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a Hewlett Packard Enterprise company

DIGITAL TRANSFORMATION AT THE EDGE

The Prescription for a Superior Healthcare Network

A technology guide from Zebra Technologies
and Aruba, a Hewlett Packard Enterprise company

Technology is Shifting to the Edge

Technology is moving out of centralized data centers and closer to the point of care — commonly referred to as "the edge." Devices at the edge, connected to the cloud or data center, are generating more data than ever before. This data is vital in increasing efficiency, making better-informed decisions and ultimately improving patient care.

Technology Modernization Eases the Burden

Better patient outcomes. It's what every healthcare organization strives to achieve. But in today's world, healthcare faces an ever-increasing number of challenges. The COVID-19 pandemic has consumed precious staffing and financial resources. The aging U.S. population continues to put more strain on the healthcare system. Staffing shortages mean that clinicians are stretched thin.

Analysts forecast that by 2025, the U.S. will require 2.3 million more workers to meet aging Americans' growing healthcare needs.[1] Globally, we're already facing a nursing shortfall of 5.9 million.[2] At the same time, hospitals are constantly under fire for rising healthcare costs – even as the pressure to continuously improve patient outcomes intensifies.

That's why choosing the right wired/wireless network infrastructure and edge devices is so important in helping healthcare organizations enhance communications, gain efficiencies and deliver higher-quality patient care.

The Path to Exceptional Patient Care

Healthcare organizations of all sizes face the difficult challenge of doing more with less. Many are turning to technology to reduce the strain on an already overwhelmed system. Providers are using wireless technology to support better communications, improve patient care, boost operational efficiencies and reduce errors.

But the reality is that not all wireless technology solutions are the same. And technology that does not support the high quality of service and security required by healthcare organizations can frustrate users, lead to workarounds, create openings for cyberattacks, negatively impact patient care and quickly overwhelm the IT department.

That's why Zebra Technologies and Aruba are working together to build a better edge technology solution for healthcare organizations – one that delivers the outstanding experience that providers, patients and IT require. Together, the Zebra and Aruba solution helps clinicians provide superior patient care and makes it easy for IT departments to deploy and maintain robust communications networks.

[1] CNN Business, "The US can't keep up with demand for health aides, nurses and doctors," 4 May 2018.
[2] World Health Organization, "WHO and partners call for urgent investment in nurses," 7 April 2020.

Delivering Meaningful Improvements

The average U.S. hospital loses an estimated $1.7 million each year due to poor voice communications within facilities.[3] That's why many hospitals have already invested in new mobile technology solutions to improve communications and operations. And it's why IT executives expect 97% of bedside nurses and 98% of physicians to use this technology by 2022.[4]

Overcoming Obstacles

There's no question that technology plays a pivotal role in ensuring superior patient outcomes. And having a high-quality communications network is becoming even more critical as hospitals increasingly rely on technology such as wearables, artificial intelligence and predictive analytics. In fact, 96% of nurses plan to access predictive analytics on their mobile devices by 2022. And more than half are already accessing electronic health records (EHR), checking on lab results and monitoring other patient data using mobile devices.[5]

Unfortunately, the many benefits of better communications cannot be realized if healthcare IT networks and devices don't work well together, aren't secure or are too difficult to set up and manage. That's why it's so important to select the right network for your organization.

Improving Patient Care, Reducing Errors and Lowering Costs

According to Zebra's 2022 Hospital Vision Study, which surveyed more than 1,500 nurse managers, IT decision-makers and patients, respondents universally reported that technology has helped them improve outcomes in critical areas:

72%
Improved the quality of patient care

67%
Enhanced staff communication and collaboration

61%
Reduced medication errors

55%
Lowered patient care costs

52%
Decreased specimen collection labeling errors

[3] Health IT Analytics, "Inefficient communication costs a hospital $1.7 million a year," 15 July 2014.

[4, 5] Zebra Technologies, "The Future of Healthcare: 2022 Hospital Vision Study"

The Power of Collaboration

Zebra and Aruba have teamed together to create a better edge network — a network that leverages both Zebra's frontline devices and Aruba's Edge Services Platform, a combination of unified connectivity infrastructure, zero trust security, and AIOps. Both are specifically designed to meet the evolving needs of healthcare organizations.

Collectively, the companies have developed an integrated network that makes it easy for acute and ambulatory care, clinics, assisted living and long-term care facilities to cost-effectively deploy and manage a wide variety of applications that improve care and reduce costs.

Zebra and Aruba: Working Together to Deliver State-of-the-Art Healthcare Technology

One of the newest developments in the integrated Zebra and Aruba network is support for the new Wi-Fi location standard, 802.11mc. Zebra and Aruba have integrated the new standard into their respective products and worked together to validate interoperability. This new method of accurately locating Wi-Fi devices depends on participation and collaboration from both the infrastructure and mobile device providers.

802.11mc enabled Wi-Fi networks allow healthcare organizations to precisely pinpoint the location of a mobile device or wireless IoT sensor within one to two meters. Healthcare organizations can now rely on their Zebra devices and the Aruba network to identify the exact time and location of specimen scans, medication delivery, patient bedside visits, patient transportation and other mobile healthcare applications. This provides a new whole new layer of data that gives healthcare organizations greater insight into how mobile technology can be leveraged to drive better business and patient outcomes.

Unified Connectivity Infrastructure

Zero Trust Security

AIOps

ARUBA NETWORK

ZEBRA DEVICES
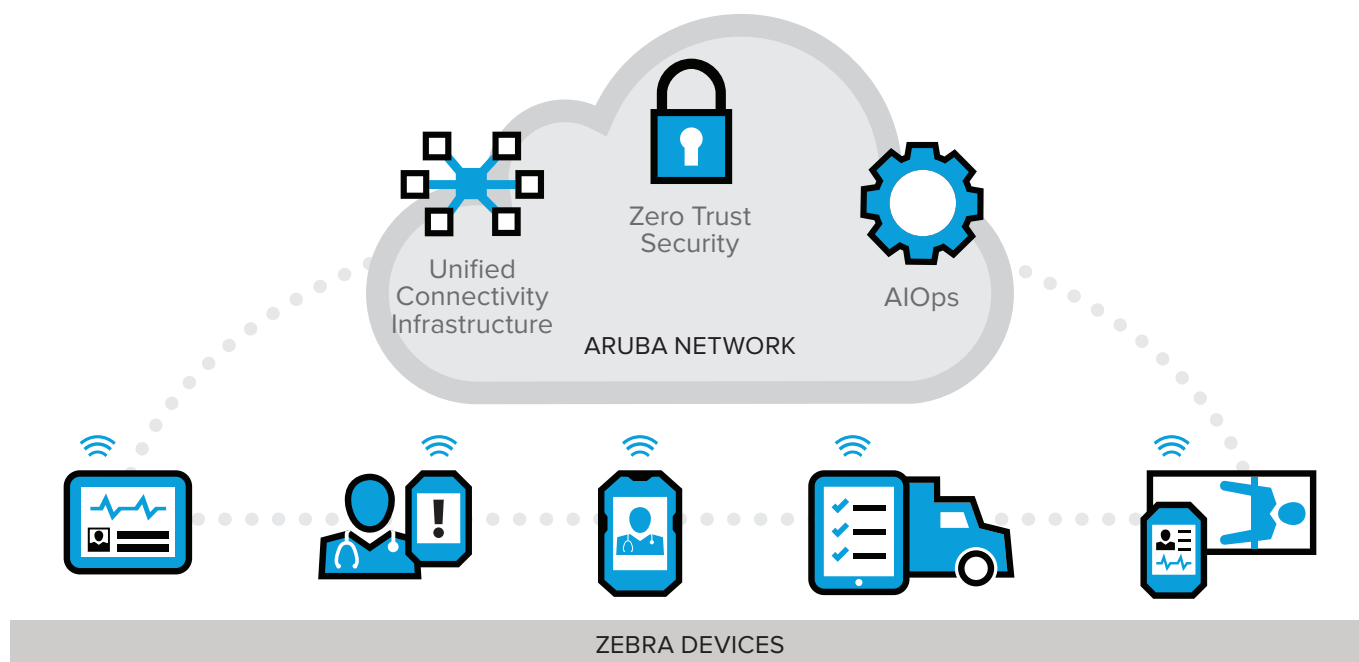
The Top Seven Capabilities
Every Healthcare Organization Needs

Supporting the latest Wi-Fi location standard is just one example of how Zebra and Aruba are working together to provide healthcare organizations with state-of-the-art communications technology that best meets their specific needs. The integrated Zebra devices and Aruba network offers healthcare organizations a secure, trusted IT edge solution with many benefits.

1   **Superior Network Performance Starting on Day One**

2   **Unbeatable Quality of Service — with Fewer Dropped Connections**

3   **More Efficient and Secure Data Transfer**

4   **Proactive Troubleshooting for Worry-Free Wi-Fi**

5   **Plug-and-Play Operations**

6   **Proven Interoperability**

7   **One-Stop Customer Support**

1

Superior Network Performance Starting on Day One

One of the biggest challenges when deploying a communications IT network is ensuring the network and the devices are configured to provide optimal performance. Zebra and Aruba have created and validated detailed reference designs that enable IT organizations to quickly and easily configure the Aruba network and the Zebra devices to support specific applications. This means that users experience the best possible performance right at the start.

2

Unbeatable Quality of Service – with Fewer Dropped Connections

Supporting secure, direct communications between a patient's physician, nurse and specialists is critical to delivering excellent patient care, and the quality of those communications is a top priority. Zebra mobile devices and the Aruba network work together to provide high-quality voice service at all times.

The Aruba network uses deep packet inspection to ensure that voice communications are flagged and given priority over other traffic, such as large file downloads, allowing the network to easily support hundreds of healthcare devices at the same time without impacting quality. In addition to voice, the Aruba network can be configured to prioritize other critical applications to ensure essential communications always get through without compromising performance.

Zebra devices and the Aruba network also support seamless roaming to minimize dropped connections. Aruba's ClientMatch technology ensures a Zebra device always connects to the closest or optimal Aruba access point. This is especially important in healthcare environments, where dropped connections result in wasted time requiring clinicians to reenter their EHR log-in credentials every time a connection is lost.

Zebra and Aruba have also worked closely together to ensure the interoperability of Aruba's wireless network infrastructure and Zebra's WorkForce Connect (WFC) application. WFC is a push-to-talk, messaging and voice client solution that allows mobile computers to support secure voice and text communications for both private and group interactions as well as image transfer. The Aruba network prioritizes WFC traffic to ensure the user experience is optimized.

3

More Efficient and Secure Data Transfer

Security is also critical in healthcare because sensitive patient data is accessed and transferred daily. According to the Ponemon Institute, at $429 per record, the cost of a healthcare data breach is 65% higher than other market sectors.[6]

When it comes to wireless IT communications networks, security must encompass three key areas: data on the device, data on the network and data that travels between the device and the network.

- On the device side, Zebra's Mobility Extensions allow healthcare organizations to customize a device's security features to provide more robust data protection than standard Android devices.

- As data travels between the device and the network, Zebra and Aruba work together to protect data using the latest 802.11 security standard, WPA3.

- Once the data reaches the network, Aruba provides an additional level of security with its unique feature called Aruba Dynamic Segmentation.

Dynamic Segmentation isolates traffic received from both wired and wireless devices and sends it via specific "tunnels" to eliminate crosstalk and ensure traffic is secure. For instance, traffic containing sensitive patient data can easily be separated from more general traffic, such as communications about housekeeping tasks. This approach keeps data more secure and enables easier traffic prioritization.

In addition to supporting the latest 802.11 security standard, WPA3, the combined Zebra and Aruba network also employs a Zero Trust approach to security. This Zero Trust approach offers a more robust way to authorize and monitor devices both inside and outside the network perimeter. Using Zero Trust security, a device must always obtain authorization before accessing the network. After authentication, that device is continually monitored to ensure it is "behaving" appropriately and only accessing authorized data. This feature is especially critical in the post-COVID world, where devices located outside the network perimeter support telehealth services and off-site workers.

[6] Aruba, "Healthcare at the Edge. The Network You Need When Care Matters," 2020.

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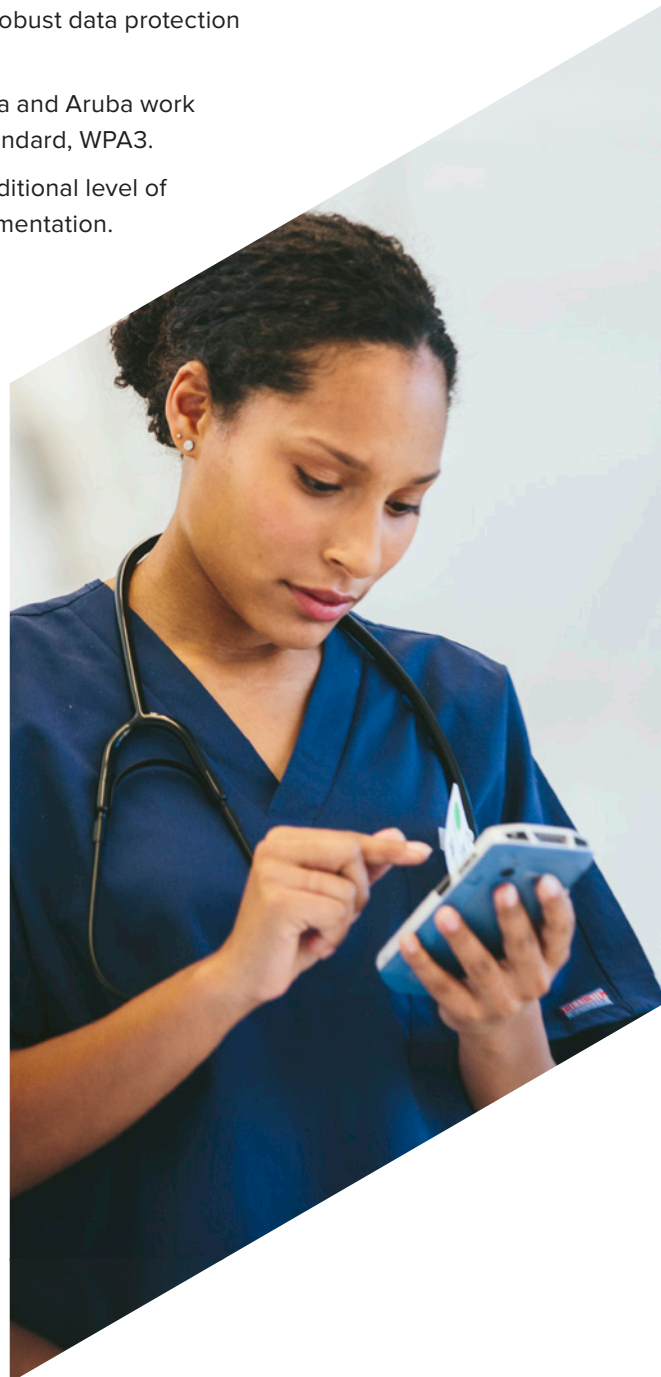
Proactive Troubleshooting for Worry-Free Wi-Fi

The combined Zebra and Aruba network offers something that no other communications IT solution delivers: unparalleled insight into how the device, applications, and network are performing. For instance, say a nurse is having trouble accessing patient records. With most vendors, IT managers would have no way to tell if the issue was caused by the application, the network or the device.

With Aruba's cloud-based User Experience Insight (UXI), IT managers can quickly diagnose the problem by remotely viewing data captured by the network. The UXI solution also allows IT managers to proactively identify trends that may indicate a performance problem. For example, the software might show that accessing patient data is now taking 20% longer than yesterday.

Using the software, the IT manager can quickly see that a problem exists and work to resolve the issue before a service ticket is opened, thereby ensuring end users have more uptime.

In addition, the latest Zebra mobile devices come preloaded with the Worry Free Wi-Fi application that ensures every worker has the best possible Wi-Fi connection, every minute of every shift. This application enables IT staff to monitor how data and voice packets roam and transmit across the wireless network. Most optimal response times, unmatched roaming performance, plus exceptional voice quality and diagnostics are the key ingredients for increased workforce productivity.

5 Plug-and-Play Operations

The combined Zebra and Aruba communications infrastructure is also designed to allow healthcare organizations to move wired devices such as scanners and printers from one location to another without any rewiring. Users can easily relocate a lab, for example, from room 101 to 102 without any manual modifications to the network. The concept of "colorless ports" – where it doesn't matter which physical network port the device is connected – dramatically reduces the cost and complexity of network adds, moves and changes.

6 Proven Interoperability

Of course, Zebra and Aruba do much more than provide reference designs to ensure the combined network delivers superior performance. Before introducing any new healthcare solution, Zebra and Aruba test and validate the interoperability of each new product in the lab before it is released. This knowledge sharing also allows the partners to quickly replicate a customer issue in the lab for faster troubleshooting.

7 One-Stop Customer Support

The relationship between Zebra and Aruba extends into customer service as well. Many times, when a customer reports a service issue, the network provider will blame it on the devices and the device manufacturer will blame it on the network infrastructure. But Zebra and Aruba give a whole new meaning to the phrase "one throat to choke." When an unexpected network issue occurs, IT managers can contact either company and rest assured that Zebra and Aruba will work together to resolve the problem. The insights and lessons learned gained from these experiences are integrated into best-practice guides and reference architectures.

Solving an Age-Old Problem

All too often, infrastructure and device manufacturer roadmaps conflict, causing delays in end-user availability. Features are sometimes available on the device or infrastructure, but not on both, eliminating the possibility of implementing new features quickly. That simply isn't the case with Zebra and Aruba, where product roadmaps are carefully aligned to create a superior return on investment.

BETTER TOGETHER

Building Next-Generation Healthcare Technology Solutions

Projections suggest that national spending on healthcare will reach $6.2 trillion by 2028,[7] and savvy healthcare organizations are arming themselves with the right tools to meet this rising demand. A high-quality communications IT network — one that is reliable, intuitive, easy-to-manage and secure — can help healthcare providers cost-effectively deliver superior patient care.

The Zebra and Aruba alliance eases the burden on both hospital executives and IT managers. Collectively, the alliance gives healthcare IT organizations the ability to deploy best-in-class devices and network equipment while still gaining all the benefits of a single-vendor solution, including high-quality service, superior roaming, better security, easier setup and troubleshooting, guaranteed equipment compatibility and better customer care.

[7] Centers for Medicare & Medicaid Services, "NHS Fact Sheet," 24 March 2020

ABOUT ZEBRA

Zebra builds enterprise-level data capture and automatic identification solutions that provide organizations with enhanced operational visibility, empowering frontline workers to achieve a performance edge.

ABOUT ARUBA

Aruba delivers innovative solutions that harness data at the Edge to drive powerful business outcomes. In healthcare, this means providing the network that is needed when care matters.

For more information on how Zebra and Aruba can help your healthcare organization digitally transform and leverage the edge to improve efficiency and patient outcomes, visit **www.zebra.com** or **www.arubanetworks.com**.

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