LANCOM Systems and ARP-Guard cooperate in the field of Network Access Control (NAC)

LANCOM Systems GmbH is a European provider of modern network infrastructure components (WAN, LAN, WLAN, firewalls), virtual network components, and a cloud-based system for the central administration of the entire network portfolio. The LANCOM product portfolio is suitable for addressing a wide variety of networking scenarios. Customers are mainly commercial enterprises of different sizes as well as public administrations, universities, and schools.

To round off its offering in the area of preventing unauthorized access to the network, LANCOM works together with the NAC provider ISL Internet Sicherheitslösungen GmbH and its product ARP-Guard, which has been offering manufacturer-independent solutions for protection against unauthorized access to heterogeneous networks since 1999.

A powerful duo

The advantage of this cooperation is the compatibility offered by the solutions from these two providers. The full range of ISL ARP-Guard NAC functions work seamlessly with LANCOM network components and their integrated security functions. This guarantees a high level of security for customers. The cooperation between the two German manufacturers means that Network Access Control (NAC) will become an integral part of LANCOM networking solutions.

How does ARP-Guard NAC work?

First of all ARP-Guard NAC scans all of the switches and connected end devices to provide a complete overview of the devices on the network and where they are located. This ensures that only authorized devices known to the network management are able to use the (W)LAN. If an unknown device logs in to the network, an alert is issued immediately and countermeasures can be initiated automatically. For control over access, ARP-Guard uses a reactive approach based on SNMP or a proactive approach that uses IEEE 802.1X, both of which can be used in mixed operation.

Please note that NAC-SNMP must not be operated together with the LANCOM Management Cloud. In this case, the two management systems would interfere with each other and the last configuration written in each case would be used. Therefore, only use this method together with standalone switches.

We recommend using NAC via RADIUS because it can be operated both with standalone switches and with the LANCOM Management Cloud. In addition, it uses much

higher-quality authentication methods in the process and offers some advantages over NAC-SNMP.

Differences between NAC-SNMP and NAC over RADIUS

With NAC-SNMP, the MAC addresses are learned at the switch port, whereby exactly one VLAN can be assigned to the respective switch port. If another unmanaged desktopswitch with several participants is connected to this port, fingerprinting takes place, which scans other parameters such as port shares and SSH keys and then sets the VLAN with authorizations. If the results of the fingerprinting are not clear, a good decision for the dedicated authorizations and thus the target VLAN cannot be reached in this case.

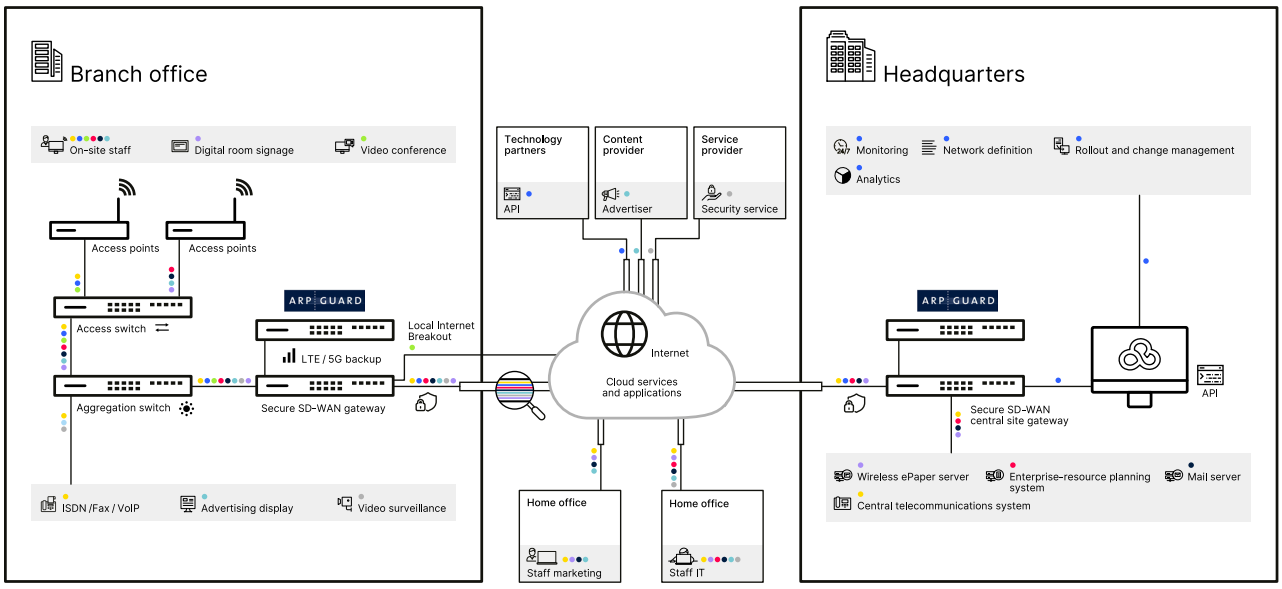
With NAC via RADIUS, in addition to authentication using the EAP method via the user name with password or a certificate, it is also possible to make the MAC address as such a criterion (MAC fallback / MAC authentication bypass). In addition, a VLAN assignment can be made not only at port level but also at session level, so that more than one end device can be connected with individual VLAN switching per port.

To ensure that the radius switching on the port is not disturbed by the configuration written by the LANCOM Management Cloud, you should generally allow all VLANs on the ports in the LANCOM Management Cloud. The radius then controls which VLAN is used in each case.

Furthermore, standardized and automatically applied security rules allow or prevent access to the corporate network infrastructure. This is vital in times of increasing numbers not only of user devices but in particular the fast proliferation of cyber-physical devices such as IoT (Internet of Things) and OT (operational technology) devices. All devices on the network are constantly checked for their compliance with policy. If a device deviates from a previously defined policy, e.g. the virus scanner is out of date or the firmware of a client is outdated, the client can be placed in quarantine. The client is only granted access again when the updates are installed and the device status complies with the defined policies.

This double protection mechanism ensures that only trusted end devices operate on the network and that they meet all the requirements of the security policy. This prevents unauthorized devices from entering the network via the WLAN gateway or an available network socket. It also closes the human security gap in the form of employees who,

Figure 1:
NAC with ARP-Guard



through carelessness or even on purpose, do not observe the security guidelines for devices on the network.

Modern client management and BYOD through NAC

The combination of the LANCOM infrastructure with the ARP-Guard NAC solution also offers outstanding applications wherever users are offered BYOD (bring your own device)—for example where students and teachers in schools have separate networks. Users can log in to the organization's (e.g. school) Wi-Fi with their smartphones or tablets, and ARP-Guard Network Access Control then creates an overview of the devices on the network. These third-party devices are given access to a network that is isolated from the organization's internal network segments, e.g. for the administration and authorized devices such as PCs, printers or laptops. Every unauthorized access attempt is immediately identified, efficiently monitored and, if necessary, blocked. Devices belonging to people from outside the organization can be given access to a separate guest area. Access to the mission-critical network segments is therefore reserved for employee devices. Private devices of employees or students (BYOD) can be granted access rights to certain internal areas if they comply with certain policies.

Network ports as gateways to networks

Freely accessible network ports in company or hospital buildings are also an Achilles' heel of a network. It is important that all network outlets are patched with LANCOM access switch ports. With the LANCOM Management Cloud (LMC) and SD-LAN, the desired networks and VLANs can be conveniently rolled out globally to defined ports on all switches at all managed locations. Local configuration on the respective switch is of course also possible. With NAC via SNMP, the cloud approach is only recommended for the initial configuration, as communication with the switches, just like ARP-Guard, takes place via SNMP queries, meaning that both systems get in each other's way. When using NAC via RADIUS, all VLANs should be allowed on the port in the LMC. After this basic configuration, individual adjustments can be made for individual users, devices or projects via the ARP-Guard NAC solution: If a foreign device is detected in the network, the NAC system issues a command to the respective switch to reconfigure the network port. If an unknown device is connected and detected, the network port is switched off and the device immediately loses the network connection.

Versatile design of workplaces and access authorizations

An option with NAC is not to block the network ports as described above, but to redirect them instead: An unknown client logging on to the network in this case is not completely separated from the network. Instead, it is redirected to the guest-area login page, where they can register to gain access to the Internet. Along with the security aspect, this function also offers a convenient way of controlling VLANs for employee devices. In this case, ARP-Guard knows the VLAN belonging to the end device (and the port) and automatically provides all of the resources that employees need, wherever the end

device is connected. This is outstanding added value, especially for companies that no longer have fixed arrangements in their offices and workplaces.

Feel free to contact us and take your network security to the next level! Please contact the LANCOM Inside Sales office in Germany.

Telephone: +49 (0)2405 49936 122

LANCOM Systems GmbH
A Rohde & Schwarz Company
Adenauerstr. 20/B2
52146 Wuerselen | Germany
info@lancom.de | lancom-systems.com