

# Zašto Aruba?

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Territory Manager for Adriatic region (Croatia, Serbia, CDG),  
Romania, Slovenia and Bulgaria



14. DAN INTEGRACIJE

**UVIJEK POVEZANI**



# HPE Aruba Products Overview

304/305 Wave 2



207 Wave 1



103/205/215/225 indoor + outdoor

## Wireless Infrastructure

APs, RAPs, Sensors, Beacons...

2930F



## Wired Infrastructure

Switches



## Network controls

AOS8 with REST APIs to share context and program infrastructure



## Location analytics

Analytics and Location Engine (ALE) with northbound REST APIs



## Cloud networking

Central with REST APIs to share context and program infrastructure



## Network management

AirWave with northbound XML APIs for data consumption



## Policy management

ClearPass with a unified API library and Extensions repository



## Micro-location services

Meridian with mobile app development SDK and REST APIs

# Switching That Meets the Needs of Today and Tomorrow

## Gigabit Access



Aruba 2530



Aruba 2930F



Aruba 2920

## Multi-Gig Access



Aruba 3810



Aruba 5400

Smart Rate Multi-Gig Ports				<input type="checkbox"/>	<input type="checkbox"/>
Stacking			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> VSF
SDN Ready		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
POE+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AirWave & ClearPass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Feature	AP-103	AP-103H	AP-205H	AP-204/205	AP-207	AP-214/215	AP-224/225	AP-304/305	AP-314/315	AP-324/325	AP-334/335	RAP-3WN / RAP-3WNP	RAP-106/109	RAP-155/155P	AP-228	AP-274	AP-275	AP-277
Description	Indoor 11n AP	Indoor 11n AP	Indoor 11ac AP	Indoor 11ac AP	Indoor 11ac AP	Indoor 11ac AP	Indoor 11ac AP	Indoor 11ac Wave2 AP	Indoor 11ac Wave2 AP	Indoor 11ac Wave2 AP	Indoor 11ac Wave2 AP	Indoor 11n AP	Indoor 11n AP	Indoor 11n AP	Indoor Temp Hardened 11ac AP	Outdoor 11ac IP66/67	Outdoor 11ac IP66/67	Outdoor 11ac IP66/67
SW type	AOS/Instant	AOS	AOS/Instant	AOS/Instant	AOS/Instant	AOS/Instant	AOS/Instant	AOS/Instant	AOS/Instant	AOS/Instant	AOS/Instant	Instant (AOS RAP)	Instant (AOS RAP)	Instant (AOS RAP)	AOS/Instant	AOS/Instant	AOS/Instant	AOS/Instant
Number of radios	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2
Supported band(s)	DB	DB	DB	DB	DB	DB	DB	DB	DB	DB	DB	2.4GHz	DB	DB	DB	DB	DB	DB
Radio MIMO type	2x2	2x2	2x2	2x2	2x2	3x3	3x3	2x2 (2.4GHz), 3x3 (5GHz)	2x2 (2.4GHz), 4x4 (5GHz)	4x4	4x4	2x2	2x2	2x2 (2.4GHz), 3x3 (5GHz)	3x3	3x3	3x3	3x3
Max number of BSSIDs (per radio)	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Max number of associated clients per radio (limit tunnel mode / limit other modes / limit recommended, AES centralized)	255 / 110 / 50	32 / 32 / 10	255 / 255 / 50	255 / 255 / 50	255 / 255 / 50	255 / 255 / 50	255 / 255 / 100	255 / 255 / 75	255 / 255 / 75	255 / 255 / 100	255 / 255 / 100	255 / 110 / 25	255 / 110 / 50	255 / 110 / 100	255 / 255 / 100	255 / 255 / 100	255 / 255 / 100	255 / 255 / 100
Max Tx power (per radio chain, MCS0) 2.4GHz/5GHz	18dBm 18dBm	18dBm 18dBm	18dBm 18dBm	18dBm 18dBm	18dBm 18dBm	18dBm 18dBm	18dBm 18dBm	18dBm 18dBm	18dBm 18dBm	18dBm 18dBm	18dBm 18dBm	17dBm	18dBm 18dBm	18dBm 18dBm	23dBm 23dBm	23dBm 23dBm	23dBm 23dBm	23dBm 23dBm
Radio chipset	AR9344 (2.4GHz) AR9582 (5GHz)	AR9344 (2.4GHz) AR9582 (5GHz)	BCM43520 (2x)	BCM43520 (2x)	BCM43570 (2.4GHz) BCM47452 (5GHz)	BCM43460 (2x)	BCM43460 (2x)	QCA9992 (5GHz) IPQ4029 (2.4GHz)	QCA9994 (5GHz) QCA9983 (2.4GHz)	QCA9990 (2x)	QCA9994 (2x)	AR9344	AR9344 (2.4GHz) AR9582 (5GHz)	AR9592 (2.4GHz) AR9590 (5GHz)	BCM43460 (2x)	BCM43460 (2x)	BCM43460 (2x)	BCM43460 (2x)
RF connectors (RP-SMA indoor, N-female outdoor)	no	no	no	2xDB (AP-204)	no	3xDB (AP-214)	3xDB (AP-224)	3xDB (AP-314)	4xDB (AP-314)	4xDB (AP-324)	4xDB (AP-334)	no	2x DB (RAP-106)	no	3x2.4GHz (AP-274) 3x5GHz (AP-274)	3x2.4GHz (AP-274) 3x5GHz (AP-274)	no	no
Integrated antennas	omni downtilt	omni	omni	omni downtilt (AP-205)	omni downtilt (AP-205)	omni downtilt (AP-215)	omni downtilt (AP-225)	3x omni downtilt (AP-315)	6x omni downtilt (AP-315)	omni downtilt (AP-325)	12x omni downtilt (AP-335)	2x 2.4GHz omni	4x omni (RAP-109)	5x omni	no	no	omni (AP-275)	80deg x 80deg 6.5dbi directional
Advanced Cellular Coexistence (ACC)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	yes
CPU	QCA AR9344 (MIPS32 74k) 560MHz	QCA AR9344 (MIPS32 74k) 560MHz	Broadcom BCM53014 (ARM) 5GHz	Broadcom BCM53014 (ARM) 1GHz	Broadcom BCM47452 (ARM A7) 900MHz	Freescalo P1020 (PowerPC, single core) 800MHz	Freescalo P1020 (PowerPC, dual core) 800MHz	QCA IPQ4029 (ARM, quad core) 710MHz	QCA IPQ8064 (Krait, dual core) 1.4GHz	QCA IPQ8064 (Krait, dual core) 1.4GHz	Freescalo T1024 (PowerPC, dual core) 1.2GHz	Atheros AR9344 (MIPS32 74k) 560MHz	Atheros AR9344 (MIPS32 74k) 560MHz	Marvell 88E560 (ARM) 1.6GHz	Freescalo P1020 (PowerPC, dual core) 800MHz	Freescalo P1020 (PowerPC, dual core) 800MHz	Freescalo P1020 (PowerPC, dual core) 800MHz	Freescalo P1020 (PowerPC, dual core) 800MHz
SDRAM size	128MB	64MB	128MB	128MB	256MB	512MB	512MB	512MB	512MB	512MB	512MB	128MB	128MB	256MB	512MB	512MB	512MB	512MB
Flash size	32MB	16MB	32MB	32MB	128MB	32MB	32MB	32MB	32MB	32MB	32MB	16MB	32MB	32MB	32MB	32MB	32MB	32MB
TPM present	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
RTC	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Network interfaces	1xGE	1xGE + 2xFE	1xGE + 3xFE	1xGE	1xGE	2xGE	2xGE	1xGE	1xGE	2xGE	1x2.5GE + 1xGE	3xFE	1xGE, 1xFE	5xGE	2xGE, 2xFE	2xGE	2xGE	2xGE
Jumbo frame support on uplink	no (1500)	no (1500)	yes (3500)	yes (3500)	yes (9000)	yes (9000)	yes (9000)	yes (9000)	yes (9000)	yes (9000)	yes (9000)	no (1500)	no (1500)	no (1500)	yes (9000)	yes (9000)	yes (9000)	yes (9000)
MACsec HW support	no	no	no	no	no	yes	yes	yes	yes	yes	yes	no	no	no	no	no	no	no
BLE radio	no	no	no	no	no	no	no	yes	yes	yes	yes	no	no	no	no	no	no	no
USB host interface, max power	no	no	yes, 5W	no	no	yes, 5W	yes, 2.5W	yes, 5W	yes, 5W	yes, 5W	yes, 5W	yes, 3W (0.6A)	yes, 5W (early units: 2.5W)	yes, 4W (0.8A)	no	no	no	no
Console port	header	header	header	RJ45	RJ45	RJ45	RJ45	header	header	RJ45	RJ45	header	RJ45	header	mUSB	mUSB	mUSB	mUSB
POE PD power	3af	3af	3af / 3af	3af	3af	3af / 3af	3af / 3af	3af / 3af	3af / 3af	3af / 3af	3af / 3af	no	3af / af	no	3af	3af	3af	3af
POE PSE	no	no	802.3af	no	no	no	no	no	no	no	no	no / 802.3af	no	no / 802.3af (1x) or 802.3af (2x)	no	no	no	no
DC power support	12V	12V	48V	12V	12V	12V	12V	12V	12V	12V	48V	12V (2WN) / 48V (3WNP)	12V	12V (155) / 54V (155P)	POE Only	POE Only	POE Only	POE Only
Ships with AC to DC adapter	no	no	no	no	no	no	no	no	no	no	no	yes (cord not included for RAP-3WNP)	no	yes (cord not included for RAP-155P)	no	no	no	no
AC power support	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	Yes	Yes	Yes
Intelligent Power Monitoring (IPM) Support	no	no	no	no	no	no	no	yes	yes	no	yes	no	no	no	no	no	no	no
Restrictions from 802.3af POE (without IPM)	none	none	USB, POE-PSE	none	none	USB	USB, 2nd Ethernet, 1x1 on 2.4GHz	USB	USB, -3dB on 2.4GHz	USB, 2nd Ethernet, 1x1 on both radios	USB, 2nd Ethernet, 1x1 on both radios	n/a	none	n/a	no	no	no	no
Restrictions from 802.3af POE (without IPM)	none	none	USB or POE-PSE	none	none	none	none	none	none	none	USB	n/a	none	n/a	no	no	no	no
Temperature range	0C to +40C	0C to +40C	0C to +40C	0C to +40C	0C to +50C	0C to +50C	0C to +50C	0C to +50C	0C to +50C	0C to +50C	0C to +50C	0C to +40C	0C to +40C	0C to +40C	-40C to +60C	-40C to +65C	-40C to +65C	-40C to +65C
Enclosure type	Plastic	Plastic	Plastic/metal	Plastic/metal	Plastic/metal	Plastic/metal	Plastic/metal	Plastic/metal	Plastic/metal	Plastic/metal	Plastic/metal	Plastic	Plastic	Plastic	Plastic/metal	Plastic/metal	Plastic/metal	Plastic/metal
Enclosure volume (mm3)	150 x 150 x 41.5	86 x 140 x 30	86 x 150 x 40	150 x 150 x 41.5	150 x 150 x 40	180 x 180 x 45	203 x 203 x 54	185 x 185 x 38	182 x 180 x 48	203 x 203 x 57	225 x 224 x 52	129 x 109 x 64	181 x 180 x 72	240 x 245 x 67	203 x 203 x 54	230 x 240 x 140	230 x 240 x 170	230 x 240 x 190
Weight (unit only, with desk mount)	370g	260g	370g	380g	380g	610g	750g	460g	650g	950g	1150g	460g	460g	700g	2.4kg	2.4kg	2.4kg	2.1kg
Pfennum rated	no	no	no	yes	yes	yes	yes	yes	yes	yes	yes	no	no	no	yes	yes	yes	yes
Announced	Feb '14	Jun '14	Feb '15	May '14	Sep '16	Aug '14	May '13	Sep '16	May '16	May '15	March '16	41106	41261	June '13	Feb '15	Feb '14	Feb '14	Feb '15
PCS	Mar '14	Jul '14	Mar '15	Jun '14 (AOS) Sept '14 (Instant)	Oct '16 (AOS) Dec '16 (Instant)	August '14	Jun '13	Oct '16 (AOS) Dec '16 (Instant)	June '16	August '15	June '16	April '12	Jan '13	June '13	Apr '15	Mar '14	Mar '14	Apr '15
US list price	\$395	\$345	\$695	\$695	\$995	\$1295	\$695	\$995	\$1395	\$1695	\$1695	\$295 / \$345	\$595	\$795 / \$895	\$1495	\$1595	\$1995	\$2195
Lifetime Warranty	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Minimum AOS SW version	6.4.0.0	6.4.1.0	6.4.3.0	6.4.1.0	6.5.1.0	6.3.0.0	6.4.2.0	6.5.1.0	6.4.4.0	6.5.0.0	6.4.4.0	6.2.0.0	6.3.0.0	6.3.0.0	6.4.3.0	6.4.0.0	6.4.0.0	6.4.3.0
Minimum Instant SW version	4.1.0.0	N/A	4.2.0.0	4.1.1.0	4.3.1.0	4.1.1.0	4.0.0.0	4.3.1.0	4.3.0.0	4.2.0.0	4.3.0.0	3.0.0.0	3.2.0.0	3.3.0.1	4.1.2.0	4.1.0.0	4.1.0.0	4.1.2.0
EOS date	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	11/1/2016	TBD	TBD	TBD
Last supported AOS SW version	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Last supported Instant SW version	TBD	N/A	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Spectrum Analysis Support	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes *	yes	yes *	yes	yes	yes	yes
Max power consumption (excluding USB, POE PSE)	8W (DC) 1.2W (PSE)	8.3W (DC) 1.2W (PSE)	12W (DC)	11.7W (DC)	16.1W (DC) 1.4W (PSE)	13.6W (DC)	15.6W (DC)	13.4W/17.2W	11W (DC) 1.4W (PSE)	12.7W (DC)	18.5W (DC) 1.4W (PSE)	25W (DC)	13.2W/25.3W	4.0W / 5.5W	12.5W	15.5W / 15.5W	23W	23W



# Gartner Magic Quadrant for the Wired and Wireless LAN Access Infrastructure

Figure 1. Magic Quadrant for the Wired and Wireless LAN Access Infrastructure



Gartner once again positions HPE Aruba in the Leaders Quadrant of the latest Wired and Wireless LAN Access Infrastructure Magic Quadrant

HPE Aruba feels this should be considered further validation that HPE Aruba is a leader in connecting the world with intelligent mobility



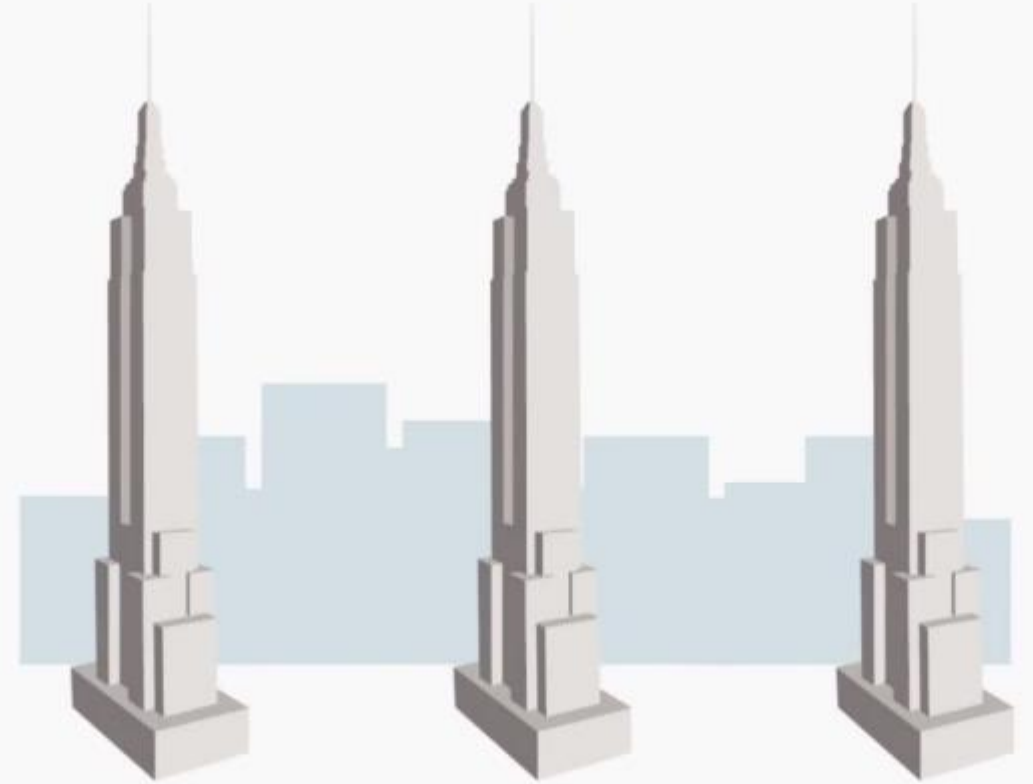
Možemo li rasti i koliko?



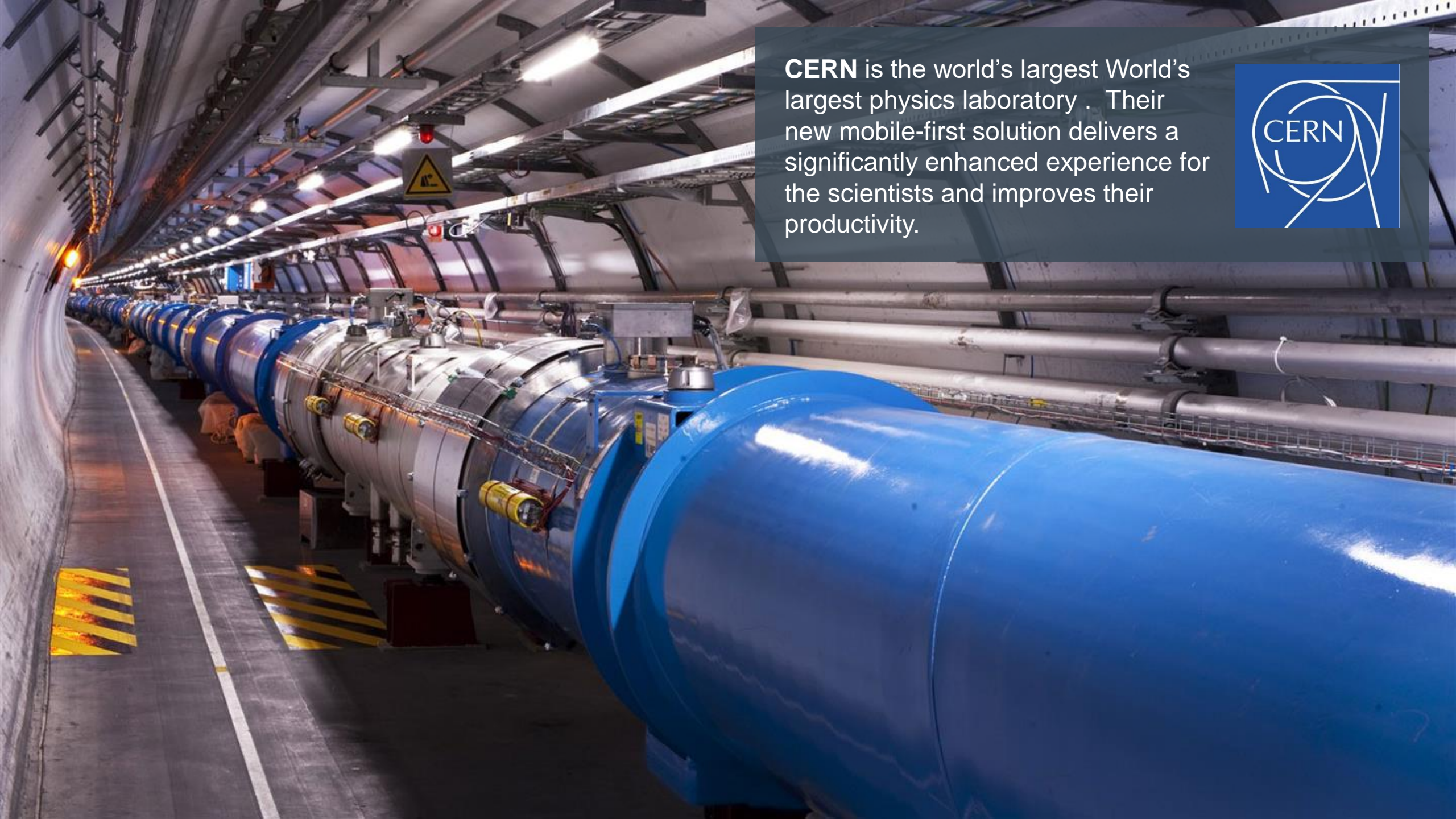




THE PENTAGON



3 EMPIRE STATE BUILDINGS



**CERN** is the world's largest World's largest physics laboratory . Their new mobile-first solution delivers a significantly enhanced experience for the scientists and improves their productivity.



# Secure District Wi-Fi

**ClearPass:** Advance policy services and BYOD

**AirWave:** Centralized, Granular Management

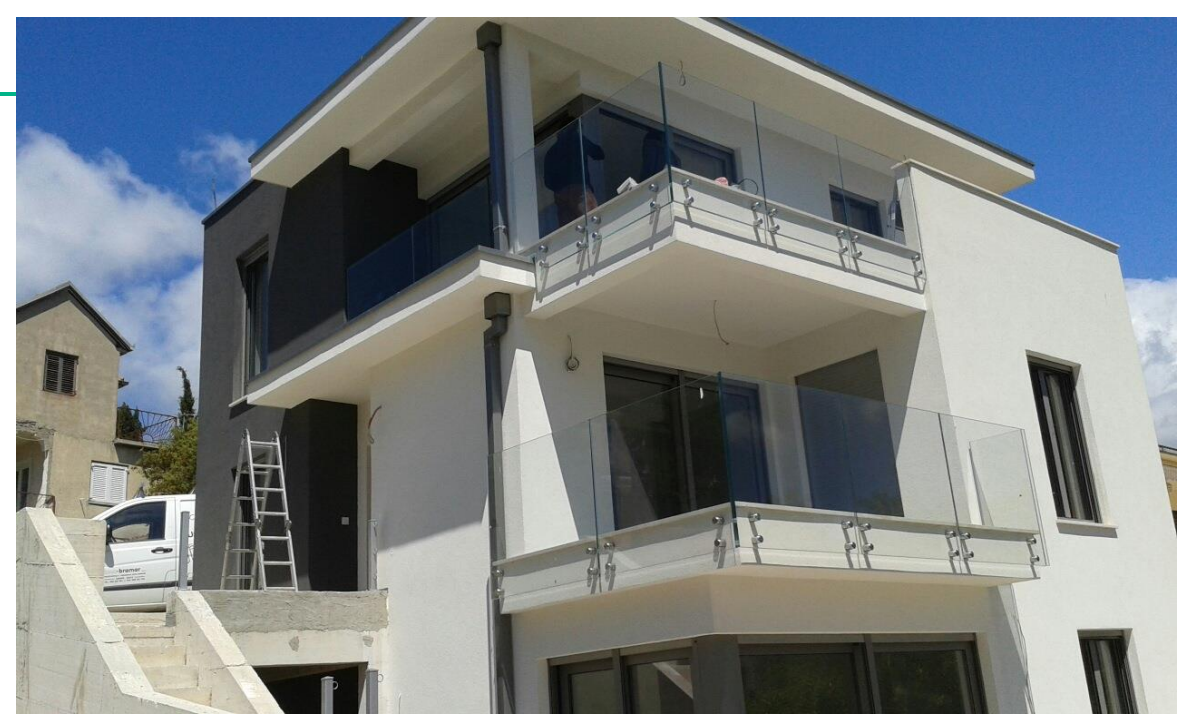
2<sup>nd</sup> Largest School System in US,  
650,000 Students, 750 Schools



Što je sa  
referencama?



# Moj prijatelj Nikola...





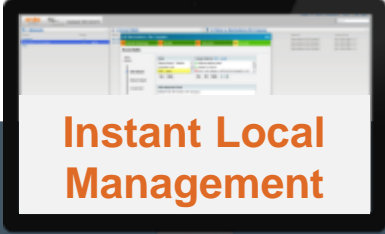
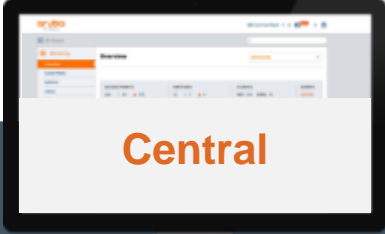
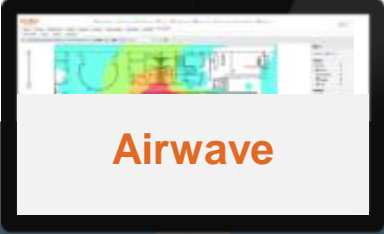
# A World Class Experience

Aruba Wi-Fi and Meridian  
Mobile Engagement

Jumeirah  
STAY DIFFERENT™



# Flexible management choices

			
	<b>Instant Local Management</b>	<b>Central</b>	<b>Airwave</b>
<b>Deployment</b>	n/a	<b>Cloud</b> Management as a Service no hardware, no software	<b>On-site</b>
<b>Management</b>	<b>Decentralized</b> Instant Clusters	<b>Centralized Management</b> Instant APs, multiple sites multiple clusters	<b>Centralized Management</b> Instant & ArubaOS APs, Third-Party Wired & WLAN
<b>Advanced Capabilities</b>	Simple Guest Wi-Fi	Guest/Visitor management with custom captive portal	VisualRF, advanced reporting alerts & customizations
<b>Pricing</b>	Free	<b>No upfront costs</b> Subscription per AP - 1/3/5yr Tech Support included	<b>Lower recurring costs</b> Perpetual SW license per AP/Switch + recurring annual maintenance + HW (optional)





# 270 Series and 228 Hardened AP Portfolio



**AP-275**  
**Integrated Omnis**  
Dual Radio 11ac 3x3:3SS



**AP-274**  
**Connectorized**  
Dual Radio 11ac 3x3:3SS



**AP-277**  
**Integ. Directional**  
Dual Radio 11ac 3x3:3SS

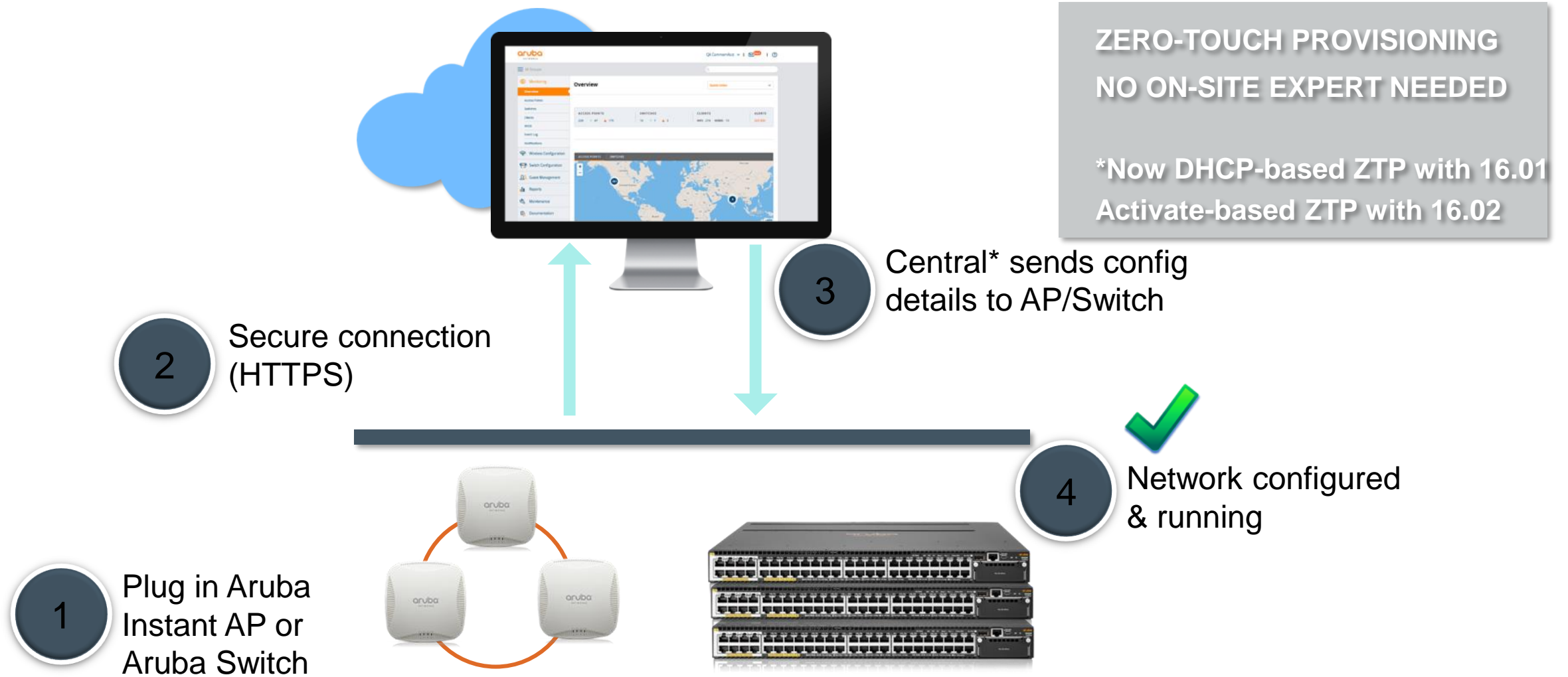


**AP228**  
**6 x RPSMA**  
Dual Radio 11ac 3x3:3SS

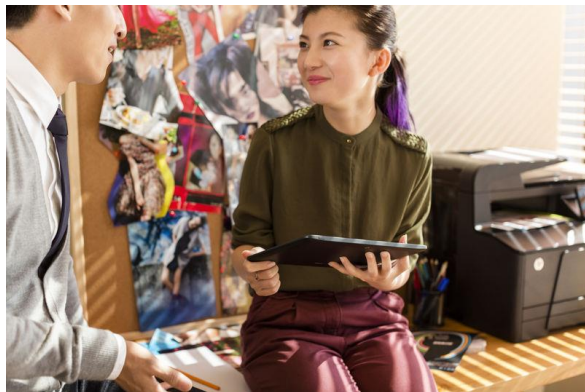
Možeš li raditi od kuće?



# Cloud-based management with Aruba Central, and zero-touch



A kako sa njima!!!



# Aruba Clearpass

## The most comprehensive BYOD and IoT management platform

- Role-based network access enforcement for Wi-Fi, wired and VPN
- Supports NAC and Microsoft NAP posture and health checks
- Advanced reporting of all user activity, authentications and failures
- Device onboarding, profiling, guest access, and compliance reporting
- Enterprise-grade AAA, including RADIUS/TACACS+, 802.1x



Third Party  
Integration



Guest Access

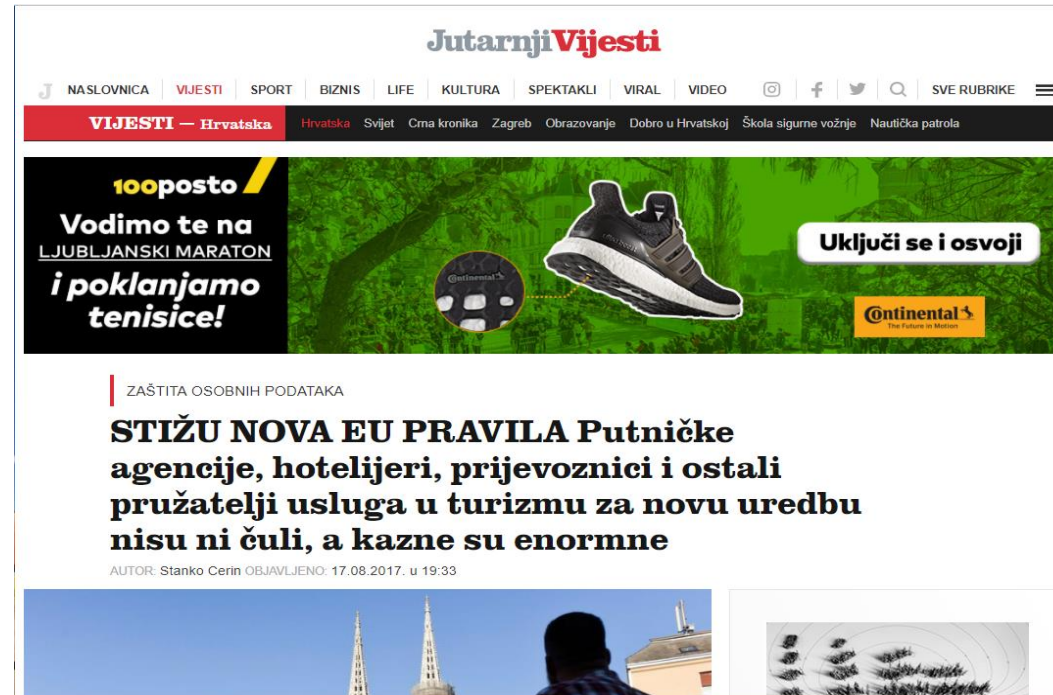


BYOD/IoT  
Onboarding



Endpoint  
Health

<http://www.jutarnji.hr/vijesti/hrvatska/stizu-nova-eu-pravila-putnicke-agencije-hotelijeri-prijevoznici-i-ostali-pruzatelji-usluga-u-turizmu-za-novu-uredbu-nisu-ni-culi-a-kazne-su-enormne/6468898/>



The screenshot shows the Jutarnji Vijesti website. At the top, there is a navigation bar with categories like NASLOVNICA, VIJESTI, SPORT, etc. Below that is a sub-navigation bar for 'VIJESTI - Hrvatska' with links to 'Hrvatska', 'Svijet', 'Crna kronika', etc. The main content area features a large advertisement for the Ljubljana Marathon, with the text '100 posto Vodimo te na LJUBLJANSKI MARATON i poklanjamo tenisice!' and an image of a Continental sneaker. Below the ad is a news article with the headline 'STIŽU NOVA EU PRAVILA Putničke agencije, hotelijeri, prijevoznici i ostali pružatelji usluga u turizmu za novu uredbu nisu ni čuli, a kazne su enormne'. The article is attributed to Stanko Cerin and dated 17.08.2017. At the bottom of the article, there are two small images: one showing a person looking at a building and another showing a map.

Wi-Fi pristup internetu u hotelima idealan je način krađe podataka s laptopa gostiju, često visokorangiranih političara ili poslovnih ljudi. Turistički su informacijski sustavi često povezani s brojnim internim i vanjskim informacijskim sustavima agencija za bukiranje, hotela, putničkih agencija, prijevoznika. Rad takvih turističkih informacijskih sustava često se temelji na **bežičnoj mreži koja nije sigurna**, a zbog niske svijesti o informacijskoj sigurnosti sektor turizma pun je ustaljenih loših praksi upravljanja podacima. Također, tu je i **ljudski faktor**.

Mogu li koristiti  
svoj uređaj?

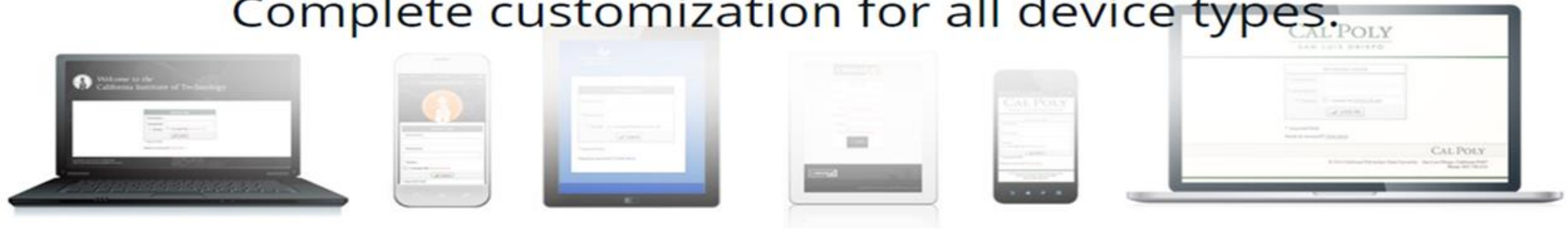





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# ClearPass Onboard: Automated device provisioning for secure BYOD

Complete customization for all device types.



- Automate device provisioning for secure BYOD (Data about devices from Active Directory and LDAP)
- Issue unique certificates for every mobile device - SCEP and EST (RFC 7030)



Možemo li učiniti  
nešto za  
marketing?

# Can your retail business be smarter?

How many of them are potential customers?

Is this sales promotion working?

Will this customer make a purchase?

Could the display be better?

Do you have enough cashiers?



# Get powerful insight into customer traffic and engagement

## Retail analytics on Aruba Central



How many passed by the entrance

How many entered

How many stayed

How long they stayed

you can start creating  
real business value



# AUTOMATED AND INTELLIGENT NETWORKING

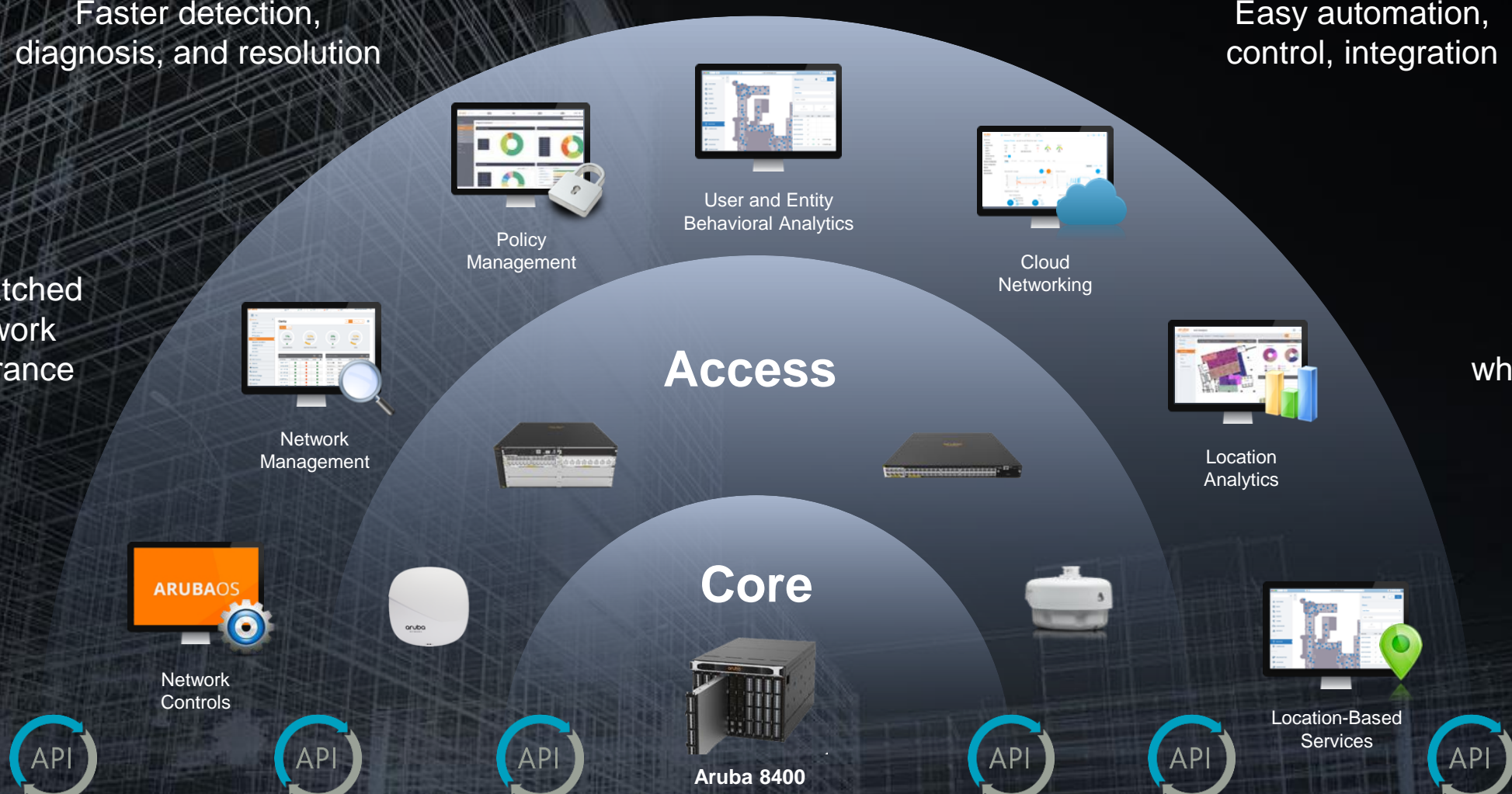
## FULLY INTEGRATED ARCHITECTURE

Faster detection,  
diagnosis, and resolution

Easy automation,  
control, integration

Unmatched  
network  
assurance

Immediate  
visibility into  
what's happening





integra<sup>e</sup>group

[www.integrargroup.hr](http://www.integrargroup.hr)

14. DAN INTEGRACIJE

**UVIJEK POVEZANI**

