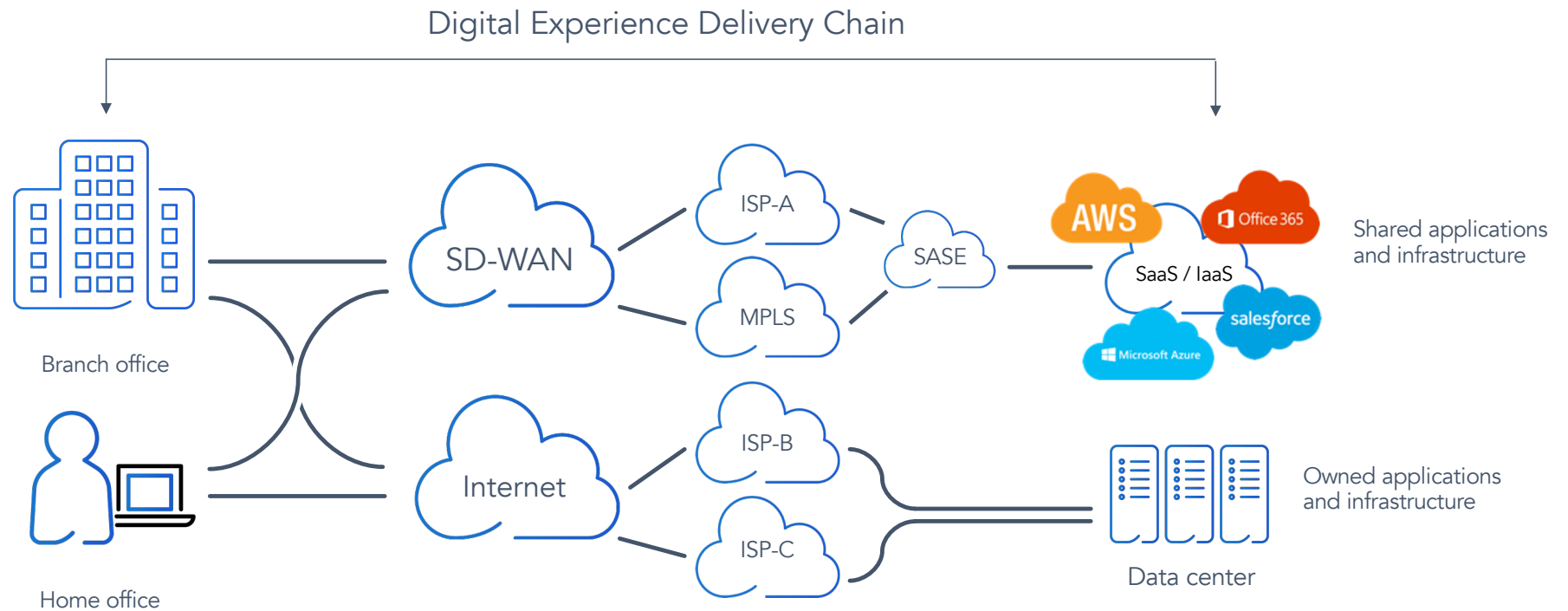





# The Why, How, and Future of Digital Experience Monitoring

Alex Henthorn-Iwane  
VP Marketing, Sinefa

# The new IT operations context



A dramatic painting of a three-masted sailing ship, likely a galleon, navigating through a turbulent, stormy sea. The ship is dark, with its masts and rigging silhouetted against a dark, cloudy sky. The sea is a deep, dark blue-green, with white-capped waves crashing around the vessel. The overall mood is one of peril and struggle. The text is overlaid on the right side of the image.

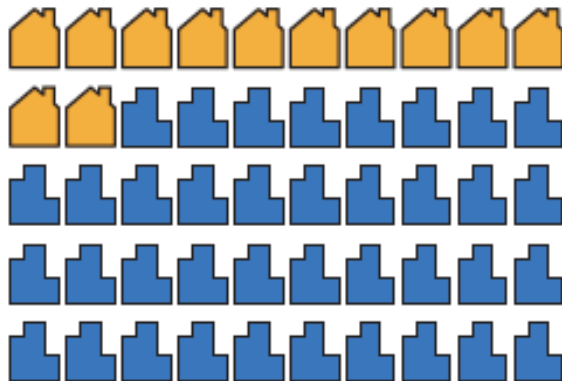
SD-WANs  
don't control  
the Internet

# The remote work disruption

before the pandemic,

## 12 PER CENT

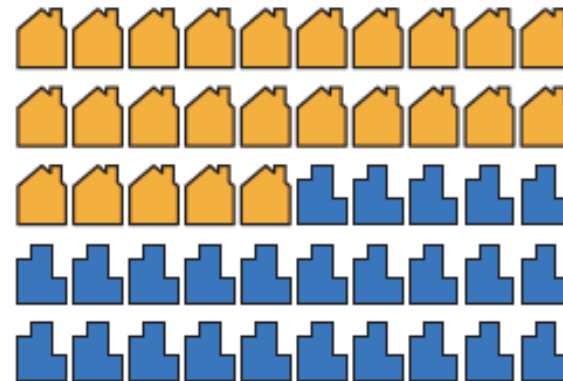
of U.S. adults worked from home at least one full day per month



after the pandemic,

## 50 PER CENT

of U.S. adults work from home due to the COVID-19 Crisis.



Nearly

## One in Five CFOs

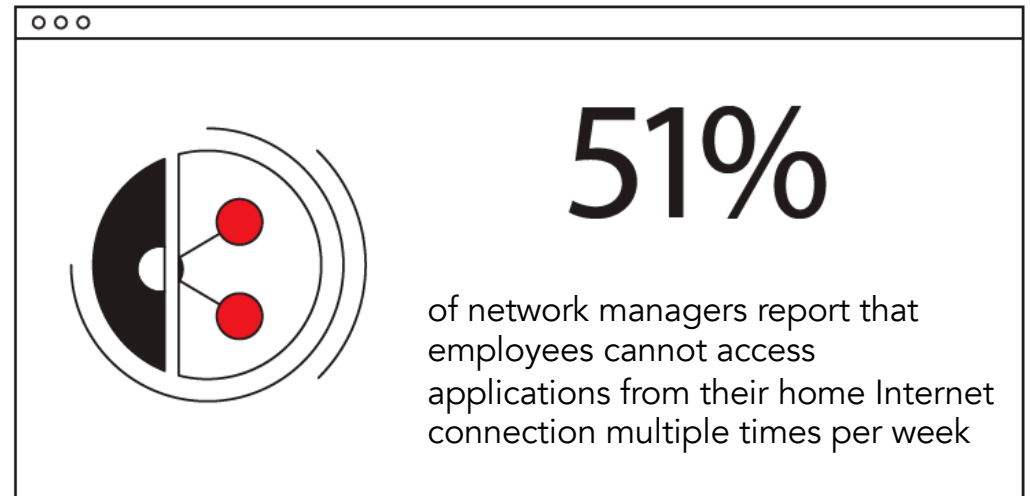
plan to keep 20% of their workforce remote on a permanent basis



Brookings Institute: "Telecommuting will likely continue long after the pandemic"

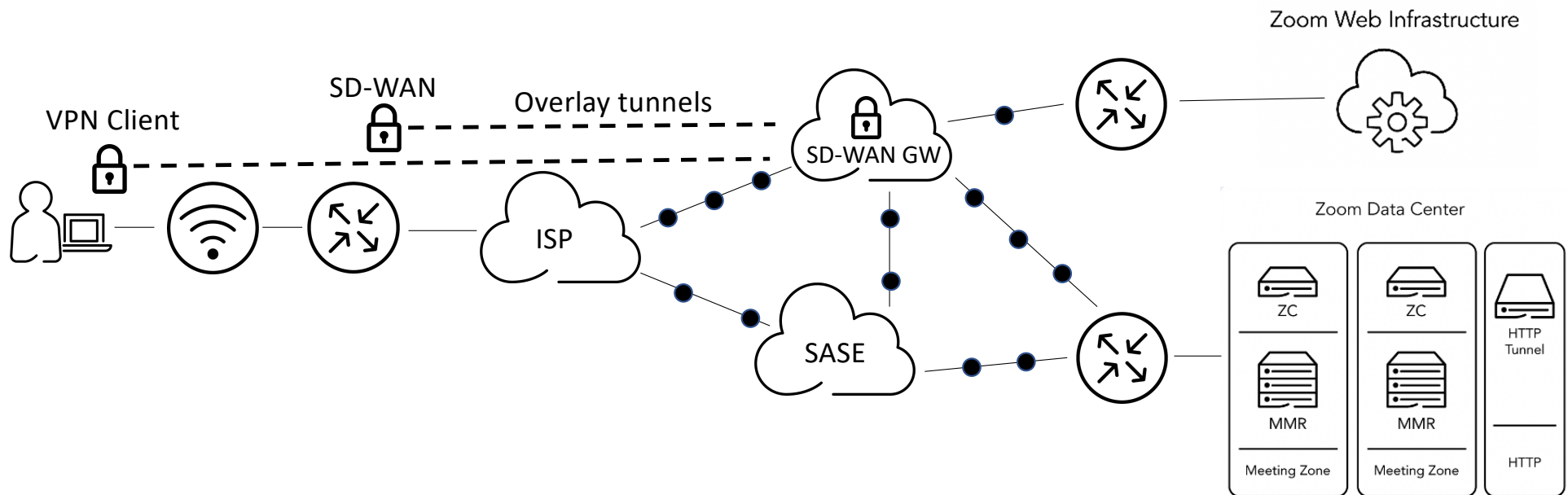
# WFH exposes a new set of problems

- Noisy, unplanned wifi environment
- Consumer-grade routers and ISPs
- Contention with gaming, streaming
- Increased use of real-time collaboration tools



# Illustrating the issue with a common use case

Zoom end-user is reporting a poor experience of voice or video quality



# Problem: Fractured monitoring tools

The schism among the NPMD buying community continues. Some buyers tend to invest broadly in packet and infrastructure monitoring solutions, often across different vendors, but have issues with the complexity of their packet monitoring solutions and with tool sprawl.

...new dynamic network architectures are affecting the efficacy of traditional network monitoring stacks.

The postpandemic workforce will remain more distributed and remote, limiting I&O leaders' visibility into endpoint, connectivity and application performance from everywhere, leaving them vulnerable to issues beyond their control, such as an ISP or home Wi-Fi issue.

# Old way of thinking about monitoring tools

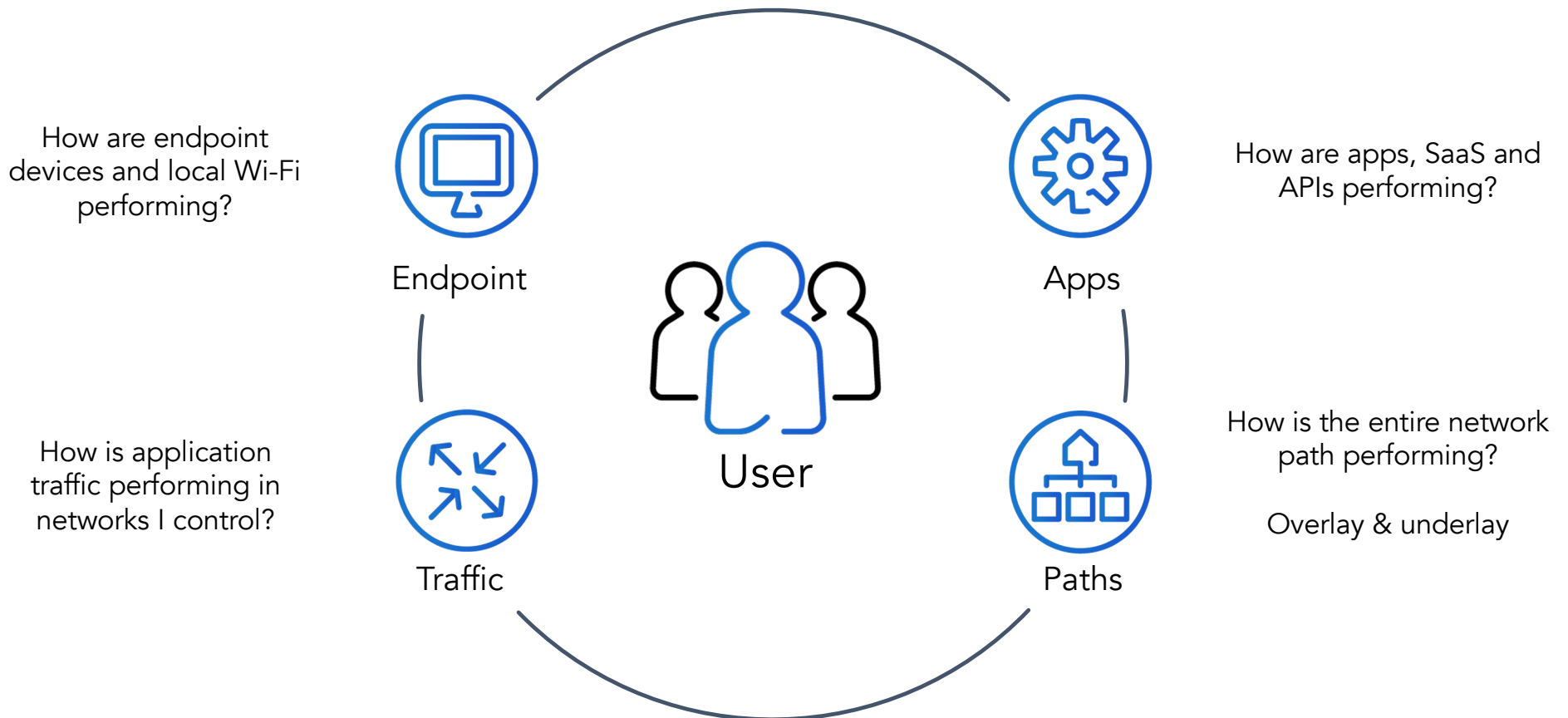
- **Passive monitoring**
- **Storage limits**
- **Ingestion rate**

**VS**

- **Active monitoring**
- **API limits**
- **Analytics scale**



# DEM seeks to answer these questions



# DEM Monitoring Techniques

Monitoring technique	Visibility provided
App Synthetics	Direct, end-to-end application monitoring See baseline vs anomalous behavior Understand what is app/server vs network issue
Path monitoring	Measure end-to-end network performance metrics See hop-by-hop path visuals and metrics Find routing, internal vs external/Internet/SaaS network issues See overlay vs underlay
LAN synthetics	Measure from endpoint device to default gateway Distinct view of LAN domain vs wifi vs WAN/Internet performance
Endpoint-derived	Measure device performance See wifi behaviors and metrics
Traffic analysis	See app performance & utilization from real user traffic

# Best Practice Remote Worker IT Troubleshooting Workflow

## Problem domain isolation

- Endpoint device
- Wifi
- Local network / gateway
- ISP/Internet path
- Application / SaaS

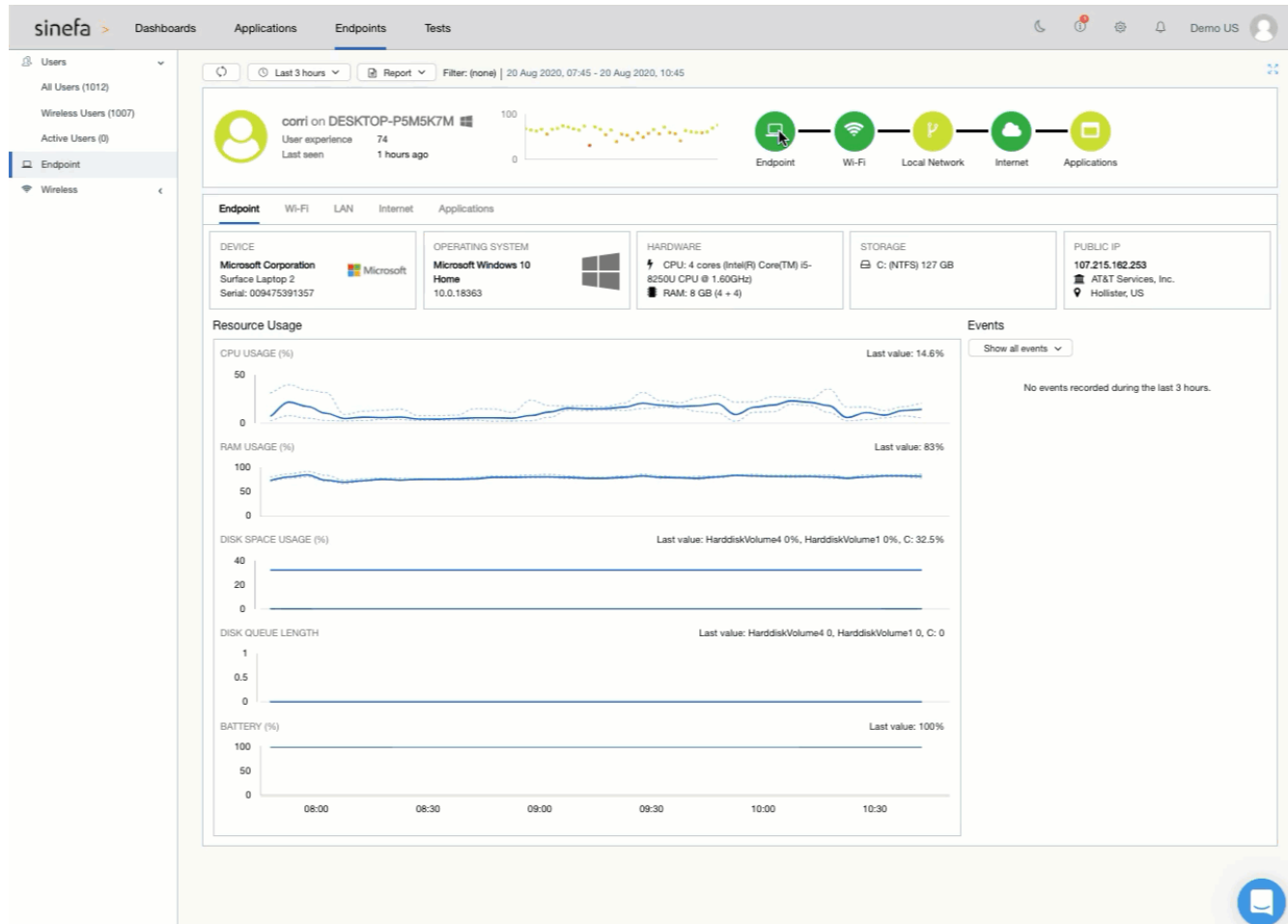
## Per-domain diagnosis and root cause thesis

## Remediation

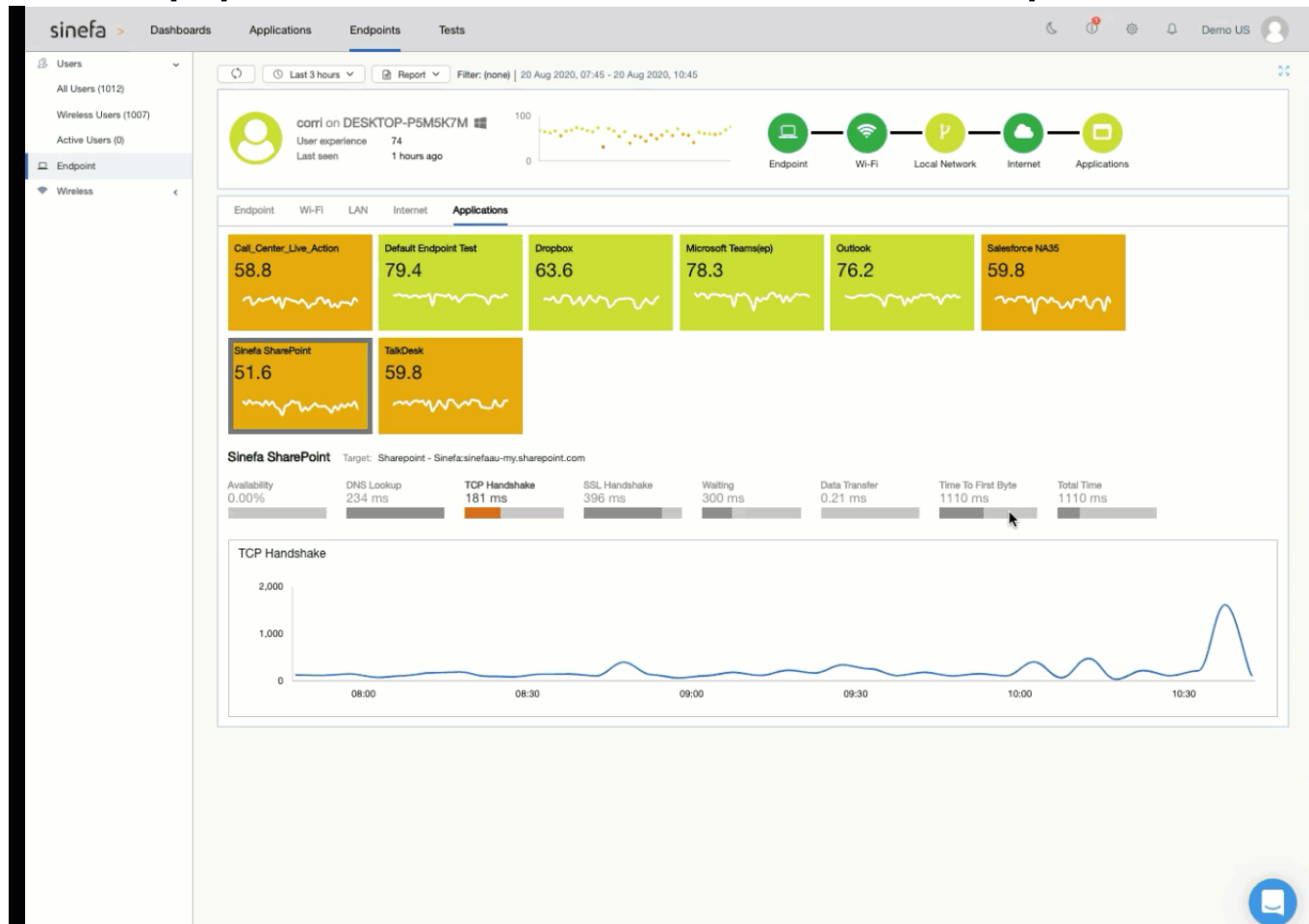
# Common root causes, metrics & remediations

Root Cause	Metrics	Remediation
Slow endpoint	High CPU/Mem utilization High disk queue length (above 1) Low battery	-Close apps, tabs, processes -Close disk-intensive processes -Plug in (laptops may slow processes otherwise)
Wifi signal interference	Wifi signal quality	-Move closer to wifi -Reduce 2.4G interference -Switch to 5G -Upgrade to mesh wireless
Wifi churn	AP and channel swapping over time	-Be aware of location and which network you're connected to (e.g. LTE hotspot vs wifi)
Local network / gateway congestion	Default gateway high loss/latency	-Understand who else is on network -Reboot gateway to flush sessions -Upgrade gateway device
ISP/Internet path problems	End-to-end loss/latency Per hop loss/latency	-Isolate which network is having issue -Escalate directly or indirectly to provider -Wireless hotspot backup
App / SaaS issues	Time to First Byte and contributing metrics (DNS, connect, SSL, wait times)	-Trace to underlying issue -Escalate to SaaS

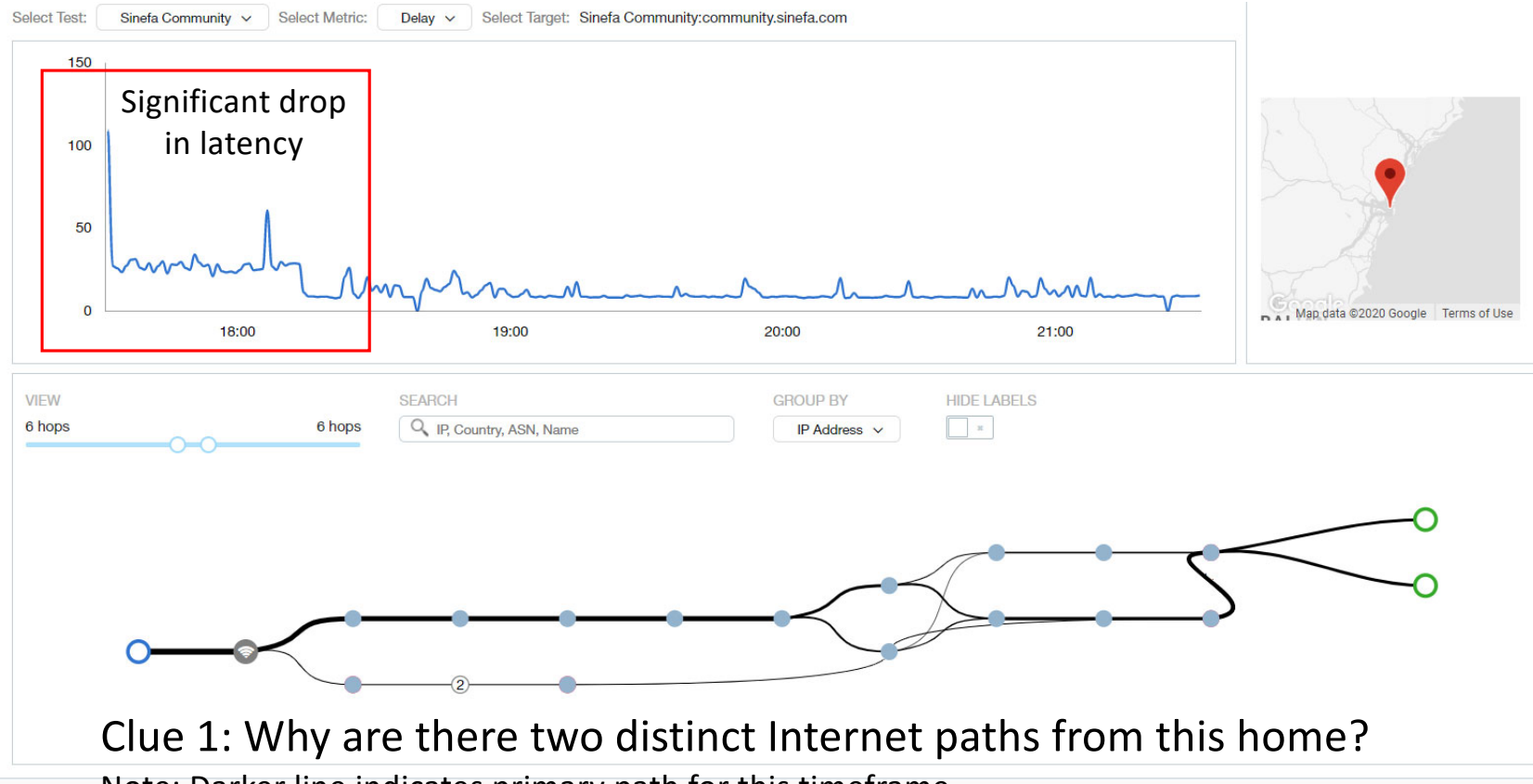
# Solve remote worker IT issues efficiently



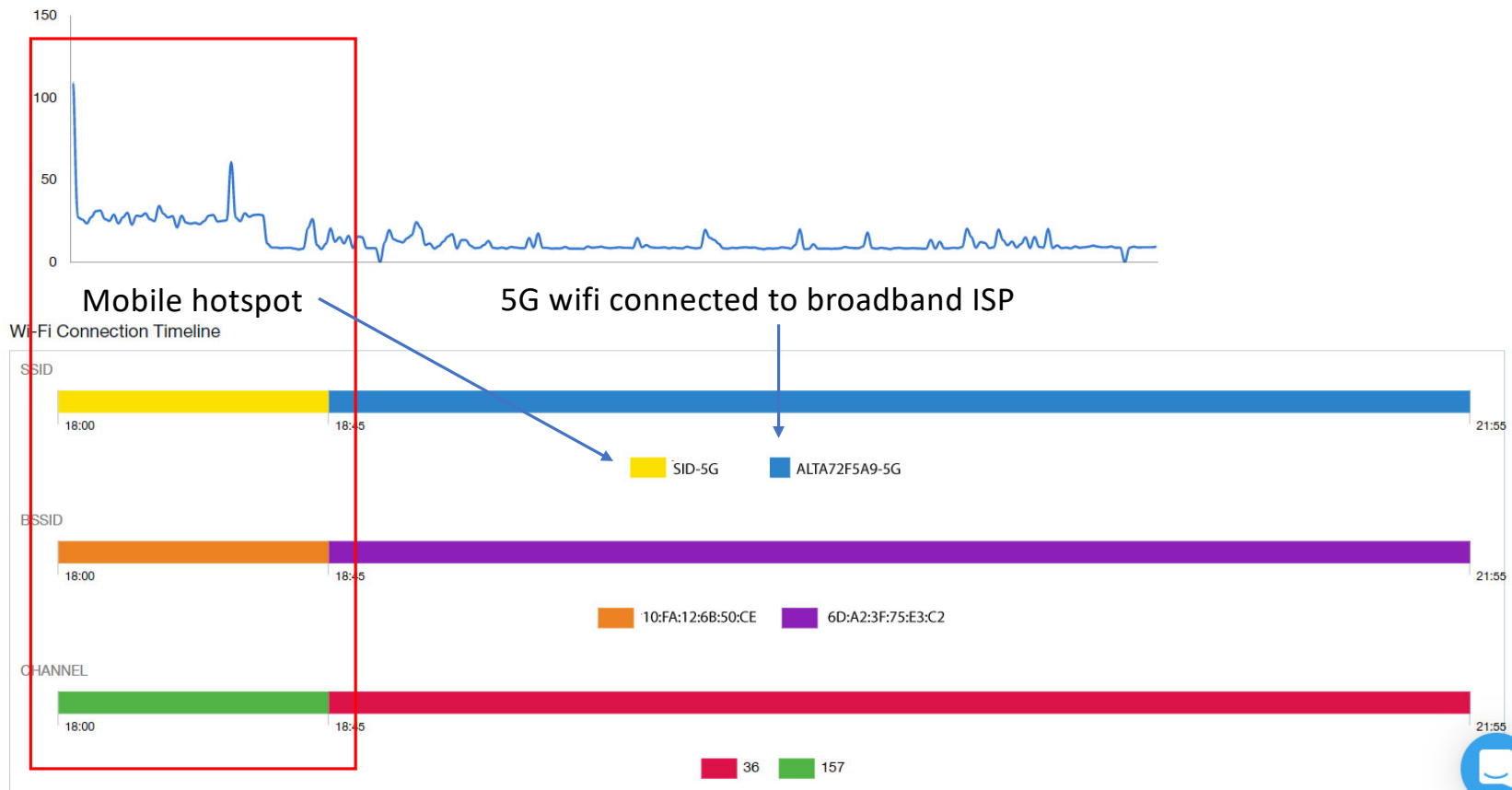
# Correlate application and Internet performance



# Why is my performance changing?



# Moving from mobile hotspot to broadband!





# The Future of DEM

- Collective intelligence
- Deep integration into SASE/SD-WAN
  - Visibility
  - Access
  - Control
- Automated remediation

## Why this matters



**92%** of survey respondents say **employee engagement** is critical to their organization's success.



**82%** say **employees' happiness** on the job is significantly impacted by how well their workplace technology performs.

Thank you!  
@heniwa

