

PDF / SOLUTIONS® 2025 Users Conference

PDF Solutions Equipment and Fab Integration Solutions

Secure, Remote Equipment Connectivity and Control

Bob Reback

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03.



Secure Remote Connectivity in Semiconductor: History, Present, Future

John Abegglen

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Our Journey Today

- History of remote connectivity
- Present reality and dogma
- Future architecture
- Value to OEM / Fabless / fabs
- Industry shift examples

Conventional wisdom is not always right...

A century-old "fact" turns out to be a myth.

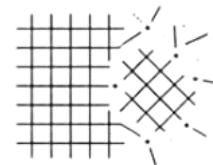
THE MYTH

100,000 km



The Origin

An estimate from the early 1920s by physiologist August Krogh, based on a single large individual and extrapolated to the entire population.



The Flaw

The original estimate treated capillary density as uniform across the body.

THE REALITY

9,000-19,000 km



The Reality

Modern NIH-supported computational modeling (2009-2013) shows massive organ-to-organ variation, revealing the actual length is 5x to 10x smaller.

Parallels to Semiconductor Dogma

The Semiconductor Industry's Most Enduring Dogma

Remote Access Isn't Possible.

- It's not safe.
- Our security policies don't allow it.
- It's only for a few privileged OEMs.

*No access is the only safe access.

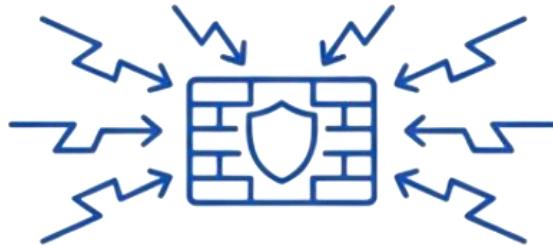
An assumption that has survived for 20+ years without re-evaluation.

Debunking the Remote Connectivity Myth

The Old Fear vs. The New Reality

Why the Dogma Persisted

The Old Fear (Early 2000s)



- Early security trauma shaped policy.
- Belief: "No access = safe."
- Fossilized internal IT rules.
- Lack of industry standards.
- Reliance on countless inbound OEM VPNs.

How Modern Security Works

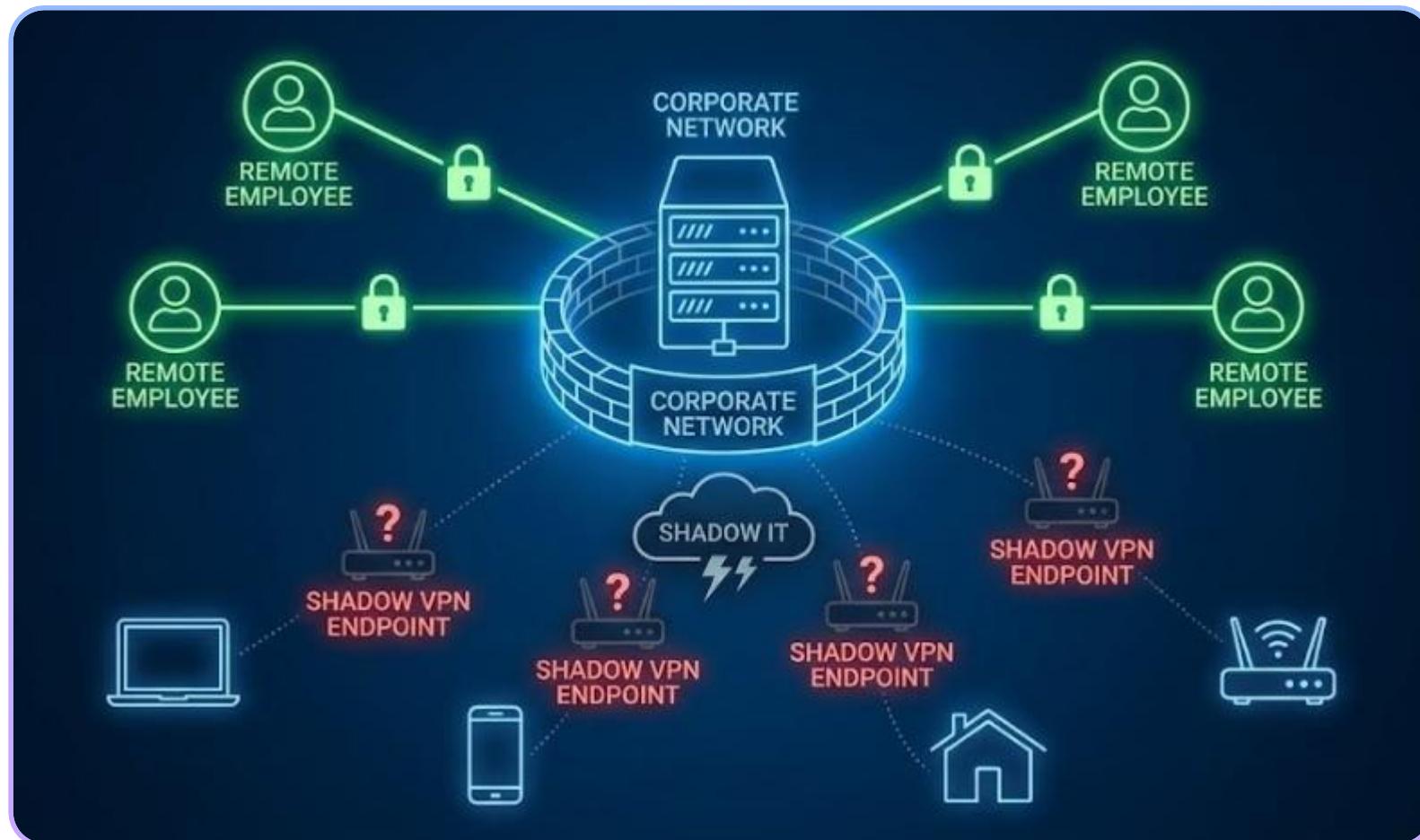
The New Reality (Today)



- **Zero Trust Architecture** (never trust, always verify).
- Double-Encrypted Private Backbone.
- Role-Based Access Control (RBAC) + MFA.
- **No Inbound OEM VPNs**; major attack surface reduction.
- Full Auditability: Session logging, capture, and replay.
- Aligned with **SEMI Standards E187/E188**.

Why Alternatives Are Riskier

- USB drive imports
- Email attachments
- Shadow IT VPN endpoints
- Non-standard ingress channels



The Cost

The Hidden Cost of Believing the Old Story



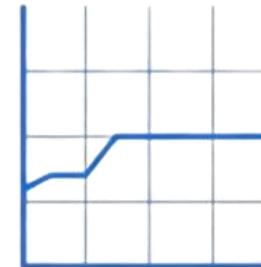
Slower Mean
Time to Repair
(MTTR)



Increased Tool
Downtime



Higher Total
Cost of
Ownership
(TCO)



Lost
Yield-Learning
Cycles



Excessive Travel
Costs and
Requirements



Reduced OEM
Support
Efficiency

Modern Compliance Reality

- SOC2, ISO 27001, NIS2 compliant infrastructure
 - Standardized file scanning in/out
 - Full event logging

Current secureWISE Footprint

The Reality: 20+ Years of Proven, Industry-Scale Secure Connectivity

300+

Manufacturing
Locations
Connected

Tens of Thousands
of Tools

100+

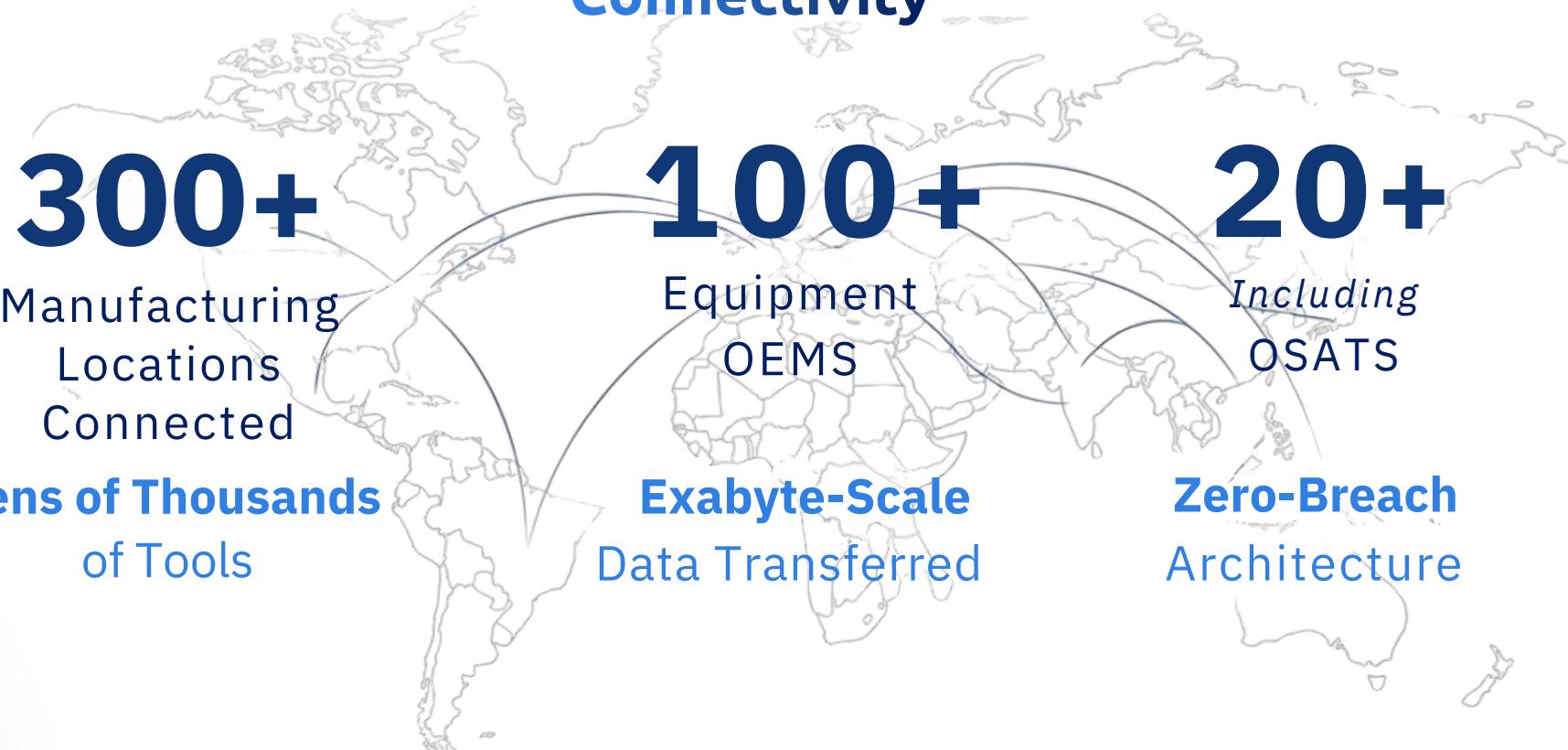
Equipment
OEMs

Exabyte-Scale
Data Transferred

20+

Including
OSATS

Zero-Breach
Architecture



Capabilities Overview

Episodic Connectivity Solutions

- for Troubleshooting, Application Support or any ad hoc remote support delivery
- Tool desktop remote sharing and remote control with granular administrative control
- Remote, whitelisted terminal command execution
- Secure log file transfer
- Secure file transfers for tool OS, or application updates.

Big Data Solutions

- Automation tools for file transfers
 - Time Based
 - Event Based
- Custom application support via Port Forwarding

- All file transfers are scanned for virus/malware.
- Anti-virus definition files updated daily

secureWISE Value to OEMs:

Faster Revenue and Lower Cost to Serve

Accelerate Revenue: 25-50% faster customer acceptance through remote installation support and diagnostics.



Reduce OpEx: Lower travel expenses and a dramatically lower cost-to-serve by enabling global experts to solve issues in minutes.



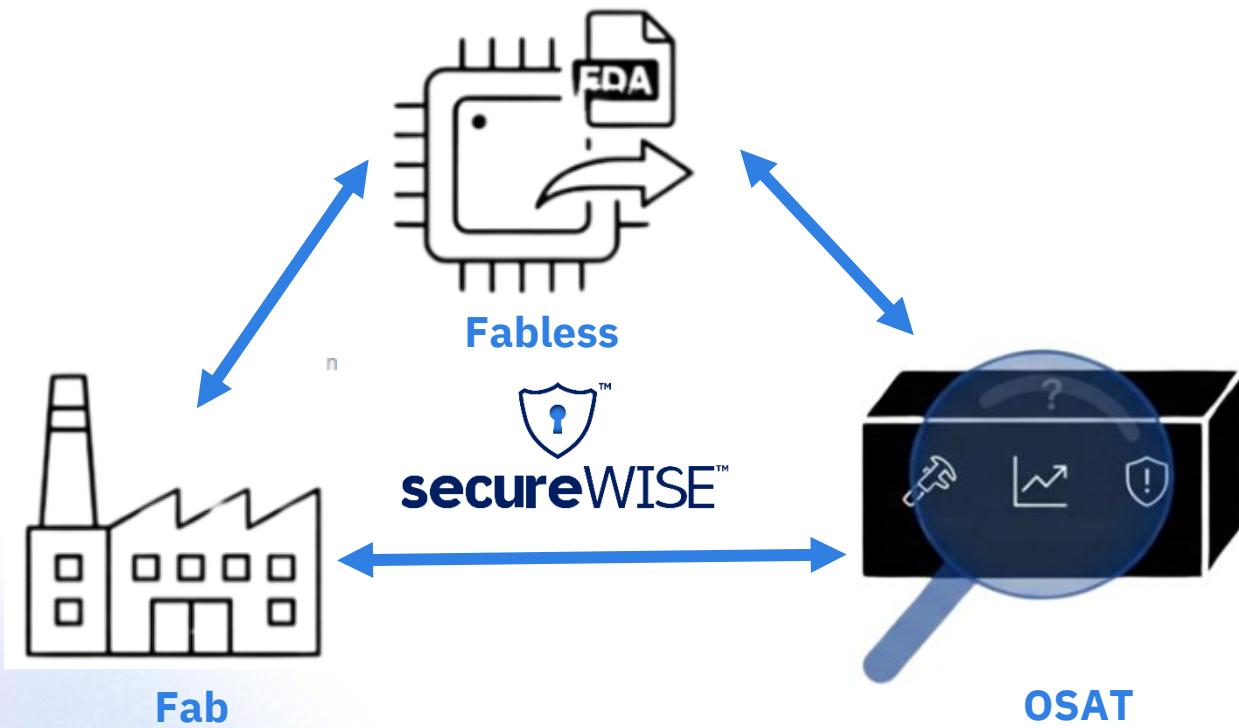
Better Support: Remote diagnostics, log retrieval, and Real-Time Operations (RTO) sessions improve customer uptime.



Competitive Edge: A **20+ year zero-breach** architecture becomes a key differentiator.

secureWISE Value to Fabless:

Unprecedented Visibility into the Supply Chain



Core Benefits

Secure Collaboration: Governed exchange of design files (EDA, wafer maps, test flows), eliminating email/file-share risk.

OSAT Process Visibility: Real-time insight into inline processes, including drift monitoring, metrology, and excursion alerts.

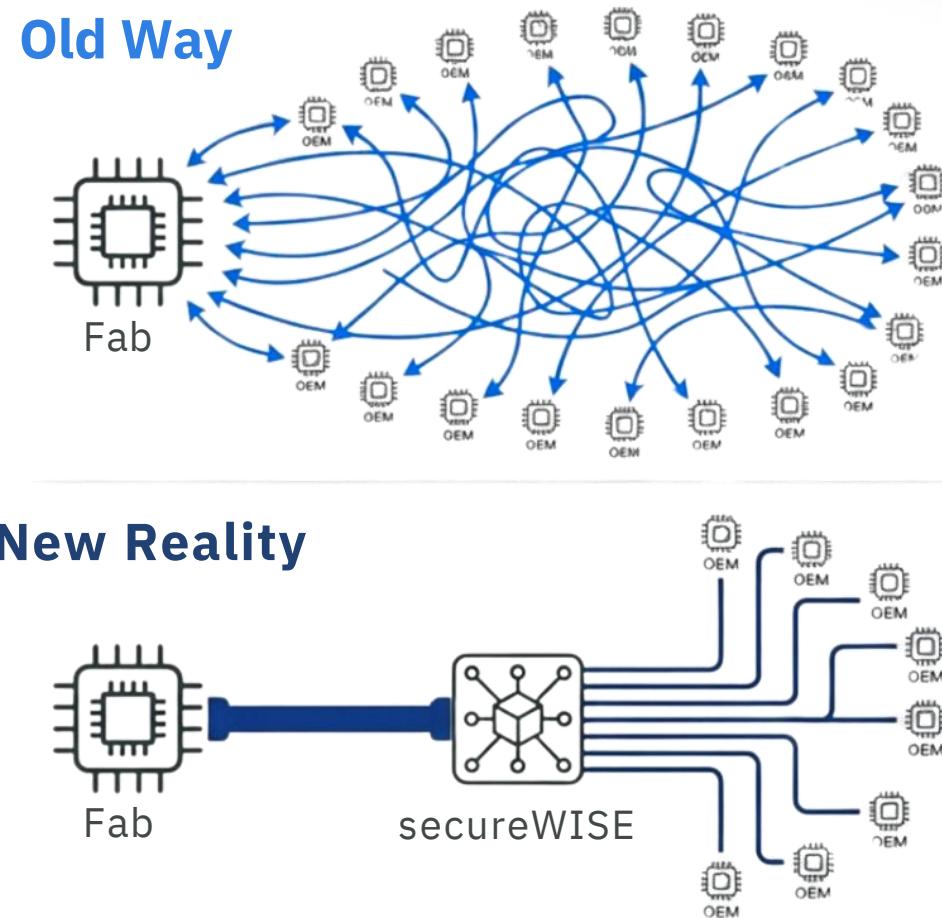
Proactive QA: Early warning on mis-processing and assembly variability, reducing finger-pointing.

Closed Loop: Connects the entire ecosystem from fabless to fab, OSAT, and OEM for faster issue resolution.

secureWISE Value to Fabs:

Drastic Simplification and Hardened Security

- **Simplicity:** One connection replaces 100+ individual OEM VPNs, eliminating custom network engineering.
- **Security:** Major reduction in firewall exposure and attack surface. Zero Trust architecture with full auditability.
- **Availability:** Higher tool uptime through faster, remote OEM support and diagnostics.
- **Compliance:** Infrastructure is ready for SOC 2, ISO 27001, and NIS2.
- **Cyber Security tool** for Semi E187, E188 and E191 compliance



Three Key Takeaways

Dogma held the industry back

Governed connectivity is safer than legacy methods

secureWISE accelerates collaboration across the ecosystem

The future is connected, secure, governed, and collaborative.

Intel Call to Action

- Global rollout
- Standardizing on secureWISE
- If you are an equipment supplier and want remote connectivity at Intel, please contact me.
- We have a few different packages for customers depending on level of interest including:
 - Base Episodic Package
 - Standard OEM Package
 - Advanced OEM Package



Thank You

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