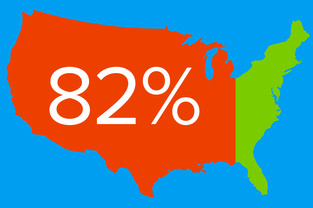
Analyzing Risk
in Connected Medical Devices

BY FORESCOUT RESEARCH LABS

Healthcare delivery organizations (HDOs) are dealing with increased risk due to skyrocketing numbers and types of interconnected devices, lack of network segmentation, unsupported OSes and insecure protocols. In addition, cybercriminals are discovering new ways to compromise devices and networks, as well as monetize patient data. It's no wonder cyberattacks are on the rise.



Percentage of U.S. hospitals reporting a significant security incident in 2018 or 2019.

Architecture of a Typical Healthcare Network

HDOs contain an average of 20,000 devices, including IT, IoMT, IoT and OT devices.

EXTERNAL THREATS

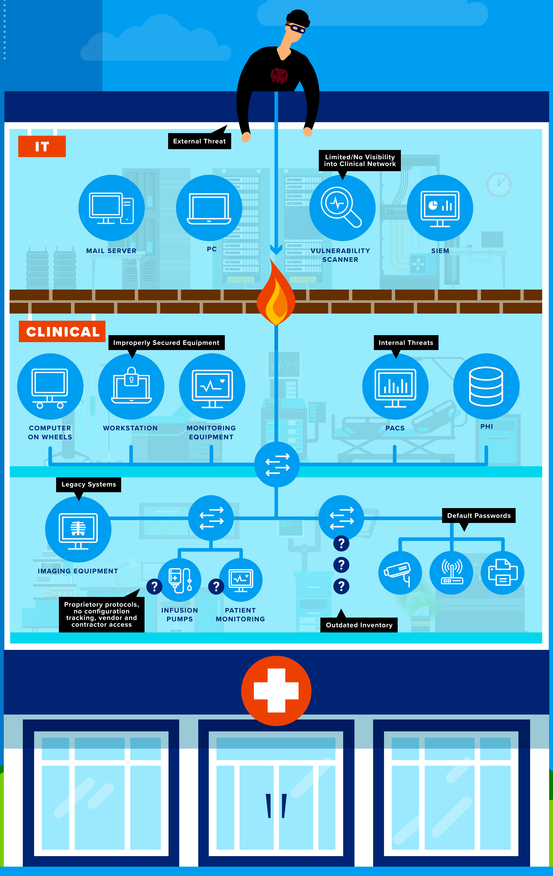
Cybercriminals or criminal organizations usually try to reap money from cyberattacks, either directly via ransomware and cryptomining or indirectly by selling stolen information or access to infected computers with botnets.

INTERNAL THREATS, VENDOR & CONTRACTOR ACCESS

HDOs aren't just running emergency rooms and surgical clinics – they're running remote access VPNs for vendor support and back offices that require common (yet privileged) workstations. These open the network to the possibility of internal attacks, which may have a financial motivation or other goals such as sabotage.

LEGACY SYSTEMS, IMPROPERLY SECURED EQUIPMENT & DEFAULT PASSWORDS

Many medical devices are legacy systems that cannot be patched due to availability or certification requirements.



Potential Threats

LACK OF PROPER SEGMENTATION

- A broad range of IT, IoMT, IoT and OT devices are increasingly communicating on interconnected networks with minimal oversight
- A mix of personal and medical devices are often located on the same network segments
- Many medical devices use default credentials, making them the weak links in the network

UNSUPPORTED OSes

- Devices running vulnerable, unsupported OSes remain constant at .4%, yet these devices are often life-saving systems
- Of VLANs with at least one healthcare device, 60% also have non-healthcare IoT devices, and 90% have IT devices with potentially vulnerable software or targeted malware

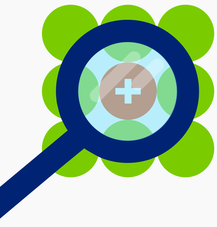
USE OF INSECURE PROTOCOLS

- Insecure protocols and communications between public and private IP addresses exchange medical information in clear text

60%

Percentage of VLANs with at least one healthcare device also have non-healthcare IoT devices.

Reducing Risk: Key Takeaways



THE IMPORTANCE OF VISIBILITY

Cybersecurity for medical devices will be problematic for the next 20 years, and visibility is the key to improvement.

NETWORK SEGMENTATION: A FUNDAMENTAL CONTROL

Gartner analysts suggest enterprises that isolate/segment their campus network devices will experience 25% fewer successful cyberattacks.[1]

37% RISK EXPOSURE ↓

ZERO TRUST

31% COST REDUCED ↓

BEYOND VISIBILITY AND CONTROL: SECURITY AUTOMATION & ORCHESTRATION

Forrester defines visibility and analytics as the foundational prerequisites for Zero Trust and suggests that Zero Trust architecture can reduce an organization's risk exposure by 37% while reducing security costs by 31%.[2]

[1] Gartner, Segmentation or Isolation: Implementing Best Practices for Connecting 'All' Devices, 26 September 2019
[2] Forrester, Adopt Next-Gen Access To Power Your Zero Trust Strategy, July 2018

Get the full report at forescout.com/connected-medical-device-security-report

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