

# EEC Applications Implementation Desires & Concerns

## e-Diagnostics / EEC Workshop

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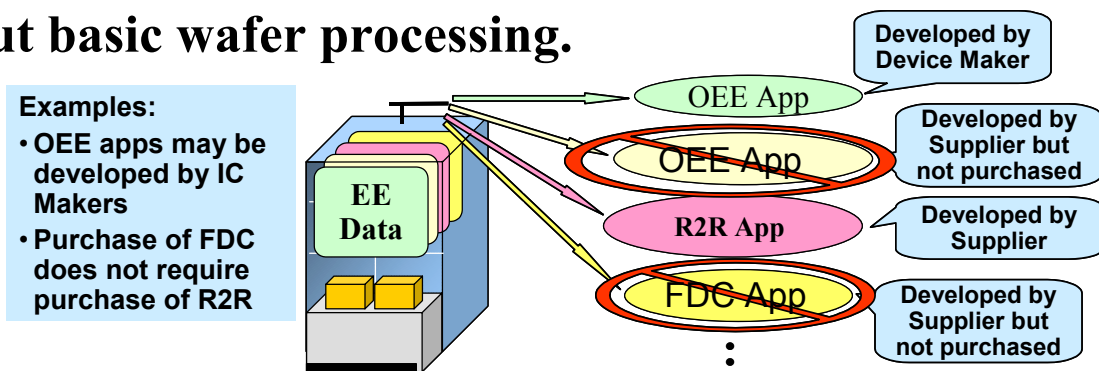
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# EEC Applications

- **Device Makers have a strong need for these types of applications**
  - **Equipment health monitoring**
  - **Fault Detection and Classification (FDC)**
  - **Equipment Performance Monitoring (OEE)**
  - **e-Diagnostics**
  - **Advanced Process Control (APC)**
    - **Run to Run Control (R2R)**
  - **Equipment Performance Conditioning, Control, and Configuration (EPC3)**
  - **Many others**

# EEC applications are modular, independent, and optional

- **Modular:** Any EEC application may be supplied by an equipment supplier, third-party supplier or a device maker.
- **Independent:** The purchase of any EEC applications is not dependent on the purchase or use of other EEC applications, whether from an equipment supplier or third-party supplier. Device makers must be able to independently purchase the best individual EEC application on the market.
- **Optional:** The use of EEC applications may significantly enhance process performance but such applications/systems must not be required in order to carry out basic wafer processing.

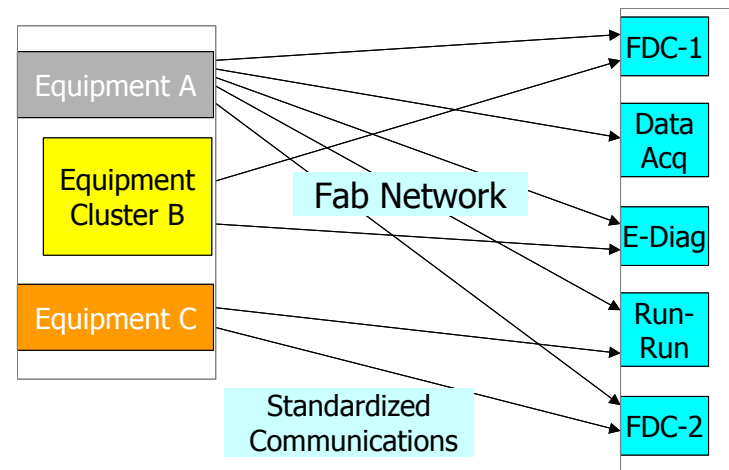
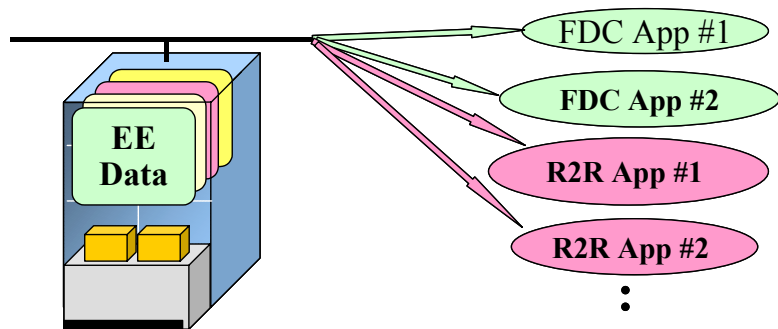


**Examples:**

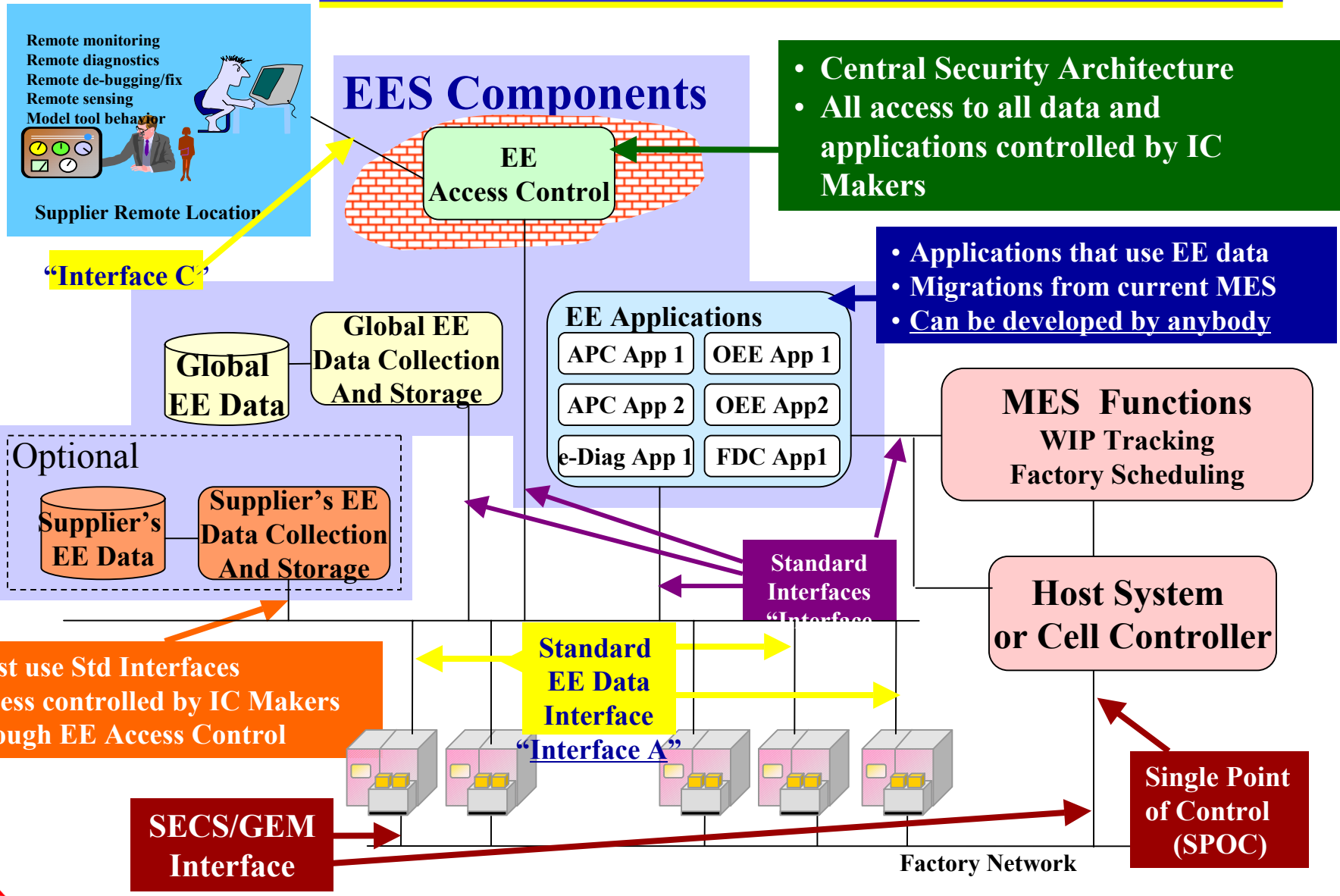
- OEE apps may be developed by IC Makers
- Purchase of FDC does not require purchase of R2R

# Equipment will allow for multiple EEC applications of a similar type

- The expected Equipment Engineering Systems will be a collection of EE Capabilities. Capabilities of a similar type may be provided by multiple Equipment and Third-Party Suppliers and must be able to coexist in EES. So, for instance, multiple FDC applications may exist for a single process equipment, perhaps dealing with different device and process technologies.



**The focus of initial EEC activity and the key to success is to obtain Equipment Engineering Data from the equipment**



• Must use Std Interfaces  
 • Access controlled by IC Makers through EE Access Control

• Central Security Architecture  
 • All access to all data and applications controlled by IC Makers

• Applications that use EE data  
 • Migrations from current MES  
 • Can be developed by anybody

SECS/GEM Interface

Single Point of Control (SPOC)

# All Suppliers Should Implement and Utilize “Interface A”

- All suppliers are encouraged to utilize “Interface A” for their applications
- High quality third-party vendor applications are expected to be provided to the market using “Interface A”
  - “Interface A” assures easy application integration, maintenance or upgrade
- Connection to “Interface A” does not necessarily mean that that application is external to the equipment physical footprint boundary

# EEC Applications

- It is supposed equipment suppliers are the best to provide such capabilities
  - However, some device makers are better at some capabilities than the suppliers
    - Therefore equipment data is important to be transmitted
- It will be a competition of Equipment Engineering capability!
  - Use “Interface A” to adapt such capabilities
    - The winning capability can be readily adaptable
    - Return match can be done with up-dated version software

# EEC Implementation Concerns

- **EEC applications will be mission critical and require high availability 24/7 uptime.**
- **Implementations will not have:**
  - **common architectures**
  - **common hardware systems**
  - **common user interfaces**
  - **common model builders**
  - **common databases**
- **Implementations will be difficult to install and maintain**
- **Implementation will have a high cost of ownership (COO)**

## Database Issue

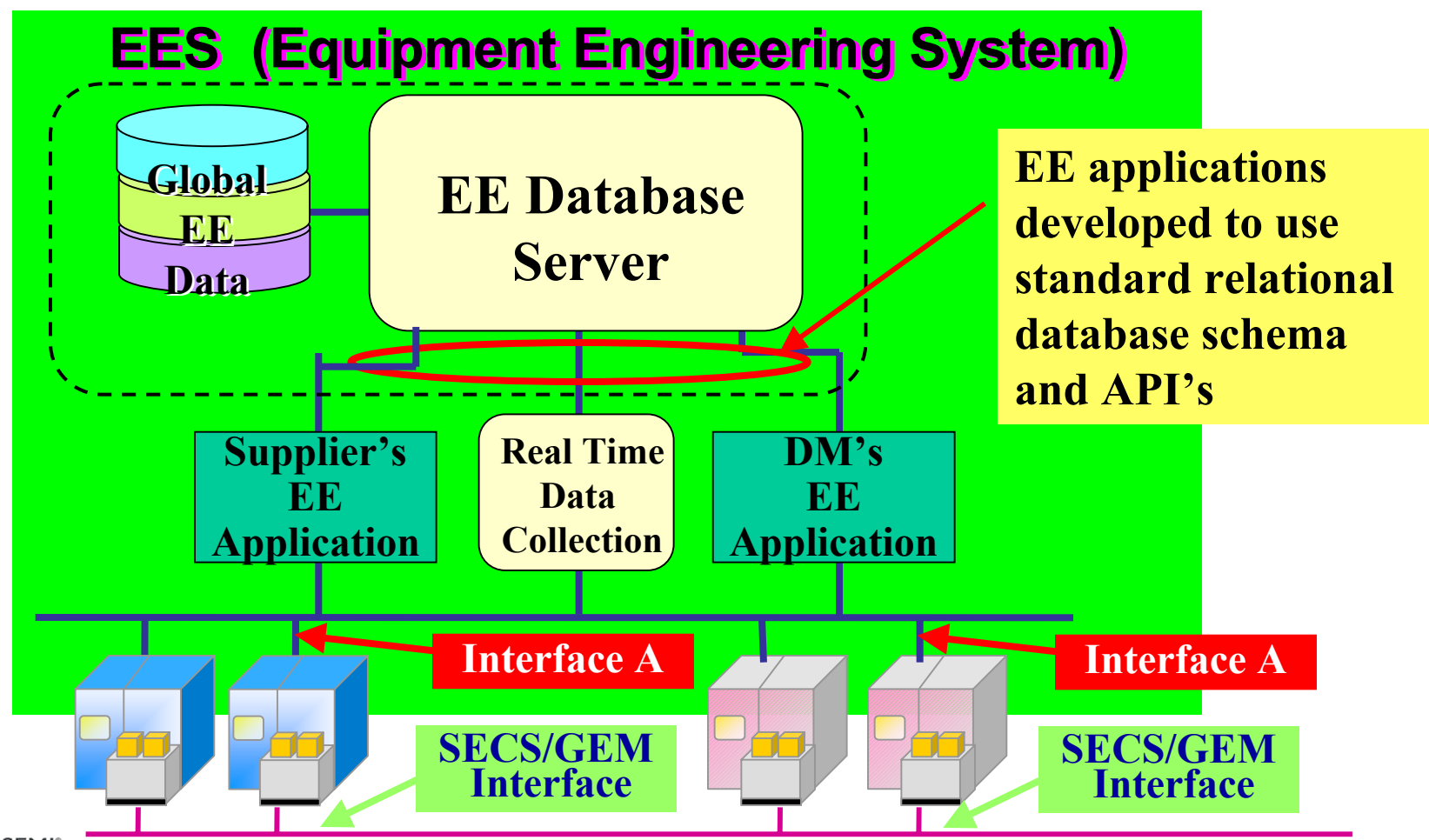
- **Database support requires skilled and costly database administrators**
- **Databases require large amounts of disk storage**
- **Databases require regular backups and can require significant downtime to restore**
- **Having to support multiple different brands of databases will be cost prohibitive**
- **This issue needs a lot of discussion**

## Database(DB) Issue

- **Migration from supplier specific DB to factory's centralized DB may be one solution.**
- **How can this be accomplished?**
- **Can an architecture be defined to allow the EEC applications to use the device makers database of choice?**
- **Here's a conceptual picture for thought:**

# Database(DB) Issue Goal

Separate the application from the database server



# Summary

- **EEC applications are needed and desired by device makers**
- **Obtaining equipment data is a key to success**
- **Equipment suppliers need to implement and utilize “Interface A”**
- **Device makers want the ability to choose the best EEC applications on the market**
- **Device makers are concerned about the diverse architectures and databases**
- **We need to work together to find a cost-effective solution**