NOZOMI NETWORKS

EXECUTIVE BRIEF

Integrating OT into IT/OT SOCs

In the new world of increased cyber risk, approaches that bridge the IT/OT divide are no longer optional – they're mission critical. Executive leadership expects CIOs and CISOs to anticipate and stay ahead of the enterprise-wide threat landscape, including oversight of cyber risks related to industrial operations.

Integrating operational technology (OT) threat monitoring into security operations centers (SOCs) contributes greatly to achieving fast, comprehensive threat detection and response. This Executive Brief looks at the trends behind combined IT/OT SOCs and outlines a straightforward way to include industrial threat monitoring that meets the needs of both IT and OT.

Cyber Incidents Threaten Results and Reputation

Business executives and Boards of Directors are increasingly aware of the potential impact of cybersecurity incidents on results and reputation. High-profile attacks, such as the Equifax data breach and the NotPetya global attack, have demonstrated just how costly they can be, with worldwide NotPetya damage estimated at $10 billion.[1]

In the OT arena, cyberattacks on critical infrastructure and strategic industrial assets have dramatically increased. This includes attempts to disrupt operations and steal intellectual property. Governments are also intensifying regulatory oversight and breach reporting requirements.

As a result, OT cybersecurity is receiving unprecedented attention and transitioning away from siloed engineering supervision to management by collaborative IT/OT teams.

Enel, the #1 Global Electric Utility, Chooses Nozomi Networks

> With Nozomi Networks Guardian we can now detect and collect operational and cybersecurity issues in real-time, and take corrective actions before the threat can strike.
>
> **Gian Luigi Pugni, Head of Cybersecurity Design, Enel**

> Nozomi Networks Guardian is now a fundamental element of our network infrastructure and an essential tool for our daily activities.
>
> **Federico Bello, Head of Power Generation Remote Control System, Enel**

Why IT/OT Integration is Key

Industrial Cyberattacks - A Top Global Risk

Cyberattacks on critical infrastructure – rated the fifth top risk in 2020 by our expert network – have become the new normal across sectors such as energy, healthcare, and transportation.

World Economic Forum, Global Risk Report, 2020

Attackers Exploit IT/OT Defense Gaps

Many industrial companies still view IT and OT cybersecurity as separate challenges. Different concerns and practices seem to justify siloed efforts and separation of responsibilities. However, attackers are already exploiting gaps between IT and OT defenses.

For example, spam phishing is commonly used to gain privileges and entry into OT systems. And hackers are using HVAC and other poorly defended OT systems as entry points into data centers and corporate IT networks.

ARC Advisory Group, IT-OT Cybersecurity Convergence, 2018

CIO/CISOs Need to Make Informed Choices

Attacks and compromise are inevitable, and, by 2020, 60 percent of security budgets will be in support of detection and response capabilities.

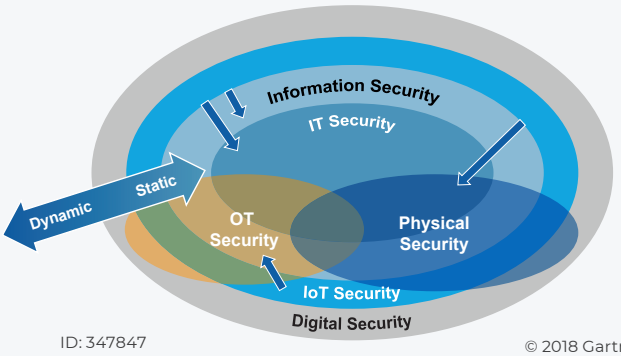
Gartner, The IT Implications for I&O Leaders, 2018

Security tools deployed for OT security have to support the need for coordinated enterprisewide security activities, which comes from having IT and OT security handled with a joint governance process.

Gartner, Competitive Landscape: OT Security, 2018

IT/OT Convergence

To reduce risk, security and risk management leaders should eliminate IT and OT silos by creating a single digital security and risk management function. This function should report into IT but should have responsibility for all IT and OT security.



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"Why IIoT Security Leaders Should Worry About Cyberattacks Like WannaCry," Gartner, 2018.

The Driving Force Behind IT/OT SOCs

The Reality of Risks Facing OT Systems

In the past, industrial systems were not considered to have high cyber risk because they were isolated (air gapped), without connectivity to enterprise systems or the internet. They were also protected by obscure proprietary technology and considered of low interest to hackers or attackers.

Now, industrial cyber risk is much higher due to:

- **More connectivity and exposure** — The increased use of common technology platforms and data sharing between IT and OT systems exposes industrial systems to more cyber threats. This includes the migration to the Industrial Internet of Things (IIoT), where physical assets and IT infrastructure are closely integrated.
- **The transition to virtual systems** – Shifting industrial system architectures away from local monitoring and data processing to cloud-based applications and analytics increases cyber risk exposure.
- **More sophisticated attacks** — A new era of industrial threat actors, such as hackers, criminal organizations and nation states, focus on disrupting industrial systems for financial or political gain.
- **Easier access to resources** — A marketplace of tools, for example malware frameworks and vulnerability exploits, makes it faster and easier to execute industrial cyberattacks.

As a result of these trends, the majority of IT and industrial control systems (ICS) security practitioners across a variety of industries believe the threat level to OT and IoT systems is high or critical.[2]

Why the IT/OT SOC?

SOCs are generally tasked with preventing, detecting and responding to cybersecurity threats and incidents. Often, they also assess and fulfill regulatory requirements. Their mandates typically do not cover industrial systems – though it is possible to leverage the investment in SOCs to include OT.

As threats to OT systems intensify, there are several reasons to include OT in an enterprise-level SOC. With a combined approach, companies can:

- **Stop threats faster** — Most cyberattacks on OT systems originate on the IT network and involve multiple steps in an elaborate cyber kill chain process. High profile examples include an attack on a German steel mill, disruption to Ukraine's power grid in 2015 and 2016, and the shutdown of a gas facility in Saudi Arabia in 2017. Thus, to protect OT systems, threats need to be stopped in their early stages, often while they are present in IT systems.
- **Speed up response times** — Monitoring OT systems separately from IT systems runs the risk of breakdowns in communication and dropped incident handling between multiple teams.
- **Keep costs down** — It's more cost effective to include OT and IoT threat monitoring within one comprehensive SOC than to have multiple SOCs.
- **Leverage teams' strengths** — Protecting OT systems requires a blend of IT and OT skills. For many organizations, it is easier to close the skills gap by training IT people on OT sensitivities than training OT people on IT cybersecurity skills.

Building an IT/OT SOC

The Challenges of Securing OT and IoT Systems

Adding OT and IoT security into the mandate of SOCs is not a simple matter of extending IT security solutions and staff responsibilities to include industrial networks.

OT networks are often large, complex and include a wide range of assets that are unknown to IT, including legacy equipment that can be sensitive to many types of network traffic.

They also use insecure and often proprietary protocols whose communications cannot be properly evaluated by IT security tools.

Finally, the central mission of the people managing industrial networks is to maintain high safety, availability and production efficiency. This focus must be embraced when integrating OT network monitoring into an SOC.

Key Considerations for an SOC Transition

All these unique challenges mean that companies will need to consider the following as they create an IT/OT SOC:

- **Technology** — Solutions need to meet all the specific requirements for OT, but also integrate seamlessly with IT SOC systems and infrastructure.
- **People Resources** — Enterprise SOCs require the inclusion of industrial cybersecurity specialists in core SOC resourcing, or as part of a virtual or extended team. To keep costs down and reduce the need for scarce cybersecurity skills, companies should consider concentrating the SOC team in one location and providing cross-training on critical skills.
- **Accountability** — Business leaders must create an environment that aligns IT and OT under one common culture and reporting structure. As the teams merge, they should work to understand the others' priorities and challenges, and achieve the common goals set by the executive responsible for company-wide cyber risk.

Selecting the Right OT Technology

To embrace the inevitable convergence of IT and OT teams and achieve a high-functioning, cost-effective enterprise-wide SOC, companies need better visibility of OT and IoT infrastructure and threats. When selecting an OT security and visibility solution, make sure it:

- Delivers superior real-time OT and IoT threat monitoring that shortens the mean time to detection and response.
- Provides comprehensive OT network visualization and asset inventory, without risk to the industrial process.
- Empowers security analysts to rapidly remediate threats with OT-specific alert aggregation, dashboards and forensic tools.
- Integrates seamlessly with IT infrastructure, easily sharing data with existing applications and assets.
- Includes pre-built integrations with SOC tools, such as SIEMs.
- Deploys quickly and easily with mature technology that is ISO 9001 certified.
- Consolidates information from multiple industrial sites and scales to meet the needs of very large distributed organizations.

Companies with an IT/OT SOC will experience better threat detection and response metrics, improved cyber resiliency and an overall decrease in cyber risk.

Securing the World's Largest Organizations

9 of Top 20
Oil & Gas

7 of Top 10
Pharma

5 of Top 10
Mining

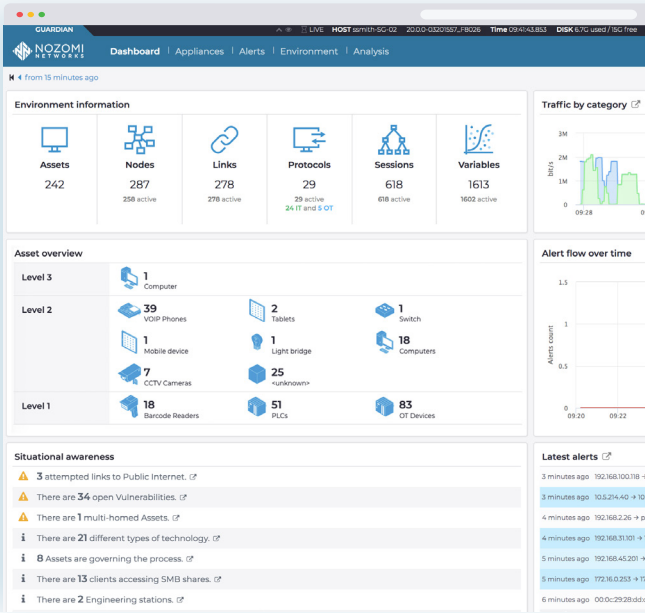
5 of Top 10
Utilities

- Chemicals
- Manufacturing
- Automotive
- Airports
- Water
- Building Automation
- Food & Retail
- Logistics
- Smart Cities
- Transportation

Improving Enterprise-wide Cybersecurity

While increasing cyber threats dominate the news, there is reason to be optimistic. New technology, such as the Nozomi Networks solution, is easy and safe to deploy, dramatically improves OT/IoT cybersecurity and integrates seamlessly with IT infrastructure.

To see OT and IoT security and visibility in action, and experience how easy it is to work with Nozomi Networks, have your team contact us: **nozominetworks.com/contact**



Global Partner Ecosystem

Partnering to Optimize OT and IoT Security

References

1. **"The Untold Story of NotPetya, the Most Devastating Cyberattack in History,"** Wired, 2018.
2. **"Securing Industrial Control Systems - 2017,"** SANS, 2017.

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Nozomi Networks

The Leading Solution for OT and IoT Security and Visibility

Nozomi Networks accelerates digital transformation by protecting the world's critical infrastructure, industrial and government organizations from cyber threats. Our solution delivers exceptional network and asset visibility, threat detection, and insights for OT and IoT environments. Customers rely on us to minimize risk and complexity while maximizing operational resilience.

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