Расширение концепции AI-Driven Enterprise

- Трансформация сети с помощью ИИ Mist
- Новое поколение SD-WAN с технологией Session Smart
- Портфолио Mist и SD-WAN

juniper@muk.com.ua

JUNIPER NETWORKS | Engineering Simplicity

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О компании MUK

Основное направление деятельности МУК — дистрибьюция комплексных решений и оборудования ведущих мировых производителей в сфере информационных технологий.

Год выхода на рынок: 1997 г.

Группа компаний МУК предоставляет комплекс дополнительных услуг для своих дилеров, что позволяет говорить о ней как об уникальном дистрибьюторе, развивающем в Украине модель Value Added Distribution (VAD) и осуществляющем продажи через дилерскую сеть.

- >1300 компаний-партнеров во всех регионах Украины
- >400 квалифицированных сотрудников
- >50 мировых брендов А-класса – контракты в портфолио компании
- 24 года на рынке IT-дистрибьюции

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Направления деятельности

Дистрибьюция:

проектные решения: серверы, системы хранения данных, сетевое оборудование, связь и телефония, защита данных, контроль доступа, инфраструктурные решения;

программное обеспечение: виртуализация, безопасность, управление инфраструктурой, аналитика, облачные решения;

клиентские решения и периферия: ноутбуки, КПК, графические станции, ИБП, периферия, мониторы, принтеры, сканеры, камеры.

Учебный центр:

Авторизированные курсы на территории СНГ от ведущих мировых производителей ИТ-индустрии, а также множество авторских курсов по заказу партнеров и заказчиков.

Сервисный центр:

Ремонт, настройка и модернизация ноутбуков, серверов, продажа и заказ комплектующих, обеспечение беспрерывности работы оборудования, расширенный гарантийный сервис.

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ИСТОРИЯ УСПЕХА JUNIPER NETWORKS

	1998	2021
ИННОВАЦИИ	МАРШРУТИЗАЦИЯ	МАРШРУТИЗАЦИЯ, КОММУТАЦИЯ, БЕЗОПАСНОСТЬ
СОТРУДНИКИ	130	9,000+
ВОЗМОЖНОСТИ	ОБЬЕМ РЫНКА $0.5 МЛРД	ОБЬЕМ РЫНКА $50+ МЛРД

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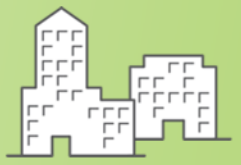
ПОРТФОЛИО JUNIPER

JUNIPER ENTERPRISE

Безопасная и Автоматизированная Многооблачная Архитектура

AI-Driven Enterprise

Филиал / Удаленный офис



Кампус/HQ

WAN

ЦОД/Приватное облако

Enterprise Multicloud

Публичное облако

Публичное облако SaaS

Connected Security

Juniper Portfolio

Сервисы

ПО

Wi-Fi и BLE

Коммутация

Маршрутизация

Безопасность

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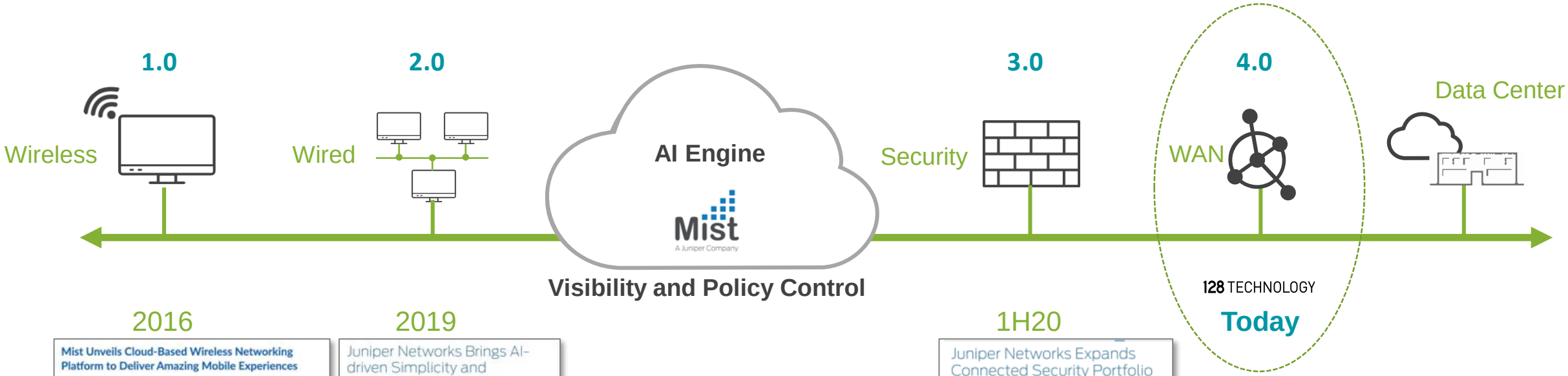
THE JUNIPER AI-DRIVEN ENTERPRISE (AIDE)

Key tenets of the AI-driven Enterprise

- Focus is on user experiences
- AI-driven automation, insights and actions – across Wired/Wireless/Security/WAN
- Modern cloud for agility, resiliency and scale
- AI-driven support
- Session Smart Routing for SD-WAN 2.0



2016

Mist Unveils Cloud-Based Wireless Networking Platform to Deliver Amazing Mobile Experiences

Cupertino, CA, June 28, 2016

Mist, a pioneer in cutting-edge wireless technologies for delivering amazing mobile experiences for enterprises, today unveiled the first two services launched on the Mist cloud platform. Mist business-critical Wi-Fi and Mist's patented Virtual Bluetooth Low Energy™ (vBLE). Available today, Mist products are already in use by many medium-to-large organizations around the world, including Fortune 100 organizations.

Mist is the first extensible, programmable microservices cloud architecture for the indoor wireless technologies of Wi-Fi and Bluetooth Low Energy (BLE). A Mist wireless network understands and adapts to each user, how they are moving, the devices they are carrying and the content they are consuming at a scale never before possible. Mist's cloud platform enables the first new approach to wireless in nearly a decade, applying data science and machine learning to transform and assure mobile user experience.

"The explosive growth of mobile users, apps, and connected devices presents big challenges for legacy wireless networks. The core technology in wireless networks today simply wasn't built to handle the rapid rate of change in the mobile and cloud era or the sheer scale of the Internet of Things," said Mist Co-founder and CTO Bob Friday. "Our products deliver an experience beyond just connectivity and allow us to drive the transition from the Connectivity Era to the Experience Era."

2019

Juniper Networks Brings AI-driven Simplicity and Reliability to Enterprise Networks with New Mist Wired Assurance Service and Marvis™ Actions

November 11, 2019 at 7:45 AM EST

Mist's award-winning AI engine and Cloud delivers on the vision of self-driving networks for wired and wireless networks

SUNNYVALE Calif., Nov. 11, 2019 (GLOBE NEWSWIRE) -- Mist Systems, a Juniper Networks (NYSE: JNPR) company, today announced the first AI-Driven Self-Driving Network™ for the enterprise, which leverages Mist's AI engine and microservices cloud to streamline IT operations, simplify troubleshooting across wired/wireless domains and deliver optimized experiences to network users. With the addition of these unique

1H20

Juniper Networks Expands Connected Security Portfolio with Encrypted Traffic Analysis for Juniper Advanced Threat Prevention and SecIntel for Mist Wireless

February 24, 2020 at 7:45 AM EST

Juniper delivers on the benefits of a Threat-Aware Network by securing more traffic, in more areas of the network

SUNNYVALE, Calif., Feb. 24, 2020 (GLOBE NEWSWIRE) -- Juniper Networks (NYSE: JNPR), a leader in secure, AI-driven networks, today announced encrypted traffic analysis for Juniper Advanced Threat Prevention (ATP) Cloud and SRX Series firewalls, as well as the integration of SecIntel to the Mist platform for wireless access. With these additions to the Juniper Connected Security solution portfolio, Juniper delivers a

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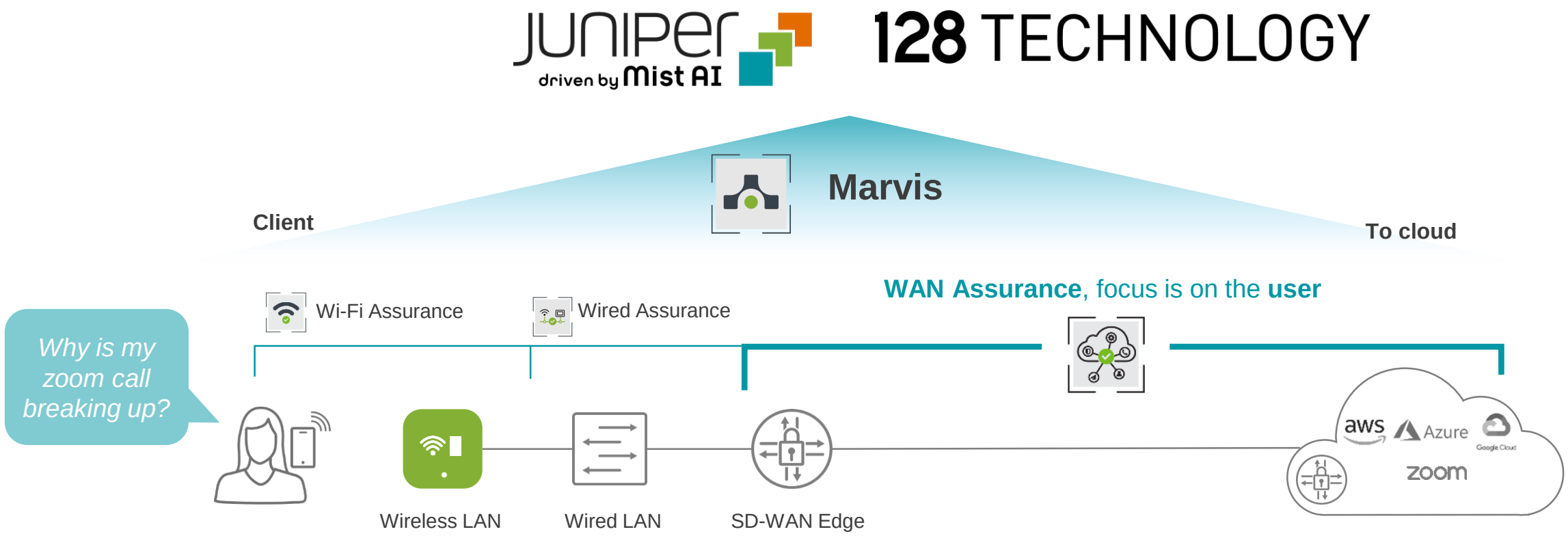
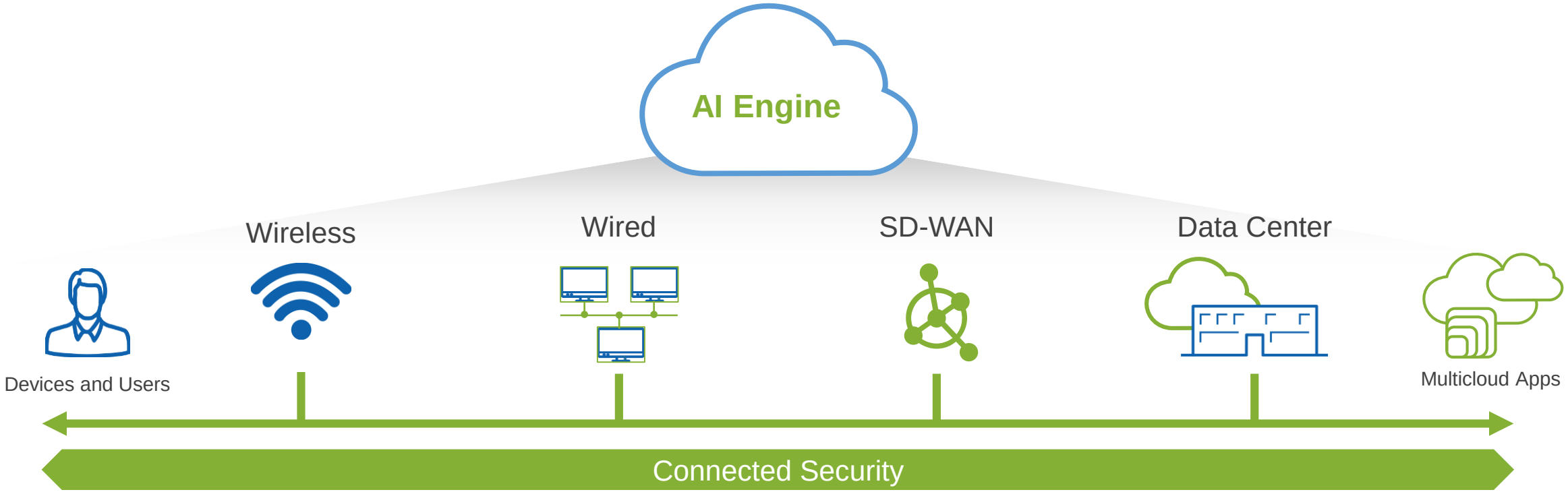
CLIENT-TO-CLOUD AUTOMATION AND INSIGHTS



THE AI-DRIVEN ENTERPRISE MISSION



Our Mission:

Juniper Mist is leading a new era of IT that uses AI to save time and money, deliver unprecedented scale and provide unparalleled user experiences.

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JUNIPER IS A LEADER IN WIRED AND WIRELESS LAN

Figure 1. Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure

Source: Gartner (November 2021)

Juniper Networks is a Leader in the 2021 Gartner® Magic Quadrant™ for Enterprise Wired and Wireless LAN Infrastructure

This is Juniper's 2nd consecutive year as a Leader in this market.

Juniper has the furthest position of any vendor in both Ability to Execute & Completeness of Vision.

Gartner peerinsights customers' choice 2021™

Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure, Mike Toussaint, Christian Canales, Tim Zimmerman, 15 November 2021. GARTNER is a registered trademark and service mark of Gartner, Inc. and/or its affiliates in the US and internationally and is used with permission. All rights reserved.
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This graphic was published by Gartner, Inc. as part of a larger research document and should be evaluated in the context of the entire document. The Gartner document is available upon request from Juniper Networks.

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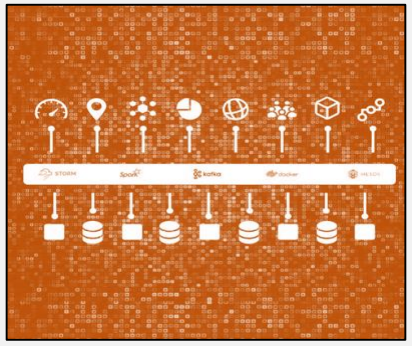
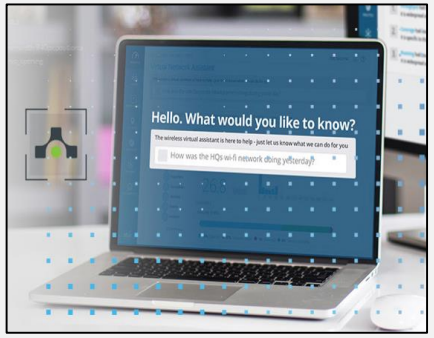
WHY MIST: ASSURANCE, AUTOMATION, INSIGHTS AND RELEVANCE

Client level visibility

Microservices cloud for agility

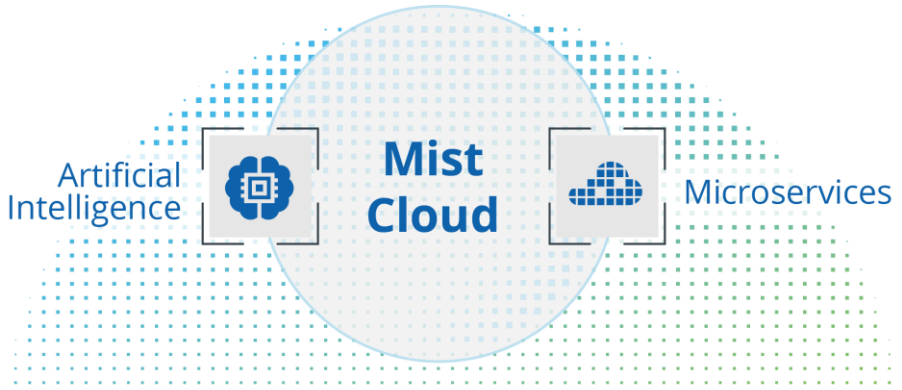


AI-driven operations and support



Digital Engagement with virtual BLE

AI-DRIVEN ENTERPRISE SOLUTION



Cloud Services

- Wi-Fi Assurance
- Wired Assurance
- WAN Assurance
- Marvis
- Premium Analytic
- User Engagement
- Asset Tracking

Wireless Infrastructure

Mist Edge

AP12

AP32

AP33

AP43

AP63 (outdoor)

BT11 (BLE)

Wired Infrastructure

EX 4600/4650

EX 3400

EX 4300

EX 2300

WAN Infrastructure

SRX 300 - 1500

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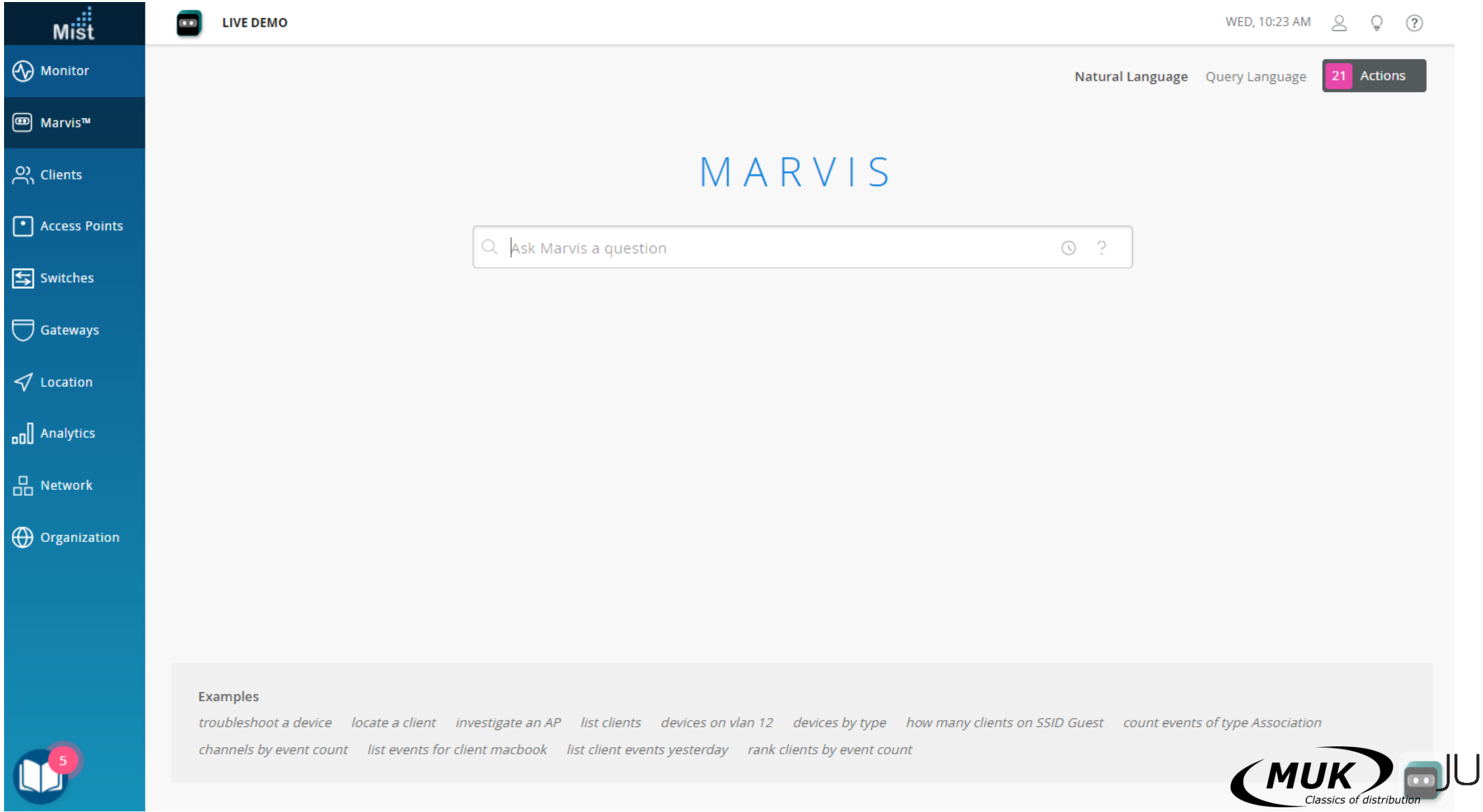
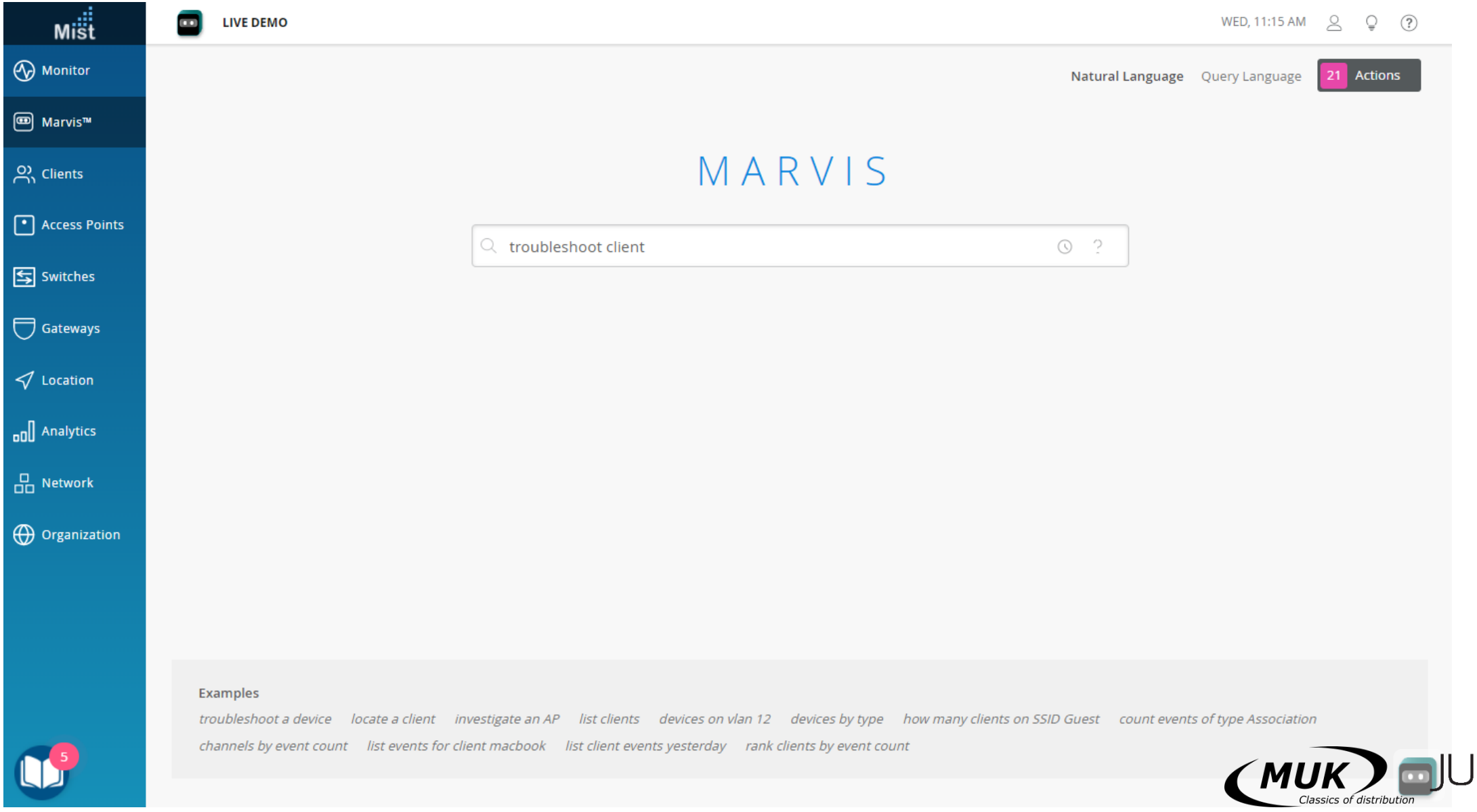
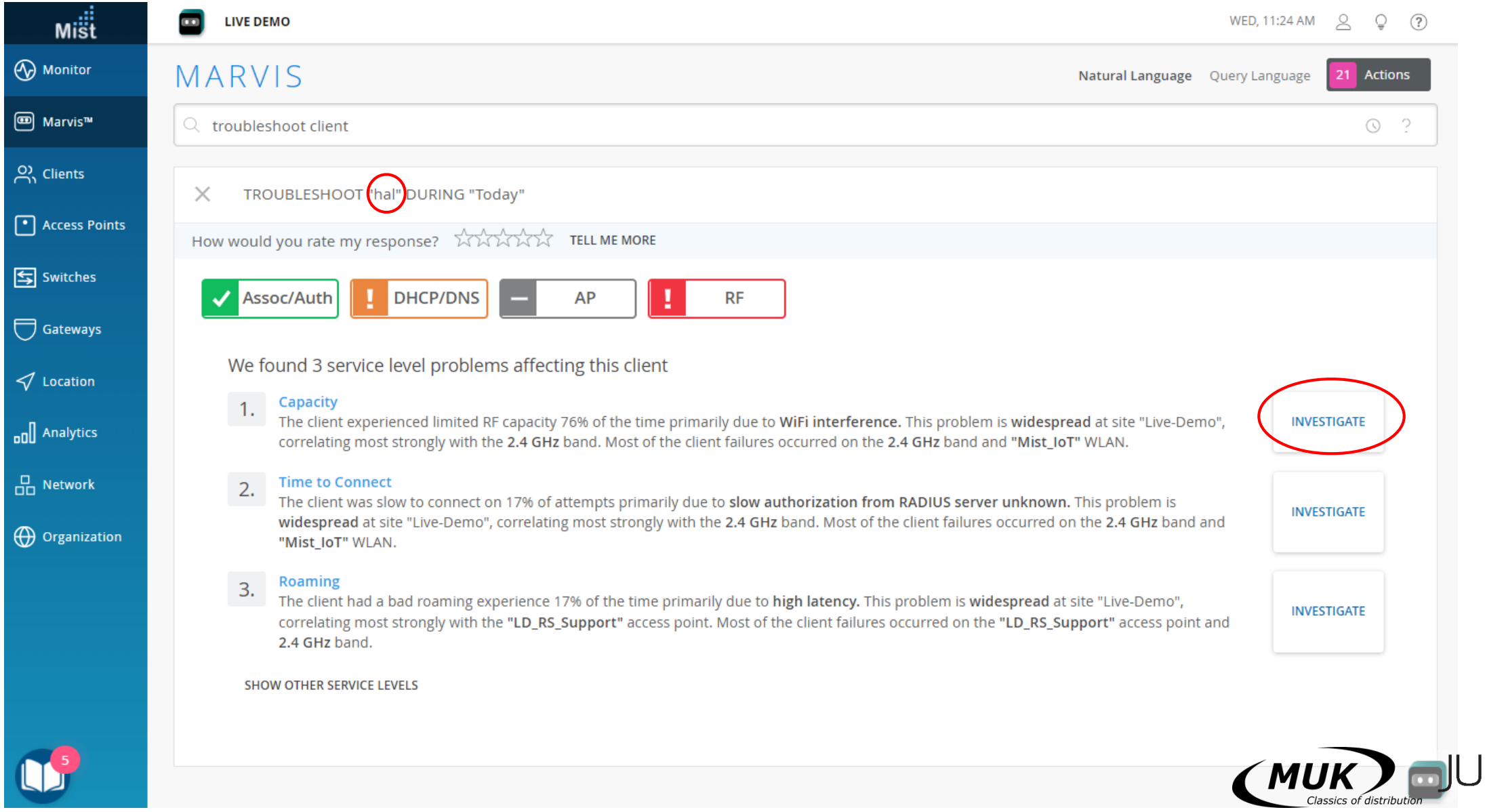
OVERVIEW MIST



OVERVIEW MIST



OVERVIEW MIST



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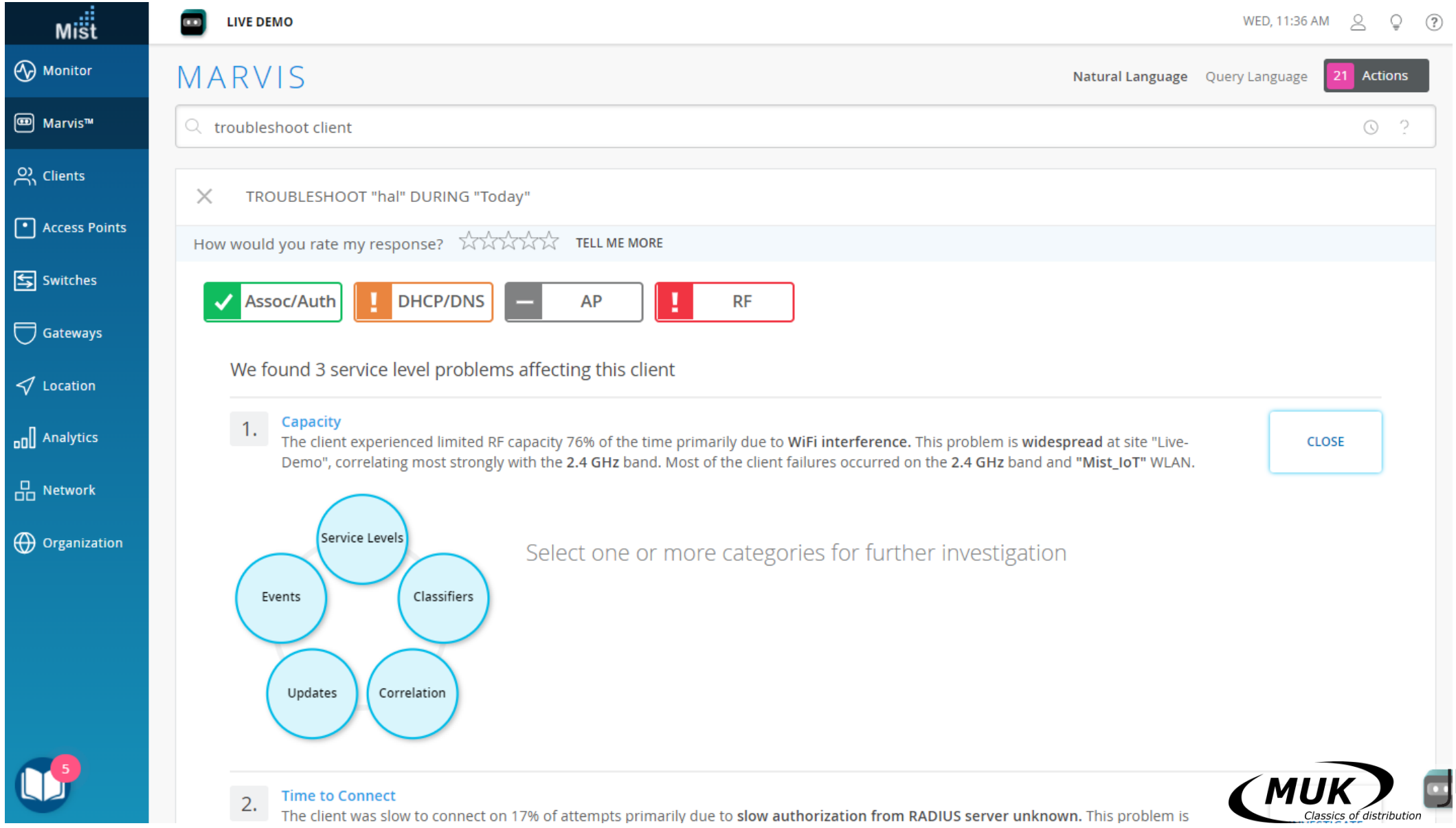
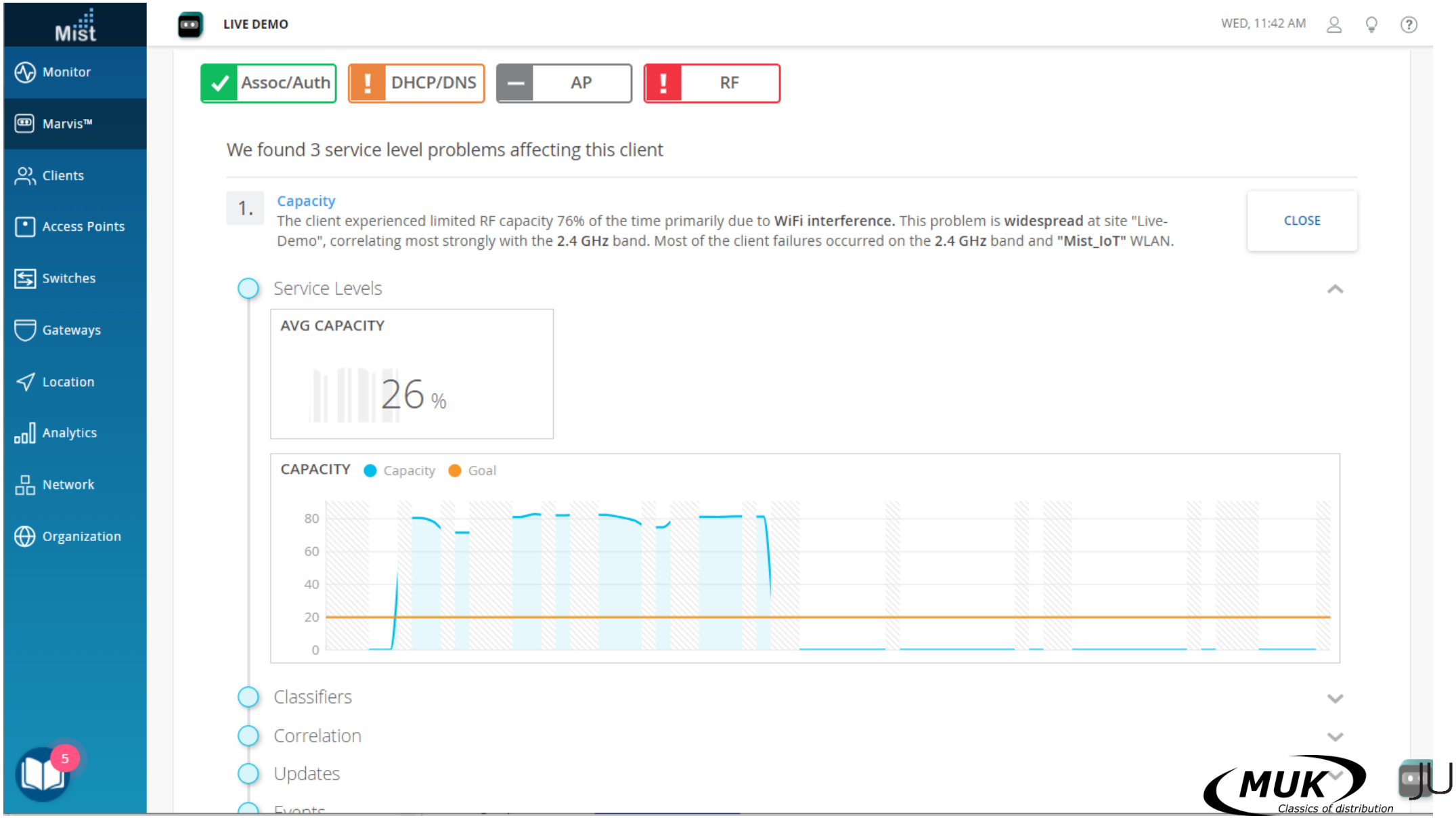
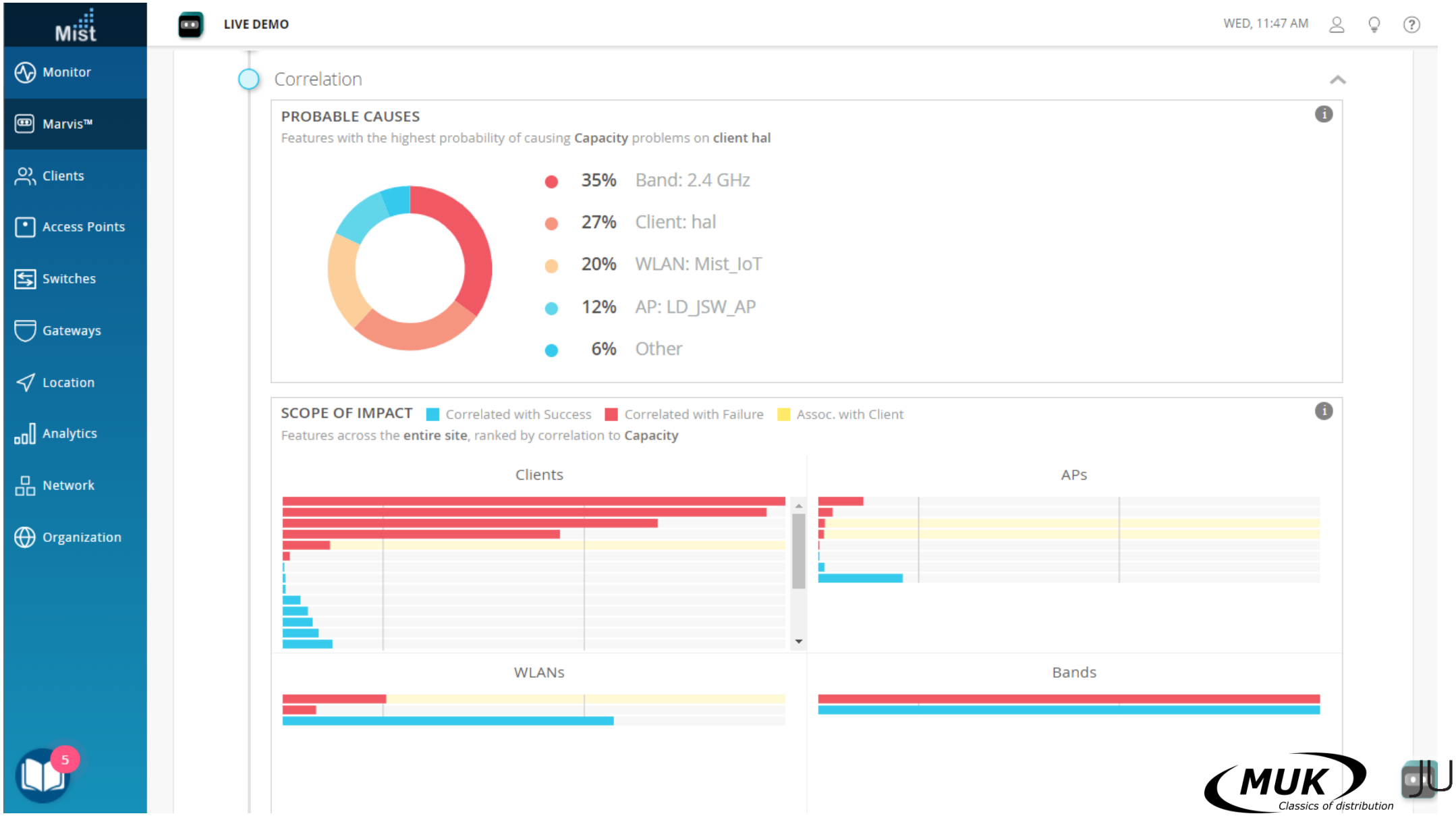
OVERVIEW MIST



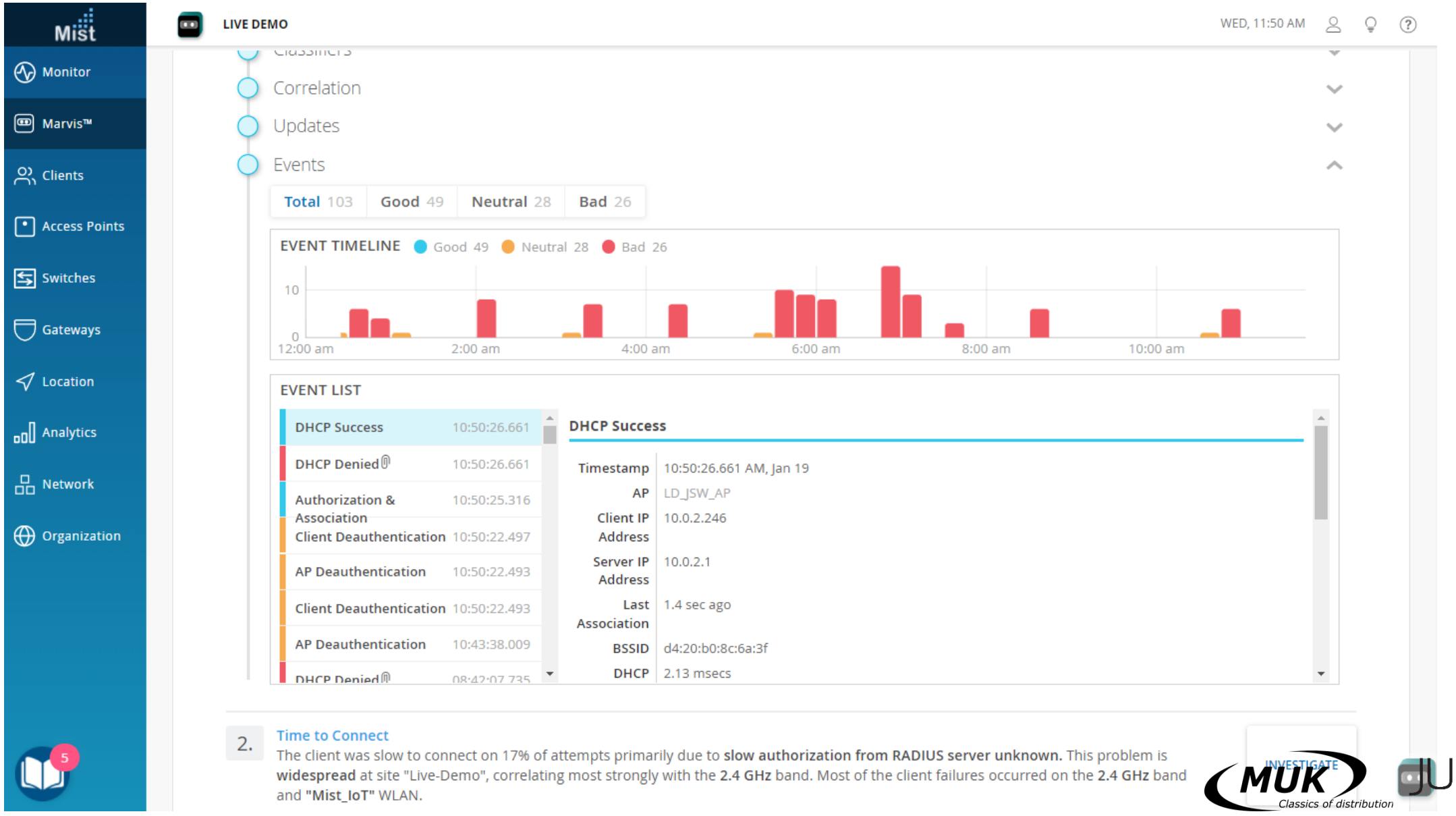
OVERVIEW MIST



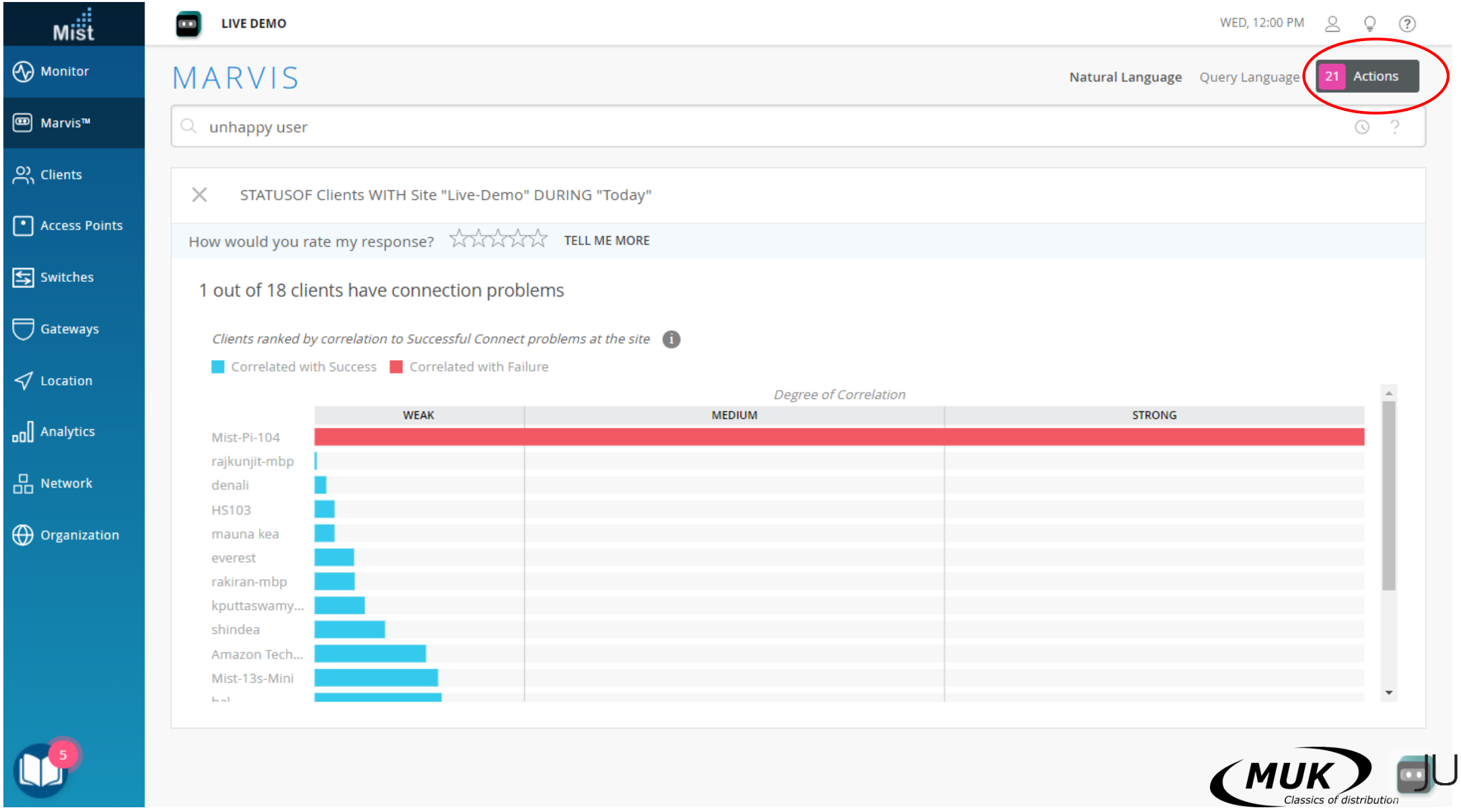
OVERVIEW MIST



OVERVIEW MIST



OVERVIEW MIST



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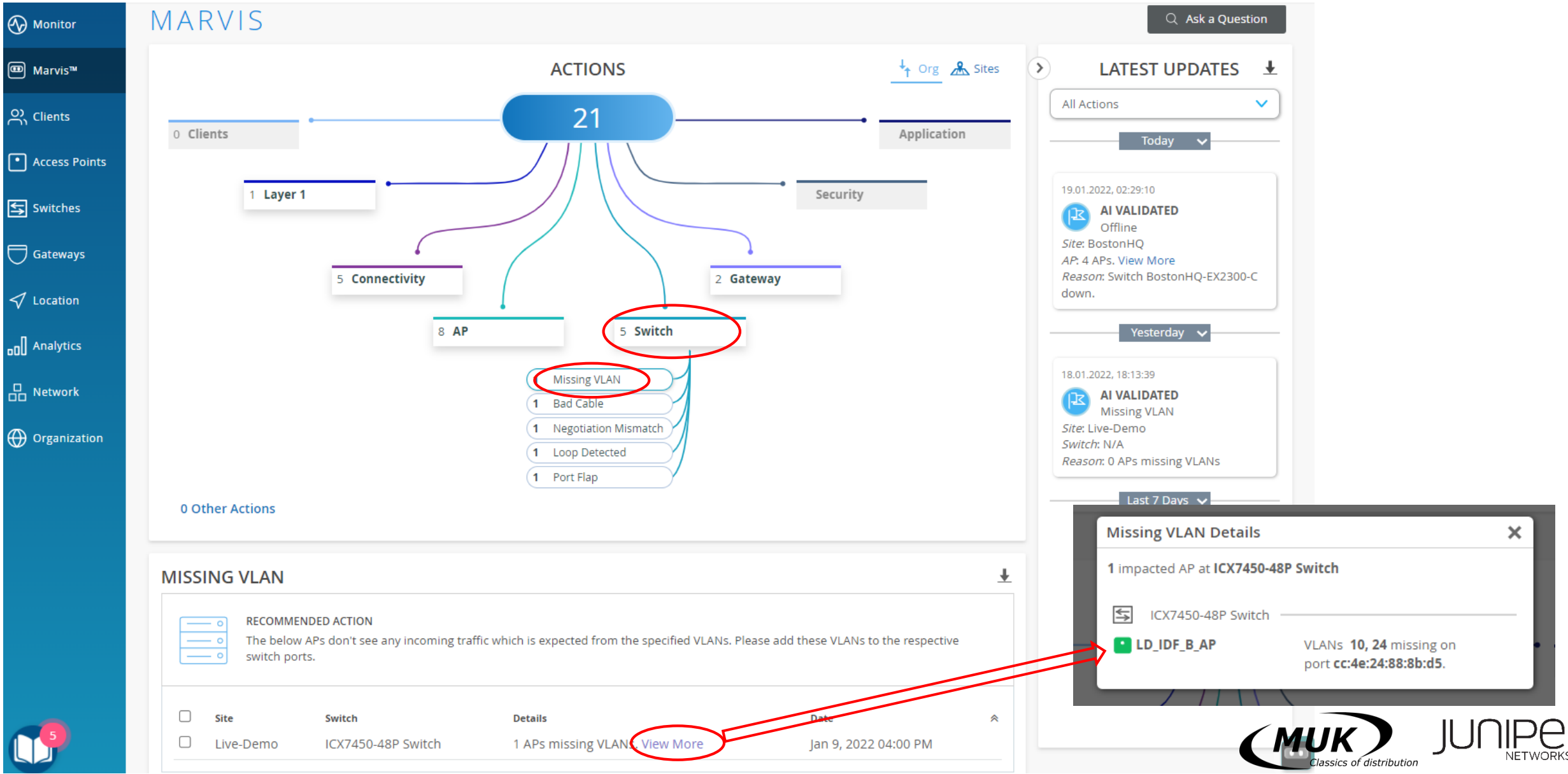
OVERVIEW MIST

OVERVIEW MIST



PORTFOLIO MIST

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JUNIPER SWITCHING: AI-DRIVEN, PROGRAMMABLE, OPEN

Open APIs for Automation and Programmability

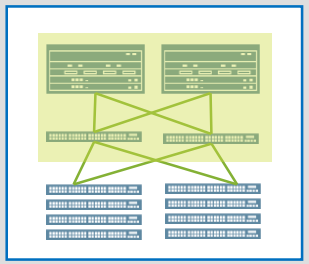
OPENCONFIG

Junos Extension Toolkit

netconf

Streaming Telemetry

Simplified Segmentation with EVPN-VXLAN



Mist/Marvis: AI-Driven Operations, Wired Assurance

EX2300 | **EX3400** | **EX4300** | **EX4400** NEW!

Access

Fixed Power/Fan MultiGigabit PoE+	Modular Power PoE+	Modular Power Multigigabit PoE+/PoE++	Modular Power Multigigabit PoE++ Lots more

EX4600 EX4650 | **QFX5120** | **EX9200**

Distribution / Core

10/40GbE 10/25/100GbE	10/40/100GbE 10/25/100GbE 10GT/100GbE	Modular

Wired Assurance (WA)

Q2-2022

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ROUTER JUNIPER MIST

SRX300 Series, SRX550

- All-in-one routing, switching and next generation firewall in a single platform
- Support variety of WAN & POE Interfaces
- Security for every layer with MAC-Sec, IPSec, Application Security, IPS, UTM and Sky ATP
- Targeted for
  - Secure Router/SD-WAN
  - Remote office firewall
  - Managed CPE for SPs

	SRX300	SRX320	SRX340	SRX345	SRX550	SRX380
1GE Ports	8 (2 SFP)	8 (2 SFP)	16 (8 SFP)	16 (8 SFP)	10 (4 SFP)	16
10GE Ports	0	0	0	0	0	4 (SFP+)
MAC Sec Ports	2	2	16	16	NA	20
POE+ Ports	0	6	0	0	32 (GPIM)	16
MPIM slots	0	2 MPIMs	4 MPIMs	4 MPIMs	2 MPIMs	4 MPIMs
GPIM Slots	0	0	0	0	6 GPIMs	0
SSD slot	No	No	Yes	Yes	Yes	Built-in
R. PSU	No	No	No	Yes	Yes	Yes
Routing	800 Mbps	800 Mbps	1.6 Gbps	2.3 Gbps	3.0 Gbps	4.0 Gbps
Firewall	500 Mbps	500 Mbps	1.1 Gbps	1.7 Gbps	2.3 Gbps	4.0 Gbps
IPSec	100 Mbps	100 Mbps	200 Mbps	300 Mbps	300 Mbps	1 Gbps
NGFW	100 Mbps	100 Mbps	200 Mbps	300 Mbps	400 Mbps	1 Gbps
SD-WAN (CSO)	60 Mbps	60 Mbps	125 Mbps	150 Mbps	190 Mbps	750 Mbps

SD-WAN (CSO) – MPLSoGREoIPSEC (HTTP 44KB)

NGFW = App Firewall + IPS + URLF + Logging

*Please visit srxsnp.juniper.net for latest and up to date S&P

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ACCESS POINT JUNIPER MIST

	AP43	AP63	AP33	AP32	AP12	AP41	AP61	AP21	BT11
Deployment	Indoor	Outdoor	Indoor	Indoor	Indoor wall plate	Indoor	Outdoor	Indoor	Indoor
Wi-Fi Standard	802.11ax (Wi-Fi 6) 4x4:4SS	802.11ax (Wi-Fi 6) 4x4:4SS	802.11ax (Wi-Fi 6) 5GHz: 4x4:4SS 2.4GHz: 2x2:2SS	802.11ax (Wi-Fi 6) 5GHz: 4x4:4SS 2.4GHz: 2x2:2SS	802.11ax (Wi-Fi 6) 2x2:2SS	802.11ac Wave 2 4x4:4SS	802.11ac Wave 2 4x4:4SS	802.11ac Wave 2 2x2:2SS	---
Wi-Fi Tri Radio	Yes	Yes	Yes	Yes	Yes	Yes	Yes	---	---
Antenna Options	Internal External	Internal External	Internal	Internal External	Internal External	Internal External	Internal External	Internal	Internal
Virtual BLE	Yes	Yes	Yes	---	---	Yes	Yes	Yes	Yes
Warranty	Limited lifetime	One year	Limited lifetime	Limited lifetime	Limited lifetime	Limited lifetime	One year	Limited lifetime	Limited lifetime

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SESSION SMART TECHNOLOGY

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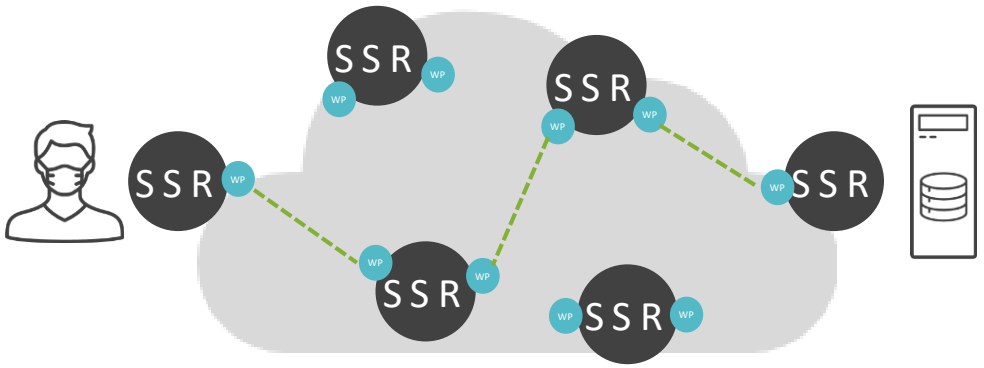
THE SESSION SMART™ ROUTER



1 **Session Awareness**

Know source, destination, and Directionality to connect related, bi-directional flows into sessions.

2 **Service Centric**

Understand named services and applications, service topology, and business policies.

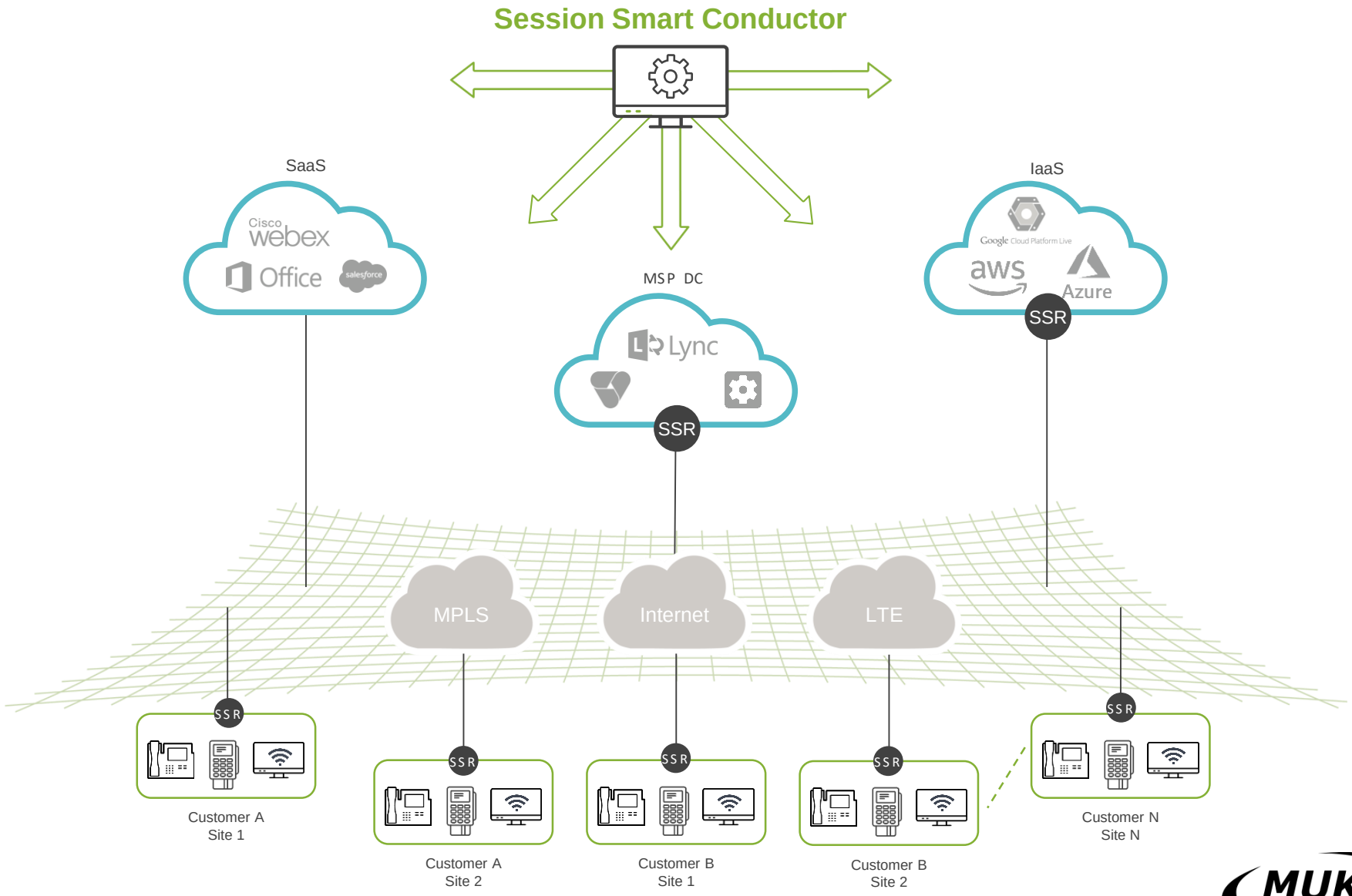
3 **Waypoint Setting**

Determine lead packet, requirements, choose waypoints that mark best path right now.

4 **Metadata**

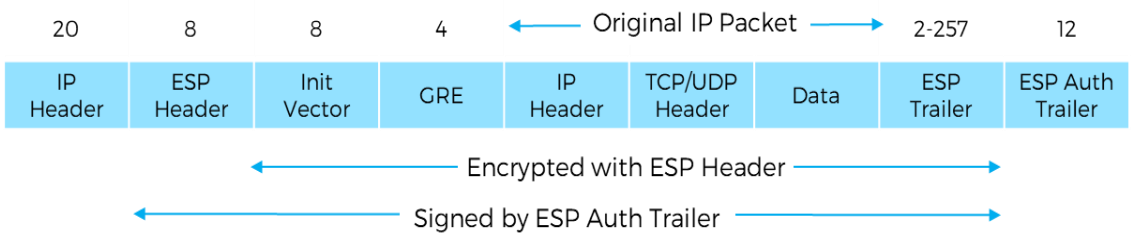
Metadata is encrypted throughout, extracted as lead packet reaches destination, and eliminated on session completion.

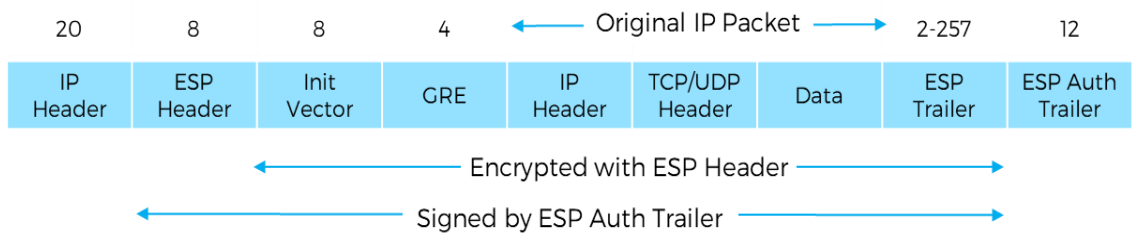
SESSION SMART SERVICE-CENTRIC FABRICS

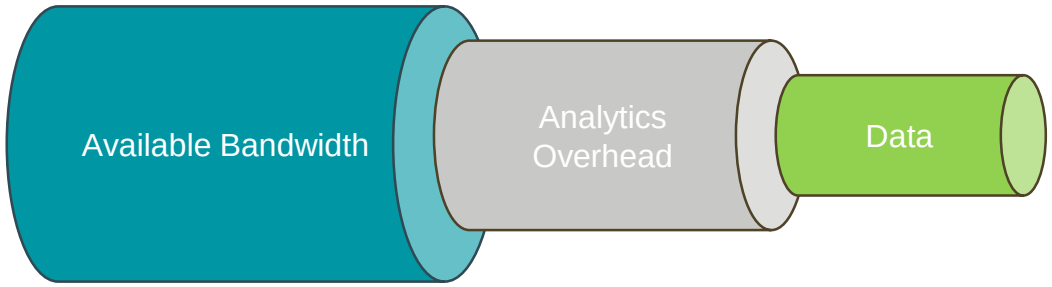


Traditional IPSEC Overlay and associated overhead

Alternative solutions impose tunnel/encapsulation/overlay
IPSec and/or IPSec + VxLAN, GRE, MPLS







- Severe impacts to available bandwidth
- 30%-50% overhead due to headers
- Tunnel management requires tuning
- Centralized Analytics constantly transmitted or completely unavailable

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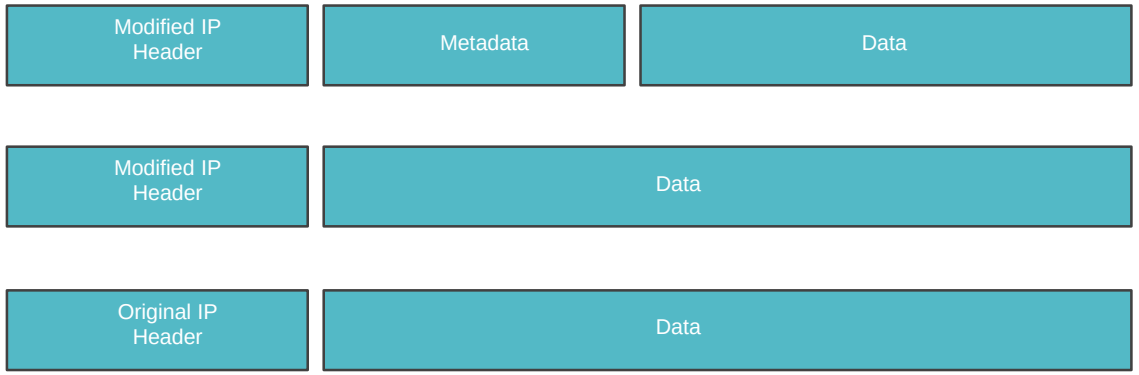
EFFECTIVELY ARCHITECTED CONNECTIVITY

SSR

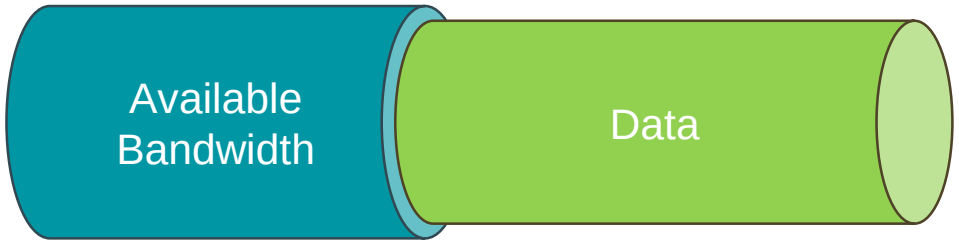
Tunnel-free Secure Vector Routing provides the most optimal link management available



First SVR packet includes Metadata with context

Subsequent SVR packets may be entirely data or include mid-flow session data as needed

Original packets are restored at egress



- Minimal impact to available bandwidth
- Recover 30%-50% overhead
- Optimized adjacency management
- Distributed Analytics post-processed and accessed on-demand

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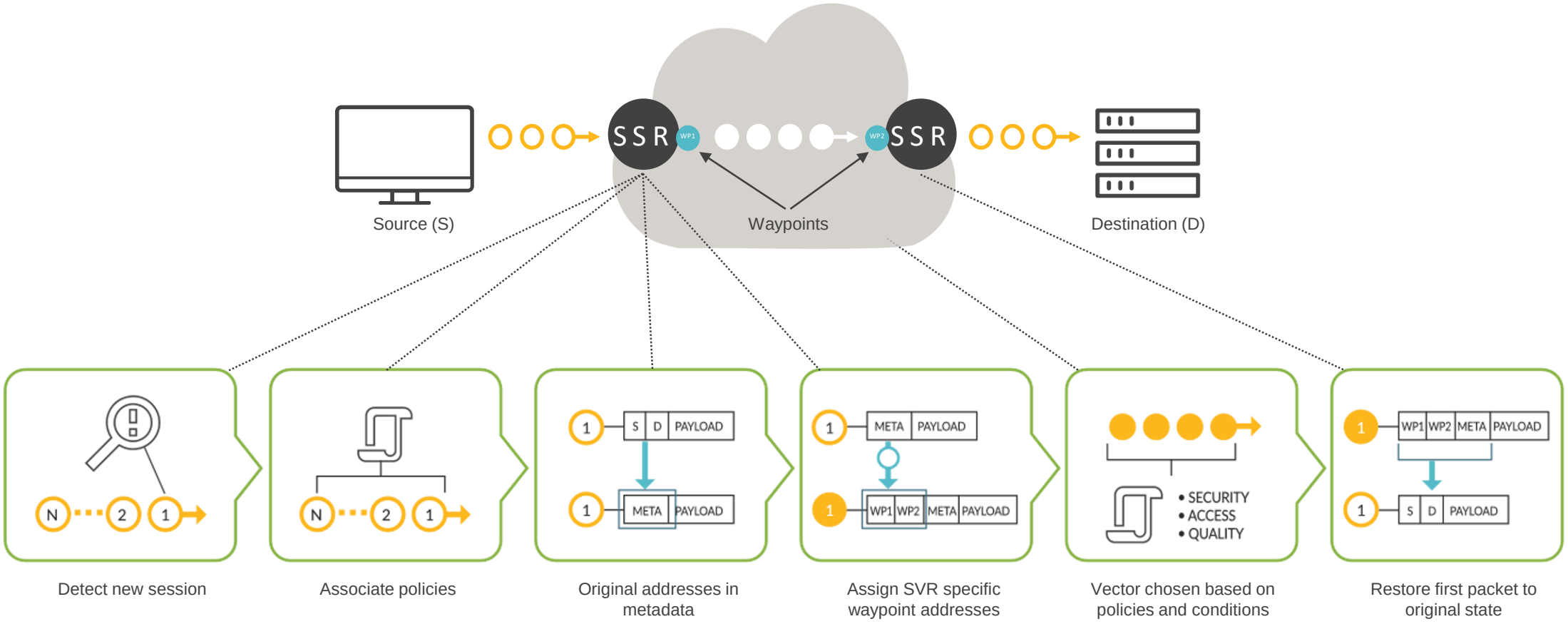
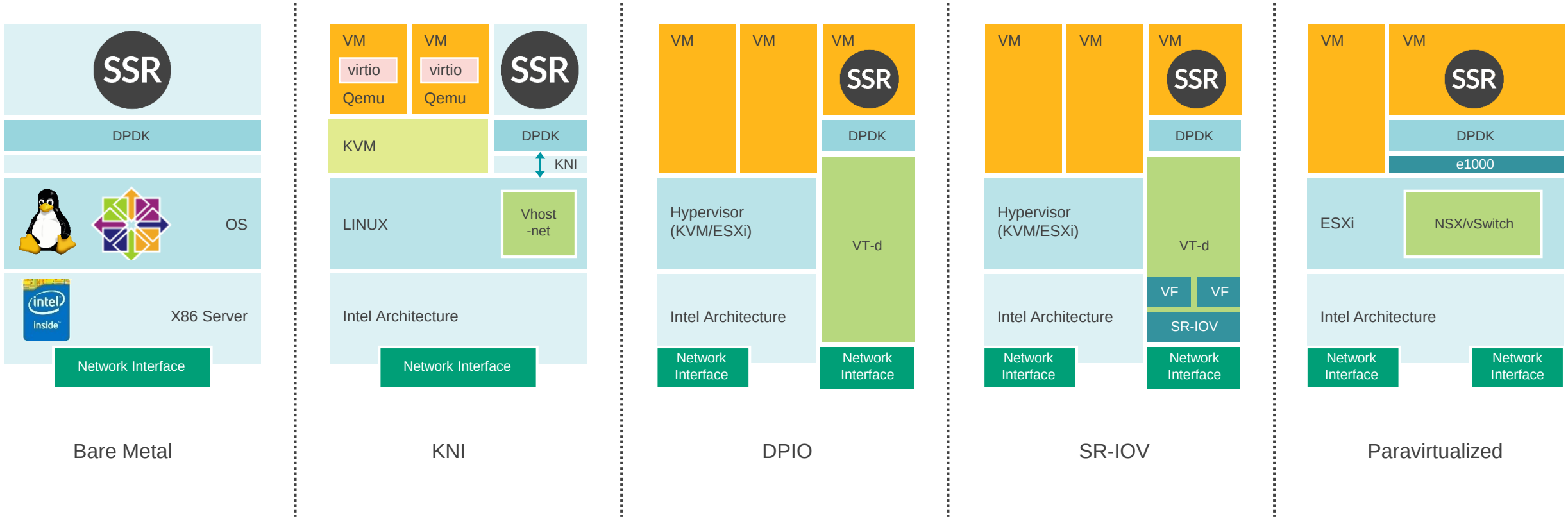
SECURE VECTOR ROUTING



DEPLOYMENT MODELS



SSR solution can be deployed on any INTEL based COTS platform (physical or virtual), private cloud with OpenStack, vCloud Director, or public cloud like AWS, Azure, or GCP!

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SESSION SMART ROUTER UCPE PORTFOLIO

	Branch				DC		
Specification	**Small / Medium**	**Small / Medium**	**Medium / Large**	**Medium / Large**	**Small**	**Medium**	**Large**
Picture							
Manufacturer	Silicom Ltd Connectivity Solutions	Lanner	Silicom Ltd Connectivity Solutions	Lanner	Lenovo	Lenovo	Lenovo
Model	Madrid Desktop	1515B	Madrid 1U	1515A	SR530	SR530	SR570
Arrow SKU	128T-C044B	n/a	128T-C084B	n/a	n/a	n/a	n/a
Cores / Memory	4C (Atom) / 8GB	4C (Atom) / 8GB	8C (Atom) / 16GB	8C (Atom) / 16GB	8C (Xeon Bronze) / 32GB	12C (Xeon Silver) / 128GB	22C (Xeon Gold) / 128GB
Hard Disk	128GB SSD	128GB SSD	128GB SSD	128GB SSD	240GB SSD	480GB SSD	480GB SSD
Interface Count	6	6	6 - 12	6	2 – 16	2 – 16	2 – 16
LTE certified	AT&T and Verizon	AT&T and Verizon	AT&T and Verizon	AT&T and Verizon	N/A	N/A	N/A
Encrypted + Auth Throughput (IMIX)	165 Mbps	165 Mbps	650 Mbps	650 Mbps	1 Gbps	2.2 Gbps	5.8 Gbps
Non-Encrypted Throughput (IMIX)	2 Gbps	2 Gbps	2.5 Gbps	2.5 Gbps	17 Gbps	18 Gbps	74 Gbps

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JUNIPER NFX UCPE OPTION

NFX150-S1

- Intel(R) Atom(TM) CPU C3758 8C @ 2.20GHz
- 16 GB RAM
- VNF – SRIOV (4 total cores passed through to VNF)
- 210 Mbps IMIX encrypted HMAC w/ time

NFX250-S2

- Intel® Xeon® Processor D-1528 6C @ 1.9GHz
- 32 GB RAM
- VNF – SRIOV (4 total cores passed through to VNF)
- 370 Mbps IMIX encrypted HMAC w/ time

NFX350-S3

- Intel® Xeon® D-2166NT 12C@ 2.00GHz
- 128 GB RAM
- VNF – SRIOV (4 total cores passed through to VNF)
  - 460 Mbps IMIX encrypted HMAC w/ time
- VNF – SRIOV (8 total cores passed through to VNF)
  - 10C available but because of driver, 8C is the ceiling
  - 1710 Mbps IMIX encrypted HMAC w/ time

Tested with 128T version 4.5.6

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SELECTED TECHNICAL CAPABILITIES

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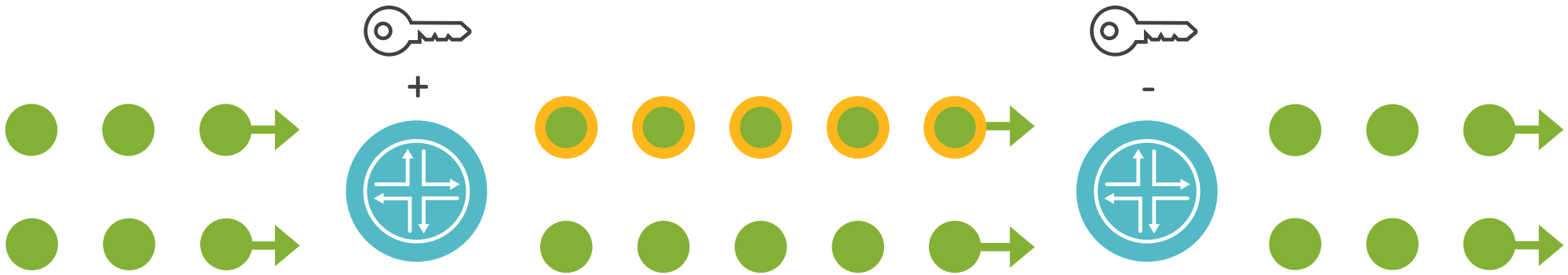
ADAPTIVE ENCRYPTION

- Adaptive Encryption for TLS and IPSEC
- Prevents double encryption
- Conserves use of network resources
- Improves user experience
- Improved security through segmentation and individual keys
- End-to-end encryption



ZERO TRUST SECURITY

- Centralized configuration in Session Smart Conductor
  - User groups
  - Applications
  - Policies
- Routers are session-based stateful firewall
  - Deny by default
  - Firewall at every hop
  - Authentication on every router

Nessus®

FIPS VALIDATED 140-2 NIST

codenomicon

PCI DSS COMPLIANT

IT VETERANS

FISMA FEDERAL INFORMATION SECURITY MANAGEMENT ACT

ICSA labs CERTIFIED FIREWALL - CORPORATE

Microsoft 365 Networking Partner

GSA Approved

Tolly. Certified

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PROVISIONING OPTIONS

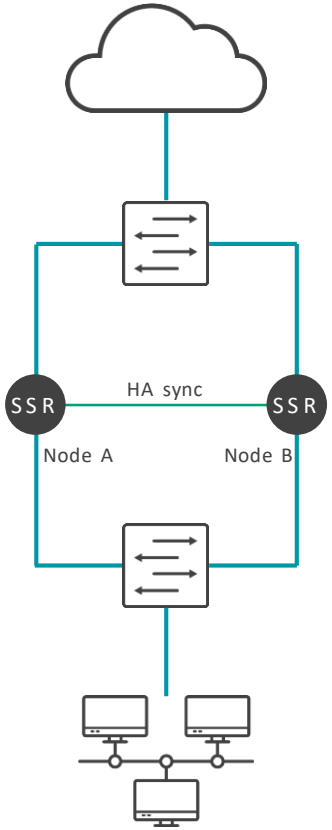
Ways to install 128T software:

- 128T Installer
  - Install the CentOS “minimal” package and download 128T-installer
- Interactive ISO
- One Touch Provisioning
  - Method of deploying 128T Routers by transferring 1 file from your Conductor to your Router
- AWS/Azure
  - Available at markeplaces

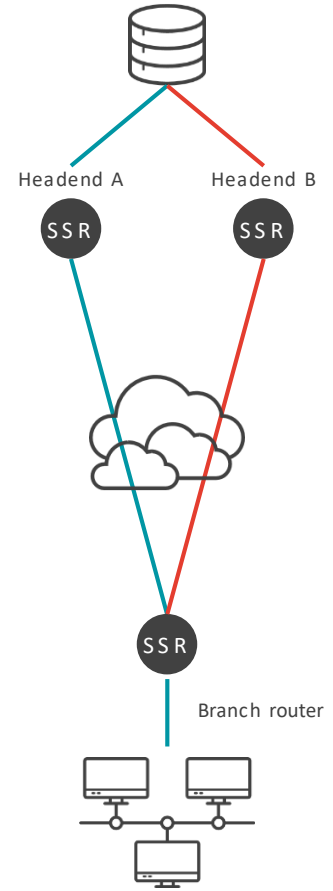
USER-DEFINED CONFIGURATION TEMPLATES

- Allows definition of templates for routers/roles in the network
  - E.g. branch, head office, cloud, datacenter
- Fast deployment of new components using pre-defined templates
- Templates can be specific to one or all customers/tenants of a system
- Deployment mechanisms
  - Scripted via CLI/APIs
  - UI-driven
- UI-driven Liquid templating language as easy interface

HIGH AVAILABILITY



- Routers and conductors can be operated in different HA modes
- Traditional active-(hot) standby
  - One logical router, two nodes
  - Session state synchronization
  - Typical LAN setup
- Redundant routers
  - Two active-active routers
  - Redundant network paths
    - Optionally with different technologies, locations, …
  - Better use of resources (N+M redundancy)
- Combination of HA models



SESSION SMART BENEFITS

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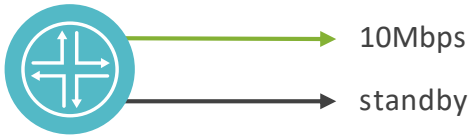
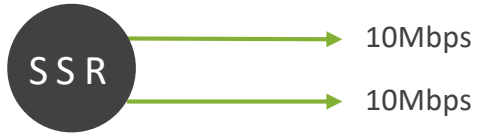
IP ACCESS OPTIMIZATION



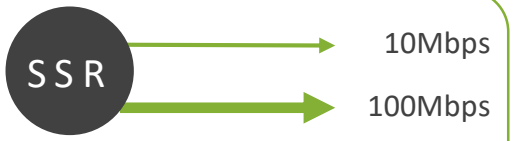
MPLS Active-Standby

- Expensive
- Backup line not used
- No local internet breakout



MPLS Active-Active

- Both lines used
- Application prioritization

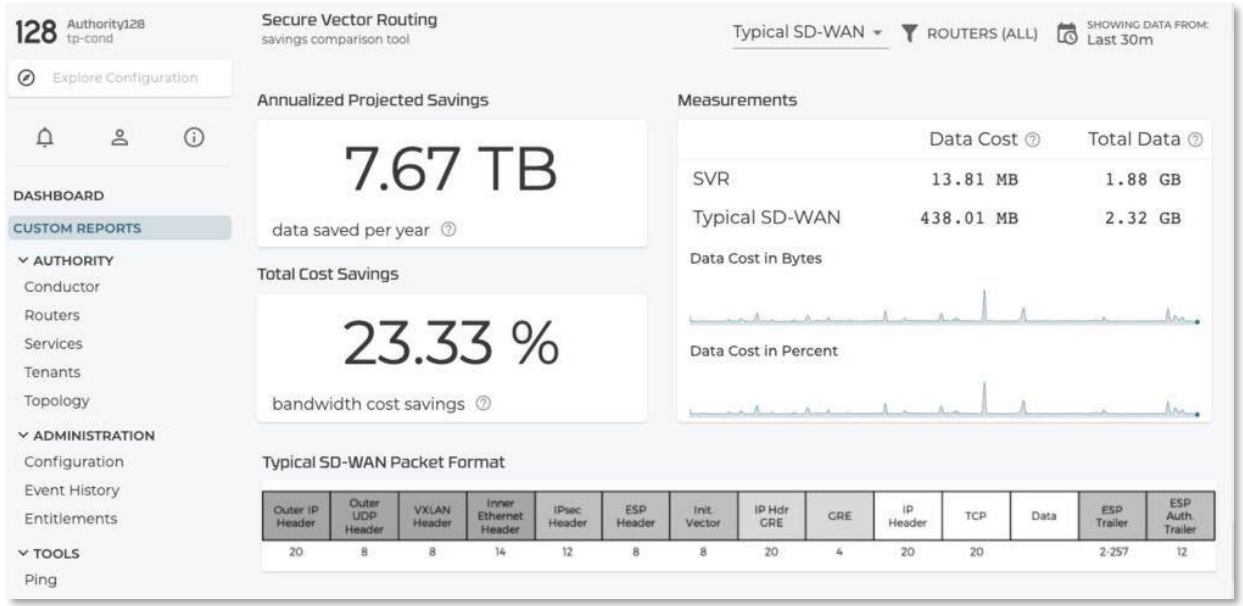


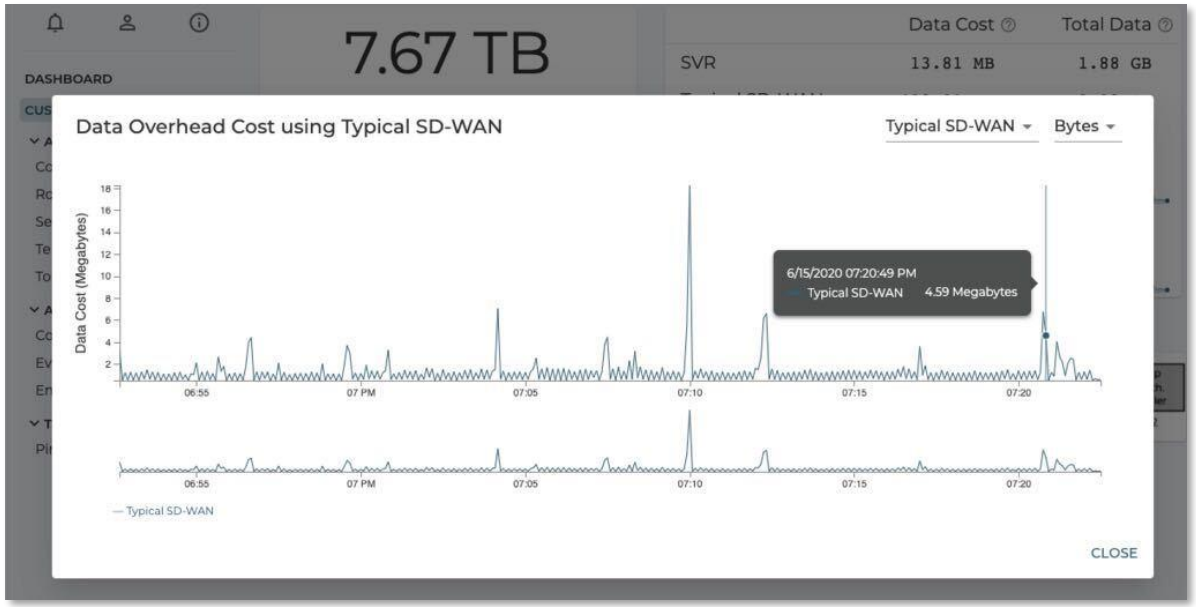
MPLS + Internet

- Cheap bandwidth
- Service-based routing
- Security and encryption
- Integration into existing MPLS network
- LTE support

BANDWIDTH SAVINGS: SCREENSHOTS

The Session Smart Router UI / Conductor shows projected savings compared to typical SD-WAN overhead.





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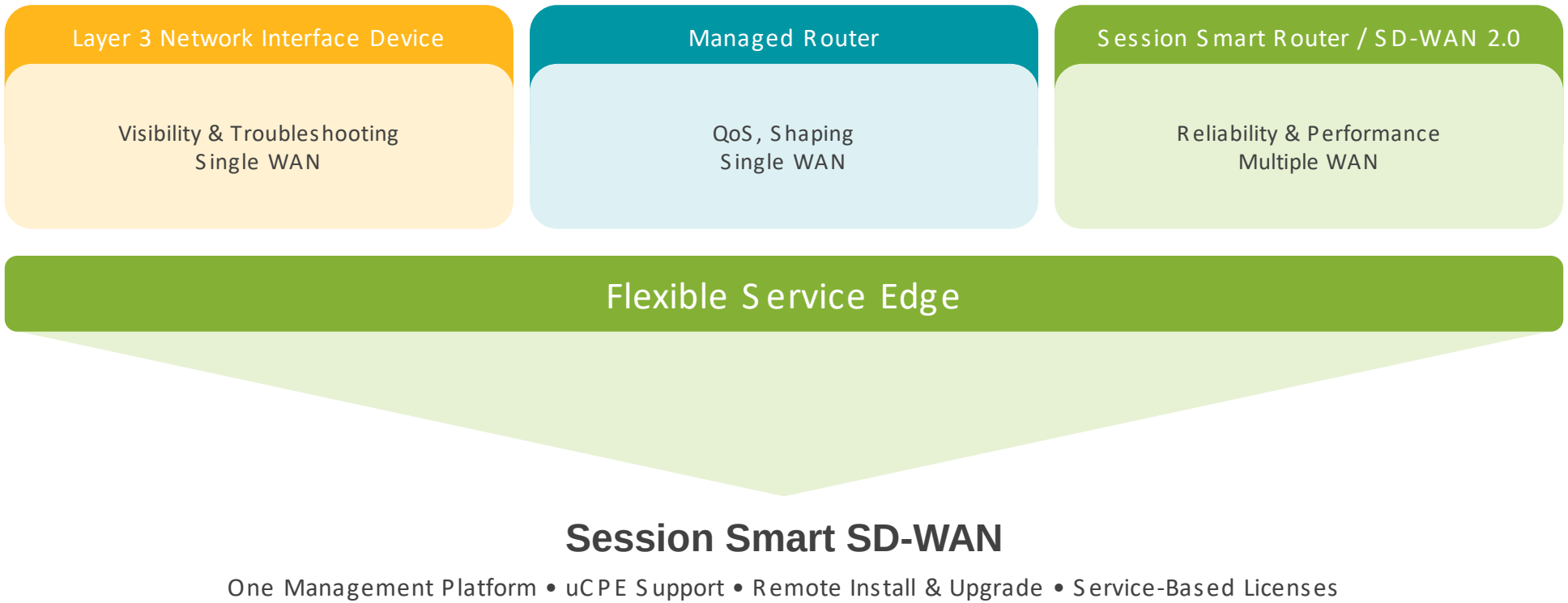
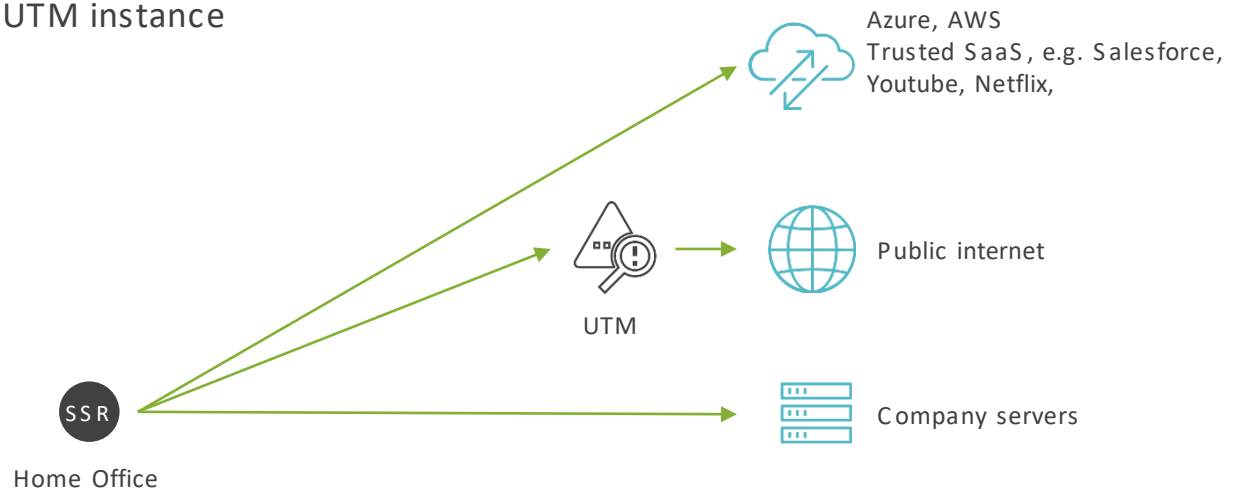
FLEXIBLE SERVICE EDGE: MULTIPLE SERVICES, ONE SOLUTION

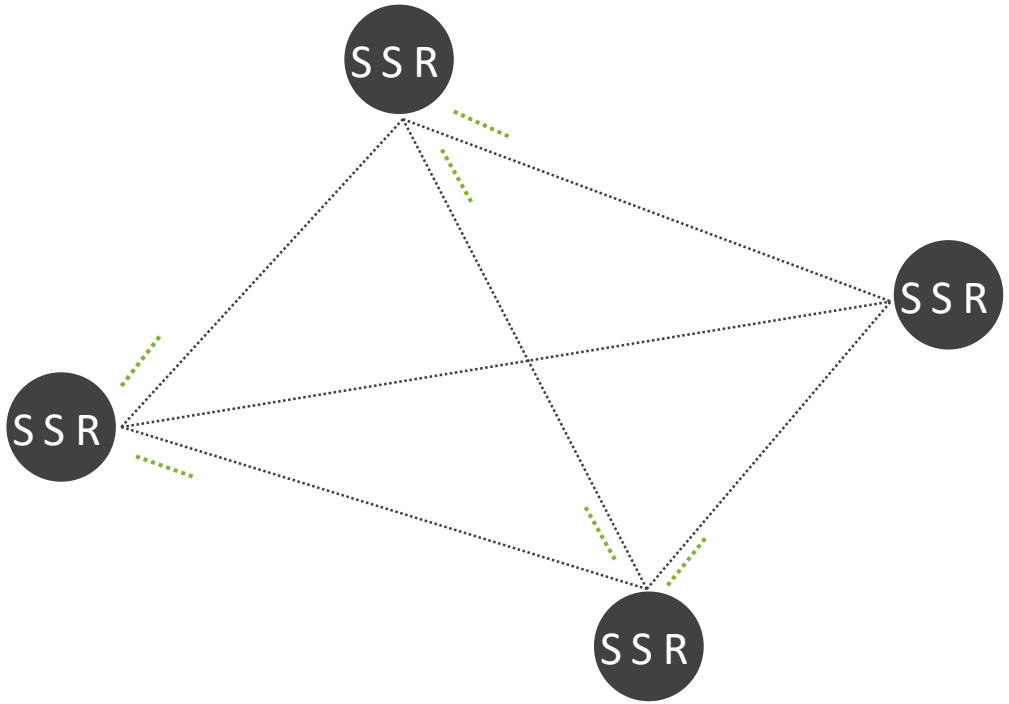


LOCAL INTERNET BREAKOUT

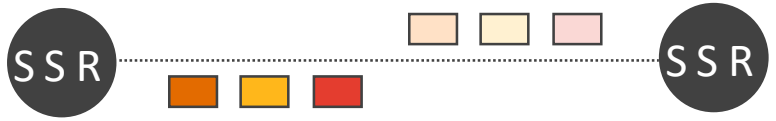
- Implement typical edge site requirements
  - Local internet breakout for trusted SaaS services
  - UTM protection for additional security
  - Prioritization of business-relevant applications
- Session Smart Router differentiates between applications
  - Local internet breakout used for trusted SaaS service
  - Business traffic is routed to HQ via secure Session Smart Network peerings
  - Unknown applications are screened by local or central UTM instance



PERFORMANCE MONITORING

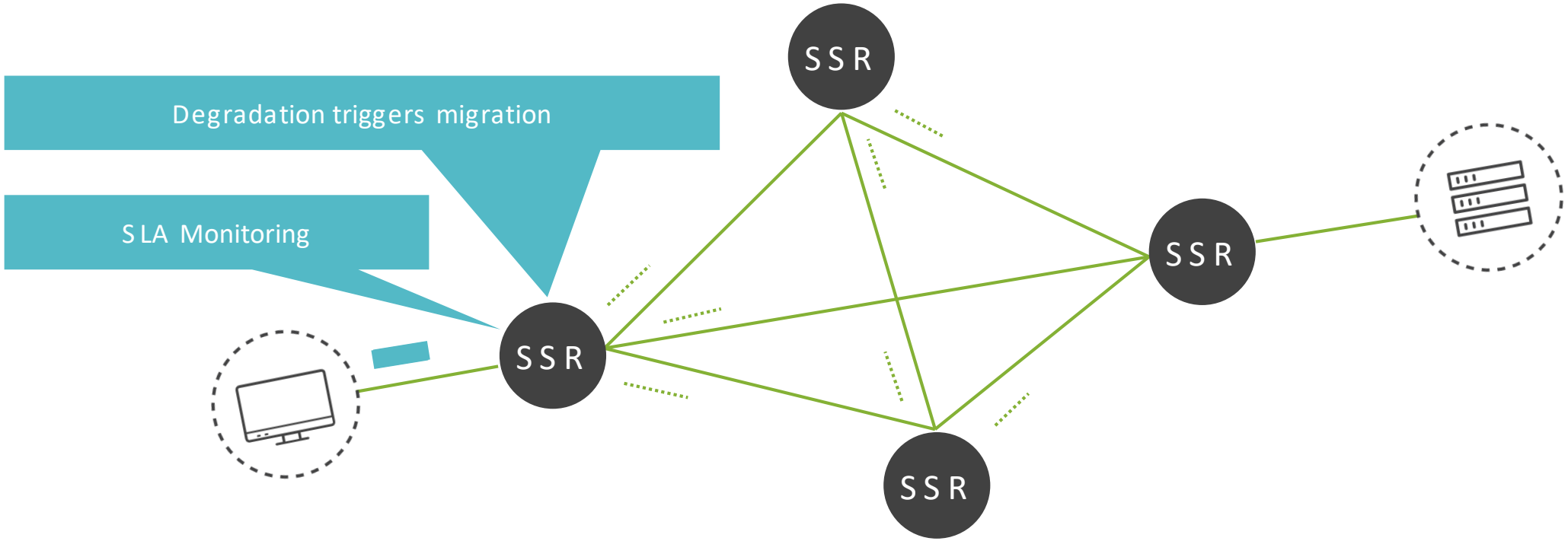


- Multi-hop BFD
- Monitor links between SSR routers

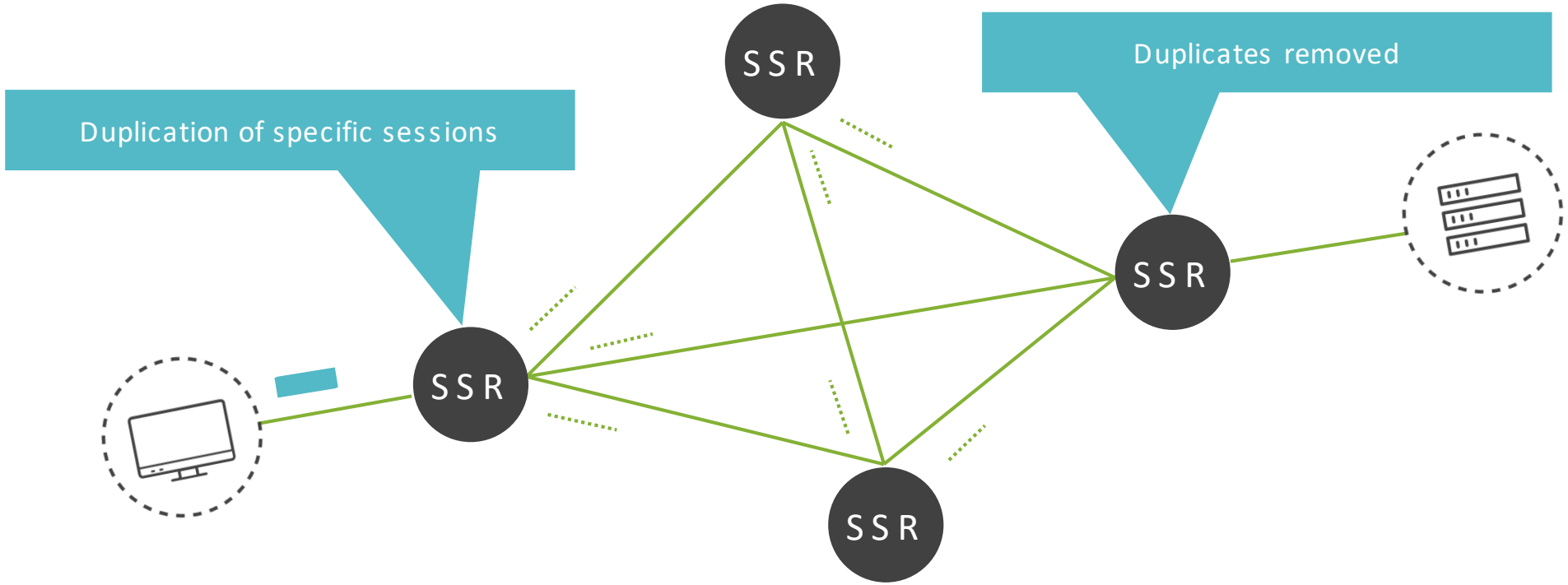


- In-flow performance monitoring
- Relaxed BFD frequency
- Using actual sessions
- Report on session performance

SESSION MIGRATION



SESSION DUPLICATION




Thank you
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