Wired and Wireless LAN Solution Comparison

Explore the solution chart to see a side-by-side comparison of Juniper-Mist, Cisco-Meraki, Aruba, and Cisco. Key features for consideration include: Network Architecture, AI & AIOps, Essential Wired & Wireless Features, Location Engagement and Insight.

To learn more, visit https://www.mist.com/compare/

ARCHITECTURE

	Juniper Networks / Mist (A Juniper Company)	Cisco Meraki	aruba (a Hewlett Packard Enterprise company)	CISCO
CORE DESIGN	• Controller-free modern microservices architecture • Service containerization • Quick and low-risk feature updates • Near real-time bug fixing without network disruption WATCH ▶ VIDEO	• 1st generation cloud • Legacy sharded database in hosted database 'cloud' • Virtual controller-based	• Controller-based legacy monolithic software architecture • Lack of strong cloud solution - limited to SMB • Lots of hardware & boxes all needing proper versions • Multiple non-integrated products and OS (10+)	• Controller-based legacy monolithic software architecture • Lack of strong cloud solution - limited to SMB • Lots of hardware & boxes all needing proper versions • Multiple non-integrated products and OS (10+)
SCALABILITY	• Elastic vertical and horizontal scale • No expensive hardware required	• Complex and non-elastic • Virtual controllers hosted in co-located data centers • Require separate servers to scale	Non-elastic with more controllers required	Non-elastic with more controllers required
PROGRAMMABILITY	• 100% accessible through APIs • Supports Ansible for complete IT automation WATCH ▶ VIDEO	Limited set of 'bolt on' APIs	• Limited set of APIs • Only a couple of wired switches have full API access	Limited set of APIs
RESILIENCY	• Microservice containerization • The failure of one service doesn't impact others	Redundant virtual controllers	• Very complex with more hardware required (Controllers, Mobility Masters) • Each piece of hardware needs proper software versions • Version compatablity matrix a nightmare	• Complex with more hardware required • Each piece of hardware needs proper software versions • Version compatablity matrix a nightmare
AGILITY	• Modern, microservices-based cloud, instead of monolithic code base • Rapid updates without network disruption	• 1st generation cloud with VMs and hypervisors • Slow updates due to the lack of a modern microservices architecture	• Monolithic (brittle) software with poor ability to update for new devices/apps/fixes • High risk to update	• Monolithic (brittle) software with poor ability to update for new devices/apps/fixes • High risk to update
DEPLOYMENT FLEXIBILITY AND CLOUD MANAGEMENT	• Scale from the largest to the smallest enterprise businesses for rapid updates • CSO offers on-premises and cloud management	Virtual controllers hosted in co-located data centers	• Centralized controller architecture with monolithic software and limited and bug ridden updates • Offers on-premises and cloud solutions • Offered across different applications	• On-premises with no cloud offering for SDA • Uses a centralized, proprietary controller

AI

	Juniper Networks / Mist	Cisco Meraki	aruba (a Hewlett Packard Enterprise company)	CISCO
VIRTUAL ASSISTANT	• Marvis Virtual Network Assistant leverages Natural Language Processing (NLP) • Continuous learning of the NLP engine through supervised machine learning • Performs root cause analysis for most detected network issues • Supports both wireless and wired • Helpdesk can ask Marvis to troubleshoot issues instead of pulling logs • Can be accessed through Web UI or API	• Dashboard • No virtual assistant	• Dashboard • No virtual assistant	• Dashboard • Chatbot rumored but not productized or available to customers in beta
ANOMALY DETECTION	• Proactively identifies anomalies and uses data science tools to determine root cause • Leverages both Wired and Wireless SLEs for anomoly detection • 3rd generation algorithm with ARIMA boosts efficacy • Anomaly detection performed across Wi-Fi, LAN, WAN, Security domains	• 1st generation anomaly detection algorithm • Requires data collector appliance	• Limited set of anomaly detection (DHCP, AAA, RF utilization) • Requires NetInsight Data Collector appliance	• 1st generation anomaly detection algorithm • Limited anomalies detected (DHCP, AAA, Association, Throughput) • Requires Cisco DNA appliances (3+)
SELF-DRIVING CAPABILITIES	• Marvis Action Framework • Self-Driving for correcting switch config errors • Self-Driving for RF optimization • Self-Driving for diagnosing and correcting unhealthy APs • Self-Driving for performing proactive RMA on hardware failure • Driver-Assist actions for external systems	• Dashboards • No self-driving capabilities	• Dashboards • No self-driving capabilities • Very basic driver-assist capabilities (identifies channel utilization issues and poor DHCP/AAA performance for IT to manually investigate)	• Dashboards • No self-driving capabilities
AI-DRIVEN LOCATION	Creation of probability surfaces in the cloud and ongoing unsupervised machine learning to constantly update the model	• Triangulation dependent on accurate map placement • Errors introduced by variance in BLE clients	• Triangulation dependent on accurate map placement • Errors introduced by variance in BLE clients	• Requires CMX appliance onsite (even for DNA Spaces) • Requires 3rd party BLE integration • Triangulation dependent on accurate map placement. Errors introduced by variance in BLE clients.
AI-DRIVEN RF OPTIMIZATION	Based on reinforcement learning: • Optimizes channel/power with AI-based reinforcement learning • AI continuously maximizes User experience (SLE) and minimizes interference in real-time • Adapts dynamically on an ongoing basis while network under load • Learns and deprioritizes triggered DFS channels to boost network uptime	Best Effort - No coordinated RF optimization nor use of AI/ML	Basic pattern recognition for comparing and optimizing low-level RF settings only across managed sites: • Not a true AI solution: doesn't leverage reinforcement learning to improve over time • Doesn't adjust RF to maximize user experience • Analyzes periodical and static data for daily but not ongoing dynamic updates • Requires Controller and Mobility Master for AirMatch RF optimization • Requires data collector appliances and NetInsight server	• 15-year old algorithm • Based on how APs hear each other • Optimizes channel/power based solely on AP interference graph • RRM is performed on a static, periodic basis when the load is low
AI-DRIVEN SUPPORT	• Mist Support utilizes Marvis Virtual Assistant to troubleshoot issues • Marvis efficacy is continuously evaluated and when support issues arise where data or answer is not available, we train Marvis or add the missing data collection • When Marvis AI detects a hardware failure in an AP, it can perform an automatic RMA minimizing the burden of proof on IT teams to escalate issues with vendor • As Mist AP deployments have grown at a rapid pace, support tickets have remained flat due to use of Marvis AI	• Dashboards • No use of AI to automate support or support operations	• Dashboards • No use of AI to automate support or support operations	• Dashboards • No use of AI to automate support or support operations

AI OPS

	Juniper / Mist	Cisco Meraki	Aruba	Cisco
SERVICE LEVEL MONITORING	● ● ● ● ● • Throughput, Time to Connect, Roaming, Coverage, Capacity, AP Uptime, Switch Health • User/Site/Device level monitoring • 100+ states monitored WATCH ▶ VIDEO	● Basic non-realtime event log monitoring (future)	● ● • Dashboards - Basic non-realtime event log monitoring • Requires NetInsight appliances and subscription $	● • Dashboards - Basic non-realtime event log monitoring • Requires DNA appliances $$$
VIRTUAL ASSISTANT TO ACCELERATE HELP DESK	● ● ● ● Natural language queries with integrated helpdesk based on Marvis AI WATCH ▶ VIDEO	○ Not available	○ Not available	○ Not available
ROOT CAUSE IDENTIFICATION	● ● ● ● ● Automated event correlation using machine learning across wireless/wired/device domains WATCH ▶ VIDEO	● Only event logs	● Only available for the recent and feature-deficient ArubaOS-CX based switches which have a small installed base	● • Limited RCA • Requires DNA appliances $$$
DYNAMIC PACKET CAPTURE	● ● ● ● ● • Proactively captures packets when an error event occurs in real-time • Eliminates need to reproduce issues WATCH ▶ VIDEO	○ Manual	● • Primarily manual - limited auto capture on authentication failure events • Requires overlay network of Cape Networks wireless sensor hardware	○ Manual
BASELINING AND ANOMALY DETECTION	● ● ● ● ● Proactive device/OS baselining and anomaly detection by AI system WATCH ▶ VIDEO	● Basic anomaly detection	● ● Limited anomaly detection for a few states (DHCP, DNS, Assoc, Auth)	● ● • Limited anomaly detection • Requires DNA appliances $$$
NETWORK ANALYTICS	● ● ● ● Deep end user data, Freemium & Subscription Offering	● ● ● Wi-Fi only	● ● ● ● • Wi-Fi only • Requires additional appliance (ALE)	● ● ● • Wi-Fi only • Requires additional appliance (CMX)

ESSENTIAL WIRELESS FEATURES

	Juniper Mist	Cisco Meraki	Aruba	Cisco
INLINE MICROSEGMENTATION	●●●● WxLAN classifies IoT/headless devices and segments by policy	● Stateful firewall in AP with device/app	● Stateful firewall in controller. IoT classification requires ClearPass $$$	○ Requires ISE
PERSONAL WLAN (PRIVATE USER GROUPS)	●●●●● • Self-serve Personal WLAN for segmentation • Unique PSK WATCH ▶ VIDEO	● Shared PSK or requires one SSID per group	●● • Requires ClearPass $$$ for user/role segmentation • Shared PSK	● • Requires ISE $$$ for user/role segmentation • Shared PSK
REAL-TIME RF VIEW	●●●●● Real-time RF Glasses show actual Wi-Fi and BLE coverage from both AP and client	● Wi-Fi only; predicted, not actual RF coverage; not real-time	●● • Wi-Fi only; predicted, not actual RF coverage; not real-time • Requires AirWave appliance	●● • Wi-Fi only; predicted, not actual RF coverage; not real-time • Requires Prime appliance
FAST AP BOOT	●●●●● APs boot under 20 seconds	○ ~1 minute	○ Several minutes	○ Several minutes
AUTOMATION & OPTIMIZATION	●●●●● AI for AX to automate and optimize Wi-Fi 6 network settings	●● • Lack of AI intelligence • Manual, static configuration of features	●● • Lack of AI intelligence • Manual, static configuration of features	●● • Lack of AI intelligence • Manual, static configuration of features

ESSENTIAL WIRED FEATURES

	Juniper Mist	Cisco Meraki	Aruba	Cisco
WIRED ASSURANCE	• Customizable Service Level Expectations (SLEs) • Measure the wired experience	Limited insight into wired experience	Limited insight into wired experience	Requires on-premises DNAC
TELEMETRY	API driven and leverages telemetry data from Juniper EX Series Switches to offer anomaly detection and identify when switch health is trending negatively	Limited telemetry	Telemetry for wireless, but very limited for wired switching	Limited telemetry
STACKING CAPABILITIES	10 member stacking with standards DAC and flexible optics of various lengths up to 960Gbps	8 member stacking	10 member stacking	8 member Stackwise with proprietary cables and max of 3m length
HIGH AVAILABILITY FOR REDUNDENCY	• Virtual Chassis leads the wiring closet solution with NSSU, GRES, high capacity backplane, etc. • Juniper switches support redundant hot swappable power supplies and fans • Offers a variety of choices: MC-LAG, ESI-LAG, EVPN-VXLAN	Only stacking	Only offers VSX for distribution	Proprietary SD-Access solution and no interoperability with 3rd parties; requires DNA center to orchestrate
MULTIGIGABIT	1/2.5/5/10GbE speeds	1/2.5/5/10GbE speeds	1/2.5/5/10GbE speeds	1/2.5/5/10GbE speeds
POWER OVER ETHERNET	UPoE/PoE/PoE+	UPoE/PoE/PoE+	Up to 60W	UPoE/PoE/PoE+
INTEGRATED NETWORK ACCESS CONTROL	Compatible with 3rd parties such as Forescout, Clearpass, ISE, etc.	Only ISE integration	Clearpass is compatible with 3rd parties such as Forescout, ISE, Checkpoint, etc.	ISE & DNAC does not work with 3rd party
SECURITY	• Juniper Connected Security brings visibility and enforcement to every part of the network • SecIntel leverages EX Switches to quarantine compromise devices and Mist APs to monitor signs of compromise in connected devices • MACSEC256 on select platforms	ISE and Stealthwatch Integration with Open DNS	• Clearpass and Policy Enforcement Firewalls (PEFs) deliver enhanced visibility and policy enforcement • Reliance on partners for integrated security	• ISE and Stealthwatch • Integration with Open DNS
COMMON HARDWARE BUILDING BLOCKS	• A single operating system aross the Juniper hardware portfolio • Common building blocks for WAN, WLAN and wired networks	One OS but requires complete different set of hardware (MX/MS/MR) from DNA solution	Convergence of HP and Aruba switches--new OS-CX runs on specific hardware platforms leading to a mix of operating systems	• Multiple non-integrated products that each have their own OS • Can't be managed by Meraki Cloud • Hardware dependencies force upgrades to be DNA ready; Meraki requires a completely different set of hardware
FABRIC ARCHITECTURES	EVPN-VXLAN, MC-LAG, ESI-LAG, VC supports 10 devices for stacking	• Lacks scale and full stack support for large enterprise without 100G and modular core offerings • Does not support 3 tier deployment for bigger deployments	Poor resiliency with limited EVPN-VXLAN capabilities	SDA only has support for EVPN-VXLAN (proprietary using LISP)
MULTIVENDOR SUPPORT	Built on open standard technologies like EVPN-VXLAN and NAC	Does not support multivendor	On-premises AirWave can do multivendor, but Cloud Central can not	Proprietary protocols

LOCATION ENGAGEMENT AND INSIGHT

	Juniper Mist	Cisco Meraki	Aruba	Cisco
BLE ANTENNA IN APS	• Patented 16-element BLE antenna array • Dynamic beam-forming WATCH ▶ VIDEO	• Single integrated omni-directional BLE antenna • Additional 3rd party battery-powered BLE beacons required for coverage	• Single integrated omni-directional BLE antenna • Additional Aruba battery-powered BLE beacons required for coverage	• Single integrated omni-directional BLE antenna • Additional 3rd party battery-powered BLE beacons required for coverage • Only available with Cisco 4800 AP
VIRTUAL BEACONS	Unlimited virtual beacons per AP WATCH ▶ VIDEO	No virtual beacons	No virtual beacons	No virtual beacons
SITE CALIBRATION (UNSUPERVISED MACHINE LEARNING)	• Unsupervised machine learning • Site and device calibration without administrator input WATCH ▶ VIDEO	• Requires 3rd party integration, not native • Does not adapt/learn radio performance for new devices	• Requires accurate BLE coverage planning and manual beacon placement with mobile app during installation • Does not adapt/learn radio performance for new devices	• Requires 3rd party BLE integration • Does not adapt/learn radio performance for new devices
LOCATION ALGORITHM	• Unsupervised machine learning • Triangulates and adapts to varying BLE clients and changing RF	• Triangulation dependent on accurate map placement • Errors introduced by variance in BLE clients	• Triangulation dependent on accurate map placement • Errors introduced by variance in BLE clients	• Requires 3rd party BLE integration • Triangulation dependent on accurate map placement • Errors introduced by variance in BLE clients
LOCATION ANALYTICS	• BLE & Wi-Fi • Freemium and subscription services available • API-first for ease of data sharing	Wi-Fi only	• Wi-Fi only • Requires additional appliance (ALE)	• Wi-Fi only • Requires additional appliance (CMX) • Requires Cisco DNA Spaces
ASSET TRACKING	Tracking of 3rd party BLE asset tags	No asset tracking	• Tracking of Aruba BLE asset tags • Requires Aruba 3xx model APs with integrated BLE beacon or overlay deployment of Aruba AS-100 wireless sensors	• Wi-Fi RFID tags only • Requires additional appliance (CMX operational visibility)
BLE OVERLAY FOR EXISTING WI-FI DEPLOYMENTS	vBLE APs available	No BLE overlay solution	Requires many wall-plug Aruba AS-100 wireless sensors	No BLE overlay solution
OPEN STANDARDS ECONOMICS	• Interoperability • Vendor neutral • Efficient use of existing resources	Mulitiple solution offering	Mulitiple solutions w/ proprietary limitations	Mulitiple solution offering
COMPREHENSIVE BUILT-IN APPLICATIONS	Best of breed solution via partnerships	Multiple solution offering	Single vendor with proprietary limitations (Mapping)	• Workflow • Asset visibility rules engine
TECHNOLOGY VERSATILITY	• Native: Wi-Fi, vBLE • 3rd Party Integration: BLE, UWB, LiDAR, Wi-Fi RADAR	• Native: Wi-Fi • 3rd Party Integration: BLE, UWB	Wi-Fi, BLE, UWB	• Native: Wi-Fi • 3rd Party Integration: BLE, UWB