

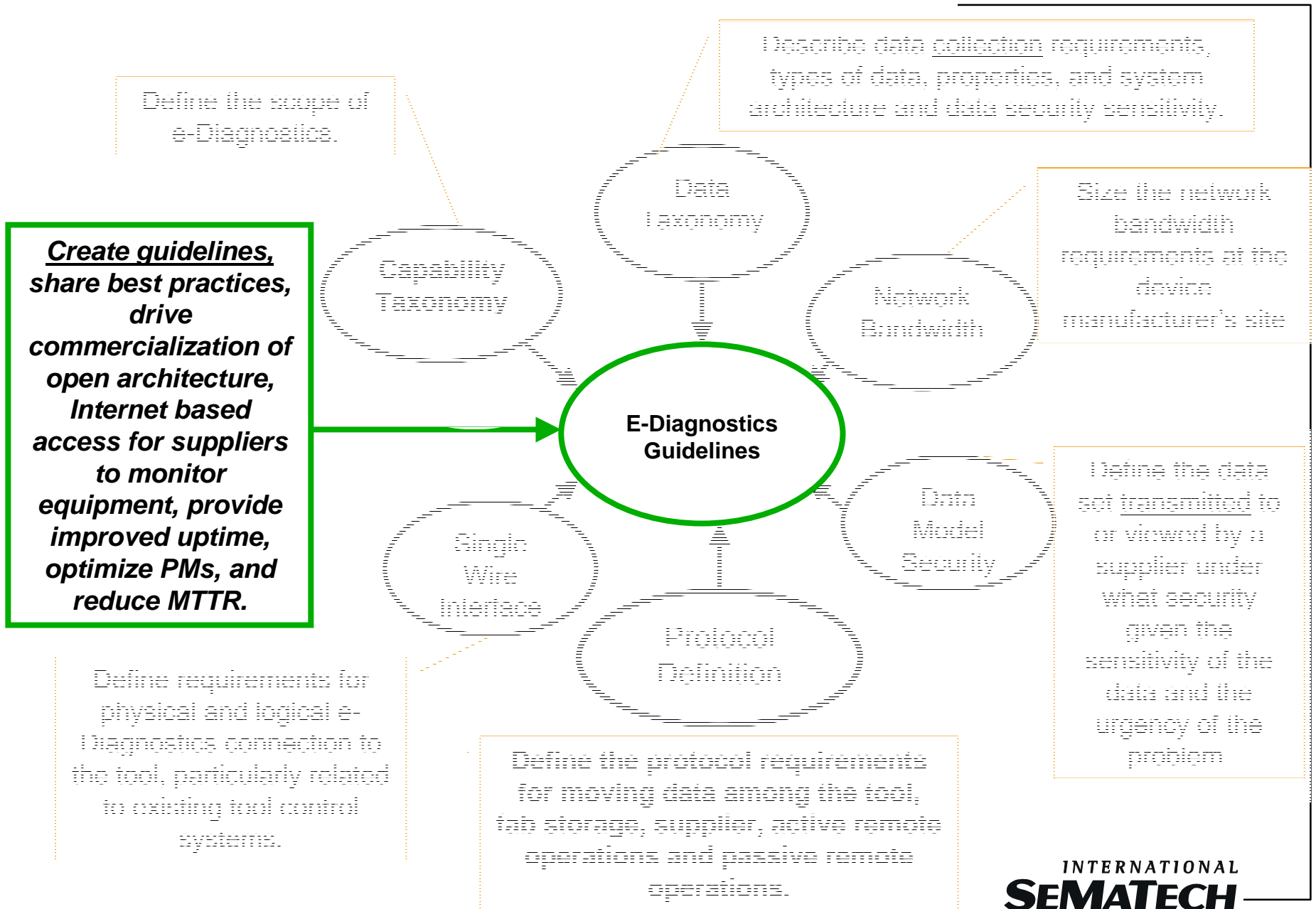
e-Diagnostics Guidelines

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Where do the Guidelines fit?



Guideline Development Timeline

Guidelines developed by
IC makers and ratified
by Tool Manufacturers

6/28/00

Guidelines Ratified

- 80+ attendees at the face to face
 - Tool Manufactures, IC Makers, ISMT Directs

6/15/00 →

Guidelines completed

- 1 Page document available at
<http://www.sematech.org/public/resources/ediag/index.htm>

ISMT Kick-off

- Consistent participation by IC Makers + ISMT directs
- Scope limited to e-Diagnostics guidelines as the first deliverable

5/11/00 ←

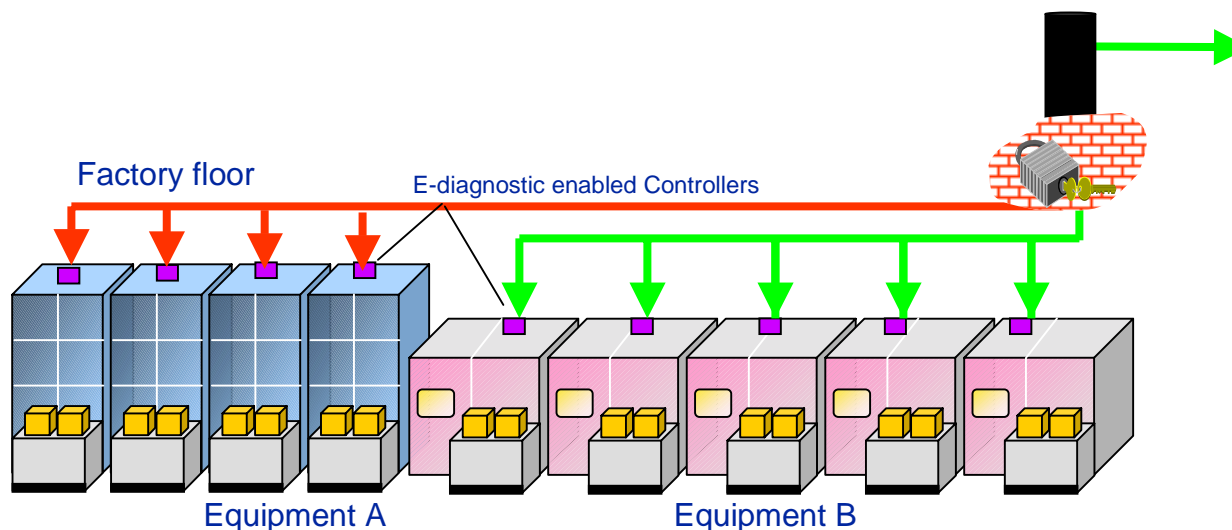
e-Diagnostics Scope and Definition

- **Scope:**

- This capability must be available for 200mm and 300mm Fab equipment, Probe/Assembly/Test equipment, and key Facilities equipment.

- **e-Diagnostics definition:**

- Capability to enable an authorized equipment supplier's field service person to access any key production or facilities equipment from outside the IC maker's facility/factory via a network or modem connection.
- Access includes ability to remotely monitor, diagnose problems or faults, and configure/control the equipment in order to bring it into full productive state rapidly, within security and safety guidelines.



Remote monitoring
Remote diagnostics
Remote de-bugging/fix
Remote sensing
Model tool behavior
Supplier B Main Office

e-Diagnostics Guideline Description

Safety and Security:

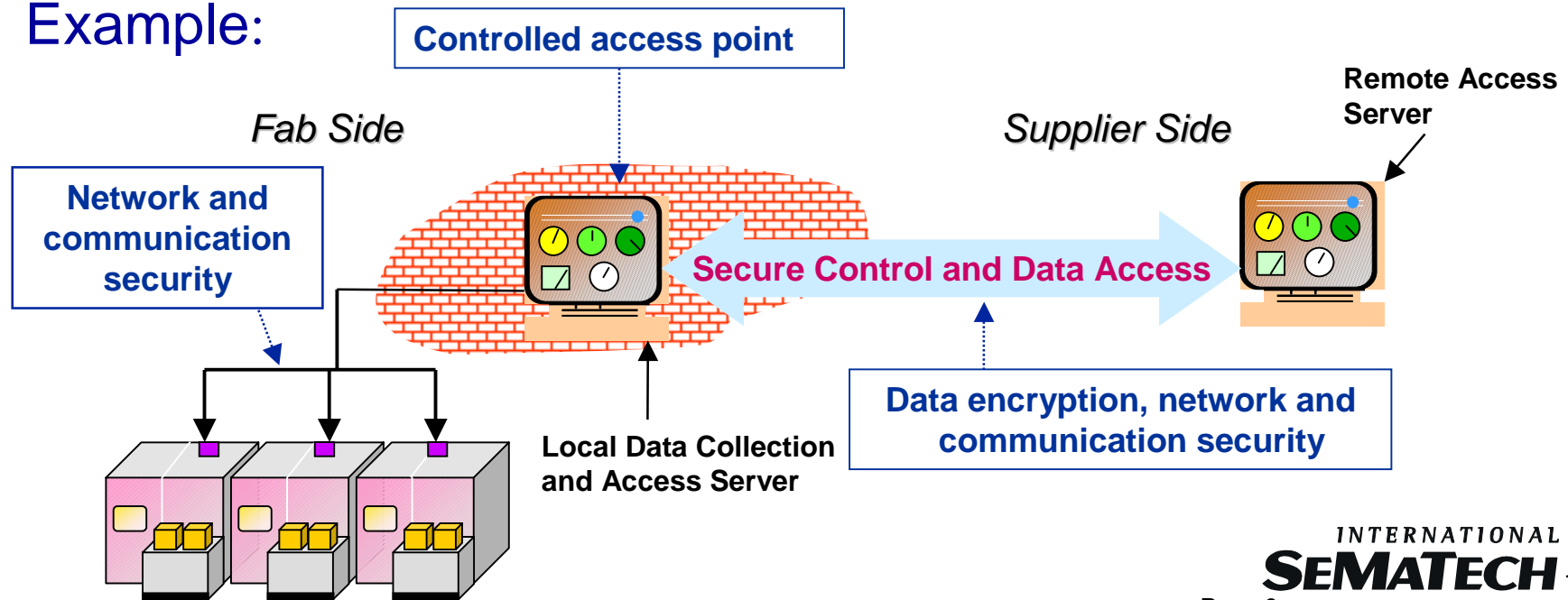
- Safety is imperative. Potential solutions must address worker, product, and equipment safety. An operational interlock is required to ensure safety.

e-Diagnostics Guideline Description

Safety and Security (con't):

- Data security is paramount. Potential solutions must address network, communications, data encryption and other relevant issues. Only authorized personnel may be able to access the view based, relevant data to perform diagnosis.

Example:

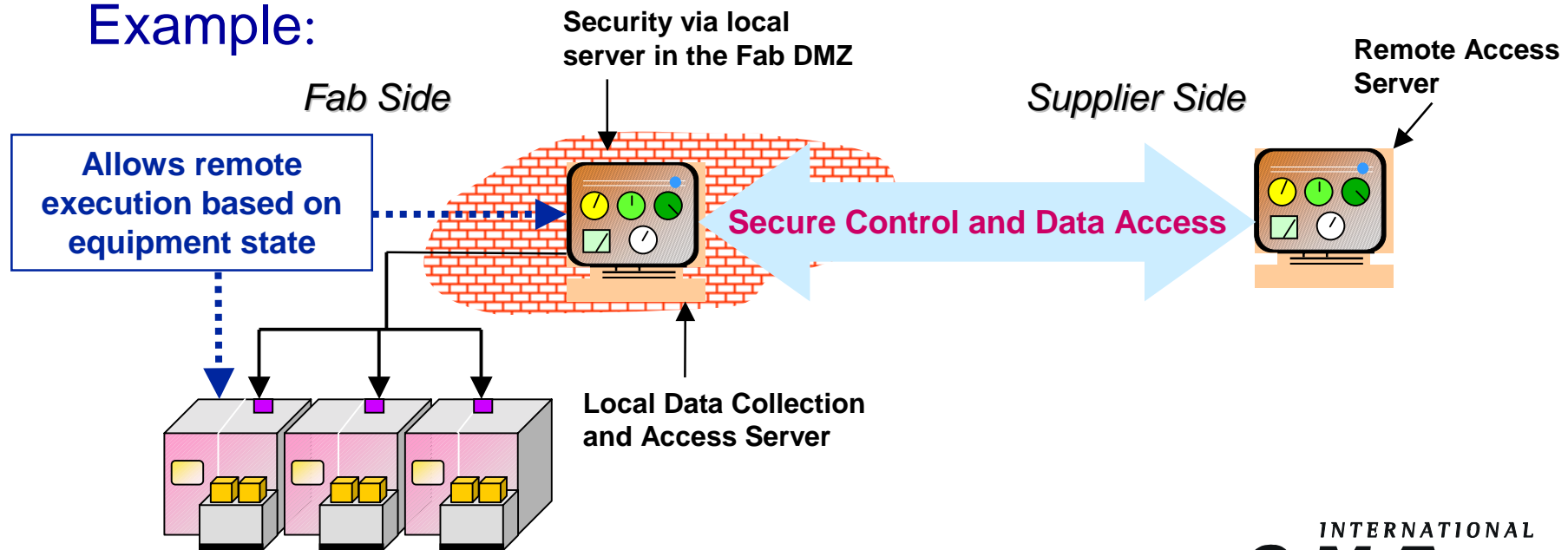


e-Diagnostics Guideline Description

Safety and Security (con't):

- Remote data and control access must be selectively provided. Therefore the e-Diagnostic system must have built-in capability that determines when to allow specific remote functions to be executed based on specific states or condition of the equipment.

Example:

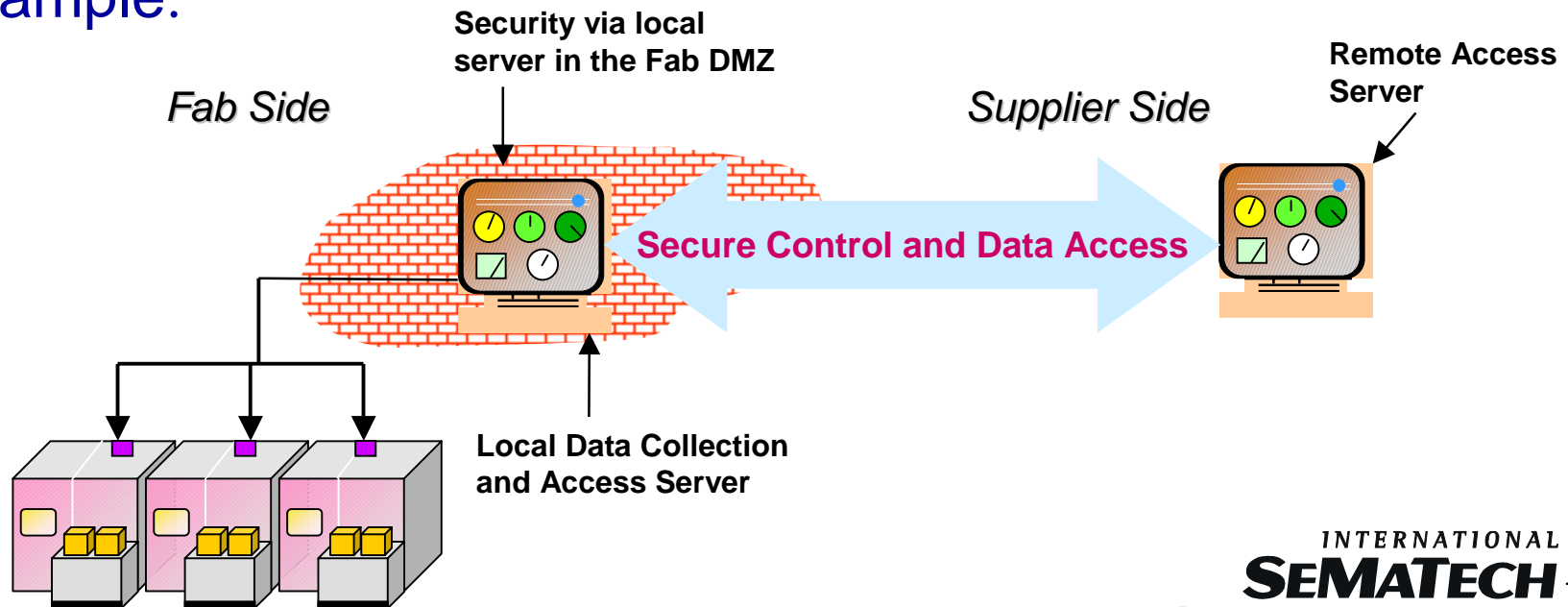


e-Diagnostics Guideline Description

Architecture:

- The solutions must support remote accessibility of equipment diagnostic data from outside the IC maker's firewalls. Two-way communications between these two locations is needed to support interactive problem solving.

Example:

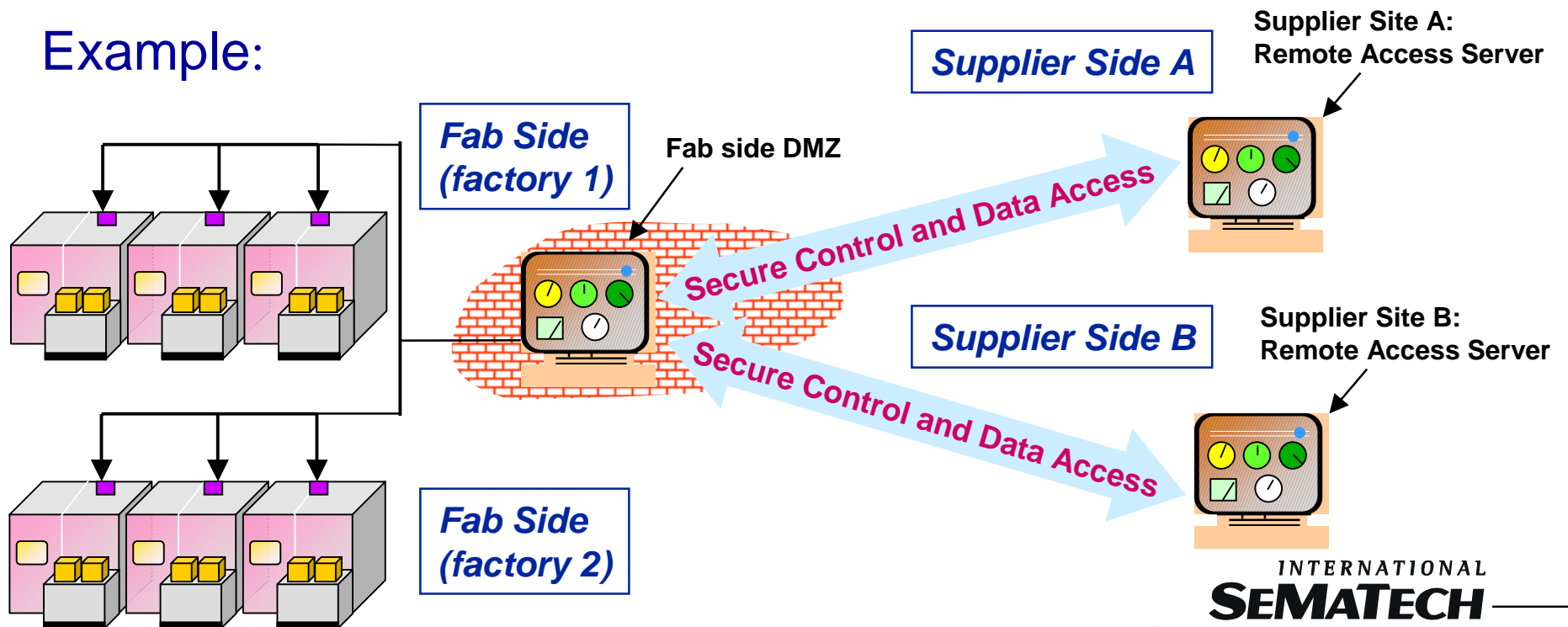


e-Diagnostics Guideline Description

Architecture (con't):

- The solutions must permit sharing of key diagnostics and monitoring data between multiple factory and supplier sites on an as-needed basis to enable remote detection of issues and proactive trouble-shooting.

Example:

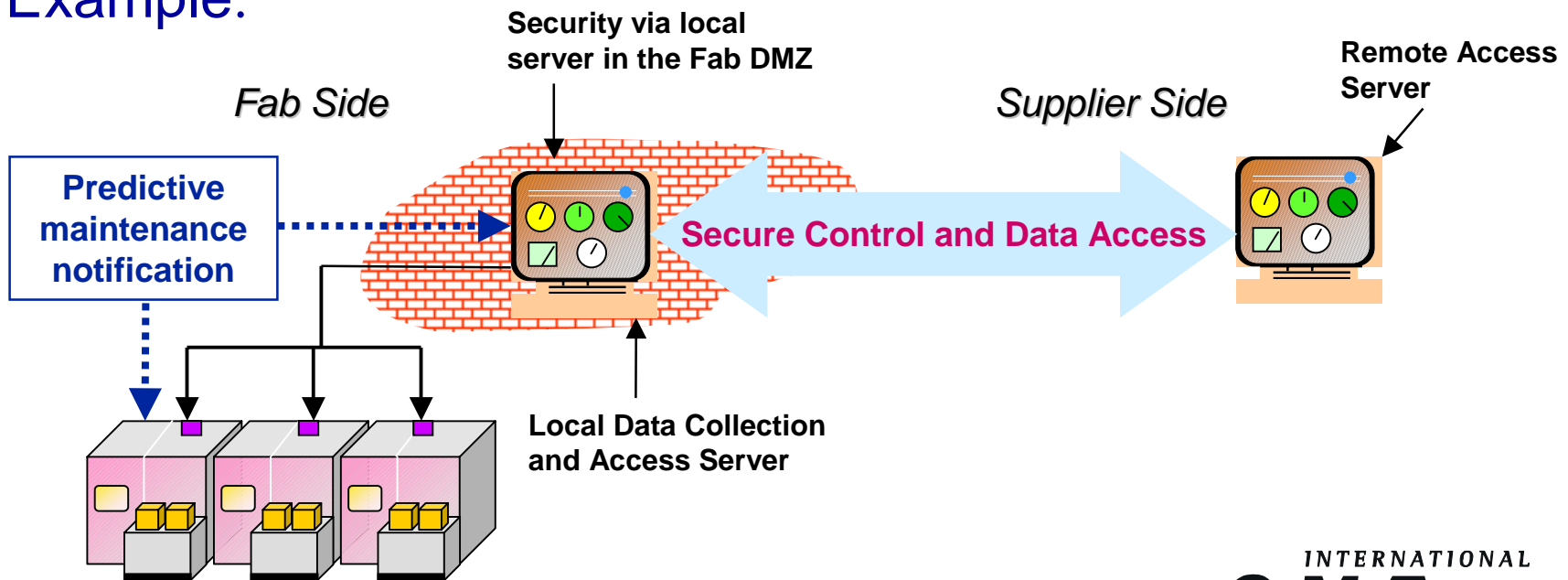


e-Diagnostics Guideline Description

Architecture (con't):

- The solutions must enable predictive maintenance, including notification when equipment will need service or repair.

Example:

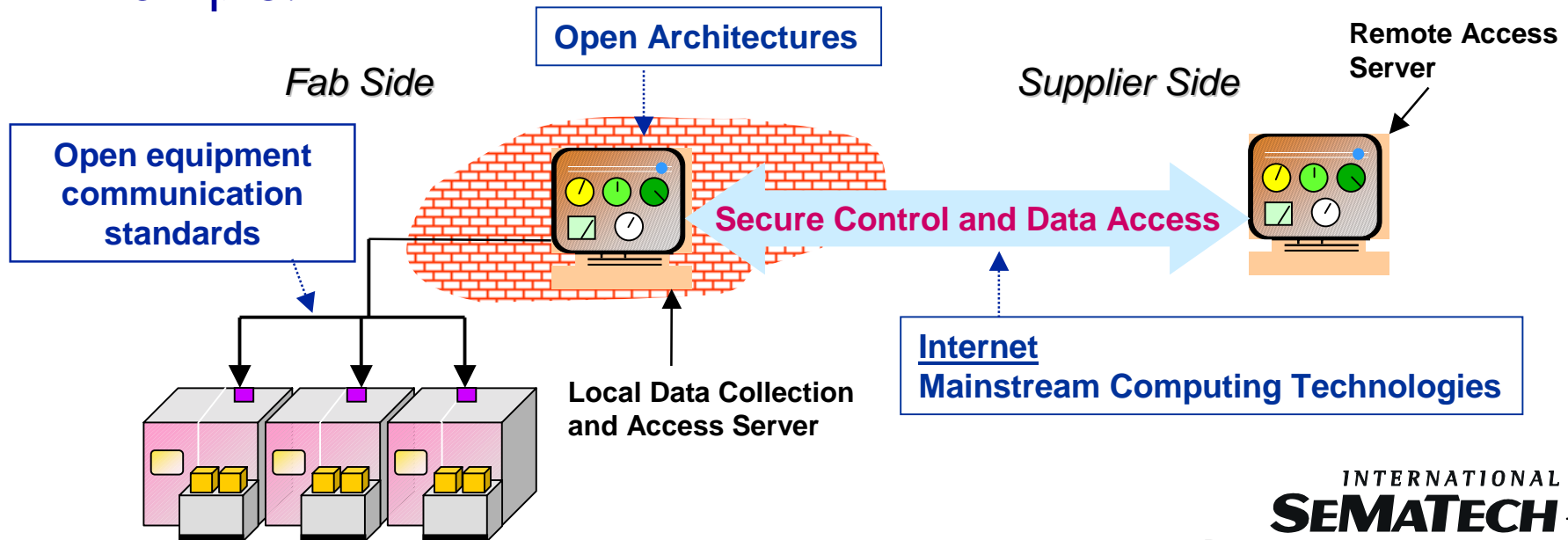


e-Diagnostics Guideline Description

Architecture (con't):

- e-Diagnostics solutions must be implemented using an open architecture based on mainstream computer technologies, non-proprietary standards and data models.

Example:

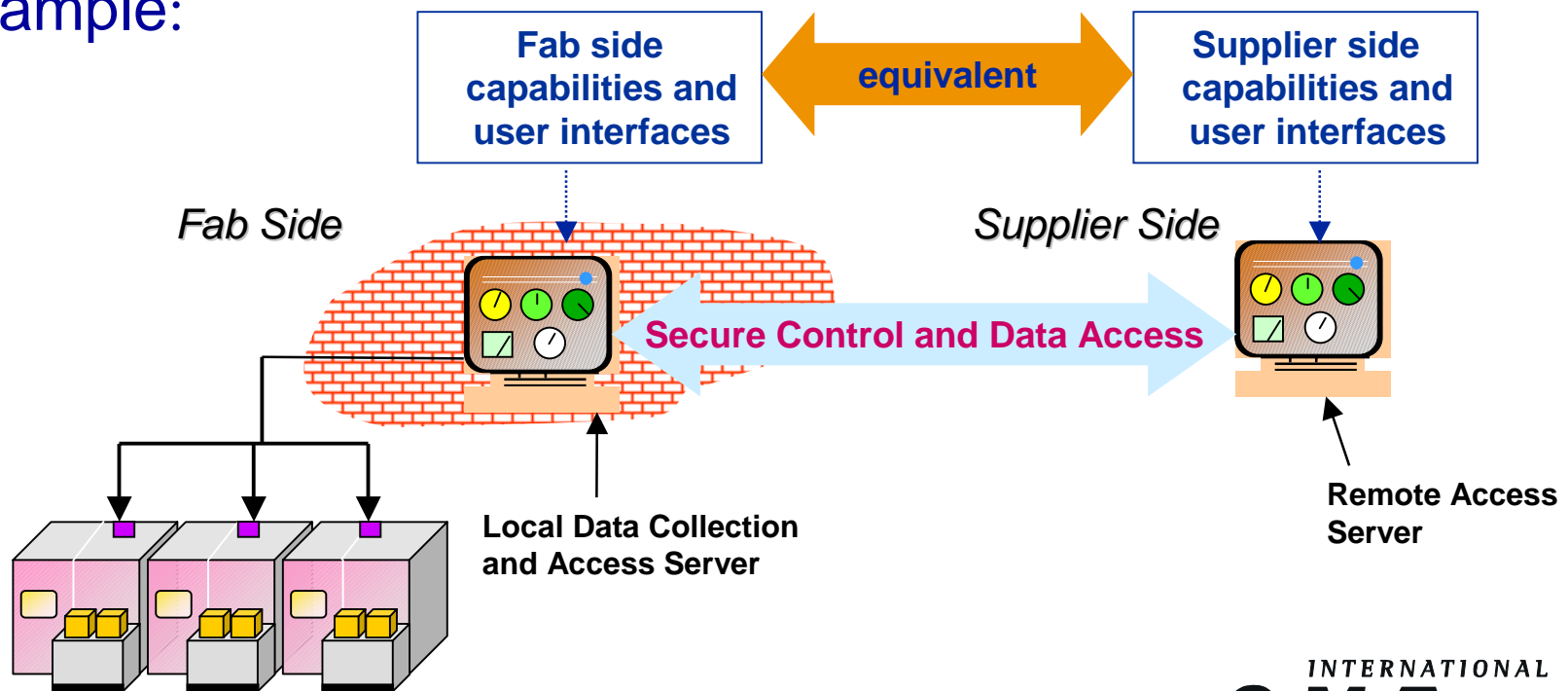


e-Diagnostics Guideline Description

Collaboration:

- The solutions must provide the same equipment monitoring/diagnostics data at the local and remote sites. Identical representations and user interfaces at both sites are highly desired.

Example:

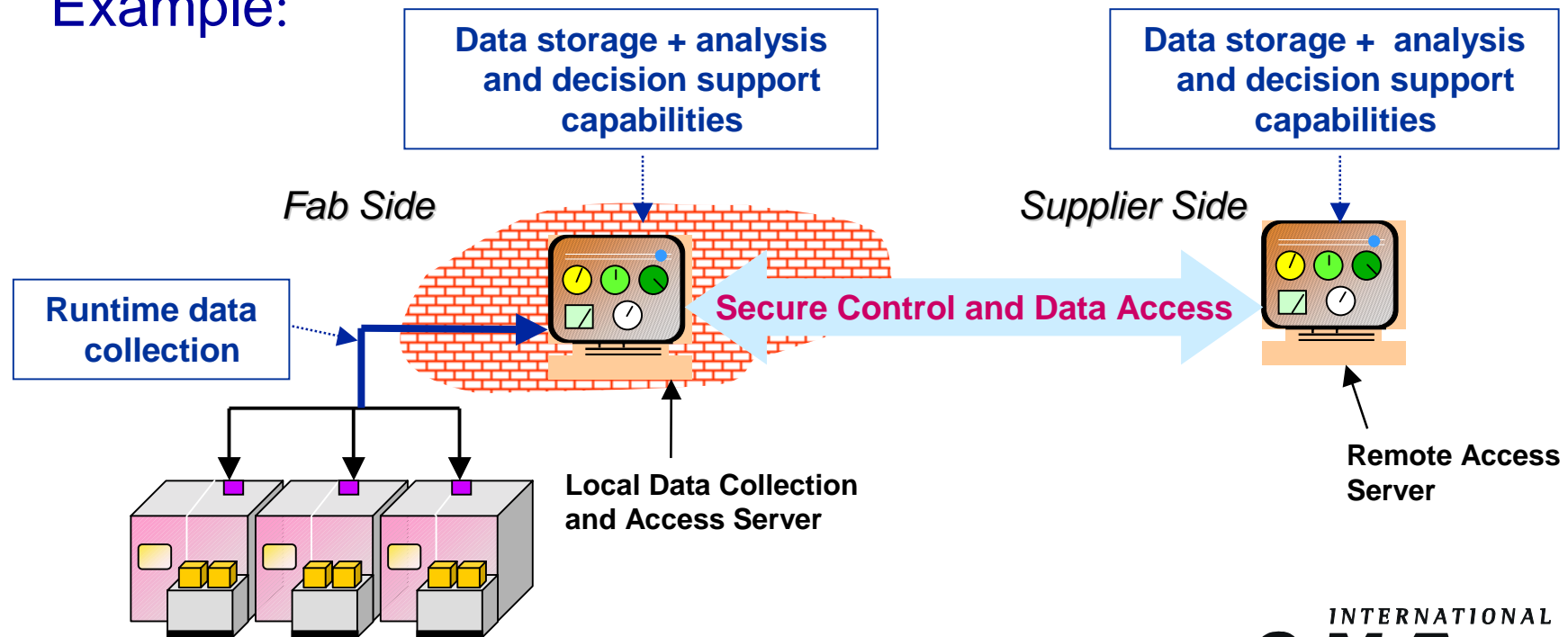


e-Diagnostics Guideline Description

Collaboration (con't):

- The solutions must enable run-time data collection, storage, and retrieval. The e-Diagnostics system must enable analysis of this data and decision support capability.

Example:

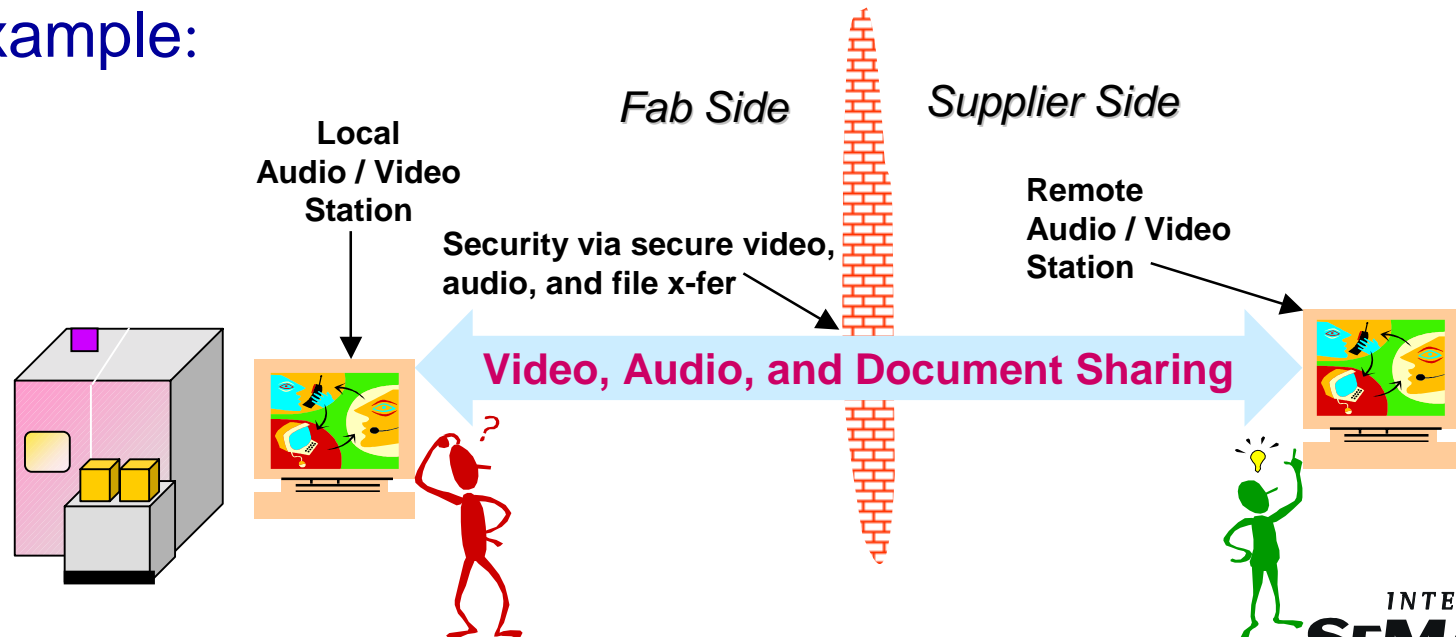


e-Diagnostics Guideline Description

Collaboration (con't):

- The solutions must allow audio-visual collaboration such as video teleconferencing or video over Internet Protocol to enable remote experts to view/diagnose equipment and sub-assembly problems in real-time and communicate with factory personnel.

Example:



Guideline Summary

- **e-Diagnostic guidelines rapidly developed by the IC maker community**
 - Pre-competitive documentation of the vision
- **Tool Manufacturers joined the effort and ratified the guidelines**
 - Membership has broadened to also include the software supplier community
- **Focus is now on best practices and standards development**
 - Being developed jointly by IC makers, Tool Manufacturers, and software suppliers