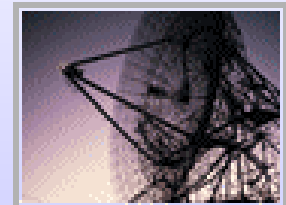
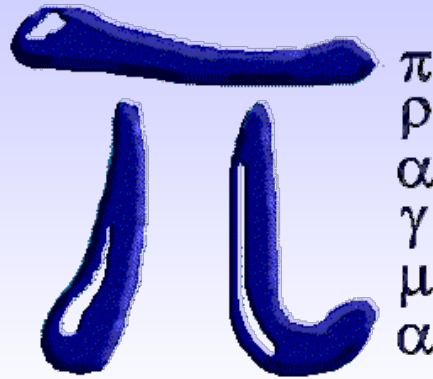


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**Forum Aerospazio e Difesa 2007**





# PRAGMA ENGINEERING Srl

**Next-Generation ATS  
(Sistemi ATE di Nuova Generazione)**



# Mission & Vision

***Pragma Engineering* supplies design and development services, manufacturing custom hardware and software**

**The tight integration between hardware and software systems and their continuous upgrade lead to a successful product as well as to an efficient production chain.**

# ATE Systems Division

***Pragma Engineering***  
**designs and develops ATE**  
**systems for military, industrial**  
**and consumer devices.**

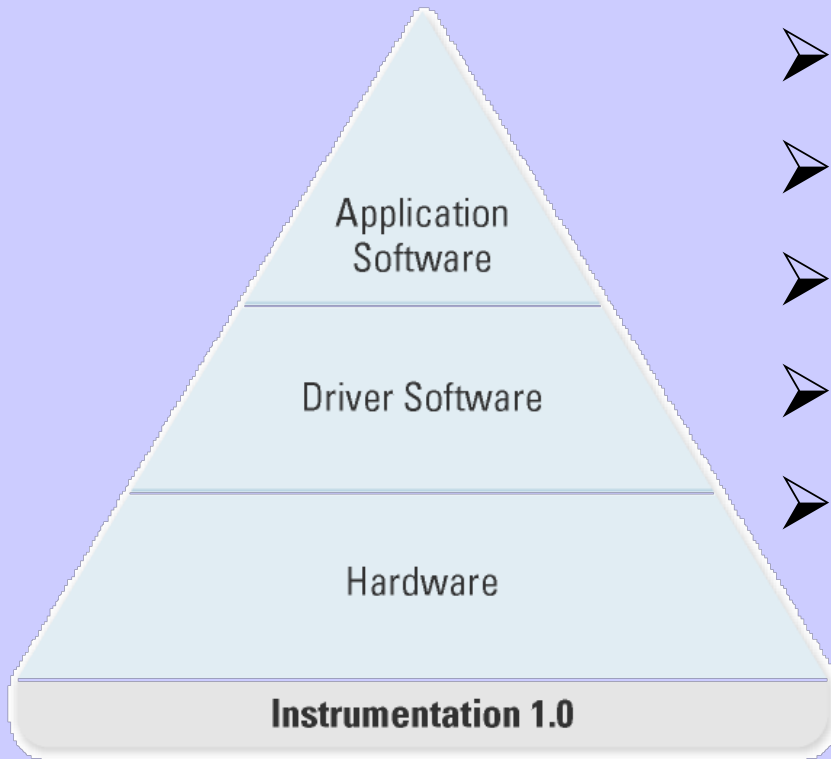


The adoption of advanced hardware architectures and specific software development environments allows to obtain high performance and cost effective solutions.

# Test Engineer needs from Next-Generation ATE Platforms

- **Flexibility**
  - User-defined system deployable to a wide variety of applications
- **Performance**
  - Measurement quality, high test throughput
- **Lower cost**
  - Initial system, maintenance, reuse/flexibility
- **Reduced size**
  - Small form factor, fewer instruments for same measurements
- **Longevity and upgradability**
  - Industry standard that enables use of technology upgrades

# ATE Traditional Approach (Instrumentation 1.0)

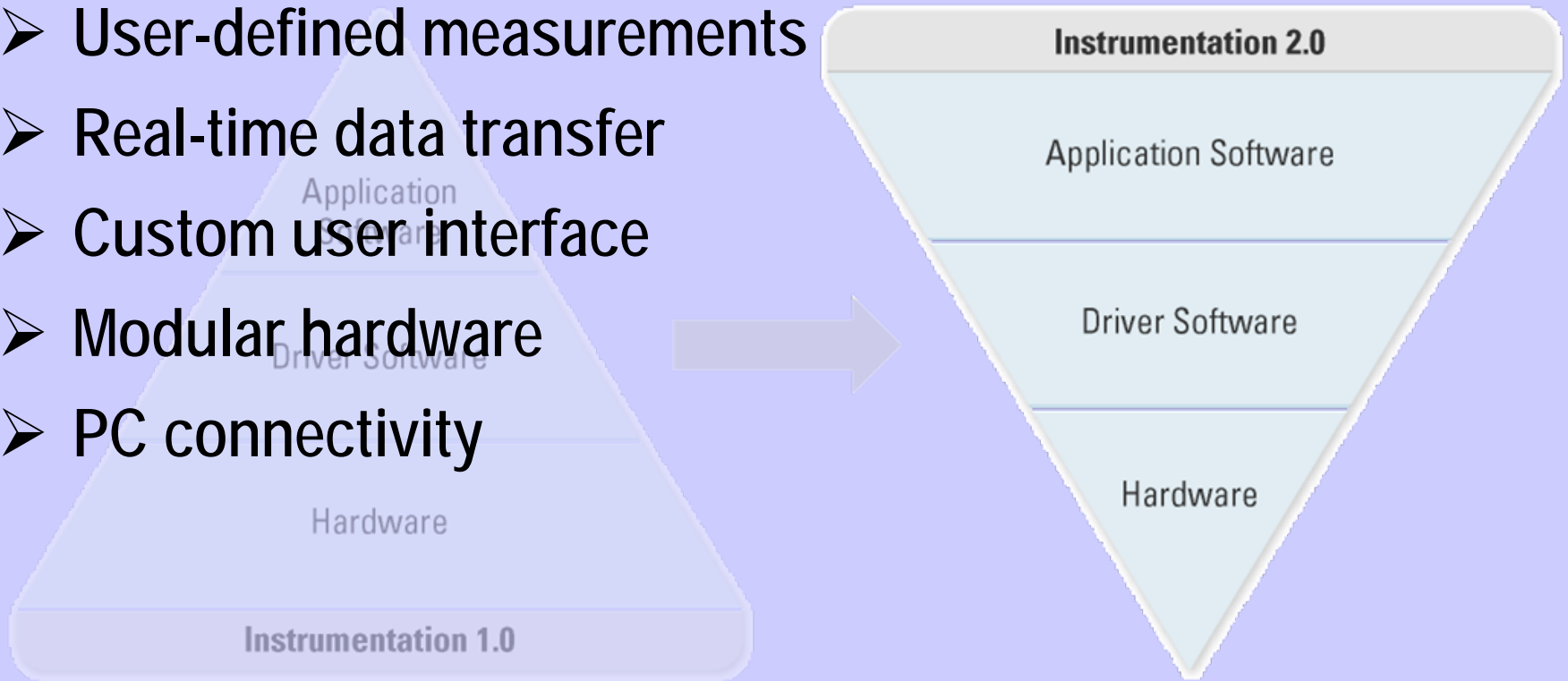


- Vendor-defined measurements
- Packet-based "results" transfer
- Fixed user interface
- Fixed hardware configuration
- Optional PC connectivity

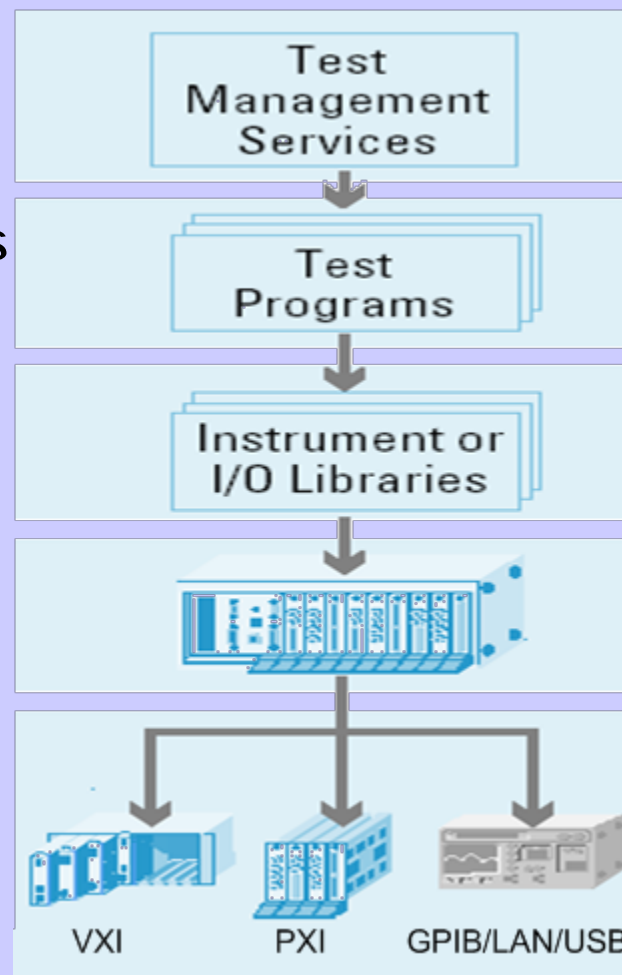
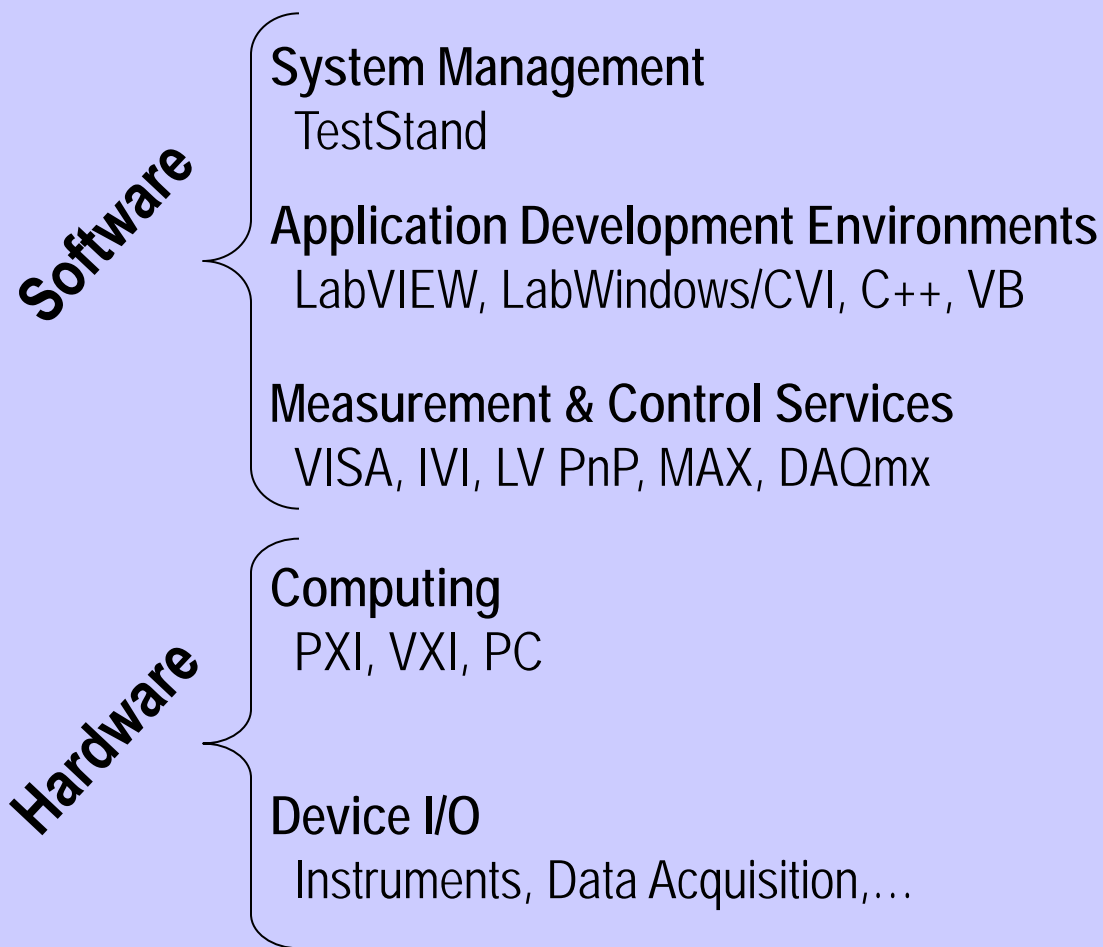


# Next-Gen ATS Approach (Instrumentation 2.0)

- User-defined measurements
- Real-time data transfer
- Custom user interface
- Modular hardware
- PC connectivity



# Next-Gen ATS Architecture

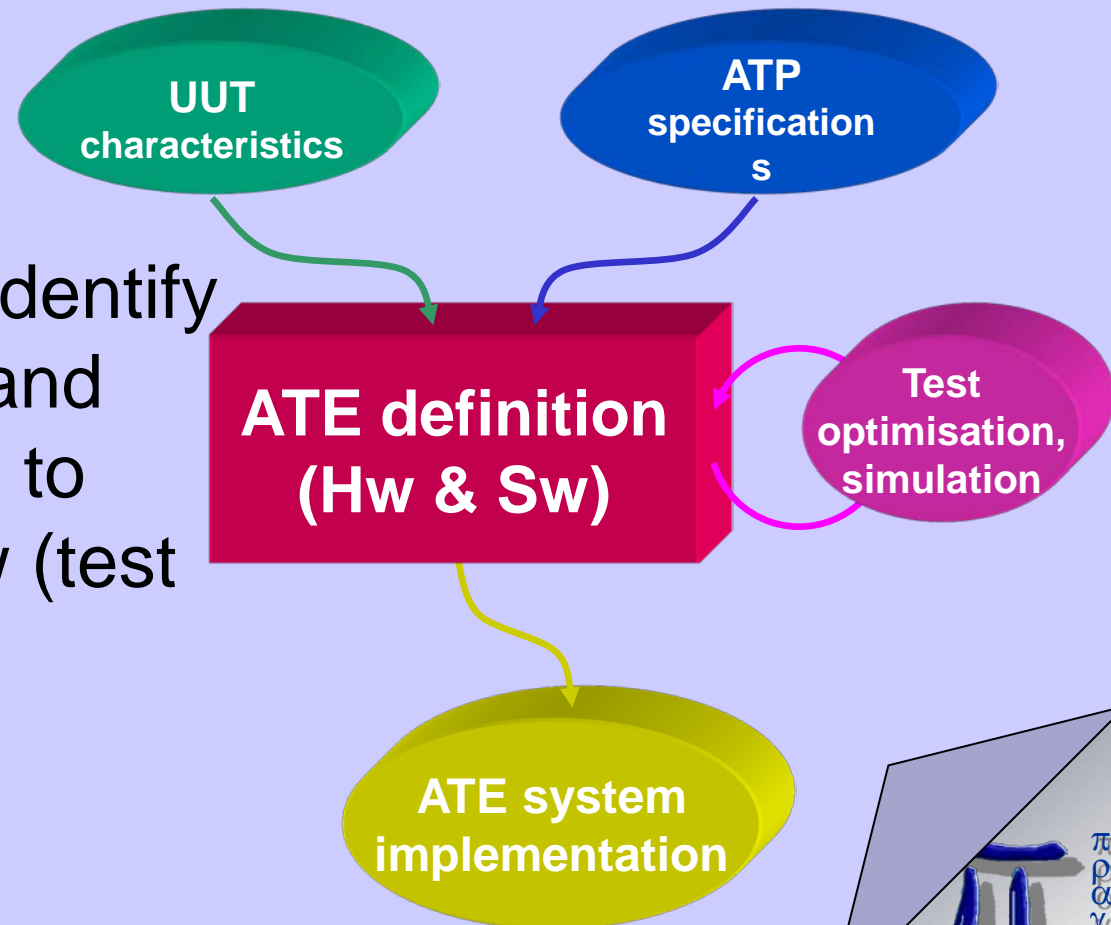




# ATE Systems Design

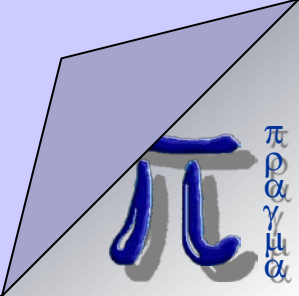
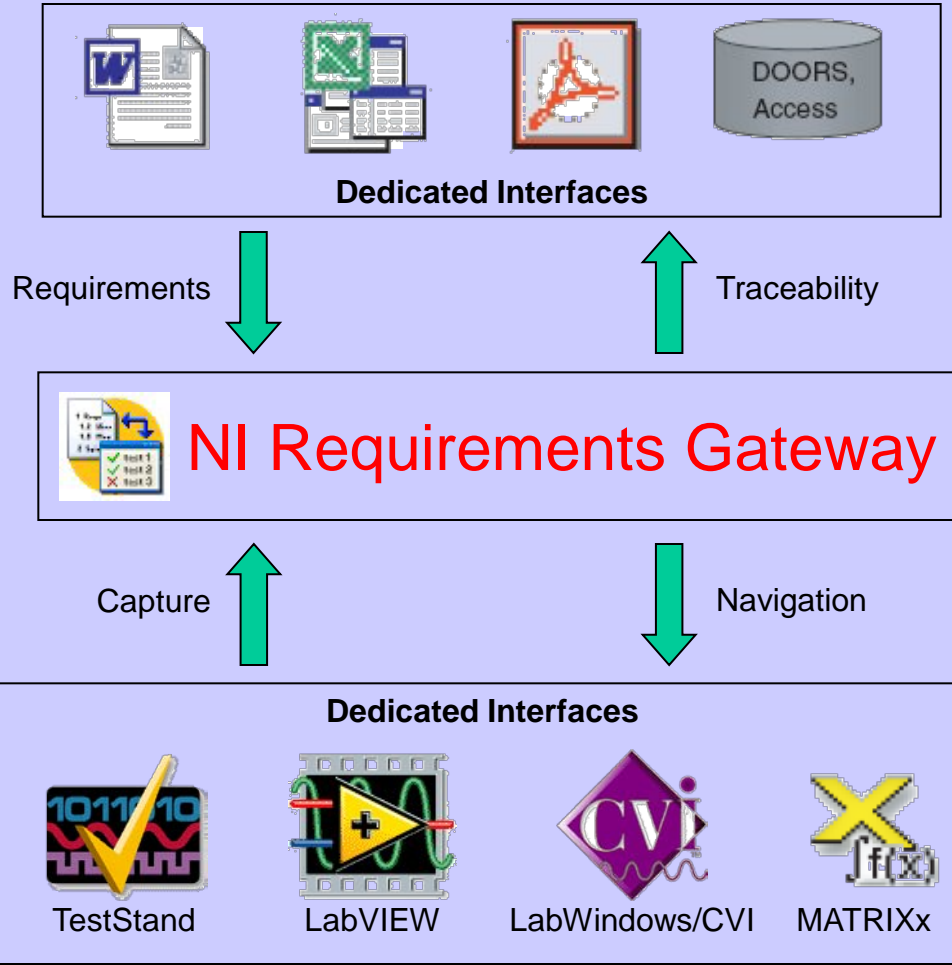
The design process is based on device characteristics (UUT) and test specifications (ATP) analysis

This process allows to identify the required hardware and software resources and to define the best test flow (test optimisation).



# Next-Gen ATS: Software Development

Requirements analysis, coverage and traceability are essential tasks in order to improve the quality of the development process.

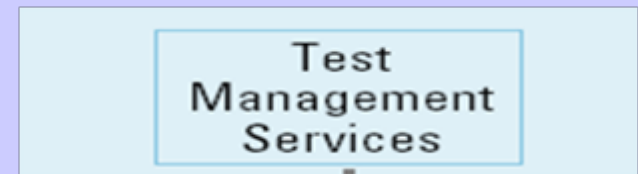


# Next-Gen ATS: System Management

TestStand™ is used as test engine to implement the test sequences throughout the use and customisation of process model (sequential, parallel and batch).

## Benefits of system management

- Improve test code reuse
- Decrease development time
- Take advantage of extensibility
- Simplify global design and manufacturing
- Increase throughput
- Merge new test code with legacy test code
- Migrate software



TestStand

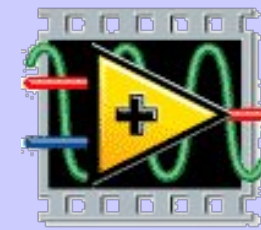
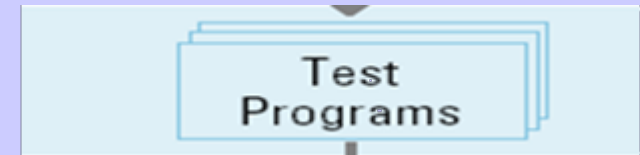


# Next-Gen ATS: ADEs

LabView™ & LabWindows/CVI™ are the main ADEs used to develop test code (driver, measurement, operator interface, etc.)

## Benefit of targeted ADEs

- Open architecture
- Platform independence
- Flexibility
- Scalability
- Ease of use
- Technical support
- Productivity
- Stability
- Driver availability
- Compiled performance



LabVIEW

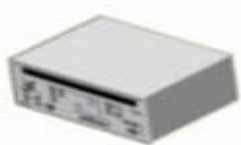




LabWindows/CVI

# Next-Gen ATS: Measurement and Control Services

This layer allows hardware and software separation for debugging purpose, Hw replacement, and system maintenance & scalability

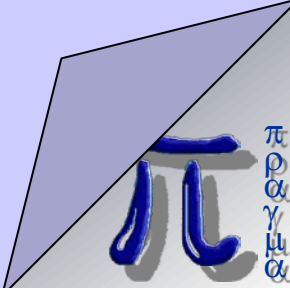
## Application Development Environments

Configuration Manager Measurement and Automation eXplorer	Diagnostic Tools NI-Spy, GPIB Analyzer	Instrument Drivers LabVIEW and CVI Plug and Play, IVI
		APIs NI-VISA, NI-488, NI-VXI, NI-DMM, IVI
		Driver Engine VISA, GPIB, VXI
 GPIB/Serial	 VXI	 PXI/CompactPCI

Instrument or I/O Libraries



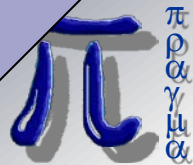
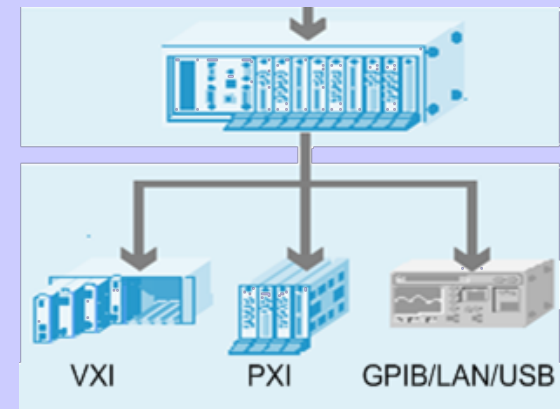
NI-VISA



# Next-Gen ATS: Hardware layers

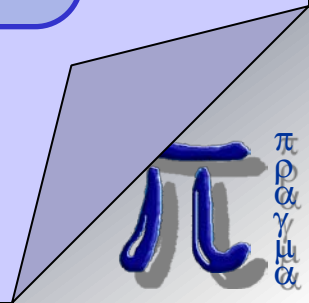
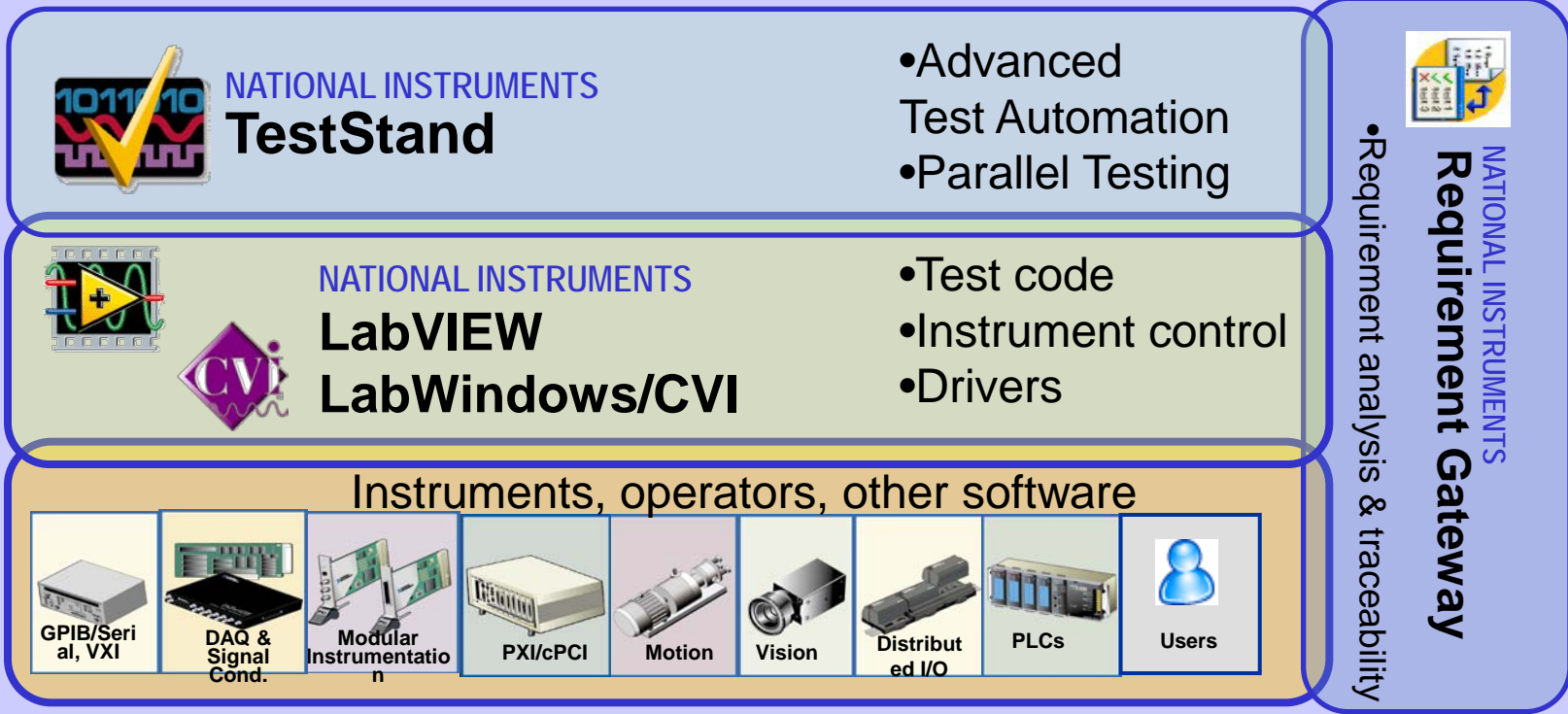
## Computing & Device I/O resources:

- PXI (CompactPCI Optimised for Test) modular architectures to implement virtual instrumentation
- standard architectures with traditional instrumentation on GPIB/LAN/USB bus
- switching systems (Multiplexer and/or Matrix) for signal routing from and to bench



# Next-Gen ATS: Implementation

Overall view of main Software & Hardware components that build-up modular ATS



# Next-Gen ATS: Expertise

***Pragma Engineering*** staff is composed by high qualified and skilled engineers.

Among them we count on:

- **1 Certified LabVIEW Developer**  
(25 CLD in Italy and 677 World Wide)
- **1 Certified TestStand Developer**  
(2 CTD in Italy and 42 World Wide)

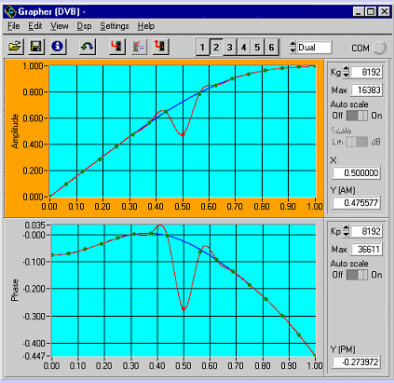


*Source: NI Service – Certified Professionals Report (May 2007)*



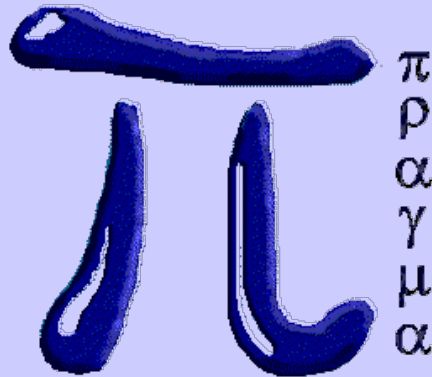
# Next-Gen ATS: Realisations

- RF systems (1MHz ÷ 50GHz)
- Digital, analog and mixed signal systems (functional testing)
- High power systems (energy and distribution)
- Device characterisation (semiconductor)



Company: ATE Expertise





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