March 2, 2021

WEBINAR
Monitoring and optimizing Wi-Fi in times of COVID-19
Agenda

- Wi-Fi Enables The Connected Home During COVID times
- The Turknet experience with Wi-Fi orchestration
- Live demo by Ambeent
Main Areas of Research

CARRIER
- Wi-Fi Offloading
- Wi-Fi Roaming
- OpenRoaming Federation
- Wi-Fi Hotspot Tracking

ENTERPRISE & HOME
- Home Wi-Fi Trends
- MDU Wi-Fi Trend
- Business Managed Wi-Fi Trends
- Wi-Fi & IoT Trends
- Industrial Wi-Fi
- In-flight connectivity

CONVERGENCE
- Integration of unlicensed into 5G
- NGH Networks
- Dynamic Spectrum Sharing
- Multi Access Edge Computing

PUBLIC WI-FI TRENDS

WI-FI MONETIZATION STRATEGIES
Our Services

Lead Generation Webinars
We generate high-quality leads by organizing flawless webinars. We take care of all logistics, promotion, and coordinate content preparation.

White Papers
Demonstrate thought leadership and expertise by producing in-depth white papers on a particular topic of relevance to your audience.

Curated Blogs
We produce relevant, strategic, and trusted blogs to support your content marketing strategy.

Market Studies
We have more than 20 years of experience producing in-depth market reports, case studies, and research briefs for the wireless industry.

Online Surveys
We conduct telephone interviews and online surveys to extract market trends and generate primary research findings.

Prime Video Interviews
We conduct regular video interviews with the leaders of the industry and highlight their achievements.
# How COVID-19 is affecting internet performance

- 1.7 billion students studying from home
- 1 billion telehealth visits in the US alone in 2020
- Microsoft reports 894% growth in teams usage
- Verizon reports 1200% increase in US collaboration tool usage
- 32% of homes experienced measurable home Wi-Fi coverage issues during the confinement period

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<thead>
<tr>
<th>Country or State</th>
<th>Traffic Change</th>
<th>DL Speed Change</th>
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<tbody>
<tr>
<td>France</td>
<td>↑38.4%</td>
<td>↓13.9%</td>
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<tr>
<td>Italy</td>
<td>↑109.3%</td>
<td>↓35.4%</td>
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<td>Japan</td>
<td>↑31.5%</td>
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<td>Spain</td>
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<td>United Kingdom</td>
<td>↑78.6%</td>
<td>↓30.3%</td>
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<td>USA - California</td>
<td>↑46.5%</td>
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<tr>
<td>USA - Michigan</td>
<td>↑37.9%</td>
<td>↓16.1%</td>
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<td>USA - New York &amp; New Jersey</td>
<td>↑44.6%</td>
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Source: Fastly
Please rank the main reasons your customers are calling for support? 1 being the most common

- Wi-Fi slow speed
- Wi-Fi cannot connect
- Wi-Fi disconnects/not stable
- Wi-Fi extender issues
- Forgot password
- Forgot SSID

Source: [https://tinyurl.com/w8qlvww](https://tinyurl.com/w8qlvww)
Please rank the factors which are affecting your customers' home Wi-Fi experience? (1 being the most common)
Select Report Findings

- What percentage of inbound support calls are related to Wi-Fi? 31%
- What percentage of inbound support calls result in a truck roll? 17%
- What is the average cost of a service call? $US49.63
- What is the average cost of a truck roll? $US134.76

Source: https://tinyurl.com/w8qlvww
Wi-Fi with a Spectrum Broker is More Resilient to COVID-19 Surge

Wi-Fi Console: A Step for Global Orchestration of the Spectrum
Questions/Contact

Adlane Fellah
Senior Analyst
Maravedis LLC
afellah@maravedis-bwa.com
Founded in 1996, now 4th biggest ISP in Turkey.

- Country-wide 500,000 private subscribers + SME & Corporate customers
- 350 personnel with R&D center (50+ technical staff)
- Fastest Internet connections in 2020 & 2021 (Netflix)
- First ADSL, G.SHDSL, IP MPLS VPN services in Turkey
- Own fiber infrastructure in big cities, FTTH, LLU, Bit stream access services
- Hosting & data center services.
• Working from home becomes crucial for education, productive work, even healthcare
• Even minor Internet problems in this era became showstoppers
• Wi-Fi problems are seriously impacting 83% of users in Turkey
• Customer complaints: %50+ due to home Wi-Fi problems in cities
• Main reason: local interference from adjacent home usage
• Other reason: poor modem or router placement
The Problem: Neighbor Interference

Adding more access points could make Wi-Fi slower.
How Ambeent Works?

Wi-Fi Network

Mobile Application

Cloud Platform

Optimization and Machine Learning

Database
TurkNet chose Ambeent solution to mitigate Wi-Fi problems experienced by its customers

- Q4/2019, TurkNet started testing.
- Q2/2020, TurkNet went live.

Why Ambeent Wi-Fi solution selected:


- App. enables users to initiate Wi-Fi control & optimization. Rest is automatic and remotely accomplished

- Most Internet modems remotely adjustable. Others made compliant via software modification by Ambeent.
<table>
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<tr>
<th>Products</th>
<th>Competitor 1</th>
<th>Competitor 2</th>
<th>Competitor 3</th>
<th>Competitor 4</th>
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<td>Scalability</td>
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<td>B2B Integration Time</td>
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<td>Collaborative Solution</td>
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<td>Accurate Device-to-AP Wi-Fi Speed Measurement</td>
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<td>Multi-Vendor Solution</td>
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<td>End-to-End Wired and Wireless Networks</td>
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<td>Help Wi-Fi Offloading</td>
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<td>Network Forecast</td>
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**Competitor Analysis**
Wi-Fi Optimization April 2020 Results

Customer Count

Dates

- Total User
- OptReq
- OptDone

Optimization Results
Wi-Fi Optimization November 2020 Results

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Optimization Results
Wi-Fi Optimization February 2021 Results

Optimization Results
Wi-Fi Optimization Monthly Results

**Optimization Results**
Internet speed
• ~100% performance improvement

Better customer experience
• ~25% drop in customer complaints

Overall net promoter score for home Wi-Fi service
• >25

Digital Engagement rocketed
• App download from 50,000 in Q2/2020 to 241,206 – in 9 months.

Results: Ambeent is positively contributing our CX Strategy
1. Customers must be contacted (educated) to use app.

2. Successful technology use requires close collaboration between tech company (Ambeent) & operator (TurkNet).

3. Both tech co. and operator benefit from joint R&D.

1. Deploy Ambeent’s smart ticket toolkit: predict potential customer dissatisfaction (prediction accuracy ~90%) followed by prompt action

2. Joint network performance / Wi-Fi optimization solution
Organizing the World’s Wi-Fi
with an AI Powered Spectrum Orchestration
Ambeent At a Glance

Ambeent offers an AI powered Spectrum Orchestration framework to learn and optimize Wi-Fi in order to enhance the Internet experience. Ambeent started with the groundwork developed from research at the University of California, Berkeley. Ambeent’s technology can be used by service providers, Wi-Fi (enterprise) owners and cloud applications as a Spectrum as a Service.

Validated by ISPs and Enterprises as Customers and Pilots

Featuring turk.net

Strong Growth

- 2020: >1M User, 3 Signed Contract, 20 Patents
- 2022: >10M User, 30 Signed Contract, 50 Patents

International, Growing Team

- 30+ Team Members: 6 PHDs, 3 MSc
- 3 Countries
- 10

International Recognition and Awards

SaaS, Multi-Sectoral, Vendor Agnostic and Scalable

Focusing ISP today with SaaS.

Next Enterprise: Hospitality, Educational, Large Venues, OTT, WFH

Vision – Include CBRS and 5G Private with. PaaS

Overlapping Industry Category

Managed Wi-Fi, AIOps, DEM, NDPM, Inter Service Provider Orchestration, Customer Self Service

Sales Team covering NA, LATAM, IBERIA, EU, MENA, ASIA
Ambeent Wi-Fi Console
Mobile based AIOps for improved CX

Only GDPR/CCPA compliant solution with almost no battery and memory cost.

Diagnose & Monitor
- Device & AP Agnostic
- Monitor User Device Level Data
- Know the problem before the customer calls the call centre

Optimize
- End the Interference Problem
- Increase customer Wi-Fi Performance
- Increase Offloading Capacity

Insights
- Know Your Customer Form an inside out approach
- Plan Better for Future
- Predict and Recommend
Collaborative Optimization
Providing spectrum efficiency

End of Neighbour Interference Problem

- ✔ Separation of Channels using AI
- ✔ Allocation of channels according to session types
- ✔ AP level Offloading Optimization

Average Optimization Success 80%
Average Performance (Speed) Increase 156%
Possible Internal Stakeholders

**Owner**
- CEM Department
  - They suffer from call center costs, high customer churn due to low service satisfaction. Provide better performance with the same infrastructure.

**Tracks**
- Network Department
  - They want to optimize end-to-end connectivity and predict the network load and anomalies. They decide heavy OPEX and CAPEX with this guidance.

**Leverages**
- Mobile Department
  - To make sure their Voice over Wi-Fi Offloading is on track and providing a great service.

**Expedites**
- Call Center Agents
  - They want to learn about the suffering customers in order to quickly resolve the issues. Upsell opportunities: service upgrade or sale of mesh or repeaters etc.

**Engages**
- Digital Departments
  - To make sure they engage more subscribers to digital apps and track the client capabilities to align with their offerings

**Earns**
- Enterprise Sales
  - They can sell hospitality, mall, WFH type of Ambeent use cases to enterprises along with their broadband service
Platform Roadmap

SaaS

Enterprise Wi-Fi Market

WFH

OTT

HOTEL

Wi-Fi Console

Field Console

PaaS

5G Private and Enterprise Wi-Fi Market

6GHz

CBRS

5G

5G DSS Orchestration

Unlicensed Spectrum Orchestration

Wi-Fi and 5G Spectrum Coordination

Today
Better Wi-Fi Experience

Mustafa Ergen - Founder

ergen@ambeent.ai
User Guide

Wi-Fi Console: Analyze and Optimize
1. Please go to: www.ambeent.ai
2. Click Sign in/Sign up icon

Together Better Wi-Fi

Ambeent provides a cross-network spectrum orchestration platform.

Today, Ambeent is organizing World's Wi-Fi by Mobile for CX.

Download Ambeent

iOS, Macbook, Windows, Linux and Kindle
3. Click “Sign Up” icon

4. Complete the form and enter your group name
   *You can select any name to identify your working group*
5. After you sign up a verification email will be sent to your email.

6. Once you receive the email, click “Activate Account”
7. After activating your account, you will get a “Group Code”
*You can share/enter your “Group Code” with other devices.
8. You can download the app from either the Android or iOS store.
9. Follow the app instructions
10. Click the button in the top right corner

11. Click the “Login to Ambeent” icon

12. Insert your assigned “Group Code” and User ID which identifies your device.

*User ID helps you to keep individual statistics about your device(s)
Congratulations!
You are all set!!!
Welcome to Ambeent

Wandering has begun!!!