e1:1e:bd	MS-NLB-PhysServer-02_01	HewlettPacka_A4:c2:d2	182.802.11ac	200	48 - 75 ddm	QoS Data, SN=3436, FN=0, Flags=p.p...TC
0.000008	21.981627	UnifSoftwan_e1:1e:bd	MS-NLB-PhysServer-02_01	HewlettPacka_A4:c2:d2	182.802.11ac	200	48 - 75 ddm	QoS Data, SN=3436, FN=0, Flags=p.p...TC
0.000008	22.894098	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	44 - 72 ddm	QoS Null function (No data), SN=3894, FN=0, Flags=...P...TC
0.000011	22.901813	UnifSoftwan_e1:1e:bd	Intel_61:02:74	HewlettPacka_A4:c2:d2	182.802.11ac	200	44 - 78 ddm	QoS Data, SN=3437, FN=0, Flags=p.p...TC
0.000008	22.901821	UnifSoftwan_e1:1e:bd	Intel_61:02:74	HewlettPacka_A4:c2:d2	182.802.11ac	200	44 - 78 ddm	QoS Data, SN=3437, FN=0, Flags=p.p...TC
0.000008	22.901829	UnifSoftwan_e1:1e:bd	Intel_61:02:74	HewlettPacka_A4:c2:d2	182.802.11ac	200	44 - 78 ddm	QoS Data, SN=3437, FN=0, Flags=p.p...TC
0.000008	22.901837	UnifSoftwan_e1:1e:bd	Intel_61:02:74	HewlettPacka_A4:c2:d2	182.802.11ac	135	44 - 74 ddm	QoS Data, SN=3437, FN=0, Flags=p.p...TC
0.000007	22.901852	UnifSoftwan_e1:1e:bd	MS-NLB-PhysServer-02_01	HewlettPacka_A4:c2:d2	182.802.11ac	200	44 - 78 ddm	QoS Data, SN=3438, FN=0, Flags=p.p...TC
0.000007	22.901859	UnifSoftwan_e1:1e:bd	MS-NLB-PhysServer-02_01	HewlettPacka_A4:c2:d2	182.802.11ac	200	44 - 78 ddm	QoS Data, SN=3438, FN=0, Flags=p.p...TC
0.000007	22.901894	UnifSoftwan_e1:1e:bd	MS-NLB-PhysServer-02_01	HewlettPacka_A4:c2:d2	182.802.11ac	200	44 - 78 ddm	QoS Data, SN=3438, FN=0, Flags=p.p...TC
0.000008	22.909628	UnifSoftwan_e1:1e:bd	Intel_61:02:74	HewlettPacka_A4:c2:d2	182.802.11ac	400	44 - 47 ddm	QoS Data, SN=135, FN=0, Flags=p...f.C
0.000010	22.925632	UnifSoftwan_e1:1e:bd	MS-NLB-PhysServer-02_01	HewlettPacka_A4:c2:d2	150.802.11ac	200	44 - 78 ddm	QoS Data, SN=3439, FN=0, Flags=p.p...TC
0.000050	23.093903	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	48 - 69 ddm	QoS Null function (No data), SN=3895, FN=0, Flags=...P...TC
0.000024	23.920629	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	44 - 71 ddm	QoS Null function (No data), SN=3897, FN=0, Flags=...P...TC
0.000008	23.930068	UnifSoftwan_e1:1e:bd	Intel_61:02:74	HewlettPacka_A4:c2:d2	182.802.11ac	200	44 - 76 ddm	QoS Data, SN=3441, FN=0, Flags=p.p...TC
0.000008	23.930083	UnifSoftwan_e1:1e:bd	MS-NLB-PhysServer-02_01	HewlettPacka_A4:c2:d2	182.802.11ac	200	44 - 77 ddm	QoS Data, SN=3442, FN=0, Flags=p.p...TC
0.000008	23.931545	UnifSoftwan_e1:1e:bd	Intel_61:02:74	HewlettPacka_A4:c2:d2	182.802.11ac	400	44 - 47 ddm	QoS Data, SN=139, FN=0, Flags=p...f.C
0.000008	24.121982	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	48 - 70 ddm	QoS Null function (No data), SN=3900, FN=0, Flags=...P...TC
0.000007	24.839388	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	44 - 70 ddm	QoS Null function (No data), SN=3900, FN=0, Flags=...P...TC

QoS Null Function flood — start of the fault event

0.000010	242.341457	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	44 - 64 ddm	QoS Null function (No data), SN=344, FN=0, Flags=...P...TC
0.000008	242.341465	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	70.802.11a	24	44 - 49 ddm	Acknowledgement, Flags=.....C
0.000008	242.341473	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	44 - 64 ddm	QoS Null function (No data), SN=345, FN=0, Flags=...P...TC
0.000008	242.341480	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	70.802.11a	24	44 - 49 ddm	Acknowledgement, Flags=.....C
0.000009	242.341490	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	44 - 64 ddm	QoS Null function (No data), SN=346, FN=0, Flags=...P...TC
0.000007	242.341504	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	70.802.11a	24	44 - 49 ddm	Acknowledgement, Flags=.....C
0.000008	242.341505	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	44 - 64 ddm	QoS Null function (No data), SN=347, FN=0, Flags=...P...TC
0.000008	242.341509	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	70.802.11a	24	44 - 49 ddm	Acknowledgement, Flags=.....C
0.000008	242.341521	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	44 - 64 ddm	QoS Null function (No data), SN=348, FN=0, Flags=...P...TC
0.000008	242.341529	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	70.802.11a	24	44 - 48 ddm	Acknowledgement, Flags=.....C
0.000008	242.341537	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	44 - 64 ddm	QoS Null function (No data), SN=349, FN=0, Flags=...P...TC
0.000008	242.341545	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	70.802.11a	24	44 - 49 ddm	Acknowledgement, Flags=.....C
0.000007	242.341552	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	44 - 64 ddm	QoS Null function (No data), SN=350, FN=0, Flags=...P...TC
0.000026	242.341596	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	70.802.11a	24	44 - 48 ddm	Acknowledgement, Flags=.....C
0.000009	242.341605	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	44 - 64 ddm	QoS Null function (No data), SN=352, FN=0, Flags=...P...TC
0.000009	242.341614	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	70.802.11a	24	44 - 64 ddm	Acknowledgement, Flags=.....C
0.000008	242.341622	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	44 - 64 ddm	QoS Null function (No data), SN=353, FN=0, Flags=...P...TC
0.000009	242.341631	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	70.802.11a	24	44 - 64 ddm	Acknowledgement, Flags=.....C
0.000008	242.341639	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	44 - 64 ddm	QoS Null function (No data), SN=354, FN=0, Flags=...P...TC
0.000008	242.341655	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	70.802.11a	24	44 - 49 ddm	QoS Null function (No data), SN=355, FN=0, Flags=...P...TC
0.000009	242.341664	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	70.802.11a	24	44 - 49 ddm	Acknowledgement, Flags=.....C
0.000010	242.341670	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	44 - 64 ddm	QoS Null function (No data), SN=356, FN=0, Flags=...P...TC
0.000007	242.341681	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	70.802.11a	24	44 - 49 ddm	Acknowledgement, Flags=.....C
0.000009	242.341690	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	44 - 64 ddm	QoS Null function (No data), SN=357, FN=0, Flags=...P...TC
0.000008	242.341698	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	70.802.11a	24	44 - 48 ddm	Acknowledgement, Flags=.....C
0.000008	242.341700	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	86.802.11a	24	44 - 64 ddm	QoS Null function (No data), SN=358, FN=0, Flags=...P...TC
0.000007	242.341713	UnifSoftwan_e1:1e:bd	HewlettPacka_A4:c2:d2	HewlettPacka_A4:c2:d2	70.802.11a	24	44 - 48 ddm	Acknowledgement, Flags=.....C

Filtering by MAC immediately revealed a massive QoS Null Function flood — uplink silenced, AP overwhelmed.

Disconnection sequence • Disassociation & Deauthentication

Self-inflicted full disconnect following the QoS Null flood

Disassociation sequence (client-initiated)

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0.000008 242.341993 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 86 802.11a ... 12 44 -46 dBm Disassociate, SN=1705, FN=0, Flags=....C
0.000008 242.342001 HewlettPacka_4d:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 12 44 -63 dBm Acknowledgement, Flags=.....C
0.000007 242.342008 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 86 802.11a ... 12 44 -46 dBm Disassociate, SN=1706, FN=0, Flags=.....C
0.000008 242.342016 HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 12 44 -61 dBm Acknowledgement, Flags=.....C
0.000007 242.342023 HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 12 44 -61 dBm Acknowledgement, Flags=.....C
0.000008 242.342031 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 86 802.11a ... 12 44 -46 dBm Disassociate, SN=1709, FN=0, Flags=.....C
0.000007 242.342038 HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 12 44 -61 dBm Acknowledgement, Flags=.....C
0.000010 242.342048 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 86 802.11a ... 12 44 -46 dBm Disassociate, SN=1710, FN=0, Flags=.....C
0.000007 242.342055 HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 12 44 -61 dBm Acknowledgement, Flags=.....C
0.000008 242.342063 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 86 802.11a ... 12 44 -46 dBm Disassociate, SN=1711, FN=0, Flags=.....C
0.000008 242.342071 HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 12 44 -62 dBm Acknowledgement, Flags=.....C
0.000009 242.342080 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 86 802.11a ... 12 44 -46 dBm Disassociate, SN=1712, FN=0, Flags=.....C
0.000008 242.342088 HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 12 44 -61 dBm Acknowledgement, Flags=.....C
0.000023 242.342111 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 86 802.11a ... 12 44 -46 dBm Disassociate, SN=1713, FN=0, Flags=.....C
0.000010 242.342121 HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 12 44 -61 dBm Acknowledgement, Flags=.....C
0.000008 242.342129 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 86 802.11a ... 12 44 -46 dBm Disassociate, SN=1714, FN=0, Flags=.....C
0.000009 242.342138 HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 12 44 -61 dBm Acknowledgement, Flags=.....C
0.000008 242.342146 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 86 802.11a ... 12 44 -46 dBm Disassociate, SN=1715, FN=0, Flags=.....C
0.000008 242.342154 HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 12 44 -61 dBm Acknowledgement, Flags=.....C
0.000009 242.342163 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 86 802.11a ... 12 44 -46 dBm Disassociate, SN=1716, FN=0, Flags=.....C
0.000008 242.342171 HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 12 44 -61 dBm Acknowledgement, Flags=.....C
0.000009 242.342180 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 86 802.11a ... 12 44 -46 dBm Disassociate, SN=1717, FN=0, Flags=.....C
0.000008 242.342188 HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 12 44 -61 dBm Acknowledgement, Flags=.....C
0.000008 242.342196 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 86 802.11a ... 12 44 -46 dBm Disassociate, SN=1718, FN=0, Flags=.....C
0.000008 242.342204 HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 12 44 -61 dBm Acknowledgement, Flags=.....C
```

Deauthentication — self-inflicted full disconnect

```
0.000008 242.368452 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 HewlettPacka_4d:c2:d2 86 802.11a ... 6 44 -68 dBm Deauthentication, SN=459, FN=0, Flags=.....C
0.000024 242.368476 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 70 802.11a ... 6 44 -46 dBm Acknowledgement, Flags=.....C
0.000009 242.368485 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 70 802.11a ... 6 44 -71 dBm Deauthentication, SN=460, FN=0, Flags=.....C
0.000008 242.368493 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 70 802.11a ... 6 44 -46 dBm Acknowledgement, Flags=.....C
0.000008 242.368501 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 70 802.11a ... 6 44 -71 dBm Deauthentication, SN=461, FN=0, Flags=.....C
0.000007 242.368508 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 70 802.11a ... 6 44 -46 dBm Acknowledgement, Flags=.....C
0.000009 242.368517 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 HewlettPacka_4d:c2:d2 86 802.11a ... 6 44 -71 dBm Deauthentication, SN=462, FN=0, Flags=.....C
0.000007 242.368524 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 70 802.11a ... 6 44 -46 dBm Acknowledgement, Flags=.....C
0.000008 242.368532 UnifySoftwar_e1:1e:bd HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 6 44 -71 dBm Deauthentication, SN=463, FN=0, Flags=.....C
0.000008 242.368540 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 70 802.11a ... 6 44 -46 dBm Acknowledgement, Flags=.....C
0.000007 242.368548 HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 6 44 -71 dBm Deauthentication, SN=464, FN=0, Flags=.....C
0.000008 242.368556 UnifySoftwar_e1:1e:bd HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 6 44 -46 dBm Acknowledgement, Flags=.....C
0.000007 242.368574 UnifySoftwar_e1:1e:bd HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 6 44 -71 dBm Deauthentication, SN=465, FN=0, Flags=.....C
0.000009 242.368582 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 70 802.11a ... 6 44 -46 dBm Acknowledgement, Flags=.....C
0.000007 242.368590 UnifySoftwar_e1:1e:bd HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 6 44 -71 dBm Deauthentication, SN=466, FN=0, Flags=.....C
0.000009 242.368606 UnifySoftwar_e1:1e:bd HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 6 44 -46 dBm Acknowledgement, Flags=.....C
0.000008 242.368615 HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 6 44 -79 dBm Deauthentication, SN=467, FN=0, Flags=.....C
0.000008 242.368623 UnifySoftwar_e1:1e:bd HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 6 44 -46 dBm Acknowledgement, Flags=.....C
0.000008 242.368631 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 86 802.11a ... 6 44 -71 dBm Deauthentication, SN=468, FN=0, Flags=.....C
0.000008 242.368639 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 70 802.11a ... 6 44 -46 dBm Acknowledgement, Flags=.....C
0.000008 242.368647 HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 86 802.11a ... 6 44 -71 dBm Deauthentication, SN=469, FN=0, Flags=.....C
0.000009 242.368656 UnifySoftwar_e1:1e:bd HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 86 802.11a ... 6 44 -71 dBm Deauthentication, SN=471, FN=0, Flags=.....C
0.000008 242.368672 UnifySoftwar_e1:1e:bd HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 70 802.11a ... 6 44 -46 dBm Acknowledgement, Flags=.....C
0.000007 242.368679 UnifySoftwar_e1:1e:bd HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 86 802.11a ... 6 44 -79 dBm Deauthentication, SN=472, FN=0, Flags=.....C
0.000008 242.368687 HewlettPacka_Ad:c2:d2 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 70 802.11a ... 6 44 -46 dBm Acknowledgement, Flags=.....C
0.000008 242.368695 HewlettPacka_Ad:c2:d2 HewlettPacka_4d:c2:d2 86 802.11a ... 6 44 -79 dBm Deauthentication, SN=473, FN=0, Flags=.....C
0.000008 242.368703 UnifySoftwar_e1:1e:bd HewlettPacka_4d:c2:d2 70 802.11a ... 6 44 -46 dBm Acknowledgement, Flags=.....C
```

The QoS Null flood was followed by a full disassociation then deauthentication sequence. The client dropped the call, scanned, roamed briefly to a neighbour AP, roamed back, and continued as if nothing happened.

Roaming Sequence · Scan, Associate, Return

Client recovers silently — Unify Openscape handsets drop the call during this window

Active scan and association to neighbour AP (34:8a:12:1c:7f:70)

0.000011	261.731700	UnifySoftwar_e1:1e:bd	Broadcast	Broadcast	179 802.11a	6	36 -56 dBm	Probe Request, SN=620, FN=0, Flags=.....C, SSID="CHRAM-Voip"
0.000010	261.741773	UnifySoftwar_e1:1e:bd	Broadcast	Broadcast	179 802.11a	6	36 -55 dBm	Probe Request, SN=621, FN=0, Flags=.....C, SSID="CHRAM-Voip"
0.000012	261.759518	UnifySoftwar_e1:1e:bd	Broadcast	Broadcast	179 802.11a	6	44 -49 dBm	Probe Request, SN=624, FN=0, Flags=.....C, SSID="CHRAM-Voip"
0.000009	261.769636	UnifySoftwar_e1:1e:bd	Broadcast	Broadcast	179 802.11a	6	44 -48 dBm	Probe Request, SN=625, FN=0, Flags=.....C, SSID="CHRAM-Voip"
0.000009	261.819689	UnifySoftwar_e1:1e:bd	Broadcast	Broadcast	179 802.11a	6	52 -52 dBm	Probe Request, SN=628, FN=0, Flags=.....C, SSID="CHRAM-Voip"
0.000012	262.197574	UnifySoftwar_e1:1e:bd	HewlettPacka_4d:c2:d2	HewlettPacka_4d:c2:d2	238 802.11a	12	44 -47 dBm	Authentication, SN=630, FN=0, Flags=.....C
0.000007	262.197625	UnifySoftwar_e1:1e:bd	HewlettPacka_4d:c2:d2	HewlettPacka_4d:c2:d2	354 802.11a	12	44 -48 dBm	Reassociation Request, SN=631, FN=0, Flags=.....C, SSID="CHRAM-Voip"
0.000008	262.208166	UnifySoftwar_e1:1e:bd	HewlettPacka_4d:c2:d2	HewlettPacka_4d:c2:d2	99 802.11a	6	44 -48 dBm	Action, SN=632, FN=0, Flags=.....C, SSID="CHRAM-Voip"
0.000007	262.228411	UnifySoftwar_e1:1e:bd	Broadcast	HewlettPacka_1d:76:d0	150 802.11a	24	52 -81 dBm	Data, SN=284, FN=0, Flags=..p...F.C
0.000008	262.228419	UnifySoftwar_e1:1e:bd	Broadcast	HewlettPacka_1d:76:d0	150 802.11a	24	52 -81 dBm	Data, SN=285, FN=0, Flags=..p...F.C
0.000006	262.301547	UnifySoftwar_e1:1e:bd	Broadcast	HewlettPacka_1d:76:d0	150 802.11a	24	52 -81 dBm	Data, SN=286, FN=0, Flags=..p...F.C
0.000012	262.309479	UnifySoftwar_e1:1e:bd	HewlettPacka_4d:c2:d2	HewlettPacka_4d:c2:d2	86 802.11a	24	44 -51 dBm	QoS Null function (No data), SN=633, FN=0, Flags=...P...TC
0.000012	262.738348	UnifySoftwar_e1:1e:bd	Broadcast	HewlettPacka_4d:c2:d2	150 802.11a	180	44 -62 dBm	QoS Data, SN=0, FN=0, Flags=..p....TC
0.020090	262.866309	UnifySoftwar_e1:1e:bd	Broadcast	HewlettPacka_4d:c2:d2	136 802.11a	24	44 -45 dBm	Data, SN=2925, FN=0, Flags=..p...F.C
0.000100	262.916772	UnifySoftwar_e1:1e:bd	Broadcast	HewlettPacka_1d:76:d0	150 802.11a	24	52 -82 dBm	Data, SN=317, FN=0, Flags=..p...F.C
0.000011	267.593712	UnifySoftwar_e1:1e:bd	Broadcast	HewlettPacka_4d:c2:d2	150 802.11a	180	48 -63 dBm	QoS Data, SN=1, FN=0, Flags=..p....TC
0.000008	268.590566	UnifySoftwar_e1:1e:bd	HewlettPacka_4d:c2:d2	HewlettPacka_4d:c2:d2	93 802.11a	12	44 -58 dBm	Action, SN=636, FN=0, Flags=.....C, Dialog Token=197
0.000011	268.665972	UnifySoftwar_e1:1e:bd	Broadcast	HewlettPacka_4d:c2:d2	150 802.11a	180	48 -66 dBm	QoS Data, SN=2, FN=0, Flags=..p....TC

Roam back to original AP — normal traffic resumes

0.000008	242.466913	UnifySoftwar_e1:1e:bd	Broadcast	Broadcast	179 802.11a	6	52 -62 dBm	Probe Request, SN=557, FN=0, Flags=.....C, SSID="CHRAM-Voip"
0.000007	242.637289	UnifySoftwar_e1:1e:bd	Broadcast	Broadcast	179 802.11a	6	56 -64 dBm	Probe Request, SN=559, FN=0, Flags=.....C, SSID="CHRAM-Voip"
0.000009	242.637298	UnifySoftwar_e1:1e:bd	Broadcast	Broadcast	169 802.11a	6	56 -65 dBm	Probe Request, SN=560, FN=0, Flags=.....C, SSID=Wildcard (Broadcast)
0.000010	243.239601	UnifySoftwar_e1:1e:bd	Broadcast	Broadcast	179 802.11a	6	40 -67 dBm	Probe Request, SN=565, FN=0, Flags=.....C, SSID="CHRAM-Voip"
0.000007	243.260229	UnifySoftwar_e1:1e:bd	Broadcast	Broadcast	179 802.11a	6	40 -66 dBm	Probe Request, SN=566, FN=0, Flags=.....C, SSID="CHRAM-Voip"
0.000140	243.300957	UnifySoftwar_e1:1e:bd	Broadcast	Broadcast	179 802.11a	6	40 -64 dBm	Probe Request, SN=567, FN=0, Flags=.....C, SSID="CHRAM-Voip"
0.000010	243.300967	UnifySoftwar_e1:1e:bd	Broadcast	Broadcast	179 802.11a	6	40 -63 dBm	Probe Request, SN=568, FN=0, Flags=.....C, SSID="CHRAM-Voip"
0.000011	243.331572	UnifySoftwar_e1:1e:bd	HewlettPacka_1c:7f:70	HewlettPacka_1c:7f:70	101 802.11a	12	40 -63 dBm	Authentication, SN=569, FN=0, Flags=.....C
0.000007	243.331643	UnifySoftwar_e1:1e:bd	HewlettPacka_1c:7f:70	HewlettPacka_1c:7f:70	230 802.11a	12	40 -63 dBm	Association Request, SN=570, FN=0, Flags=.....C, SSID="CHRAM-Voip"
0.000007	243.331671	UnifySoftwar_e1:1e:bd	HewlettPacka_1c:7f:70	HewlettPacka_1c:7f:70	99 802.11a	6	40 -64 dBm	Action, SN=571, FN=0, Flags=.....C, SSID="CHRAM-Voip"
0.000007	243.490275	UnifySoftwar_e1:1e:bd	HewlettPacka_1c:7f:70	HewlettPacka_1c:7f:70	86 802.11a	24	36 -68 dBm	QoS Null function (No data), SN=572, FN=0, Flags=.....TC
0.000011	243.608941	UnifySoftwar_e1:1e:bd	HewlettPacka_1c:7f:70	HewlettPacka_1c:7f:70	86 802.11a	24	36 -72 dBm	QoS Null function (No data), SN=573, FN=0, Flags=.....TC
0.000021	243.738509	UnifySoftwar_e1:1e:bd	HewlettPacka_1c:7f:70	HewlettPacka_1c:7f:70	86 802.11a	24	40 -63 dBm	QoS Null function (No data), SN=574, FN=0, Flags=.....TC
0.000007	243.738648	UnifySoftwar_e1:1e:bd	HewlettPacka_1c:7f:70	HewlettPacka_1c:7f:70	86 802.11a	24	40 -63 dBm	QoS Null function (No data), SN=575, FN=0, Flags=.....TC
0.000007	243.738662	UnifySoftwar_e1:1e:bd	HewlettPacka_1c:7f:70	HewlettPacka_1c:7f:70	150 802.11a	180	40 -68 dBm	QoS Data, SN=2, FN=0, Flags=..p....TC
0.010069	243.824140	UnifySoftwar_e1:1e:bd	Broadcast	HewlettPacka_1c:7f:70	136 802.11a	24	40 -83 dBm	Data, SN=3358, FN=0, Flags=..p...F.C
0.000023	243.938189	UnifySoftwar_e1:1e:bd	HewlettPacka_1c:7f:70	HewlettPacka_1c:7f:70	86 802.11a	24	36 -66 dBm	QoS Null function (No data), SN=576, FN=0, Flags=.....TC
0.000013	244.164609	UnifySoftwar_e1:1e:bd	HewlettPacka_1c:7f:70	HewlettPacka_1c:7f:70	36 802.11a	24	40 -77 dBm	QoS Null function (No data), SN=577, FN=0, Flags=.....TC
0.000008	244.164626	UnifySoftwar_e1:1e:bd	Broadcast	HewlettPacka_1c:7f:70	150 802.11a	180	40 -82 dBm	QoS Data, SN=3, FN=0, Flags=..p....TC
0.010098	244.229970	UnifySoftwar_e1:1e:bd	Broadcast	HewlettPacka_1c:7f:70	136 802.11a	24	40 -81 dBm	Data, SN=3381, FN=0, Flags=..p...F.C
0.015997	244.301580	UnifySoftwar_e1:1e:bd	Broadcast	HewlettPacka_1b:0d:10	150 802.11a	24	56 -93 dBm	Data, SN=161, FN=0, Flags=..p...F.C

So What Went Wrong?

The clue was in the frames — and then in the guide

The clue in the capture

The QoS Null Function frames weren't showing the power-save bit. That was the detail that sent me back to the documentation — specifically the HPE Aruba and Ascom I63 interoperability guide we had been using from day one.

Same chipset is not the same as identical

The vendor told us the Unify devices were identical to the Ascom I63. We trusted that and followed the guide accordingly. But sharing a chipset is not the same as being identical. The firmware — the software running on that hardware — can behave very differently, and in this case it did.

What the guide actually said

Going back through the guide, in the section on power saving, it states clearly: Quiet IE is not advised when using Ascom I62 devices. It only works correctly with Ascom I63 — and even then, only if the entire network consists of Ascom I63 devices. That was not our situation. After a short conversation with the customer's IT department, we disabled Quiet IE on the SSID. The call drops stopped immediately.

Lessons Learned

Three takeaways every Wi-Fi engineer should carry from this case

1. Trust the Frames, Not the Guide

Even a certified interoperability guide is a starting point — not a guarantee. Configure, test, evaluate, retest. When the guide says one thing and the frames say another, trust the frames. The vendor-confirmed chipset match was accurate. The firmware behaviour was not.

2. Vendor Claims Are Not Ground Truth

Shared hardware chipset does not mean identical firmware behaviour. The Unify device and the Ascom I63 shared hardware but handled the Quiet IE mechanism differently. That difference was invisible in all vendor documentation until it appeared in a live packet capture.

3. Absence of Visible Errors Does Not Mean a Healthy Network

Only the disconnecting Unify handsets raised complaints. The Quiet IE was silently degrading every VoWiFi device on the network. Proactive monitoring — not just complaint-driven response — is how real problems get found before they become clinical incidents.

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