

Next Generation of Avionics Laboratory Development Platforms

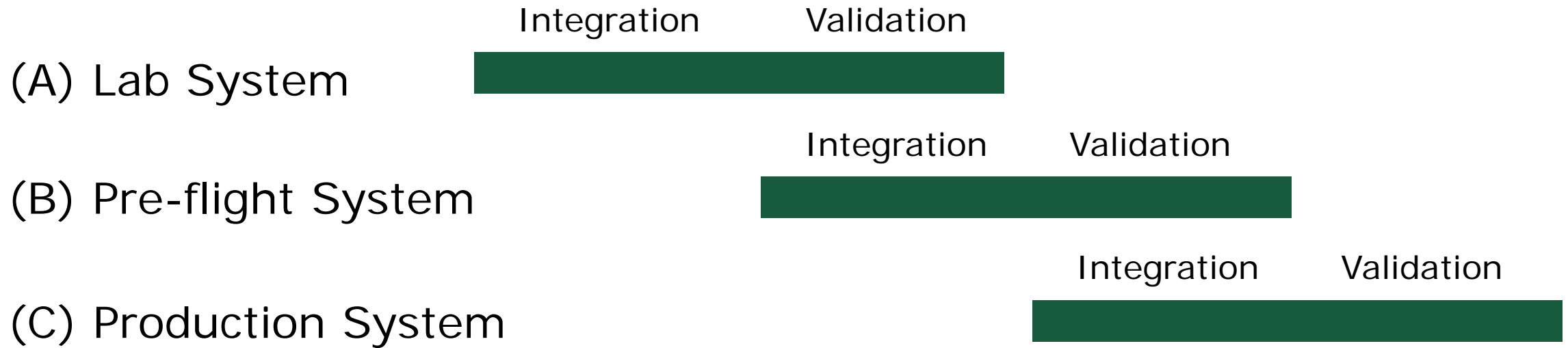


Embedded Tech Trend - January 2016

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Traditional Method for System Development



Goal

Start

Completion

Speed up program
development cycle

Decrease Risk

Reduce program NRE

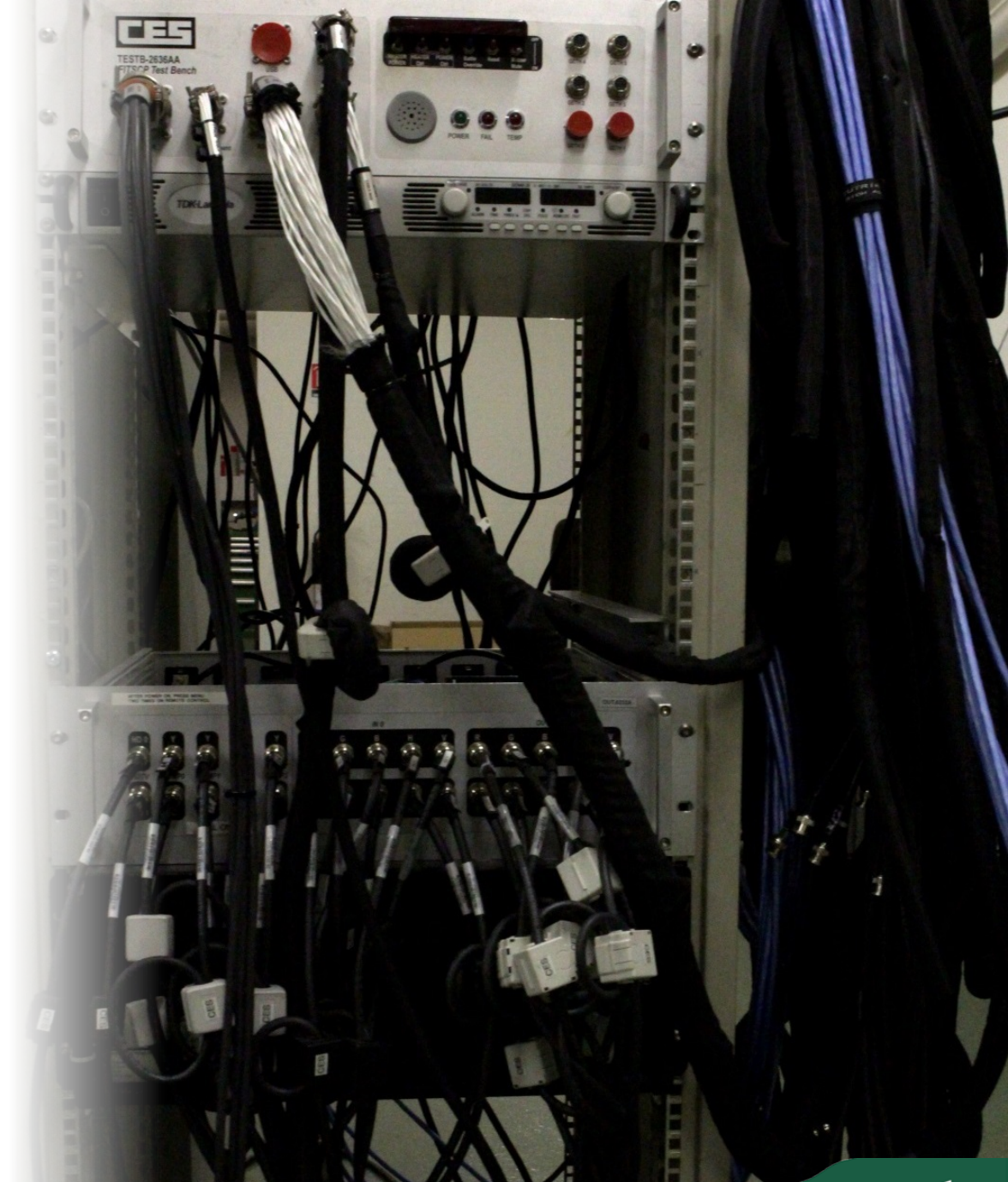
Enable technology

Increase TRL



Traditional Lab Difficulties

- Cost
- Time
- Complexity
- Risk of errors
- Cabling
- Test platform not representative of the final solution



Conceptual Approach (Top Down)

“ Provide a laboratory system that employs the same set of Shop Replaceable Units (SRUs) that will be used in a deployed system ”

- Cover most common avionics requirements.
- Base the design on an open architecture via VITA standards.
- Address consideration for Safety and Design Assurance Level (DO-254, DO-178C)



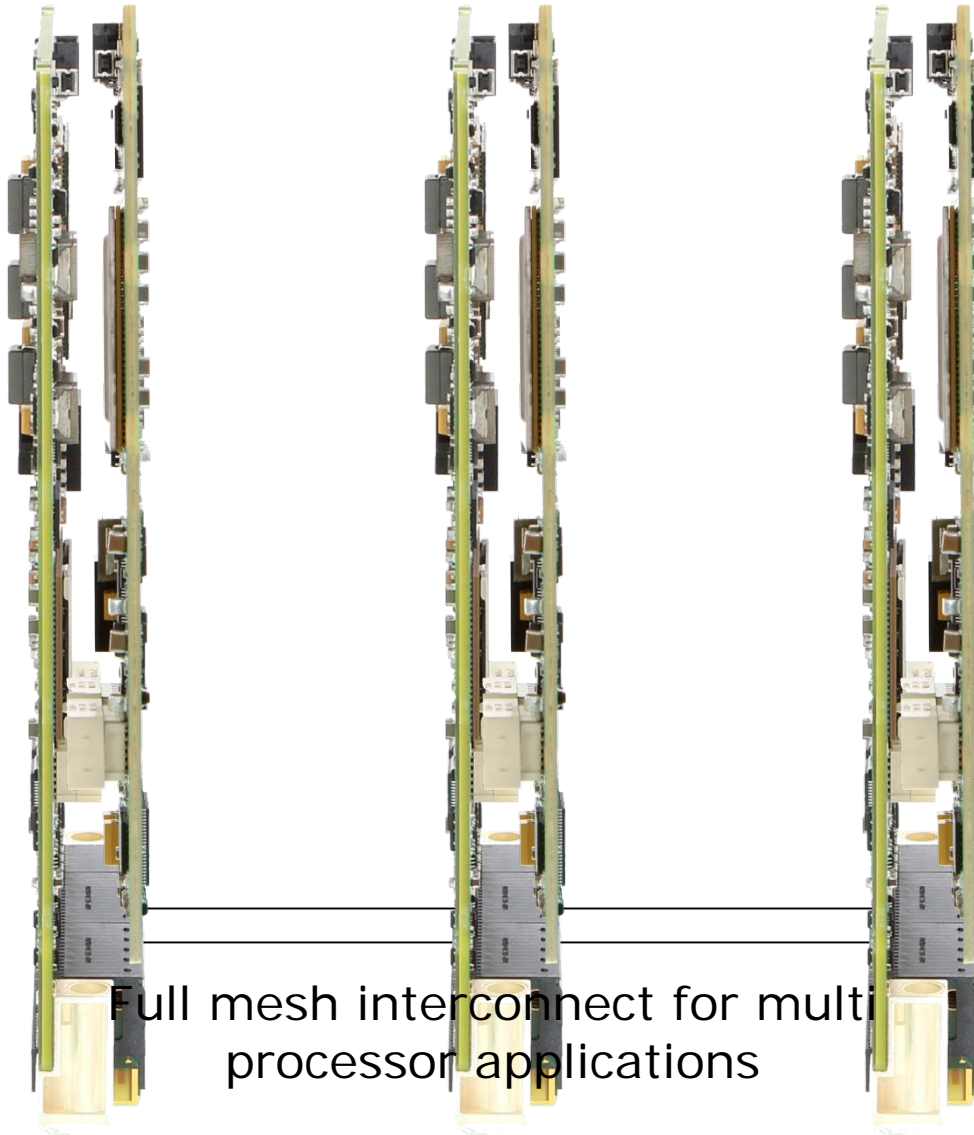
Recipe and Key Elements

IO rich 3U VPX
board modules

Upgradable SBC
mezzanine



Recipe and Key Elements



Full mesh interconnect for multi-processor applications

Recipe and Key Elements



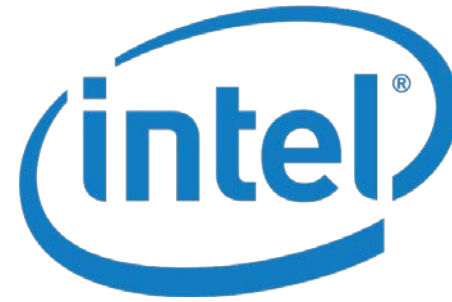
Commercial connectors
allowing the use of
standard cables

Recipe and Key Elements



Open to customization
and adaptation

Recipe and Key Elements





Early Profiling and Concept Validation

“*Allow equipment manufacturer to accurately specify application requirements*”

- Benchmark application performance in near-realistic environment
- Platform architecture validation
- Integrate SW application and API drivers
- Validate BIT coverage

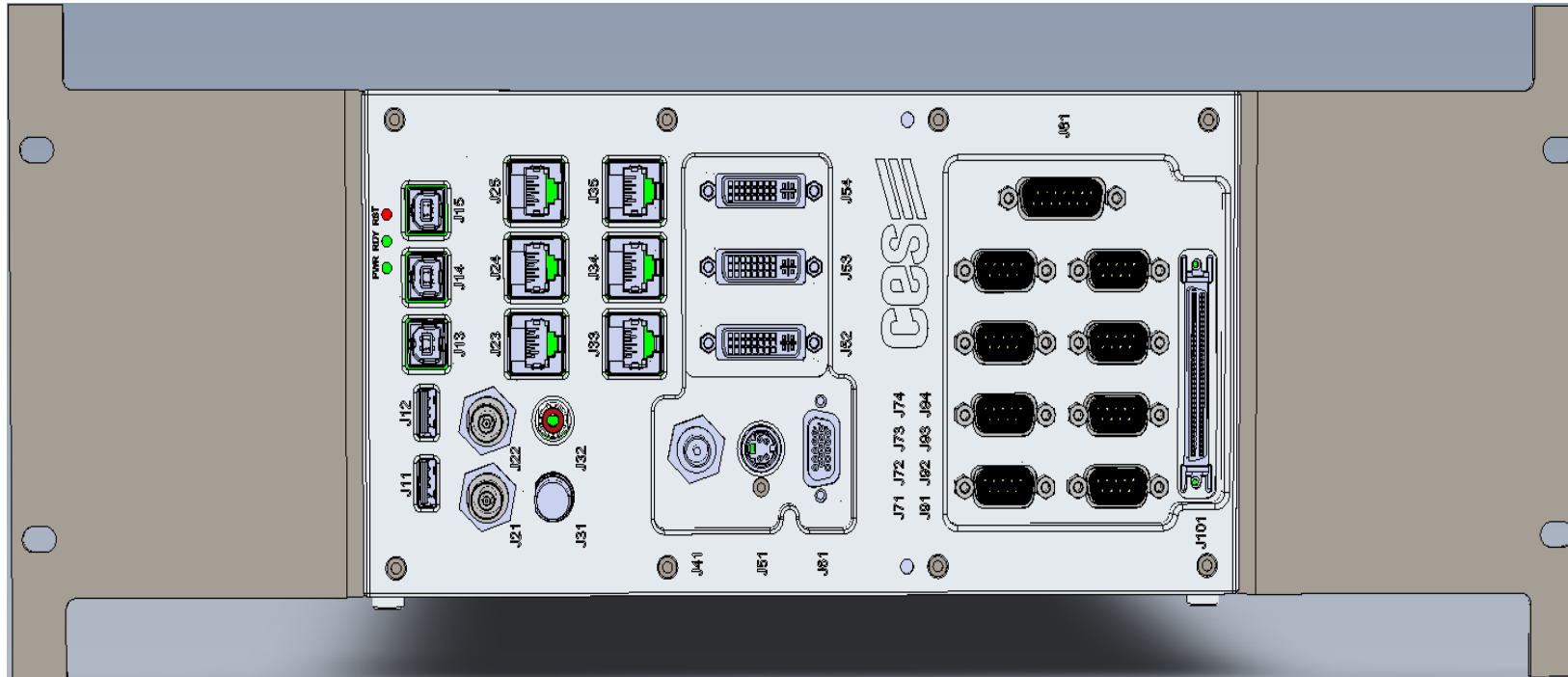
Works Right Out of the Box

- Ready to use. Is supported by pre integrated SW modules
 - BSP
 - Drivers
 - Middleware
 - Tools
- Support for ecosystem/partner SW and middleware



Address Ground Based Installation

Rackable solution



Future Needs & Trends

- Growth provision (slots, interfaces, HW performance)
- Address open architecture and interoperability
- Address new coming technology , processors and interfaces
- Reliability, Availability, Maintainability and Testability (RAMT) and in particular Built in test
- SWaP optimization



Conclusion

“A new type of laboratory platforms becomes a key element for the success of C4ISR avionic programs !”

- Typically saves 6 to 12 month of program schedule
- Early platform architecture validation
- Reduces program risks and cost
- Deployable as a ground based fixed installation

Thank You

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