

STDF Data logging Format for Volume Diagnostics

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Agenda

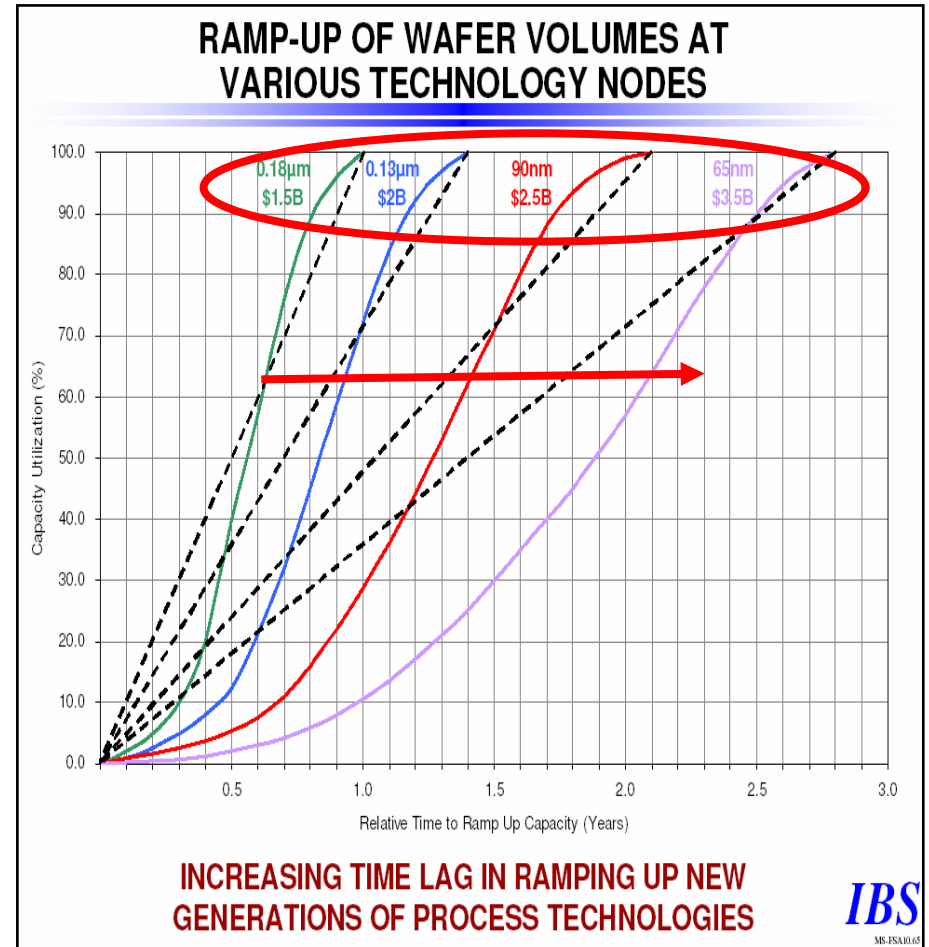
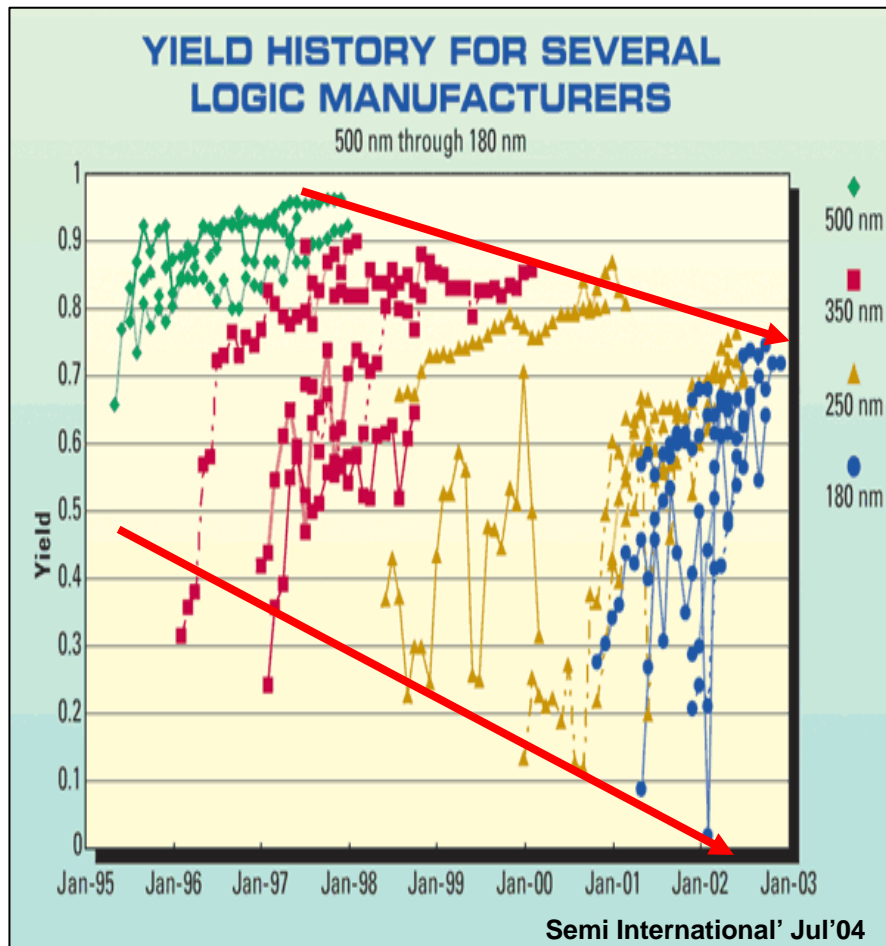
- Welcome (Verigy) 5 Min
- Goals/Objectives (Verigy) 10 Min
- Semiconductor Industry perspective (Qualcomm) 15 Min
- EDA Perspective (Mentor, Cadence, Synopsys) 15 Min
- Diagnostics and STDF (Teradyne) 10 Min
- STDF Standardization Alternatives (Verigy) 5 Min
- Discussions (All) 60 Min
- Lunch (All) 60 Min

Goals/Objectives

Bring the industry together to:

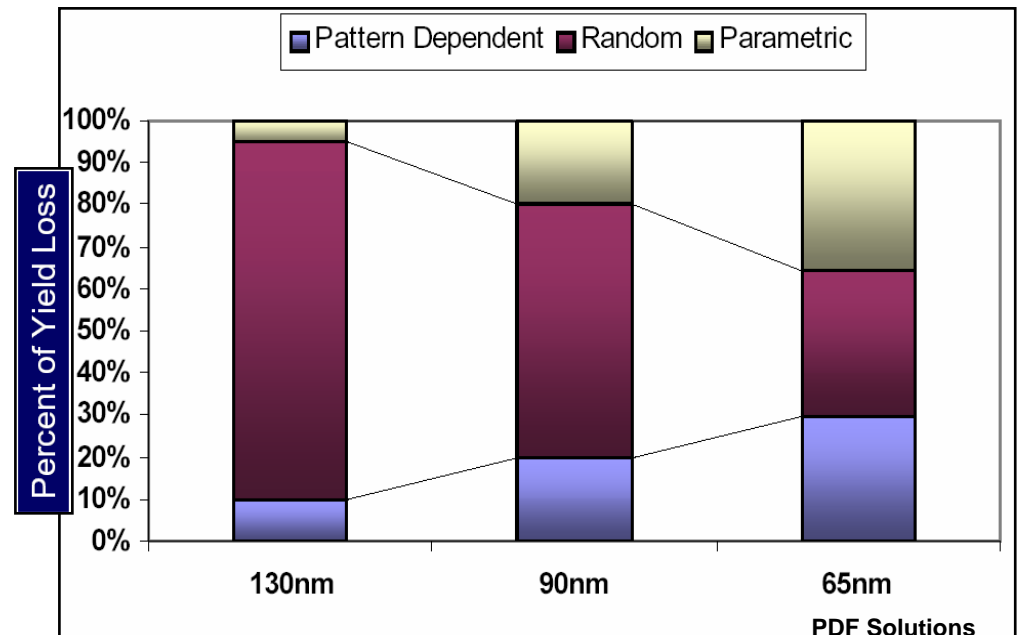
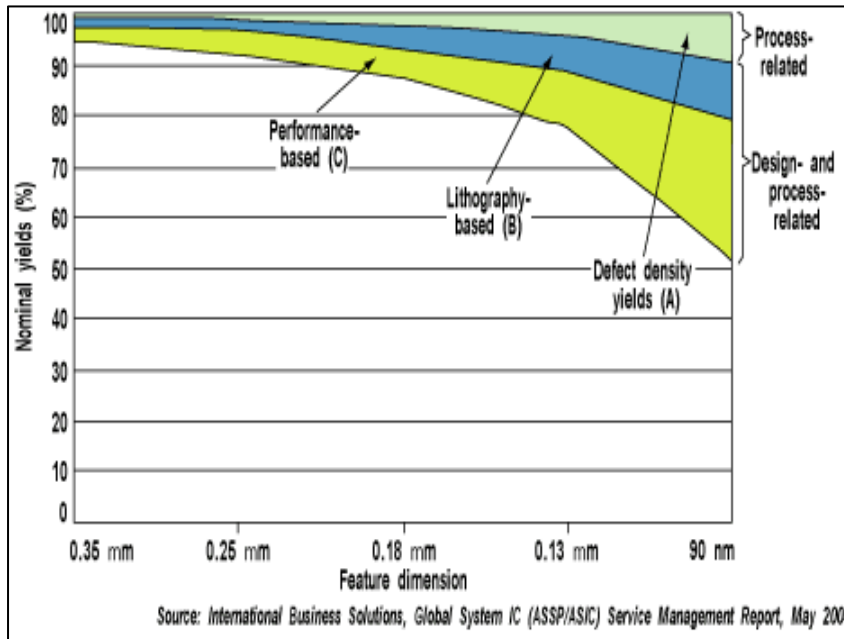
- Discuss and agree on the need for a standard format for fail data logging in STDF
- Present current status
- Identify working group/body for STDF format standardization

Yield Trends



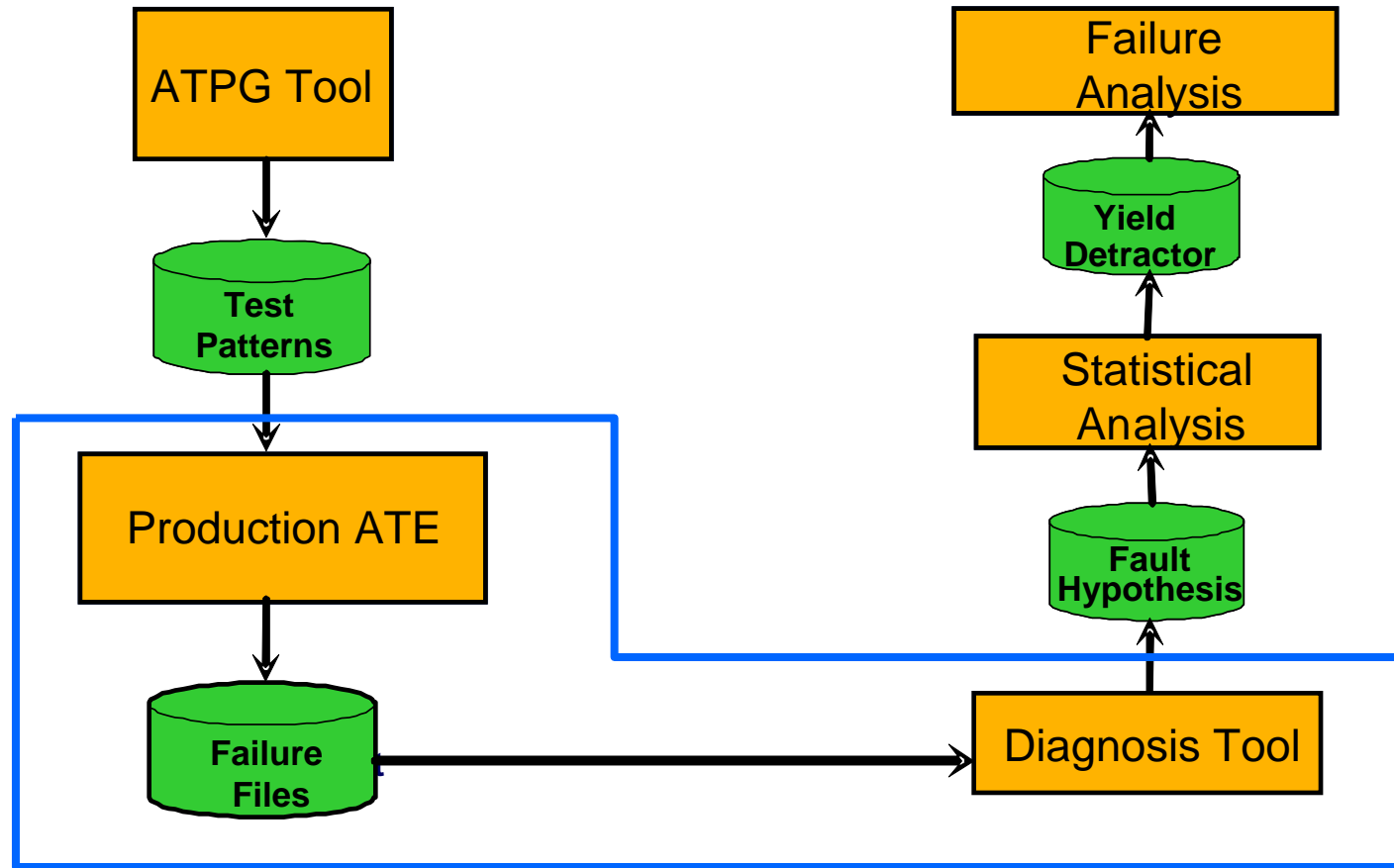
- Starting Yields and the Maximum Yields are lower
 - Slower yield ramps
 - Rising fab cost
- } Higher Depreciation

Deeper Look Into Yield Loss

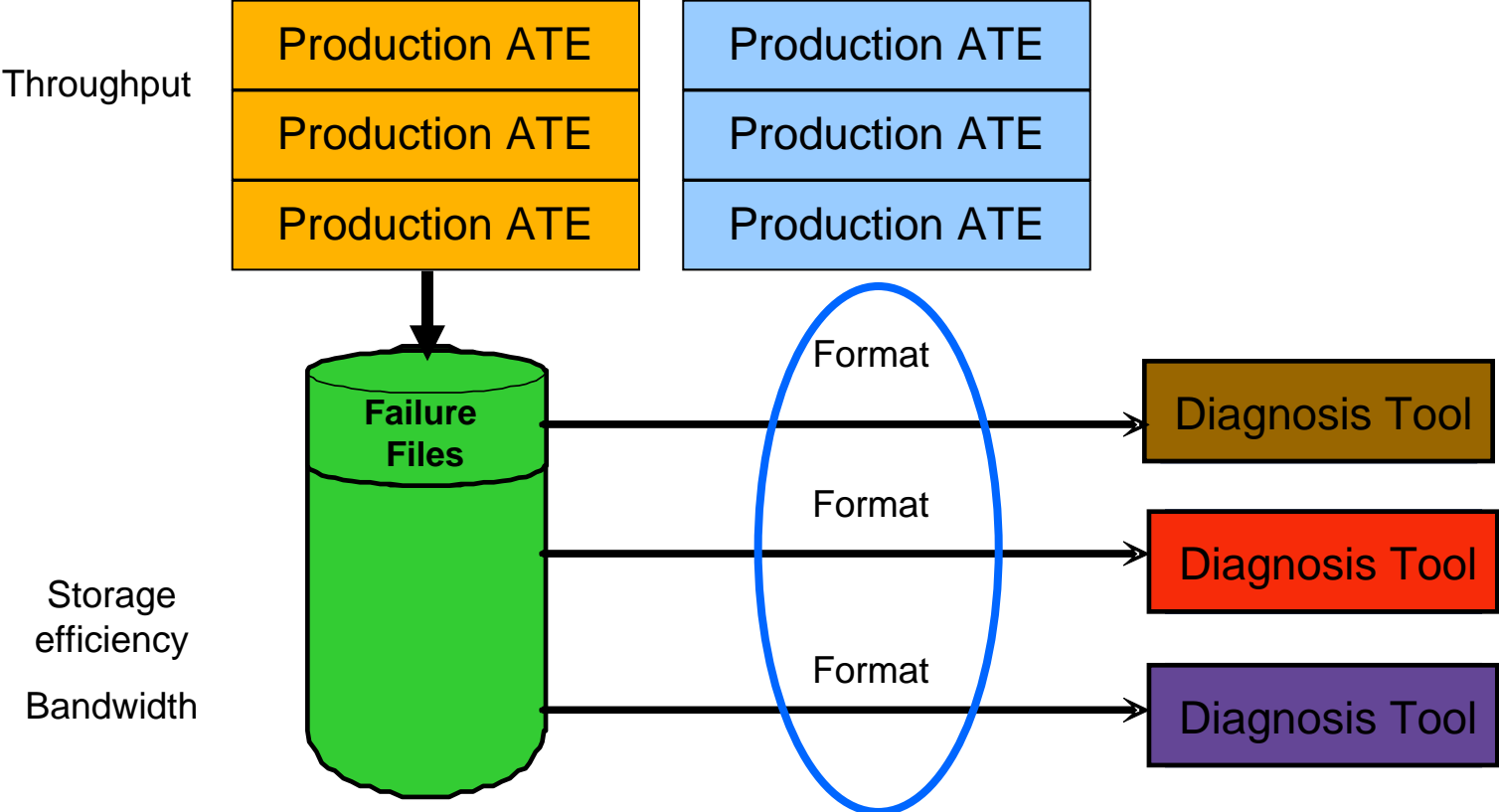


- “Design and process” related effects are increasing
 - Require intra-die information on silicon
- “Ability to use experience to ramp goes down”

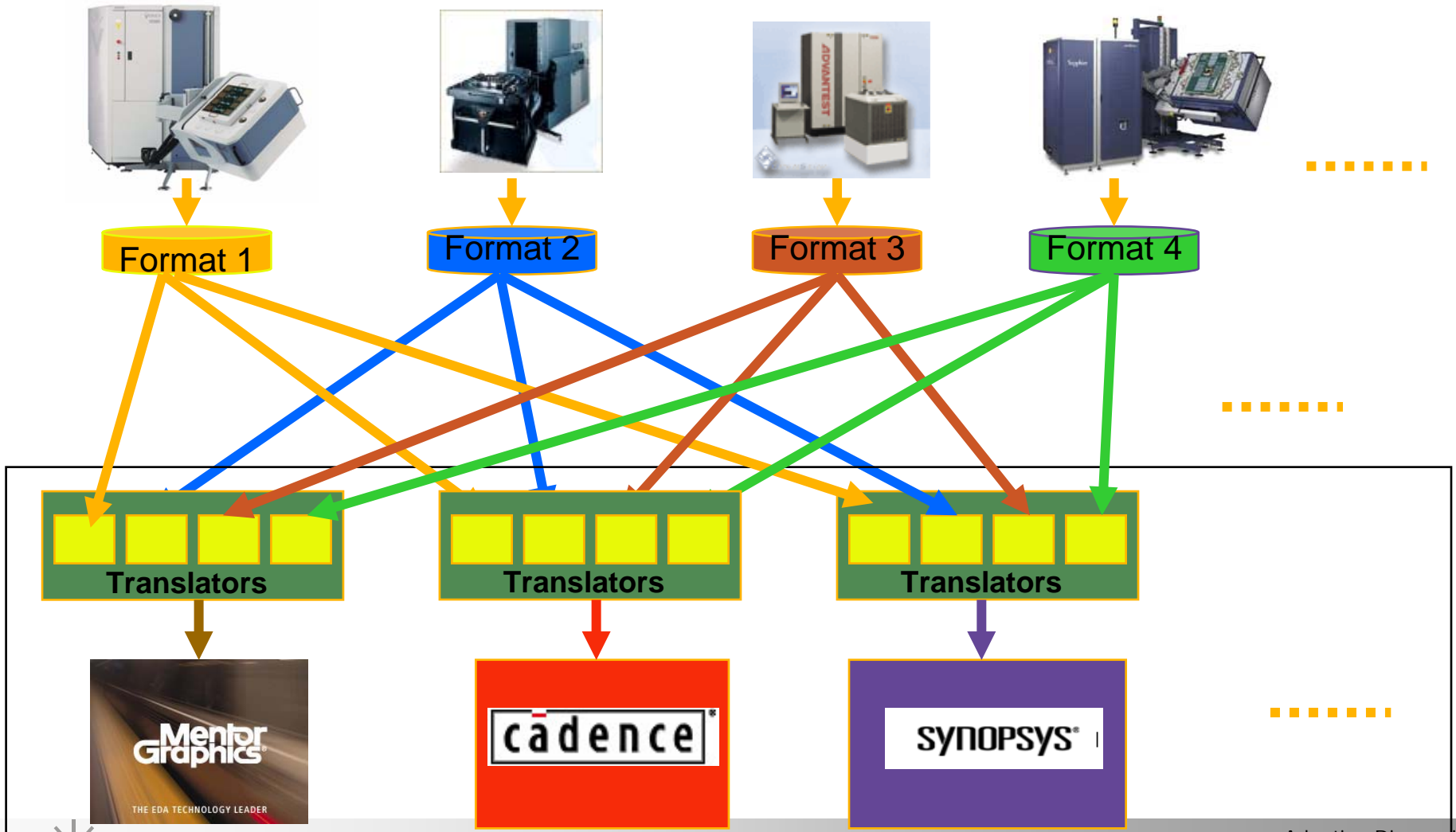
Simple Volume Diagnostics Flow



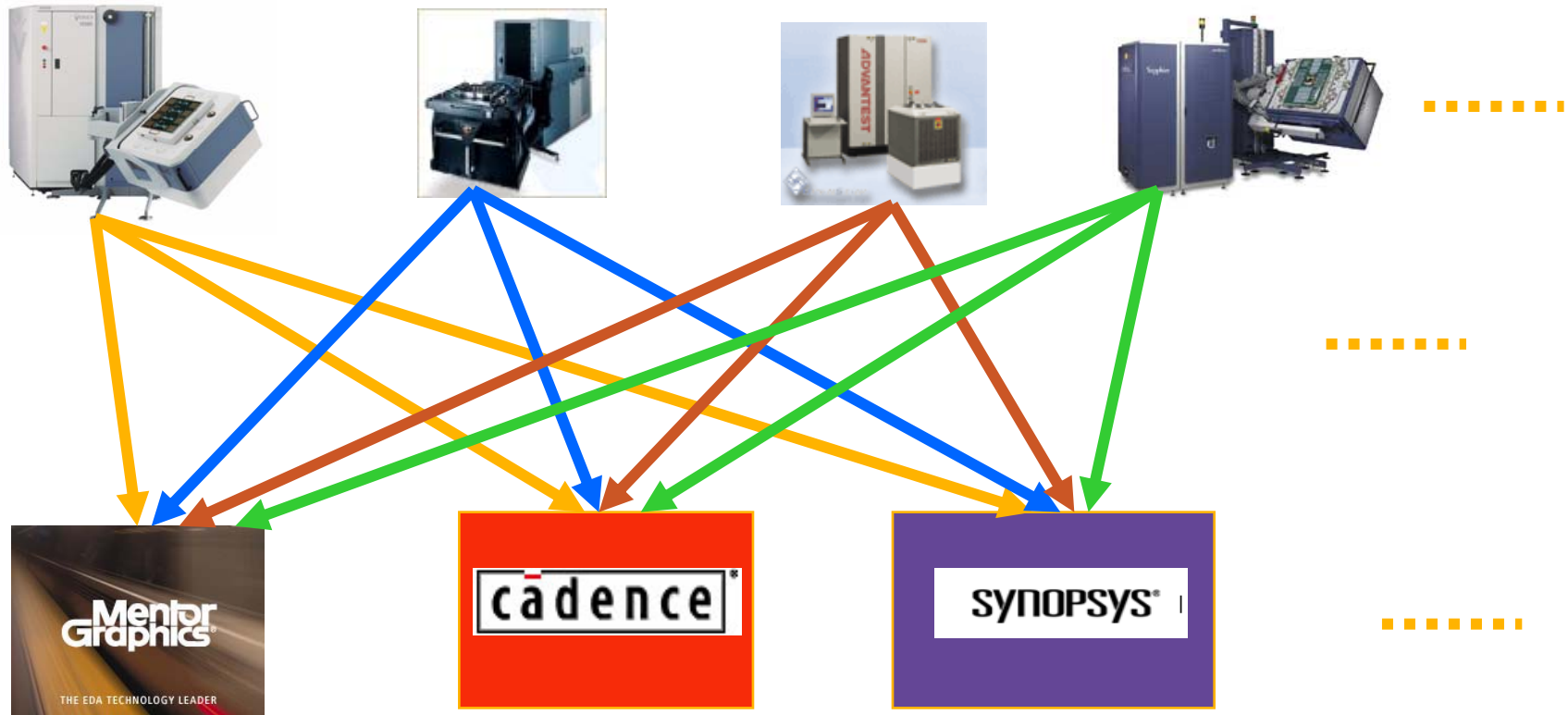
Multi-Vendor Multi-tool Environment



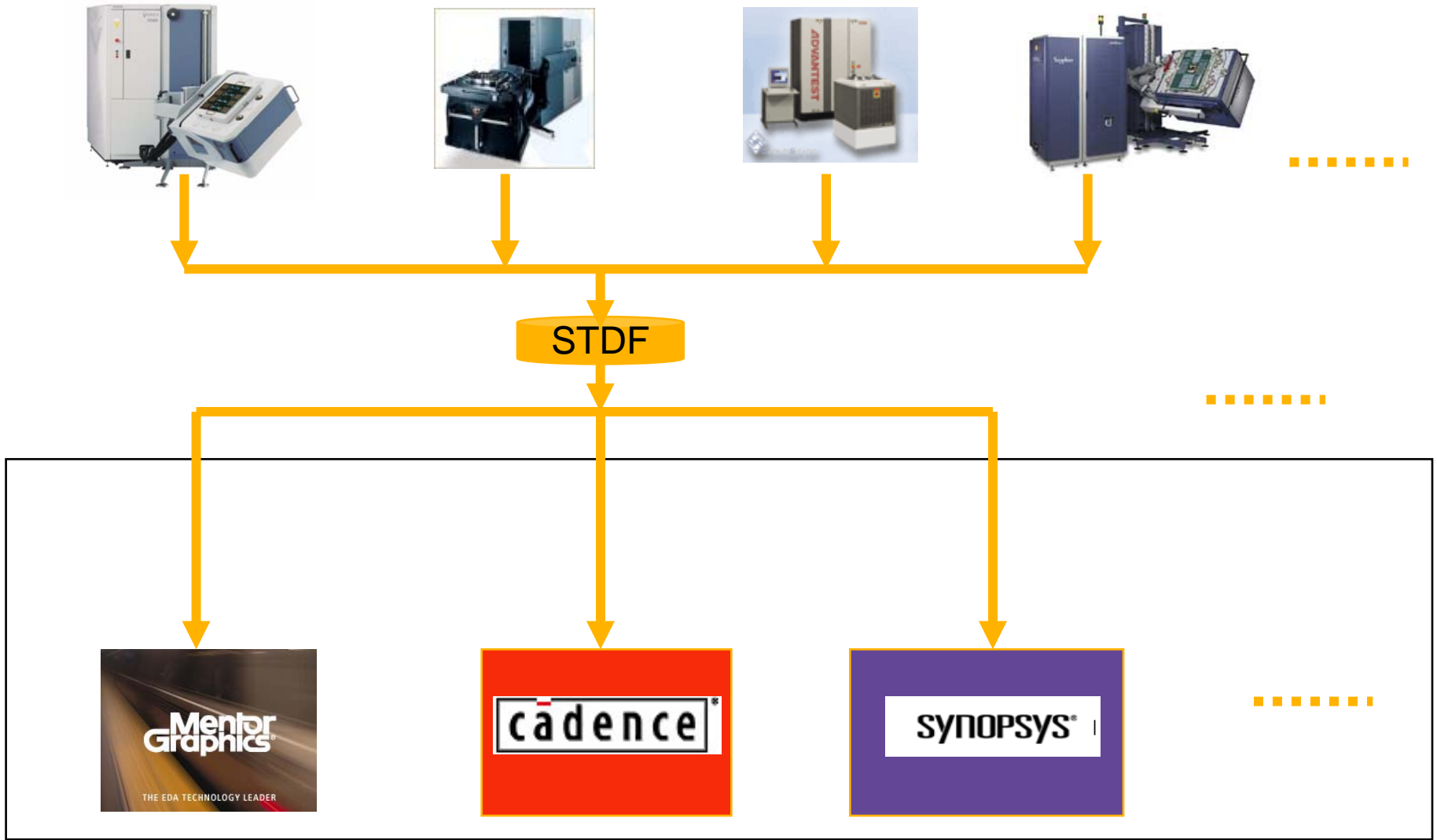
Format Mesh (Mess?) EDA Tool Translate ATE Formats



Format Mesh(Mess?) ATE Generates Data in EDA Tool Format



Standard Format



Format Attributes

- **Data sufficiency:** Provide ability to store “raw” data as well as all the necessary data for the downstream diagnosis tool to perform its function.
- **Data Efficiency:** Low/No throughput impact; Right data with minimum overhead
- **Low/No manufacturing Throughput impact:** To reduce the size of data necessary to convey the requisite information
- **Data Integrity:** Provide means to check for data validity, to perform data synchronization and to uniquely identify a data set.
- **Flexibility:** So that multi-tool, multi-vendor environment can be supported
- **Ease-of-adoption:** To enable fast adoption through easy integration with IT

Status

- **Logic Scan Failure Data log:** A preliminary draft using GDR developed (Verigy, Infineon, Mentor)
- **Memory Fail Data log:** A version published by ST Micro at EMTC 2006 using GDR.

Standardization Alternatives

- Verigy
- Accellera
- STC
- Teradyne
- Independent Industry group
- IEEE

Working Group Modalities

- Who should be involved
- What are the areas to target
- Who should own/drive
- Next meeting (ITC)

END

Format Attributes

- **Data sufficiency:** Provide ability to store “raw” data as well as all the necessary data for the downstream diagnosis tool to perform its function.
- **Data Efficiency:** Right data with minimum overhead
- **Low/No manufacturing Throughput impact:** To reduce the size of data necessary to convey the requisite information
- **Data Integrity:** Provide means to check for data validity, to perform data synchronization and to uniquely identify a data set.
- **Compact representation:** To reduce the size of data necessary to convey the requisite information.
- **Flexibility:** So that multi-tool, multi-vendor environment can be supported
- **Ease-of-adoption:** To enable fast adoption through easy integration with IT