Enabling the Digital Transformation of Retail

Nuclias Solutions by D-Link are designed to deliver professional grade managed Wi-Fi capabilities that solve real-world problems for Retailers. A powerful network can effectively enhance the brick & mortar store experience, solidifying your brand, tightening security and increasing overall competitiveness.

As Digital Transformation becomes the new normal, Nuclias offers the opportunity to fully leverage it and get an edge over competitors.

RETAIL

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Contents

How you face today's challenges in **Retail** will define your success over the coming years

Today's Retail Challenges

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Key Challenges in The Retail Industry

1.

An Evolving Customer Experience

Changing consumer habits have forced retailers to take a more agile approach to brick & mortar stores. Whereas before large department stores would have premises custom built, and then be expected to be around for many years, everything has become much more fleeting.
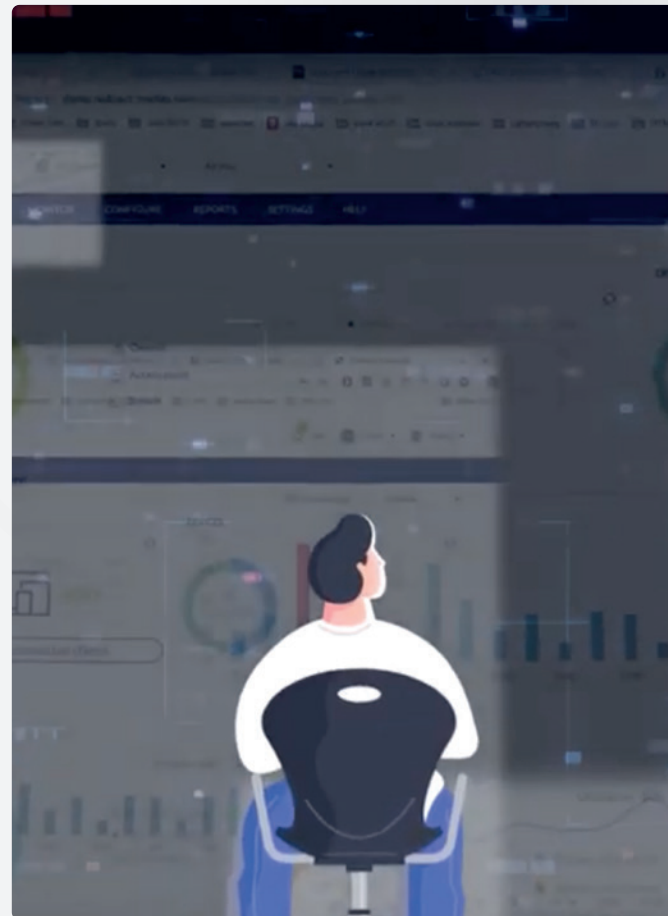
In efforts to reinvigorate the shopping experience, while saving costs, retailers are opting to repurpose preexisting premises to serve as their base of operations. Architecture of all shapes and sizes can be tricky to overcome. Often, setups are only temporary, with an emphasis on being able to up and move at a moment's notice.

2.

Knowing Your Network

A store's network used to be considered on an equal level to that of a utility, such as electricity or water: it should work away in the background and preferably not be seen or heard. However, retail business leaders are now realizing the value of the network as a tool to enhance their operations.

Whereas in-depth network statistics and insights were previously looked over, or only of interest to the ISP, retailers now want to become well acquainted. Connectivity has become an indispensable tool. Being familiar with how the network is being utilized, and then using those insights has become a key tool in enhancing day-to-day business and is having a big effect on the bottom line.

3.

The Lifeblood of the Store

Network connectivity has established itself as the circulatory system of many stores. Without the blood flowing it ceases to operate. All manner of systems — such as POS, inventory management, training materials and HR systems — have become entirely dependent on the network in order to function.

With so many systems dependent on the network, retailers' requirements for networks over the years have skyrocketed well beyond the capabilities of what legacy, unmanaged networks can possibly offer.

4.

An Optimized Network

Data within the store is increasing exponentially, and it is not just your customers connecting to the store Wi-Fi. With the explosion in the number of Internet of Things (IoT) devices being tagged on, the network is being put under a strain not seen before. Bandwidth is taking a hit, and optimizing the network has become imperative to keeping speeds high and reduce congestion.

It is not just data though. Many newly released devices are capable of supporting Power of Ethernet (PoE), and are relying on the network not just for connectivity, but electricity also.

5.

From Reactive to Proactive

One day, the perfect, entirely problem free network will exist. Until then, dealing with network problems will continue to be one of the biggest challenges when managing a network. But retailers are looking to take precautionary steps from the outset to minimize disruption.

Rather than calling out an expensive hourly engineer and losing out on potential profits in the meantime, the demands for a network than can better predict issues and remedy them before they become crippling problems is becoming a top demand when installing new networks. More intelligent networks can care for themselves better and reduce downtime.

6.

Wi-Fi Quality is Paramount

As the brick & mortar store experience evolves, more and more features are being integrated. A broad range of traffic such as biometrics, video, voice services, payment transactions and in-branch advertising are utilizing the network to 'talk' with each other and overall deliver a better experience.

Many stores are adapting a skeleton crew approach and relying heavily on automation. Devices and sensors are needed to check when a customer has picked a product off the shelf, another to know when they have added it to their basket, and further devices to bill the customer accordingly. However, they all rely on high quality Wi-Fi to fulfil their function and communicate with each other. Once one link in the chain breaks, it can cause a cascade of issues and overall degrading of the experience.

7.

Evolving Store Layouts

Offering in-store Wi-Fi is something that is not just nice to have. In fact, customers are basing their purchasing decisions on stores that offer high-speed Wi-Fi, free of charge. Every customer has their own buying habits. Maybe they want to browse the online catalogue while inside the store, or they want confirmation from their friend they should buy a particular piece of clothing by sharing it over video chat.

Complete store-wide coverage has become important, not just in places retails expect they will need it. And as retailers move from purpose-built premises to often repurposed ones, it lays out fresh challenges for providing total coverage.

8.

Understanding Your Customers

Long gone are the days of mass marketing to millions of people all at once. Retailers no longer want to take shots in the dark. Rather, forming deeper and stronger relationships with consumers has demonstrated itself to be more effective at identifying potential customers, driving sales and reducing marketing expenditure.

A network that itself contains features to help retailers better get to know customers, while also having the power to host powerful third-party applications has become an absolute necessity for retailers to deliver better focused advertising, in-store personalized promotions and the ability to stay competitive.

9.

Security Priority

Previously, companies did not want to address security until something went wrong, and by then it was already too late. But after seeing big names in the headlines for textbook failings and mass security breaches, businesses are changing their tune.
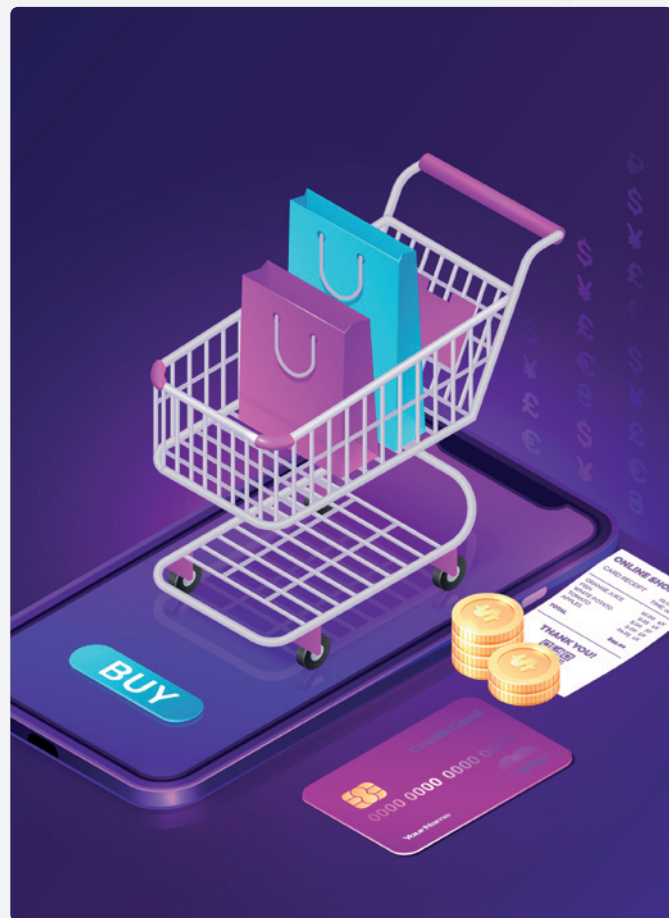
They are thinking ahead and want to lay out rigorous security measures before the worst happens. This shift is forcing retailers to think in-depth before committing themselves to a network, and what security features are available. Down the road, they want to avoiding facing situations such as expensive ransomware attacks. On the other hand, each region's ever-changing data and security legislation in itself is a challenge to navigate, let alone falling foul of them, and ending up having to pay up vast amounts in penalties and fines.

10.

Offline Complimenting the Online

Successful retailers are proving that the internet does not mean the death of the high street. Brick & mortar stores and those online are no longer being considered direct competitors, but rather two than can work harmoniously to create an all-encompassing brand message.

Concepts such as Omnichannel marketing champion the dissemination of a unified marketing across all platforms and channels, whether they be tangible or not. Traditional channels such as point of sale or in-store signage are being blended with digital channels and online experiences. The line between physical and digital is blurred to create one unified customer-centric experience

The answer?

Nuclias Managed Networking Solutions
by D-Link

Nuclias Managed Wireless Networking Solutions offer the capability, hosting flexibility, and value that Retailers need to upgrade and secure their network infrastructure, with minimal burden, inconvenience, distraction, or cost.

Both solutions offer centralized remote network management via an intuitive interface, and multitenant architecture that makes outsourcing a breeze.
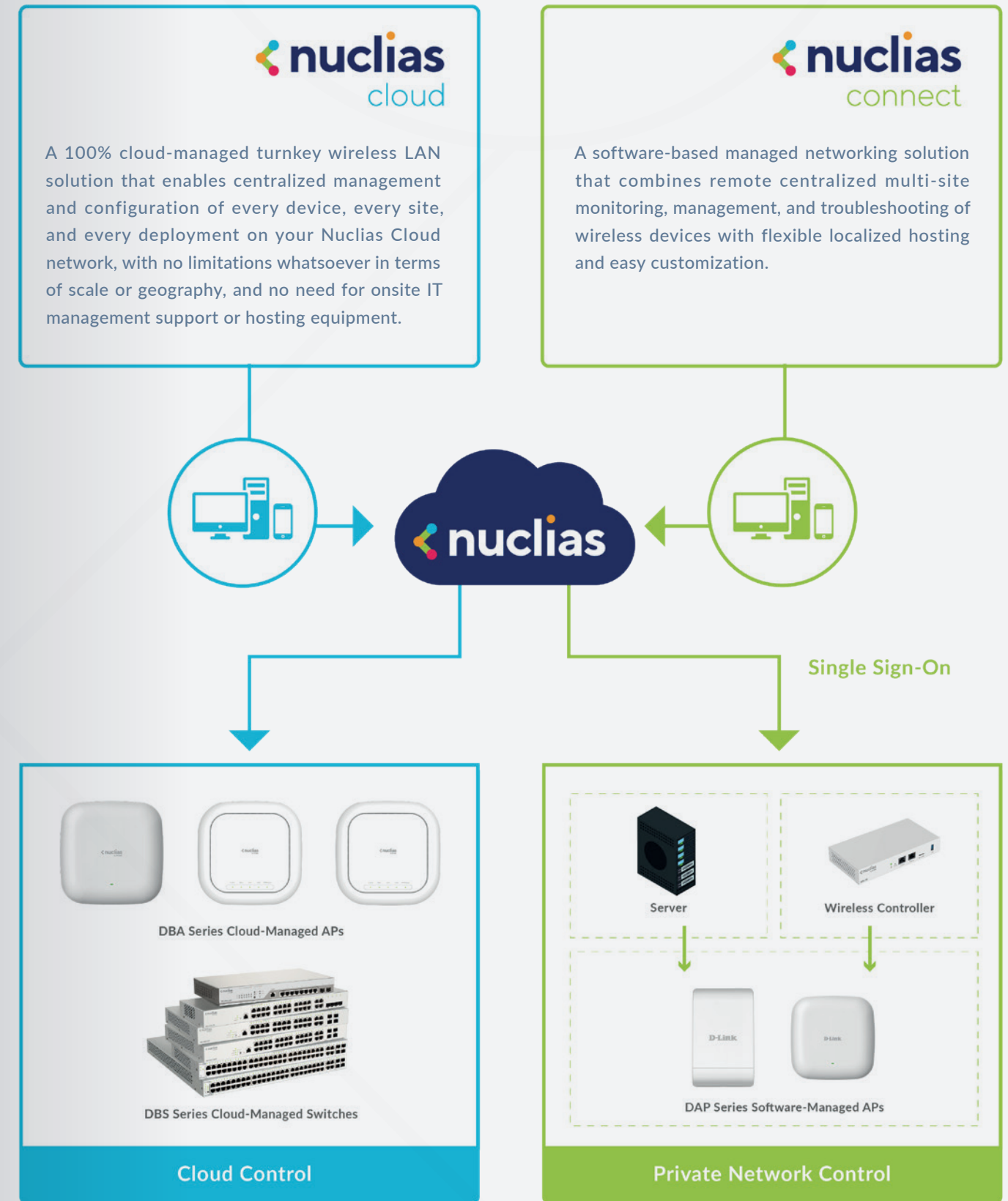
Your Network, Your Way

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Why Nuclias is Your Best Choice

Hosts of IoT devices are joining the network, bigger demands for insights into customer behaviors are being made and a myriad of security concerns are growing. Retailers need a professional-grade solution for their wireless network that can ease concerns, affordably.

Nuclias Solutions, by D-Link, deliver these capabilities for a wide variety of retail brands of diverse specialties, sizes and conditions on the ground.

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cloud

A 100% cloud-managed turnkey wireless LAN solution that enables centralized management and configuration of every device, every site, and every deployment on your Nuclias Cloud network, with no limitations whatsoever in terms of scale or geography, and no need for onsite IT management support or hosting equipment.

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connect

A software-based managed networking solution that combines remote centralized multi-site monitoring, management, and troubleshooting of wireless devices with flexible localized hosting and easy customization.

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Single Sign-On

DBA Series Cloud-Managed APs

DBS Series Cloud-Managed Switches

Cloud Control

Server

Wireless Controller

DAP Series Software-Managed APs

Private Network Control

Nuclias:
Solution Comparison

	nuclias cloud	**nuclias** connect
Management	Wired and Wireless	Wireless
Hosting	100% Pure Cloud	On-Premise, Cloud-Enabled
Components	Cloud Platform, APs, Switches, Gateway	Software Controller, APs, Control Hub (Optional)
Access	Web Browser, Tablet App	Software, Mobile App
Multi-Site Management	Yes (Integrated)	Yes (via Single Sign-On)
IT Expertise Required	Low	Moderate
Configuration	Zero Touch	Onsite
Scalability	Unlimited	Up to 1000 devices

How you face today's
challenges in **Retail** will
define your success over
the coming years

You Need Quality Wi-Fi

» **Connectivity Problems**

» **Management & IT Problems**

» **Cost Problems**

» **Value Creation**

» **Security Problems**

» **Coverage Problems**

Connectivity Problems

Staff, customers and the huge array over other devices in the retail landscape have become extremely dependent on a network that can guarantee high speeds, high bandwidth and low latency. However legacy unmanaged networks are just no longer up to the task.

A modern-day retail store cannot function without a solid network foundation that covers the store, wall to wall, corner to corner. Without it, the retail experience degrades, where even basic task such as taking payment becomes difficult and a cascade of problems start to arise.

Enter Nuclias

Your network is only as good as its performance during peak time. Nuclias is packed with features that make life better for all users. These intelligent features work strenuously to deal out connectivity better to all connected devices, thus ensuring peak connectivity, even at the busiest times of the day.
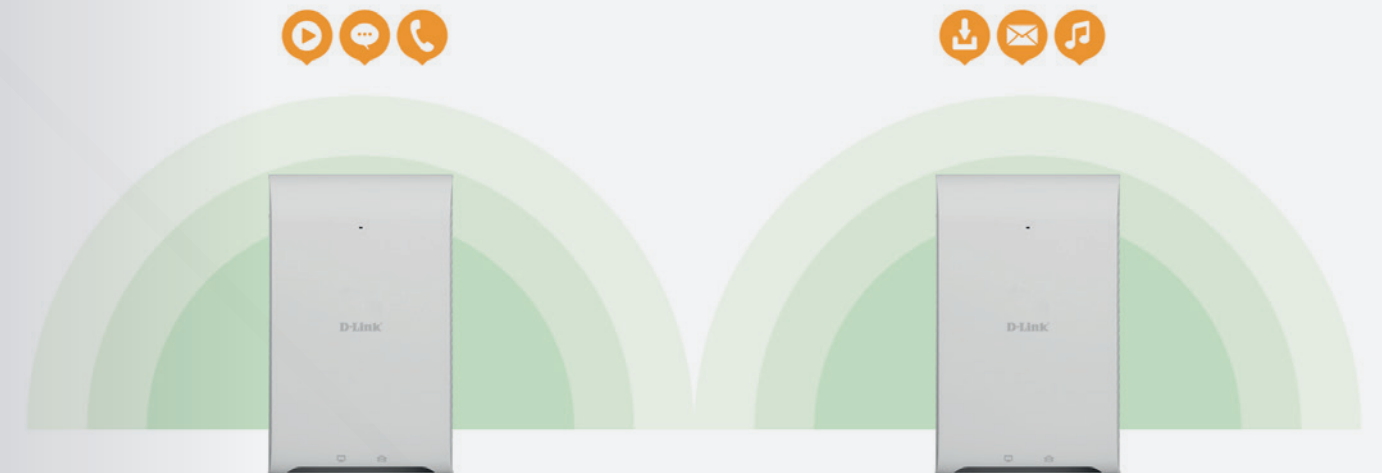
Key Solution Features
01. Band Steering
02. Airtime Fairness
03. Seamless Roaming
04. Bandwidth Priority and Quality of Service

5 GHz

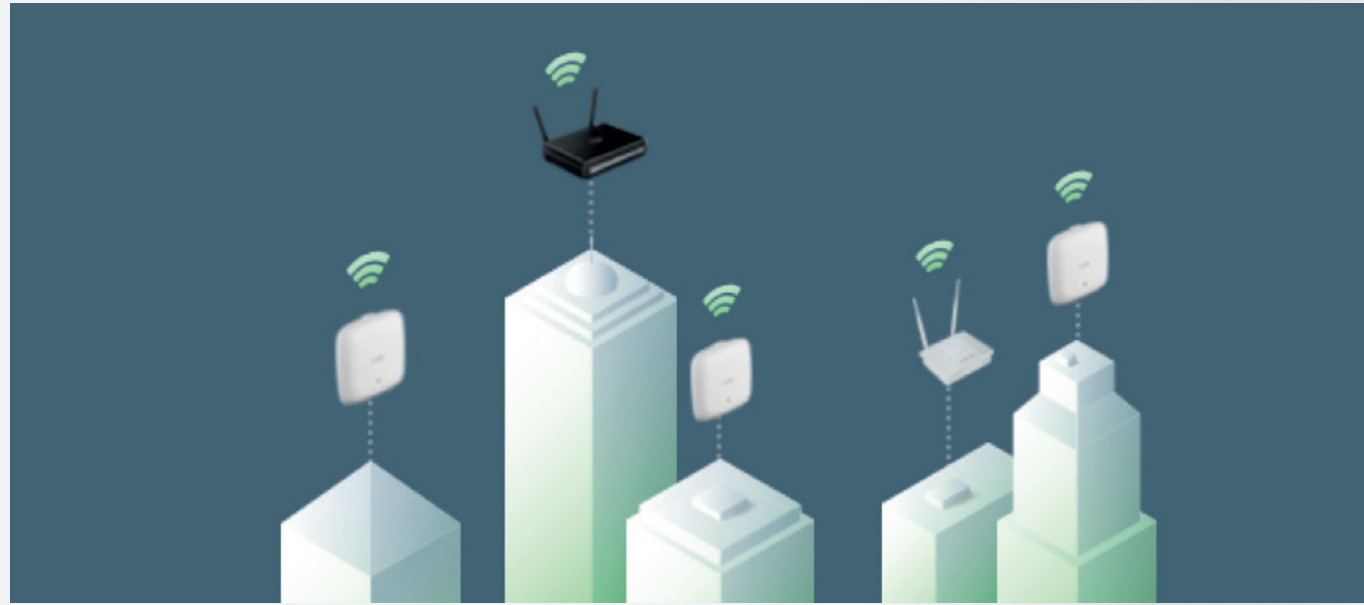**Band Steering**

2.4 GHz

01.   Band Steering

Almost all APs offer two wireless bands: 2.4 GHz and 5 GHz, with the latter being faster. Devices that can support a 5 GHz connection are automatically pushed on it, offering them faster connectivity. This also reduces congestion on the 2.4 GHz band, leaving more space for devices that are not yet compatible.
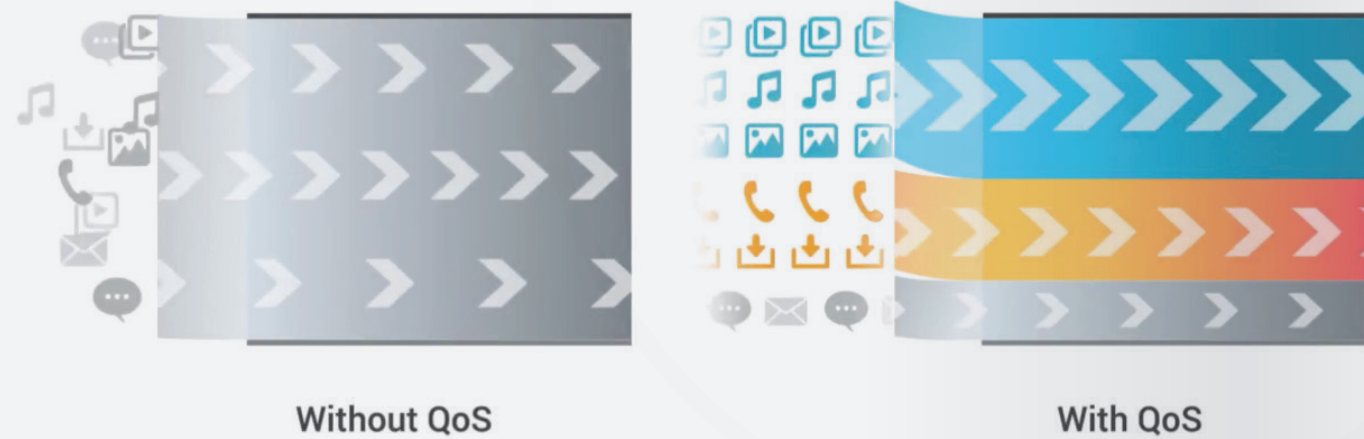
02.   Airtimes Fairness

If one network user consumes a large portion of the available wireless bandwidth in a given area, it can create a poor online experience and degrade performance for other mission critical functions such as POS. But Airtime Fairness eliminates this problem, by allocating an equal amount of bandwidth dynamically to everyone within a given coverage area, so no one's experience suffers to excess.

D-Link

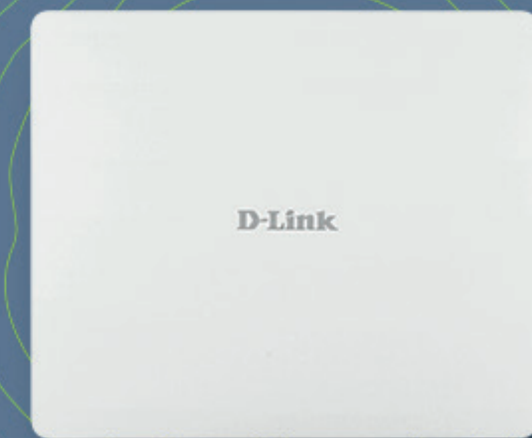# A Higher Power for a Greater Distance

03. **Seamless Roaming**

A wireless retail network is a complex system, and Nuclias intelligently coordinates the workload between APs, enabling better coverage and performance per AP than each could achieve on its own. This coordination also enables better client handover between APs, so that in situations such as mobile POS devices for example, network service interruptions are minimized as staff move around the coverage area.

Without QoS

With QoS

04. **Bandwidth Prioritization & Quality of Service (QoS)**

With Nuclias, bandwidth to a specific network — such a POS or in-store anti-theft systems — can be prioritized. Traffic can also be prioritized by category to favor certain resource intensive online activities (such as stock room video surveillance) common to retail networks.

D-Link

Management & IT Problems

Having the IT manpower can be a real challenge. If the size of your operation is relatively small, having a dedicated person for IT just does not make financial sense. For small business, wearing many hats has become the norm, and making head or tails of your network can be a real challenge for those with little in the way of an IT background.

Legacy networks also often lack essential features. Management is spread out, making even simple tasks such as rebooting a down Access Point an unnecessarily big hassle, and that is only after you find it out it is not functioning from complaints. That is also not to mention understanding your network and its users.
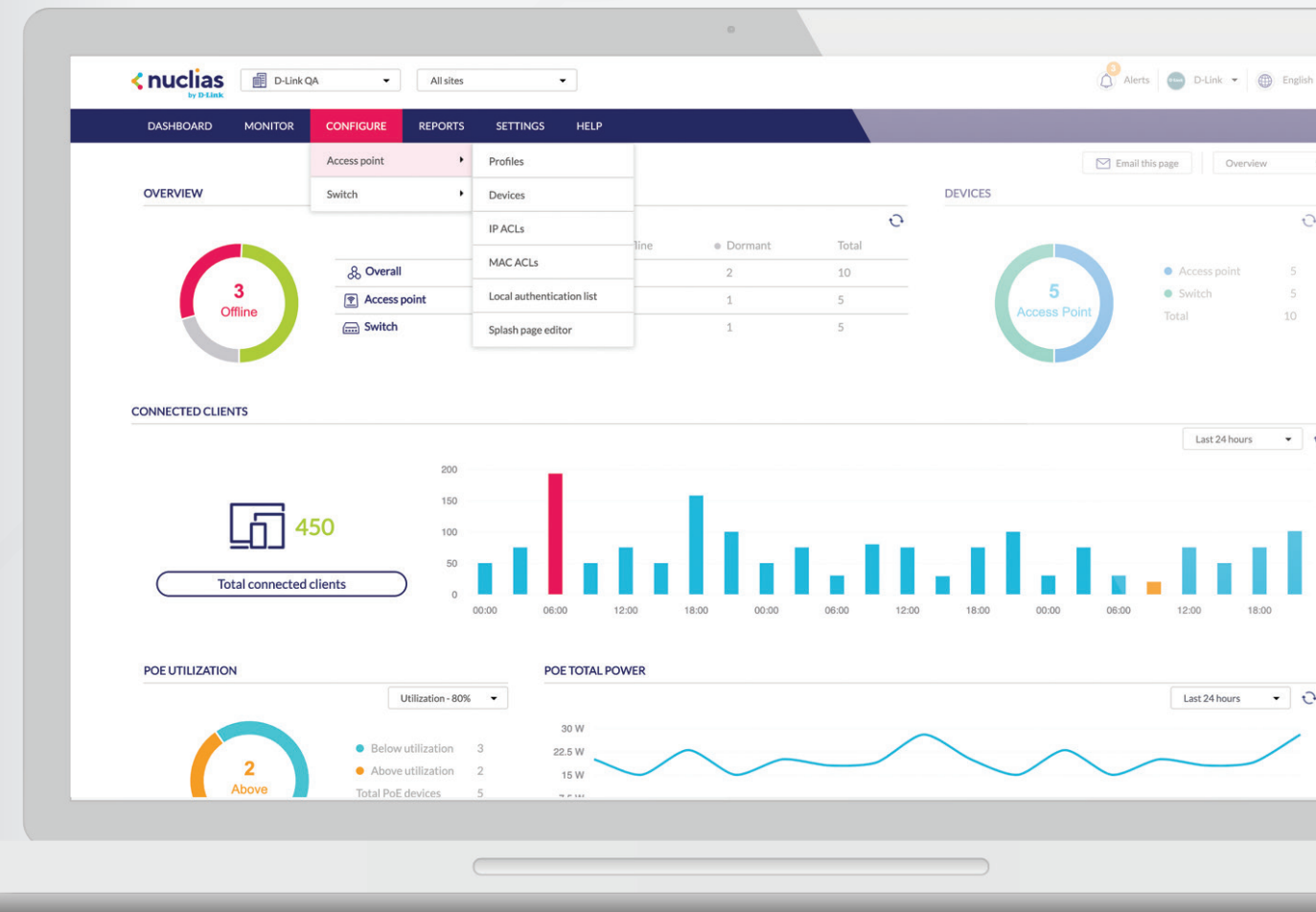
Enter Nuclias

Nuclias addresses IT challenges faced by retailers by enhancing what your IT people can do, expanding where they can do it, reducing the number of breakdowns they have to fix, reducing the amount of attention your network requires, and by making it easier to outsource your network management to a third party, such as a Managed Service Provider (MSP).

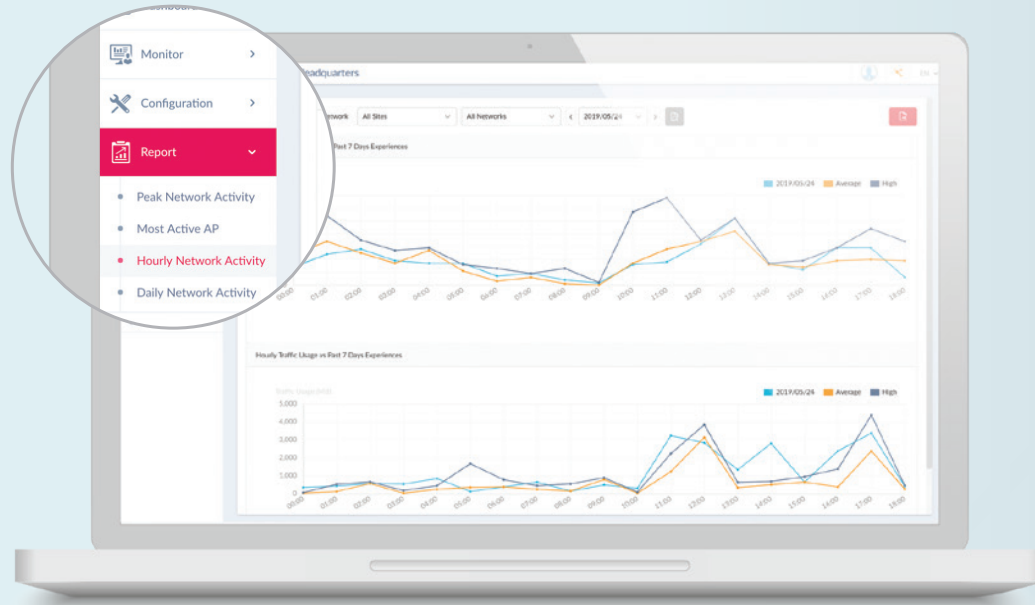**Key Solution Features**

01.   Intuitive Centralized Management
02.   Timely Analytics & Reporting
03.   Multi-Tenant Architecture with Easy Remote Management
04.   Automatic Firmware Updating
05.   Zero Touch Provisioning
06.   Mobile Access, Administration & Email Alerting
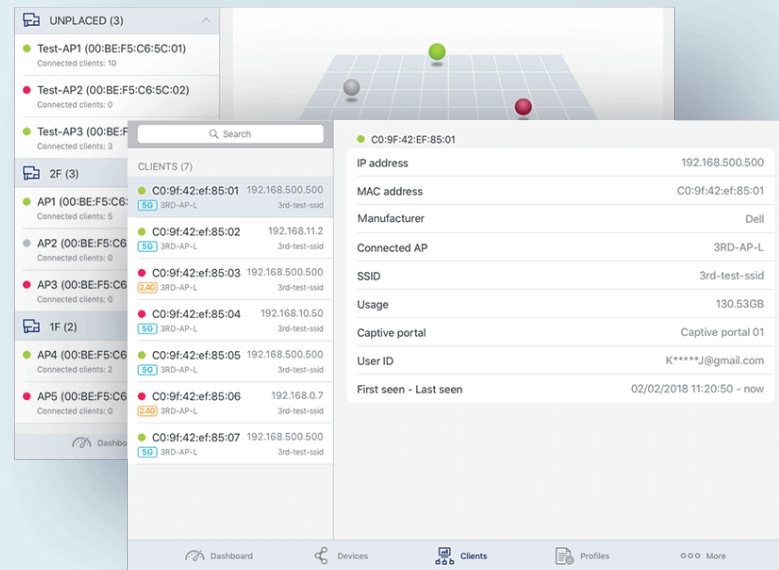
01.   Intuitive Centralized Management

Nuclias enables an at-a-glance understanding and comprehensive control and troubleshooting across your entire network. Not only does this reduce the time spent visiting various sites, it also reduces the number of network breakdowns that cause such visits in the first place (by alerting you to latent problems before they become disruptive).
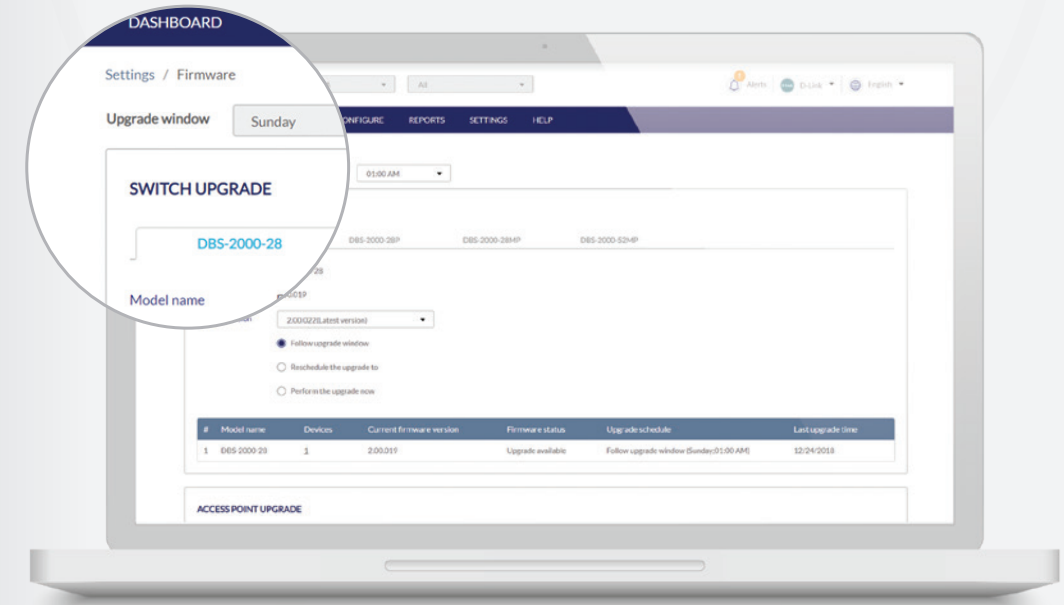
*Support: Nuclias Cloud and Connect

02. **Timely Analytics & Reporting**

Retailers often have a limited-to-non-existent understanding of what is happening on their networks. But with Nuclias, admins can enjoy an intuitive grasp of what is happening now, where it is happening, and how it is trending. By seeing where busy spots are, where underutilized spots are, what percentage of available resources are being used, and any alarms, admin efficiency is enhanced, both now through timelier maintenance, and in the future through better planning.

04. **Automatic Firmware Updating**

Systems updates are often neglected, or continuously put off to avoid service interruption. This can mean missing out on vital security or performance enhancement updates. However, with Nuclias, scanning for and applying of new updates can be set up to be done automatically. Schedule firmware upgrades for off-peak times, such as during time of closure to minimize downtime.

01 Device comes preconfigured and ready to go

02 The Access Point is delivered to the assigned location

03 Connect to power and internet, or PoE

03. **Multi-Tenant Architecture with Easy Remote Management**

Nuclias enables easy outsourcing of network management to an MSP by enabling multiple networks (i.e. multiple MSP customers) to be managed through a single interface, operable remotely, so that your in-house IT staff are freed up to focus on other things.
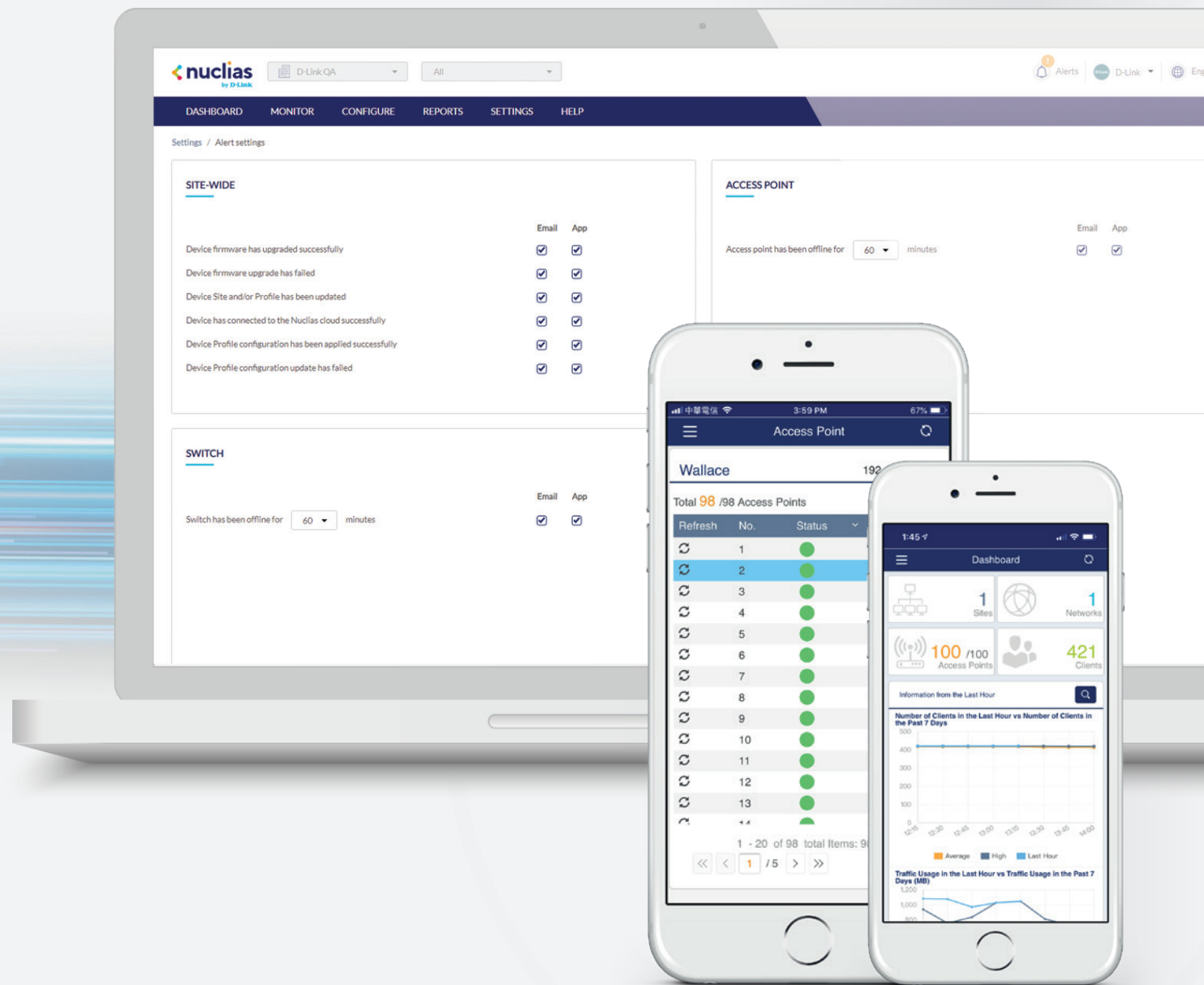
05. **Zero Touch Provisioning**

This feature allows Access Points to be deployed to remote locations without an on-site network administrator. If you need to expand your connectivity even further, an AP can be connected to via Ethernet cable to the network and then be configured, controlled, monitored and managed centrally. No need to deploy specialized IT staff to on-site locations, saving time and money,

06. Mobile Access, Administration & Email Alerting

Nuclias enables mobile access to its control, monitoring & management functions, enabling admins to carry out tasks from wherever they happen to be. And with Nuclias's Cloud-based account system (with Single Sign-On), geographic limitations to where management can be done are all but eliminated, even when localized hosting is used.

Cost Problems

The thought of overhauling your entire network can be daunting. It is not just the Access Points that need renewing, but everything else associated with it. Budget constraints are tight and often there just is not space to upgrade.

Whole Wi-Fi solutions often also come with a bloat of features, software and other equipment that you do not necessarily need and do not make much difference other than making an even bigger hole in your budget.

Enter Nuclias

Nuclias solutions address your concerns by minimizing the upfront costs, the software costs, and the burden on IT staff, and by creating value for your brand at the same time. It focuses on delivering the most bang for your buck, thanks to a robust foundation of technology, and a streamlined feature set focused on what really matters, with very easy management.

Key Solution Features

01. Upfront Costs
02. Software Costs

» Low Upfront Cost
» Pay as you Grow

01. Upfront Costs

For our Nuclias Cloud-Managed Solution, putting the management computing power in the Cloud enables us to sell highly capable technology at a lower cost than would be required if heavy-duty computing resources were required in each device. It also enables us to offer these management capabilities as a service, which is great if you need robust technical capability, but do not have a technology budget.

» No Licensing Fees
» Cost-Effective Scaling

02. Software Costs

For our Nuclias Connect Software-Managed Solution, there are absolutely no licensing fees involved of any kind at any point over its lifetime. Not for the APs, Management Appliances, Software Controller, security updates, or anything else. In other words, with Nuclias Connect, what you see is what you get.

Value Creation

Connectivity has gone beyond being just a simple utility like electricity or running water, it is now regarded as investment. Charging for Wi-Fi access is not viable, but using the network is an innovative and simple data gathering tool is being implemented by an increasing amount of companies.
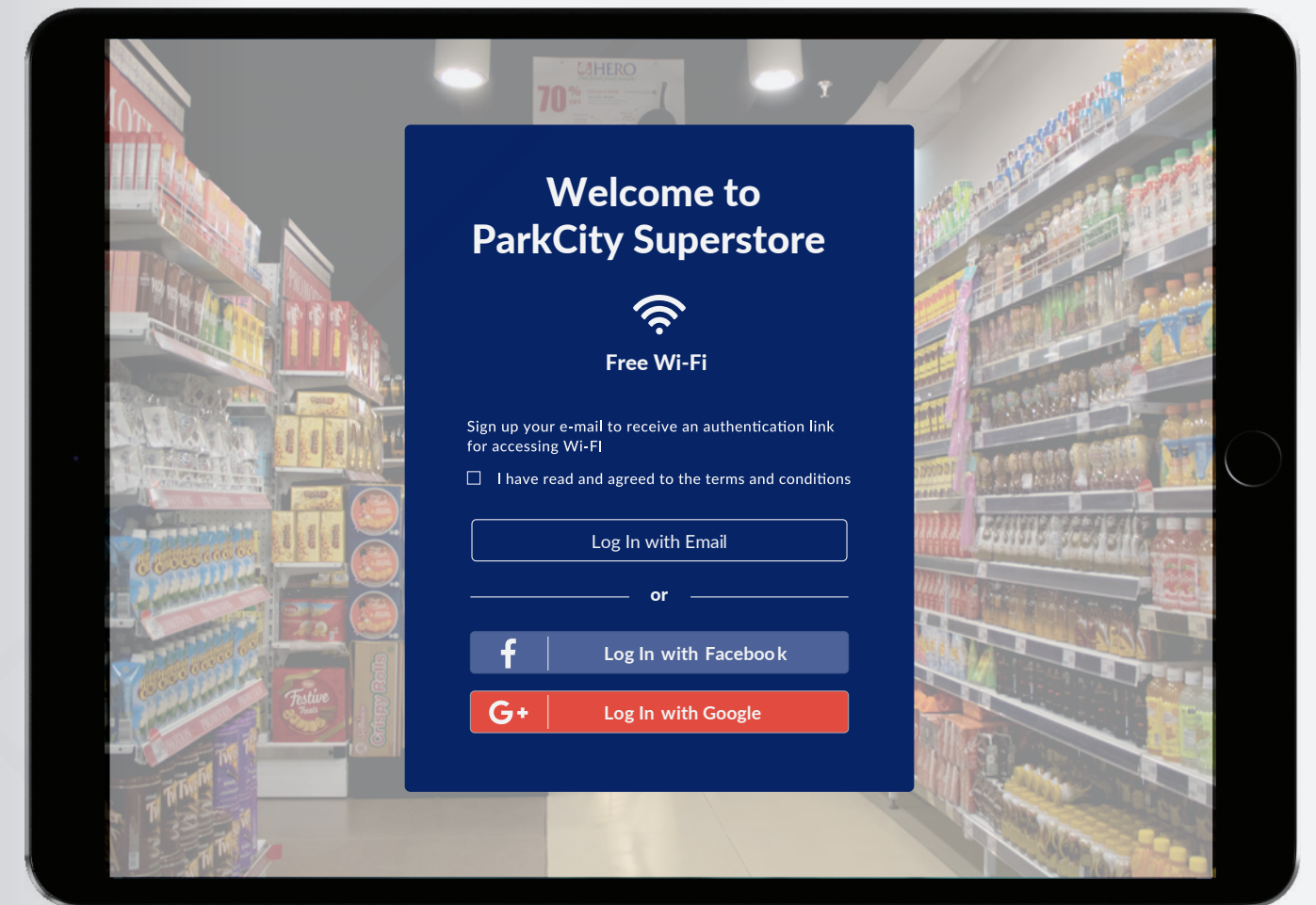
Enter Nuclias

Nuclias has the keys to help you unlock more business value from your customers. With the help of centralized managed Wi-Fi and advanced features, you can open up additional revenue streams, personalize the customer experience and be utilized to better targeting promotions and advertising. The result is advertising expenditure with a better ROI.
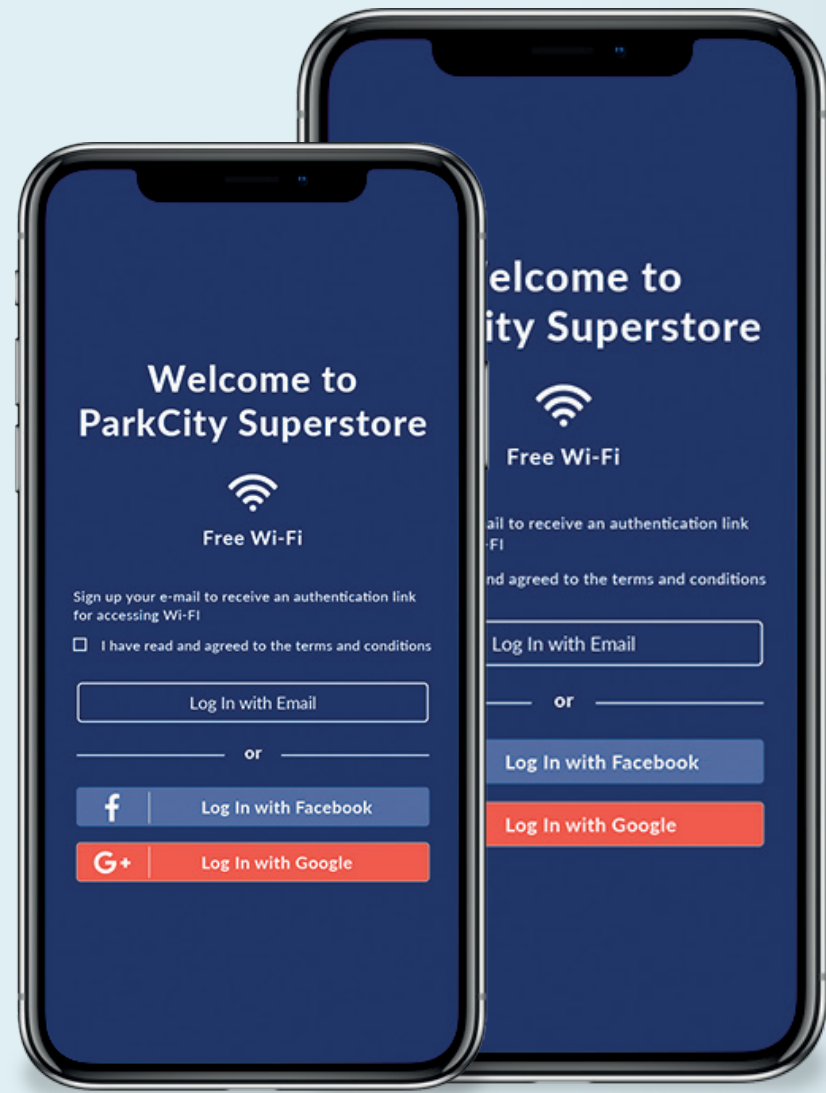
Key Solution Features

01.   Customizable Captive Portal
02.   Walled Garden
03.   Location-Based Analytics

**Welcome to
ParkCity Superstore**

Free Wi-Fi

Sign up your e-mail to receive an authentication link
for accessing Wi-FI

☐   I have read and agreed to the terms and conditions

Log In with Email

or

f   Log In with Facebook

G+   Log In with Google

01.   **Customizable Captive Portal (with Social Login)**

A login page will serve as a means of identifying your brand as well as a way to boost your marketing message. Portals can display your company's logo, exclusive deals, and requests to link to your company's social media accounts, overall elevating your brand and increasing awareness. They also are highly beneficial for better identifying who your customers are. Social Login can also be integrated, allowing easy access for customers via their familiar social log-in credentials, which can also allow access to even more insights about your customers.

Improved Guest Communications	Encourage Retention	Improve Reviews

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02. **Walled Garden***

This feature takes the value of the captive portal a step further by creating a dedicated screen for after you have logged in, enabling cross-promotions, upselling opportunities, membership opportunities, and a lot more.

* Requires supplemental IT

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03. **Location-Based Analytics**

Once users are online, a variety of location-based analytics and promotions can be integrated, giving you the foundations for the long-term sustainability of your brand today. *

* Requires supplemental IT

Security Problems

The retail industry is now a top target for data breaches and ransomware. Abundant on-hand financial data, poorly secured POS devices, poorly secured legacy Wi-Fi and its increasing dependency on IT to carry out mission-critical tasks allow many tangents for attack.

Consumers are becoming increasingly aware of their data and how it is being shared. 87% of consumers said they will take their business elsewhere if they do not trust a company to handle their data responsibly (source: PwC). They are more than willing to move their allegiance to brands that demonstrate commitment to protecting their information. Not only are finances immediately at stake, but those who fail to safeguard privacy risk long term or irreversible damage to their brand.
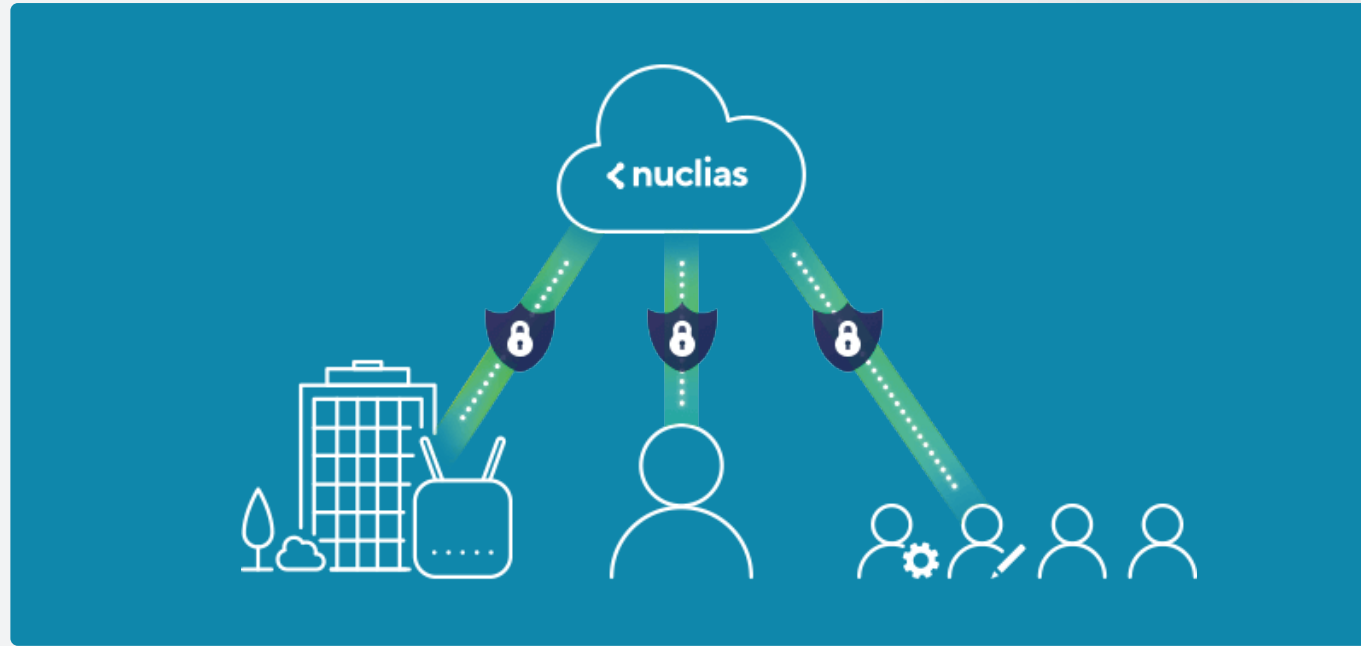
Enter Nuclias

There is no such thing as 100% security when it comes to IT, but Nuclias makes it harder for bad actors to get on your network, utilize your network, or derive any value from what they find there — eliminating what was once a massive weakness in your IT integrity.

Key Solution Features

01. Network Transparency
02. Robust Encryption
03. VLAN Segmentation
04. Access Control Lists
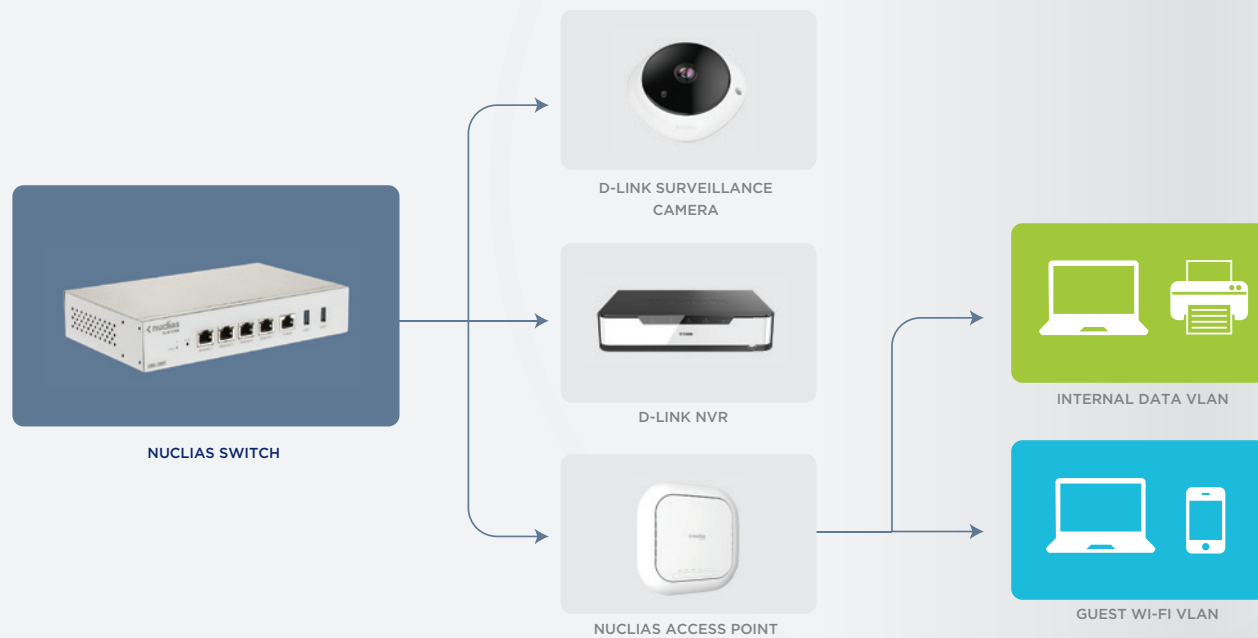05. Web Content Filtering
06. Application Control

‹nuclias

01. Network Transparency / The ability to see what is happening on your network is a major security advantage, as bad actors often create anomalous traffic patterns that are easy to spot, and can even add additional APs (Rogue APs) that can utilize your network without authorization. But Nuclias has functions that can spot Rogue APs, and illustrate your traffic intuitively, making it easy to identify what does not belong.
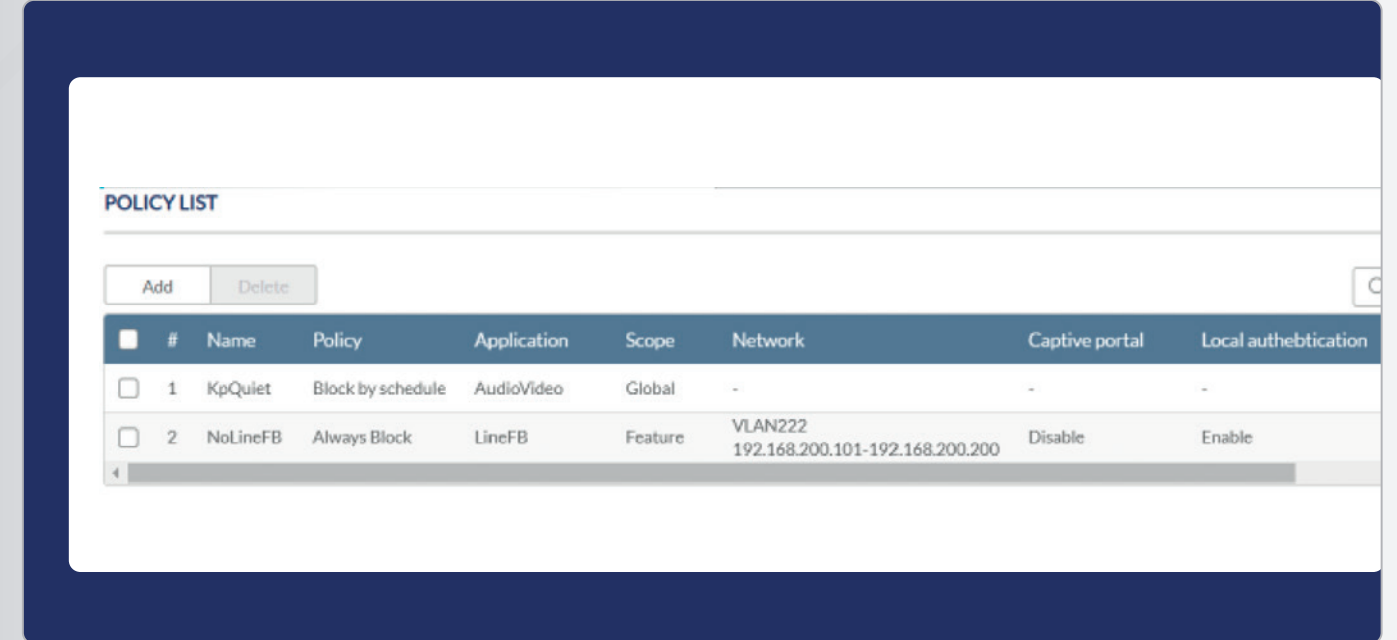
02. Robust Encryption

Nuclias's robust encryption capabilities (up to 192-bit) go above and beyond the aging WPA2 standard in use since 2004, while adding other measures to protect your network against intrusions and attacks on the insecure passwords often found in user-brought devices (BYOD) and the IoT devices that you may be using.

NUCLIAS SWITCH

D-LINK SURVEILLANCE CAMERA

D-LINK NVR

NUCLIAS ACCESS POINT

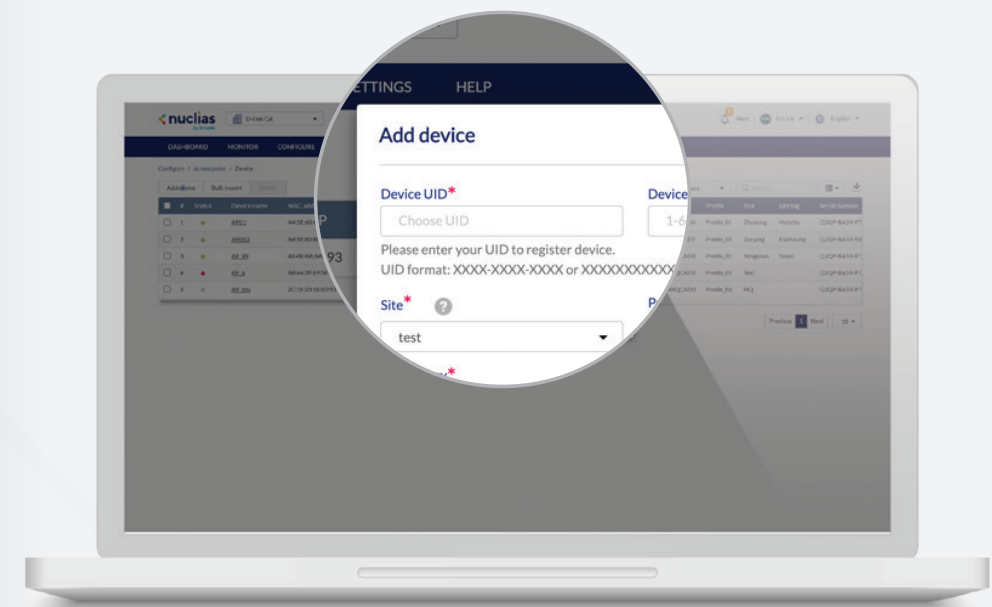INTERNAL DATA VLAN

GUEST WI-FI VLAN

03. VLAN Segmentation

VLAN Segmentation acts by isolating areas of the network so that they may not interact with other parts. This is excellent where you may have sensitive data on the network, but also want to offer free Wi-Fi for customers.

Isolate guest Wi-Fi from the rest of the network. This can prevent guest users being able to access the larger part of the network and help eliminate potential vectors of attack by nefarious actors, such as snooping on payment information and systems.

POLICY LIST

	#	Name	Policy	Application	Scope	Network	Captive portal	Local authebtication
	1	KpQuiet	Block by schedule	AudioVideo	Global	-	-	-
	2	NoLineFB	Always Block	LineFB	Feature	VLAN222 192.168.200.101-192.168.200.200	Disable	Enable

04. Application Control

This feature takes data protection a step further by preventing applications (typically third-party apps downloaded onto customer- or staff-owned BYOD) from sending out or receiving unauthorized files while on your network.

05 Access Control Lists

This function allows retailers to limit or block access to certain websites. Not only does this prevent users from watching anything objectionable in public, and keep your own staff on task while using work equipment, it is also good security practice, as such sites often harbor malware.

Coverage Problems

Poor coverage means gaps or weaknesses in Wi-Fi signal strength due to obstructions, radio interference, or the lack of a nearby AP.

As technology spreads throughout your retail floor, warehouse or office areas, you and your staff are going to discover areas that you previously did not consider wehn your legacy network was built. Furthermore, Access Point failures can go unnoticed on an unmanaged network, and you will only find out once complaints start rolling in and operations have come to a halt.
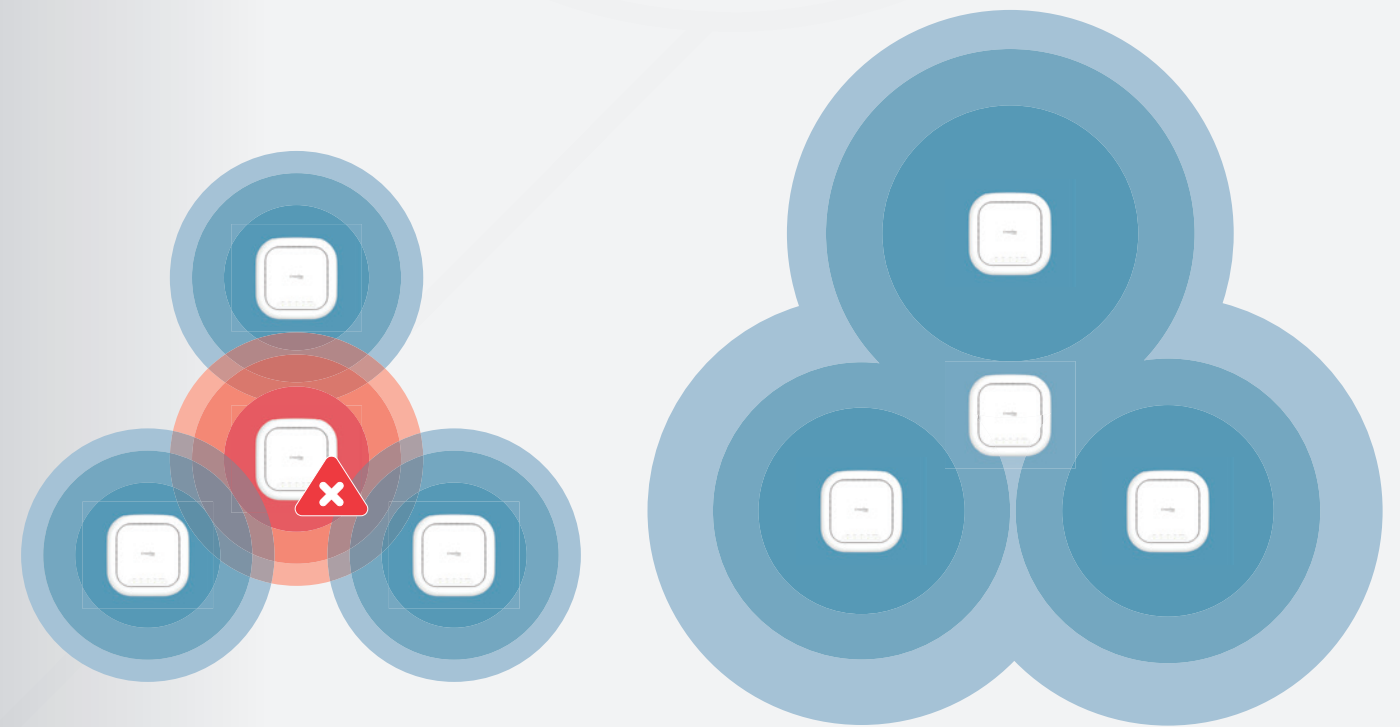
Enter Nuclias

Nuclias employs powerful APs that utilize the latest in connectivity technology to blanket your premises in highspeed Wi-Fi. You can expand your network as wide as necessary, including models specially designed for outdoor use.

Network expansion is rapid thanks to features that make deployment easier than expected, meanwhile redundancy features are built-in to provide a safety net. Should a link in the chain temporarily fail somewhere, the network can come together to provide cover and mitigate any lost coverage, and in turn ensure continuous service.

Key Solution Features
01. Network Self-Healing
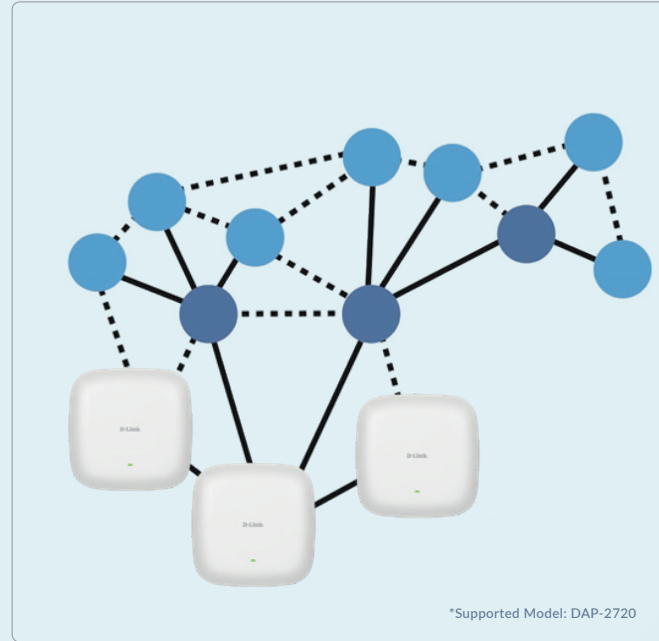02. Latest Technology
03. Indoor/Outdoor Availability

One of the APs temporarily fails

Nearby APs respond by increasing coverage area to compensate

01. **Network Self-Healing** / Because of the interference they generate, individual APs in a network deployment typically do not run at maximum coverage power. This, combined with Nuclias's intelligent device coordination, enables other APs to compensate automatically if one should malfunction or fail. This can be essential in stock rooms for example where up-to-the-minute data on stock levels is necessary.
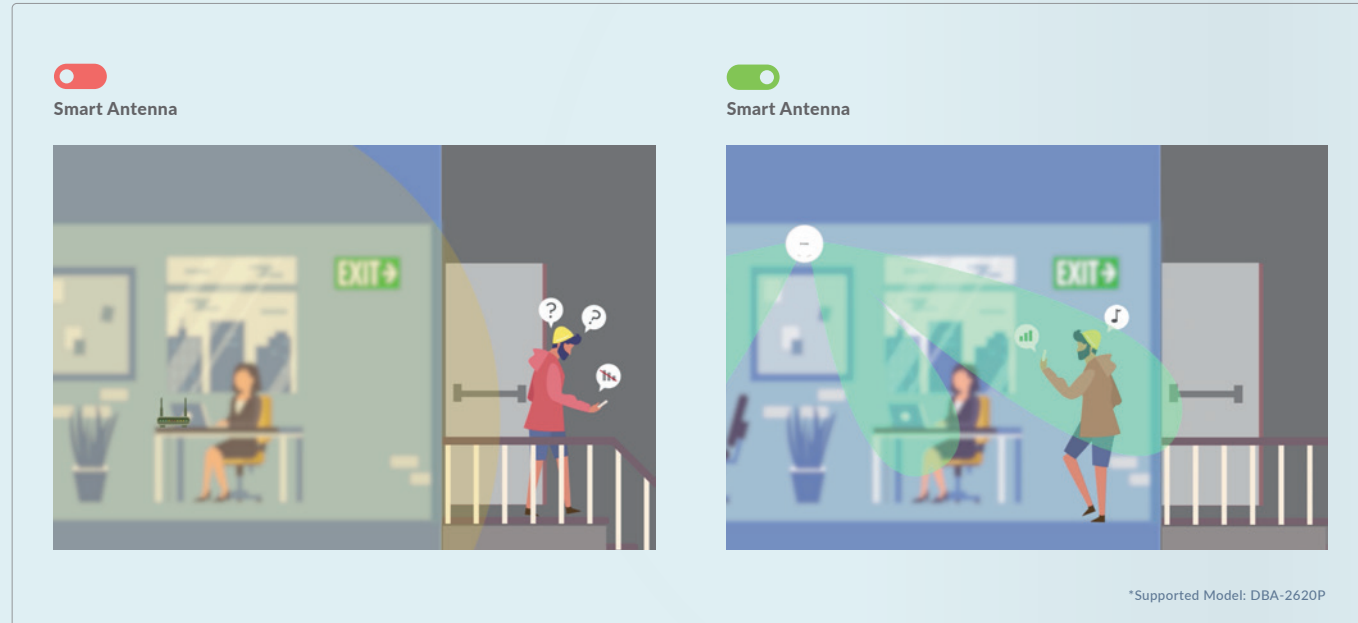
1. Mesh

*Supported Model: DAP-2720

2. Tri-Band Wi-Fi

2.4GHz

5GHz

5GHz

*Supported Model: DBA-2720P

3. Smart Antenna Technology

Smart Antenna

Smart Antenna

EXIT →

EXIT →

*Supported Model: DBA-2620P

02. **Latest Technology**

Nuclias offers a variety of device-level innovations and technologies that enhance the online experience compared to legacy networks. The latest generations of 802.11ac Wave 2 and Wi-Fi 6 are supported on select devices, as are Tri-Band and Smart Antenna technology, all of which enable a much greater number of connected devices, and greater bandwidth to each device, especially in dense deployments that are common to retail. Mesh networking is also available on selected devices which enables greater AP density and very easy management of small-area deployments such as the shop floor.

03. **Indoor & Outdoor Availability**

Nuclias Solutions include a diverse variety of APs, including select models with the moisture and temperature tolerances you need for outdoor use, and the Power over Ethernet (PoE) capabilities needed for remote installations where a standard power supply will not be available.

D-Link

Retail Needs Nuclias

With devices, demand and security concerns growing for your wireless network, retail brands need professional-grade solutions that can ease these concerns, affordably.

Nuclias Solutions by D-Link deliver these capabilities for a wide variety of retailers of diverse specialties, sizes, and conditions on the ground.

‹ nuclias cloud

Best Suited For Businesses That...

» Lack IT skills & equipment
» Have many locations dispersed across a large geography, or in multiple countries
» Have rapid expansion plans
» Prefer a subscription-based payment model
» Want a turnkey solution

‹ nuclias connect

Best Suited For Business That...

» Are small to medium-sized Businesses (SMBs)
» Require hands-on control and greater flexibility with their network, data and security
» Want a dedicated wireless control appliance
» May have legacy D-Link Software-Controlled APs & CWM software

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To Learn More About Nuclias Solutions
Visit our Nuclias website
www.nuclias.com or
Contact your local D-Link representative
www.dlink.com/en/contact-us

D-Link®