



Possibilities

#CiscoLive

Cisco DNA Center

Your one-stop analytics and assurance shop
for network operations

Duval Yeager – SME Analytics and AI/ML
@DuvalYeager
DGTL-PSOEMT-1203



June 2-3, 2020 | ciscolive.com/us

#CiscoLive





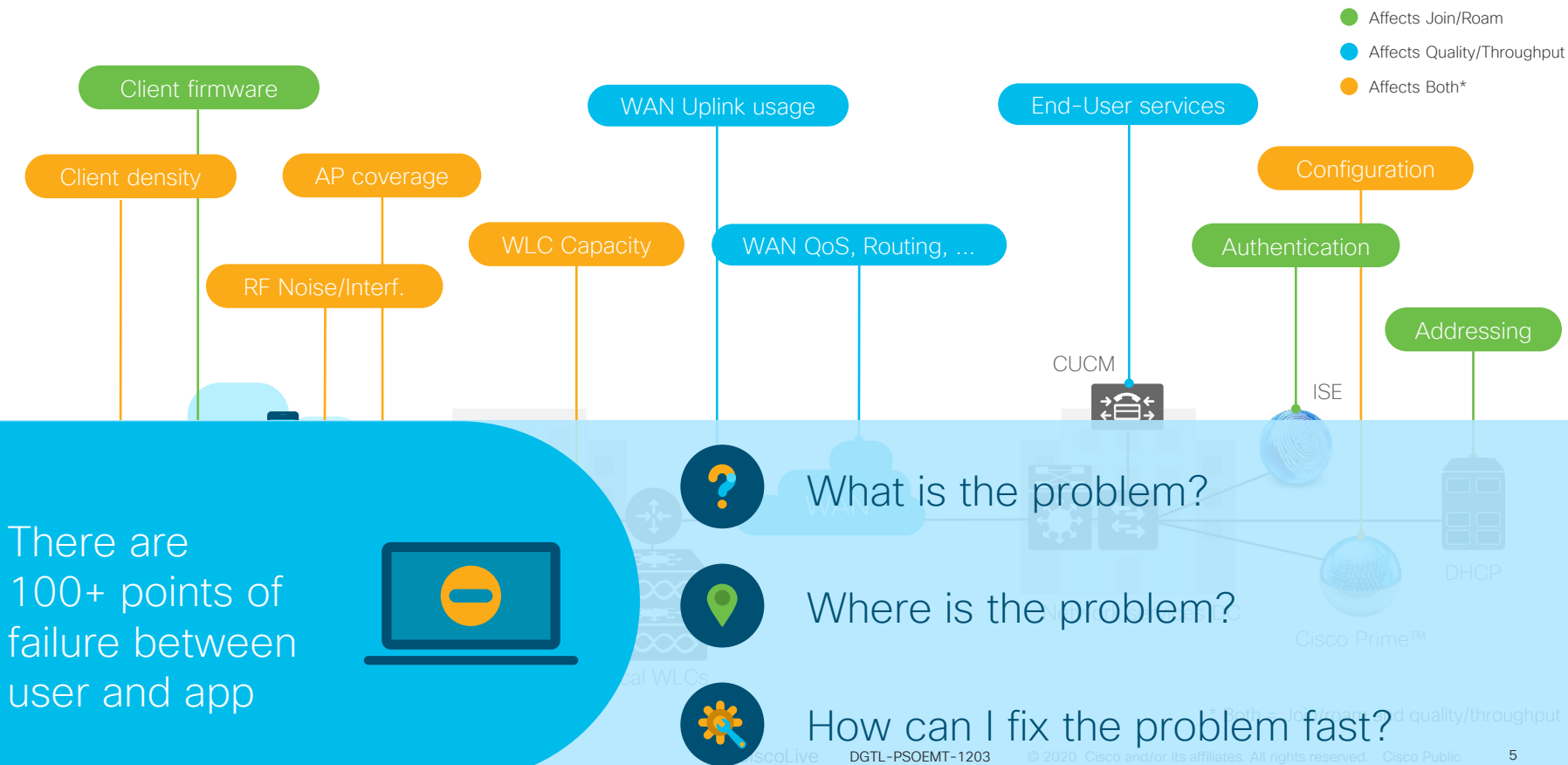
Agenda

When it comes to network analytics and assurance, the networking industry offers a myriad of different systems that provide visibility. Either through streaming telemetry, packet-capture appliances, wireless sensors, cloud-based AI/ML servers, or air gapped stand-alone systems; a company looking to improve its network performance can spend a lot on all the different options. But did you know that Cisco DNA Assurance offers all these technologies integrated within Cisco DNA Center? This session will go through the many elements that Cisco DNA Center implements in order to improve your network performance and user experience.

Agenda

- Introduction
- SMNP
- Telemetry
- Agents
- Packet capture
- Cloud-based vs appliance
- Correlation and context
- Machine learning
- Machine reasoning
- Network analytics
- Application analytics
- Conclusion

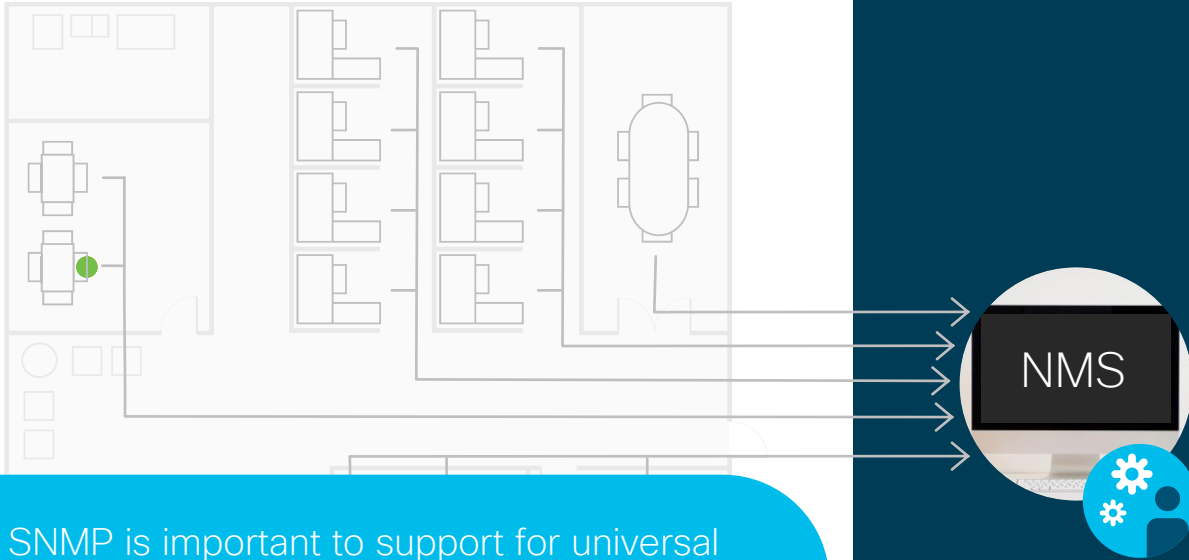
Network assurance is a complex, end-to-end problem



SNMP

SNMP

Open standard
Universal support
Universal practice

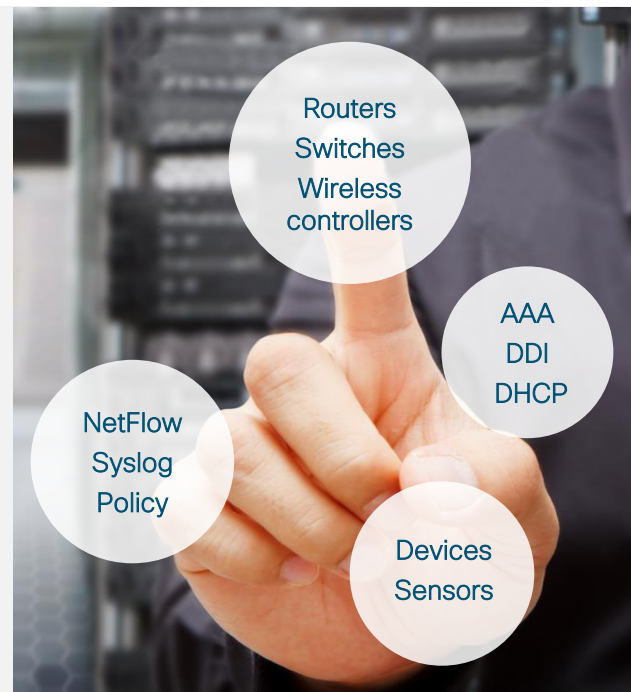
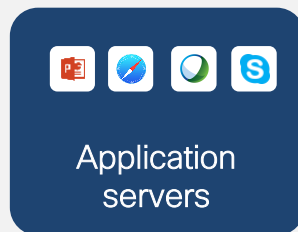
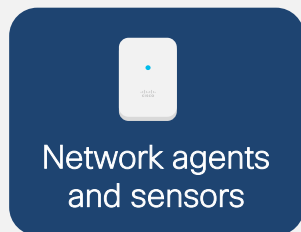
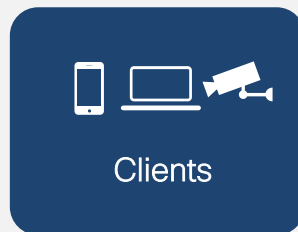


SNMP is important to support for universal third-party monitoring. But it has many disadvantages in today's networks.

Not real time
Creates overhead
Limited data
Does not scale

Streaming telemetry

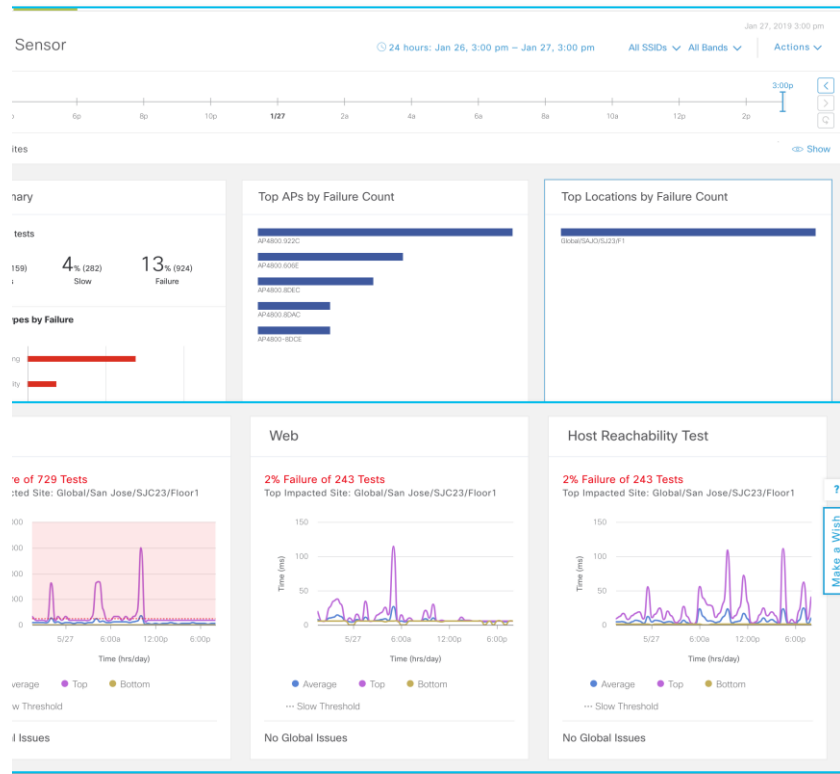
Real time
Auto-generated
Performs at scale
Low overhead
Secure
Open standard



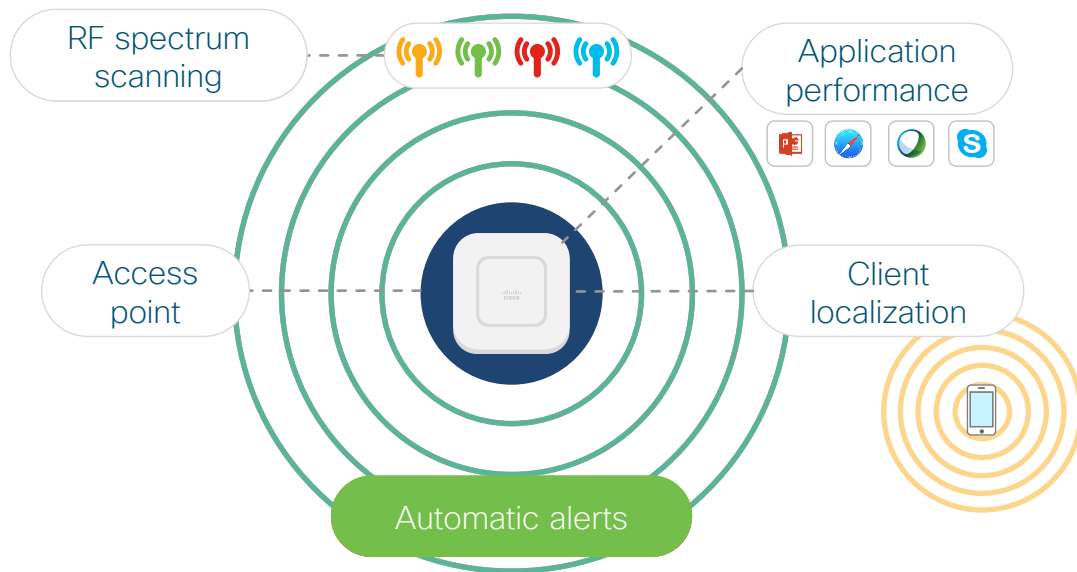
Leverage and analyze data from every point on the network

Cisco wireless active sensor

- Speed Test
 - NDT
 - iPerf3
- Heatmap Dashboard
 - Locations of interest
 - Location-based drill down
- Plug and play provisioning
 - Easy remote branch install
- Dedicated Backhaul support
 - Reliable Wi-Fi connectivity
- Sensor 360 view
 - Verify sensor functionality



Intelligent capture



Use your Cisco access points for packet capture to troubleshoot:

- Client connectivity
- Application performance
- RF spectrum issues

Access point +
AireOS

Anomaly-triggered
PCAPs

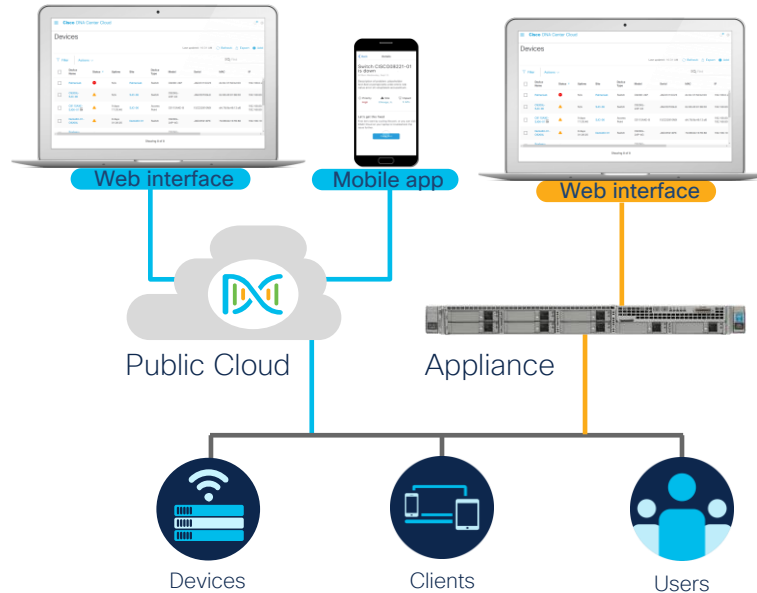
RF scanning and
application analytics

Real-time client
location

Cloud-based vs appliance

Cloud-based

- Low start-up cost
- Access anywhere
- Branch offices
- Agile operation
- SaaS feature velocity



Appliance

- Performance
- Local reliability
- Version control
- Air-gap security
- Cloud-tethered

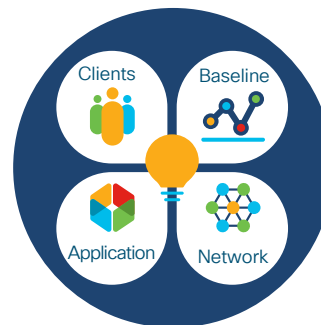
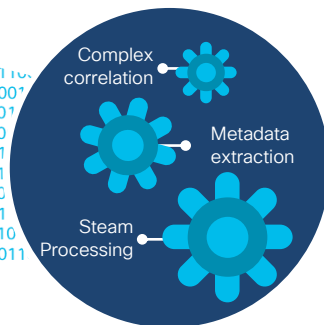
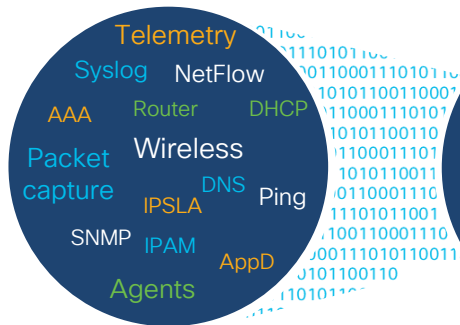
Correlation and context

Network telemetry
contextual data

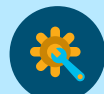
Complex event
processing

Useful
Insights

Suggested
remediation



Correlation:
If X happens, what are
the probable causes?



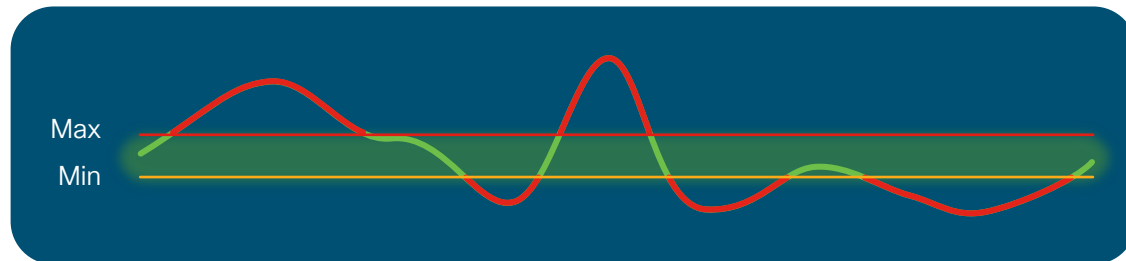
Context:
The effect of other concurrent
network events on X and it's
probable causes.

How the machine learns

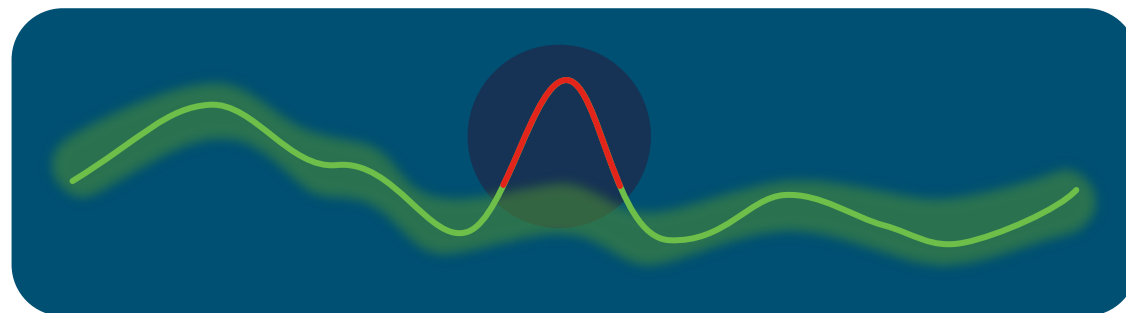
Collect global telemetry



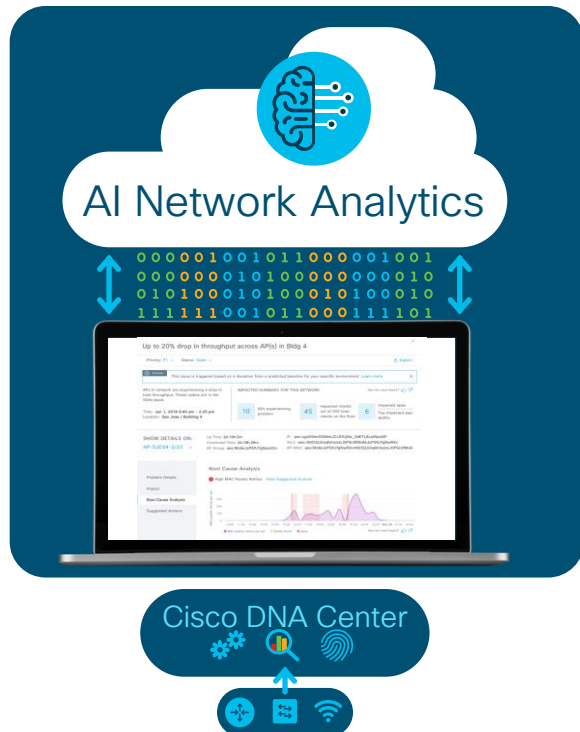
Before: Custom thresholds = alert overload



AI-driven: Dynamic baselines = relevant anomalies



Benefits of machine learning



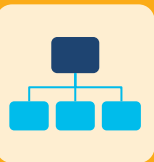
Visibility: Personalized baselining

Intelligently define personalized "network normal" using unified global telemetry collected



Insight: Intelligent data analysis

Increase signal to noise, reduce false positives, and accurately identify trends and root causes.



Action: Accelerated remediation

Create automated resolution options for IT to act on based on machine reasoning algorithms.

Human reasoning

Networking issue

Steps to resolution

What is causing data showers on one of my segments?



Use path-trace to locate spanning tree protocol loops in L2.



Why is wireless onboarding slow in building 3?



Check max AP associations, then check DHCP limit, then check for RF interference.



Are my device configurations consistent?



Compare inventory images, patches, and configurations.



Network analytics

Device analytics

- Managing a much bigger network without a major staff increase.
- Maintaining consistent performance at scale.
- Assuring a robust and consistent user experience – always.

Client analytics

- Securely provisioning and configuring new devices almost daily.
- Switch QoS settings for the many types of wireless clients.
- Managing constant software image and security patches.

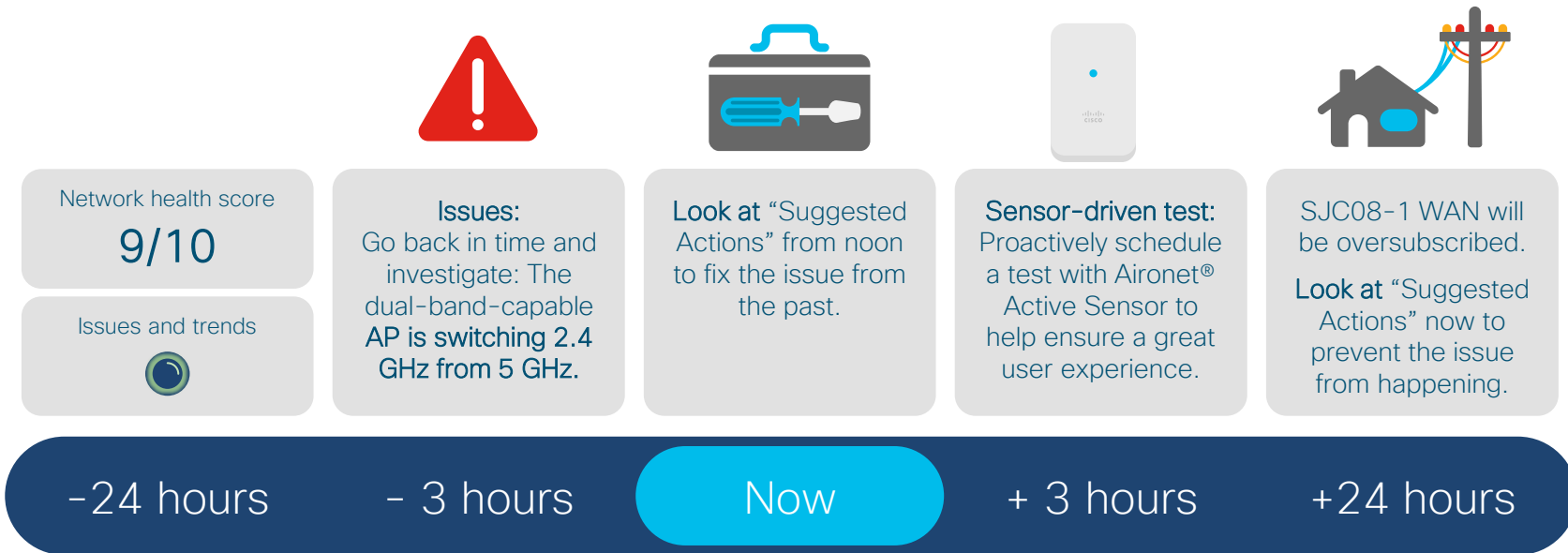
Policy analytics

- Enforcing user policies across multiple domains
- Segmenting IoT devices from general traffic and users.
- Threat detection and quarantine of infected client devices.

Application analytics

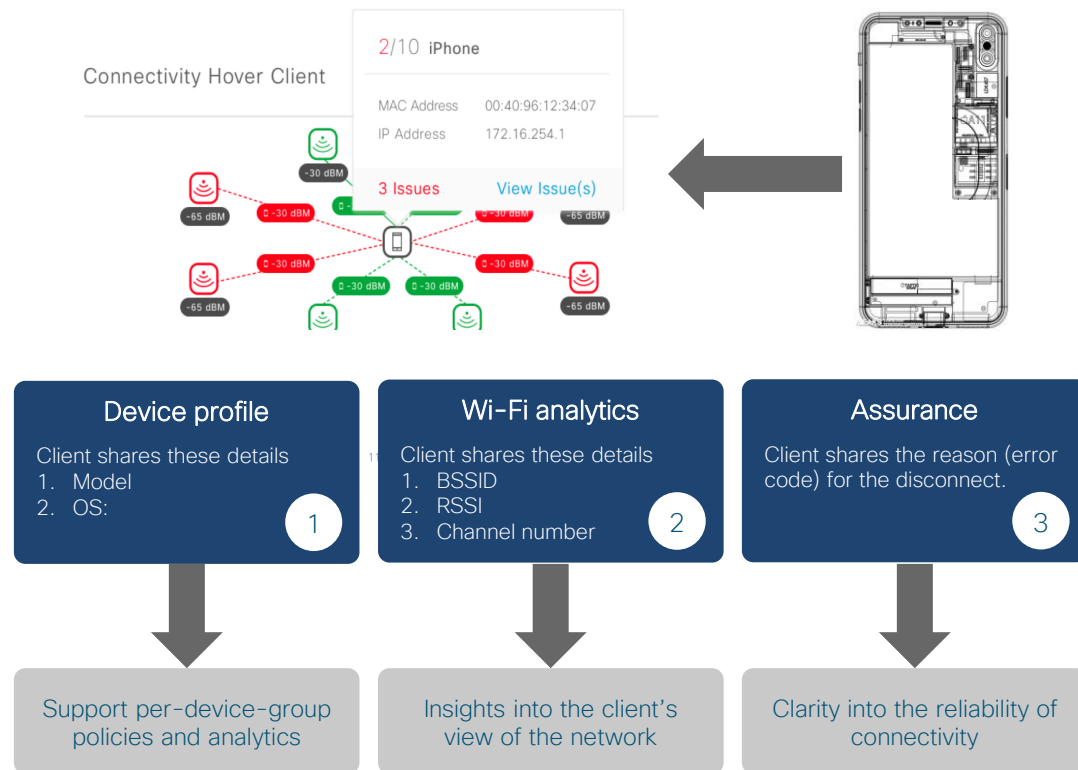
- Installing and supporting remote branches without site visits.
- Improve SaaS user/application experience.
- Guaranteeing security in a cloud-first world.

Are my devices healthy?



No need to replicate issues; just go back and see exactly what happened.

Wireless client insights



Apple iOS and Samsung

Wi-Fi client analytics

This partnership with Apple and Samsung enables wireless clients to speak to Cisco DNA Center with client diagnostics.

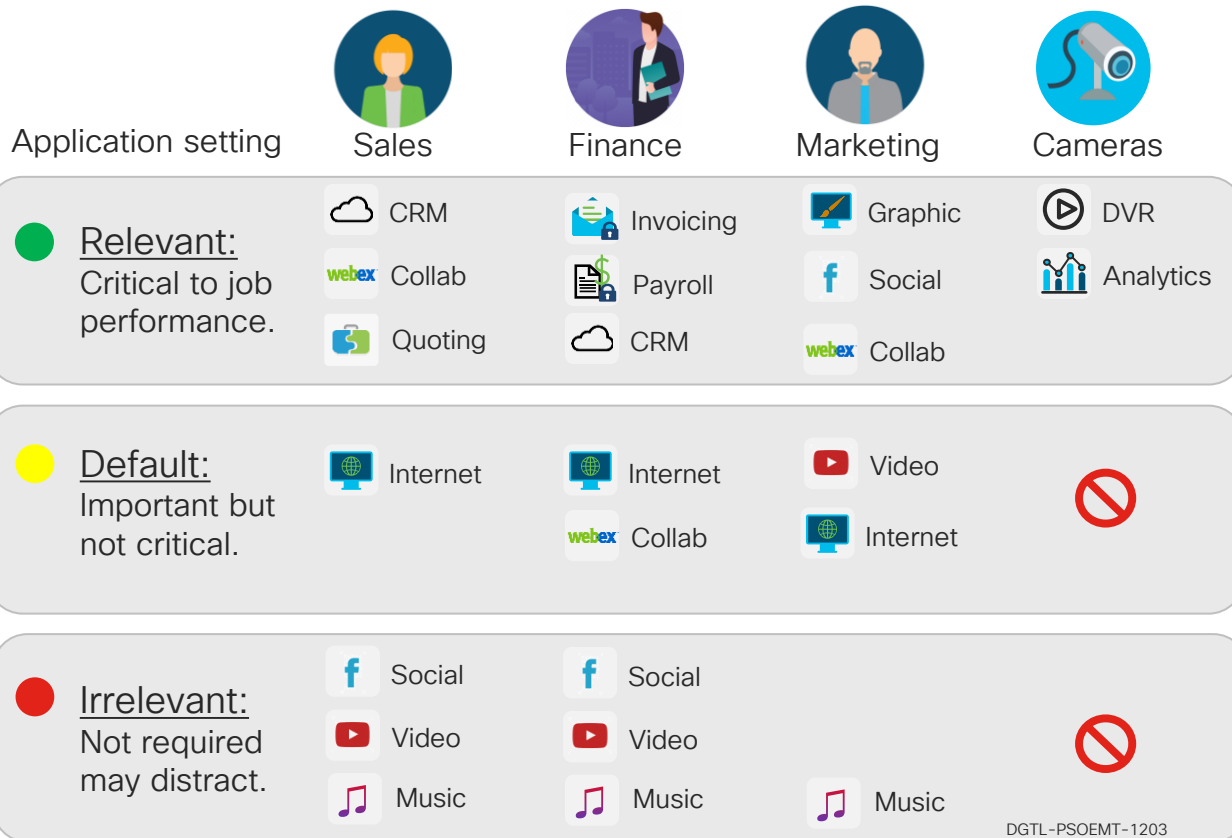
Provides a more comprehensive view of all potential root causes of wireless issues.

Problems affecting wireless clients are likely affecting all wireless clients.

Application visibility

Aligning application performance with business intent

Application analytics



Desired outcome

These applications are critical to supporting business objectives. Applications should be classified, marked and treated marked according to industry best-practice recommendations.

These applications support non-critical business activities. Applications of this type should be treated with a Default Forwarding service.

These applications do not support business objectives and are typically consumer-oriented

Applications of this type should be treated with a “less-than Best Effort” service

Policy and segmentation is a best practice but is hard to do



Challenges



Group endpoints

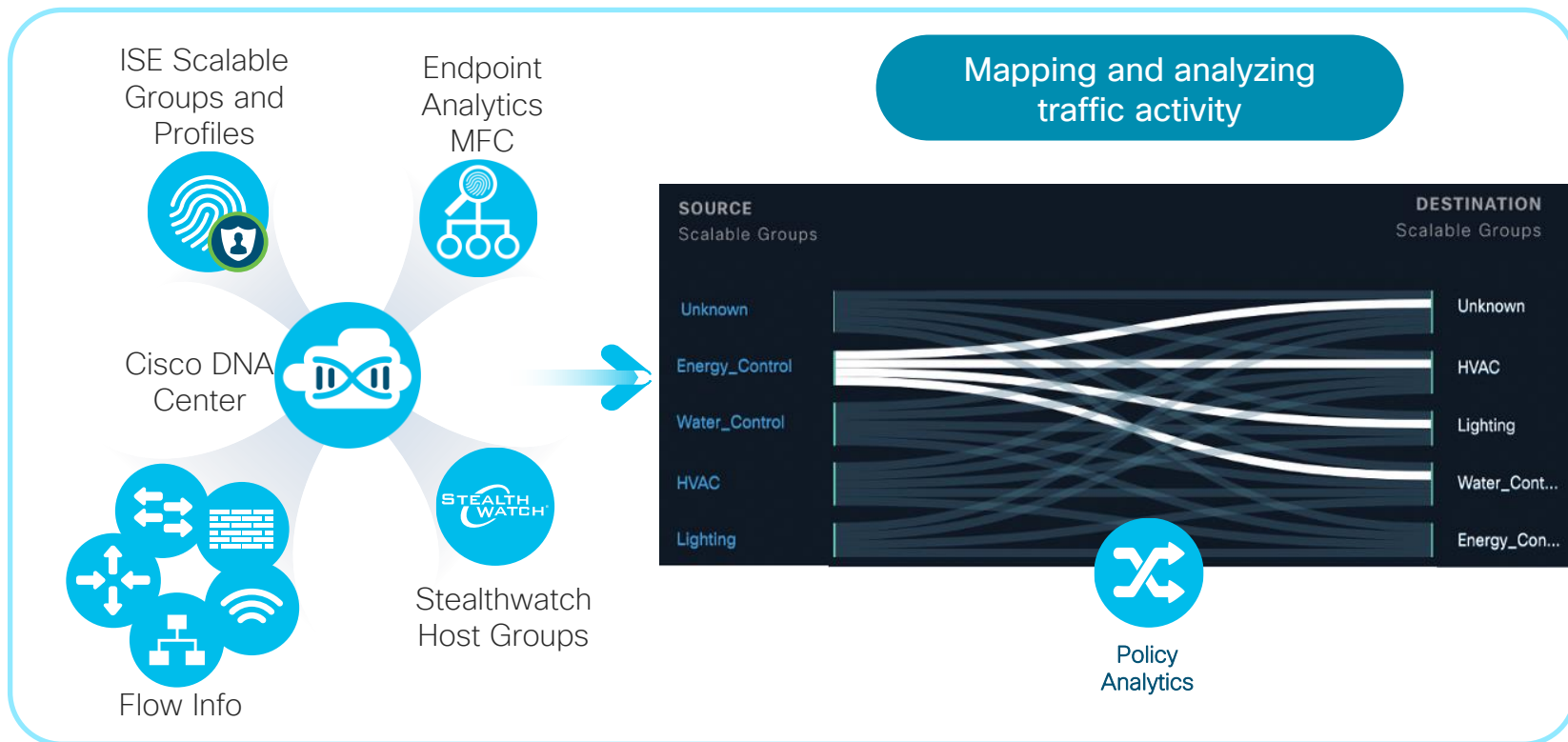


Create policies



Optimize segmentation

Group-based policy analytics



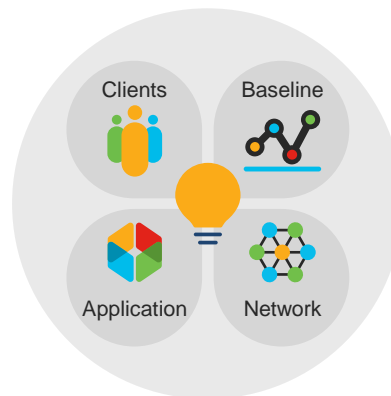
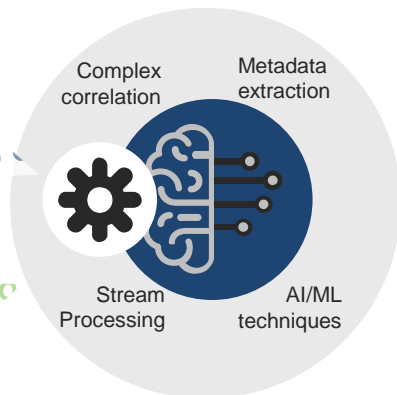
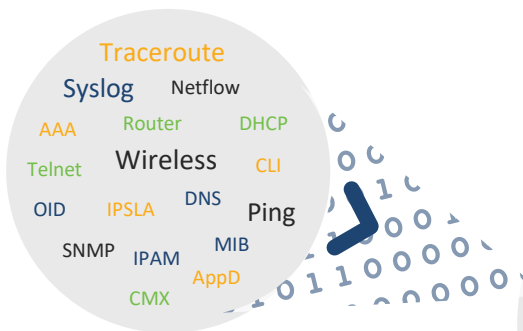
Bringing it all together

Network telemetry and
contextual data

Complex event
processing

Correlated insights

Suggested
remediation



 **Visibility: Personalized baselining**

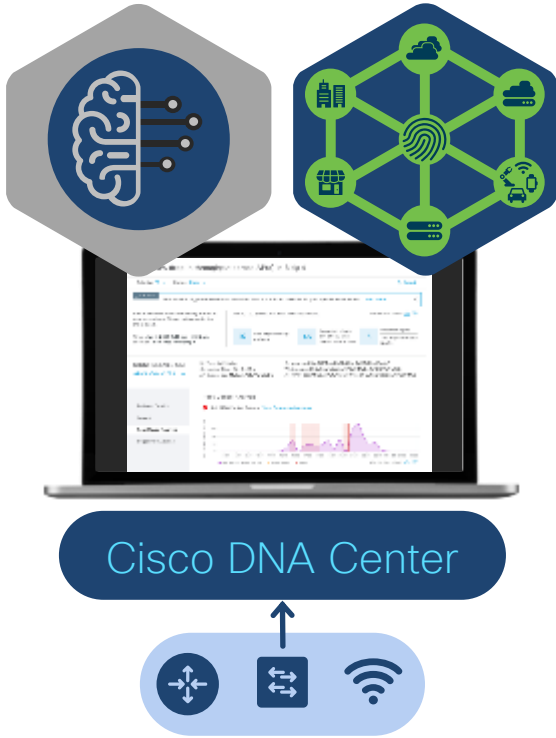
 **Insight: Intelligent analysis**

 **Action: Accelerated remediation**



Over 100 actionable insights
Client | Applications | Wireless | Switching | Routing

Assurance consumption is simplified by Cisco DNA software subscriptions



Cisco DNA Premier

- Cisco Identity Services Engine
- Advanced security with Umbrella and Cisco Threat Grid
- Encrypted traffic analytics with Stealthwatch
- Cisco DNA Spaces

Cisco DNA Advantage

- Software-Defined Access
- Cisco DNA Assurance
- Policy-based segmentation



Ongoing
innovation



License
portability



Software support
included



OpEx
preference



Lower
entry costs



Demo



Thank you

For more information, please visit:
www.cisco.com/go/assurance

CISCO *Live!*

#CiscoLive





Possibilities

#CiscoLive