Wired and Wireless LAN Solution Comparison

Explore campus wired and wireless solutions in a side-by-side comparison with Juniper, driven by Mist AI, Cisco, Meraki and Aruba. See the key features to consider when building out your campus network for the AI-Driven Enterprise.

Let's compare* solutions in their breadth and depth of features

*Comparison based on October 2020 public information

	Juniper driven by Mist AI	Cisco Meraki	aruba a Hewlett Packard Enterprise company	Cisco

Essential Wired Features

	Juniper driven by Mist AI	Cisco Meraki	aruba	Cisco
Wired Assurance	●●●●● - Measure wired experiences with Service Level Expectations (SLEs). - Hierarchical switch templates offered within UI - Dynamic port config that works with any RADIUS server. - Port profiles with manual or dynamic config based on endpoint type. - Software upgrades - Automatic RMA	●○○○○ - Limited insight into wired experience. - Switch templates are only model specific. - Dynamic port config only works for Meraki APs. - No concept of port profiles; ports must be tagged individually. - Software upgrades - No automatic RMA	●○○○○ - Limited insight into wired experience. - Many features require CLI templates. - Dynamic port config requires Clearpass and Mobility Controller with lock-in architectures. - Port profiles require lots of manual config. - No software upgrades - No automatic RMA	●○○○○ - Requires on-premises DNA Center. - No UI based templates and CLI is switch model and version specific. Expertise required in template builder. - Dynamic port config not supported in greenfield with Cisco only devices and ISE. - No port profiles. - No software upgrades - No automatic RMA
Telemetry	●●●●● API driven and leverages flow-based 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.	●●●○○ 8 member stacking.	●●●○○ 10 member stacking with significantly lower stacking bandwidth and lower stacking distances.	●●●○○ 8 member Stackwise with proprietary cables and max of 3m length.
High availability for redundancy	●●●●● - 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 which also require 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	●●●●● PoE++/PoE/PoE+.	●●●●● UPoE/PoE/PoE+.	●●●●○ Up to 60W.	●●●●● UPoE/PoE/PoE+/UPoE+.

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Essential Wired Features (Cont.)				
Integrates with standard 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. - Microsegmentation with Group Based Policies (GBP)	● ● ● ● ○ - ISE and Stealthwatch. - Integration with Cisco Umbrella. - Proprietary support for Cisco - TrustSec protocol with Cisco ISE only one MS390 switch.	● ● ● ● ○ - Clearpass and Policy Enforcement Firewalls (PEFs) deliver enhanced visibility and policy enforcement. - Reliance on partners for integrated security. - No support for GBP or TrustSec. - Row-based policy with ClearPass for segmentation.	● ● ● ● ○ - ISE and Stealthwatch. - Integration with Cisco Umbrella.
Common software building blocks	● ● ● ● ● A single operating system across the Juniper hardware portfolio, becoming common building blocks for WAN, WLAN and wired networks.	● ● ● ○ ○ One OS but requires a complete different set of hardware (MX/MS/MR) from DNA solution.	● ● ● ○ ○ Convergence of HP and Aruba switches, new AOS-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 cannot.	● ● ● ● ○ Proprietary protocols.

Essential Wireless Features	Juniper driven by Mist AI	Cisco Meraki	aruba a Hewlett Packard Enterprise company	Cisco
Inline microsegmentation	● ● ● ● ○ WLAN classifies IoT/headless devices and segments by policy.	● ● ○ ○ ○ Stateful firewall in AP with device/app.	● ● ● ○ ○ - Stateful firewall in controller. - IoT classification requires ClearPass $$$.	● ○ ○ ○ ○ Requires ISE.
Personal WLAN (private user groups)	● ● ● ● ● Self-serve personal WLAN for segmentation. Unique PSK.	● ○ ○ ○ ○ Shared PSK or requires one SSID per group.	● ● ○ ○ ○ - Requires ClearPass $$$ 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 and Optimization	● ● ● ● ● AI for AX to automate and optimize Wi-Fi 6 network settings.	● ● ○ ○ ○ Lack of AI with manual, static configuration of features.	● ● ○ ○ ○ Lack of AI with manual, static configuration of features.	● ● ○ ○ ○ Lack of AI with manual, static configuration of features.

> "Only you can prevent network fire drills before they happen. Use AI to unlock your creative powers to reduce OpEx."

Architecture

	Juniper driven by Mist AI	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.	●●●○○ - 1st generation cloud. - Legacy shared database in hosted database 'cloud'. - Virtual controller-based.	●●○○○ - Aruba ESP is the redesign of Aruba Central with Management. - The controller-based architecture has four different clouds. - Users must upgrade, maintain and integrate all of the software. - Monolithic code bases are expensive to scale and difficult to manage - Limited API support.	●○○○○ - Controller-based legacy monolithic software architecture. - Lack of strong cloud solution, limited to SMB. - Lots of hardware and boxes all needing proper versions. - Multiple non-integrated products and OS (10+).
Scalability	●●●●● Elastic vertical and horizontal scale without requiring expensive hardware.	●●○○○ - Complex and non-elastic. - Virtual controllers hosted in co-located data centers. - Require separate servers to scale.	●●●○○ Non-elastic with more gateways/controllers required.	●●●○○ Non-elastic with more controllers required.
Programmability	●●●●● - 100% accessible through APIs. - Support for complete IT automation, such as ticketing or web alerts.	●●○○○ Limited set of 'bolt-on' APIs.	●●○○○ - Limited set of APIs. - Main switching portfolio has limited APIs, new ArubaOS-CX based switches with APIs lack features and have minimal customer traction.	●○○○○ 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 compatability matrix is a nightmare.	●●●○○ - Complex with more hardware required. - Each piece of hardware needs proper software versions. - Version compatablity matrix is a nightmare.
Agility	●●●●● - Modern, microservices-based cloud of monolithic code base. - Rapid updates without network disruption.	●●○○○ - 1st generation cloud with VMs and hypervisors. - Slow updates due to the lack of 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. - Single click activation for streamline rollouts. - Wired and Wi-Fi Assurance for full lifecycle management.	●●●○○ Virtual controllers hosted in co-located data centers.	●●●○○ - Controller/Gateway for large customers, Aruba Central for small-midsize customers; monolithic architecture. - Offers on-premises and cloud solutions. - Offered across different applications.	●○○○○ - On-premises with no cloud offering for SDA. - Uses a centralized, proprietary controller.

Artificial Intelligence

	JUNIPER driven by Mist AI	CISCO Meraki	aruba a Hewlett Packard Enterprise company	CISCO
Virtual Network Assistant	● ● ● ● ○ - A conversational interface that leverages NLP for better interactions with Mist AI. - Continuous learning through supervised machine learning. - Performs root cause analysis for most detected network issues. - Supports wireless, wired and WAN at a site level. - Troubleshoot issues instead of pulling logs. - Can be accessed through Web UI or API. - Built on 6+ years of continuous learning and rich data science toolbox.	○ ○ ○ ○ ○ - Dashboard. - No virtual assistant.	○ ○ ○ ○ ○ - Dashboard. - No virtual assistant.	● ○ ○ ○ ○ - Dashboard. - Chatbot rumoured but not productized nor 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 anomaly 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 Actions framework for self-driving or driver-assist mode (e.g. RF optimization, proactive RMA, unhealthy APs, missing VLANs, bad cables, etc.). - Closed loop feedback validated by Mist AI.	○ ○ ○ ○ ○ - Dashboards. - No self-driving capabilities.	● ○ ○ ○ ○ - Dashboards. - Lacks self-driving, only having “driver-assist” capabilities where it provides recommendations to IT. - Very basic driver-assist capabilities (identifies channel utilization issues and poor DHCP/AAA performance for IT to manually investigate).	○ ○ ○ ○ ○ - Dashboards. - No self-driving capabilities.

	Juniper (driven by Mist AI)	Cisco Meraki	Aruba (a Hewlett Packard Enterprise company)	Cisco
Artificial Intelligence (Cont.)				
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 based on user experience (SLE) and interference graph. - Adapts dynamically on an ongoing basis while network under load. - 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. - No use of AI for channel/power optimization. - 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	● ● ● ● ● - Support utilizes Marvis 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 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 AP deployments have grown at a rapid pace, yet support tickets remain flat because of Mist AI.	○ ○ ○ ○ ○ Dashboards - No use of AI to automate support or support operations.	○ ○ ○ ○ ○ - Dashboards. - Lacks automated support capabilities driven by AI. - Aruba AI Assist is a basic manual button to gather logs and email them to Aruba Support for manual analysis.	○ ○ ○ ○ ○ Dashboards - No use of AI to automate support nor support operations.

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AI Ops				
Service level monitoring	●●●●● - Realtime and inline SLEs for wired and wireless including: Throughput, Time to Connect, Roaming, Coverage, Capacity, AP Uptime, Switch Health. - User/site/device level monitoring. - 100+ states monitored.	●○○○○ Basic non-real-time event log monitoring (future).	●●○○○ - Dashboards - Basic non-real-time event log monitoring. - Requires NetInsight appliances and subscription $.	●○○○○ - Dashboards - Basic non-real-time event log monitoring. - Requires DNA appliances $$$.
Virtual assistant to accelerate help desk	●●●●○ Natural language queries with integrated helpdesk based on Mist AI.	○○○○○ Not available.	○○○○○ Not available.	○○○○○ Not available.
Root cause identification	●●●●● Automated event correlation using machine learning across wireless/wired/device domains.	●○○○○ Only event logs.	●○○○○ Only available for the recent and feature-deficient Aruba OS-CX based switches which have a small install base.	●○○○○ Limited RCA. Requires DNA appliances $$$.
Dynamic packet capture	●●●●● - Proactively captures packets when an error event occurs in real-time. - Eliminates need to reproduce issues.	○○○○○ Manual.	●○○○○ - Primarily manual. - Limited auto capture on authentication failure events. - Requires an additional, separate cloud dashboard for troubleshooting and analysis (Cape Networks). - Requires overlay network of Aruba UXI wireless sensor hardware.	○○○○○ Manual.
Baselining and anomaly detection	●●●●● Proactive device/OS baselining and anomaly detection by Mist AI.	●○○○○ 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 and subscription offering.	●●●○○ Wi-Fi only.	●●●●○ - Wi-Fi only. - Requires additional appliance (ALE).	●●●○○ - Wi-Fi only. - Requires additional appliance (CMX).

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Location Engagement and Insight

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BLE antenna in APs	● ● ● ● ● Patented 16-element BLE antenna array enables dynamic beam-forming.	● ○ ○ ○ ○ - Single integrated omni-directional BLE antenna. - Additional 3rd party battery-powered BLE beacons required for coverage.	● ○ ○ ○ ○ - Single integrated omni-directional BLE antenna that has poor accuracy. - 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.	○ ○ ○ ○ ○ No virtual beacons.	○ ○ ○ ○ ○ No virtual beacons.	○ ○ ○ ○ ○ No virtual beacons.
Site calibration (unsupervised machine learning)	● ● ● ● ● Unsupervised machine learning calibrates the site and devices without administrator input.	● ○ ○ ○ ○ - 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 in the cloud 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 based proximity tracing that has no BLE antenna array, no ML, and poor accuracy.	● ○ ○ ○ ○ - Wi-Fi only. - Require additional appliances (CMX). - Requires Cisco DNA Spaces.

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Location Engagement and Insight (Cont.)				
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 battery-powered 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.	● ● ○ ○ ○ Mulitiple 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.

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