How to evaluate your next IP-Core in the Cloud

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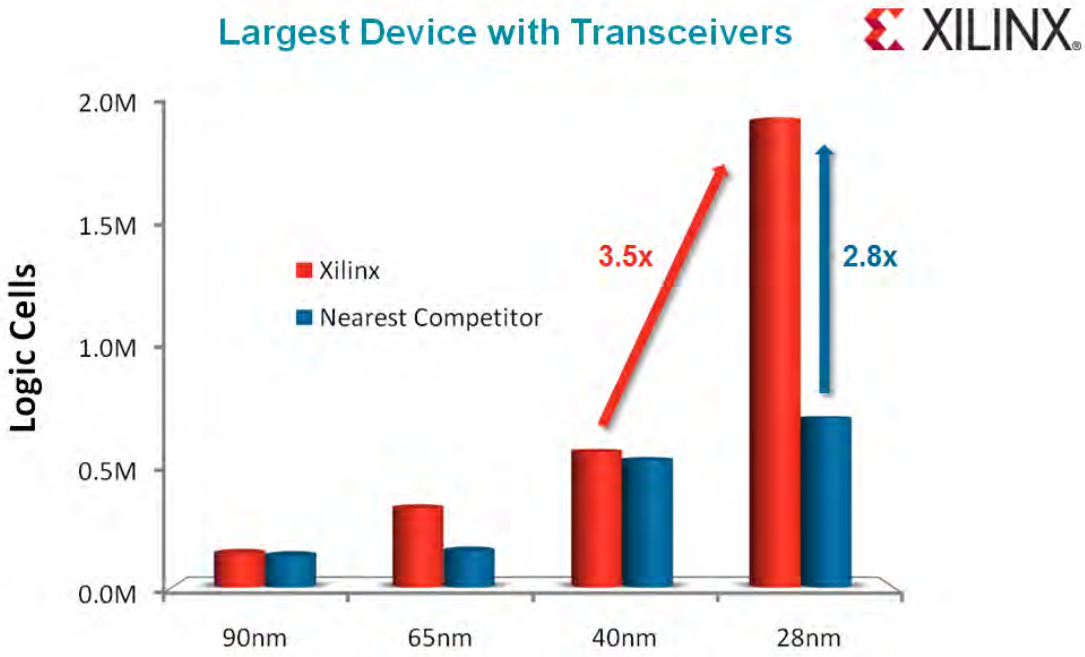
  Sr. Member Technical Staff

  Missing Link Electronics

FPGA design complexity

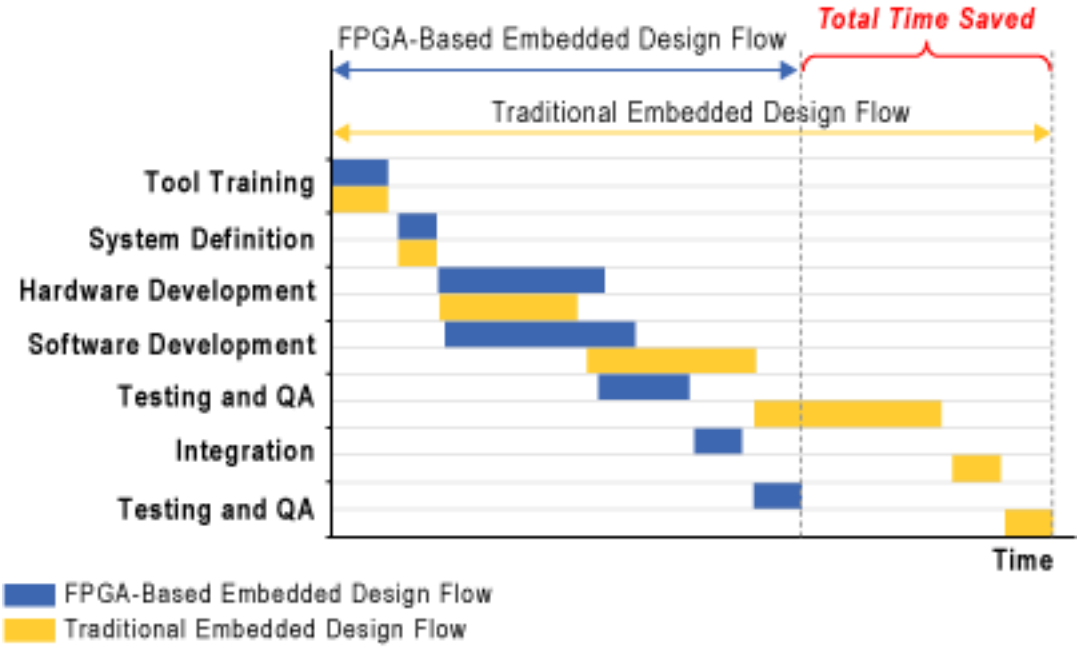
- Complexity of FPGAs rapidly growing
- Complexity of FPGA designs is directly proportional



Courtesy : Xilinx, Inc.

Projected development times

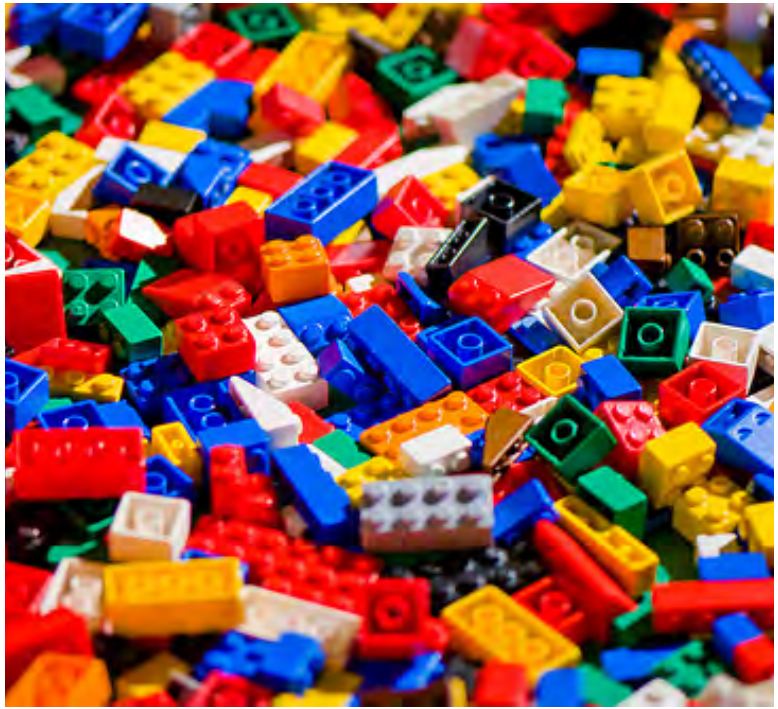
- Development times projected to be less compared to traditional approaches



Courtesy : Altera, Inc.

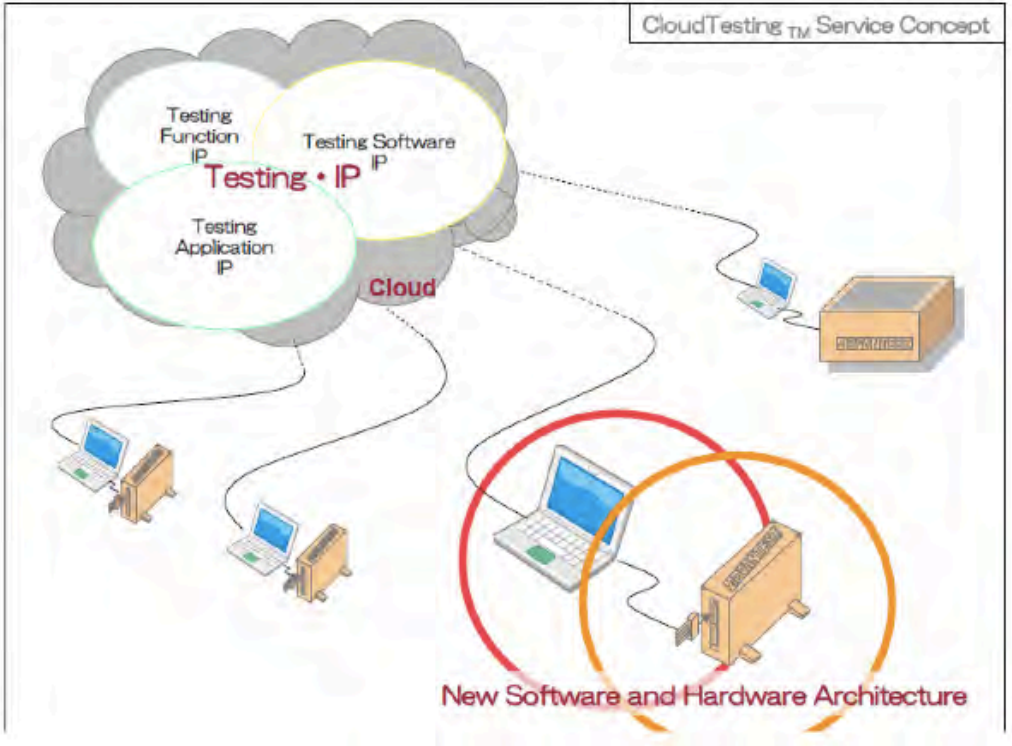
IP-Cores filling the gap

- Pre-built building blocks to bridge the gap
- Standard interfaces
  - FPGA internal bus interface
  - Software interface
- Tool integration
- Reference designs



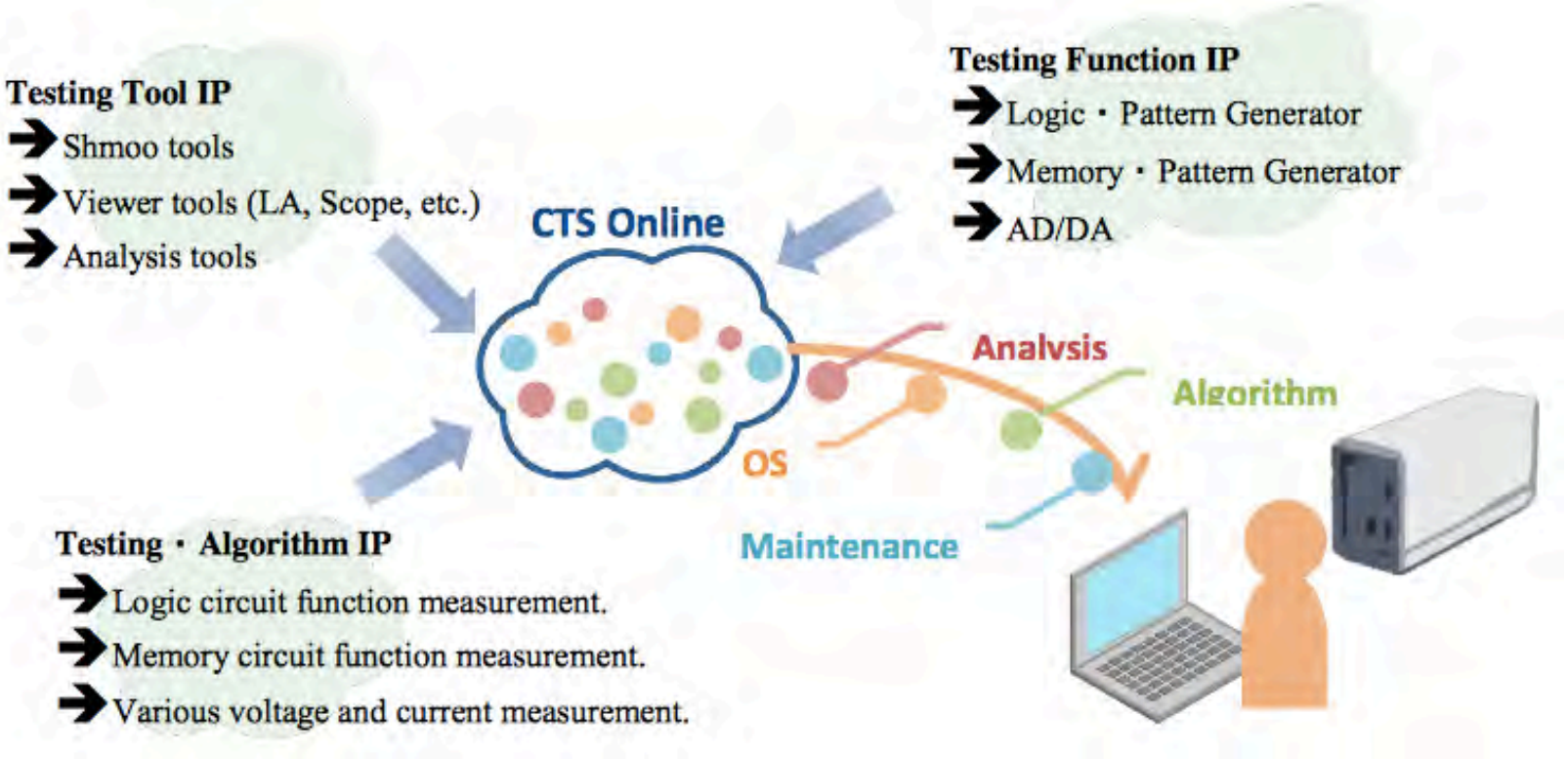
State of the Art: Cloud Testing Service

- Introduced by Advantest
- Testing for Hardware components
- Moves test program component development into the cloud
- Tester itself as a physical box on the own desk



Courtesy : Advantest, Inc.

State of the Art: Cloud Testing Service (Concept)



Courtesy : Advantest, Inc.

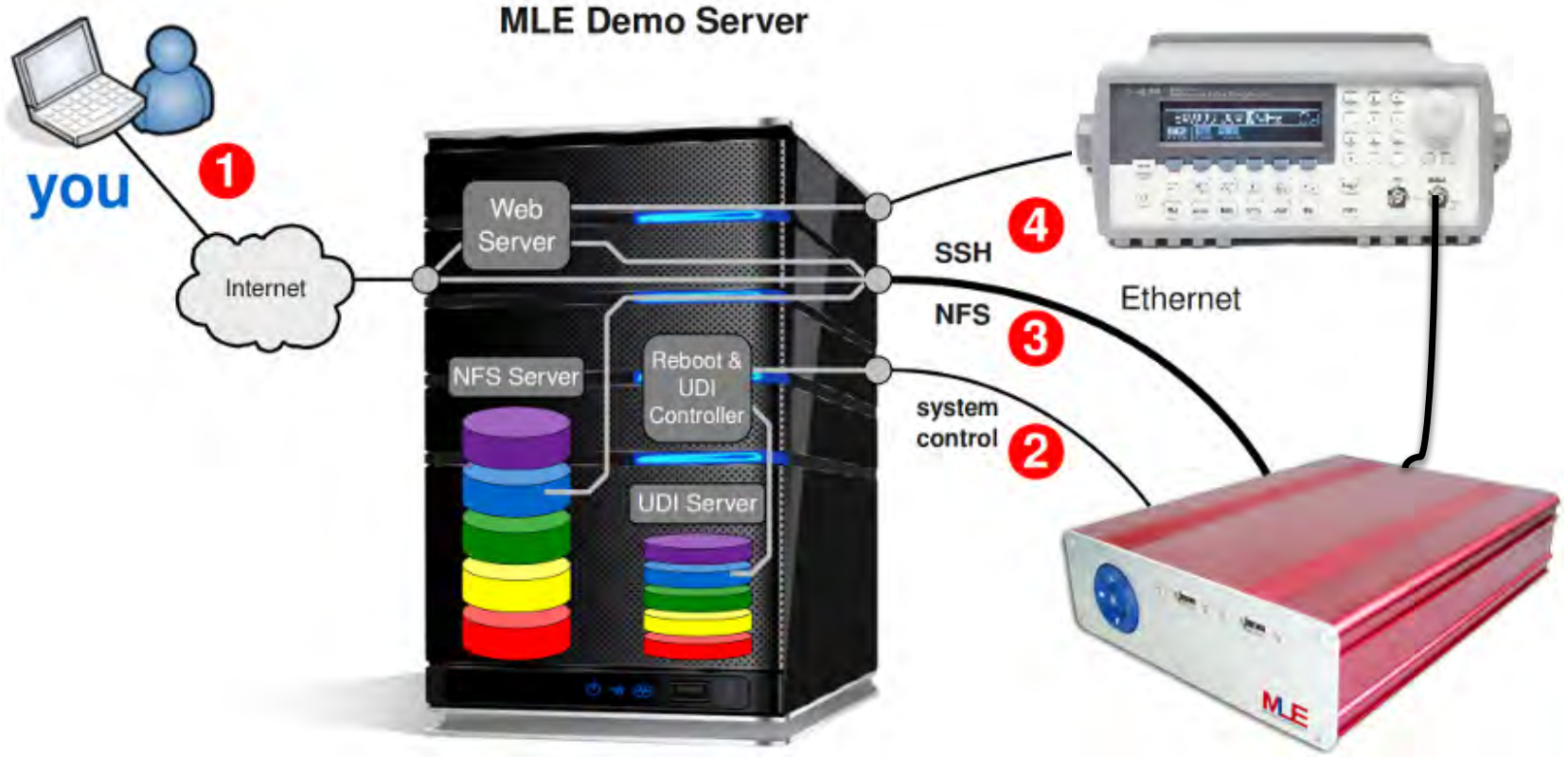
New Challenge: Finding the right IP-Core

- Make or buy
  - Binary vs. source code licenses
  - Maintainability
- The legal challenges
  - Evaluation licenses
  - Qualifying a vendor
- The evaluation phase
  - Does the IP-Core work?
  - How to test - Blackbox

Blackbox IP evaluation

- Resources
- Price
- Functionality
  - Reference design
    - Stimulus
    - Verification
      - Own test equipment needed
      - Own test setup/scripts needed
    - Acceptance
  - Ability to integrate in own solution

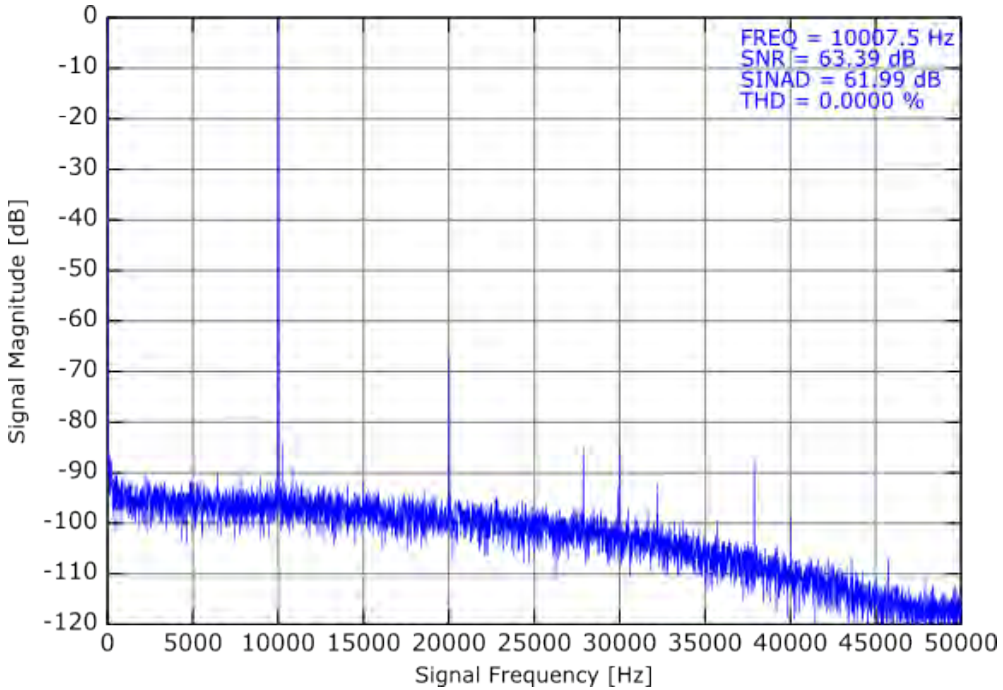
IP-Core cloud testing concept



Example: MLE SoftADC IP (IP test setup)

- Input
  - Selectable GPIB scripts for Agilent Arbitrary Function Generator
- Output:
  - Results as CSV
  - Results as Plot

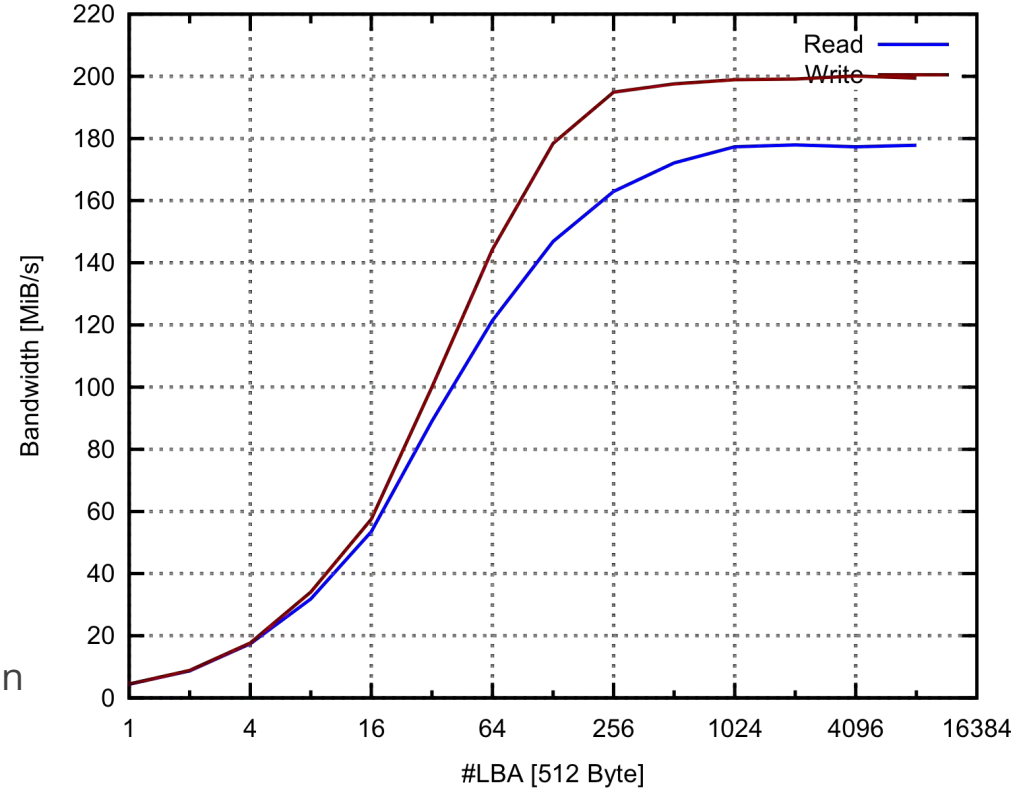
- Future
  - Input
    - WAV files
  - OutputOscilloscope Results



Example 2: Zynq SATA Storage Extension (IP test setup)

- Input
  - FIO test script
- Output:
  - Results as CSV
  - Results as Plot

- Future
  - Input
    - Test modes
  - Output
    - Protocol Analyzer Information
    - Oscilloscope Results



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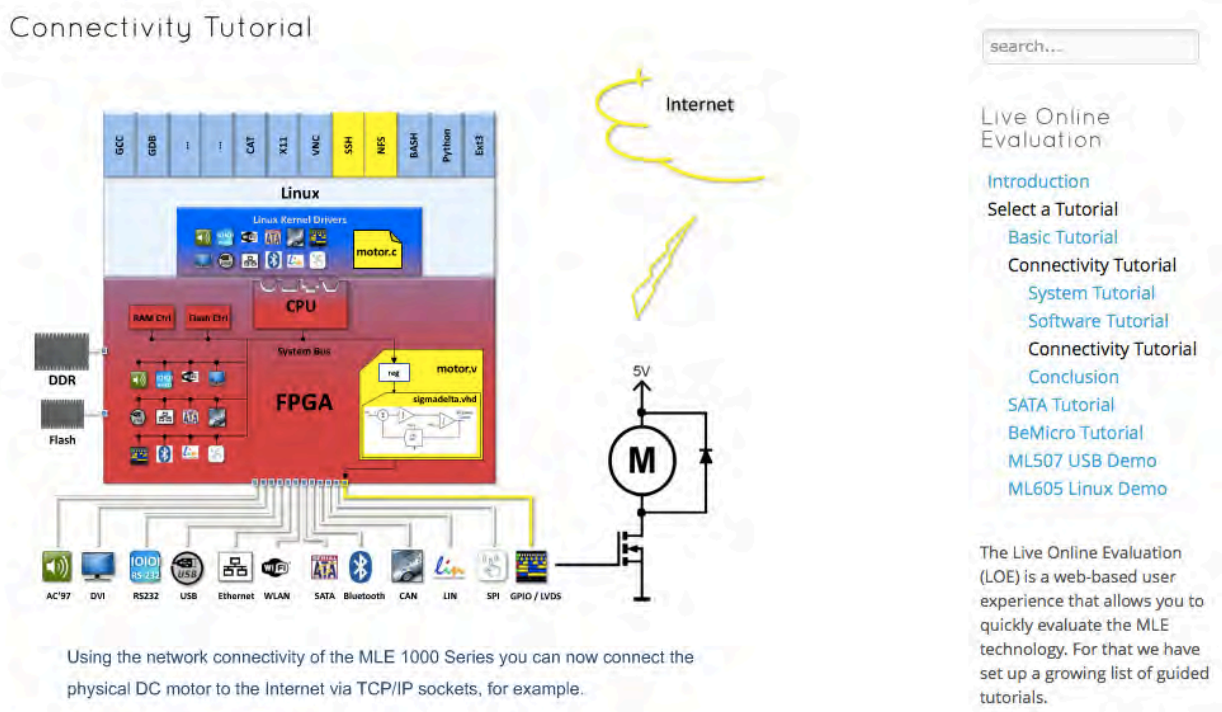
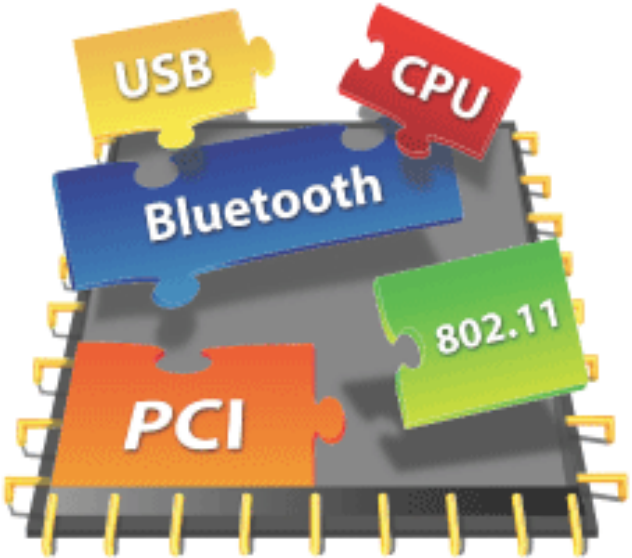
Getting started example

- Only actuator, no analyzing
- Android/iPhone app available



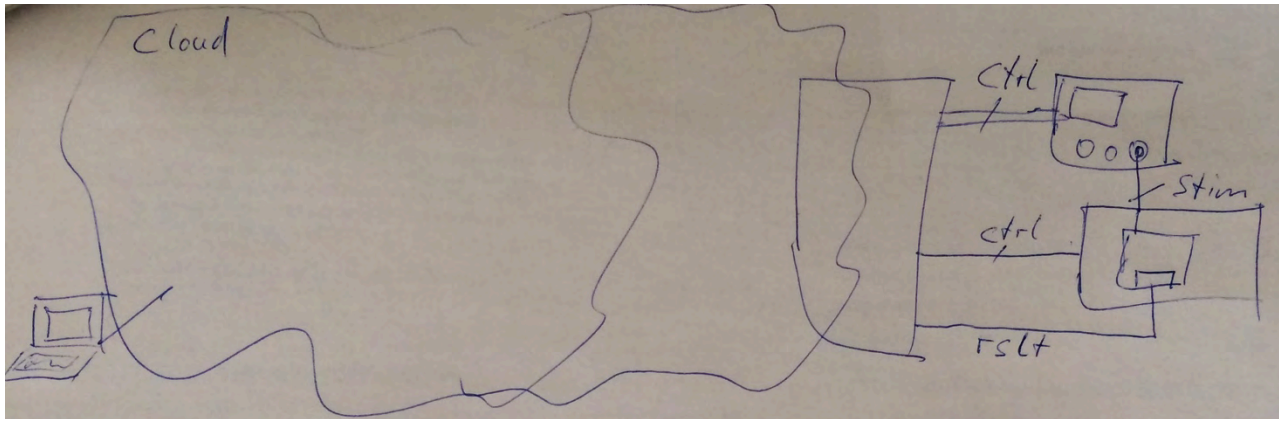
Why IPs?



Standardized IP is critical to assembling a working system-on-chip particularly when it comes to specialized circuit functions. IP vendors can assist the designer by insuring that a given IP block not only conforms to standards, but also has been thoroughly tested and verified to produce the required functions. The designer can then concentrate on the custom aspects of the design that make it unique in the market.

Source: Mentor Graphics

Blackbox IP evaluation in the cloud



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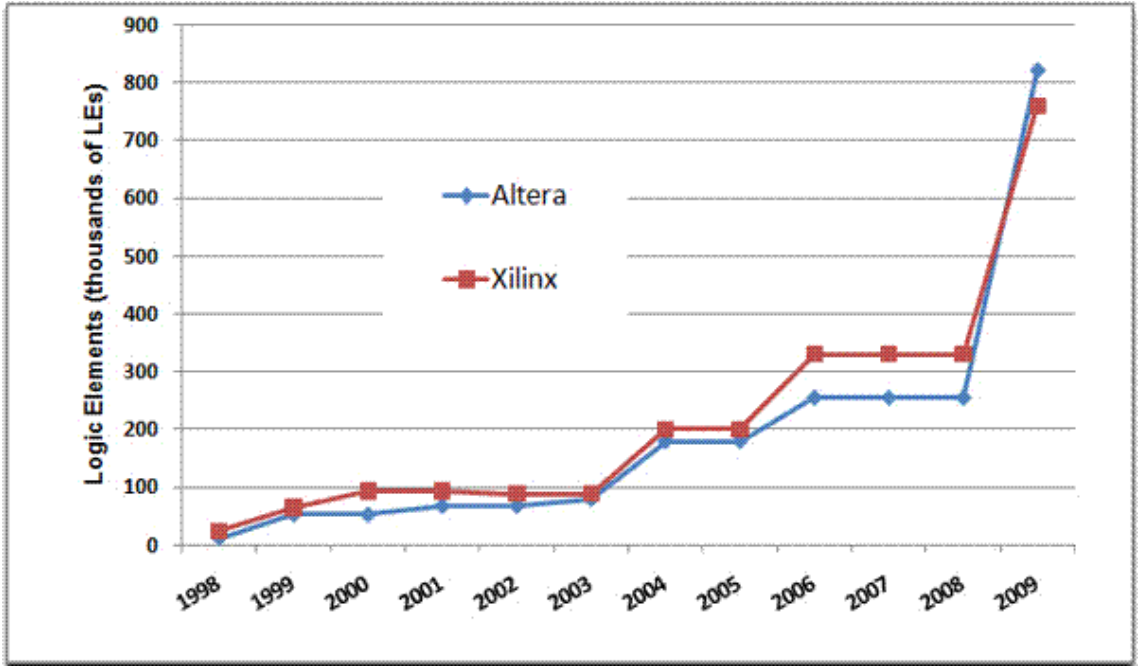

Courtesy (e.g.): http://www.soccentral.com/results.asp?CatID=488&EntryID=30730